

Public Works / Finance Committee



Regular Meeting ~Agenda~

www.ci.moscow.id.us

Laurie M. Hopkins
City Clerk

208.883.7015

**Monday, September 14,
2026**

4:00 PM

**Council Chambers
206 E. Third St.**

The Moscow Mayor, City Council and Staff welcome you to today's meeting. We appreciate and encourage public participation. For regular agenda items, an opportunity for public comment is sometimes provided after the staff report. However, the formality of procedures varies with the purpose and subject of the agenda item and limitations may be placed on the time allowed for comments. If you plan to address the Committee, you will find a list of "Tips for Addressing the Council" in the door pocket outside the City Council Chambers. Please note that council committee meetings are televised, videotaped and/or recorded. Links to view the City Council meeting live can be found on the City website and the City's YouTube channel. Thank you for your interest in City government.

REGULAR AGENDA

**1. Approval of Public Works/Finance Committee August 10, 2026 Minutes (ACTION ITEM)
- Laurie M. Hopkins**

2. Disbursement Report August 2026 (ACTION ITEM) - Sarah Decker

Presentation of the Accounts Payable Report for the month ending August 2026.

ACTION: Accept the Disbursements Report for the month of August 2026.

3. East City Park Stage Replacement Project — Bid Results & Contract Award (ACTION ITEM) — David Schott

The East City Park Stage Replacement Project scope is to construct a ground-up stage structure including a 560 square foot unconditioned CMU building, concrete stage, and glued-laminated and cross-laminated timber roof structure. Site pathway revisions and site concrete and asphalt paving. The City issued an advertisement for bids published on August 1, 2026, and August 8, 2026. Formal bids were opened on August 25, 2026. A total of three bids were received. The base bids ranged from low (Mangum Construction LLC) of \$668,000 to the high (Kenaston Corp) of \$748,000. The range across all bids reflects a spread of approximately 11% between low and high bids received. The bids were near Design West Architect's estimate and very favorable in the current construction market. The FY2027 budget for the project is \$796,000, funded through Capital Funds, Improvements — Parks. Staff recommends acceptance of the base bid from Mangum Construction LLC of \$668,000 and Bid Alternate 2 of \$6,350; award the contract in the amount of \$674,350; and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount.

PROPOSED ACTIONS: Recommend acceptance of the base bid from Mangum Construction LLC of \$668,000 and Bid Alternate 2 of \$6,350; award the contract in the amount of \$674,350; and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount, or provide staff with further direction.

**4. Ordinance Amending Moscow City Code Title 4, Chapters 1, 3, and 6, Regarding
Manufactured Homes and Accessory Dwelling Units (ACTION ITEM) - Mike Ray**

Ordinance amending Moscow City Code Title 4: Land Use Regulations, Chapter 1, 3, and 6 regrading the regulations of Manufactured Homes and Accessory Dwelling Units (ADU). The proposed ordinance is intended to bring Moscow City Code into compliance with Senate Bill 1354a – Accessory Dwelling Units and House Bill 800 – Manufactured Homes that were signed into law during the 2026 Idaho Legislative Session. The Planning and Zoning Commission conducted a public hearing on the proposed ordinance on August 12, 2026, and recommended approval to City Council. The public hearing before City Council has been scheduled for September 21, 2026.

PROPOSED ACTIONS: Recommend forwarding the proposed ordinance for public hearing at the Council's upcoming September 21, 2026, meeting; or provide staff further direction.

5. Pine View Addition Final Plat (ACTION ITEM) - Mike Ray

Joe and Pam Juscen are requesting approval of the Final Plat for the Pine View Addition. On May 6, 2024, Moscow City Council approved the annexation, comprehensive plan land use designation, and zoning designation of a 22.93-acre area of land generally located east of the current terminus of Moser Street. Also included in the proposal was a preliminary subdivision plat to create 40 lots ranging from 12,077 square feet to 27,491 square feet in size, referred to as Pine View Subdivision. The application was approved by the Council with eight conditions. On October 15, 2025, the applicant submitted the final subdivision plat to be reviewed by the Planning and Zoning Commission and City Council. The Planning and Zoning Commission reviewed the final plat at their regular meeting on August 26, 2026, and recommended approval to City Council.

PROPOSED ACTIONS: Recommend approval of the Pine View Addition Final Plat; or provide staff further direction.

6. Pine View Addition Development and Monumentation Agreements (ACTION ITEM) - Bob Buvel

Pamela J. Persoon-Juscen and Joseph F. Juscen III have submitted to the City a final plat for the Pine View Addition Subdivision located east of the terminus of Moser Street. On October 15, 2025, the City Council approved the preliminary plat for this property. The final plat will be presented for City Council approval on September 21, 2026. If Council approves the final plat, development and monumentation agreements will be required. The development agreement is necessary to address construction of public improvements, parkland dedication, and the provision of as-constructed drawings. The monumentation agreement is required as the interior property corners will not be set until after the final plat has been filed, the earthwork has been completed, and the utilities have been installed. In such instances, an agreement obligating the establishment of these interior corners is required by Idaho Code. Staff has prepared both agreements for the Council's approval.

PROPOSED ACTIONS: Recommend approval of the Development and Monumentation Agreements for the Pine View Addition; deny the agreements; or provide staff with further direction.

7. Existing City Shop Renovation Project - Bid Results and Contract Award (ACTION ITEM) - Bill Belknap

The City is in the process of making a number of improvements to the City's shop facility located on North Polk Street. Those improvements have included the construction of a new shop facility to house the Fleet and Parks Departments, the construction of a new dry materials storage facility, and the renovation of the existing shop building to house the Streets and Stormwater Departments. The new City shop is nearing completion, and the dry materials storage building is complete. The City opened bids for the renovation of the existing shop building on July 30th and

received bids ranging from a low bid of \$1,074,000 to a high bid of \$1,262,000. The project cost estimate was \$997,246. Staff is recommending the award of the project to Ginno Construction of Idaho in the amount of \$1,074,000.

PROPOSED ACTIONS: Recommend acceptance of the base bid from Ginno Construction of Idaho, Inc., and award the contract in the amount of \$1,074,000 and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount, or provide staff with further direction.

ADJOURN

NOTICE: It is the policy of the City of Moscow that all City-sponsored public meetings and events are accessible to all people. If you need assistance in participating in this meeting or event due to a disability under the ADA, please contact the City's ADA Coordinator by phone at (208) 883-7600, TDD (208) 883-7019, or by email at adacoordinator@ci.moscow.id.us at least 48 hours prior to the scheduled meeting or event to request an accommodation. The City of Moscow is committed to ensuring that all reasonable accommodation requests are fulfilled.

Public Works / Finance Committee



Regular Meeting ~Minutes~

Laurie M. Hopkins
City Clerk

www.ci.moscow.id.us

208.883.7015

Monday, August 10, 2026

4:00 PM

**Council Chambers
206 E. Third St.**

The meeting was called to order at 4:00 p.m.

PRESENT: Drew Davis, Evan Holmes, Sandra Kelly

OTHERS: Mayor Hailey Lewis

STAFF: Bill Belknap, Mia Bautista, Nichoel Baird Spencer, Luke Hajda, Scott Bontrager, Mark Lindsay, Laurie M. Hopkins

REGULAR AGENDA

1. Approval of Public Works/Finance Committee July 13, 2026 Minutes (ACTION ITEM) - Laurie M. Hopkins

The minutes were approved as presented.

2. Disbursement Report July 2026 (ACTION ITEM) - Sarah Decker

Presentation of the Accounts Payable Report for the month ending July 2026.

ACTION: Accept the Disbursements Report for the month of July 2026.

Decker presented the disbursement report and provided details on the major expenses including payroll, refund of a development warranty security, WRRF effluent pump station project, quarterly Whitcom payment, professional services payment for WRRF effluent dewatering project, and a North/South Mountain View construction payment. The Committee accepted the report and that it be placed on the Council consent agenda.

Holmes asked about fuel expenditures. Palmer said expenditures are still within the budget and do not anticipate going over budget.

3. South HWY 95 Pathway Extension - Bid Results & Contract Award (ACTION ITEM) - Luke Hajda

The South HWY 95 Pathway Extension's Project scope is to connect an existing shared-use path on Reisenauer Rd (adjacent to the Schweitzer Engineering Laboratories property) north to an existing sidewalk section on US-95. The project is to construct a ten-foot wide shared-use path from Reisenauer Rd to the existing sidewalk. The City sent out a semi-formal request for bids on July 17, 2026, and the Engineer's Estimate for construction was \$145,449.00. Bids were opened July 23, 2026. The City received one bid in the amount of \$141,263.70 from Motley-Motley, Inc. of Pullman, WA. A bid tabulation is included in the packet.

PROPOSED ACTIONS: Recommend acceptance of the bid from Motley-Motley, Inc, award the contract in the amount of \$141,263.70 and authorize staff approval of construction change orders in an amount not to exceed 10% of the contract amount, or provide staff with further direction.

Lindsay provided illustration of the location which is adjacent to Highway 95 South. The shared use path includes ADA pedestrian facilities. Also included are some minor stormwater improvements to prevent creek overflow. A manhole will be installed to connect a culvert underneath the path.

Hajda explained that the City applied for an ITD right-of-way permit which was originally denied. The City appealed and ITD accepted the appeal and approved the permit.

It was a semi formal bid process and was an expedited project. Staff met with Motley and if approved by council, Staff anticipate the project beginning in September with approximately 2 weeks for construction.

The Committee recommended approval and that it be placed on the Council consent agenda.

4. Cooperative Agreement for Future Traffic Signal Installation (ACTION ITEM) - Nichoel Baird Spencer

In 2025, the City of Moscow entered into a development agreement with the developers of the SOMO development in south Moscow, which included the collection of the developers' proportionate share fee toward the cost of the future traffic signal installation at the intersection of Somo Drive/Reisenauer Road and U.S. Highway 95. The Idaho Transportation Department (ITD) has requested that the City enter into an agreement to convey the collected fees to ITD at the time the signal is installed. Staff has prepared an agreement for the Council's review approval.

PROPOSED ACTIONS: Recommend approval of the Cooperative Agreement, or provide staff further direction.

Baird Spencer introduced the item as written above. SOMO will deposit funds to City. The proportionate share agreement from ITD was estimated at \$64, 284. The City holds the funds until ITD is ready to install the signal at which time the funds will be turned over to ITD. In planning terms the signal is anticipated to be installed in 5-10 years. Palmer added that with the development being seen in the area he anticipates seeing warrants for the light in the coming years.

The Committee recommended approval and that it be placed on the Council consent agenda.

ADJOURN

The meeting closed at 4:12 p.m.

COMMITTEE / CITY COUNCIL STAFF REPORT

DATE: Monday, September 14, 2026



AGENDA ITEM TITLE

Disbursement Report August 2026 (ACTION ITEM) - Sarah Decker

RESPONSIBLE STAFF

Sarah Decker, Director of Finance & Employee Services

ADDITIONAL PRESENTER(S)

DESCRIPTION

Accounts Payable Report for the month ending August 31st, 2026. A summary of the major expenditures has been approximated by category and represents 97% of the total expenditure of \$5,188,355.32.

Payroll	\$1,574,182.00
Professional Services	\$80,533.00
Sanitation	\$427,889.00
Capital Outlay	\$255,651.00
Capital Outlay - Improvement	\$1,584,103.00
Capital Outlay - Buildings	\$717,612.00
Supplies	\$75,231.00
Utilities	\$102,939.00
Contractual Payments	\$180,283.00
ACH Wells Fargo	\$56,348.00
Total	\$5,054,771.00

REVIEWED BY

PROPOSED ACTIONS

ACTION: Accept the Disbursements Report for the month of August 2026.

STAFF RECOMMENDATION

Accept the Disbursements Report for the month of August 2026.

OTHER RESOURCES

FISCAL IMPACT

PERSONNEL IMPACT

ATTACHMENTS

1. August Revenue Report 2026
2. Cash & Investments Balances - August 2026

3. Disbursement Report August 2026
4. Major Expenditures Report August 2026

RECEIPTS REPORT FOR AUGUST 2026

Fund #	FUND NAME	Taxes	Franchise Fees	Licenses & Permits	Intergovernmental	Charges for Services	Fines & Penalties	Investment Income	Refunds & Reimbursements	Contributions & Donations	Other	Grand Total
101	GENERAL	66,033.23	124,878.82	63,365.54	92,728.00	151,863.29	17,293.11	318,020.89	73,534.70	1,520.00	5,314.75	914,552.33
105	STREETS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1,188.48	0.00	0.00	1,188.48
120	RECREATION AND CULTURE	0.00	0.00	0.00	0.00	76,127.63	0.00	0.00	-277.53	-41.26	-14.63	75,794.21
121	MSD COMMUNITY PLAY FIELDS	0.00	0.00	0.00	10,628.34	0.00	0.00	0.00	0.00	0.00	0.00	10,628.34
123	1912 CENTER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
128	TRANSIT CENTER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
220	WATER	0.00	0.00	0.00	0.00	970,545.94	0.00	1,847.33	17,115.49	0.00	0.00	989,508.76
230	SEWER	0.00	0.00	0.00	0.00	734,713.30	0.00	1,576.91	278.00	0.00	0.00	736,568.21
235	STORMWATER	0.00	0.00	0.00	0.00	51,958.14	0.00	0.00	0.00	0.00	0.00	51,958.14
240	SANITATION	0.00	0.00	0.00	0.00	498,911.77	0.00	0.00	0.00	0.00	0.00	498,911.77
290	FLEET	0.00	0.00	0.00	0.00	70,083.81	0.00	0.00	-47.15	0.00	0.00	70,036.66
295	INFORMATION SYSTEMS	0.00	0.00	0.00	0.00	139,172.45	0.00	0.00	0.00	0.00	0.00	139,172.45
320	WATER CAPITAL PROJECTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
330	SEWER CAPITAL PROJECTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
335	STORMWATER CAPITAL FUND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
340	SANITATION CAPITAL PROJECTS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
350	CAPITAL PROJECTS	0.00	0.00	-927.00	0.00	0.00	0.00	25,418.35	0.00	0.00	0.00	24,491.35
380	HAMILTON P&R	0.00	0.00	0.00	0.00	0.00	0.00	2,434.71	0.00	0.00	0.00	2,434.71
590	BOND & INTEREST	8,476.76	0.00	0.00	0.00	0.00	0.00	2,328.54	0.00	0.00	0.00	10,805.30
	TOTAL	74,509.99	124,878.82	62,438.54	103,356.34	2,693,376.33	17,293.11	351,626.73	91,791.99	1,478.74	5,300.12	3,526,050.71

City of Moscow
Cash and Investments
Balances as of 8/31/2026

Fund	Year to Date Balance
General Fund	\$ 7,706,131.84
Street Fund	\$ 2,775,487.96
Recreation & Culture	\$ 1,577,513.50
MSDCP	\$ 198,146.15
1912 Fund	\$ 49,472.23
Transit Center	\$ 39,791.07
Water Fund	\$ 2,293,545.45
Sewer Fund	\$ 3,645,667.57
Stormwater Fund	\$ 715,628.53
Sanitation Fund	\$ 2,345,399.63
Fleet Fund	\$ 6,268,361.85
Information Systems	\$ 2,042,295.22
Water Capital	\$ 12,944,674.87
Sewer Capital	\$ 29,095,166.12
Stormwater Capital	\$ 524,631.41
Sanitation Capital	\$ 11,815,058.26
Capital Projects	\$ 16,362,149.95
LID Construction	\$ -
Hamilton	\$ 793,207.55
Bond & Interest	\$ 582,076.37
LID Funds	\$ -
Payroll Service	\$ 1,325,954.50
Total Cash & Investments	\$ 103,100,360.03

DISBURSEMENTS REPORT FOR AUGUST 2026											
DATE	FUND NAME	ACCOUNTS PAYABLE	ACCOUNTS PAYABLE	ACCOUNTS PAYABLE	ACCOUNTS PAYABLE	WELLSFARGO CC ACH	ACCOUNTS PAYABLE ACH	VOID CHECKS	PAYROLL	PAYROLL	GRAND TOTALS
		8/5/2026	8/12/2026	8/19/2026	8/26/2026	8/20/2026	8/12/2026	8/26/2026	8/7/2026	8/21/2026	
		AP 8.5.2026	AP 8.12.2026	AP 8.19.2026	AP 8.26.26	8/31/2026 AP 8.7.2026 AP 8.21.2026	AP 8.12.2026	AP 8.26.2026	PR 195-196	PR197	
CHECK #'s		117130-117206	117207-117297	117298-117332	117333-117407	August's CC ACH's	August's ACH's	117163	21719-21720	21721	
Fund #											
101	ACH for Wells Fargo to be Imported					11,663.71					11,663.71
105	GENERAL	26,695.21	32,461.46	9,358.67	35,148.42	19,522.00		(1,300.00)	410,901.85	435,908.52	968,696.13
120	STREETS	39,547.71	3,592.03	2,775.00	4,572.55	434.88			30,614.54	32,445.24	113,981.95
121	RECREATION AND CULTURE	20,482.52	13,039.71	9,867.29	2,692.40	6,933.02			141,863.22	134,585.15	329,463.31
123	MSD COMM. PLAY FIELDS	1,528.38	730.65						2,328.63	2,413.28	7,000.94
128	1912 CENTER			10,750.00							10,750.00
220	TRANSIT CENTER	585.85	119.12	1,012.09	1,515.11						3,232.17
230	WATER	74,222.11	21,687.06	40,265.61	11,432.49	4,766.53	134,099.70		61,215.57	65,170.08	412,859.15
235	SEWER	61,426.59	14,538.25	9,233.87	25,626.82	2,396.77	22,102.94		63,341.02	64,913.73	263,579.99
240	STORMWATER	358.14	1,578.66	4,505.36	630.92				22,591.85	21,987.12	51,652.05
290	SANITATION		166,683.54	7.61			239,102.97		4,312.27	4,365.48	414,471.87
295	FLEET	17,515.99	5,558.67	1,166.34	207.55	219.29			16,239.29	16,049.90	56,957.03
320	INFORMATION SYSTEMS				24,929.74	10,411.33			23,446.08	19,489.28	78,276.43
330	WATER CAPITAL PROJECTS	18,860.92		16,825.05							35,685.97
335	SEWER CAPITAL PROJECTS	1,216,084.63	166,262.84	20,202.56	79,586.03						1,482,136.06
340	STORMWATER CAPITAL PROJECTS										0.00
350	SANITATION CAPITAL PROJ										0.00
355	CAPITAL PROJECTS	316,336.73	209,898.65	277,780.09	143,933.09						947,948.56
380	LID CONSTRUCTION										0.00
590	HAMILTON - PARKS & REC										0.00
	BONDS & INTEREST										0.00
	TOTAL	1,793,644.78	636,150.64	403,749.54	330,275.12	56,347.53	395,305.61	(1,300.00)	776,854.32	797,327.78	5,188,355.32

Major Expenditures for August 2026

<u>Professional Service</u>		<u>Sanitation</u>		<u>Utilities</u>	
Cherle Patricia Poulson	\$ 3,773.47	Finlev Buttes Landfill	\$ 157,312.90	Avista Utilities	\$ 102,938.65
Tone and Stretch May-July 2026		MSW Transport & Disposal - July 2026		July 2026	
Analytical Laboratories, Inc.	\$ 2,510.40	Finlev Buttes Landfill	\$ 9,370.64	Total:	\$ 102,938.65
WETT Testing Compliance		Fuel Relief July 2026			
Bowman Consulting Group, LTD.	\$ 3,234.49	Latah Sanitation (ACH Payment)	\$ 261,205.91		
Rate study		Monthly LSI Billing for July 2026			
Evcar, Inc.	\$ 8,210.00	Total:	\$ 427,889.45	<u>Payroll</u>	\$ 1,574,182.10
Janitorial Services - August 2026					
HDR Engineering, Inc.	\$ 12,068.40			<u>Contractual Payments</u>	
Water Supply Project		<u>Supplies</u>		Moscow Volunteer Fire Department	\$ 1,750.00
Matrix Consulting Group	\$ 17,405.00	Chipman & Taylor Chevrolet	\$ 8,516.38	Humane Society of the Palouse	\$ 4,991.62
Invoice 3 for EMS Study		New transmission torque converter flush cooler on #5-07 (Fire)		Gallagher Benefit Services	\$ 3,333.33
GG Gutters, Inc.	\$ 6,220.76	Endress + Hauser USA	\$ 5,262.80	Heart of the Arts, Inc.	\$ 10,750.00
Janitorial Services - August 2026		Chemical flow meter for Well #6		CivicPlus, LLC - Ultimate Annual Fee- ADFS, etc.	\$ 18,788.06
Metroquip, Inc.	\$ 4,124.39	Filtration Technology, Inc.	\$ 2,806.57	Department of Environmental Quality - ACH payment	\$ 134,099.70
Stormwater Inspection CCTV Repair		Filters for the MIOX units		Infosend, Inc.	\$ 3,810.52
J-U-B Engineers, Inc.	\$ 6,686.18	Filtration Technology, Inc.	\$ 14,803.00	Avista Utilities - Light & Electric Service Agreement - SOMO Dr.	\$ 2,760.00
Flow Monitoring		Salt for the MIOX units		Total:	\$ 180,283.23
Lake City Law	\$ 13,500.00	Geveko Markings, Inc.	\$ 6,163.21		
Professional Services		White line for pavement markings			
Latitude Land Surveing, LLC	\$ 2,800.00	Oxarc, Inc.	\$ 5,395.96	<u>ACH Wells Fargo</u>	
Survey for NW Tank area		Chlorine and SO2		Commercial Card Expense - August 7th	\$ 10,787.11
Total:	\$ 80,533.09	Cleanova US, Inc.	\$ 5,202.40	Commercial Card Expense - August 14th	\$ 19,521.95
		Clarifier Parts		Commercial Card Expense - August 21st	\$ 14,374.76
		Integrity Electric and Construction	\$ 5,650.00	Commercial Card Expense - August 28th	\$ 11,663.71
		FS2 Electrical Panel Upgrade		Total:	\$ 56,347.53
<u>Capital Outlay-Improvement</u>		Motley-Motley, Inc.	\$ 3,750.95		
Apollo, Inc.	\$ 1,193,437.50	Hot mix asphalt		<u>Capital Outlay</u>	
Pay App #2 for WRF IPS Replacement Project		Pre-Mix, Inc.	\$ 5,500.00	Amazon Capital Services	\$ 2,692.85
Carpet Mill, LLC	\$ 12,151.00	Concrete Sealing		Generator for First Responder trailer	
FS2 LVT Flooring Install		Thatcher Company of Montana	\$ 12,180.17	DW Excavating, Inc.	\$ 69,076.13
Design West Architects	\$ 7,270.00	Aluminum Sulfate		Palouse Mall Lift Station Project Pay App #1	
East City Park stage consulting services pay app #6		Total:	\$ 75,231.44	DW Excavating, Inc.	\$ 97,186.71
Integrity Inspection Solutions, Inc.	\$ 38,435.00			Palouse Mall Lift Station Project Pay App #2	
Reissue - D St CIPP		<u>Capital Outlay-Buildings</u>		Ferguson Waterworks	\$ 3,789.89
Doug Gadwa	\$ 14,814.31	Wellens General Contractor	\$ 350,574.78	Service line parts for Harvest Hills	
Administrative Settlement for 1400 Sand Road ROW - Sand Road Bridge Project 2026		City Shop Pay App #16		Ferguson Waterworks	\$ 25,661.44
LaRiviere, Inc.	\$ 194,157.34	Wellens General Contractor	\$ 312,733.21	Meter/service line parts for Harvest Hills	
Pay App #2 for North & South Mountain View Pedestrian Improvements Project		Moscow City Shop Pay App #17		Ferguson Waterworks	\$ 8,019.04
Alta Science and Engineering, Inc.	\$ 69,400.83	Uline	\$ 54,303.89	Meter/service line parts for South Gate	
Progress Report #34 for South Main Pedestrian Underpass TAP Design		Shelving and equipment for new City Shop		Ardurra Group, Inc.	\$ 28,885.99
J-U-B Engineers, Inc.	\$ 45,660.00	Total:	\$ 717,611.88	Palouse Mall Lift Station - Professional Services for July 2026 - Task 2/Phase 1	
Prof. Svcs WRF Effluent Filtration, Dewatering System & Disinfection Improv. - 7/2026				D P Dunlap Construction, LLC	\$ 16,273.50
J-U-B Engineers, Inc.	\$ 5,040.04			Sidewalk Program 2026	
WRF Facility Improvements - IPS Replacement - TO#25_Task#3 July 2026				Ferguson Waterworks	\$ 4,065.60
Omega Electric	\$ 3,737.20			New meter boxes for the Southgate project	
Ghormley lighting repair				Total:	\$ 255,651.15
Total:	\$ 1,584,103.22				

Major Expenditures		\$ 5,054,771.74	97%	of the total expenditures of	\$5,188,355.32
Large Expenditures					
Apollo, Inc.	\$ 1,193,437.50	Wellens General Contractor	\$ 350,574.78	Department of Environmental Quality - ACH payment	\$ 134,099.70
Pay App #2 for WRF IPS Replacement Project		City Shop Pay App #16		Drinking water loan #DW1406F (2024)	
LaRiviere, Inc.	\$ 194,157.34	Wellens General Contractor	\$ 312,733.21	DW Excavating, Inc.	\$ 69,076.13
Pay App #2 for North & South Mountain View Pedestrian Improvements Project		Moscow City Shop Pay App #17		Palouse Mall Lift Station Project Pay App #1	
Alta Science and Engineering, Inc.	\$ 69,400.83	Uline	\$ 54,303.89	DW Excavating, Inc.	\$ 97,186.71
Progress Report #34 for South Main Pedestrian Underpass TAP Design		Shelving and equipment for new City Shop		Palouse Mall Lift Station Project Pay App #2	
				Large Expenditures total:	\$ 2,474,970.09

COMMITTEE / CITY COUNCIL STAFF REPORT

DATE: Monday, September 14, 2026



AGENDA ITEM TITLE

East City Park Stage Replacement Project — Bid Results & Contract Award (ACTION ITEM) — David Schott

RESPONSIBLE STAFF

David Schott, Parks and Facilities Manager

ADDITIONAL PRESENTER(S)

DESCRIPTION

The East City Park Stage Replacement Project scope is to construct a ground-up stage structure including a 560 square foot unconditioned CMU building, concrete stage, and glued-laminated and cross-laminated timber roof structure. Site pathway revisions and site concrete and asphalt paving.

The City issued an advertisement for bids published on August 1, 2026, and August 8, 2026. Formal bids were opened on August 25, 2026. A total of three bids were received: from Kenaston Corporation, Mangum Construction LLC, Leone & Keeble Inc. The base bids ranged from low (Mangum Construction LLC) of \$668,000 to the high (Kenaston Corp) of \$748,000. The range across all bids reflects a spread of approximately 11% between low and high bids received. The bids were near Design West Architect's estimate and very favorable in the current construction market. The construction estimate of \$783,184 was ~17% higher than the low bid amount and ~10% from the average of all bids.

The results for the bid alternates are as follows. Bid Alternate 1 for the concrete dancer's plaza had a low bid of \$10,475 (Mangum) and high bid of \$18,000 (Kenaston) for a spread of 56%. Bid Alternate 2 for the widened circulation path had a low bid of \$6,350 (Mangum) and a high bid of \$10,000 (Kenaston) for a spread of 45%. Bid Alternate 3, 400A main breaker panel, had a low bid of \$25,000 (Leone & Keeble) and a high of \$29,000 (Kenaston). Staff is recommending acceptance of Bid Alternate 2 for the widened circulation path and rejection of Bid Alternate 1, dancer's plaza, and Bid Alternate 3, 400A main breaker panel.

The FY2027 budget for the project is \$796,000, funded through Capital Funds, Improvements — Parks.

REVIEWED BY

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend acceptance of the base bid from Mangum Construction LLC of \$668,000 and Bid Alternate 2 of \$6,350; award the contract in the amount of \$674,350; and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount, or provide staff with further direction.

STAFF RECOMMENDATION

Recommend acceptance of the base bid from Mangum Construction LLC of \$668,000 and Bid Alternate 2 of \$6,350; award the contract in the amount of \$674,350; and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount.

OTHER RESOURCES

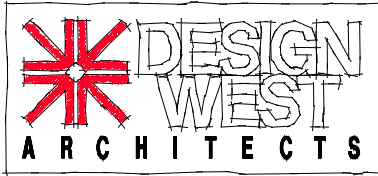
FISCAL IMPACT

The East City Park Stage Replacement Project is funded through Capital Funds, Improvements — Parks.

PERSONNEL IMPACT

ATTACHMENTS

1. 25101 - Design West ECP Stage Bid Review Memo & Bid Tally
2. Construction Agreement Mangum Construction_stage_final with attachments



254 EAST MAIN STREET
PULLMAN, WASHINGTON 99163
TEL: (509) 332-3113
FAX: (509) 332-3327

TRANSMITTAL

DATE: 25 August, 2026

PROJECT: Moscow – East City Park Stage

TO: David Schott - Parks & Facilities
Manager, Bill Belknap - City
Administrator, Tyler Palmer – Deputy
City Administrator, Laurie Hopkins –
City Clerk

FROM: Brian Edwards

RE: Bid Review Summary

COPIES: File: #25101/7.0

VIA: ☐ Fax ☐ Mail ☐ UPS ☐ Hand ☒ Other: e-mail

MESSAGE OR CONTENTS:

David,

As you are aware, the Moscow East City Park Stage Replacement project bid on 8.25.26. A total of three bids were received: from Kenaston Corporation, Mangum Construction LLC, Leone & Keeble Inc. The bid results were favorable. No formal objections were raised by the bidders present for the bid opening.

The base bids ranged from low (Mangum Construction LLC) of \$668,000 to the high (Kenaston Corp) of \$748,000. The range across all bids reflects a spread of approximately 11% between low and high bids received. This range is considered a competitive bid result. Considering the current market conditions and the number of bidders, we consider this to be a fair and proper result.

The bids were near the design team's estimate and very favorable in the current construction market. The Construction Estimate of \$783,184 was ~17% higher than the low bid amount and ~10% from the average of all bids.

The results for the bid alternates are as follows. Bid Alternate 1 for the concrete dancer's plaza had a low bid of \$10,475 (Mangum) and high bid of \$18,000 (Kenaston) for a spread of 56%. Bid Alternate 2 for the widened circulation path had a low bid of \$6,350 (Mangum) and a high bid of \$10,000 (Kenaston) for a spread of 45%. Bid Alternate 3 had a low bid of \$25,000 (Leone & Keeble) and a high of \$29,000 (Kenaston). Since all bidders listed the same electrical subcontractor the differences likely come from differing OH&P amounts.

The sum of the average of the bid alternates totaled \$48,808.67 and was near the design team's estimate of \$45,800. The spread of base bid + alternates ranged from \$712,825 (Mangum) to \$805,000 (Kenaston).

Design West Architects knows all of the General Contractors that submitted bids to be qualified and well-regarded contractors with whom Design West has worked on previous projects. We know of no reason to disqualify the low bidder or any of the bidders.

Please share this information with your constituencies as you see fit. Please let me know if you have any questions or comments.

Thank you,

Brian Edwards, Architect

City of Moscow
East City Park
Stage Replacement
BID TAB FORM

General Contractor	Addendum #1	Addendum #2	Bid Bond	Base Bid	Alternate 1: Concrete Dancer Plaza	Alternate 2: Widened concrete circulation path	Alternate 3: Service Entrance Rated Service Panelboard With 400A Main Breaker Panel	Sub Contractors
Kenaston Corporation	x	x	x	\$748,000	\$18,000	\$10,000	\$29,000	Electrical: Gropp
								Plumbing: Hilliards
Mangum Construction LLC	x	x	x	\$668,000	\$10,475	\$6,350	\$28,000	Electrical: Gropp
								Plumbing: AA Construction
Leone & Keeble Inc.	x	x	x	\$710,500	\$11,700	\$7,900	\$25,000	Electrical: Gropp
								Plumbing: Hilliards

**CONSTRUCTION AGREEMENT
FOR MOSCOW EAST CITY PARK
STAGE REPLACEMENT
BETWEEN CITY OF MOSCOW, IDAHO
AND MANGUM CONSTRUCTION LLC**

THIS CONSTRUCTION AGREEMENT FOR MOSCOW EAST CITY PARK STAGE REPLACEMENT BETWEEN CITY OF MOSCOW, IDAHO, AND MANGUM CONSTRUCTION LLC (hereinafter "Agreement"), dated this _____ day of _____, 2026, is made by and between City of Moscow, Idaho, a municipal corporation of the State of Idaho, 206 East Third Street, Moscow, Idaho, 83843 (hereinafter "CITY"), and Mangum Construction LLC, 1451 Bridge Street, Clarkson, Washington, 99403 (hereinafter "CONTRACTOR").

WITNESSETH:

WHEREAS, pursuant to the invitation of CITY, extended through an "Invitation to Bid", see Attachment "A", CONTRACTOR submitted a Bid Proposal containing an offer invited by said invitation; and

WHEREAS, CITY has determined that said offer was the lowest responsive Bid Proposal; and

WHEREAS, CITY has accepted CONTRACTOR's Bid Proposal; and

WHEREAS, CITY has accepted Alternate No. 2 – Widened concrete circulation path;

NOW THEREFORE, the Parties to this Agreement, in consideration of the mutual covenants and stipulations set out, agree as follows:

**ARTICLE 1.
CONTRACT DOCUMENTS**

The Contract Documents which comprise the entire Agreement between CITY and CONTRACTOR concerning the work to be performed, are this Agreement, pages one (1) through eight (8) and the following:

1. Project Manual for Moscow East City Park Stage Replacement, Attachment "A", consisting of 249 pages;
2. Moscow East City Park Stage Replacement Plan Set 07.31.26, Attachment "B", consisting of 25 pages;
3. Bid Proposal of CONTRACTOR, dated August 25, 2026, Attachment "C", consisting of 10 pages;
4. Performance and Payment Bonds and Insurance Certificates;
5. Addendum NO. 1, Attachment "D", consisting of 10 pages;
6. Addendum NO. 2, Attachment "E", consisting of 15 pages and
7. Change Orders, which may be delivered or issued after the effective date of this Agreement.

There are no Contract Documents other than those listed in Article 1. This Agreement may only be amended by change order as provided in the General Conditions of Attachment "A".

ARTICLE 2. WORK

CONTRACTOR shall complete the entire work as specified, indicated and required under the Contract Documents, contained herein under Article 1. for CITY project (hereinafter "Project") titled:

MOSCOW EAST CITY PARK STAGE REPLACEMENT

ARTICLE 3. CONTRACT TIME/SUBSTANTIAL COMPLETION

The work to be performed pursuant to this Agreement shall be substantially completed within one hundred fifty one (151) calendar days from commencement of construction, and reach substantial completion no later than March 7, 2027, unless adjustment of the Agreement time is made in accordance with the provisions of the Contract Documents. CONTRACTOR shall begin work in conformance with the Contract Documents.

CONTRACTOR and CITY recognize that time is of the essence and that CITY will suffer financial loss if the Project is not completed within the time specified above, unless approved extensions thereof are permitted in accordance with the terms of the Contract Documents. The Parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by CITY if the Project is not completed on time. Accordingly, instead of requiring any such proof, CITY and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay CITY One Half of One Percent (0.5%) of the Contract Sum for each day that expires after the time specified above for Substantial Completion until the Project is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Project within the Time of Completion or by any proper extension thereof granted by CITY, CONTRACTOR shall pay CITY One Half of One Percent (0.5%) of the Contract Sum for each day that expires after the time specified above for completion, until the Project is completed and ready for final payment.

ARTICLE 4. CONTRACT SUM

CITY shall pay CONTRACTOR for completion of the work for the Project in accordance with the Contract Documents in current funds in the amount of Six Hundred Seventy-Four Thousand, Three Hundred Fifty Dollars (\$674,350), as submitted by CONTRACTOR. This amount includes the base proposal in the amount of \$668,000 plus bid alternate no. 2 in the amount of \$6,350. In no event shall the Contract amount exceed CONTRACTOR's bid amount of \$674,350, unless otherwise authorized by CITY by written agreement. Said Contract Sum shall be paid in accordance with the Contract Documents.

CONTRACTOR shall provide an initial Schedule of Values for review, and each month will submit a Payment Application to match the Schedule of Values data as a portion of completion of

each item. CONTRACTOR will bill to 95% with 5% withheld for retainage to be released as a final pay application after the maximum billing of 95%. CITY shall, within thirty (30) days of receiving such payment application, review the application and pay all approved charges thereon.

ARTICLE 5. TERMINATION

Termination provisions are governed by the attached Contract Documents.

ARTICLE 6. INDEPENDENT CONTRACTOR

The Parties warrant by their signatures that no employer-employee relationship is established between CONTRACTOR and CITY by the terms of this Agreement. It is understood by the Parties hereto that CONTRACTOR is an independent contractor and, as such, neither CONTRACTOR nor CONTRACTOR's employees, agents, representatives or subcontractors, if any, are employees of CITY for any purpose, including for purposes of tax, retirement system, and social security (FICA) withholding.

ARTICLE 7. SCOPE OF SERVICES

CONTRACTOR shall perform all work required by the Contract Documents. All work shall be completed in accordance with the specifications and plans established for this Project.

ARTICLE 8. HOLD HARMLESS/INDEMNIFICATION

In addition to other rights granted to CITY by the Contract Documents, CONTRACTOR agrees to indemnify, defend, and hold harmless CITY, its officers, agents, employees, and engineers, from and against any and all losses, lawsuits, actions, claims, judgements for damages, or any injuries or damages received or sustained by any person, persons, or property, and losses, expenses, and other costs, including litigation costs and attorney's fees, arising out of, resulting from, or in connection with the acts, performances, activities, errors or omissions by CONTRACTOR, CONTRACTOR's servants, agents, officers, employees, representatives, guests, business invitees or its subcontractors; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any claims or amounts recovered from any infringements of patent, trademark or copyright; or from any claims or amounts arising out of or recovered under the Workers' Compensation Act or any other law, ordinance, order, or decree.

ARTICLE 9. CONFLICT OF INTEREST

CONTRACTOR covenants that it presently has no interest and will not acquire any interest, direct or indirect, in the Project, which would conflict in any manner or degree with the performance of CONTRACTOR's services hereunder. CONTRACTOR further covenants that, in performing this Agreement, CONTRACTOR will employ no person who has any such interest. Should any conflict

of interest arise during the performance of this Agreement, CONTRACTOR shall immediately disclose such conflict to CITY.

ARTICLE 10.

ENTIRE AGREEMENT, MODIFICATION AND ASSIGNABILITY

This Agreement and the attachments hereto contain the entire Agreement between the Parties, and no statements, promises, or inducements made by either Party, or agents of either Party are valid or binding unless contained herein. This Agreement may not be enlarged, modified or altered except upon written agreement signed by the Parties hereto. CONTRACTOR may not subcontract or assign its rights (including the right to compensation) or duties arising hereunder, other than as provided within the Contract Documents, without the prior written consent and express authorization of CITY.

ARTICLE 11.

LICENSES AND ADHERENCE TO LAW REQUIRED

CONTRACTOR represents that it possesses the skill and experience necessary and all licenses required to perform the services under this Agreement. CONTRACTOR further agrees to comply with all applicable Federal, State and Local statutes and regulations in the performance of the services hereunder, and are hereby made a part of this Agreement and shall be adhered to at all times. Violation of any of these statutes or regulations by CONTRACTOR shall be deemed material and shall subject CONTRACTOR to termination of this Agreement for cause. No pleas of misunderstanding or ignorance on the part of CONTRACTOR will, in any way, serve to modify the provisions of this requirement. CONTRACTOR and its surety shall indemnify, defend and hold harmless CITY and its employees, agents, engineers and representatives against any claim or liability arising from or based on the violation of any such laws, codes, ordinances, or regulations, whether by CONTRACTOR, CONTRACTOR's employees, or its subcontractors.

Anti-Boycott Against Israel Act. CONTRACTOR certifies it is not currently engaged in, and will not for the duration of this Agreement engage in, a boycott of goods and services from Israel or territories under its control. Failure to comply with Idaho Code § 67-2346 will result in this Agreement being void as against public policy.

Ownership or Operation by China. Pursuant to Idaho Code § 67-2359, CONTRACTOR certifies that it is not currently owned or operated by the government of China and will not for the duration of this Agreement be owned or operated by the government of China. The terms in this section defined in Idaho Code § 67-2359 shall have the meaning defined therein.

Employment of Residents of Idaho. Pursuant to Idaho Code § 44-1001, CONTRACTOR certifies that it will employ ninety-five percent (95%) bona fide Idaho residents, as that term is defined in Idaho Code § 44-1003, as employees for the completion of the terms required in this Agreement. If CONTRACTOR employs less than fifty (50) employees on this Project, CONTRACTOR may employ up to ten percent (10%) nonresidents for the completion of the terms required in this Agreement. In all cases, CONTRACTOR agrees to give a preference to bona fide Idaho residents. The Parties agree that if Project involves the expenditure of federal aid funds, that this clause will not be enforced in a manner that conflicts with federal statutes prescribing a labor preference for veterans or prohibiting unlawful discrimination or preferences among United States citizens.

Not an Abortion Provider or Affiliate. Pursuant to Idaho Code Title 18 Chapter 87, CONTRACTOR certifies that it is not an abortion provider or an affiliate of any abortion provider and does not, and will not for the duration of this Agreement, authorize the use of state facilities or public funds for abortion related activity.

Anti-Boycott of Certain Sectors. Pursuant to Idaho Code § 67-2347A, CONTRACTOR certifies that it is not engaged in, and will not for the duration of this Agreement engage in, a boycott of any individual or company because the individual or company 1) engages in or supports the exploration, production, utilization, transportation, sale or manufacture of fossil fuel-based energy, timber, minerals, hydroelectric power, nuclear power, or agriculture or 2) engages in or supports the manufacture, distribution, sale, or use of firearms, as defined in Idaho Code § 18-3302 (2)(d).

ARTICLE 12. EMPLOYMENT DISCRIMINATION

It is illegal under the U.S. Federal law to discriminate against an employee, either intentionally or through disparate impact, on account of race, color, gender, religion, sex (including pregnancy), national origin, disability or genetic information, age (40 and older), marital or familial status, sexual orientation, or gender identity. CONTRACTOR shall not discriminate against any employee or applicant for employment. CONTRACTOR's action under this Section shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and other applicants for employment, notices setting forth the provisions of this non-discrimination Section.

ARTICLE 13. LEGAL FEES

In the event either Party incurs legal expenses to enforce the terms and conditions of this Agreement, the prevailing Party is entitled to recover reasonable attorney's fees and other costs and expenses, whether the same are incurred with or without a lawsuit.

ARTICLE 14. JURISDICTION, VENUE AND NONWAIVER

It is agreed that this Agreement shall be construed under and governed by the laws of the State of Idaho. In the event of litigation concerning it, it is agreed that proper venue shall be the District Court of the Second Judicial District of the State of Idaho, in and for the County of Latah. Failure of CITY to exercise any of the rights under this Agreement, or breach thereof, shall not be deemed to be a waiver of such right or a waiver of any subsequent breach.

**ARTICLE 15.
SPECIAL WARRANTY**

CONTRACTOR warrants that nothing of monetary value has been given, promised or implied as remuneration or inducement to enter into this Agreement. CONTRACTOR declares that no improper personal, political or social activities have been used or attempted in an effort to influence the outcome of the competition, discussion, or negotiation leading to the award of this Agreement. Any such activity by CONTRACTOR shall make this Agreement null and void. CONTRACTOR further warrants that all materials and goods supplied under this Agreement shall be of good merchantable quality and that all services will be performed in a good skillful manner. CONTRACTOR acknowledges that it will be liable for any breach of this warranty.

**ARTICLE 16.
COMMUNICATIONS**

Such communications as are required by this Agreement shall be satisfied by mailing or by personal delivery to the Parties at the following address:

CONTRACTOR:

Mangum Construction LLC
Marshall Mangum
1451 Bridge Street
Clarkston, WA 99403

CITY:

City of Moscow
Parks and Facilities Manager
206 East Third Street
PO Box 9203
Moscow, ID 83843

**ARTICLE 17.
NON-APPROPRIATIONS**

This Agreement is contingent upon CITY receiving the necessary funding to cover the obligations of CITY. In the event that such funding is not received or appropriated, then, and in that event, CITY's obligations under this Agreement shall cease and each Party shall be released from further performance under this Agreement without any liability to the other Party, and CONTRACTOR shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder.

**ARTICLE 18.
APPROVAL REQUIRED AND SEVERABILITY**

This Agreement shall not become effective or binding until approved by CITY. The terms of this Agreement shall be deemed severable. If any part of this Agreement is held invalid or unenforceable by a court of competent jurisdiction or due to a change in law, the remaining portions of the Agreement will, nevertheless, remain in full force and effect so long as the remainder of this Agreement is capable of completion.

ARTICLE 19.
DRUG/TOBACCO FREE FACILITIES

All CITY facilities are drug and tobacco free facilities. Any drug and/or tobacco use (smoked or smokeless) is prohibited at all times on all areas of CITY facilities.

ARTICLE 20.
HEADINGS, TITLES AND CAPTIONS

Headings, captions, and titles of sections of this Agreement are for the convenience of reference only, and are not intended to define, limit, or describe the scope or intent of any provision of this Agreement, and shall not affect the construction of any provision of this Agreement.

ARTICLE 21.
EXECUTION

IN WITNESS WHEREOF, said CONTRACTOR and CITY have caused this Agreement to be executed on the day and year first above written.

This Agreement may be executed by the use of electronic signatures pursuant to Idaho Code §28-50-107, which has the same force and effect as a handwritten signature. If electronic signatures are utilized, the acknowledgement before a notary is not required.

I, Marshall Mangum, certify under the penalty of perjury pursuant to the law of the State of Idaho, that the foregoing is true and correct and that I am an authorized agent to bind Mangum Construction LLC to this Agreement. If I am signing this document utilizing a digital signature, I understand that my digital signature is valid and binding upon me to the same force and effect as a handwritten signature.

CONTRACTOR:

Magnum Construction LLC

Marshall Mangum

CITY:

City of Moscow, Idaho

Hailey Lewis, Mayor

ATTEST:

Laurie M. Hopkins, City Clerk

Approved as to Form:

Mia Bautista, City Attorney

ACKNOWLEDGMENT

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 2026, before me, a Notary Public in and for said State, appeared Marshall Mangum, known to me to be the person named above and acknowledged that they executed the foregoing document as the duly authorized representative for Mangum Construction LLC.

Notary Public for the State of _____

Residing at _____

My commission expires _____

Attachment "A"

PROJECT MANUAL

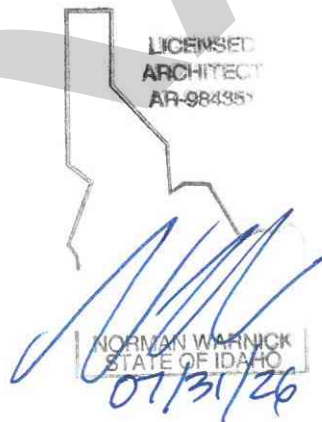
FOR

City of Moscow

East City Park Stage Replacement

MOSCOW, IDAHO

July 31, 2026



Design West Architects
254 East Main Street
Pullman, WA 99163
509-332-3113
Fax: 509-332-3327

TABLE OF CONTENTS

DIVISION 00 – Part I: BIDDING REQUIREMENTS

Document 00 01 00	Invitation to Bid	2
	Notice to Contractors	1
Document 00 10 00	Instructions to Bidders	7
Document 00 30 00	Bid Proposal Form	4
	Contractor Affidavit Concerning Alcohol Drug Free Workplace	1
	Bid Bond by Reference (AIA Document A310 or approved equivalent)	1
	Performance & Labor & Materials Payment Bonds by Reference (AIA Document A312).....	1
	Public Works Contract Report, WH-5.....	1

DIVISION 00 – Part II: CONTRACT REQUIREMENTS

Document	Draft Agreement Between Owner & Contractor	7
	Contractor's Affidavit Concerning Taxes	1
	Miscellaneous Forms by Reference:	2
	Certificate of Insurance	
	Certificate of Substantial Completion	
	Contractor's Affidavit of Payment of Debts and Claims	
	Contractor's Affidavit of Release of Liens	
	Consent of Surety Company to Final Payment	

DIVISION 01 – GENERAL REQUIREMENTS

Section 01 10 00	Summary	4
Section 01 23 00	Alternates	2
Section 01 26 00	Contract Modification Procedures	2
Section 01 29 00	Payment Procedures	4
Section 01 31 00	Project Management and Coordination & RFI Transmittal	7
Section 01 32 00	Construction Progress Documentation	7
Section 01 33 00	Submittal Procedures & Submittal Transmittal	9
Section 01 40 00	Quality Requirements	7
Section 01 42 00	References	13
Section 01 50 00	Temporary Facilities and Controls	6
Section 01 60 00	Product Requirements & Substitution Request Form	7
Section 01 73 00	Execution	5
Section 01 73 29	Cutting and Patching	3
Section 01 77 00	Closeout Procedures	3
Section 01 78 23	Operation and Maintenance Data	6
Section 01 78 39	Project Record Documents	3
Section 01 79 00	Demonstration and Training	4
Section 01 80 01	Keynote System	1

DIVISION 02 – EXISTING CONDITIONS

Section 02 41 00	Demolition	3
Section 02 41 19	Selective Structure Demolition.....	9

DIVISION 03 – Not Used

DIVISION 04 – MASONRY

Section 04 22 00	Unit Masonry Assemblies	9
------------------	-------------------------------	---

DIVISION 05 – Not Used

DIVISION 06 – WOOD, PLASTICS & COMPOSITES

Section 06 10 00	Rough Carpentry.....	6
Section 06 18 00	Glued-Laminated Construction	5

DIVISION 07 – THERMAL & MOISTURE PROTECTION

Section 07 11 13	Bituminous Dampproofing	4
Section 07 31 13	Composition Shingles	4
Section 07 62 00	Sheet Metal Flashing and Trim	6
Section 07 92 00	Joint Sealants	9

DIVISION 08 – OPENINGS

Section 08 00 00	Door Schedule	2
Section 08 11 13	Hollow Metal Doors and Frames	4
Section 08 34 00	Metal Door Assemblies	4
Section 08 71 00	Door Hardware.....	7

DIVISION 09 – FINISHES

Section 09 00 00	Finish Schedule & Material Legend Key.....	3
Section 09 91 00	Painting	8

DIVISION 10 through DIVISION 25 – Not Used

DIVISION 26 – Electrical

Section 09 00 00	Finish Schedule & Material Legend Key.....	3
Section 09 91 00	Painting	8

DIVISION 31 – EARTHWORK

Section 31 11 00	Clearing and Grubbing.....	3
------------------	----------------------------	---

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section 32 11 23	Aggregate Base	2
Section 32 12 16	Asphalt Pavement.....	1
Section 32 16 23	Concrete Sidewalk	1
Section 32 17 23	Pavement Markings	1

DIVISION 33 – SITE UTILITIES

Section 33 41 00	Storm Sewer Pipe	1
Section 33 44 13	Area Drains	1

ADVERTISEMENT FOR BIDS
MOSCOW EAST CITY PARK STAGE REPLACEMENT

The City of Moscow, Idaho, is accepting sealed bids at the City Clerk's office, third floor of City Hall, 206 East Third Street, P.O. Box 9203, Moscow, Idaho, 83843, until 2:00 p.m., prevailing local time, Tuesday, August 25, 2026. Sealed bids will be read aloud at City Council Chambers of Moscow City Hall, 206 East Third Street, Moscow, Idaho 83843 at 2:05 P.M. prevailing local time on August 25, 2026.

Plans, specifications, bid proposal forms, and other information are available for examination at questcdn.com via the link provided on the City of Moscow Website at: www.ci.moscow.id.us – click on “Business” / “Bid Opportunities” / “Moscow East City Park Stage Replacement.” Once on the Quest site, you may download the digital plan documents for a non-refundable fee of \$22.00. The Quest project number is 10290390. Please contact QuestCDN.com at 952-233-1632 or info@questcdn.com for assistance in free membership registration, downloading, and working with digital project information.

Plans, specifications, bid proposal forms, and other information are also available at the following Plan Centers:

Abadan Regional Plan Center – Spokane, WA
Associated Builders & Contractors, Inc. – Spokane, WA
Hermiston Plan Center – Hermiston, OR
Idaho Associated General Contractors – Boise, ID
Lewiston-Clarkston Plan Service 2117 – Lewiston, ID
Spokane Regional Plan Center – Spokane, WA
Tri-City Construction Council – Kennewick, WA
Walla Walla Valley Plan Center – Walla Walla, WA
Wenatchee Plan & Copy Center – Wenatchee, WA
Yakima Plan Center – Yakima, WA

DESCRIPTION OF WORK: A ground-up stage structure including a 560 square foot unconditioned CMU building, concrete stage, and glued-laminated and cross-laminated timber roof structure. Site pathway revisions and site concrete and asphalt paving.

BID BOND: A bid bond equal to 5% of the amount bid must accompany the bid proposal. (See instructions to bidders.)

PUBLIC WORKS CONTRACTOR'S LICENSE: Public Works Contractor's License for the State of Idaho is required to bid on this project. (See instructions to bidders and general conditions for further bidder qualifications.)

CONTRACT TIME: (151) calendar days from commencement of construction, substantial completion no later than 03/07/2027 (see instructions to bidders, bid proposal, and agreement.)

ESTIMATED PROJECT COST: \$783,184

PRE-BID CONFERENCE: A pre-bid conference will be held Tuesday, August 11, 2026, at 10:00 AM, at the East City Park Restroom building, 900 E. Third Street, Moscow.

No bidder may withdraw his proposal after the date and time set for opening thereof or before Award of Contract, unless said award is delayed beyond 30 days. The undersigned further agrees that City shall have the right to accept or reject any bid which rejection or acceptance is deemed to be in the best interest of City.

END OF ADVERTISEMENT FOR BIDS.

Publish Dates: Saturday, August 1, 2026 & Saturday, August 8, 2026

Laurie Hopkins, City Clerk

DRAFT

LICENSING OF PUBLIC WORKS CONTRACTORS NOTICE

NOTICE LICENSING OF PUBLIC WORKS CONTRACTORS STATE OF IDAHO

UNLAWFUL For any person to engage in the business or act in the capacity of a PUBLIC WORKS CONTRACTOR in the State of Idaho without a license.

PENALTIES Any person, firm, co-partnership, or corporation, acting as a PUBLIC WORKS CONTRACTOR without a license shall be guilty of a MISDEMEANOR.

EVERY PUBLIC OFFICER who knowingly lets a public contract to any person, firm, co-partnership, or corporation, who does not hold a license shall be guilty of a MISDEMEANOR.

EXCEPTION No contractor shall be required to have a license in order to submit a bid or proposal for contracts for public works FINANCED IN WHOLE OR IN PART BY FEDERAL AID FUNDS, but at or prior to the award and execution of any such contract by the State of Idaho, or other contracting authority, the successful bidder shall secure a license.

SUPPLY ONLY CONTRACTS Contractors whose scope of work is supply only are not required to have a public works license.

WHO MUST BE LICENSED "Public works contractors," – which is any "builder," or "specialty contractor," or any person who offers to submit a proposal or enter into a contract with the STATE OF IDAHO, or any COUNTY, CITY, TOWN, VILLAGE, SCHOOL DISTRICT, IRRIGATION DISTRICT, DRAINAGE DISTRICT, SEWER DISTRICT, FIRE DISTRICT, or any other taxing subdivision or district of the State, authorities to let or award contracts for the construction, repair or reconstruction of any public work.

PUBLIC WORK includes HEAVY, HIGHWAY, BUILDING and SPECIALTY construction.

EXEMPTION Any construction, alteration, improvement or repair involving an estimate cost of less than \$10,000.

AUTHORITY - Title 54, Chapter 19, Idaho Code as amended, "THE PUBLIC WORKS CONTRACTORS LICENSE ACT."

DIVISION OF BUILDING SAFETY

PUBLIC WORKS CONTRACTORS LICENSING

1090 E Watertower Street, Suite 150

Meridian, ID 83642

Phone: 208-334-4057

END OF SECTION

ARTICLE 1
DEFINITIONS

- 1.1 All definitions set forth in the General Conditions of the Contract for Construction, AIA Document A201, or in other contract Documents are applicable to the Bidding Documents.
- 1.2 "Addenda" are written or graphic instruments issued by the Architect prior to the execution of the contract which modify or interpret the Bidding Documents by additions, deletions, clarifications or corrections. The contents of Addenda are issued in no particular order and therefore should be carefully and completely reviewed.
- 1.3 An "Alternate Bid" (or "Alternate") is an amount stated in the Bid to be added to or deducted from the amount of the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.
- 1.4 The "Base Bid" is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents as the base to which work may be added or from which work may be deleted for sums stated in Alternate Bids.
- 1.5 A "Bid" is a complete and properly signed proposal to do the Work or designated portion thereof, submitted in accordance with the Bidding Documents, for the sums therein stipulated.
- 1.6 A "Bidder" is a person or entity who submits a Bid.
- 1.7 The "Bidding Documents" include the Advertisement or Invitation to bid, Instructions to Bidders, the bid form, other sample bidding and contract forms, the Bid Bond, any required Affidavit of Non-Collusion, and the proposed Contract Documents, including any Addenda issued prior to receipt of bids.
- 1.8 The "Contract Documents" proposed for the Work consist of the Agreement for the Work, the Agreement Between Owner and Contractor and the Revised General Conditions of the Contract as well as any Supplemental, Special, and other Conditions included in the Project Manual, the Drawings, the Specifications, and all Addenda issued prior to and all modifications issued after execution of the Contract.
- 1.9 A "Sub-bidder" is a person or entity who submits a bid to a Bidder for materials, equipment or labor for a portion of the Work.
- 1.10 A "Unit Price" is an amount stated in the Bid as a price per unit of measurement for materials, equipment or services as described in the Bidding Documents or in the proposed Contract Documents.

ARTICLE 2
BIDDER'S REPRESENTATIONS

- 2.1 By making its Bid, each Bidder represents that:
 - 2.1.1 It has read and understands the Bidding Documents, and its Bid is made in accordance with them
 - 2.1.2 It has attended the pre-bid meeting(s) as required by the Bidding Documents.
 - 2.1.3 Its Bid is based upon the materials, systems, and equipment required by the Bidding Documents and is made without exception.
 - 2.1.4 It will perform with its own forces at least the percentage of the Work required by the Bidding Documents.
 - 2.1.5 It has checked its copies of the Project Manual with the Table of Contents bound therein to ensure the Project Manual is complete.
 - 2.1.6 It has examined and coordinated all Drawings, Contract Documents, and Specifications for any other contracts to be awarded separately from, but in connection with, the Work being bid upon, so that the Bidder is fully informed as to conditions affecting the Work under the contract being bid upon.
 - 2.1.7 It has carefully examined the Bidding Documents, Contract Documents, and the Project site, including any existing buildings, and it has satisfied itself as to the nature, location, character, quality and quantity of the Work, the labor, materials, equipment, goods,

supplies, work, services and other items to be furnished, and all other requirements of the Contract Documents. The Bidder has also satisfied itself as to the conditions and other matters that may be encountered at the Project site or affect performance of the Work or the cost or difficulty thereof, including but not limited to those conditions and matters affecting: transportation, access, disposal, handling and storage of materials, equipment and other items; availability and quality of labor, water, electric power and utilities; availability and condition of roads, climatic conditions and seasons; physical conditions at the Project site and the surrounding locality; topography and ground surface conditions; and equipment and facilities needed preliminary to and at all times during the performance of the Work. The failure of the Bidder fully to acquaint itself with any applicable condition or matter shall not in any way relieve the Bidder from the responsibility for performing the Work in accordance with, and for the Contract Sum and within the Contract Time provided for in, the Contract Documents.

ARTICLE 3

BIDDING DOCUMENTS

3.1 Copies

- 3.1.1** Bidders may obtain complete sets of the Bidding Documents from the issuing office and other locations designated in the Advertisement or Invitation to Bid in the number and for the deposit sum stated. The deposit will be refunded to Bidders who submit a bona fide Bid and return the Bidding Documents in good condition within ten days after receipt of Bids. The cost of replacement of any missing or damaged documents will be deducted from the deposit. A Bidder awarded a Contract may retain the Bidding Documents, and its deposit will be refunded.
- 3.1.2** Bidding Documents will not be issued directly to Sub-bidders or others unless specifically offered in the Advertisement or Invitation to Bid.
- 3.1.3** Bidders shall use complete sets of Bidding Documents in preparing Bids; neither the Owner nor the Architect assumes any responsibility for errors or misinterpretations resulting from the use of incomplete sets of Bidding Documents.
- 3.1.4** The Owner and/or the Architect make copies of the Bidding Documents available on the above terms only for the purpose of obtaining Bids on the Work and do not confer a license or grant permission for any other use.

3.2 Interpretation or Correction of Bidding Documents

- 3.2.1** Bidders and Sub-bidders shall promptly notify the Architect of any ambiguity, inconsistency, or error which they may discover upon examination of the Bidding Documents or of the site and local conditions. All Bidders and Sub-bidders shall thoroughly familiarize themselves with specified products and installation procedures and submit to the Architect any objections (in writing) no later than 10 days prior to the Bid Date. The submittal of the Bid constitutes acceptance of products and procedures specified as sufficient, adequate, and satisfactory for completion of the Contract.
- 3.2.2** Bidders and Sub-bidders requiring clarification or interpretation of the Bidding Documents shall make a written request which shall reach the Architect at least seven days prior to the date for receipt of Bids.
- 3.2.3** Any interpretation, correction or change of the Bidding Documents will be made by written Addendum. Interpretations, corrections or changes of the Bidding Documents made in any other manner will not be binding, and Bidders shall not rely upon such interpretations, corrections and changes.
- 3.2.4** Reference in the singular to an article, device or piece of equipment shall include as many of such articles as are indicated in the Contract Documents or as are required to compete the installation.
- 3.2.5** Bidders should assume that the exact locations of underground or hidden utilities may be somewhat different from any location indicated in the surveys or Contract Documents.

3.3 Substitutions

- 3.3.1** The materials, products, procedures and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality that must be met by any proposed substitution.
- 3.3.2** No substitution will be considered prior to receipt of Bids unless a written request for approval has been received by the Architect at least ten days prior to the date for receipt of Bids. Each such request shall include the name of the material or equipment proposed to be replaced and a complete description of the proposed substitute, including drawings, cuts, performance and test data and any other information necessary for an evaluation. A statement setting forth any changes in other materials, equipment or other Work that incorporation of the substitute would require shall be included. The proposer has the burden to prove the merit of the proposed substitute; by proposing the substitution, the Bidder represents that it has personally investigated the proposed material or product and determined that it is equal or better in all respects to that specified, that the same or better warranty will be provided for the substitution, that complete cost data, including all direct and indirect costs of any kind, has been presented and that it will coordinate the installation of the substitute if accepted and make all associated changes in the Work. The Architect's decision of approval or disapproval of a proposed substitution shall be final. Written request for approval shall constitute a guarantee by the Bidder that the articles or materials are equal or superior to those specified, unless otherwise noted. To the extent the proposed substitution will require additional work by the Architect or its consultants, the Contractor will be required to pay the Architect or its consultants for this work at their customary hourly rates.
- 3.3.3** If the Architect approves a proposed substitution prior to receipt of Bids, the approval will be set forth in a written Addendum. Bidders shall not rely upon approvals made in any other manner.
- 3.3.4** After the Contract has been executed, the Owner and the Architect may consider a written request for the substitution of material or products in place of those specified in the Contract Document only under exceptional circumstances as specified.
- 3.4 Addenda**
- 3.4.1** All Addenda will be written. They will be mailed, e-mailed, faxed or delivered to those known by the Architect to have received a complete set of Bidding Documents. E-mail is preferred.
- 3.4.2** Copies of Addenda will be made available for inspection wherever Bidding Documents are on file for that purpose.
- 3.4.3** No Addenda will be issued later than three days prior to the date for receipt of Bids except an Addendum withdrawing the request for Bids or including postponement of the date for receipt of Bids.
- 3.4.4** Each Bidder shall ascertain prior to submitting its Bid that it has received all Addenda issued, and it shall acknowledge their receipt in its Bid.

ARTICLE 4

BIDDING PROCEDURE

4.1 Forms and Style of Bids

- 4.1.1** Bids shall be submitted on forms identical to the form included with the Bidding Documents.
- 4.1.2** All blanks on the bid form shall be filled in by typewriter or manually in ink.
- 4.1.3** Where so indicated by the makeup of the bid form, sums shall be expressed in both words and figures; in case of discrepancy between the two, the amount written in words shall govern.
- 4.1.4** Any interlineation, alteration or erasure must be initialed by the signer of the Bid.
- 4.1.5** All requested Alternates should be bid. If no change in the Base Bid is required, enter "No Change." If there is no entry, it will be presumed that there is no change in the Base Bid.

- 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of its bid security, state its refusal to accept award of less than the combination of Bids it so stipulates. The Bidder shall make no additional stipulations on the bid form nor qualify its Bid in any other manner.
- 4.1.7 Each copy of the Bid shall include the legal name of the Bidder and a statement describing the Bidder as a sole proprietor, a partnership, a joint venture, a corporation, or another described form of legal entity. Each copy shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid submitted by an agent shall have a current power of attorney attached certifying the agent's authority to bind the Bidder.
- 4.1.8 The Bid shall include in the sum stated all applicable taxes imposed by law.
- 4.1.9 The Form of Proposal may contain, for the Owner's accounting purposes only, a breakdown of some or all of the components included in the Base Bid.

4.2 Listing of Subcontractors

- 4.2.1 In the spaces provided on the Form of Proposal, the Bidder shall name the Subcontractors whose subcontract amount is more than ten percent of the Base Bid. The Bidder, if awarded the Contract, will subcontract with the listed Subcontractor for performance of the portion of the Work designated on the Form of Proposal, subject to the provisions of the Contract for Construction. Should alternate bids require different named subcontractors, the Bidder shall identify the alternate subcontractors and the affected portion of the Work.
- 4.2.2 If a listed Subcontractor is unable to comply with the bond-ability requirements of the Bidding Documents or other requirements of the Contract Documents, the Owner may require the Bidder to replace the Subcontractor with a Subcontractor acceptable to the Owner at no change in the Contract Sum or Time.

4.3 Bid Security

- 4.3.1 Each Bid shall be accompanied by a bid security equal to five percent of the base bid. The bid security constitutes a pledge that the Bidder will enter into the Contract with the Owner in the form provided, in a timely manner, and on the terms stated in its Bid and will furnish in a timely manner the payment and performance bonds, certificates of insurance, Contractor's Construction Schedule, and all other documents required in the Contract Documents. Should the Bidder fail or refuse to enter into the Contract or fail to furnish such documents, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty.
- 4.3.2 The bid security shall be in the form of a certified or bank cashier's check payable to the Owner or a bid bond executed by a bonding company licensed in the State of Washington on a Public Works Bond or equivalent form.
- 4.3.3 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until either (a) the Contract has been executed and payment and performance bonds have been furnished, or (b) the specified time has elapsed so that Bids may be withdrawn, or (c) all Bids have been rejected.

4.4 Submission of Bids

- 4.4.1 The Bid, the bid security and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party specified in the Advertisement or Invitation to Bid as receiving the Bids and shall be identified with the Project name, the Bidder's name and address and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.
- 4.4.2 Bids shall be deposited at the designated location prior to the time and date for receipt of Bids indicated in the Advertisement or Invitation to Bid, or any extension thereof made by Addendum. Bids received after the time and date for receipt of Bids will be returned unopened.

- 4.4.3 The Bidder assumes full responsibility for timely delivery at the location designated for receipt of Bids.
- 4.4.4 Oral, telephonic or telegraphic Bids are invalid and will not receive consideration.

4.5 Modification or Withdrawal of Bid

- 4.5.1 By submitting its Bid, each Bidder agrees that its Bid may not be modified, withdrawn or canceled by the Bidder during a sixty-day period following the time and date designated for the receipt of Bids.
- 4.5.2 Prior to the time and date designated for receipt of Bids, any Bid submitted may be modified or withdrawn by notice to the party receiving Bids at the place designated for receipt of Bids. Such notice shall be in writing over the signature of the Bidder or by telegram or fax; if by telegram or fax, written confirmation over the signature of the Bidder shall be mailed and postmarked on or before the date and time set for receipt of Bids. The notice shall be so worded as not to reveal the amount of the original Bid.
- 4.5.3 Withdrawn Bids may be resubmitted up to the time designated for the receipt of Bids provided that they are then fully in conformance with these Instructions to Bidders.
- 4.5.4 Bid security shall be in an amount sufficient for the Bid as modified or resubmitted.

**ARTICLE 5
CONSIDERATION OF BIDS**

5.1 Opening of Bids

- 5.1.1 Unless stated otherwise in the Advertisement or Invitation to Bid, the properly identified Bids received on time will be opened publicly and will be read aloud. An abstract of the Base Bids and Alternate Bids, if any, will be made available to Bidders.

5.2 Rejection of Bids

- 5.2.1 The Owner shall have the right but not the obligation to reject any or all Bids for any reason or for no reason, to reject a Bid not accompanied by required bid security or by other data required by the Bidding Documents, or to reject a Bid which is in any way incomplete or irregular.

5.3 Acceptance of Bid (Award)

- 5.3.1 The Owner intends (but is not bound) to award a Contract to the lowest responsible and responsive Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents and does not exceed the funds available. The Owner shall have the right to waive any informality or irregularity in any Bid(s) received and to accept the Bid(s) which, in its judgment, is in its own best interests.
- 5.3.2 The Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in Article 9, and to determine the low Bidder on the basis of the sum of the Base Bid and the Alternates accepted.

5.4 Bid Protest Procedures

- 5.4.1 A Bidder protesting for any reason the Bidding Documents, a bidding procedure, the award of the Contract or any other aspect arising from or relating in any way to the bidding shall cause a written protest to be filed with the Owner within three business days of the event giving rise to the protest and, in any event, no later than three business days after the date upon which bids are opened. The written protest shall include the name of the protesting Bidder, a detailed description of the specific factual and legal grounds for the protest, copies of all supporting documents, and the specific relief requested. The written protest shall be delivered to:

City Attorney
City of Moscow

- 5.4.2** Upon receipt of the written protest, the Owner will consider the protest. The Owner may provide any other affected Bidder(s) the opportunity to respond in writing to the protest within three business days of the Owner's receipt of the protest. If the protest is not resolved by mutual agreement of the protesting Bidder and the Owner, the Superintendent of the Owner will review the issues and promptly furnish a final and binding written decision to the protesting Bidder and any other affected Bidder(s) within six business days of the Owner's receipt of the protest (If more than one protest is filed, the Owner's decision will be provided within six business days of the Owner's receipt of the last protest).
- 5.4.3** Failure to comply with these protest procedures will render a protest waived.
- 5.4.4** Timely and proper compliance with and exhaustion of these protest procedures shall be a condition precedent to any permissible judicial consideration of protest.

ARTICLE 6

POST BID INFORMATION

6.1 Information from Apparent Low Bidder

- 6.1.1** Within five days of the Architect's request, the apparent low Bidder shall submit to the Architect and Owner: (1) a properly executed Contractor's Qualification Statement on the form provided; (2) a letter or form from the Bidder's insurance company stating that the insurance required by the Contract Documents will become effective upon execution of the Contract; (3) a detailed breakdown of the Bid in a form acceptable to the Owner; (4) the names of the persons or entities (including a designation of the Work to be performed with the Contractor's own forces, and the names of those who are to furnish materials or equipment fabricated to a special design) proposed for each of the principal portions of the Work; 5) the proprietary names and the suppliers of the principal items or systems of materials and equipment proposed for the Work. Failure to provide such information in a timely manner may constitute an event of breach permitting forfeiture of the Bid security.
- 6.1.2** The Bidder will be required to establish to the satisfaction of the Architect and the Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents. The responsibility of the Bidder may be judged in part by the responsibility of these proposed entities.
- 6.1.3** Prior to the award of the Contract, the Architect will notify the Bidder in writing if either the Owner or the Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at Bidder's option, (1) withdraw the Bid, or (2) submit an acceptable substitute person or entity with no adjustment in the Base Bid or Alternate Bid, even if there is a cost to the Bidder occasioned by the substitution. In the event of withdrawal, bid security will not be forfeited.
- 6.1.4** Persons and entities proposed by the Bidder and to whom the Owner and the Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and the Architect.

6.2 Information from Other Bidders

- 6.2.1** All other Bidders designated by the Architect as under consideration for award of a Contract shall also provide a properly executed Contractor's Qualification Statement, if so requested by the Owner.

6.3 Bidding Mistakes

- 6.3.1** The Owner will not be obligated to consider notice of claimed bidding mistakes received more than three business days after the bid opening.

ARTICLE 7

PERFORMANCE BOND AND LABOR AND MATERIAL PAYMENT BOND

7.1 Bond Requirements

7.1.1 Within ten days after the issuance of the Conditional Notice to Proceed, and prior to the date of execution of the Contract, the Bidder shall furnish evidence satisfactory to the Owner of its ability to obtain statutory bonds pursuant to RCW 39.08 covering the faithful performance of the Contract and the payment of all obligations arising thereunder in the form and amount prescribed in the Contract Documents. The cost of such bond shall be included in the Base Bid and with each Alternate Bid.

7.2 Time of Delivery and Form of Bonds

7.2.1 The Bidder shall deliver the required bonds to the Owner within ten days after the date of execution of the Contract and prior to commencing operations at the site.

ARTICLE 8

FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR

8.1 Form to be Used

8.1.1 The Agreement for the Work will be written on Revised AIA Document A-101, "Revised Standard Form of Agreement Between Owner and Contractor, where the basis of payment is a Stipulated Sum," as modified and supplemented. The Agreement for the Work shall include the Revised General Conditions (Revised AIA Document A-201, any Supplemental or Special Conditions, and the other Contract Documents.

8.2 Conflicts

8.2.1 In the case of conflict between the provisions of these Instructions and any of the Bidding Document, these Instructions shall govern. In case of conflict between the provisions of the Bidding Document and the Contract Documents, the Contract Documents shall govern.

ARTICLE 9

SUPPLEMENTARY INSTRUCTIONS

9.1 Liquidated Damages

The Contract Documents specify liquidated damages for the Owner and the Contractor.

9.2 Retainage

The Contract Documents specify 5% retainage.

9.3 Contract Time

The Contract Documents specify the Contract Time. **TIMELY COMPLETION OF THIS PROJECT IS ESSENTIAL TO THE OWNER.**

End of Document 00 10 00

DOCUMENT 00 30 00 - BID PROPOSAL FORM

Project:

City of Moscow
Moscow East City Park Stage Replacement
MOSCOW, IDAHO

BID OPENING DATE:

August 25, 2026

BID DUE TIME:

2:00 P.M

BID OPENING TIME:

2:05 P.M

BID OPENING LOCATION:

City Council Chambers of Moscow City Hall, 2026 East Third Street

BIDDER'S NAME AND ADDRESS:

TO: The City of Moscow, Idaho

The bidder, in compliance with the Invitation for Bids for the above-referenced project, having examined the drawings, specifications, related documents, and the site of the proposed work, and having become familiar with local conditions surrounding the proposed work, including availability of materials and labor, hereby proposes to perform all work in accordance with the contract documents, within the time limits set therein, and at the prices stated below, which are to cover all expenses incurred in performing the work.

The bidder acknowledges the receipt of the Addenda listed below and have included these provisions in the bid:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

BASE PROPOSAL: ALL WORK NOT DEFINED IN A BID ALTERNATE, Bidder agrees to perform all of the base proposal work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$ _____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

BID ALTERNATE NO. 1:

ALTERNATE No. 1 – Concrete Dancer Plaza: Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$ _____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

Bidders Initials _____

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 1
7/31/2026

ALTERNATE No. 2 – Service Entrance Rated Service Panelboard With 400A Main Breaker Panel:

Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$_____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

The undersigned further agrees that the HAI shall have the right to accept, reject, or waive any irregularities with the bids deemed to be in the best interest of the HAI and the City of Moscow.

In submitting this bid, the bidder agrees:

The bidder understands that the Owner reserves the right to reject any or all bids and to waive any irregularities in the bidding.

In submitting this bid, the bidder agrees:

1. The bid shall remain valid and may not be withdrawn for a period of forty-five (45) calendar days after the scheduled closing time for receiving bids. Bid alternate pricing shall remain valid for (90) calendar days following the bid opening, should the Owner choose to accept bid alternates after contract award.
2. To accept the provision of the Instruction to Bidders regarding disposition of Bid Security.
3. The bid security attached, in the amount of 5% of the bid amount, is to become the property of the Owner in the event the contract and bond are not executed with the time set forth as liquidated damages for the delay and additional expense to the Owner caused thereby.
4. To furnish within five (5) days after receipt of properly prepared Agreement Between Owner and Contractor the following documents: Performance Bond and Labor and Materials Payment Bond in the amounts of 100% of the bid amount by the surety company authorized to do business in the State of Idaho, a Certificate of Insurance issued by a surety company authorized to do business in the State of Idaho and accompanied by Power of Attorney, a Contractor's Affidavit Concerning Taxes, and the Public Works Contract Report on Subcontractors
5. To accomplish the work in accordance with the bidding documents and commence work on or before the date of Notice to Proceed.
6. To complete the work by the Date of Substantial Completion which shall be One hundred twenty (120) consecutive calendar days or less after Notice to Proceed.
7. That the contract drawings may be supplemented by additional drawings and specifications in explanation and elaboration of the contract drawings and it is agreed that such supplemental drawings, when not in conflict with the base contract documents, will have the same force and effect as if attached hereto and that when received they will be considered a part of the contract.
8. To execute the work using the sub-contractors named below in the Bid Form Submittal.

The Idaho Naming Law (Section 67-2310, Idaho Code) and requires that general contractors must list the business name and Public Works license number of certain subcontractors. The law stipulates that these will be the major fire sprinkler, mechanical, and electrical subcontractors who the general contractor agrees to engage to do the work. **The firms listed below must be those who will actually do the work on site regardless of contractual considerations between the general contractor and subcontractors.** If the scope of project itself does not include mechanical or electrical components, any firm hired to do incidental piping or wiring such as installation of temporary services, need not be listed.

Bidders Initials _____

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 2
7/31/2026

The names and addresses of subcontractors who will accomplish the work, subject to approval of the Owner and architect, if the undersigned is awarded the contract, are as follows:

Plumbing system _____ No _____
Name of Plumbing contractor _____
Public Works license number _____

Electrical system _____ No _____
Name of electrical contractor _____
Public Works license number _____

QUALIFICATIONS / EXPERIENCE: The bidder certifies that the attached form lists the 5 most recent public works projects in excess of \$250,000 contract value that have been, or are being, accomplished by the contractor. These project references will be used as a basis to determine if the apparent low bid is made by a responsible and competent contractor.

Enclosed is bid guarantee consisting of: _____ in the amount of five percent (5%) of the bid amount. (Bid Bond) (Cashier's Check)

The undersigned notifies that they are, or are capable of becoming prior to contract execution, a Public Works Contractor and if currently licensed their Idaho State Public Works Contractor's License No. is _____, and is domiciled in the State of _____.

Dated at _____ this _____ day of _____, 20____.

Respectfully submitted,

Name of Bidder (Company) (Seal, if bid is by a corporation)

Business Address Signature of authorized representative

City, State, Zip Code Title

Telephone

Bidders Initials _____

QUALIFICATIONS / EXPERIENCE: The bidder certifies that the list below contains the five most recent public works projects in excess of \$250,000 contract value that have been, or are being, accomplished by the contractor over the past three year period. Use additional copies of this form if necessary to list all projects. These project references will be used as a basis to determine if the apparent low bid is made by a responsible and competent contractor.

Project Title:

Location:

Reference: Architect or Client
(Name & telephone number)

END OF DOCUMENT 00 30 00

Bidders Initials _____

**CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE**

STATE OF (_____)

COUNTY OF (_____)

Pursuant to the Idaho Code, Section 72-1717, I, the undersigned, being duly sworn, depose and certify that _____ is in compliance with the provisions of Idaho Code section 72-1717; that _____ Provides a drug-free workplace program that complies with the provisions of Idaho Code, title 72, chapter 17 and will maintain such program throughout the life of a state construction contract and that _____ Shall subcontract work only to subcontractors meeting the requirements of Idaho Code, section 72-1717(1)(a).

Name of Contractor

Address

City and State

By _____
(Signature)

Subscribed and sworn to before me this _____ day of _____, 20____.

Commission expires:

NOTARY PUBLIC, residing at

BID BOND

By Reference

By reference, the printed document "Bid Bond, AIA Document A310, Current Edition" shall be used to accompany the Bid as specified hereinbefore.

Printed company forms, approved by The American Institute of architects and so verified, may be used in lieu of AIA Document.

Refer to Instructions to Bidders for description of Bid Bond requirements.

Attorneys-in-fact who sign Bid Bonds shall be licensed in the State of Idaho and must file with each bond a certified and effectively dated copy of their power-of-attorney on the form specified and bound in this specification document if the Bid Bond is executed on AIA Document A310. Approved printed company forms may be used in lieu of form hereinbefore specified.

END OF BID BOND SECTION

PERFORMANCE AND LABOR AND MATERIALS PAYMENT BONDS

By Reference

By Reference the printed forms, Performance Bond and Labor and Material Payment Bond, standard form of the American Institute of Architects, AIA Doc. A312, Current Edition, Shall be used in the amount of 100% of the Contract Amount.

Attorneys-in-fact who sign Performance and Labor and Material payment bonds shall be licensed in the State of Idaho and must file with each bond a certified and effectively dated copy of their power-of-attorney forms to Bidders for their use.

END OF PERFORMANCE AND LABOR AND MATERIALS PAYMENT BOND SECTION

Form WH-5 Public Works Contract Report

Contractors awarded Idaho public works contracts must submit this form to the Tax Commission within 30 days of receiving the award. (Idaho Code sections 54-1904A and 63-3624(g)).

Contract awarded by (public body and address)

Contract awarded to (contractor's name and address)

State of incorporation	Federal Employer Identification Number (EIN)	Date qualified to do business in Idaho
Business operates as ☐ Sole Proprietorship ☐ Partnership ☐ Corporation ☐ LLC		Public works contractor license number
Sole proprietor's Social Security number	Idaho sellers permit number	Idaho withholding tax permit number
Awarding agency project number		Amount of contract \$
Description and location of work to be performed		

Project Dates

Scheduled project start date: _____ Completion date: _____

If the following information isn't available at this time, please enter date it will be: _____

All Subcontractors

Name		Federal EIN	
Address		Public works contractor license number	
City	State	ZIP Code	Amount of subcontract \$
Description of work			
Name		Federal EIN	
Address		Public works contractor license number	
City	State	ZIP Code	Amount of subcontract \$
Description of work			
Name		Federal EIN	
Address		Public works contractor number	
City	State	ZIP Code	Amount of subcontract \$
Description of work			
Name		Federal EIN	
Address		Public works contractor license number	
City	State	ZIP Code	Amount of subcontract \$
Description of work			

All Subcontractors (continued)

Name			Federal EIN
Address			Public works contractor license number
City	State	ZIP Code	Amount of subcontract \$
Description of work			

Name			Federal EIN
Address			Public works contractor license number
City	State	ZIP Code	Amount of subcontract \$
Description of work			

Name			Federal EIN
Address			Public works contractor license number
City	State	ZIP Code	Amount of subcontract \$
Description of work			

Suppliers

List your major suppliers of materials, equipment, and supplies. Include items removed from inventory and items provided to you by the government agency for use in this project.

Name		Federal EIN	Total value \$
Address		Materials and equipment purchased and used	
City, State, ZIP Code	Phone number	Please select how sales or use tax was paid. ☐ Tax paid to supplier ☐ Tax paid to state* ☐ No tax was paid	

Name		Federal EIN	Total value \$
Address		Materials and equipment purchased and used	
City, State, ZIP Code	Phone number	Please select how sales or use tax was paid. ☐ Tax paid to supplier ☐ Tax paid to state* ☐ No tax was paid	

Name		Federal EIN	Total value \$
Address		Materials and equipment purchased and used	
City, State, ZIP Code	Phone number	Please select how sales or use tax was paid. ☐ Tax paid to supplier ☐ Tax paid to state* ☐ No tax was paid	

*If you're reporting any untaxed materials, equipment, or supplies as "items subject to use tax" on your Idaho return, provide the period when you did or will report it: _____

If you paid tax to a state other than Idaho, write the name state next to "total value" boxes, above. For any tax due that you haven't reported yet, include payment with this form. You can make copies of this form if you need more room.

Sign Here	Authorized signature	Print name	Phone number	Date

File with the Idaho State Tax Commission, PO Box 36, Boise ID 83722-0410

For more information, call (208) 334-7618 | Fax: (208) 332-6619 | Email: contractdesk@tax.idaho.gov

**CONSTRUCTION AGREEMENT
FOR PROJECT NAME
BETWEEN CITY OF MOSCOW, IDAHO
AND COMPANY**

THIS CONSTRUCTION AGREEMENT FOR PROJECT NAME BETWEEN CITY OF MOSCOW, IDAHO, AND COMPANY (hereinafter "Agreement"), dated this ____ day of _____, 2026, is made by and between City of Moscow, Idaho, a municipal corporation of the State of Idaho, 206 East Third Street, Moscow, Idaho, 83843 (hereinafter "CITY"), and Company Name, Full Address (hereinafter "CONTRACTOR"):

WITNESSETH:

WHEREAS, pursuant to the invitation of CITY, extended through an "Invitation to Bid", see Attachment "A", CONTRACTOR submitted a Bid Proposal containing an offer invited by said invitation; and

WHEREAS, CITY has determined that said offer was the lowest responsive Bid Proposal; and

WHEREAS, CITY has accepted CONTRACTOR's Bid Proposal;

NOW THEREFORE, the Parties to this Agreement, in consideration of the mutual covenants and stipulations set out, agree as follows:

**ARTICLE 1.
CONTRACT DOCUMENTS**

The Contract Documents which comprise the entire Agreement between CITY and CONTRACTOR concerning the work to be performed, are this Agreement, pages one (1) through eight (8) and the following:

1. Drawings, Specifications and Proposal for: Project Name, City of Moscow Project No. Project Number, Attachment "A" consisting of # of pages pages;
2. Bid Proposal of CONTRACTOR, dated date, 2026, Attachment "B", consisting of # of pages pages;
3. Performance and Payment Bonds and Insurance Certificates;
4. Addendum No. , if applicable, Attachment "C", consisting of # of pages pages; and
5. Change Orders, which may be delivered or issued after the effective date of this Agreement.

There are no Contract Documents other than those listed in Article 1. This Agreement may only be amended by change order as provided in the General Conditions of Attachment "A".

**ARTICLE 2.
WORK**

CONTRACTOR shall complete the entire work as specified, indicated and required under the Contract Documents, contained herein under Article 1. for CITY project (hereinafter "Project") titled:

Project Name

**ARTICLE 3.
CONTRACT TIME/SUBSTANTIAL COMPLETION**

The work to be performed pursuant to this Agreement shall be substantially completed on or before DATE, or other time considerations, unless adjustment of the Agreement time is made in accordance with the provisions of the Contract Documents. CONTRACTOR shall begin work in conformance with the Contract Documents.

CONTRACTOR and CITY recognize that time is of the essence and that CITY will suffer financial loss if the Project is not completed within the time specified above, unless approved extensions thereof are permitted in accordance with the terms of the Contract Documents. The Parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by CITY if the Project is not completed on time. Accordingly, instead of requiring any such proof, CITY and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay CITY One Half of One Percent (0.5%) of the Contract Sum for each day that expires after the time specified above for Substantial Completion until the Project is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Project within the Time of Completion or by any proper extension thereof granted by CITY, CONTRACTOR shall pay CITY One Half of One Percent (0.5%) of the Contract Sum for each day that expires after the time specified above for completion, until the Project is completed and ready for final payment.

**ARTICLE 4.
CONTRACT SUM**

CITY shall pay CONTRACTOR for completion of the work for the Project in accordance with the Contract Documents in current funds in the amount of Dollar Amount (\$), as submitted by CONTRACTOR. In no event shall the Contract amount exceed CONTRACTOR's bid amount of \$, unless otherwise authorized by CITY by written agreement. Said Contract Sum shall be paid in accordance with the Contract Documents.

**ARTICLE 5.
TERMINATION**

Termination provisions are governed by the attached Contract Documents.

**ARTICLE 6.
INDEPENDENT CONTRACTOR**

The Parties warrant by their signatures that no employer-employee relationship is established between CONTRACTOR and CITY by the terms of this Agreement. It is understood by the Parties hereto that CONTRACTOR is an independent contractor and, as such, neither CONTRACTOR

nor CONTRACTOR's employees, agents, representatives or subcontractors, if any, are employees of CITY for any purpose, including for purposes of tax, retirement system, and social security (FICA) withholding.

ARTICLE 7. SCOPE OF SERVICES

CONTRACTOR shall perform all work required by the Contract Documents. All work shall be completed in accordance with the specifications and plans established for this Project.

ARTICLE 8. HOLD HARMLESS/INDEMNIFICATION

In addition to other rights granted to CITY by the Contract Documents, CONTRACTOR agrees to indemnify, defend, and hold harmless CITY, its officers, agents, employees, and engineers, from and against any and all losses, lawsuits, actions, claims, judgments for damages, or any injuries or damages received or sustained by any person, persons, or property, and losses, expenses, and other costs, including litigation costs and attorney's fees, arising out of, resulting from, or in connection with the acts, performances, activities, errors or omissions by CONTRACTOR, CONTRACTOR's servants, agents, officers, employees, representatives, guests, business invitees or its subcontractors; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any claims or amounts recovered from any infringements of patent, trademark or copyright; or from any claims or amounts arising out of or recovered under the Workers' Compensation Act or any other law, ordinance, order, or decree.

ARTICLE 9. CONFLICT OF INTEREST

CONTRACTOR covenants that it presently has no interest and will not acquire any interest, direct or indirect, in the Project, which would conflict in any manner or degree with the performance of CONTRACTOR's services hereunder. CONTRACTOR further covenants that, in performing this Agreement, CONTRACTOR will employ no person who has any such interest. Should any conflict of interest arise during the performance of this Agreement, CONTRACTOR shall immediately disclose such conflict to CITY.

ARTICLE 10. ENTIRE AGREEMENT, MODIFICATION AND ASSIGNABILITY

This Agreement and the attachments hereto contain the entire Agreement between the Parties, and no statements, promises, or inducements made by either Party, or agents of either Party are valid or binding unless contained herein. This Agreement may not be enlarged, modified or altered except upon written agreement signed by the Parties hereto. CONTRACTOR may not subcontract or assign its rights (including the right to compensation) or duties arising hereunder, other than as provided within the Contract Documents, without the prior written consent and express authorization of CITY.

ARTICLE 11.

LICENSES AND ADHERENCE TO LAW REQUIRED

CONTRACTOR represents that it possesses the skill and experience necessary and all licenses required to perform the services under this Agreement. CONTRACTOR further agrees to comply with all applicable Federal, State and Local statutes and regulations in the performance of the services hereunder, and are hereby made a part of this Agreement and shall be adhered to at all times. Violation of any of these statutes or regulations by CONTRACTOR shall be deemed material and shall subject CONTRACTOR to termination of this Agreement for cause. No pleas of misunderstanding or ignorance on the part of CONTRACTOR will, in any way, serve to modify the provisions of this requirement. CONTRACTOR and its surety shall indemnify, defend and hold harmless CITY and its employees, agents, engineers and representatives against any claim or liability arising from or based on the violation of any such laws, codes, ordinances, or regulations, whether by CONTRACTOR, CONTRACTOR's employees, or its subcontractors.

Anti-Boycott Against Israel Act. CONTRACTOR certifies it is not currently engaged in, and will not for the duration of this Agreement engage in, a boycott of goods and services from Israel or territories under its control. Failure to comply with Idaho Code § 67-2346 will result in this Agreement being void as against public policy.

Ownership or Operation by China. Pursuant to Idaho Code § 67-2359, CONTRACTOR certifies that it is not currently owned or operated by the government of China and will not for the duration of this Agreement be owned or operated by the government of China. The terms in this section defined in Idaho Code § 67-2359 shall have the meaning defined therein.

Employment of Residents of Idaho. Pursuant to Idaho Code § 44-1001, CONTRACTOR certifies that it will employ ninety-five percent (95%) bona fide Idaho residents, as that term is defined in Idaho Code § 44-1003, as employees for the completion of the terms required in this Agreement. If CONTRACTOR employs less than fifty (50) employees on this Project, CONTRACTOR may employ up to ten percent (10%) nonresidents for the completion of the terms required in this Agreement. In all cases, CONTRACTOR agrees to give a preference to bona fide Idaho residents. The Parties agree that if Project involves the expenditure of federal aid funds, that this clause will not be enforced in a manner that conflicts with federal statutes prescribing a labor preference for veterans or prohibiting unlawful discrimination or preferences among United States citizens.

Not an Abortion Provider or Affiliate. Pursuant to Idaho Code Title 18 Chapter 87, CONTRACTOR certifies that it is not an abortion provider or an affiliate of any abortion provider and does not, and will not for the duration of this Agreement, authorize the use of state facilities or public funds for abortion related activity.

Anti-Boycott of Certain Sectors. Pursuant to Idaho Code § 67-2347A, CONTRACTOR certifies that it is not engaged in, and will not for the duration of this Agreement engage in, a boycott of any individual or company because the individual or company 1) engages in or supports the exploration, production, utilization, transportation, sale or manufacture of fossil fuel-based energy, timber, minerals, hydroelectric power, nuclear power, or agriculture or 2) engages in or supports the manufacture, distribution, sale, or use of firearms, as defined in Idaho Code § 18-3302 (2)(d).

ARTICLE 12.

EMPLOYMENT DISCRIMINATION

It is illegal under the U.S. Federal law to discriminate against an employee, either intentionally or through disparate impact, on account of race, color, gender, religion, sex (including pregnancy), national origin, disability or genetic information, age (40 and older), marital or familial status, sexual orientation, or gender identity. CONTRACTOR shall not discriminate against any employee or applicant for employment. CONTRACTOR's action under this Section shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and other applicants for employment, notices setting forth the provisions of this non-discrimination Section.

ARTICLE 13. LEGAL FEES

In the event either Party incurs legal expenses to enforce the terms and conditions of this Agreement, the prevailing Party is entitled to recover reasonable attorney's fees and other costs and expenses, whether the same are incurred with or without a lawsuit.

ARTICLE 14. JURISDICTION, VENUE AND NONWAIVER

It is agreed that this Agreement shall be construed under and governed by the laws of the State of Idaho. In the event of litigation concerning it, it is agreed that proper venue shall be the District Court of the Second Judicial District of the State of Idaho, in and for the County of Latah. Failure of CITY to exercise any of the rights under this Agreement, or breach thereof, shall not be deemed to be a waiver of such right or a waiver of any subsequent breach.

ARTICLE 15. SPECIAL WARRANTY

CONTRACTOR warrants that nothing of monetary value has been given, promised or implied as remuneration or inducement to enter into this Agreement. CONTRACTOR declares that no improper personal, political or social activities have been used or attempted in an effort to influence the outcome of the competition, discussion, or negotiation leading to the award of this Agreement. Any such activity by CONTRACTOR shall make this Agreement null and void. CONTRACTOR further warrants that all materials and goods supplied under this Agreement shall be of good merchantable quality and that all services will be performed in a good skillful manner. CONTRACTOR acknowledges that it will be liable for any breach of this warranty.

ARTICLE 16. COMMUNICATIONS

Such communications as are required by this Agreement shall be satisfied by mailing or by personal delivery to the Parties at the following address:

CONTRACTOR:

Company Name
Authorized Agent
Street Address
City, State, Zip

CITY:

City of Moscow
Engineering Division
206 East Third Street
PO Box 9203
Moscow, ID 83843

**ARTICLE 17.
NON-APPROPRIATIONS**

This Agreement is contingent upon CITY receiving the necessary funding to cover the obligations of CITY. In the event that such funding is not received or appropriated, then, and in that event, CITY's obligations under this Agreement shall cease and each Party shall be released from further performance under this Agreement without any liability to the other Party, and CONTRACTOR shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder.

**ARTICLE 18.
APPROVAL REQUIRED AND SEVERABILITY**

This Agreement shall not become effective or binding until approved by CITY. The terms of this Agreement shall be deemed severable. If any part of this Agreement is held invalid or unenforceable by a court of competent jurisdiction, the remaining portions of the Agreement will, nevertheless, remain in full force and effect so long as the remainder of this Agreement is capable of completion.

**ARTICLE 19.
DRUG/TOBACCO FREE FACILITIES**

All CITY facilities are drug and tobacco free facilities. Any drug and/or tobacco use (smoked or smokeless) is prohibited at all times on all areas of CITY facilities.

**ARTICLE 20.
HEADINGS, TITLES AND CAPTIONS**

Headings, captions, and titles of sections of this Agreement are for the convenience of reference only, and are not intended to define, limit, or describe the scope or intent of any provision of this Agreement, and shall not affect the construction of any provision of this Agreement.

**ARTICLE 21.
EXECUTION**

IN WITNESS WHEREOF, said CONTRACTOR and CITY have caused this Agreement to be executed on the day and year first above written.

This Agreement may be executed by the use of electronic signatures pursuant to Idaho Code §28-50-107, which has the same force and effect as a handwritten signature. If electronic signatures are utilized, the acknowledgement before a notary is not required.

I, Authorized Agent, certify under the penalty of perjury pursuant to the law of the State of Idaho, that the foregoing is true and correct and that I am an authorized agent to bind Company to this Agreement. If I am signing this document utilizing a digital signature, I understand that my digital signature is valid and binding upon me to the same force and effect as a handwritten signature.

CONTRACTOR:

Company

CITY:

City of Moscow, Idaho

Authorized Agent

Hailey Lewis, Mayor

ATTEST:

Laurie M. Hopkins, City Clerk

Approved as to Form:

Mia Bautista, City Attorney

ACKNOWLEDGMENT

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 2026, before me, a Notary Public in and for said State, appeared Authorized Agent, known to me to be the person named above and acknowledged that they executed the foregoing document as the duly authorized representative for Company .

Notary Public for the State of _____
Residing at _____
My commission expires _____

CONTRACTOR'S AFFIDAVIT CONCERNING TAXES

STATE OF (_____)

COUNTY OF (_____)

Pursuant to the Idaho Code, Title 63, Chapter 15, I the undersigned, being duly sworn, deposes and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a contract for construction of any public works in the State of Idaho.

Name of Contractor

Address

City and State

By
Authorized Representative

Subscribed and sworn to before me this _____ day of _____, 2026

NOTARY PUBLIC, residing at

Commission expires

MISCELLANEOUS FORMS BY REFERENCE

CERTIFICATE OF INSURANCE:

By Reference

The printed form, Supplemental Attachment for ACORD Certificate of Insurance, standard form of The American Institute of Architects, A.I.A. Doc. G715, Current Edition, included herein by reference, or insurance company's standard approved form, together with one (1) duplicate copy of all applicable insurance policies covered by certificate shall be provided to the Architect by the Contractor to whom a contract is awarded within ten (10) calendar days after execution of Contract Agreement, and prior to any work being done on the project by the Contractor.

Forms will be provided by the Architect and four (4) copies shall be executed by an insurance company duly authorized to conduct business in the State of Idaho, and satisfactory to the Owner.

Upon compliance with insurance requirements, and when properly executed, same shall become a part of the contract documents.

CERTIFICATE OF SUBSTANTIAL COMPLETION:

By Reference

The printed form, Certificate of Substantial Completion, standard form of the American Institute of Architects, A.I.A. Doc. G704, Current Edition, shall, upon completion of the work, be furnished by the Architect to the Contractor, and, when properly executed by all parties thereto, shall identify the contract warranty period and the Owner's obligations upon acceptance of the work.

CONTRACTOR'S AFFIDAVIT OF PAYMENT OF DEBTS AND CLAIMS:

By Reference

The printed form, Contractor's Affidavit of Payment of Debts and Claims, standard form of The American Institute of Architects, A.I.A. Doc. G706, Current Edition, is included herein by reference and shall apply to the contract.

Same shall be furnished by the Architect to the Contractor, and when properly executed shall become a part of the contract documents.

MISCELLANEOUS FORMS 1 of 2

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CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS:

By Reference

The printed form, Contractor's Affidavit of Release of Liens, standard form of The American Institute of Architects, A.I.A. Doc. G706A, Current Edition, is included herein by reference and shall apply to the contract.

Same shall be furnished by the Architect to the Contractor, and when properly executed shall become a part of the contract documents.

CONSENT OF SURETY COMPANY TO FINAL PAYMENT:

By Reference

The printed form, Consent of Surety Company to Final Payment, standard form of The American Institute of Architects, A.I.A. Doc. G707, Current Edition, is included herein by reference and shall apply to the contract.

Same shall be furnished by the Architect to the Contractor, and when properly executed shall become a part of the contract documents.

END OF MISCELLANEOUS FORMS SECTION

MISCELLANEOUS FORMS 2 of 2

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SECTION 01 10 00 – SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Work covered by the Contract Documents.
 - 2. Work under other contracts.
 - 3. Use of premises.
 - 4. Owner's occupancy requirements.
 - 5. Work restrictions.
 - 6. Specification formats and conventions.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: City of Moscow – Moscow East City Park Stage Replacement
 - 1. Project Location: 900 E Third Street, Moscow, ID 83843
- B. Owner: City of Moscow
 - 1. Owner's Representative: David Schott
- C. Architect: Design West Architects
- D. The Work consists of the following:
 - 1. The Work includes all labor and material to complete the work included in the Contract Documents for the project.
 - 2. The contractor shall include all necessary costs to complete and achieve the work shown. Existing construction documents for the previous construction of the Restrooms are available for review by contractors. Conditions that are apparent, reasonably inferable, or disclosed in the available documents shall not be considered “unforeseen conditions” as basis for contractor claims for cost or time extensions.

1.3 WORK UNDER OTHER CONTRACTS or by OWNER

- A. General: Cooperate fully with separate contractors so work on those contracts may be carried out smoothly, without interfering with or delaying work under this Contract. Coordinate the Work of this Contract with work performed under separate contracts.

1.4 USE OF PREMISES

- A. General: Contractor shall have use of premises for construction operations, including use of Project site, during construction period. Contractor's use of premises is limited by:
 - 1. Owner's right to perform work or to retain other contractors on portions of Project.
 - 2. Other limitations contained in articles below
 - 3. Contractual schedule restrictions for completion of portions of the work to allow Owner occupancy of portions of the Site.
- B. Use of Site: Limit use of premises to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Limits: Confine constructions operations to comply with the requirements of the Contractual Schedule defined in the article(s) below.
 - 2. Owner Occupancy: Allow for Owner occupancy of Project site as defined below.
 - a. Allow for Owner's continual occupancy of the remainder of the site
 - b. Access to existing site improvements and road entries on the project site
 - c. Work by Others and Work by Owner's own forces.
 - d. Construction operations to be limited to areas and timing coordinated with the owner.
 - 3. Driveways and Entrances: Promptly repair any damage. Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Access to Site: Limited to the routes and areas designated by the Owner's representative, and permitted by the authorities having jurisdiction.

- b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.
 - c. Schedule deliveries to minimize disruption to the Owner's operation of the surrounding Park
- 4. Time Restrictions for Performing Work in areas impacting utilities or the Owner's use of other portions of the building and site shall be coordinated with the Owner in advance of any work being performed. The Contractor shall allow a minimum of 14 days advanced notice of any work impacting site functions.
- 5. Nonsmoking Building: Smoking is not permitted in the Park.
- 6. Pedestrian and Vehicle protection and coordination may be required. Submit a plan to City for approval.
- 7. The contractor must keep within the property lines of the site, this designated staging area shall be for Contractor use. Contractor shall be responsible for its safety and security. Any additional staging area shall be the responsibility of the contractor.

1.5 OWNER'S OCCUPANCY REQUIREMENTS

- A. The Owner will continue to operate and occupy the portions of the Site outside the designated areas. The contractor will coordinate and limit their work to allow the Owner the full use of those areas.
- B. Owner Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed areas of the project, before Substantial Completion, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and partial occupancy shall not constitute acceptance of the total Work.
 - 1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied before Owner occupancy.
 - 2. Contractor shall obtain a Certificates of Occupancy as required from authorities having jurisdiction before Owner occupancy.
 - 3. Before partial Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of building.
 - 4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of building.

1.6 WORK RESTRICTIONS

- A. On-Site Work Hours: Work shall be generally performed during normal business working hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, except as otherwise indicated.
 - 1. Early Morning and Late Evening Hours: restrictions in accordance with regulations by authorities having jurisdiction for restrictions on noisy work. Request permission from Owner and Authorities having Jurisdiction to work outside normal work hours
 - 2. Hours for Utility Shutdowns: Provide two weeks advance request and notice of intended utility shut downs during the time that the Owner is occupying the adjacent facilities. Minimize the duration of any utility outage that affects the Owner's facilities.
 - 3. Work hours also are to comply with the local City Ordinances and requirements.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect and Owner not less than two weeks in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Owner's written permission.
- C. Coordinate noisy construction operations that will impact the use of the remainder of the building. Coordinate these items with the owner during construction.
- D. Any and all pets and animals are not permitted on the project site at any time.

1.7 DOCUMENTS AND SPECIFICATION FORMATS AND CONVENTIONS

- A. The Contract Documents, including the Drawings and Specifications, are complementary and what is required by one shall be binding as if required by all. Work shown or required by any portion of the contract documents shall be provided by the contractor.
- B. Organization of the Specifications and Drawing keynotes into divisions, sections and articles, and the arrangement and numbering of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by a trade. The General Contractor is solely responsible for assigning work among various subcontractors and trades; the General Contractor is ultimately responsible for all work under the contract.
- C. Specification Format: The Specifications are organized into Divisions and Sections using the 50-division format and CSI/CSC's "MasterFormat" numbering system.
 - 1. Section Identification: The Specifications use Section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete because all available Section numbers are not used. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of Sections in the Contract Documents.
 - 2. Division 01: Sections in Division 01 govern the execution of the Work of all Sections in the Specifications.
- D. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.

1.8 CONTRACTUAL PERFORMANCE SCHEDULE

- A. The contractor shall plan and execute the work to comply with the following schedule:
 - 1. 151 calendar days from day of Notice to Proceed. Includes all the work of the project. Reference the drawings for area and work.
 - 2. The 1 year warranty period shall begin on the date of Substantial Completion
 - 3. Project Final Completion shall be achieved within 30 consecutive calendar days following the issuance of Substantial Completion. Reference specification 01 77 00 and the Owner-Contractor Agreement for Project Closeout and Final Completion requirements.
- B. Liquidated damages shall begin and accrue from the failure to meet any of the deadlines defined in the project schedule above.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 10 00

SECTION 01 23 00 - ALTERNATES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. Submission procedures.
2. Documentation of changes to Contract Sum/Price and Contract Time.

1.2 REQUIREMENTS

- ##### A.
- Coordinate related work and modify surrounding work as required to properly integrate the Work of each Alternate and to provide complete construction required by the Contract Documents.

1.3 SELECTION AND AWARD OF ALTERNATIVES

- ##### A.
- Alternates quoted on Bid Forms will be accepted or rejected under the provisions of Document A701, Instructions to Bidders, Subparagraph 5.3.2.

1.4 SCHEDULE OF ALTERNATES

Alternate No. 1: Dancers Plaza

The Base Bid shall include all finished grading to allow for landscaping by the Owner
Provide an ADD Alternate price to complete the concrete Dancers Plaza defined in the Construction Documents.

Alternate No. 2: Service Panelboard With 400A Main Breaker

The Base Bid shall include all new electrical work shown in the Construction Documents from (E) 200A panelboard A
Provide an ADD Alternate price for the additional electrical service work to the 400A panelboard MP

PART 2 - PRODUCTS - not used.

PART 3 - EXECUTION - not used.

END OF SECTION 01 23 00.

SECTION 01 26 00 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing Minor Changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on AIA Document G710, "Architect's Supplemental Instructions."

1.3 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Proposal Requests issued by Architect are for information only. Do not consider them instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 10 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
- B. Contractor-Initiated Proposals: If latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Architect.
 - 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Division 01 Section "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.

1.4 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701.

1.5 CONSTRUCTION CHANGE DIRECTIVE

- A. Construction Change Directive: Architect may issue a Construction Change Directive on AIA Document G714. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 26 00

SECTION 01 29 00 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.

1.2 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.3 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with Continuation Sheets.
 - b. Submittals Schedule.
 - c. Contractor's Construction Schedule.
 - 2. Submit the Schedule of Values to Architect at earliest possible date but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 - 3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 2. Submit draft of AIA Document G703 Continuation Sheets.
 - 3. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 - 1) Percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training.
 - 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If specified, include evidence of insurance or bonded warehousing.
7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
8. Provide separate line items in the Schedule of Values for each division of work, separating material and labor costs under each division.
9. Provide separate line item in the Schedule of Values for project closeout. Value of project closeout shall be **0.5% of the contract amount or \$10,000, whichever is greater.**
10. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
11. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.4 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction Work covered by each Application for Payment is the period indicated in the Agreement.
- C. Payment Application Times: The Owner's payment process "cut off dates" will be provided to the contractor. The period covered by each Application for Payment is one month, ending on the last day of the month.
- D. Payment Application Forms: Use AIA Document G702 and AIA Document G703 Continuation Sheets as form for Applications for Payment.
- E. Payment Application Forms: Use forms provided by Owner for Applications for Payment. Sample copies are included at end of this Section.
- F. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
 1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders (and Construction Change Directives—if used) issued before last day of construction period covered by application.
- G. Maximum billing amount of 95% that Owner will allow for:
 1. Operable equipment and systems pending demonstration of full function.
 2. Landscape and Irrigation
 3. Site Equipment
 4. Overhead Coiling Doors
 5. Miscellaneous Equipment
 6. Food Service Equipment
 7. Plumbing Equipment
 8. HVAC Equipment
 9. HVAC Controls
 10. Fire Protection
 11. Service Voltage Equipment
 12. Low Voltage Equipment and Instrument
 13. Telecommunications

- H. Transmittal: Submit 3 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- I. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- J. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- K. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of Values.
 3. Contractor's Construction Schedule (preliminary if not final).
 4. Products list.
 5. Schedule of unit prices.
 6. Submittals Schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
 16. Initial settlement survey and damage report if required.
 17. Labor and Industries required Intent to Pay Prevailing Wage statements.
- L. Application for Payment at Substantial Completion: After issuing the Certificate of Substantial Completion, submit an Application for Payment showing 95 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.

M. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:

1. Evidence of completion of Project closeout requirements.
2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
3. Updated final statement, accounting for final changes to the Contract Sum.
4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
6. AIA Document G707, "Consent of Surety to Final Payment."
7. Evidence that claims have been settled.
8. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
9. Labor and Industries required Affidavit of Prevailing Wage Paid statements.
10. Final, liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 29 00

SECTION 01 31 00 - PROJECT MANAGEMENT & COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. Coordination Drawings.
 - 2. Administrative and supervisory personnel.
 - 3. Project meetings.
 - 4. Requests for Interpretation (RFIs).
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility will be assigned to a specific contractor.

1.2 DEFINITIONS

- A. RFI: Request from Contractor seeking interpretation or clarification of the Contract Documents.

1.3 COORDINATION

- A. Coordination: Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the Work. Each contractor shall coordinate its operations with operations, included in different sections, that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 - 2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 - 3. Make adequate provisions to accommodate items scheduled for later installation.
 - 4. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
 - 5. Coordinate sequence and space requirements above the ceiling for lighting, power, telecommunications, fire alarm, fire sprinkler, plumbing and fire sprinkler lines. Provide all necessary support and coordination to allow installation of above ceiling utilities within the available space between structural members and the ceilings heights indicated in the drawings.
- B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various contractors having interdependent responsibilities for installing, connection to, and providing service, for such equipment
- C. Coordinate space requirements and concealed installation of mechanical and electrical work which are indicated diagrammatically on drawings. Following routing shown for pipes, ducts, and conduits, as closely as practicable; make runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs
- D. In finished areas except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements
- E. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
 - 1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- F. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
 - 1. Preparation of Contractor's Construction Schedule.

2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.
 9. Project closeout activities.
- G. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. Refer to other Sections for disposition of salvaged materials that are designated as Owner's property.
- 1.4 SUBMITTALS
- A. Initial and complete submittals shall be received no later than **30** days after the Notice to Proceed for review and comment. Failure to comply with this deadline shall constitute breach of contract, and shall be subject to liquidated damages.
- B. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Content: Project-specific information, drawn accurately to scale. Do not base Coordination Drawings on reproductions of the Contract Documents or standard printed data. Include the following information, as applicable:
 - a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - b. Indicate required installation sequences.
 - c. Indicate dimensions shown on the Contract Drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.
 2. Sheet Size: At least **8-1/2 by 11 inches** but no larger than **30 by 40 inches**.
 3. Number of Copies: Submit PDF and three copies of each submittal. Architect, will return one copy.
 - a. Electronic submittal copies to be considered. Final determination to be made at Pre-Construction meeting.
 4. Refer to individual Sections for Coordination Drawing requirements for Work in those Sections.
- C. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project.
1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.
- 1.5 ADMINISTRATIVE AND SUPERVISORY PERSONNEL
- A. General: In addition to full-time project superintendent, provide other administrative and supervisory personnel as required for proper performance of the Work.
1. Include special personnel required for coordination of operations with other contractors.
 2. General Superintendent – this individual will represent the general contractor primarily, and will be responsible for coordination of contractors, safety, technical aspects of the construction, maintenance of the schedule, generation of Requests for Information and similar duties. This individual will be responsible for pre-installation meetings,

maintenance of as-built drawings, shop drawing and submittal coordination and distribution, monitoring and logging of site visits, and other functions typical of a Quality Control Officer. This position will also be responsible for coordination with subcontractors and vendors.

3. Contractor's staff shall be responsible for computer generated (e-mail), phone, job-site filing, correspondence, distribution of minutes, drafts of pay applications and generally ensures that the job office is staffed during the normal work week hours of operation.
4. The contractor may distribute the duties among their personnel in any manner acceptable to the owner.
5. The contractor must provide the name and phone number of a designated local employee or resident who is generally available evenings and weekends to respond to emergencies on the job-site. This is not an on-call position, but the phone number must be provided with an answering machine / voicemail to ensure a timely response.
6. Inform Architect and Owner, in writing, of the name, address and telephone of the designated local employee.

1.6 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within five days of the meeting.
- B. Preconstruction Conference: Schedule a preconstruction conference before starting construction, at a time convenient to Owner, and Architect, but no later than 15 days after execution of the Agreement. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 1. Architect/ Engineer will administer preconstruction conference for execution of Owner - Contractor Agreement, clarification of Owner and Contractor responsibilities in use of site, review of administrative procedures, and exchange of preliminary submittals
 2. Attendees: Authorized representatives of Owner Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for RFIs.
 - g. Procedures for testing and inspecting.
 - h. Procedures for processing Applications for Payment.
 - i. Distribution of the Contract Documents.
 - j. Submittal procedures.
 - k. Preparation of Record Documents.
 - l. Use of the premises and existing building.
 - m. Work restrictions.
 - n. Owner's occupancy requirements.
 - o. Responsibility for temporary facilities and controls.
 - p. Construction waste management and recycling.
 - q. Parking availability.
 - r. Office, work, and storage areas.

- s. Equipment deliveries and priorities.
- t. First aid.
- u. Security.
- v. Progress cleaning.
- w. Working hours.
- 4. Minutes: Architect will record and distribute meeting minutes.
- C. Progress & Coordination Meetings: Conduct progress meetings at approximately weekly intervals. Coordinate dates of meetings with preparation of payment requests.
 - 1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 - 2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.
 - b. Review present and future needs of each entity present, including the following:
 - 1) Interface requirements.
 - 2) Sequence of operations.
 - 3) Status of submittals.
 - 4) Deliveries.
 - 5) Off-site fabrication.
 - 6) Access.
 - 7) Site utilization.
 - 8) Temporary facilities and controls.
 - 9) Work hours.
 - 10) Hazards and risks.
 - 11) Progress cleaning.
 - 12) Quality and work standards.
 - 13) Status of correction of deficient items.
 - 14) Field observations.
 - 15) RFIs.
 - 16) Status of proposal requests.
 - 17) Pending changes.
 - 18) Status of Change Orders.
 - 19) Pending claims and disputes.
 - 20) Documentation of information for payment requests.
 - 3. Minutes: Contractor shall Record the meeting minutes.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.
- 1.7 REQUESTS FOR INTERPRETATION (RFIs)
 - A. Procedure: Immediately on discovery of the need for interpretation of the Contract Documents, and if not possible to request interpretation at Project meeting, prepare and submit an RFI in the form specified.

1. RFIs shall originate with Contractor. RFIs submitted by entities other than Contractor will be returned with no response.
 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.
 3. Submit each RFI with the cover tracking transmittal form provided at the end of this section
- B. Content of the RFI: Include a detailed, legible description of item needing interpretation and the following:
1. Project name.
 2. Date.
 3. Name of Contractor.
 4. Name of Architect.
 5. RFI number, numbered sequentially.
 6. Specification Section number and title and related paragraphs, as appropriate.
 7. Drawing number and detail references, as appropriate.
 8. Field dimensions and conditions, as appropriate.
 9. Contractor's suggested solution(s). If Contractor's solution(s) impact the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 10. Contractor's signature.
 11. Attachments: Include drawings, descriptions, measurements, photos, Product Data, Shop Drawings, and other information necessary to fully describe items needing interpretation.
 - a. Supplementary drawings prepared by Contractor shall include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments.
- C. Hard-Copy RFIs: Cover transmittal form at end of this Section.
1. Identify each page of attachments with the RFI number and sequential page number.
- D. Software-Generated RFIs: Software-generated form with substantially the same content as indicated above.
1. Attachments shall be electronic files in Adobe Acrobat PDF format.
- E. Architect's Action: Architect will review each RFI, determine action required, and return it. Allow seven working days for Architect's response for each RFI. RFIs received after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for coordination information already indicated in the Contract Documents.
 - d. Requests for adjustments in the Contract Time or the Contract Sum.
 - e. Requests for interpretation of Architect's actions on submittals.
 - f. Incomplete RFIs or RFIs with numerous errors.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will start again.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 7 days of receipt of the RFI response.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven days if Contractor disagrees with response.
- G. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly:
1. Project name.
 2. Name and address of Contractor.

3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 31 00

Design West Architects
254 E. Main Street
Pullman, WA 99163
509.332.3113

Job Site

REQUEST FOR INFORMATION TRANSMITTAL

PROJECT: City of Moscow – East City Park Stage Replacement
CONTRACTOR:
ARCHITECT: Design West Architects
STRUCTURAL: LSB Engineers
ELECTRICAL: MSI Engineers
CIVIL: Syntier Engineering

DWA #25101

ITEM:

REF DWG OR
SPEC:

RFI
NO.

ROUTING

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Moscow, Idaho

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SECTION 01 32 00 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Submittals Schedule.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Field condition reports.
 - 7. Special reports.

1.2 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical activities are activities on the critical path. They must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the Schedule of Values for the completion of an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum, unless otherwise approved by Architect.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of Project.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.
- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Fragnet: A partial or fragmentary network that breaks down activities into smaller activities for greater detail.
- H. Major Area: A story of construction, a separate building, or a similar significant construction element.
- I. Milestone: A key or critical point in time for reference or measurement.
- J. Network Diagram: A graphic diagram of a network schedule, showing activities and activity relationships.
- K. Resource Loading: The allocation of manpower and equipment necessary for the completion of an activity as scheduled.

1.3 SUBMITTALS

- A. Qualification Data: For scheduling consultant.
- B. Submittals Schedule: Submit three copies of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.

2. Specification Section number and title.
 3. Submittal category (action or informational).
 4. Name of subcontractor.
 5. Description of the Work covered.
 6. Scheduled date for Architect's final release or approval.
 - C. Preliminary Construction Schedule: Submit two opaque copies.
 1. Approval of cost-loaded preliminary construction schedule will not constitute approval of Schedule of Values for cost-loaded activities.
 - D. Preliminary Network Diagram: Submit two opaque copies, large enough to show entire network for entire construction period. Show logic ties for activities.
 - E. Contractor's Construction Schedule: Submit two opaque copies of initial schedule, large enough to show entire schedule for entire construction period.
 1. Submit an electronic copy of schedule, using software indicated, on CD-R, and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
 - F. CPM Reports: Concurrent with CPM schedule, submit three copies of each of the following computer-generated reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 1. Activity Report: List of all activities sorted by activity number and then early start date, or actual start date if known.
 2. Logic Report: List of preceding and succeeding activities for all activities, sorted in ascending order by activity number and then early start date, or actual start date if known.
 3. Total Float Report: List of all activities sorted in ascending order of total float.
 4. Earnings Report: Compilation of Contractor's total earnings from commencement of the Work until most recent Application for Payment.
 - G. Daily Construction Reports: Allow Owner and Architect to review Daily Construction reports upon request.
- 1.4 QUALITY ASSURANCE
- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to the Preliminary Construction Schedule and Contractor's Construction Schedule, including, but not limited to, the following:
 1. Review software limitations and content and format for reports.
 2. Verify availability of qualified personnel needed to develop and update schedule.
 3. Discuss constraints, including phasing, area separations and partial Owner occupancy.
 4. Review delivery dates for Owner-furnished products.
 5. Review schedule for work of Owner's separate contracts.
 6. Review time required for review of submittals and resubmittals.
 7. Review requirements for tests and inspections by independent testing and inspecting agencies.
 8. Review time required for completion and startup procedures.
 9. Review and finalize list of construction activities to be included in schedule.
 10. Review submittal requirements and procedures.
 11. Review procedures for updating schedule.
- 1.5 COORDINATION
- A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.
 - B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, progress reports, payment requests, and other required schedules and reports.
 1. Secure time commitments for performing critical elements of the Work from parties involved.

2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.
 2. Initial Submittal: Submit concurrently with preliminary network diagram. Include submittals required during the first 60 days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
 3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Procedures: Comply with procedures contained in AGC's "Construction Planning & Scheduling."
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each principal element of the Work. Comply with the following:
 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 2. Procurement Activities: Include procurement process activities for the following long lead items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 3. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 4. Startup and Testing Time: Include not less than 14 days for startup and testing.
 5. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
 1. Phasing: Arrange list of activities on schedule by phase.
 2. Work under More Than One Contract: Include a separate activity for each contract.
 3. Work by Owner: Include a separate activity for each portion of the Work performed by Owner.
 4. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 5. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 6. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.

- b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 - 7. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Startup and placement into final use and operation.
 - 8. Area Separations: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Permanent space enclosure.
 - c. Completion of mechanical installation.
 - d. Completion of electrical installation.
 - e. Substantial Completion.
 - E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion, and the interim milestones defined in Section 01 10 00.
 - F. Cost Correlation: At the head of schedule, provide a cost correlation line, indicating planned and actual costs. On the line, show dollar volume of the Work performed as of dates used for preparation of payment requests.
 - 1. Refer to Division 01 Section "Payment Procedures" for cost reporting and payment procedures.
 - 2. Contractor shall assign cost to construction activities on the CPM schedule. Costs shall not be assigned to submittal activities unless specified otherwise but may, with Architect's approval, be assigned to fabrication and delivery activities. Costs shall be under required principal subcontracts for testing and commissioning activities, operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training (if applicable), in the amount of 5 percent of the Contract Sum.
 - 3. Each activity cost shall reflect an accurate value subject to approval by Architect.
 - 4. Total cost assigned to activities shall equal the total Contract Sum.
 - G. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragnets to demonstrate the effect of the proposed change on the overall project schedule.
 - H. Computer Software: Prepare schedules using a program that has been developed specifically to manage construction schedules.
- 2.3 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)
- A. General: Prepare network diagrams using AON (activity-on-node) format.
 - B. Preliminary Network Diagram: Submit diagram within 14 days of date established for the Notice to Proceed. Outline significant construction activities for the first 90 days of construction.

Include skeleton diagram for the remainder of the Work and a cash requirement prediction based on indicated activities.

- C. CPM Schedule: Prepare Contractor's Construction Schedule using a computerized time-scaled CPM network analysis diagram for the Work.
 - 1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 - 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 - 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 - 4. Use "one workday" as the unit of time. Include list of nonworking days and holidays incorporated into the schedule.
- D. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Using the preliminary network diagram, prepare a skeleton network to identify probable critical paths.
 - 1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Fabrication.
 - f. Utility interruptions.
 - g. Installation.
 - h. Work by Owner that may affect or be affected by Contractor's activities.
 - i. Testing and commissioning.
 - 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 - 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 - 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.
- E. Initial Issue of Schedule: Prepare initial network diagram from a list of straight "early start-total float" sort. Identify critical activities. Prepare tabulated reports showing the following:
 - 1. Contractor or subcontractor and the Work or activity.
 - 2. Description of activity.
 - 3. Principal events of activity.
 - 4. Immediate preceding and succeeding activities.
 - 5. Early and late start dates.
 - 6. Early and late finish dates.
 - 7. Activity duration in workdays.
 - 8. Total float or slack time.
 - 9. Average size of workforce.
 - 10. Dollar value of activity (coordinated with the Schedule of Values).
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 - 1. Identification of activities that have changed.
 - 2. Changes in early and late start dates.

3. Changes in early and late finish dates.
4. Changes in activity durations in workdays.
5. Changes in the critical path.
6. Changes in total float or slack time.
7. Changes in the Contract Time.
- G. Value Summaries: Prepare two cumulative value lists, sorted by finish dates.
 1. In first list, tabulate activity number, early finish date, dollar value, and cumulative dollar value.
 2. In second list, tabulate activity number, late finish date, dollar value, and cumulative dollar value.
 3. In subsequent issues of both lists, substitute actual finish dates for activities completed as of list date.
 4. Prepare list for ease of comparison with payment requests; coordinate timing with progress meetings.
 - a. In both value summary lists, tabulate "actual percent complete" and "cumulative value completed" with total at bottom.
 - b. Submit value summary printouts one week before each regularly scheduled progress meeting.

2.4 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions.
 7. Accidents.
 8. Meetings and significant decisions.
 9. Unusual events (refer to special reports).
 10. Stoppages, delays, shortages, and losses.
 11. Meter readings and similar recordings.
 12. Emergency procedures.
 13. Orders and requests of authorities having jurisdiction.
 14. Change Orders received and implemented.
 15. Construction Change Directives received and implemented.
 16. Services connected and disconnected.
 17. Equipment or system tests and startups.
 18. Partial Completions and occupancies.
 19. Substantial Completions authorized.
- B. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a request for interpretation. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

2.5 SPECIAL REPORTS

- A. General: Submit special reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.
- B. Reporting Unusual Events: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, response by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 01 32 00

SECTION 01 33 00 – SUBMITTALS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Construction progress schedules.
 - 2. Submittal Procedures for Shop Drawings, Product Data & Samples.
 - 3. Shop Drawings, Product Data & Samples.
 - 4. Manufacturers' instructions.
 - 5. Manufacturers' certificates.

1.2 CONSTRUCTION PROGRESS SCHEDULES

- A. Progress Schedules shall be a computer-generated Critical Path Method schedule. This CPM schedule will consist of and provide the following:
 - 1. Diagrams which show elements of project in detail and in summary.
 - 2. Diagrams which show order and interdependence of construction activities and sequence in which work is to be accomplished as planned by Contractor.
 - 3. Detailed network activities which include, in addition to the construction activities, the following items:
 - a. Submittal and approval of submittals required under Division 01.
 - b. Procurement of critical materials and equipment.
 - c. Fabrication of special material and equipment, their installation, and testing.
 - d. Activities of the Owner and Architect which affect progress.
 - 4. Selection and number of activities are subject to Architect's review and approval. CPM network activities should coordinate with Payment Request form and Construction Progress Chart.
 - 5. Detailed network diagrams which are time scaled by month or week.
 - 6. Sheet size of diagrams which are of sufficient size to be easily read and understood. Each monthly updated copy shall show date of latest revision.
 - 7. Failure of the Contractor to comply with the requirements for Construction Progress Schedules may be grounds for a determination by the owner that the contractor is not prosecuting the work with sufficient diligence to insure completion within the time specified in the Contract. Upon making this determination, the Owner may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default provisions of this Contract.

1.3 SUBMITTAL PROCEDURES FOR SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Submit a complete list of Required Submittals, on a SUBMITTAL TRACKING SCHEDULE, to be provided by the architect, at or within 5 days of pre-construction meeting. The list is to identify all submittals required by the specification sections. Individual submittals are to be numbered as outlined in Paragraph C, below.
- B. Transmit each submittal with a SUBMITTAL FORM, provided at the end of this Section, to the office of the Architect.
- C. Each submittal form shall be cross-referenced with the submittal number. Submittal numbers shall be in the following format:
 - 1. All number shall be seven digits.

- a. The first five numbers shall reflect the specification section number (i.e. Section 04 34 00 submittals number shall begin with "04 34 00".)
 - b. The next two numbers shall make the particular submittal unique (i.e. the eighth submittal in Section 04 34 00 shall be "04 34 00 - 08".)
- 2. Resubmittals shall to have original number with a numeric / alphabetic suffix. (i.e. first resubmittal would be "04 34 00 -08-R1" the second resubmittal would be "04 34 00 -08-R2").
- D. Identify Project, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate.
- E. Apply Contractor's stamp, signed or initialed certifying that review verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of the Work and contract Documents. Any submittal, shop drawing, product data, or sample that does not bear the Contractor's approval stamp shall be returned without review.
- F. Schedule submittals to expedite the Project, and deliver to Architect at business address. All submittals are required to be submitted to the Architect on acceptable format as outlined herein within thirty (30) days after award of Contract. Coordinate submission of related items. See related sections as outlined in paragraph 1.2 or this Section.
- G. Identify variation form Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.
- H. Provide space for Contractor and Architect review stamps.
- I. Shop drawings, product data, etc. shall be submitted in sufficient time to allow not less than 28 calendar days for the examination of shop drawings by the Architect:
 - 1. Where two or more submittals are interdependent in nature such that the Architect cannot fully review one (or more) without the other, no review shall take place nor shall the 28 day time limit take affect, until all required interdependent submittals have been submitted.
- J. The submittal notes and review does not authorize any increase in cost for the item, installation or related coordination.
- K. Revise and resubmit submittals as required, identify all changes made since previous submittal.
- L. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.4 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

- A. Shop Drawings and Product Data:
 - 1. Submit two prints on bond paper and one print on transparent reproducible media (sepia, vellum, or mylar). The two bond paper prints shall be retained by the architect/consultants, the contractor shall be responsible for reproduction of sufficient copies of reviewed shop drawings for the requirements of this contract and his own uses.
 - 2. Collect required data into one submittal for each unit of work or system. Mark each copy to identify applicable products, models, options, and other data applicable to the Project. Supplement manufacturers' standard data to provide information unique to this Project.
 - 3. Include those requirements as outlined in individual specifications sections as well as any special coordination requirements.
- B. Samples:
 - 1. Submit the number of copies which Contractor requires to be returned to him, plus two copies which will be retained by Architect and professional consultants.

2. Submit samples of finishes from the full range of manufacturer's standard colors; custom colors; and / or texture and patterns as specified in individual specification sections for Architect's selection.
3. Include full project identification on each sample.
- C. After review, reproduce and distribute in accordance with Submittal Procedures above and per Record Documents described in Section 01700 - Contract Closeout.

1.5 MANUFACTURER'S INSTRUCTIONS

- A. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
- B. Identify conflicts between manufacturers' instructions and Contract Documents.

1.6 MANUFACTURER'S CERTIFICATES

- A. When specified in individual specification Sections, submit manufacturer's certificate to Architect for review, in quantities specified for Product Data.
- B. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
- C. Certificates may be recent or previous test results on material or Product, but must be acceptable to Architect.

PART 2 - PRODUCTS - not used.

PART 3 - EXECUTION - not used.

END OF SECTION 01 33 00.

Design West Architects
 254 East Main Street
 Pullman, WA 99163
 (509) 332-3113

Job Site -

SUBMITTAL TRANSMITTAL / SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

PROJECT: City of Moscow – Moscow East City Park Stage Replacement **DWA #25101**
CONTRACTOR:
ARCHITECT: Design West Architects
STRUCTURAL: LSB Engineers
ELECTRICAL: MSI Engineers
 Syntier
CIVIL: Engineering

ITEM:			SUBMITTAL NO.		
			Spec. Section:	Sequence Number:	Resubmittal Number:
REF DWG OR SPEC:					

ROUTING

COMPANY / CONTACT	DATE SENT	DATE REC'D	QTY	SD-SHOP DWG, PD=PRODUCT DATA, S=SAMPLE, O=OTHER	
				TYPE	COMMENTS
FROM:					
TO:					
FROM:					
TO:					
FROM:					
TO:					
FROM:					
TO:					
FROM:					
TO:					
FROM:					
TO:					
FROM:					
TO:					

REMARKS / SPECIAL INSTRUCTIONS / OTHER ROUTING:

(PLEASE DATE AND INITIAL ANY COMMENTS)

Note: THIS TRANSMITTAL SHALL REMAIN WITH SUBMITTAL AT ALL TIMES

SECTION 01 40 00 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Quality Assurance and Control of Installation.
 - 2. References.
 - 3. Field Samples
 - 4. Mock-Up
 - 5. Inspection and testing laboratory services.
 - 6. Manufacturer's field services and reports.

1.2 QUALITY ASSURANCE

- A. Qualifications
 - 1. Perform work by persons qualified to produce workmanship of specified quality.
- B. Regulatory Requirements
 - 1. For products or workmanship specified by association, trade, or federal standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
- C. General
 - 1. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.
 - 2. Comply fully with manufacturers' instructions, including each step in sequence.
 - 3. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.
 - 4. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.
 - 5. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.
 - 6. Asbestos:
 - a. The Contract Documents for this project have been prepared in accordance with generally accepted professional architectural and engineering practices. Accordingly, no asbestos or products containing asbestos have been knowingly specified for this project. Notify the Architect immediately for instruction if:
 - 1) Materials containing asbestos are brought to the site for inclusion in the Work.
 - 2) Asbestos materials are encountered in any existing structures upon which work is being performed.
 - b. At Architect's direction and with owner's approval, an independent testing laboratory will perform testing procedures on suspect materials.
 - c. Contractor shall certify that based upon his best knowledge, information, inspection and belief no building materials containing asbestos were used in the construction of the project. Submit certification on form provided by Owner. Sample form follows this section.

1.3 REFERENCES

- A. Conform to reference standard by date of issue current on building permit.

- B. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.
 - C. The contractual relationship of the parties to the Contract shall not be altered from the Contract Documents by mention or inference otherwise in any reference document.
- 1.4 FIELD SAMPLES
- A. Acceptable samples represent a quality level for the Work.
 - B. Where field samples are specified in individual Sections to be removed, clear area after field sample has been accepted by Architect.
- 1.5 MOCK-UP
- A. Tests will be performed under provisions identified in this Section.
 - B. Assemble and erect specified items, with specified attachment and anchorage devices, flashing, seals and finishes.
 - C. Where mock-up is specified in individual Sections to be removed, clear area after mock-up has been accepted by Architect.
- 1.6 INSPECTION AND TESTING LABORATORY SERVICES
- A. Owner may appoint, employ, and pay for services of an independent firm to perform inspection and testing.
 - B. The independent firm will perform inspections, tests, and other services specified in individual specification Sections and as required by the Architect.
 - C. Reports will be submitted by the independent firm to the Architect, indicating observations and results of tests and indicating compliance or non-compliance with Contract Documents.
 - D. Cooperate with independent firm; furnish samples of materials, design mix, equipment, tools, storage and assistance as requested.
 - 1. Notify Architect and independent firm two (2) working days prior to expected time for operations requiring services.
 - 2. Make arrangements with independent firm and pay for additional samples and tests required for Contractor's use.
 - E. Re-testing required because of non-conformance to specified requirements shall be performed by the same independent firm on instructions by the Architect. Payment for re-testing will be charged to and paid for by the Contractor.
- 1.7 MANUFACTURER'S FIELD SERVICES AND REPORTS
- A. Submit qualifications of observer to Architect thirty (30) days in advance of required observations. Observer subject to approval of Architect.
 - B. When specified in individual specification Sections, require material or Product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment as applicable, and to initiate instructions when necessary.
 - C. Individuals to report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturer's written instructions.
 - D. Submit report in duplicate within thirty (30) days of observation to Architect for review.

PART 2 - PRODUCTS – NOT USED

PART 3 - EXECUTION – NOT USED

CONSTRUCTION MATERIAL ASBESTOS STATEMENT

Building Name: _____

Building Address:

Building Owner: _____

Completion Date:

As GENERAL CONTRACTOR in charge of construction; based on my best knowledge, information, inspection and belief; I certify that on the above-referenced building no asbestos containing building materials were used in the construction.

Date General Contractor in Charge

Company Name

END OF SECTION 01 40 00.

SECTION 01 50 00 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.2 DEFINITIONS

- A. Permanent Enclosure: As determined by Architect, permanent or temporary roofing is complete, insulated, and weathertight; exterior walls are insulated and weathertight; and all openings are closed with permanent construction or substantial temporary closures.

1.3 USE CHARGES

- A. General: Cost or use charges for temporary facilities shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
- B. Portable Sewer Service: Contractor shall utilize Owner's sewer service by all entities for construction operations when available. When facilities are not available Pay portable sewer service use charges for sewer usage by all entities for construction operations.
- C. Electric Power Service: Contractor shall utilize Owner's electric power service for electricity used by all entities for construction operations. Provide connections and extensions of services as required for construction operations. Contractor shall conserve power. Owner's electrical power may NOT be used for temporary heat.
- D. Water Service: Contractor shall utilize Owner's water service for water used by all entities for construction operations. Provide connections and extensions of services as required for construction operations. Contractor shall conserve water.

1.4 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.5 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for protection of each permanent service before Owner's acceptance, regardless of previously assigned responsibilities. Permanent equipment and systems shall not be used during the construction period.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 9 gauge (0.148-inch) thick, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 9-gage, galvanized steel, chain-link fabric fencing; minimum 6 feet high with galvanized steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide concrete or galvanized steel bases for supporting posts.
- C. Lumber and Plywood: Comply with requirements in Division 06 Section "Rough Carpentry."
- D. Paint: Comply with requirements in Division 09 painting Sections.

2.2 TEMPORARY FACILITIES

- A. Field Office, Contractor: Contractor shall provide contractor prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading. Maintain field office until final project acceptance.
- B. Field Office Requirements: Of sufficient size to accommodate needs of Owner and construction personnel. Keep office clean and orderly. Furnish and equip offices as follows:
 - 1. Furniture required for Project-site documents including file cabinets, plan tables, plan racks, and bookcases.
 - 2. Conference room of sufficient size to accommodate meetings of 10 individuals. Provide electrical power service and 120-V ac duplex receptacles, with not less than 1 receptacle on each wall. Furnish room with conference table, chairs, and 4-foot- square tack board.
 - 3. Provide secure wireless internet: Allow other entities to use internet without cost, including, but not limited to, Owner's construction forces, Architect, testing agencies, and authorities having jurisdiction.
 - 4. Heating and cooling equipment necessary to maintain a uniform indoor temperature of 68 to 72 deg F.
 - 5. Lighting fixtures capable of maintaining average illumination of 20 fc at desk height.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.
 - 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 - 2. Heating Units: Listed and labeled for type of fuel being consumed, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
 - 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
 - 1. Locate facilities to limit site disturbance as specified in Division 01 Section "Summary."
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Water Service: Coordinate with serving utility to provide water for construction purposes. At Substantial Completion, restore these facilities to condition existing before initial use.
 - 1. Where installations below an outlet might be damaged by spillage or leakage, provide a drip pan of suitable size to minimize water damage. Drain accumulated water promptly from pans.
- C. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
- D. Heating: Provide temporary heating required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low

temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Permanent equipment may not be used for temporary construction period heating or cooling; except where specifically allowed for in individual specifications sections.

- E. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.
- F. Electric Power Service: Provide extensions to electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.
- G. Lighting: Provide temporary lighting with local switching that provides 25 foot candle minimum lighting or additional lighting for adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.
- H. Telephone Service: Provide temporary telephone service in common-use facilities for use by all construction personnel. Install two telephone line(s) for each field office or utilize cell phones if coverage is acceptable.
 - 1. At job site trailer, post a list of important telephone numbers.
 - a. Police and fire departments.
 - b. Ambulance service.
 - c. Contractor's home office.
 - d. Architect's office.
 - e. Engineers' offices.
 - f. Owner's office.
 - g. Principal subcontractors' field and home offices.
 - 2. Provide superintendent with cellular telephone for use when away from field office.
- I. Electronic Communication Service: Provide temporary electronic communication service, including electronic mail, in common-use facilities.
 - 1. Provide high speed internet in primary field office and minimum of one computer with e-mail and internet access in the job-site office.
 - 2. Contractor personnel must have expertise in e-mail correspondence to maintain team coordination. The Contractor will provide all computer equipment (hardware) necessary to accomplish this.
 - 3. The contractor must have the capability to provide electronic transfer of documents such as minutes and spreadsheets through one of the job-site positions. Contractor to provide a scanner able to scan 11x17 size paper to distribute items as needed.
 - 4. The contractor shall provide the owner with e-mail and document transfer capability with the Project Manager at the home office of the company, if the Project Manager is not located at the job-site office

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Comply with the following:
 - 1. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 feet of building lines. Comply with NFPA 241.
 - 2. Maintain support facilities until near Substantial Completion. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Parking: The Owner will allow parking in the areas designated in the drawings. These parking areas are for the use of construction personnel on a first-come, first-served basis. Additional, parking will only be allowed in areas that the City of Moscow allows parking on streets.

- D. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with Division 01 Section "Execution" for progress cleaning requirements.
 - E. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.
 - F. Provide temporary protection for installed products. Control traffic in immediate area to minimize damage.
 - G. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings. Protect finished floors and stairs from traffic, movement of heavy objects, and storage. Repair any damage to Owner's satisfaction
 - H. Prohibit traffic and storage on waterproofed and roofed surfaces, and on lawn and landscaped areas.
 - I. Temporary Use of Permanent Stairs: Cover finished, permanent stairs with protective covering of plywood or similar material so finishes will be undamaged at time of acceptance.
- 3.4 CONTROL, SECURITY AND PROTECTION FACILITIES INSTALLATION
- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - B. Provide security program and facilities to protect work, existing facilities, and Owner's operations from unauthorized entry, vandalism, and theft. Coordinate with Owner's security program.
 - C. Site Enclosure Fence: Before construction operations begin, furnish and install site enclosure fence in a manner that will prevent people and animals from easily entering site except by entrance gates.
 - 1. Extent of Fence: As necessary to maintain public safety, and to ensure security of the site. The contractor shall determine the appropriate extent and duration of need for site security fence. The safety and security of the site is the contractor's responsibility throughout the duration of the project through the date of substantial completion.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Provide Owner with one set of keys.
 - D. Security Enclosure and Lockup: Install substantial temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security.
 - E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
 - F. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.
 - G. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
 - 1. Prohibit smoking in all project areas.
 - 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 - 3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
 - H. The entire site is a non-smoking area. No drugs, tobacco, alcohol, or weapons of any kind shall be allowed on the site.
 - I. No animals, radios or attire with inappropriate or vulgar graphics are allowed on-site.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 - 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Operate Project-identification-sign lighting daily from dusk until 12:00 midnight.
- D. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- E. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 - 2. Remove temporary paving not intended for or acceptable for integration into permanent paving. Where area is intended for landscape development, remove soil and aggregate fill that do not comply with requirements for fill or subsoil. Remove materials contaminated with road oil, asphalt and other petrochemical compounds, and other substances that might impair growth of plant materials or lawns. Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
 - 3. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 01 50 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.2 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature; that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Product: Product that is demonstrated and approved through submittal process, or where indicated as a product substitution, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
 - 4. For products specified by association or trade standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.
 - a. The date of the standard is that in effect as of the Bid date, or date of Owner - Contractor Agreement when there are not bids, except when a specific date is specified
 - b. Obtain copies of standards when required by Contract Documents. Maintain copy at job site during progress of the specific work
- B. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
- C. Basis-of-Design Product Specification: Where a specific manufacturer's product is named and accompanied by the words "basis of design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of other named manufacturers.

1.3 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 - 2. Form: Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.

3. Initial Submittal: Within 30 days after date of commencement of the Work, submit 3 copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - a. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.
 4. Completed List: Within 60 days after date of commencement of the Work, submit 3 copies of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 5. Architect's Action: Architect will respond in writing to Contractor within 15 days of receipt of completed product list. Architect's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Architect's response, or lack of response, does not constitute a waiver of requirement to comply with the Contract Documents.
- B. Substitution Requests: Provide electronically only. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
1. Substitution Request Form: Use the form at the end of this section, any other form will be rejected. Adding qualifications, or otherwise modifying the form shall result in rejection of the substitution.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified material or product cannot be provided.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors; that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - h. Research/evaluation reports evidencing compliance with building code in effect for Project, from a model code organization acceptable to authorities having jurisdiction.
 - i. Detailed comparison of Contractor's Construction Schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating lack of availability or delays in delivery.
 - j. Cost information, including a proposal of change, if any, in the Contract Sum.
 - k. Contractor's certification that proposed substitution complies with requirements in the Contract Documents and is appropriate for applications indicated.
 - l. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Acceptance: Change Order.

- b. Use product specified if Architect cannot make a decision on use of a proposed substitution within time allocated.
 - C. Comparable Product Requests: Submit electronic copy, include the form at the end of this section. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later.
 - a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
 - b. Use product specified if Architect cannot make a decision on use of a comparable product request within time allocated.
 - D. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.
- 1.4 QUALITY ASSURANCE
 - A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
 - 1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
 - 2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.
- 1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING
 - A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - B. Delivery and Handling:
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Off-site storage within in 10 miles of the project site, complying with the requirements of the Supplementary Conditions of the Contract is allowed. Contractor may apply for payment on materials complying with these requirements.
 - 3. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 4. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 5. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - C. Storage:
 - 1. Store products to allow for inspection and measurement of quantity or counting of units.
 - 2. Store materials in a manner that will not endanger Project structure.
 - 3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
 - 4. Store cementitious products and materials on elevated platforms.
 - 5. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
 - 6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 7. Protect stored products from damage and liquids from freezing.
 - 8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.6 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 - 1. Manufacturer's Warranty: Preprinted written warranty published by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 - 2. Special Warranty: Written warranty required by or incorporated into the Contract Documents, either to extend time limit provided by manufacturer's warranty or to provide more rights for Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.
 - 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 - 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using appropriate form properly executed.
 - 3. Refer to Divisions 02 through 49 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, that are undamaged and, unless otherwise indicated, that are new at time of installation.
 - 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 - 2. All products shall be new
 - 3. Products include material, equipment, and systems
 - 4. Specifications and referenced standards are minimum requirements
 - 5. Components required to be supplied in quantity within a specification section shall be the same, and shall be interchangeable
 - 6. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 - 7. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
 - 8. Where products are accompanied by the term "as selected," Architect will make selection.
 - 9. Where products are accompanied by the term "match sample," sample to be matched is Architect's.
 - 10. Descriptive, performance, and reference standard requirements in the Specifications establish "salient characteristics" of products.
 - 11. Or Equal: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in Part 2 "Comparable Products" Article to obtain approval for use of an unnamed product.
- B. Product Selection Procedures:
 - 1. Product: Where Specifications name a single product and manufacturer, provide the named product that complies with requirements.
 - 2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements.
 - 3. Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

4. Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.
5. Available Products: Where Specifications include a list of names of both products and manufacturers, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
6. Available Manufacturers: Where Specifications include a list of manufacturers, provide a product by one of the manufacturers listed, or an unnamed manufacturer, that complies with requirements. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product.
7. Product Options: Where Specifications indicate that sizes, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide the specified product or system. Comply with provisions in Part 2 "Product Substitutions" Article for consideration of an unnamed product or system.
8. Basis-of-Design Product: Where Specifications name a product and include a list of manufacturers, provide the specified product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with provisions in Part 2 "Comparable Products" Article for consideration of an unnamed product by the other named manufacturers.
9. Visual Matching Specification: Where Specifications require matching an established Sample, select a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - a. If no product available within specified category matches and complies with other specified requirements, comply with provisions in Part 2 "Product Substitutions" Article for proposal of product.
10. Visual Selection Specification: Where Specifications include the phrase "as selected from manufacturer's colors, patterns, textures" or a similar phrase, select a product that complies with other specified requirements.
 - a. Standard Range: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that does not include premium items.
 - b. Full Range: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 PRODUCT SUBSTITUTIONS

- A. Timing: Architect will consider requests for substitution if received within 30 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
- B. Substitutions:
 1. Products specified by Reference Standards or by Description Only: Any product meeting those standards
 2. Products specified by Naming One or More Manufactures: Submit a Request for Substitution for any manufacturer not specifically named.
 3. Products Specified by Naming Only One Manufacturer and a statement of No Substitution: No options, no substitutions allowed
- C. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 1. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect

for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.

2. Requested substitution will be considered only when a product becomes unavailable due to no fault of Contractor
3. Requested substitution does not require extensive revisions to the Contract Documents.
4. Requested substitution is consistent with the Contract Documents and will produce indicated results.
5. Substitution request is fully documented and properly submitted.
6. Requested substitution will not adversely affect Contractor's Construction Schedule.
7. Requested substitution has received necessary approvals of authorities having jurisdiction.
8. Requested substitution is compatible with other portions of the Work.
9. Requested substitution has been coordinated with other portions of the Work.
10. Requested substitution provides specified warranty.
11. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
12. Substitutions will not be considered or allowed when they are indicated or implied on shop drawing or product data submittals without separate written request, or when acceptance will require substantial revision of Contract Documents.
13. Substitutions will not be considered if the form following this section is not included.
14. Architect/Engineer and Owner will determine acceptability of proposed substitution, and will notify Contractor of acceptance or rejection in writing within a reasonable time

2.3 COMPARABLE PRODUCTS

- A. Conditions: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
1. Evidence that the proposed product does not require extensive revisions to the Contract Documents; that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
 2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
 3. Evidence that proposed product provides specified warranty.
 4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
 5. Samples, if requested.

PART 3 - EXECUTION (Not Used)

End of Section 01 60 00

Substitution Request (E-mail this form to Chelsea Holstad, Office Manager at: cholstad@designwestpa.com)

TO _____

PROJECT _____

SPECIFIED ITEM _____

Section	Page	Paragraph	Description
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The undersigned requests consideration of the following:

PROPOSED SUBSTITUTION _____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes description of changes to Contract Documents which proposed substitution will require for its proper installation.

The undersigned states that the following paragraphs, unless modified on attachments, are correct.

1. The Proposed Substitution does not affect dimensions shown on Drawings.
2. The undersigned will pay for changes to the building design, including engineering design, detailing and construction costs caused by the requested substitution.
3. The Proposed Substitution will have no adverse affect on other trades, the construction schedule, or specified warranty requirements.
4. Maintenance and service parts will be locally available for the Proposed Substitution.

The undersigned further states that the function, appearance and quality of the Proposed Substitution are equivalent or superior to the Specified Item.

Submitted By _____

Attachments:

Signature _____

Firm _____

Address _____

Date _____

Telephone _____

Fax _____

Email _____

For use by Design Consultant:

____ Accepted ____ Accepted as noted

____ Not Accepted ____ Received too late

By _____

Date _____

Remarks _____

END OF SECTION 01 60 00.1

SECTION 01 73 00 – EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. General installation of products.
 - 4. Coordination of Owner-installed products.
 - 5. Progress cleaning.
 - 6. Starting and adjusting.
 - 7. Protection of installed construction.
 - 8. Correction of the Work.

1.2 SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Certificates: Submit certificate signed by professional engineer certifying that location and elevation of improvements comply with requirements.
- C. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of concealed or underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- C. Acceptance of Conditions: Examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 - 1. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 - a. Description of the Work.
 - b. List of detrimental conditions, including substrates.
 - c. List of unacceptable installation tolerances.
 - d. Recommended corrections.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

3. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
4. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
5. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect. Include a detailed description of problem encountered, together with recommendations for changing the Contract Documents.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 3. Inform installers of lines and levels to which they must comply.
 4. Check the location, level and plumb, of every major element as the Work progresses.
 5. Notify Architect when deviations from required lines and levels exceed allowable tolerances.
 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- B. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
- C. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
- D. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect.

3.4 FIELD ENGINEERING

- A. Identification: Owner will identify existing benchmarks, control points, and property corners.
- B. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points

- promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
- C. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.
 2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.
- 3.5 INSTALLATION
- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.
 4. Maintain minimum headroom clearance of **8 feet** in spaces without a suspended ceiling.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- G. Provide solid, fire-treated wood frame backing and blocking for all wall or ceiling surface mounted items, including but not limited to equipment, grab bars, door stops, partitions, railings, and other accessories. Contractor shall coordinate and verify the locations and installation of backing and blocking prior to the installation of gypsum board systems.
- H. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 2. Allow for building movement, including thermal expansion and contraction.
 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- 3.6 OWNER-INSTALLED PRODUCTS
- A. Site Access: Provide access to Project site for Owner's construction forces.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction forces.

1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
2. Preinstallation Conferences: Include Owner's construction forces at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction forces if portions of the Work depend on Owner's construction.

3.7 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold materials more than 7 days during normal weather or 3 days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.8 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 01 Section "Quality Requirements."

3.9 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.10 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 01 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

SECTION 01 77 00 – CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Project Record Drawings and Documents.
 - 2. Final Project Record Drawings and Documents (As-builts).
 - 3. Operation and Maintenance Manuals.
 - 4. Final Cleaning.
 - 5. Warranties.
 - 6. Closeout Procedures for Substantial Completion.
 - 7. Closeout Procedures for Final Completion.

1.2 PROJECT RECORD DRAWINGS AND DOCUMENTS:

- A. The Contractor shall continually record factual information regarding all aspects of the Work, both concealed and visible; to enable future modification of design to proceed without lengthy and expensive site measurement, investigation and examination.
- B. Contractor shall maintain and continually update one composite set of Project Record Drawings noting changes, modifications, and field verified measurements. Submit this set upon substantial completion to the Owner/Design Team for their use in preparing final as-built drawings on computer media. Owner and Architect shall continually check the progress and condition of Project Record Drawings to verify compliance with this requirement.
- C. Maintain on site, one set of the following documents; record actual revisions to the Work (AS-BUILT REVISIONS) concurrent with construction:
 - 1. Project Record Drawings: Record information on a set of Construction Documents using felt tip marking pens, maintaining a separate color for each major system. Do not conceal any work until required information is recorded. Legibly mark each item to record actual construction including, but not limited to:
 - a. Measured depths of foundations in relation to finish floor datum.
 - b. Measured horizontal and vertical locations of underground utilities and appurtenances referenced to permanent surface improvements.
 - c. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
 - d. Field changes of dimension and detail.
 - d. Details not on original Contract Drawings.
 - 2. Project Record Documents (Project Manual; Digital): Legibly mark and record at each Product section description of actual Products installed, including the following:
 - a. Manufacturer's name and product model and number.
 - b. Product substitutions or alternates utilized.
 - c. Changes made by Addenda and Modifications.
 - d. Addenda.
 - 3. Project Record Documents (Shop Drawings and Submittals; Digital Copy) shop drawings, product data, and samples: Shop drawings, product data and samples are to be included arranged according to the Table of Contents of this Project Manual.
 - 4. Additional Project Information (Digital)
 - a. Change Orders and other Modifications to the Contract.
 - b. Field test records.

- c. Inspection Certificates.
 - d. Manufacturers' Certificates.
 - D. Store Record Drawings and Documents separate from documents used for construction. Do not use Record Documents for construction purposes. Label document "PROJECT RECORD DRAWINGS" or "DOCUMENTS".
 - E. Submit Project Record Drawings and Documents to Architect for review 10 days prior to Substantial Completion.
 - 1. The Architect will review Project Record Drawings and Documents prior to Contractor generating final record drawings. Upon request, Contractor shall participate in review meetings of Project Record Documents, make required changes, and then submit for final review by the Architect.
 - 2. Upon final review by the Architect, the Contractor shall generate a set of reproducible Final Project Record Drawings (As-Built) and Documents as described below.
- 1.3 FINAL PROJECT RECORD DRAWINGS AND DOCUMENTS
- A. The Contractor is to provide the Owner with one (1) complete set of reproducible Final Project Record Drawings (As-Built) and Documents.
 - 1. Final Project Record Drawings (As-Built).
 - a. The Architect shall provide the Contractor a set of original reproducible drawings.
 - b. The Contractor shall have this set reproduced with the Architect's title block and seals deleted from all documents.
 - c. The Contractor shall transfer all information from the reviewed Project Record Drawings to this set.
 - 2. Final Project Record Documents: (Reviewed Project Record Documents).
 - a. Contractor is to provide the Owner with one (1) complete set of Final Project Record Documents 8-1/2 x 11 inch text page and labeled according to Content as follows:
 - 1) Project Manual
 - 2) Shop Drawing, Product Data and Samples
 - (a) Change orders and other modifications to the Contract.
 - (b) Field test records.
 - (c) Inspection Certificates.
 - (d) Warranties and Manufacturer's Certificates.
 - 3. Final Project Record Drawings and Documents shall be submitted prior to the Contractor's Final Application for Payment.

1.4 OPERATION AND MAINTENANCE DATA

- A. Contractor is to provide Digital Copy of Operation and Maintenance Manuals 10 days prior to Substantial Completion, for review by the Architect.
 - 1. Manuals shall be titled "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project printed on the cover. Internally subdivide the binder contents with permanent tabbed page dividers, logically organized as described below; with tab tilting clearly printed under reinforced laminated plastic tabs. Prepare a Table of Contents for each volume, with each Product or system description identified type on 24 pound white paper.
 - 2. Manuals are to include:
 - a. Directory - List names, addresses and telephone numbers of:
 - 1) Architect
 - 2) Contractor
 - 3) Subcontractors
 - 4) Major equipment suppliers

- b. General Information - Provide copies of each of the following:
- 1) Certificate of Occupancy
 - 2) Lien Releases
 - 3) Consent of Surety
 - 4) Certificates of Insurance
 - 5) Contractor's and Subcontractor's One-Year Warranty
 - 6) Extended Warranties required in Individual Specification Sections
 - 7) Air and water balance reports
 - 8) Certificates
 - 9) Photocopies of warranties and bonds
 - 10) Signed Receipt of Extra Stock Items
 - 11) Signed Form that Operation and Maintenance Instruction has been completed with Owner's Representative
 - 12) Certified Completed Punch List
- c. Operation and Maintenance Instructions Divisions 2-14 - Arranged by specification section and for each category, identify names, addresses, and telephone numbers of Subcontractors and Suppliers. Including, but not limited to, the following:
- 1) Significant design criteria
 - 2) List of equipment
 - 3) Parts list for each component
 - 4) Operating instructions
 - 5) Maintenance instructions for equipment and systems
 - 6) Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
- d. Operation and Maintenance Instructions Division 15 - Arranged by specifications section and for each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Including, but not limited to, the following:
- 1) Significant design criteria
 - 2) List of equipment
 - 3) Parts list for each component
 - 4) Operating instructions
 - 5) Maintenance instructions for equipment and systems
 - 6) Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
- e. Operation and Maintenance Instructions Division 16 - Arranged by specification section and for each category - identify names, addresses, and telephone numbers of Subcontractors and suppliers. Including, but not limited to, the following:
- 1) Significant design criteria.
 - 2) List of equipment.
 - 3) Parts list for each component.
 - 4) Operating instructions.
 - 5) Maintenance instructions for equipment and systems.
 - 6) Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.
3. Submit one copy of completed volumes in final form 10 days prior to Substantial Completion. This copy will be returned with Architect comments. Revise content of documents as required prior to Final Completion.
4. Final O&M Manuals shall be presented to Architect at Final Completion.

- 1.5 FINAL CLEANING
- A. Execute final cleaning prior to Substantial Completion and, if necessary, provide additional cleaning in areas of Work prior to Final Completion.
 - B. Clean interior and exterior glass and surfaces exposed to view; remove temporary labels, stains and foreign substances, polish transparent and glossy surfaces, vacuum carpeted and soft surfaces.
 - C. Clean equipment and fixtures to a sanitary condition.
 - D. Clean debris from roofs, gutters, downspouts, and drainage systems.
 - E. Clean site; sweep paved areas, rake clean landscaped surfaces.
 - F. Remove waste and surplus materials, rubbish, and construction facilities from the site.
- 1.6 BUILDING "BAKE-OUT" PRIOR TO OWNER OCCUPANCY – NOT USED
- 1.7 ADJUSTING
- A. Adjust operating products and equipment to ensure smooth and unhindered operation.
- 1.8 EXTENDED WARRANTY
- A. Contractor shall secure guarantees and/or warranties required for each section of the work, properly addressed and signed and in favor of Owner. Execute and assemble documents from Subcontractors, suppliers, and manufacturers as identified under Final Project Record Documents above.
 - B. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.
- 1.9 SPARE PARTS, MAINTENANCE MATERIALS, & EXTRA STOCK ITEMS – NOT USED
- 1.10 CLOSEOUT PROCEDURES FOR SUBSTANTIAL COMPLETION
- A. The project will be subject to the City of Moscow's Certificate of Occupancy. The Owner's representatives will review the building for completion of all aspects that deal with the life/safety of building occupants. This review and certification will include, but not be limited to, fire detection/alarm systems, fire protection systems, fire-rated construction assemblies, and associated communications facilities.
 - B. Provide the following items:
 - 1. Submit Project Record Drawings and Documents ten (10) days prior to Contractor's Request for Substantial Completion.
 - 2. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Architect's review.
 - 3. Submit a list of Project Deficiencies to the Architect 48 hours minimum prior to Substantial Completion Review.
 - 4. Provide submittals to Architect that are required by governing or other authorities.
 - 5. Owner will occupy all of the building upon satisfactory acceptance of Substantial Completion.
 - C. Should status of completion of work require additional review by Architect due to failure of work to comply with Contractor's claim of Substantial Completion, Owner will deduct the amount of compensation for additional review services from final payment to Contractor.
- 1.11 CLOSEOUT PROCEDURES FOR FINAL COMPLETION
- A. Re-Submit Record Drawings and Documents.

- B. Re-Submit Final Operations and Maintenance Manuals and Instructional Videos.
- C. Submit any and all remaining warranty documentation for the work of the project.
- D. Submit a certificate of Substantial Completion in the appropriate form
- E. Submit Consent of Surety to Final Payment
- F. Submit Contractor's Affidavit of Payment of Debts and Claims
- G. Submit Contractor's Affidavit of Release of Liens
- H. Submit final Application for Payment identifying total adjusted Contract Sum, previous payments, and sum remaining due.
- I. Should status of final completion of work require additional review by Architect due to failure of work to comply with Contractor's claim of Final Completion, Owner will deduct the amount of compensation for additional review services from final payment to Contractor.

PART 2 - PRODUCTS - not used.

PART 3 - EXECUTION - not used.

END OF SECTION 01 77 00.

SECTION 01 78 23 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory.
 - 2. Emergency manuals.
 - 3. Operation manuals for systems, subsystems, and equipment.
 - 4. Maintenance manuals for the care and maintenance of products, materials, and finishes, systems and equipment.

1.2 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.3 SUBMITTALS

- A. Initial Submittal: PDF copy of each manual at least 15 days before requesting inspection for Substantial Completion. Include a complete operation and maintenance directory. Architect will return one PDF copy of draft and mark whether general scope and content of manual are acceptable.
- B. Final Submittal: Submit one PDF copy of each manual in final form at least 15 days before final inspection. Architect will return copy with comments within 15 days after final inspection.
 - 1. Correct or modify each manual to comply with Architect's comments. Submit 1 Hard Copy and 1 PDF copy of each corrected manual within 15 days of receipt of Architect's comments.
 - 2. Final PDF document must be book marked for each section.

1.4 COORDINATION

- A. Where operation and maintenance documentation includes information on installations by more than one factory-authorized service representative, assemble and coordinate information furnished by representatives and prepare manuals.

PART 2 - PRODUCTS

2.1 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY

- A. Organization: Include a section in the directory for each of the following:
 - 1. List of documents.
 - 2. List of systems.
 - 3. List of equipment.
 - 4. Table of contents.
- B. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.
- C. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
- D. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

2.2 MANUALS, GENERAL

- A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
 - 1. Title page.
 - 2. Table of contents.
 - 3. Manual contents.
- B. Title Page. Include the following information:
 - 1. Subject matter included in manual.
 - 2. Name and address of Project.
 - 3. Name and address of Owner.
 - 4. Date of submittal.
 - 5. Name, address, and telephone number of Contractor.
 - 6. Name and address of Architect.
 - 7. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
 - 1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.

2.3 OPERATION MANUALS

- A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
 - 1. System, subsystem, and equipment descriptions.
 - 2. Performance and design criteria if Contractor is delegated design responsibility.
 - 3. Operating standards.
 - 4. Operating procedures.
 - 5. Operating logs.
 - 6. Wiring diagrams.
 - 7. Control diagrams.
 - 8. Piped system diagrams.
 - 9. Precautions against improper use.
 - 10. License requirements including inspection and renewal dates.
- B. Descriptions: Include the following:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Equipment identification with serial number of each component.
 - 4. Equipment function.
 - 5. Operating characteristics.
 - 6. Limiting conditions.
 - 7. Performance curves.
 - 8. Engineering data and tests.
 - 9. Complete nomenclature and number of replacement parts.
- C. Operating Procedures: Include the following, as applicable:
 - 1. Startup procedures.
 - 2. Equipment or system break-in procedures.
 - 3. Routine and normal operating instructions.
 - 4. Regulation and control procedures.
 - 5. Instructions on stopping.
 - 6. Normal shutdown instructions.
 - 7. Seasonal and weekend operating instructions.
 - 8. Required sequences for electric or electronic systems.
 - 9. Special operating instructions and procedures.

- D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- E. Piped Systems: Diagram piping as installed, and identify color-coding rivets where required for identification. Reference Division 22 specifications.

2.4 PRODUCT MAINTENANCE MANUAL

- A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.
- F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.

2.5 SYSTEMS AND EQUIPMENT MAINTENANCE MANUAL

- A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.
- B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.
- C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
 - 1. Standard printed maintenance instructions and bulletins.
 - 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 - 3. Identification and nomenclature of parts and components.
 - 4. List of items recommended to be stocked as spare parts.
- D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
 - 1. Test and inspection instructions.
 - 2. Troubleshooting guide.
 - 3. Precautions against improper maintenance.
 - 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - 5. Aligning, adjusting, and checking instructions.
 - 6. Demonstration and training videotape, if available.

- E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
 - 1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 - 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.
 - F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
 - G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- 2.6 WARRANTIES AND BONDS
- A. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Prepare and submit two identical sets of warranties and bonds
 - 2. Label edge of each binder with printed title "WARRANTIES AND BONDS", with title of project; name, address and telephone number of Contractor; and name of responsible principal
 - 3. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item
 - 4. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List subcontractor, supplier, and manufacturer, with name, address, and telephone number or responsible principal
 - 5. Obtain full, one-year minimum warranties and bonds and/or actual time required by specific specification sections, executed in duplicate by responsible subcontractors, suppliers, and manufacturers, within ten (10) days after substantial completion of the project. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the date of substantial completion and/or continued use by the Owner is determined
 - 6. Verify that documents are in proper form, contain full information, and are notarized
 - 7. Co-execute submittals when required
 - 8. Retain warranties and bonds until time specified for submittal
 - 9. Include procedures to follow and required notifications for warranty claims.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals.
- B. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- C. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- D. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.
 - 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 - 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- E. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - 1. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 - F. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in Record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original Project Record Documents as part of operation and maintenance manuals.
 - 2. Comply with requirements of newly prepared Record Drawings in Division 01 Section "Project Record Documents."
 - G. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.
- 3.2 MAINTENANCE INSTRUCTION
- A. Provide instruction of Owner's personnel in maintenance of products.

END OF SECTION 01 78 23

SECTION 01 78 39 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.

1.2 SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Contractor to submit one set(s) of marked-up Record Prints.
 - 2. Number of Copies: Contractor to submit copies of Record Drawings as follows:
 - a. Initial Submittal: Submit one set(s) of marked-up Record Prints. Architect will initial and date each plot and mark whether general scope of changes, additional information recorded, and quality of drafting are acceptable. Architect will return plots and prints for organizing into sets, printing, binding, and final submittal.
 - b. Final Submittal: Submit one set(s) of marked-up Record Prints, and digital copy. Print each Drawing, whether or not changes and additional information were recorded.
 - 1) Electronic Media: Download Link
- B. Record Specifications: Submit one copy of Project's Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit one copy of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in manual instead of submittal as Record Product Data.
- D. Store Record Documents and Samples in Owner's Office apart from documents used for construction. Provide files, racks, and secure storage for Record Documents and Samples.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of blue- or black-line white prints of the Contract Drawings and Shop Drawings.
 - 1. Preparation: Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up Record Prints.
 - a. Record information concurrently with construction progress. Do not conceal any work until required information is recorded
 - b. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - c. Accurately record information in an understandable drawing technique.
 - d. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 - 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.

- f. Revisions to electrical circuitry.
- g. Actual equipment locations.
- h. Duct size and routing.
- i. Locations of concealed internal utilities.
- j. Changes made by Change Order or Construction Change Directive.
- k. Changes made following Architect's written orders.
- l. Details not on the original Contract Drawings.
- m. Field records for variable and concealed conditions.
- n. Record information on the Work that is shown only schematically.
- 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
- 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
- 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
- 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize Record Prints and newly prepared Record Drawings into manageable sets. Include identification on cover sheets.
 - 2. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect.
 - e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, Record Specifications, and Record Drawings where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.
- C. At Contract closeout, deliver submittal Record Documents, and three (3) black line copies, edge bound in complete sets
- D. Transmit submittals with cover letter, listing:
 - 1. Date
 - 2. Project title and number
 - 3. Contractor's name, address, and telephone number
 - 4. Number and title of each Record Document
 - 5. Signature of Contractor or authorized representative.

END OF SECTION 01 78 39

SECTION 01 80 01 - KEYNOTE SYSTEM

PART 1 - GENERAL

1.1 SUMMARY

- A. Drawings and details in these documents have been annotated using a "Keynoting" system to improve drawing clarity and document coordination. The first six digits of the keynote indicate the specification section covering the referenced item. Following a decimal point is a two digit number which serves to make each keynote unique with architect's internal noting database.
- B. As in other annotation systems, this system is not intended to remove the contractor's responsibility for submitting a complete and comprehensive bid that covers all work associated with the Work being bid. While every effort has been made to ensure that all work covered by keynotes is properly cross-referenced to a specification section and division, it is not represented to be a comprehensive list of all the work. All provisions of the Specifications are no less applicable than they would be in the absence of an integrated keynoting system.
- C. Be aware that not all sections of work or portions of work occurring within the graphic portions of the Contract Documents may have been annotated using the keynoting system.

PART 2 - PRODUCTS – NOT USED.

PART 3 - EXECUTION – NOT USED.

END OF SECTION 01 80 01

SECTION 02 41 00 - DEMOLITION

PART 1 - **SCOPE**

- 1.1 Section Includes
 - A. Removal and disposal of Bituminous Surface
 - B. Removal and disposal of Concrete
 - C. Removal and disposal of Concrete Curb Type A
 - D. Removal and disposal of Concrete Curb & Gutter
 - E. Removal of Structures and Obstructions
 - 1. Removal of buildings, irrigation boxes, pipes, bridges, abandoned utilities, fences, drop inlets, culverts, and any other structures designated for removal on the Plans or by the Owner.
- 1.2 Related Documents
 - A. ITD's Standard Specifications Section 200 – Earthwork
- 1.3 Description of Work
 - A. This covers the removal of bituminous surface, concrete, concrete curb, structures and obstructions.
- 1.4 Regulatory Requirements
 - A. Conform to applicable code for disposal of debris.
 - B. Coordinate clearing work with utility companies.
- 1.5 Submittals
 - A. Property Owner Disposal Agreements if required by the Engineer (per 3.6.B.5).

PART 2 **MATERIALS** – Not applicable to this Section.

PART 3 **EXECUTION**

- 3.1 Removal of Bituminous
 - A. Protection
 - 1. Locate and protect all live Utilities from damage.
 - 2. Protect benchmarks and survey monuments from damage and displacement.
 - 3. Exercise care to ensure areas outside the construction limits remain undisturbed.
 - B. Removal and Disposal
 - 1. Complete the removal of Bituminous Surfaces to the limits shown on the **Plans and Specifications** or as directed by the **ENGINEER**.
 - 2. Unless otherwise specified, all removed material shall become the responsibility and property of the **CONTRACTOR**.
 - 3. Dispose of unusable material outside the construction limits in an approved location in accordance with all local, state and federal regulations.
 - 4. Dispose unusable material in such a manner that no unsightly appearance will result.
 - C. Preparations After Removal
 - 1. Crushed rock must be placed along the edge of any vehicle or pedestrian approach affected by these removals as described in the **Plans and Special Provisions** or as directed by the **ENGINEER**.
- 3.2 Removal of Concrete
 - A. Protection
 - 1. Locate and protect all live Utilities from damage.
 - 2. Protect benchmarks and survey monuments from damage and displacement.
 - 3. Exercise care to ensure areas outside the construction limits remain undisturbed.
 - B. Removal and Disposal

1. Complete the removal of concrete to the limits shown on the **Plans and Specifications** or as directed by the **ENGINEER**.
2. Unless otherwise specified, all removed material shall become the responsibility and property of the **CONTRACTOR**.
3. Dispose of unusable material outside the construction limits in an approved location in accordance with all local, state and federal regulations.
4. Dispose unusable material in such a manner that no unsightly appearance will result.

3.3 Removal of Concrete Curb Type A

A. Protection

1. Locate and protect all live Utilities from damage.
2. Protect benchmarks and survey monuments from damage and displacement.
3. Exercise care to ensure areas outside the construction limits remain undisturbed.

B. Removal and Disposal

1. Complete the removal of concrete curb 'Type A' to the limits shown on the **Plans and Specifications** or as directed by the **ENGINEER**.
2. Unless otherwise specified, all removed material shall become the responsibility and property of the **CONTRACTOR**.
3. Dispose of unusable material outside the construction limits in an approved location in accordance with all local, state and federal regulations.
4. Dispose unusable material in such a manner that no unsightly appearance will result.

3.4 Removal of Concrete Curb & Gutter

A. Protection

1. Locate and protect all live Utilities from damage.
2. Protect benchmarks and survey monuments from damage and displacement.
3. Exercise care to ensure areas outside the construction limits remain undisturbed.

B. Removal and Disposal

1. Complete the removal of concrete curb and gutter to the limits shown on the **Plans and Specifications** or as directed by the **ENGINEER**.
2. Unless otherwise specified, all removed material shall become the responsibility and property of the **CONTRACTOR**.
3. Dispose of unusable material outside the construction limits in an approved location in accordance with all local, state and federal regulations.
4. Dispose unusable material in such a manner that no unsightly appearance will result.

3.5 Removal of Structures and Obstructions

A. Protection

1. Locate and protect all live Utilities from damage.
2. Protect benchmarks and survey monuments from damage and displacement.
3. Exercise care to ensure areas outside the construction limits remain undisturbed.
4. Satisfactorily restore any damage to existing facilities or structures resulting from activities by the **CONTRACTOR** to their original condition at the **CONTRACTOR's** expense.

B. Removal and Disposal

1. Complete the Removal of Structures and Obstructions to the limits shown on the **Plans and Specifications** or as directed by the **ENGINEER**.
2. Unless otherwise specified, all removed material shall become the responsibility and property of the **CONTRACTOR**.
3. Dispose of unusable material outside the construction limits in an approved location in accordance with all local, state and federal regulations.
4. Dispose unusable material in such a manner that no unsightly appearance will result.
5. Copies of the disposal agreements with property owners are to be furnished to the Owner upon request.

- C. Salvage
 - 1. Carefully remove all items specified to be salvaged in one piece and take to a place identified in the **Plans or Special Provisions**; salvage shall become the property of the person or organization identified on the **Plans** or in the **Special Provisions**.
- D. Preparations After Removal
 - 1. Fill basements or cavities left by structure removal to the level of the surrounding ground and, if within the prism of construction, compacted as described in the **Plans and Special Provisions** or as directed by the **ENGINEER**.
- E. Traffic Control
 - 1. Do not remove bridges, culverts and other drainage structures under the existing roadway until satisfactory arrangements have been made for the detouring of traffic.

PART 4 **PAYMENT**

- 4.1 Use one of the following unit price options as designated on the Bid Schedule. If required and not listed in the Bid Schedule, the following Bid Items are to be considered incidental to other Bid Items.
 - A. **Removal of Bituminous Surface:** By the horizontal square foot. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
 - B. **Removal of Concrete:** By the horizontal square foot. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
 - C. **Removal of Concrete Curb 'Type A':** By the lineal foot. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
 - D. **Removal of Concrete Curb and Gutter:** By the lineal foot. Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.
 - E. **Removal of Structures and Obstructions:** By the lump sum (LS). Includes full compensation for all materials, labor and equipment necessary for completing the work and all appurtenances not itemized in the Bid Schedule.

END OF SECTION

SECTION 02 41 19 - SELECTIVE STRUCTURE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
1. The contractor is responsible for ascertaining the existing conditions and the work required to complete the work of this section satisfactorily.
 2. This Section requires the selective removal and salvage or subsequent off-site disposal of the following
 - a. Portions of existing building structure and finishes indicated on drawings and as required to accommodate new work
 - b. Removal of designated building equipment and fixtures
 - c. Removal and salvage of designated construction and site improvements
 - d. Identification of utilities
 - e. Removal and protection of existing fixtures, materials, and equipment items indicated "salvage."
 3. The Owner will remove some loose equipment and stored material in the project area, prior to the contractor taking possession of the site. All substrates and building conditions will be maintained in the condition as visible during the bid period; the contractor shall include all necessary costs to improve or modify the substrates to achieve the work shown in the construction documents. Contractors shall coordinate with the finish trades (Finish Flooring, Framing & Gypsum Board, and Suspended Acoustical Ceilings) to complete all substrate improvement necessary to achieve finish tolerances.
 4. Existing construction documents for the previous construction in the Building are available for review by contractors. Conditions that are apparent, reasonably inferable, or disclosed in the available documents shall not be considered "unforeseen conditions" as basis for contractor claims for cost or time extensions. Documents are available for review at the offices of the Owner, and the Design Team.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Owner ready for reuse.
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Owner.

1.4 SUBMITTALS

- A. Qualification Data: For demolition firm, professional engineer, refrigerant recovery technician.
- B. Provide structural shoring plan, stamped and signed by a professional engineer licensed in the State of Washington. Shoring plan will define required shoring and temporary support for the work of the project.
- C. Schedule of Selective Demolition Activities: Indicate the following:

1. Name and address of individual (principal of firm) who will be responsible for the demolition procedures
 2. Description of procedures and procedures that will be used to protect the personnel involved in the effort
 3. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 4. Interruption of utility services. Indicate how long utility services will be interrupted.
 5. Coordination for shutoff, capping, and continuation of utility services.
 6. Locations of proposed dust- and noise-control temporary partitions and means of egress, including for adjacent building's occupants affected by selective demolition operations.
 7. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
 8. Means of protection for items to remain and items in path of waste removal from building.
 9. Identification of hazardous sanitary landfill which will be used for the disposal of the material, appropriate to the waste stream
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.

1.5 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project. Company specializing in performing the Work of this Section with minimum three (3) years experience
- B. Refrigerant Recovery Technician Qualifications: Certified by an EPA-approved certification program.
- C. Regulatory Requirements:
 1. Comply with governing EPA notification regulations before beginning selective demolition.
 2. Comply with E.P.A. and OSHA regulations throughout the work of this section
 3. Comply with Clean Air Act (CAA) requirements; Section 608
 4. Comply with hauling and disposal regulations of authorities having jurisdiction.
 5. Conform to applicable code for demolition of structure, safety of adjacent structures, dust control and disposal
 6. Obtain required permits from authorities
 7. Notify affected utility companies before starting work and comply with their requirements
 8. Conform to procedures applicable when discovering hazardous or contaminated materials
- D. Standards: Comply with ANSI A10.6 and NFPA 241.
- E. Pre-demolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition including, but not limited to, the following:
 1. Inspect and discuss condition of construction to be selectively demolished.
 2. Review structural load limitations of existing structure.
 3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
 4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
 5. Review areas where existing construction is to remain and requires protection.
 - A. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work.
 - B. Partial Demolition and Removal:

1. Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Storage or sale of removed items on site will not be permitted.
2. Items to be removed by the Contractor to be retained by the Owner shall be designated "remove and retain". Remove to on-site location as directed.

1.6 PROJECT CONDITIONS

- A. Coordinate with Owner's operations involving move-out, salvage, reclamation and recycling activities
- B. Condition of Structures: Owner assumes no responsibility for actual condition of items or structures to be demolished. Conditions existing at time of inspection for bidding purposes will be maintained by Owner insofar as practicable. However, minor variations within structure may occur by Owner's removal and salvage operations prior to start of selective demolition work
- C. Partial Demolition and Removal:
 1. Items indicated to be removed but of salvageable value to Contractor may be removed from structure as work progresses. Storage or sale of removed items on site will not be permitted
 2. Items to be removed by the Contractor to be retained by the Owner shall be designated "remove and retain". Remove to on-site location as directed
- D. Protections:
 1. Provide temporary barricades and other forms of protection to protect Owner's personnel and general public from injury due to selective demolition work
 2. Provide interior and exterior shoring, bracing, or support to prevent movement, settlement, or collapse of structure or element to be demolished and adjacent facilities or work to remain
 3. Protect existing finish work that is to remain in place and becomes exposed during demolition operations
 4. Protect floors and roofing with suitable coverings when necessary
 5. Provide temporary weatherproof closures for exterior openings resulting from demolition work
 6. Provide air and dust proof containment barriers at locations where work occurs, protect remainder of the building from contamination, or nuisance caused by residual effects of demolition and construction procedures
 7. Remove protections at completion of work
- E. Damages: Promptly repair damages caused to adjacent facilities by demolition work
- F. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 1. Before selective demolition, Owner will remove the following items:
 - a. Loose furnishings, fixtures, and minor miscellaneous equipment
- G. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- H. Hazardous Materials are present:
 1. Inspection and testing for certain materials have been performed. The results are included within these specifications.
 2. If suspected hazardous materials are encountered, the Contractor shall immediately notify the Owner and Architect, and handle them in accordance with all applicable local, state, and federal regulations, protecting site, workers and surroundings from contamination
 3. If hazardous materials are encountered, the Contractor shall immediately notify the Owner and Architect, and handle them in accordance with all applicable local, state, and federal regulations, protecting site, workers and surroundings from contamination
 4. Identification: It is the Contractor's responsibility to bring to the attention of the Architect suspected asbestos-containing materials which may be encountered as the work

- proceeds. Architect will notify Owner. Exploratory operations and laboratory tests will be made by the Owner's consultant if materials that may contain asbestos are encountered
5. Lead Paint and similar materials: Contractor shall provide lead containing materials identification, control, containment, abatement and disposal previously identified or encountered during the course of demolition and construction, included in the Cost of the Work. Contractor shall be responsible for a program to control lead exposure to workers, and ensure that no lead exposure occurs to the general public
 6. Contractor shall provide and include the cost of containment, temporary storage, neutralizing and proper disposal of all hazardous materials such as solvents, acids, paint strippers and cleaners used in the course of performing the Work
 7. Contractor shall provide and include the cost of removal and delivery to the Owner of any PCB-containing fluorescent lamp ballasts encountered during the course of demolition and construction.
- I. Storage or sale of removed items or materials on-site is not permitted.
 - J. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 1. Maintain fire-protection facilities in service during selective demolition operations.
 2. Coordinate with the fire marshal for removal and relocation of the existing fire department connection. See the drawings for the temporary fire department connection during construction.
- 1.7 WARRANTY
- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

- 3.1 EXAMINATION
- A. Verify that utilities have been disconnected and capped.
 - B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
 - C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
 - D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
 - E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
 - F. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs.
 1. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.
 - G. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.
- 3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS
- A. Existing Services/Systems: Maintain services/systems indicated to remain and protect them against damage during selective demolition operations.

1. Comply with requirements for existing services/systems interruptions specified in Division 01 Section "Summary."
- B. Service/System Requirements: Locate, identify, disconnect, and seal or cap off indicated utility services and mechanical/electrical systems serving areas to be selectively demolished.
 1. Arrange to shut off indicated utilities with utility companies.
 2. If services/systems are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 3. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
 - a. Where entire wall is to be removed, existing services/systems may be removed with removal of the wall.
- 3.3 PREPARATION
 - A. Contractors are responsible for familiarizing themselves with the condition of the project site
 - B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
 - C. Locate, identify, stub off, and disconnect utility services not indicated to remain. Provide bypass connections as necessary to maintain continuity of service to occupied areas of building. Provide minimum of 72 hours advance notice to Owner if shutdown of service is necessary during changeover
 - D. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary partitions and barriers to prevent spread of dust, odors and noise. Erect and maintain dust-proof partitions and closures as required to prevent spread of dust or fumes to permit continued Owner occupancy of the building. Where selective demolition occurs, construct dust-proof partitions of minimum 4-inch studs, with gypsum wall board on non-demolition side and minimum 2 layers 3-mil plastic sheeting. Seal all seams with appropriate tape material
 3. Protect existing materials, existing landscaping materials, appurtenances, structures and utilities which are not to be demolished
 4. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 5. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 6. Cover and protect building improvements, furniture, equipment, and fixtures from soilage or damage when demolition work is performed in areas where such items have not been removed
 7. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."
 8. At locations where demolition or tie-in to existing reinforced concrete structure is indicated, as-built drawings and x-ray analysis shall be conducted prior to demolition activities. Demolition and tie-in shall not disturb existing concrete reinforcing steel
 - E. Temporary Shoring: Provide and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Include all work necessary to complete the new work shown in all documents within the contract documents, including but not limited to, Architectural, Hazardous Material Abatement, Civil, Structural, Mechanical, and Electrical. Work of this section is not limited to areas indicated in the demolition drawings. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Provide services for effective air, soil and water pollution controls and worker protection as required by authorities having jurisdiction
 3. Spread out equipment and materials loads across structure and promptly remove debris to avoid imposing excessive loads on supporting walls, floors, or framing
 4. Conduct demolition to minimize interference with adjacent spaces and properties. Utilize demolition procedures that minimize disruption to the surrounding areas and activities. Conduct operations with minimum interference to public or private accesses. Maintain protected egress and access at all times. Provide all necessary measures to ensure no contamination of the existing building systems, including the building air intakes and exhausts
 5. Remove portions of the building indicated using methods as required to provide high quality substrates for work of subsequent phases. Tolerances within 1/8" of required substrate for new finishes shall be deemed acceptable for the work of this section.
 6. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 7. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 8. For interior slabs, use removal methods that will not crack or structurally disturb adjacent slabs or partitions. Use power saw where possible
 9. Demolish concrete and masonry in small sections. Cut concrete and masonry at junctures with construction to remain using power-driven masonry saw or hand tools
 10. Keep work sprinkled with water to minimize dust. Provide hoses and water connections for this purpose
 11. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 12. Maintain adequate ventilation when using cutting torches.
 13. Cease operations and notify Owner, and Architect/Engineer immediately if safety of structure appears to be endangered. Take precautions to support structure until determination is made for continuing operations
 14. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 15. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 16. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 17. Dispose of demolished items and materials promptly. Comply with requirements in Division 01 Section "Construction Waste Management and Disposal."
- B. Removed and Salvaged Items:
1. Clean salvaged items.

2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Owner.
 4. Transport items to Owner's storage area designated by Owner within five miles of the project site.
 5. Protect items from damage during transport and storage.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- 3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS
- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.
- B. Masonry: Demolish in small sections. Cut masonry at junctures with construction to remain, using power-driven saw, and then remove masonry between saw cuts.
- C. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.
- D. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.
- E. Signage: remove all existing room signage in project area, salvage signage material to the Owner. Coordinate extents of signage removal and replacement with Signage Schedule in Section 10 14 00.
- 3.6 DISPOSAL OF DEMOLISHED MATERIALS
- A. General: Except for items or materials indicated to be recycled, reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, remove demolished materials from Project site and legally dispose of them in an EPA-approved landfill.
1. Do not allow demolished materials to accumulate on-site. Remove demolished materials from site promptly.
 2. Remove and promptly dispose of contaminated, vermin infested or dangerous materials encountered, per regulatory requirements
 3. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 4. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- B. Salvaged Items to be Retained and Re-Used in the Work: Where indicated as "Remove and Retain," or "Relocate", carefully remove indicated items, clean, and reuse as indicated on the drawings and in other sections of the specifications
- C. Burning: Do not burn demolished materials.
- D. Disposal: Transport demolished materials off Owner's property and legally dispose of them.
- 3.7 CLEANING
- A. General: Upon completion of demolition work, remove tools, equipment, and demolished materials from site. Remove protections and leave interior areas broom clean
- B. Repair demolition performed in excess of that required. Return elements of construction and surfaces to remain to condition existing prior to start of operations. Repair adjacent construction or surfaces soiled or damaged by selective demolition work

- C. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 02 41 19

03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:
 - 1. Concrete foundations and floor slab.
- B. Related Sections include the following:
 - 1. Division 07 Section "Bituminous Dampproofing" for concrete foundation walls.
 - 2. Division 31 Section "Earth Moving" for drainage fill under slab on grade.
 - 3. Division 32 Section "Concrete Paving" for concrete pavement and walks.
 - 4. Structural and other general notes on the plans.

1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete mixture. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mixing water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Material Certificates: For each of the following, signed by manufacturers:
 - 1. Cementitious materials.
 - 2. Admixtures.
 - 3. Curing compounds.
 - 4. Bonding agents.
 - 5. Adhesives.
 - 6. Semirigid joint filler.
 - 7. Repair materials.
 - 8. Vapor retarders.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in service performance
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94 requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from one source, and obtain admixtures through one source from a single manufacturer.
- D. Source limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer

- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specification for Structural Concrete,"
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- 1.5 DELIVERY, STORAGE, AND HANDLING
 - A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:
 - 1. Products: Subject to compliance with requirements, provide one of the products specified.

2.2 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
 - 1. Plywood, metal, or other approved panel materials.
- B. Rough-Formed Finished Concrete: Plywood, lumber, metal, or another approved material. Provide lumber dressed on at least two edges and one side for tight fit.
- C. Forms for Cylindrical Columns, Pedestals, and Supports: Metal, glass-fiber-reinforced plastic, paper, or fiber tubes that will produce surfaces with gradual or abrupt irregularities not exceeding specified formwork surface class. Provide units with sufficient wall thickness to resist plastic concrete loads without detrimental deformation.
- D. Chamfer Strips: Wood, metal, PVC, or rubber strips, 3/4 by 3/4 inch, minimum.
- E. Rustication Strips: Wood, metal, PVC, or rubber strips, kerfed for ease of form removal.
- F. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
 - 1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- G. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
 - 1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 - 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
 - 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.3 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 185, plain, fabricated from as-drawn steel wire into flat sheets.

2.4 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

1. For concrete surfaces exposed to view where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.

2.5 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 1. Portland Cement: ASTM C 150, Type I or II.
 - a. Fly Ash: ASTM C 618, Class C or F.
- B. Normal-Weight Aggregates: ASTM C 33, Class 4S coarse aggregate or better, graded. Provide aggregates from a single source.
 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: ASTM C 94/C 94M and potable.

2.6 ADMIXTURES

- A. Air-Entraining Admixture: ASTM C 260.
- B. Chemical Admixtures: Provide admixtures certified by manufacturer to be compatible with other admixtures and that will not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride.
 1. Water-Reducing Admixture: ASTM C 494/C 494M, Type A.
 2. Retarding Admixture: ASTM C 494/C 494M, Type B.
 3. Water-Reducing and Retarding Admixture: ASTM C 494/C 494M, Type D.
 4. High-Range, Water-Reducing Admixture: ASTM C 494/C 494M, Type F.
 5. Plasticizing and Retarding Admixture: ASTM C 1017/C 1017M, Type II.
- C. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C 494/C 494M, Type C.

2.7 VAPOR RETARDERS

- A. Plastic Vapor Retarder: ASTM E 1745, Class A and B. Include manufacturer's recommended adhesive or pressure-sensitive tape.
 1. Available Products:
 - a. Fortifiber Corporation; Moistop Ultra A.
 - b. Raven Industries Inc.; Vapor Block 15.
 - c. Stego Industries, LLC; Stego Wrap, 15 mils.
 - d. Reef Industries, Inc.; Griffolyn Type-105.
- B. Granular Fill: See drawings.

2.8 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, 18 to 25 percent solids, nondissipating. Dayton Superior Corporation; Safe Cure and Seal (J-19), Euclid Super Diamond Clear VOX, or equal. Certified by curing compound manufacturer to not interfere with bonding of floor covering or coatings.

2.9 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.

2.10 REPAIR MATERIALS

- A. Repair Underlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of underlayment manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by underlayment manufacturer.
 - 4. Compressive Strength: Not less than 4000 psi at 28 days when tested according to ASTM C 109/C 109M.
- B. Repair Overlayment: Cement-based, polymer-modified, self-leveling product that can be applied in thicknesses from 1/8 inch and that can be feathered at edges to match adjacent floor elevations.
 - 1. Cement Binder: ASTM C 150, portland cement or hydraulic or blended hydraulic cement as defined in ASTM C 219.
 - 2. Primer: Product of topping manufacturer recommended for substrate, conditions, and application.
 - 3. Aggregate: Well-graded, washed gravel, 1/8 to 1/4 inch or coarse sand as recommended by topping manufacturer.
 - 4. Compressive Strength: Not less than 5000 psi at 28 days when tested according to ASTM C 109/C 109M.

2.11 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 25 percent.
- C. Limit water-soluble, chloride-ion content in hardened concrete to 0.06 percent by weight of cement.
- D. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing high-range water-reducing or plasticizing admixture in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 - 3. Use water-reducing admixture in pumped concrete, concrete for heavy-use industrial slabs and parking structure slabs, concrete required to be watertight, and concrete with a water-cementitious materials ratio below 0.50.

2.12 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Interior Slabs: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: See plans.
 - 2. Slump Limit: 7 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
 - 3. Air Content: Do not allow air content of troweled interior finished floors to exceed 3 percent.
 - 4. Maximum Water-Cementitious Materials Ratio: 0.45
 - B. Foundations: Proportion normal-weight concrete mixture as follows:
 - 1. Minimum Compressive Strength: See plans.
 - 2. Slump Limit: 7 inches for concrete with verified slump of 2 to 4 inches before adding high-range water-reducing admixture or plasticizing admixture, plus or minus 1 inch.
- Maximum Water-Cementitious Materials Ratio: 0.50

2.13 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.14 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94/C 94M, and furnish batch ticket information.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class A, 1/8 inch for smooth-formed finished surfaces.
 - 2. Class B, 1/4 inch for rough-formed finished surfaces.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- F. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- G. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- H. Chamfer exterior corners and edges of permanently exposed concrete.
- I. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- J. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- K. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- L. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of AISC's "Code of Standard Practice for Steel Buildings and Bridges."

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50

deg F for 24 hours after placing concrete, if concrete is hard enough to not be damaged by form-removal operations and curing and protection operations are maintained.

- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

3.5 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness as follows:
 - 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks. Re-saw all joints with beveled edge blade to ease edges at all saw-cut joints.
- D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 - 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 - 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface where joint sealants, specified in Division 7 Section "Joint Sealants," are indicated.
 - 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 2. Maintain reinforcement in position on chairs during concrete placement.
 - 3. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 4. Slope surfaces uniformly to drains where required.
 - 5. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- G. Hot-Weather Placement: Comply with ACI 301, 305R and as follows:
 - 1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.7 FINISHING FORMED SURFACES

- A. Rough-Formed Finish: As-cast concrete texture imparted by form-facing material with tie holes and defects repaired and patched. Remove fins and other projections that exceed specified limits on formed-surface irregularities.
 - 1. Apply to concrete surfaces not exposed to public view.
- B. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defects. Remove fins and other projections that exceed specified limits on formed-surface irregularities.

1. Apply to concrete surfaces exposed to public view.
- C. Rubbed Finish: Apply the following to smooth-formed finished as-cast concrete on architectural columns:
 1. Grout-Cleaned Finish: Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix one part portland cement to one and one-half parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches so color of dry grout will match adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
- D. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

3.8 FINISHING FLOORS AND SLABS

- A. General: Comply with ACI 302.1R recommendations for screeding, restraighening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
 1. Apply float finish to surfaces to receive trowel finish.
- C. Trowel Finish: After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 1. Apply a trowel finish to surfaces indicated.
 2. Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
 - a. Specified overall values of flatness, F(F) 35; and of levelness, F(L) 25; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 17; for slabs-on-grade.
 - b. Specified overall values of flatness, F(F) 30; and of levelness, F(L) 20; with minimum local values of flatness, F(F) 24; and of levelness, F(L) 15; for suspended slabs.
- D. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. While concrete is still plastic, slightly scarify surface with a fine broom.
 1. Comply with flatness and levelness tolerances for trowel finished floor surfaces.
- E. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

3.9 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.10 CONCRETE PROTECTING AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 301 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing for the remainder of the curing period.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces.
- E. Cure concrete according to ACI 308.1, by one or a combination of the following methods:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer certifies will not interfere with bonding of floor covering used on Project..
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.
 - a. After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound will not interfere with bonding of floor covering used on Project.
 - 4. Curing and Sealing Compound: Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Repeat process 24 hours later and apply a second coat. Maintain continuity of coating and repair damage during curing period.

3.11 JOINT FILLING

- A. Prepare, clean, and install joint filler according to manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month(s). Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joint clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints. Overfill joint and trim joint filler flush with top of joint after hardening.

3.12 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete, but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 - 2. After concrete has cured at least 14 days, correct high areas by grinding.
 - 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 - 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 - 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 - 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.

- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.13 FIELD QUALITY CONTROL

- A. Testing and Inspecting: Owner will engage a special inspector and qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
 - 1. Foundation concrete does not require special inspection, but all other concrete shall be special inspected. Although foundation concrete is not special inspected, concrete testing as outlined below is required.
- B. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
 - 1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - 2. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 - 3. Air Content: ASTM C 231, pressure method, for normal-weight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - 4. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
 - 5. Compression Test Specimens: ASTM C 31.
 - a. Cast and laboratory cure two sets of two standard cylinder specimens for each composite sample.
 - b. Cast and field cure two sets of two standard cylinder specimens for each composite sample.
 - 6. Compressive-Strength Tests: ASTM C 39; test one set of two laboratory-cured specimens at 7 days and one set of two specimens at 28 days. Test one set of two field-cured specimens at 7 days and one set of two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 - 7. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 - 8. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
 - 9. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
 - 10. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
 - 11. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.

12. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
 13. Correct deficiencies in the Work that test reports and inspections indicate dos not comply with the Contract Documents.
- C. Measure floor and slab flatness and levelness according to ASTM E 1155 within 48 hours of finishing.

END OF SECTION 03 30 00

04 20 00 - UNIT MASONRY ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes unit masonry assemblies consisting of the following:
 - 1. Concrete masonry units (CMUs).
 - 2. Mortar and grout.
 - 3. Reinforcing steel.
 - 4. Ties and anchors.
 - 5. Unit Masonry – Perlite insulation in non-reinforced cells.
 - 6. Water Repellent and Efflorescence Control Admixture.
 - 7. Sealer and Graffiti Control.
 - 8. Miscellaneous masonry accessories.
- B. Related Sections include the following:
 - 1. Division 7 Section "Sheet Metal Flashing and Trim" for sheet metal flashing.
 - 2. Division 7 Section "Joint Sealants" for sealing control and expansion joints in unit masonry.
 - 3. Structural and other notes on plans.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings: For the following:
 - 1. Reinforcing Steel: Detail bending and placement of unit masonry reinforcing bars. Comply with ACI 315, "Details and Detailing of Concrete Reinforcement." Show elevations of reinforced walls.
- C. Samples for Final Selection in the form of small-scale units: For the following:
 - 1. Concrete masonry units showing match to pre-selected colors
- D. Material Certificates: For each type of product indicated. Include statements of material properties indicating compliance with requirements including compliance with standards and type designations within standards.
 - 1. For masonry units include material test reports substantiating compliance with requirements.
- E. Mix Designs: For each type of mortar and grout. Include description of type and proportions of ingredients.

1.3 PERFORMANCE REQUIREMENTS

- A. Provide structural unit masonry that develops indicated net-area compressive strengths (f_m) at 28 days.
Determine net-area compressive strength (f_m) of masonry from average net-area compressive strengths of masonry units and mortar types (unit-strength method) according to Tables 1 and 2 in ACI 530.1/ASCE 6/TMS 602.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Masonry Units: Obtain exposed masonry units of a uniform texture and color, or a uniform blend within the ranges accepted for these characteristics, through one source from a single manufacturer for each product required. Acceptable concrete masonry unit manufacturers must have five years minimum experience.
- B. Source Limitations for Mortar Materials: Obtain mortar ingredients of a uniform quality, including color for exposed masonry, from a single manufacturer for each cementitious component and from one source or producer for each aggregate.
- C. Conform to IMIAC when placing masonry in cold weather

- D. Conform to IMIAC when placing masonry in hot weather

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.
- B. Deliver pre-blended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store pre-blended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.
- C. Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

1.6 PROJECT CONDITIONS

- A. Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress.
- B. Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed or painted. Immediately remove grout, mortar, and soil that come in contact with such masonry.
 - 1. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface.
 - 2. Protect sills, ledges, and projections from mortar droppings.
 - 3. Protect surfaces of window and door frames, as well as similar products with painted and integral finishes, from mortar droppings.
 - 4. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.
- C. Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with industry standards cold-weather construction requirements.
- D. Hot-Weather Requirements: Comply with hot-weather construction requirements contained in ACI 530.1/ASCE 6/TMS 602.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to:
 - 1. White Block – Spokane
 - 2. Mutual Materials Co.
 - 3. Builders Masonry Products
 - 4. Central Premix – Spokane
 - 5. Amcor
 - 6. Substitutions: Under provisions of Division 01

2.2 MASONRY UNITS, GENERAL

- A. Defective Units: Referenced masonry unit standards may allow a certain percentage of units to exceed tolerances and to contain chips, cracks, or other defects exceeding limits stated in the standard. Do not use units where such defects, including dimensions that vary from specified dimensions by more than stated tolerances, will be exposed in the completed Work or will impair the quality of completed masonry.

2.3 CONCRETE MASONRY UNITS (CMUs)

A. Concrete Masonry Units: ASTM C 90.

1. Provide special shapes for sill, corners, jambs, sashes, movement joints, headers, bonding, and other special conditions.
2. Provide square-edged units for outside corners, unless otherwise indicated in the construction documents.
3. Unit Compressive Strength: Provide units with minimum average net-area compressive strength of 1900 psi.
4. Weight Classification: Medium weight.
5. All exterior CMU walls to be integral colored and sealed. Colors as selected by Architect
6. All interior CMU walls to be standard gray sealed and painted with color as selected by Architect.
7. All Interior walls "outside" corners shall be bullnosed units.
8. CMU Schedule: Refers to typical sizes, face pattern and color only. Refer to plans, sections, and wall types to determine depth, type, and any special required shapes or configurations.
9. CMU Schedule (dimensions and sizes are nominal):
 - Type 1 Exterior, ground face, integral color 8x8x16, color No. 1 as selected by Architect
 - Type 2 Exterior, split face, integral color 8x8x16, color No. 1 as selected by Architect
 - Type 3 Exterior, ground face scored, integral color 8x8x16, color No. 1 as selected by Architect
 - Type 4 Exterior, ground face, integral color 8x4x16, color No. 1 as selected by Architect
 - Type 5 Exterior, cast masonry sill
 - Type 6 Exterior, standard, grey color 8x8x16, to be painted

2.4 MORTAR AND GROUT MATERIALS

- ### A. Portland Cement: ASTM C 150, Type I or II, except Type III may be used for cold-weather construction. Provide natural color or white cement as required to produce mortar color indicated.
- ### B. Hydrated Lime: ASTM C 207, Type S.
- ### C. Portland Cement-Lime Mix: Packaged blend of portland cement complying with ASTM C 150, Type I or Type III, and hydrated lime complying with ASTM C 207, Type S.
- ### D. Mortar Cement: ASTM C 1329.
- ### E. Mortar Pigments: None.
- ### F. Aggregate for Mortar: ASTM C 144.
- ### G. Aggregate for Grout: ASTM C 404.
- ### H. Water: Clean and Potable.

2.5 REINFORCEMENT

- ### A. Uncoated Steel Reinforcing Bars: ASTM A 615 or ASTM A 996, Grade 60, deformed.

2.6 TIES AND ANCHORS

- ### A. Materials: Provide ties and anchors specified in subsequent paragraphs that are made from materials that comply with subparagraphs below, unless otherwise indicated.
1. Hot-Dip Galvanized, Carbon-Steel Wire: ASTM A 82; with ASTM A 153/A 153M, Class B-2 coating.
 2. Galvanized Steel Sheet: ASTM A 653/A 653M, Commercial Steel, G60 zinc coating.
 3. Steel Sheet, Galvanized after Fabrication: ASTM A 1008/A 1008M, Commercial Steel, hot-dip galvanized after fabrication to comply with ASTM A 153/A 153M.
- ### B. Wire Ties, General: Unless otherwise indicated, size wire ties to extend at least halfway through veneer but with at least 5/8-inch cover on outside face. Outer ends of wires are bent 90 degrees and extend 2 inches parallel to face of veneer.

2.7 MISCELLANEOUS ANCHORS

- A. Anchor Bolts: steel bolts complying with ASTM A 307, Grade A; with ASTM A 563 hex nuts and, where indicated, flat washers; hot-dip galvanized to comply with ASTM A 153/A 153M, Class C.

2.8 MISCELLANEOUS MASONRY ACCESSORIES

- A. Compressible Filler: Premolded filler strips complying with ASTM D 1056, Grade 2A1; compressible up to 35 percent; of width and thickness indicated; formulated from neoprene urethane.
- B. Preformed Control-Joint Gaskets: Designed to fit standard sash block and to maintain lateral stability in masonry wall; size and configuration as indicated.
- C. Bond-Breaker Strips: Asphalt-saturated, organic roofing felt complying with ASTM D 226, Type I (No. 15 asphalt felt).
- D. Reinforcing Bar Positioners: Wire units designed to fit into mortar bed joints spanning masonry unit cells with loops for holding reinforcing bars in center of cells. Units are formed from 0.142-inch steel wire, hot-dip galvanized after fabrication. Provide units with either two loops or four loops as needed for number of bars indicated.
 - 1. Available Products:
 - a. Dayton Superior Corporation, Dur-O-Wal Division; D/A 810, D/A 812 or D/A 817.
 - b. Heckmann Building Products Inc.; No. 376 Rebar Positioner.
 - c. Hohmann & Barnard, Inc.; #RB or #RB-Twin Rebar Positioner.
 - 2. Wire-Bond; O-Ring or Double O-Ring Rebar Positioner.
- E. Cleaning Solutions: Non-acidic, not harmful to masonry work or adjacent materials
- F. Provide Rheopel Plus Water Repellant and Efflorescence Control Admixture, per manufacturer recommendations (or approved equal).
- G. Provide PROSOCO Blok-Guard and Graffiti Control per manufacturer recommendations (or approved equal).

2.9 MORTAR AND GROUT MIXES

- A. General: Do not use admixtures, including pigments, air-entraining agents, accelerators, retarders, water-repellent agents, antifreeze compounds, or other admixtures, unless otherwise indicated.
 - 1. Do not use calcium chloride in mortar or grout.
 - 2. Limit cementitious materials in mortar to portland cement and lime.
 - 3. Add cold-weather admixture (if used) at same rate for all mortar that will be exposed to view, regardless of weather conditions, to ensure that mortar color is consistent.
- B. Mortar for Unit Masonry: Comply with ASTM C 270, Proportion Specification. Provide the following types of mortar for applications stated unless another type is indicated or needed to provide required compressive strength of masonry.
 - 1. For masonry, use Type S.
 - 2. Mortar Mixing
 - a. Thoroughly mix mortar ingredients in quantities needed for immediate use in accordance with ASTM C270
 - b. Do not use antifreeze compounds to lower the freezing point of mortar or grout
- C. Grout for Unit Masonry: Comply with ASTM C 476
 - 1. Use grout of type indicated or, if not otherwise indicated, of type (fine or coarse) that will comply with Table 1.15.1 in ACI 530.1/ASCE 6/TMS 602 for dimensions of grout spaces and pour height.
 - 2. Bond beams and lintels: 2000 psi strength at 28 days; 7-8 inches slump, premixed type in accordance with ASTM C94
 - 3. Provide grout with a slump of 8 to 11 inches as measured according to ASTM C 143

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
- B. Examine conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of work.
 - 1. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of work.
 - 2. Verify that foundations are within tolerances specified.
 - 3. Verify that reinforcing dowels are properly placed.
- C. Before installation, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.
- E. Preparation
 - 1. Supply metal anchors for placement. Direct correct placement
 - 2. Obtain door frames and related embedded anchors. Verify items provided by other sections of work are properly sized and located
 - 3. Establish lines, levels, and coursing. Protect from disturbance
 - 4. Provide temporary bracing during erection of masonry work. Maintain in place until building structure provides permanent bracing

3.2 INSTALLATION, GENERAL

- A. Install all masonry material in compliance with Industry Standards and as indicated and shown in the construction documents.
- B. Install all masonry material in compliance with weather conditions.
- C. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- D. Thickness: Build cavity and composite walls and other masonry construction to full thickness shown. Build single-wythe walls to actual widths of masonry units, using units of widths indicated.
- E. Build chases and recesses to accommodate items specified in this and other Sections.
- F. Leave openings for equipment to be installed before completing masonry. After installing equipment, complete masonry to match the construction immediately adjacent to opening.
- G. Use full-size units without cutting if possible. If cutting is required to provide a continuous pattern or to fit adjoining construction, cut units with motor-driven saws; provide clean, sharp, unchipped edges. Allow units to dry before laying unless wetting of units is specified. Install cut units with cut surfaces and, where possible, cut edges concealed.
- H. Select and arrange units for exposed unit masonry to produce a uniform blend of colors and textures.
 - 1. Mix units from several pallets or cubes as they are placed.
- I. Comply with construction tolerances in ACI 530.1/ASCE 6/TMS 602 and with the following:
 - 1. For conspicuous vertical lines, such as external corners, door jambs, reveals, and expansion and control joints, do not vary from plumb by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 - 2. For vertical alignment of exposed head joints, do not vary from plumb by more than 1/4 inch in 10 feet, or 1/2 inch maximum.
 - 3. For conspicuous horizontal lines, such as lintels, sills, parapets, and reveals, do not vary from level by more than 1/8 inch in 10 feet, 1/4 inch in 20 feet, or 1/2 inch maximum.
 - 4. For exposed bed joints, do not vary from thickness indicated by more than plus or minus 1/8 inch, with a maximum thickness limited to 1/2 inch. Do not vary from bed-joint thickness of adjacent courses by more than 1/8 inch.

5. For exposed head joints, do not vary from thickness indicated by more than plus or minus 1/8 inch. Do not vary from adjacent bed-joint and head-joint thicknesses by more than 1/8 inch.
6. For faces of adjacent exposed masonry units, do not vary from flush alignment by more than 1/32 inch except due to warpage of masonry units within tolerances specified for warpage of units.

3.3 LAYING MASONRY WALLS

- A. Lay out walls in advance for accurate spacing of surface bond patterns with uniform joint thicknesses and for accurate location of openings, movement-type joints, returns, and offsets. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.
- B. Bond Pattern for Masonry: Unless otherwise indicated, lay masonry in running bond or as indicated on Drawings.
- C. Stopping and Resuming Work: Stop work by racking back units in each course from those in course below; do not tooth. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar, and wet brick if required before laying fresh masonry.
- D. Built-in Work: As construction progresses, build in items specified in this and other Sections. Fill in solidly with masonry around built-in items.
- E. Fill space between steel frames and masonry solidly with mortar, unless otherwise indicated.
- F. Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into core.
- G. Fill cores in hollow concrete masonry units with grout 24 inches under bearing plates, beams, lintels, posts, and similar items, unless otherwise indicated.

3.4 MORTAR BEDDING AND JOINTING

- A. Lay hollow concrete masonry units as follows:
 1. With face shells fully bedded in mortar and with head joints of depth equal to bed joints.
 2. With webs fully bedded in mortar in all courses of piers, columns, and pilasters.
 3. With webs fully bedded in mortar in grouted masonry, including starting course on footings.
 4. With entire units, including areas under cells, fully bedded in mortar at starting course on footings where cells are not grouted.
- B. Lay solid masonry units with completely filled bed and head joints; butter ends with sufficient mortar to fill head joints and shove into place. Do not deeply furrow bed joints or slush head joints.
- C. Tool exposed exterior mortar joints to be recessed – not concave.
- D. Tool exposed interior joints slightly concave when thumbprint hard, using a jointer larger than joint thickness, unless otherwise indicated.

3.5 ANCHORING MASONRY TO STRUCTURAL MEMBERS

- A. Anchor masonry to structural members where masonry abuts or faces structural members to comply with the following:
 1. Provide an open space not less than 1 inch in width between masonry and structural member, unless otherwise indicated. Keep open space free of mortar and other rigid materials.
 2. Anchor masonry to structural members with anchors embedded in masonry joints and attached to structure.
 3. Space anchors as indicated, but not more than 24 inches o.c. vertically and 36 inches o.c. horizontally.

3.6 CONTROL AND EXPANSION JOINTS

- A. General: Install control and expansion joint materials in unit masonry as masonry progresses. Do not allow materials to span control and expansion joints without provision to allow for in-plane wall or partition movement.

3.7 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Install new units to match adjoining units; install in fresh mortar, pointed to eliminate evidence of replacement.
- B. Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent construction, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.
- C. In-Progress Cleaning: Clean unit masonry as work progresses by dry brushing to remove mortar fins and smears before tooling joints.
- D. Protection
 1. Maintain protective boards at exposed external corners which may be damaged by construction activities
 2. Provide protection without damaging completed work
 3. At day's end, cover unfinished walls to prevent moisture infiltration
- E. Final Cleaning: After mortar is thoroughly set and cured, clean exposed masonry as follows:
 1. Remove large mortar particles by hand with wooden paddles and nonmetallic scrape hoes or chisels.
 2. Test cleaning methods on sample wall panel; leave one-half of panel uncleaned for comparison purposes. Obtain Architect's approval of sample cleaning before proceeding with cleaning of masonry.
 3. Protect adjacent stone and non-masonry surfaces from contact with cleaner by covering them with liquid strippable masking agent or polyethylene film and waterproof masking tape.
 4. Wet wall surfaces with water before applying cleaners; remove cleaners promptly by rinsing surfaces thoroughly with clear water.
 5. Clean concrete masonry by cleaning method indicated in NCMA TEK 8-2A applicable to type of stain on exposed surfaces.

3.8 REINFORCED UNIT MASONRY INSTALLATION

- A. Temporary Formwork and Shores: Construct formwork and shores as needed to support reinforced masonry elements during construction.
 1. Construct formwork to provide shape, line, and dimensions of completed masonry as indicated. Make forms sufficiently tight to prevent leakage of mortar and grout. Brace, tie, and support forms to maintain position and shape during construction and curing of reinforced masonry.
 2. Do not remove forms and shores until reinforced masonry members have hardened sufficiently to carry their own weight and other temporary loads that may be placed on them during construction.
- B. Placing Reinforcement: Comply with requirements in ACI 530.1/ASCE 6/TMS 602.
- C. Grouting: Do not place grout until entire height of masonry to be grouted has attained enough strength to resist grout pressure.
 1. Comply with requirements in ACI 530.1/ASCE 6/TMS 602 for cleanouts and for grout placement, including minimum grout space and maximum pour height.
 2. Limit height of vertical grout pours to not more than 60 inches.
 3. Place and consolidate grout fill without disturbing reinforcing
 4. Fill all reinforced cells with grout

3.9 FIELD QUALITY CONTROL

- A. Inspectors: Owner will engage qualified independent inspectors to perform inspections and prepare reports. Allow inspectors access to scaffolding and work areas, as needed to perform inspections.
 - 1. Place grout only after inspectors have verified compliance of grout spaces and grades, sizes, and locations of reinforcement.
- B. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections indicated below and prepare test reports:
 - 1. Payment for these services will be made by Owner.
- C. Testing Frequency: One set of tests for each 5000 sq. ft. of wall area or portion thereof.
- D. Concrete Masonry Unit Test: For each type of unit provided, per ASTM C 140.
- E. Mortar Test (Property Specification): For each mix provided, per ASTM C780. Test mortar for compressive strength.
- F. Grout Test (Compressive Strength): For each mix provided, per ASTM 1019.

END OF SECTION 04 20 00

SECTION 05 50 00 - METAL FABRICATIONS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Steel framing and supports for mechanical and electrical equipment.
 - 2. Steel framing and supports for applications where framing and supports are not specified in other Sections.
- B. Products furnished, but not installed, under this Section include the following:
 - 1. Anchor bolts, steel pipe sleeves, and wedge-type inserts indicated to be cast into concrete or built into unit masonry.
- C. Related Sections include the following:
 - 1. Division 03 Section "Cast-in-Place Concrete" for installing anchor bolts, steel pipe sleeves, wedge-type inserts and other items indicated to be cast into concrete.
 - 2. Division 04 Section "Unit Masonry" for installing loose lintels, anchor bolts, and other items indicated to be built into unit masonry.
 - 3. Division 06 Section "Rough Carpentry" for metal framing anchors.

1.2 PERFORMANCE REQUIREMENTS

- A. Thermal Movements: Provide exterior metal fabrications that allow for thermal movements resulting from the following maximum change (range) in ambient and surface temperatures by preventing buckling, opening of joints, overstressing of components, failure of connections, and other detrimental effects. Base engineering calculation on surface temperatures of materials due to both solar heat gain and nighttime-sky heat loss.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.3 SUBMITTALS

- A. Product Data: For the following:
 - 1. Paint products.
 - 2. Grout.
- B. Shop Drawings: Show fabrication and installation details for metal fabrications.
 - 1. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.
 - 2. Provide templates for anchors and bolts specified for installation under other Sections.
 - 3. For installed products indicated to comply with design loads, include structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation.
- C. Samples for Verification: For each type and finish of extruded [nosing] [and] [tread].
- D. Mill Certificates: Signed by manufacturers of stainless-steel sheet certifying that products furnished comply with requirements.
- E. Welding certificates.

1.4 QUALITY ASSURANCE

- A. Qualifications
 - 1. Fabricator: Company specializing in performing the work of this Section with minimum 5 years documented experience
 - 2. Erector: Company specializing in performing the work of this Section with minimum 5 years documented experience
- B. Fabricate structural steel members in accordance with AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings
- C. Perform work in accordance with AISC-Specification for Architecturally Exposed Structural Steel (AESS) where finished work will be exposed to view.
- D. Welding: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1, "Structural Welding Code--Steel."

2. AWS D1.2, "Structural Welding Code--Aluminum."
 3. AWS D1.3, "Structural Welding Code--Sheet Steel."
 4. AWS D1.6, "Structural Welding Code--Stainless Steel."
- E. Acceptance: Metal fabrications exposed to view shall be of the highest quality and in accordance with applicable portions of AISC (American Institute of Steel Construction) - Specification for Architecturally Exposed Structural Steel (AESS). Quality of appearance shall be grounds for acceptance or rejection of the work of this section, decisions regarding appearance quality shall be at the discretion of the architect / engineer. Work that is rejected on the grounds of appearance shall be repaired or replaced with no additional cost to Owner.
- F. Mock-up:
1. Erect sample mock-up installation for each fabrication type to be installed on the project, include supports, rails, panels, characteristic patterns, and accessories. provide the following:
 - a. Gutter support bracket, coordinate with Division 07 Gutters
 2. Do not proceed with purchase, fabrication or installation of multiple items until mock-up has been accepted.
 3. Locate where directed. Coordinate as necessary
 4. When accepted, mock-up will demonstrate minimum standard for the Work. Mock-up may remain as part of the Work
- 1.5 PROJECT CONDITIONS
- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication and indicate measurements on Shop Drawings.
1. Established Dimensions: Where field measurements cannot be made without delaying the Work, establish dimensions and proceed with fabricating metal fabrications without field measurements. Coordinate wall and other contiguous construction to ensure that actual dimensions correspond to established dimensions.
 2. Provide allowance for trimming and fitting at site.
- 1.6 COORDINATION
- A. Coordinate installation of anchorages for metal fabrications. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- B. Coordinate installation of steel weld plates and angles for casting into concrete that are specified in this Section but required for work of another Section. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces, unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36.
- B. Stainless-Steel Sheet, Strip, Plate, and Flat Bars: ASTM A 666, Type 304.
- C. Stainless-Steel Bars and Shapes: ASTM A 276, Type 304.
- D. Rolled-Steel Floor Plate: ASTM A 786, rolled from plate complying with ASTM A 36 or ASTM A 283, Grade C or D.
- E. Rolled-Stainless-Steel Floor Plate: ASTM A 793.
- F. Steel Tubing: ASTM A 500, cold-formed steel tubing.

- G. Steel Pipe: ASTM A 53, standard weight (Schedule 40), unless another weight is indicated or required by structural loads.
- H. Cast Iron: ASTM A 48/A 48M, Class 30, unless another class is indicated or required by structural loads.

2.3 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.
- C. Aluminum Castings: ASTM B 26/B 26M, Alloy 443.0-F.

2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633, Class Fe/Zn 5, at locations concealed inside of exterior walls. Provide stainless-steel fasteners for fastening aluminum. Select fasteners for type, grade, and class required.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, nuts and, where indicated, flat washers; ASTM F 593 for bolts and ASTM F 594 for nuts, Alloy Group 1.
- D. Anchor Bolts: ASTM F 1554, Grade 36.
 - 1. Provide hot-dip or mechanically deposited, zinc-coated anchor bolts where item being fastened is indicated to be galvanized.
- E. Eyebolts: ASTM A 489.
- F. Machine Screws: ASME B18.6.3.
- G. Lag Bolts: ASME B18.2.1.
- H. Wood Screws: Flat head, ASME B18.6.1.
- I. Plain Washers: Round, ASME B18.22.1.
- J. Sammy wood screw, 1/2", minimum embedment into wood 2".
- K. Lock Washers: Helical, spring type, ASME B18.21.1.
- L. Cast-in-Place Anchors in Concrete: Anchors capable of sustaining, without failure, a load equal to four times the load imposed, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Threaded or wedge type; galvanized ferrous castings, either ASTM A 47/A 47M malleable iron or ASTM A 27/A 27M cast steel. Provide bolts, washers, and shims as needed, hot-dip galvanized per ASTM A 153/A 153M.
- M. Expansion Anchors: Anchor bolt and sleeve assembly with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and four times the load imposed when installed in concrete, as determined by testing according to ASTM E 488, conducted by a qualified independent testing agency.
 - 1. Material for Anchors in Interior Locations: Carbon-steel components zinc-plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material for Anchors in Exterior Locations: Alloy Group 1 stainless-steel bolts complying with ASTM F 593 and nuts complying with ASTM F 594.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Shop Primers: Provide primers that comply with Division 09 painting Sections.
- C. Zinc-Rich Primer: Complying with SSPC-Paint 20 or SSPC-Paint 29 and compatible with topcoat.
 - 1. Use primer with a VOC content of 420 g/L (3.5 lb/gal.) or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 2. Available Products:
 - a. Benjamin Moore & Co.; Epoxy Zinc-Rich Primer CM18/19.
 - b. Carboline Company; Carbozinc 621.

- c. ICI Devco Coatings; Catha-Coat 313.
- d. International Coatings Limited; Interzinc 315 Epoxy Zinc-Rich Primer.
- e. PPG Architectural Finishes, Inc.; Aquapon Zinc-Rich Primer 97-670.
- f. Sherwin-Williams Company (The); Corothane I GalvaPac Zinc Primer.
- g. Tnemec Company, Inc.; Tneme-Zinc 90-97.
- D. Galvanizing Repair Paint: High-zinc-dust-content paint for re-galvanizing welds in steel, complying with SSPC-Paint 20. If painting work occurs within the interior of the building, paint shall comply with VOC limits stated in Section 01 81 14.
- E. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187. If painting work occurs within the interior of the building, paint shall comply with VOC limits stated in Section 01 81 14.
- F. Nonshrink, Metallic Grout: Factory-packaged, ferrous-aggregate grout complying with ASTM C 1107, specifically recommended by manufacturer for heavy-duty loading applications.
- G. Nonshrink, Nonmetallic Grout: Factory-packaged, non-staining, noncorrosive, nongaseous grout complying with ASTM C 1107. Provide grout specifically recommended by manufacturer for interior and exterior applications.
- H. Concrete Materials and Properties: Comply with requirements in Division 03 Section "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mix concrete with a minimum 28-day compressive strength of 3000 psi, unless otherwise indicated.

2.6 FABRICATION, GENERAL

- A. Workmanship:
 - 1. Use materials of size and thickness shown or, if not shown, of required size and thickness to produce strength and durability in finished product. Work to dimensions shown or accepted on shop drawings, using proven details of fabrication and support. Use type of materials shown or specified for various components or work
 - 2. Form exposed work true to line and level with accurate angles and surfaces and straight sharp edges. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown. Form bent metal corners to smallest radius possible without causing grain separation or otherwise impairing work
- B. Form exposed connection with hairline joints, flush and smooth, using concealed fasteners wherever possible. Use exposed fasteners of type shown or, if not show, socket type flat-head (countersunk) screws or bolts. Provide sufficient backing at screw locations to cover at least three threads
- C. Provide for anchorage of type suitable for use with supporting structure. Fabricate and space anchoring devices as shown and as required to provide adequate support for intended use
- D. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- E. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch, unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- F. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- G. Form exposed work true to line and level with accurate angles and surfaces and straight edges.
- H. Weld corners and seams continuously to comply with the following:
 - 1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
 - 2. Obtain fusion without undercut or overlap.
 - 3. Remove welding flux immediately.
 - 4. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- I. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) screws or bolts, unless otherwise indicated. Locate joints where least conspicuous.

- J. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.
- K. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- L. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.
 - 1. Where units are indicated to be cast into concrete or built into masonry, equip with integrally welded steel strap anchors, 1/8 by 1-1/2 inches, with a minimum 6-inch embedment and 2-inch hook, not less than 8 inches from ends and corners of units and 24 inches o.c., unless otherwise indicated.

2.7 MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Provide steel framing and supports not specified in other Sections as needed to complete the Work.
- B. Fabricate units from steel shapes, plates, and bars of welded construction, unless otherwise indicated. Fabricate to sizes, shapes, and profiles indicated and as necessary to receive adjacent construction retained by framing and supports. Cut, drill, and tap units to receive hardware, hangers, and similar items.
 - 1. Fabricate units from slotted channel framing where indicated.
 - 2. Furnish inserts if units are installed after concrete is placed.
- C. Fabricate supports for operable partitions from continuous steel beams of sizes indicated with attached bearing plates, anchors, and braces as indicated. Drill bottom flanges of beams to receive partition track hanger rods; locate holes where indicated on operable partition Shop Drawings.
- D. Galvanize miscellaneous framing and supports where indicated.
- E. Prime miscellaneous framing and supports with zinc-rich primer where indicated.

END OF SECTION 05 50 00

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Framing with treated and untreated dimensional lumber.
 - 2. Rooftop equipment bases and support curbs.
 - 3. Wood blocking, backing, furring, nailers and grounds in equipment bases, walls and ceiling for support of all wall and/or ceiling mounted equipment, fixtures, railings, grab bars, doorstops and miscellaneous surface mounted items.
 - 4. Pre-fabricated connectors

1.2 DEFINITIONS

- A. Exposed Framing: Framing not concealed by other construction.
- B. Dimension Lumber: Lumber of 2 inches nominal or greater but less than 5 inches nominal in least dimension.
- C. Lumber grading agencies, and the abbreviations used to reference them, include the following:
 - 1. NeLMA: Northeastern Lumber Manufacturers' Association.
 - 2. NLGA: National Lumber Grades Authority.
 - 3. RIS: Redwood Inspection Service.
 - 4. SPIB: The Southern Pine Inspection Bureau.
 - 5. WCLIB: West Coast Lumber Inspection Bureau.
 - 6. WWPAA: Western Wood Products Association.

1.3 SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.
 - 1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
 - 2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.
 - 3. For fire-retardant treatments specified to be High-Temperature (HT) type, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
 - 4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.
 - 5. Include copies of warranties from chemical treatment manufacturers for each type of treatment.
- B. Fastener Patterns: Full-size templates for fasteners in exposed framing.
- C. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.
- D. Research/Evaluation Reports: For the following, showing compliance with building code in effect for Project:
 - 1. Wood-preservative-treated wood.
 - 2. Engineered wood products.
 - 3. Power-driven fasteners.
 - 4. Powder-actuated fasteners.
 - 5. Expansion anchors.
 - 6. Metal framing anchors.

1.4 QUALITY ASSURANCE

- A. Source Limitations for Engineered Wood Products: Obtain each type of engineered wood product through one source from a single manufacturer.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack lumber flat with spacers between each bundle to provide air circulation. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
 - 3. Where nominal sizes are indicated, provide actual sizes required by DOC PS 20 for moisture content specified. Where actual sizes are indicated, they are minimum dressed sizes for dry lumber.
 - 4. Provide dressed lumber, S4S, unless otherwise indicated.
 - 5. Lumber products included in the finished project, shall comply with the VOC requirements stated in section 01 81 14.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPAC2, except that lumber that is not in contact with the ground and is continuously protected from liquid water may be treated according to AWPAC31 with inorganic boron (SBX).
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
 - 2. For exposed items indicated to receive a stained or natural finish, use chemical formulations that do not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
 - 1. For exposed lumber indicated to receive a stained or natural finish, omit marking and provide certificates of treatment compliance issued by inspection agency.
- D. Application: Treat items indicated on Drawings, and the following:
 - 1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
 - 2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
 - 3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
 - 4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
 - 5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS – NOT USED

2.4 DIMENSION LUMBER FRAMING

- A. Maximum Moisture Content: 19 percent
- B. Interior framing: see structural drawings.
 - 1. Hem-fir (north); NLGA.
 - 2. Spruce-pine-fir; NLGA.
 - 3. Hem-fir; WCLIB, or WWP.
 - 4. Northern species; NLGA.
 - 5. Western woods; WCLIB or WWP.
- C. Joists, Rafters, and Other Framing Not Listed Above: see structural drawings:
 - 1. Hem-fir (north); NLGA.
 - 2. Douglas fir-larch; WCLIB or WWP.
 - 3. Spruce-pine-fir; NLGA.
 - 4. Hem-fir; WCLIB or WWP.
 - 5. Douglas fir-larch (north); NLGA.

2.5 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 - 1. Blocking.
 - 2. Nailers.
 - 3. Rooftop equipment bases and support curbs.
 - 4. Cants.
 - 5. Furring.
 - 6. Grounds.
- B. For items of dimension lumber size, see structural drawings.
 - 1. Hem-fir (north); NLGA.
 - 2. Spruce-pine-fir; NLGA.
 - 3. Hem-fir; WCLIB, or WWP.
 - 4. Western woods; WCLIB or WWP.
 - 5. Northern species; NLGA.
- C. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.
- E. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.6 PLYWOOD BACKING PANELS

- A. Telephone and Electrical Equipment Backing Panels: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.
- B. Wall backing for future wall mounted installations: DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, 3/8-inch nominal thickness.
- C. Plywood and sheathing products included in the finished project, shall comply with the VOC requirements stated in section 01 81 14

2.7 FASTENERS

- A. General: Provide fasteners of size and type indicated that comply with requirements specified in this Article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.
- B. Nails, Brads, and Staples: ASTM F 1667.
- C. Power-Driven Fasteners: NES NER-272.
- D. Wood Screws: ASME B18.6.1.

- E. Lag Bolts: ASME B18.2.1.
 - F. Bolts: Steel bolts complying with ASTM A 307, Grade A with ASTM A 563 hex nuts and, where indicated, flat washers.
 - G. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to 6 times the load imposed when installed in unit masonry assemblies and equal to 4 times the load imposed when installed in concrete as determined by testing per ASTM E 488 conducted by a qualified independent testing and inspecting agency.
 - 1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
 - 2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.
- 2.8 METAL FRAMING ANCHORS
- A. Galvanized Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.
 - 1. Use for interior locations where stainless steel is not indicated.
 - B. Bridging: Rigid, V-section, nailless type, 0.050 inch thick, length to suit joist size and spacing.
 - C. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch above base and with 2-inch- minimum side cover, socket 0.062 inch thick, and standoff and adjustment plates 0.108 inch thick.
 - D. Joist Ties: Flat straps, with holes for fasteners, for tying joists together over supports.
 - 1. Width: 3/4 inch.
 - 2. Thickness: [0.050 inch
 - 3. Length: 16 inches.
 - E. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches wide by 0.050 inch thick by 36 inches long.
- 2.9 MISCELLANEOUS MATERIALS
- A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
 - B. Adhesives for Gluing Furring and Sleepers to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.
 - 1. Use adhesives that have a VOC content of 70 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - C. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chlorpyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry to other construction; scribe and cope as needed for accurate fit. Locate furring, [nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- B. Framing Standard: Comply with AF&PA's "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- C. Metal Framing Anchors: Install metal framing to comply with manufacturer's written instructions.
- D. Do not splice members between supports, unless otherwise indicated.
- E. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c

2. Coordinate installation of Concealed Backing, Flooring, Grounds and Cants with other work.
 - F. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
 3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. (9.3 sq. m) and to solidly fill space below partitions.
 - G. Sort and select lumber so that natural characteristics will not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
 - H. Comply with AWP A M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 1. Use inorganic boron for items that are continuously protected from liquid water.
 2. Use copper naphthenate for items not continuously protected from liquid water.
 - I. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 1. NES NER-272 for power-driven fasteners.
 2. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
 - J. Use common wire nails, unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood; do not countersink nail heads, unless otherwise indicated.
 - K. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 1. Comply with approved fastener patterns where applicable
 2. Use finishing nails, unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
- 3.2 WOOD SLEEPER, BLOCKING, AND NAILER INSTALLATION
- A. Provide solid wood blocking, backing, furring, nailers and grounds in equipment bases, walls and ceiling for support of all wall and/or ceiling mounted equipment, fixtures, railings, grab bars, doorstops and miscellaneous surface mounted items.
 - B. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
 - C. Provide solid fire treated wood blocking or sheathing backing for all wall mounted equipment, chalkboards, tackboards, shelf standards, wall cabinets, mirrors, toilet accessories, partitions, panels shelving, casework, fixtures, door stops, etc.
 - D. At existing framed wall and ceiling construction, install solid fire treated wood blocking for all equipment, chalkboards, tackboards, shelf standards, wall cabinets, mirrors, toilet accessories, partitions, panels shelving, casework, fixtures, door stops, etc. Remove existing finishes as necessary to install solid blocking and/or backing. Patch back finishes to match existing adjacent surfaces.
 - E. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces, unless otherwise indicated.
 - F. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 06 10 00

SECTION 06 18 00 - GLUED-LAMINATED CONSTRUCTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Glue laminated wood beams, architectural appearance grade with exterior rated glues and finishes
 - 2. Steel hardware and attachment brackets.
- B. System Description
 - 1. Design Loads: Per structural calculations.

1.2 REFERENCES

- A. AITC - American Institute of Timber Construction.
- B. ANSI A190.1 - Structural Glued Laminated Timber.
- C. ASTM A 36 - Specification for Structural Steel.
- D. ASTM D 2559 - Specification for Adhesives for Structural Laminated Wood Products for Use Under Exterior (Wet Use) Exposure Conditions.
- E. ASTM A 307 - Specification for carbon steel, bolts, and studs 60,000 psi minimum tensile strength.

1.3 SUBMITTALS

- A. Submit shop drawings and product data under provisions of Division 01.
- B. Indicate sizes and spacing of members, cambers, bearing and anchor details.

1.4 QUALITY ASSURANCE

- A. Qualifications
 - 1. Manufacturer: Company specializing in manufacture of glue laminated structural units with three years minimum experience, and certified by the AITC in accordance with ANSI A190.1.
 - 2. Erector: Company specializing in erection of glue laminated structural units with five years experience.
- B. Regulatory Requirements
 - 1. Conform to I.B.C. for loads, seismic zoning, and other load criteria.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 01.
- B. Store and protect products under provisions of Division 01.
- C. Protect members in accordance with AITC requirements for individually wrapped material.
- D. Leave individual wrapping in place until finishing occurs.

PART 2 - PRODUCTS

2.1 MANUFACTURERS - not used.

2.2 MATERIALS

- A. Lumber: Douglas Fir or Southern Pine lumber conforming to grading rules and the following values:
 - 1. Bending (Fb):
 - a. GluLam Beams Fb: 2400 psi.
 - 2. Tension Parallel to Grain (Ft):
 - a. GluLam Beams Ft: 1100 psi.

3. Compression Parallel to Grain (F_c):
 - a. GluLam Beams F_c : 1650 psi.
4. Compression Perpendicular to Grain Bottom (F_{cl}):
 - a. GluLam Beams F_{cl} : 650 psi.
5. Compression Perpendicular to Grain Top (F_{cl}):
 - a. GluLam Beams F_{cl} : 650 psi.
6. Horizontal Shear (F_v):
 - a. GluLam Beams F_v : 265 psi.
7. Modulus of Elasticity (E):
 - a. GluLam Beams E : 1.8×10^6 psi.
- B. Adhesive: ASTM D 2559 - For wet condition of service.
- C. Sealer - Penetrating surface sealer suitable for site finish per division 09.
- D. Grade: architectural appearance grade with exterior rated glues and finishes

2.3 ACCESSORIES

- A. Steel Connections and Brackets: ASTM A 36 - Weldable quality, shop primed painted.
- B. Thru-Bolts: ASTM A-307 Steel
- C. Hardware: ASTM A 325 - Structural quality steel; shop primed painted.
- D. Anchor Bolts: ASTM A 307 Steel.
- E. Bearing Plate Anchors: Toggle bolt type for anchorage to hollow masonry. Expansion shield and lag bolt type for anchorage to solid masonry or concrete.
- F. Protective Paper Wrap: 30 lb. Asphalt - impregnated building paper.

2.4 FABRICATION

- A. Fabricate glue laminated structural members in accordance with AITC architectural grade.
 1. Provide architectural grade for exposed locations (exterior and interior).
 2. Provide structural grade for concealed locations.
- B. Verify dimensions and site conditions prior to fabrication.
- C. Cut and fit component parts accurately to length to achieve tight joint fit.
- D. Fabricate member with camber only where specified by Structural Engineer.
- E. Do not splice or join members in locations other than that indicated, without permission.
- F. Fabricate steel hardware and connections with joints neatly fitted, welded, and ground smooth.
- G. After end trimming, seal with penetrating sealer in accordance with AITC requirements.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that supports are ready to receive trusses.
- B. Verify sufficient end bearing area.
- C. Beginning of installation means acceptance of existing conditions.

3.2 PREPARATION

- A. Coordinate placement of bearing and support items.

3.3 ERECTION

- A. Set structural members level and plumb, in correct positions.
- B. Provide temporary bracing and anchorage to hold members in place until permanently secured.

- C. Fit members together accurately without trimming, cutting, or any other unauthorized modification.
- D. Install building paper wrap between ledgers and concrete or masonry walls.
- E. Tolerances
 - 1. Framing Members: 1/2 inch maximum from true position.

END OF SECTION 06 18 00

SECTION 07 11 13 - BITUMINOUS DAMPPROOFING

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Cold-applied, emulsified-asphalt dampproofing. Install at sub-grade side of retaining walls and the exterior side of all foundation walls and footings
- B. Related Sections include the following:
 - 1. Division 07 Section "Self-Adhering Sheet Waterproofing" for waterproofing.

1.2 SUBMITTALS

- A. Product Data: For each type of product indicated. Include recommendations for method of application, primer, number of coats, coverage or thickness, and protection course.
- B. Material Certificates: For each product, signed by manufacturers.

1.3 QUALITY ASSURANCE

- A. Source Limitations: Obtain primary dampproofing materials and primers through one source from a single manufacturer. Provide secondary materials recommended by manufacturer of primary materials.

1.4 PROJECT CONDITIONS

- A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit dampproofing to be performed according to manufacturers' written instructions.
- B. Ventilation: Provide adequate ventilation during application of dampproofing in enclosed spaces. Maintain ventilation until dampproofing has cured.

PART 2 - PRODUCTS

2.1 COLD-APPLIED, EMULSIFIED-ASPHALT DAMPPROOFING

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
- B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. ChemMasters Corp.
 - 2. Degussa Building Systems; Sonneborn Brand Products.
 - 3. Gardner Gibson, Inc.
 - 4. Henry Company.
 - 5. Karnak Corporation.
 - 6. Koppers Inc.
 - 7. Malarkey Roofing Products.
 - 8. Meadows, W. R., Inc.
 - 9. Tamms Industries, Inc.
- C. Trowel Coats: ASTM D 1227, Type II, Class 1.
- D. Fibered Brush and Spray Coats: ASTM D 1227, Type II, Class 1.
- E. Brush and Spray Coats: ASTM D 1227, Type III, Class 1.
- F. VOC Content: 0.25 lb/gal. or less.

2.2 PROTECTION COURSE

- A. Protection Course: Unfaced, fan-folded, extruded-polystyrene board insulation, nominal thickness 1/4 inch with compressive strength of not less than 8 psi per ASTM D 1621.

2.3 MISCELLANEOUS MATERIALS

- A. Emulsified-Asphalt Primer: ASTM D 1227, Type III, Class 1, except diluted with water as recommended by manufacturer.
- B. Asphalt-Coated Glass Fabric: ASTM D 1668, Type I.
- C. Patching Compound: Epoxy or latex-modified repair mortar of type recommended by dampproofing manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for surface smoothness and other conditions affecting performance of work.
 - 1. Proceed with dampproofing application only after substrate construction and penetrating work have been completed and unsatisfactory conditions have been corrected.
 - 2. Test for surface moisture according to ASTM D 4263.

3.2 PREPARATION

- A. Protection of Other Work: Mask or otherwise protect adjoining exposed surfaces from being stained, spotted, or coated with dampproofing. Prevent dampproofing materials from entering and clogging weep holes and drains.
- B. Clean substrates of projections and substances detrimental to work; fill voids, seal joints, and apply bond breakers if any, as recommended by prime material manufacturer.
- C. Apply patching compound for filling and patching tie holes, honeycombs, reveals, and other imperfections; cover with asphalt-coated glass fabric.

3.3 APPLICATION, GENERAL

- A. Comply with manufacturer's written recommendations unless more stringent requirements are indicated or required by Project conditions to ensure satisfactory performance of dampproofing.
 - 1. Apply additional coats if recommended by manufacturer or if required to achieve coverages indicated.
 - 2. Allow each coat of dampproofing to cure 24 hours before applying subsequent coats.
 - 3. Allow 48 hours drying time prior to backfilling.
- B. Apply dampproofing to footings and foundation walls where opposite side of wall faces building interior.
 - 1. Apply from finished-grade line to top of footing, extend over top of footing, and down a minimum of 6 inches over outside face of footing.
 - 2. Extend 12 inches onto intersecting walls and footings, but do not extend onto surfaces exposed to view when Project is completed.
 - 3. Install flashings and corner protection stripping at internal and external corners, changes in plane, construction joints, cracks, and where shown as "reinforced," by embedding an 8-inch- wide strip of asphalt-coated glass fabric in a heavy coat of dampproofing. Dampproofing coat for embedding fabric is in addition to other coats required.

3.4 COLD-APPLIED, EMULSIFIED-ASPALT DAMPPROOFING

- A. On Concrete Foundations Foundation Walls: Apply 2 brush or spray coats at not less than 1.5 gal./100 sq. ft. for first coat and 1 gal./100 sq. ft. for second coat, or 1 trowel coat at not less than 4 gal./100 sq. ft..
- B. On Unexposed Face of Concrete Retaining Walls: Apply 1 brush or spray coat at not less than 1.25 gal./100 sq. ft..
- C. Apply from finish grade elevation to bottom of footings
- D. Seal items projecting through dampproofing surface with mastic. Seal watertight

3.5 INSTALLATION OF PROTECTION COURSE

- A. Install protection course over completed-and-cured dampproofing. Comply with dampproofing material manufacturer's written recommendations for attaching protection course.

1. Support protection course with spot application of adhesive of type recommended by protection board manufacturer over cured coating.
2. Install protection course within 24 hours of installation of dampproofing (while coating is tacky) to ensure adhesion.

3.6 CLEANING

- A. Remove dampproofing materials from surfaces not intended to receive dampproofing.
- B. Remove dampproofing materials, including protection board from surfaces exposed to view after finish grading is complete.

END OF SECTION 07 11 13

SECTION 07 31 13 – COMPOSITION SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes, Base Bid Roofing
 - 1. Granular surfaced asphalt composition shingle roofing.
 - 2. Ridge vent assembly
 - 3. Moisture shedding underlayment; eave, valley and ridge protection.
 - 4. Energy Performance: Provide roof panels with solar reflectance index not less than 29 when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency
 - 5. Energy Performance: Provide roof panels that are listed on the U.S. Department of Energy's ENERGY STAR Roof Products Qualified Product List for steep-slope roof products
 - 6. 40 year manufacturer's warranty.

1.2 REFERENCES

- A. ASTM B 209 - Specification for Aluminum-Alloy Sheet and Plate.
- B. ASTM D 224 - Specification for Smooth-Surfaced Asphalt Roll Roofing (Organic Felt).
- C. ASTM D 228 - Method of Testing Asphalt Roll Roofing, Cap Sheets and Shingles.
- D. ASTM D 2178 - Specification for Asphalt Glass Felt Used in Roofing and Waterproofing.
- E. ASTM D 2822 - Specification for Asphalt Roof Cement.
- F. ASTM D 3018 - Specification for Class A Asphalt Shingles Surfaced with Mineral Granules.
- G. ASTM A 361 - Specification for Sheet Steel, Zinc-Coated (Galvanized) by the Hot-Dip Process for Roofing and Siding.
- H. NRCA - Roofing Manual.
- I. UL 580 - Tests for Wind Uplift Resistance of Roof Assemblies.
- J. UL 790 - Tests for Fire Resistance of Roof Covering Materials.
- K. 2006 IBC

1.3 SUBMITTALS

- A. Submit under provisions of Division 01.
- B. Product Data: Provide data indicating material characteristics, performance criteria, and limitations.
- C. Manufacturer's Installation Instructions: Indicate preparation required and installation procedures.
- D. Samples: Submit samples of each shingle color for color selection by the Architect.
 - A. Submit shop drawings under provisions of Division 01.

1.4 QUALITY ASSURANCE

- A. Perform Work in accordance with NRCA Roofing Manual.
 - 1. Maintain one (1) copy of document on site.
- B. Regulatory Requirements
 - 1. Conform to applicable code for ASTM D 3018 Class A, UL 580 wind uplift for shingle types specified.
- C. Mock-Up
 - 1. Provide mock-up of 10 sq ft, including eave protection, underlayment,

- shingle installation and associated flashings, under provisions of Division 1.
- 2. Mockup may remain as part of the Work.
- D. Contractor performing work of this Section is solely responsible for complete weather-tightness for this roofing system, and to verify and obtain approval of entire system application with manufacturer.
- 1.5 PROJECT/SITE CONDITIONS
 - A. Environmental Requirements
 - B. Do not install eave edge protection and shingles when ambient temperatures are below 50 degrees F.
- 1.6 SEQUENCING AND SCHEDULING
 - A. Under provisions of Division 01.
- 1.7 ADDITIONAL MATERIALS
 - A. Provide extra stock equal to one square in original packaging.
- 1.8 SPECIAL & EXTENDED WARRANTY
 - A. Under provisions of Division 01.
 - B. Upon acceptance through on-site inspection, the manufacturer and installer shall execute the special warranties following this section.
 - C. Refer to Roofing Guarantee, following this specification section.
 - D. Warranty Period – 40 year limited warranty period, non-prorated from date of Substantial Completion.
 - E. Wind Warranty – 90 m.p.h.

PART 2 - PRODUCTS

- 2.1 MANUFACTURERS
 - A. Elk Product: Prestique High Definition
 - B. Pabco Product: Premier
 - C. Owens/Corning Fiberglass Product: Oakridge 40 Deep Shadow
 - D. Certainteed Product: Approved Equal
 - E. Substitutions: Under provisions of Division 01.
- 2.2 MATERIALS
 - A. Asphalt Shingles – Per manufacturer, product series listed. Color to be selected from manufacturer's full range.
 - B. Shingle system shall comply with the following Energy Performance: Provide roofing system with solar reflectance index not less than **29** when calculated according to ASTM E 1980 based on testing identical products by a qualified testing agency
 - C. Sheet Materials
 - 1. Ice Shield Membrane: Equal to Ice and Water Shield as manufactured by Grace Construction Products, .040 mil thickness.
 - 2. General Underlayment: Use 2 layers of 15# asphalt underlayment over all other decking, unless manufacturer recommends otherwise. Comply with manufacturers recommendations and requirements to achieve 40 year warranty for a 3:12 installation.
- 2.3 ACCESSORIES
 - A. Nails: Standard round wire shingle type, hot dipped zinc coated steel minimum

- 3/8 inch head diameter and 12 gauge shank diameter, 1-1/4 inch long of sufficient length to penetrate through roof sheathing. Utilize 6 nails per shingle. At Contractor's option, wide-crown staples may be used on new construction only.
- B. Plastic Cement: ASTM D 2822, asphalt type with mineral fiber components, free of toxic solvents, capable of setting within 24 hours at temperatures of 75 degrees F and 50 percent RH.
 - C. Lap Cement: Fibrated cutback asphalt, type recommended for use in application of underlayment, free of toxic solvents.
 - D. Ridge Vent attic venting assemblies:
 - 1. ShingleVent II ridge vent, as manufactured by Air Vent
 - 2. Peak Filter Vent, as manufactured by Air Vent
 - 3. Cor-A-Vent Roof 2 Wall vent.
 - E. Flashing Materials: As specified in Section 07620.
 - F. Sealant: As specified in Section 07900.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify existing site conditions under provisions of Division 01.
- B. Verify that roof penetrations and plumbing stacks are in place and flashed to deck surface.
- C. Verify roof openings are correctly framed prior to installing work of this Section.
- D. Verify deck surfaces are dry, free of ridges, warps, or voids.

3.2 PREPARATION

- A. Fill knot holes and surface cracks with latex filler at areas of bonded eave protection.
- B. Broom clean deck surfaces.

3.3 INSTALLATION

- A. Eave Ice Dam Protection
 - 1. Place eave edge and gable edge metal flashings tight with fascia boards. Weather lap joints 3-1/2 inches. Secure flange with nails spaced 6 inches.
 - 2. Provide Ice Shield Membrane above all roof overhangs, and in 48" from face of building wall below. Provide additional ice shield membrane protection in all roof valleys for a distance 48" out from the centerline of the valley.
 - 3. Apply ridge protection in accordance with manufacturer's instructions.
- B. Protective Underlayment
 - 1. Use eave ridge and valley protection (ice dam) as underlayment over decking at eaves, ridges and valleys, with two layers of 15# felt over all other decking.
 - 2. Install protective underlayment perpendicular to slope of roof and weather lap minimum 6 inches.
 - 3. Weather lap and seal watertight all items projecting through or mounted on roof.
- C. Asphalt Shingles
 - 1. Install shingles in accordance with manufacturer's instructions, for warranty listed.
 - 2. Place shingles in straight coursing pattern with 5-5/8 inch weather exposure.
 - 3. Project first course of shingles 3/4 inch beyond fascia.

4. Extend shingles 1/2 inch beyond face of gable edge fascia.
5. Cap hips and ridges with individual shingles, maintaining 5-5/8 inch weather exposure. Place to avoid exposed nails.
6. Extend shingles on both slopes across valley in a weave pattern and fasten. Extend shingles a minimum of 12 inches beyond valley center line to achieve woven valley, concealing the valley protection.
7. After installation, place one daub of plastic cement, one inch diameter under each individual shingle exposed to weather, to prevent lifting of any shingles not properly sealed.
8. Coordinate installation of roof mounted components or work projecting through roof with weather tight placement of counter flashings.
9. Complete installation to provide weather tight service.

3.4 FIELD QUALITY CONTROL

- A. Field inspection will be performed under provisions of Division 01.
- B. Visual inspection of the Work will be provided by Architect.

3.5 PROTECTION OF FINISHED WORK

- A. Protect finished Work under provisions of Division 01.
- B. Do not permit traffic over finished roof surface.

ROOFING GUARANTEE -- CONTRACTOR

The Roofing Contractor guarantees, subject to terms and conditions herein, that during Guarantee Period he will at his own cost and expense, make or cause to be made repairs to or replacements of work as necessary to correct faulty and defective work, and as are necessary to maintain said work in watertight condition.

In addition to making the work watertight, the Roofing Contractor shall remove and/or repair blisters, ridges, flashings, splits and other irregularities which in the opinion of the Roofing Manufacturer's technical representative do not conform to acceptable roofing practices and conditions. These repairs shall be made prior to expiration of the two (2) year Guarantee Period and to the satisfaction of the Roofing Manufacturer's technical representative.

This Guarantee is made subject to the following terms and conditions:

- Specifically excluded from this Guarantee are damages to work and other parts of the building, and to building contents, caused by: 1) lightning; windstorm; b) fire; c) failure of substrate due to deflection, deterioration, and decomposition; d) faulty construction of parapet walls, copings, chimneys, skylights, vents, equipment supports, and other edge conditions and penetrations of the work; and e) activity on roofing by others including construction contractors, maintenance personnel, other persons, and animals, whether authorized or unauthorized by Owner.

When work has been damaged by any of foregoing causes, Guarantee shall be null and void until such damage has been repaired by Roofing Contractor, and until cost and expense thereof has been paid by Owner or by another responsible party so designated.

- The Roofing Contractor is responsible for work covered by this Guarantee, but is not liable for consequential damages to building or building contents, resulting from leaks or faults or defects of work.
- During Guarantee Period, if Owner allows alteration of work by anyone other than the Roofing Contractor, including cutting, patching and maintenance in connection with penetrations, attachment of other work, and positioning of anything on roof, this Guarantee shall become null and void upon date of such alterations, but only to extent the work covered by this Guarantee. If the Owner engages the Roofing Contractor to perform said alterations, Guarantee shall not become null and void, unless the Roofing Contractor, prior to proceeding with the work, shall claim that said alterations would damage or deteriorate work, thereby reasonably justifying a limitation or termination of this Warranty.
- During the Guarantee Period, if the original use of roof is changed and it becomes used for, but was not originally specified for, a promenade, work deck, spray cooled surface, flooded basin, or other use or service more severe than originally specified, this Guarantee shall become null and void upon date of the change, but only to extent said change affects work covered by this Guarantee.
- The Owner shall promptly notify the Roofing Contractor of observed known or suspected leaks, defects or deterioration, and shall afford reasonable opportunity for the Roofing Contractor to inspect the work, and to examine evidence of such leaks, defects or deterioration.
- This Guarantee is recognized to be the only Guarantee of the Roofing Contractor on said work, and is in addition to Roofing Warranty furnished by the Roofing Manufacturer, and shall not operate to restrict or cut off Owner from other remedies and resources lawfully available to him in cases of roofing failure. Specifically, this Guarantee shall not operate to relieve the Roofing Contractor of responsibility for performance of original work in accordance with requirements of the Contract Documents, regardless of whether Contract was a contract directly with Owner or a Subcontractor with Owners' General Contractor.

City of Moscow – East City Park Restroom Replacement
Moscow, Idaho

07 31 13 - 5
7/31/2026

ROOFING WARRANTY -- MANUFACTURER

A careful examination of the completed roof shall be made by the Manufacturer's representative to determine that required quantities of roofing materials have been used and that roofing materials have been applied in conformance with contract documents;

The Manufacturer warrants, subject to the limits stated herein, that its roofing when so applied is effectively watertight for a period of forty (40) years despite normal wear and tear by the elements, as well as warranting it against defects in workmanship or materials; which result in leaks.

The Manufacturer warrants to the Owner that, as set forth below, during a period of forty (40) years from the date of substantial completion of the single-ply roofing described below, the Manufacturer will at its own expense, make or cause to be made, any repairs that may be necessary, as a result of defects in workmanship or materials supplied by the Manufacturer which result in leaks or of normal wear and tear by the elements which results in leaks, and will maintain said roof in water tight condition free from all leaks arising from such causes. For purposes of this Warranty, damage to the roof caused by hurricanes, lightning, tornadoes, gales, hailstorms or other unusual natural phenomena shall not be deemed to be "normal wear and tear by the elements".

INCLUSIONS: This Warranty does cover, and manufacturer shall be liable for the following:

- Roofing membrane, membrane flashings, metal flashings, mechanical fastening system, anchors, adhesives, seaming materials, slip sheets, fabrics, insulations, underlayments, and accessories furnished by the manufacturer as incorporated into the roof membrane system.
- Replacement of roof insulation and vapor barrier damaged by any leakage and/or failure of the roof membrane assembly;
- Repair of blisters, buckles, splits, breaks, cracks and seam failures in membrane system.

EXCLUSIONS: This Warranty does not cover, and Manufacturer shall not be liable for the following:

- Metal work, including metal counter flashings not a part of the roof membrane system, and such damage as may result from application of these materials;
- Any damage to the roof caused by structural defect in, or failure of, the building or defects in, or failure of, any structural roof deck, or other sheathing material, used as the base over which the roof and roof insulation is applied;
- Roof damage from special chemical conditions not disclosed to Manufacturer;
- Any damage to the building or contents thereof, except replacement of damaged roof insulation and vapor barrier as noted under "INCLUSIONS: above";
- Roof damage through use of materials after original installation not furnished by Manufacturer;
- Damage to the roof due to mechanical abrasion or abuse not caused by the Manufacturer.
- Reasonable care and maintenance will be the responsibility of the Owner.

INSPECTION AND REPAIR: During the term of this Warranty, the Manufacturer, its agents or employees, shall have free access to the roof during regular business hours. Upon written notice by the Owner to the Manufacturer within four days of the discovery of any leaks in the roofing system, or need of repair of roof, the Manufacturer shall have ten (10) days to inspect the roof. Following such inspection:

- The Manufacturer, at its own expense shall make such repairs to the roof as area required by the Warranty.

City of Moscow – East City Park Restroom Replacement
Moscow, Idaho

07 31 13 - 6
7/31/2026

- In case Owner or his agent has notified the Manufacturer in writing that repairs are required and such repairs are not covered by the Warranty (including repairs required by Owner's alteration, extension or addition to the roof) the Owner, after having obtained the Manufacturer's consent in writing, shall make or cause to be made, such repairs at Owner's expense in accordance with specifications and procedures as established by the Manufacturer and this Warranty shall remain in effect for the unexpired portion of its original term. If the Owner fails to obtain authorization from the Manufacturer or if repairs are made by anyone other than the Manufacturer's authorized designee, this Warranty with respect to such area shall be automatically terminated.
- In the event the (1) Owner notifies the Manufacturer and has confirmed in writing the need of repair of roof and (2) the Manufacturer is unable to promptly inspect and repair same, and (3) an emergency condition exists which requires prompt repair in order to avoid substantial damage to the Owner, then the Owner may make such temporary repairs as may be essential, and any such action shall not be a breach of the provision of this Warranty. The Owner will bear emergency repair expenses.

INSPECTION SERVICE: The Manufacturer agrees to re-inspect the completed roof not earlier than 12 nor later than 24 months after completion of the roofing, and if it is determined that there are leaks in the roofing, then the Manufacturer shall make, or cause to be made at its own expense, such repairs as are necessary in the opinion of the Manufacturer, to assure watertight integrity of the roof within the scope of its responsibility under the terms of this Warranty.

END OF SECTION 07 31 13

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Formed Products:
 - a. Formed roof drainage sheet metal fabrications.
 - b. Formed sloped roof sheet metal fabrications.
 - c. Formed wall sheet metal fabrications.
 - d. Formed equipment support flashing.
- B. Related Sections:
 - 1. Division 05 Section "Metal Fabrications" for gutter support brackets
 - 2. Division 06 Section "Rough Carpentry" for wood nailers, curbs, and blocking.
 - 3. Division 07 Section "Roof Accessories" for equipment supports, vents, and other manufactured roof accessory units.
 - 4. Division 07 Section "Joint Sealants" for sealants applied at metal flashing.

1.2 PERFORMANCE REQUIREMENTS

- A. General: Sheet metal flashing and trim assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight.
- B. Thermal Movements: Provide sheet metal flashing and trim that allows for thermal movements from ambient and surface temperature changes.
 - 1. Temperature Change (Range): 120 deg F, ambient; 180 deg F, material surfaces.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each manufactured product and accessory.
- B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Include the following:
 - 1. Identification of material, thickness, weight, and finish for each item and location in Project.
 - 2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
 - 3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
 - 4. Details of termination points and assemblies, including fixed points.
 - 5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
 - 6. Details of edge conditions, including eaves, ridges, valleys, rakes, crickets, and counter flashings as applicable.
 - 7. Details of special conditions.
 - 8. Details of connections to adjoining work.
 - 9. Detail formed flashing and trim at a scale of not less than 1-1/2 inches per 12 inches.
- C. Samples: For each type of exposed finish required, prepared on Samples of size indicated below:
 - 1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
 - 2. Trim, Metal Closures, Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.

3. Accessories and Miscellaneous Materials: Full-size Sample.
- D. Qualification Data: For qualified fabricator.
- E. Maintenance Data: For sheet metal flashing, trim, and accessories to include in maintenance manuals.
- F. Warranty: Sample of special warranty.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing and trim similar to that required for this Project and whose products have a record of successful in-service performance.
- B. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.
- C. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.
 1. Build mockup of typical roof eave, approximately 10 feet long, including supporting construction cleats, seams, attachments, underlayment, and accessories.
 2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
 3. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.
- D. Preinstallation Conference: Conduct conference at Project site.
 1. Meet with Owner, Architect, Installer, and installers whose work interfaces with or affects sheet metal flashing and trim including installers of roofing materials, roof accessories, unit skylights, and roof-mounted equipment.
 2. Review methods and procedures related to sheet metal flashing and trim.
 3. Examine substrate conditions for compliance with requirements, including flatness and attachment to structural members.
 4. Review special roof details, roof drainage, roof penetrations, and condition of other construction that will affect sheet metal flashing.
 5. Document proceedings, including corrective measures and actions required, and furnish copy of record to each participant.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store sheet metal flashing and trim materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing and trim materials away from uncured concrete and masonry.
- B. Protect strippable protective covering on sheet metal flashing and trim from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing and trim installation.

1.6 WARRANTY

- A. Provide Owner with a warranty stating that metal flashings and Associated sealants will properly shed water and protect building from physical damage for a minimum period of two years from date of substantial performance of work, as certified by Architect/Engineer, and that damage resulting from failure to provide above stated performances will be repaired to satisfaction of Owner at no additional cost
- B. Special Warranty on Finishes: Manufacturer's standard form in which manufacturer agrees to repair finish or replace sheet metal flashing and trim that shows evidence of deterioration of factory-applied finishes within specified warranty period.
 1. Exposed Panel Finish: Deterioration includes, but is not limited to, the following:
 - a. Color fading more than 5 Hunter units when tested according to ASTM D 2244.
 - b. Chalking in excess of a No. 8 rating when tested according to ASTM D 4214.
 - c. Cracking, checking, peeling, or failure of paint to adhere to bare metal.
 2. Finish Warranty Period: 20 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SHEET METALS

- A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.
- B. Metallic-Coated Steel Sheet: Restricted flatness steel sheet, metallic coated by the hot-dip process and prepainted by the coil-coating process to comply with ASTM A 755/A 755M.
 - 1. Zinc-Coated (Galvanized) Steel Sheet: ASTM A 653/A 653M, **G90** coating designation; structural quality.
 - 2. Surface: Smooth, flat.
 - 3. Exposed Coil-Coated Finish:
 - a. Two-coat Fluoropolymer: AAMA 621. Fluoropolymer finish containing not less than 70 percent PVDF resin by weight in both color coat and clear topcoat. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - 4. Color: All exposed sheet metal shall be approved by Architect and match adjacent material, to be selected from manufacturers full range of colors.
 - 5. Concealed Finish: Pretreat with manufacturer's standard white or light-colored acrylic or polyester backer finish, consisting of prime coat and wash coat with a minimum total dry film thickness of **0.5 mil**.

2.2 UNDERLAYMENT MATERIALS

- A. Felt: ASTM D 226, Type II (No. 30), asphalt-saturated organic felt, nonperforated.
- B. Slip Sheet: Building paper, **3-lb/100 sq. ft.** minimum, rosin sized.

2.3 MISCELLANEOUS MATERIALS

- A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.
- B. Fasteners: Wood screws, annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item.
 - 1. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
 - a. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
 - b. Blind Fasteners: High-strength aluminum or stainless-steel rivets suitable for metal being fastened.
 - c. Spikes and Ferrules: Same material as gutter; with spike with ferrule matching internal gutter width.
 - 2. Fasteners for Zinc-Coated (Galvanized) Steel Sheet: Hot-dip galvanized steel according to ASTM A 153/A 153M or ASTM F 2329 or Series 300 stainless steel.
- C. Solder:
 - 1. For Zinc-Coated (Galvanized) Steel: ASTM B 32, Grade Sn50, 50 percent tin and 50 percent lead or Grade Sn60, 60 percent tin and 40 percent lead.
 - 2. For Zinc: ASTM B 32, 40 percent tin and 60 percent lead with low antimony, as recommended by manufacturer.
- D. Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape **1/2 inch** wide and **1/8 inch** thick.
- E. Elastomeric Sealant: ASTM C 920, elastomeric silicone polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

- F. Butyl Sealant: ASTM C 1311, single-component, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
- G. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

2.4 MANUFACTURED SHEET METAL FLASHING AND TRIM

- A. Reglets: Units of type, material, and profile indicated, formed to provide secure interlocking of separate reglet and counterflashing pieces, and compatible with flashing indicated with factory-mitered and -welded corners and junctions.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Cheney Flashing Company.
 - b. Fry Reglet Corporation.
 - c. Heckmann Building Products Inc.
 - d. Hickman, W. P. Company.
 - e. Hohmann & Barnard, Inc.; STF Sawtooth Flashing.
 - f. Keystone Flashing Company, Inc.
 - g. National Sheet Metal Systems, Inc.
 - h. Sandell Manufacturing Company, Inc.
 - 2. Material: Galvanized steel, **0.022 inch** thick.
 - 3. Surface-Mounted Type: Provide with slotted holes for fastening to substrate, with neoprene or other suitable weatherproofing washers, and with channel for sealant at top edge.
 - 4. Concrete Type: Provide temporary closure tape to keep reglet free of concrete materials, special fasteners for attaching reglet to concrete forms, and guides to ensure alignment of reglet section ends.
 - 5. Masonry Type: Provide with offset top flange for embedment in masonry mortar joint.
 - 6. Accessories:
 - a. Flexible-Flashing Retainer: Provide resilient plastic or rubber accessory to secure flexible flashing in reglet where clearance does not permit use of standard metal counterflashing or where Drawings show reglet without metal counterflashing.
 - b. Counterflashing Wind-Restraint Clips: Provide clips to be installed before counterflashing to prevent wind uplift of counterflashing lower edge.
 - 7. Finish: With manufacturer's standard color coating.

2.5 FABRICATION, GENERAL

- A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
 - 1. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
 - 2. Obtain field measurements for accurate fit before shop fabrication.
 - 3. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
 - 4. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
- B. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to a tolerance of **1/4 inch in 20 feet** on slope and location lines as indicated and within **1/8-inch** offset of adjoining faces and of alignment of matching profiles.
- C. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

- D. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than **1 inch** deep, filled with butyl sealant concealed within joints.
- E. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.
- F. Fabricate cleats and attachment devices of sizes as recommended by SMACNA's "Architectural Sheet Metal Manual" and by FMG Loss Prevention Data Sheet 1-49 for application, but not less than thickness of metal being secured.
- G. Seams: Fabricate nonmoving seams with flat-lock seams. Tin edges to be seamed, form seams, and solder.
- H. Seams: Fabricate nonmoving seams with flat-lock seams. Form seams and seal with elastomeric sealant unless otherwise recommended by sealant manufacturer for intended use. Rivet joints where necessary for strength.
- I. Do not use graphite pencils to mark metal surfaces.

2.6 ROOF DRAINAGE SHEET METAL FABRICATIONS

- A. Hanging Gutters: Fabricate to cross section indicated, complete with end pieces, outlet tubes, and other accessories as required. Fabricate in minimum **96-inch**- long sections. Furnish flat-stock gutter spacers and gutter brackets fabricated from same metal as gutters, of size recommended by SMACNA but not less than twice the gutter thickness. Fabricate expansion joints, expansion-joint covers, [gutter bead reinforcing bars,] and gutter accessories from same metal as gutters.
- B. Reference associated gutter support brackets under Division 05 "Metal Fabrications". Steel fabricated gutter supports are in addition to the concealed strap supports specified herein.
 - 1. Gutter Style: reference drawings for profile and sizes. Comply with SMACNA requirements.
 - 2. Expansion Joints: Built in.
 - 3. Gutters with Girth up to **15 Inches**: Fabricate from the following materials:
 - a. Galvanized Steel: **0.022 inch** thick.
 - b. Concealed Gutter support straps: **0.022 inch** thick, 24" on center.
- C. Downspouts: Fabricate rectangular downspouts complete with mitered elbows. Furnish with metal hangers, from same material as downspouts, and anchors. Lower portion of each downspout and custom down spouts at building entries to be tube steel. Reference drawings for locations and details.
 - 1. Fabricated Hanger Style: reference drawings for profile and sizes. Comply with SMACNA requirements..
 - 2. Fabricate from the following materials:
 - a. Galvanized Steel: **18 gauge**.
 - b. Tube Steel: 1/8" thick

2.7 WALL SHEET METAL FABRICATIONS

- A. Through-Wall Flashing: Fabricate continuous flashings in minimum **96-inch**- long, but not exceeding **12-foot**- long, sections, under copings, at shelf angles, and where indicated. Fabricate discontinuous lintel, sill, and similar flashings to extend **6 inches** beyond each side of wall openings. Form with **2-inch**- high, end dams where flashing is discontinuous. Fabricate from the following materials:
 - 1. Zinc-Tin Alloy-Coated Stainless Steel: **0.015 inch** thick.
- B. Opening Flashings in Frame Construction: Fabricate head, sill, jamb, and similar flashings to extend **4 inches** beyond wall openings. Form head and sill flashing with **2-inch**- high, end dams. Fabricate from the following materials:
- C. Wall Expansion-Joint Cover: Fabricate from the following materials:
 - 1. Galvanized Steel: **0.028 inch** thick.

2.8 MISCELLANEOUS SHEET METAL FABRICATIONS

- A. Equipment Support Flashing: Fabricate from the following materials:
 - 1. Galvanized Steel: **0.028 inch** thick.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
 - 1. Verify compliance with requirements for installation tolerances of substrates.
 - 2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 UNDERLAYMENT INSTALLATION

- A. General: Install underlayment as indicated on Drawings.
- B. Felt Underlayment: Install felt underlayment with adhesive for temporary anchorage to minimize use of mechanical fasteners under sheet metal flashing and trim. Apply in shingle fashion to shed water, with lapped joints of not less than **2 inches**. Coordinate work with other roofing trades.
- C. Self-Adhering Sheet Underlayment: Install self-adhering sheet underlayment, wrinkle free. Apply primer if required by underlayment manufacturer. Comply with temperature restrictions of underlayment manufacturer for installation; use primer rather than nails for installing underlayment at low temperatures. Apply in shingle fashion to shed water, with end laps of not less than **6 inches** staggered **24 inches** between courses. Overlap side edges not less than **3-1/2 inches**. Roll laps with roller. Cover underlayment within 14 days. Coordinate work with other roofing trades.

3.3 INSTALLATION, GENERAL

- A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
 - 1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
 - 2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
 - 3. Space cleats not more than **12 inches** apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
 - 4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
 - 5. Install sealant tape where indicated.
 - 6. Torch cutting of sheet metal flashing and trim is not permitted.
 - 7. Do not use graphite pencils to mark metal surfaces.
- B. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
 - 1. Coat back side of steel sheet metal flashing and trim with bituminous coating where flashing and trim will contact wood, ferrous metal, or cementitious construction.
 - 2. Underlayment: Where installing metal flashing directly on cementitious or wood substrates, install a course of felt underlayment and cover with a slip sheet or install a course of polyethylene sheet.
- C. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of **10 feet** with no joints allowed within **24 inches** of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than **1 inch** deep, filled with sealant concealed within joints.

- D. Fastener Sizes: Use fasteners of sizes that will penetrate metal decking not less than recommended by fastener manufacturer to achieve maximum pull-out resistance.
 - E. Seal joints as shown and as required for watertight construction.
 - 1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than **1 inch** into sealant. Form joints to completely conceal sealant. When ambient temperature at time of installation is moderate, between **40 and 70 deg F**, set joint members for 50 percent movement each way. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below **40 deg F**.
 - 2. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
 - F. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of **1-1/2 inches**, except reduce pre-tinning where pre-tinned surface would show in completed Work.
 - 1. Pre-tinning is not required for zinc-tin alloy-coated stainless steel.
 - 2. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
- 3.4 ROOF DRAINAGE SYSTEM INSTALLATION
- A. General: Install sheet metal roof drainage items to produce complete roof drainage system according to SMACNA recommendations and as indicated. Coordinate installation of roof perimeter flashing with installation of roof drainage system.
 - B. Hanging Gutters: Join sections with riveted and soldered joints or with lapped joints sealed with sealant. Provide for thermal expansion. Set gutters in gutter support brackets (reference Division 05 "Metal Fabrications") aligned at every-other standing metal roof seam. Attach gutters at eave or fascia to firmly anchored concealed straps spaced not more than **24 inches** apart. Provide end closures and seal watertight with sealant. Slope to downspouts.
 - 1. Fasten gutter spacers to front and back of gutter.
 - 2. Loosely lock straps to front gutter bead and anchor to roof deck.
 - 3. Anchor and loosely lock back edge of gutter to continuous cleat.
 - 4. Anchor back of gutter that extends onto roof deck with cleats spaced not more than **24 inches** apart.
 - 5. Install gutter with expansion joints at locations indicated, but not exceeding, **50 feet** apart. Install expansion-joint caps.
 - C. Downspouts: Join sections with **1-1/2-inch** telescoping joints.
 - 1. Provide hangers with fasteners designed to hold downspouts securely to walls. Locate hangers at top and bottom and at approximately **48 inches** o.c. in between.
 - 2. Connect downspouts to underground drainage system indicated with base boot connection to tightline.
 - D. Conductor Heads: Anchor securely to wall with elevation of conductor head rim **1 inch** below scupper discharge.
 - E. Expansion-Joint Covers: Install expansion-joint covers at locations and of configuration indicated. Lap joints a minimum of **4 inches** in direction of water flow.
- 3.5 ROOF FLASHING INSTALLATION
- A. General: Install sheet metal flashing and trim to comply with performance requirements, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.
 - B. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at staggered **3-inch** centers.
 - C. Roof Edge Flashing: Anchor to resist uplift and outward forces according to recommendations in FMG Loss Prevention Data Sheet 1-49 for specified wind zone and as indicated. Interlock bottom edge of roof edge flashing with continuous cleat anchored to substrate at **24-inch** centers.

- D. Copings: Anchor to resist uplift and outward forces according to recommendations in SMACNA's "Architectural Sheet Metal Manual" and as indicated.
 - 1. Interlock exterior bottom edge of coping with continuous cleat anchored to substrate at **24-inch** centers.
 - 2. Anchor interior leg of coping with washers and screw fasteners through slotted holes at **24-inch** centers.
 - E. Insert metal flashings into reglets to form tight fit. Secure in place with plastic wedges at maximum 12 inches on center. Seal flashing into reglets with sealant
 - F. Pipe or Post Counterflashing: Install counterflashing umbrella with close-fitting collar with top edge flared for elastomeric sealant, extending a minimum of **4 inches** over base flashing. Install stainless-steel draw band and tighten.
 - G. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing **4 inches** over base flashing. Lap counterflashing joints a minimum of **4 inches** and bed with sealant. Secure in a waterproof manner by means of anchor and washer at **36-inch** centers.
 - H. Roof-Penetration Flashing: Coordinate installation of roof-penetration flashing with installation of roofing and other items penetrating roof. Seal with butyl sealant and clamp flashing to pipes that penetrate roof.
 - I. Counterflash mechanical and electrical items projecting through roofing
 - J. Provide colored sheetmetal sleeves over mechanical and electrical items projecting through the roof
- 3.6 WALL FLASHING INSTALLATION
- A. General: Install sheet metal wall flashing to intercept and exclude penetrating moisture according to SMACNA recommendations and as indicated. Coordinate installation of wall flashing with installation of wall-opening components such as windows, doors, and louvers.
 - B. Through-Wall Flashing: Installation of through-wall flashing is specified in Division 04 Section "Unit Masonry."
 - C. Reglets: Installation of reglets as indicated."
 - D. Opening Flashings in Frame Construction: Install continuous head, sill, and similar flashings to extend **4 inches** beyond wall openings.
- 3.7 MISCELLANEOUS FLASHING INSTALLATION
- A. Equipment Support Flashing: Coordinate installation of equipment support flashing with installation of roofing and equipment. Weld or seal flashing with elastomeric sealant to equipment support member.
- 3.8 ERECTION TOLERANCES
- A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of **1/4 inch in 20 feet** on slope and location lines as indicated and within **1/8-inch** offset of adjoining faces and of alignment of matching profiles.
- 3.9 CLEANING AND PROTECTION
- A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.
 - B. Clean and neutralize flux materials. Clean off excess solder.
 - C. Clean off excess sealants.
 - D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.
 - E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 07 62 00

SECTION 07 92 00 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes joint sealants for the following applications, including preparing sealant substrate surfaces, sealant and expandable backing. This work includes those installations specified by reference to this Section:
 - 1. Exterior joints in the following vertical surfaces and horizontal nontraffic surfaces:
 - a. Construction joints in cast-in-place concrete.
 - b. Joints between plant-precast architectural concrete units.
 - c. Control and expansion joints in unit masonry.
 - d. Joints in exterior insulation and finish systems.
 - e. Joints between metal panels.
 - f. Joints between different materials listed above.
 - g. Perimeter joints between materials listed above and frames of doors windows and louvers
 - h. Control and expansion joints in ceilings and other overhead surfaces.
 - i. Other joints as indicated.
 - 2. Exterior joints in the following horizontal traffic surfaces:
 - a. Isolation and contraction joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
 - 3. Interior joints in the following vertical surfaces and horizontal non-traffic surfaces:
 - a. Control and expansion joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints of exterior openings where indicated.
 - c. Tile control and expansion joints.
 - d. Vertical joints on exposed surfaces of partitions.
 - e. Perimeter joints between interior wall surfaces and frames of interior doors, and windows.
 - f. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - g. Other joints as indicated.
 - 4. Interior joints in the following horizontal traffic surfaces:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Other joints as indicated.
- B. Related Sections include the following:
 - 1. Division 04 Section "Unit Masonry" for masonry control and expansion joint fillers and gaskets.
 - 2. Division 07 Section "Sheet Metal Flashing and Trim" for joint sealants
 - 3. Division 09 Section "Gypsum Board" for sealing perimeter joints of gypsum board partitions to reduce sound transmission.
 - 4. Division 32 Section "Concrete Paving Joint Sealants" for sealing joints in pavements, walkways, and curbing.

1.2 PERFORMANCE REQUIREMENTS

- A. Provide elastomeric joint sealants that establish and maintain watertight and airtight continuous joint seals without staining or deteriorating joint substrates.
- B. Provide joint sealants for interior applications that establish and maintain airtight and water-resistant continuous joint seals without staining or deteriorating joint substrates.

1.3 SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

- C. Samples for Verification: For each type and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- D. Product Certificates: For each type of joint sealant and accessory, signed by product manufacturer.
- E. SWRI Validation Certificate: For each elastomeric sealant specified to be validated by SWRI's Sealant Validation Program.
- F. Qualification Data: For Installer.
- G. Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
 - 1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
 - 2. Interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.
- H. Field Test Report Log: For each elastomeric sealant application.
- I. Product Test Reports: Based on comprehensive testing of product formulations performed by a qualified testing agency, indicating that sealants comply with requirements.
- J. Warranties: Special warranties specified in this Section.
- K. WSSP Compliance Submittals: Product Data for Credit IEQ 3.1: For sealants and sealant primers used inside the weatherproofing system, including printed statement of VOC content

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of joint sealant through one source from a single manufacturer.
- B. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
 - 1. Use manufacturer's standard test method to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
 - 2. Submit not fewer than eight pieces of each type of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
 - 3. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
 - 4. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.
 - 5. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing of current sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
- C. Product Testing: Obtain test results for "Product Test Reports" Paragraph in "Submittals" Article from a qualified testing agency based on testing current sealant formulations within a 36-month period preceding the commencement of the Work.
 - 1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated, as documented according to ASTM E 548.
 - 2. Test other joint sealants for compliance with requirements indicated by referencing standard specifications and test methods.
- D. Preconstruction Field-Adhesion Testing: Before installing elastomeric sealants, field test their adhesion to Project joint substrates as follows:
 - 1. Locate test joints where indicated on Project or, if not indicated, as directed by Architect.
 - 2. Conduct field tests for each application indicated below:
 - a. Each type of elastomeric sealant and joint substrate indicated.
 - b. Each type of nonelastomeric sealant and joint substrate indicated.
 - 3. Notify Architect seven days in advance of dates and times when test joints will be erected.
 - a. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193.

- 1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 4. Report whether sealant in joint connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
 5. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.
- 1.5 PROJECT CONDITIONS
- A. Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer[or are below 40 deg F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Contaminants capable of interfering with adhesion have not yet been removed from joint substrates.
- 1.6 WARRANTY
- A. Special Installer's Warranty: Installer's standard form in which Installer agrees to repair or replace elastomeric joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: Five years from date of Substantial Completion.
 - B. Special Manufacturer's Warranty: Manufacturer's standard form in which elastomeric sealant manufacturer agrees to furnish elastomeric joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
 1. Warranty Period: 5 years from date of Substantial Completion.
 - C. Special warranties specified in this Article exclude deterioration or failure of elastomeric joint sealants from the following:
 1. Movement of the structure resulting in stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression caused by structural settlement or errors attributable to design or construction.
 2. Disintegration of joint substrates from natural causes exceeding design specifications.
 3. Mechanical damage caused by individuals, tools, or other outside agents.
 4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Products: Subject to compliance with requirements, provide one of the products listed in other Part 2 articles.

2.2 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Provide sealants and sealant primers for use inside the weatherproofing system that comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):

1. Acoustical Sealant: 250 g/L
 2. Architectural Sealants: 250 g/L.
 3. Nonmembrane Roof Sealants: 300 g/L.
 4. Single-Ply Roof Membrane Sealants: 450 g/L.
 5. Sealant Primers for Nonporous Substrates: 250 g/L.
 6. Sealant Primers for Porous Substrates: 775 g/L.
 7. Modified Bituminous Sealant Primers: 500 g/L.
- C. Colors of Exposed Joint Sealants: Integrally colored sealants, as selected by Architect to match adjacent materials.
- 2.3 ELASTOMERIC JOINT SEALANTS
- A. Elastomeric Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied chemically curing sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 - B. Stain-Test-Response Characteristics: Where elastomeric sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
 - C. Suitability for Immersion in Liquids: Where elastomeric sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247 and qualify for the length of exposure indicated by reference to ASTM C 920 for Class 1 or 2. Liquid used for testing sealants is deionized water, unless otherwise indicated.
 - D. Suitability for Contact with Food: Where elastomeric sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600. Provide products and installations that comply with this requirement in Food Preparation and Food Serving Areas of the project.
 - E. **Sealant Type #1: Single-Component Silicone Sealant:**
 1. Available Products:
 - a. Basis of Design: Dow Corning Corporation; 795
 - b. GE Silicones; SilPruf NB SCS9000.
 - c. GE Silicones; UltraPruf II SCS2900.
 - d. Pecora Corporation; 865.
 - e. Pecora Corporation; 895.
 - f. Pecora Corporation; 898.
 2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 50.
 4. Use Related to Exposure: NT (nontraffic).
 5. Uses Related to Joint Substrates: Coated glass, anodic aluminum, aluminum coated with a high-performance coating, galvanized steel.
 6. Stain-Test-Response Characteristics: Nonstaining to porous substrates per ASTM C 1248.
 - F. **Sealant Type #2: Single-Component Mildew-Resistant Acid-Curing Silicone Sealant:**
 1. Available Products:
 - a. Basis of Design: Dow Corning Corporation; 786 Mildew Resistant.
 - b. GE Silicones; Sanitary SCS1700.
 - c. Tremco; Tremsil 200 [White] [Clear].
 2. Type and Grade: S (single component) and NS (nonsag).
 3. Class: 25.
 4. Use Related to Exposure: NT (nontraffic).
 5. Uses Related to Joint Substrates: Coated glass, anodic aluminum, aluminum coated with a high-performance coating, galvanized steel, ceramic tile.
 - G. **Sealant Type #3: Multicomponent Nonsag Urethane Sealant:**
 1. Available Products:
 - a. Basis of Design: Sonneborn, Division of ChemRex Inc.; NP 2.
 - b. Schnee-Morehead, Inc.; Permthane SM 7200.
 - c. Sika Corporation, Inc.; Sikaflex - 2c NS TG.

- d. Tremco; Vulkem 227.
- 2. Type and Grade: M (multicomponent) and NS (nonsag).
- 3. Class: 25.
- 4. Uses Related to Exposure: T (traffic) and NT (nontraffic).
- H. **Sealant Type #4: Single-Component Self Leveling Urethane Sealant:**
 - 1. Available Products:
 - a. Basis of Design: ChemRex Sonneborn SL-1
 - b. Schnee-Morehead, Inc.; equivalent product to basis of design.
 - c. Sika Corporation, Inc.; equivalent product to basis of design.
 - d. Tremco; equivalent product to basis of design.
 - 2. Type and Grade: S (single component) and SL (self leveling).
 - 3. Class: 25.
 - 4. Use Related to Exposure: T (traffic).
- I. **Sealant Type #5: Single-Component Nonsag Urethane Sealant:**
 - 1. Available Products:
 - a. Basis of Design: ChemRex Sonneborn NP-1
 - b. Bostik Findley; Chem-Calk 900.
 - c. Pecora Corporation; Dynatrol I-XL.
 - d. Polymeric Systems Inc.; Flexiprene 1000.
 - e. Polymeric Systems Inc.; PSI-901.
 - f. Schnee-Morehead, Inc.; Permathane SM7100.
 - g. Sika Corporation, Inc.; Sikaflex - 15LM.
 - h. Tremco; DyMonic.
 - 2. Type and Grade: S (single component) and NS (nonsag).
 - 3. Class: 25.
 - 4. Use Related to Exposure: NT (nontraffic).

2.4 LATEX JOINT SEALANTS

- A. **Sealant Type #6: Latex Sealant:** Comply with ASTM C 834, Type P, Grade NF, for field applied paint finish.
- B. Available Products:
 - 1. Bostik Findley; Chem-Calk 600.
 - 2. Pecora Corporation; AC-20+.
 - 3. Schnee-Morehead, Inc.; SM 8200.
 - 4. Sonneborn, Division of ChemRex Inc.; Sonolac.
 - 5. Tremco; Tremflex 834.

2.5 PREFORMED TAPE SEALANTS

- A. **Back-Bedding Mastic Tape Sealant:** Preformed, butyl-based elastomeric tape sealant with a solids content of 100 percent; nonstaining and nonmigrating in contact with nonporous surfaces; with or without spacer rod as recommended in writing by tape manufacturers for application indicated; packaged on rolls with a release paper backing; and complying with ASTM C 1281 and AAMA 800 for products indicated below:
 - 1. AAMA 807.3 tape, for applications in which tape is not subject to continuous pressure.
- B. **Expanded Cellular Tape Sealant:** Closed-cell, PVC foam tape sealant; factory coated with adhesive on both surfaces; packaged on rolls with release liner protecting adhesive; and complying with AAMA 800 for the following types:
 - 1. Type 1, for applications in which tape acts as the primary sealant.
 - 2. Type 2, for applications in which tape is used in combination with a full bead of liquid sealant.

2.6 JOINT-SEALANT BACKING

- A. **General:** Provide sealant backings of material and type that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance:
- C. Elastomeric Tubing Sealant Backings: Neoprene, butyl, EPDM, or silicone tubing complying with ASTM D 1056, nonabsorbent to water and gas, and capable of remaining resilient at temperatures down to minus 26 deg F. Provide products with low compression set and of size and shape to provide a secondary seal, to control sealant depth, and to otherwise contribute to optimum sealant performance.
- D. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint where such adhesion would result in sealant failure. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.

- B. Joint Priming: Prime joint substrates, where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.
 - 1. Mask all locations where silicone based sealants are installed. No silicone based sealant shall be allowed to migrate onto adjacent finished surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Acoustical Sealant Application Standard: Comply with recommendations in ASTM C 919 for use of joint sealants in acoustical applications as applicable to materials, applications, and conditions indicated.
- D. Install sealant backings of type indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.
- E. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- F. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 - 1. Place sealants so they directly contact and fully wet joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- G. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint configuration per Figure 5A in ASTM C 1193, unless otherwise indicated.
 - a. Use masking tape to protect surfaces adjacent to recessed tooled joints.
 - 4. Provide flush joint configuration where indicated per Figure 5B in ASTM C 1193.
- H. Installation of Preformed Tapes: Install according to manufacturer's written instructions.

3.4 FIELD QUALITY CONTROL

- A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
 - 1. Extent of Testing: Test completed elastomeric sealant joints as follows:
 - a. Perform 10 tests for the first 1000 feet of joint length for each type of elastomeric sealant and joint substrate.
 - b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab in Appendix X1 in ASTM C 1193, as appropriate for type of joint-sealant application indicated.
 - a. For joints with dissimilar substrates, verify adhesion to each substrate separately; do this by extending cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
 3. Inspect joints for complete fill, for absence of voids, and for joint configuration complying with specified requirements. Record results in a field-adhesion-test log.
 4. Inspect tested joints and report on the following:
 - a. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each type of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
 - b. Whether sealants filled joint cavities and are free of voids.
 - c. Whether sealant dimensions and configurations comply with specified requirements.
 5. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
 6. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.
- B. Evaluation of Field Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.
- 3.5 CLEANING
- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.
 - B. Remove any and all sealant material outside of the joint area. Fully remove the sealant material to allow for a complete and satisfactory installation of other finishes including paint.
- 3.6 PROTECTION
- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.
- 3.7 JOINT-SEALANT SCHEDULE
- A. Joint-Sealant Application: Exterior butt joints between metal panels.
 1. Joint Sealant: Sealant Type #1 or as recommended by the metal wall panel manufacturer.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
 - B. Joint-Sealant Application: Exterior perimeter joints at frames of doors, windows, and louvers.
 1. Joint Sealant: Sealant Type #1.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
 - C. Joint-Sealant Application: Interior joints in High Moisture and Mildew Areas, between plumbing fixtures and adjoining walls, floors, and counters.
 1. Joint Sealant: Sealant Type #2.

2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
- D. Joint-Sealant Application: Exterior vertical and horizontal nontraffic construction joints in cast-in-place concrete.
 1. Joint Sealant: Sealant Type #3 or #5.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
- E. Joint-Sealant Application: Exterior horizontal traffic isolation and contraction joints in cast-in-place concrete slabs.
 1. Joint Sealant: Sealant Type #4.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
- F. Joint-Sealant Application: Exterior vertical and horizontal nontraffic joints between plant-precast architectural concrete units, exterior vertical control and expansion joints in unit masonry, exterior vertical joints between differing materials.
 1. Joint Sealant: Sealant Type #5.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
- G. Joint-Sealant Application: Interior perimeter joints of exterior openings, perimeter joints between interior ceiling surfaces, interior wall surfaces, trim components, and frames of interior doors, and windows , interior and exterior sealant-pointed mortar joints in glass unit masonry assemblies.
 1. Joint Sealant: Sealant Type #6.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
- H. Joint-Sealant Application: Acoustical perimeter joints between interior ceiling surfaces, interior wall surfaces and frames of interior doors, and windows. Install on all walls indicated to receive acoustical wall insulation (indicated by wall type reference in the drawings)
 1. Joint Sealant: Sealant Type #7.
 2. Joint-Sealant Color: To match adjacent material color, as selected by Architect from manufacturer's full and complete range.
- I. Joint-Sealants used in food service areas of the building will be specifically approved by governing authorities for use in such locations.

END OF SECTION 07 92 00

MARK	LOCATION	DOOR				FRAME			DETAILS			HW GROUP	REMARKS
		Size	Type	Matl	Finish	Type	Material	Finish	Head	Jamb	Threshold		
First Floor													
103A	Exterior Stair	3'-0" x 7'-0"	F	HM	PT	See 08 11 13	HM	PT-5	C7/A8.00	C7/A8.00	A7/A8.00	1	See 08 71 00
103B	Exterior Ramp	3'-0" x 7'-0"	F	HM	PT	See 08 11 13	HM	PT-5	C7/A8.00	C7/A8.00	A7/A8.00	1	See 08 71 00
102	Electrical Room	3'-0" x 7'-0"	F	HM	PT	See 08 11 13	HM	PT-5	C7/A8.00	C7/A8.00	A7/A8.00	2	See 08 71 00
101	Storage Room	3'-0" x 7'-0"	F	HM	PT	See 08 11 13	HM	PT-5	C7/A8.00	C7/A8.00	A7/A8.00	2	See 08 71 00
100A	Stage	4'-0" x 12'-0"	F	STL	PT	See 08 11 13	STL	PT-5	C9/A8.00	C9/A8.00	A7/A8.00	3	See 08 34 00
100B	Stage	4'-0" x 12'-0"	F	STL	PT	See 08 11 13	STL	PT-5	C9/A8.00	C9/A8.00	A7/A8.00	3	See 08 34 00
ABBREVIATIONS KEY													
ALUM	Aluminum	FRP	Plastic Laminate Faced			NA	Not Applicable			PLAM	Plastic Laminate		
CA	Clear Anodized	FGLS	Fiberglass			PT	Paint Color			STL	Steel		
CL	Clear Finish	FV	Field Verify Condition			PR	Pair			ORG	Overhead Rolling Grille		
DG	Door Grille	HO	Magnetic Hold Open			RL	Relite w/ Frame			OCD	OVHD Counter Door		
FG	Full Glazing	HM	Hollow Metal			RF	Refinish Door			OHC	OVHD Coiling Door		
F	Flush	MOT	Motorized			SS	Stainless Steel			SG	Side Sliding Grille		
FF	Factory Finish	FB	Fabric Faced			WD	Wood			V	Vinyl Faced		
		General Notes:											
		1. Reference Specification 08 71 00 - Door Hardware.											
		2. Reference Specification 08 11 13 - Hollow Metal Doors And Frames.											

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Standard insulated hollow metal doors and frames.
- B. Related Sections:
 - 1. Division 08 Section "Door Hardware" for door hardware for hollow metal doors.
 - 2. Division 09 Sections "Painting" for field painting hollow metal doors and frames.

1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings.
- B. Standard Hollow Metal Work: Hollow metal work fabricated according to ANSI/SDI A250.8.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, fire-resistance rating, temperature-rise ratings, and finishes.
- B. Shop Drawings: Include the following:
 - 1. Elevations of each door design.
 - 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 - 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 - 4. Locations of reinforcement and preparations for hardware.
 - 5. Details of each different wall opening condition.
 - 6. Details of anchorages, joints, field splices, and connections.
 - 7. Details of accessories.
 - 8. Details of conduit and preparations for power, signal, and control systems.
- C. Samples for Verification:
 - 1. For each type of exposed finish required, prepared on Samples of not less than **3 by 5 inches**.
 - 2. For the following items, prepared on Samples about **12 by 12** to demonstrate compliance with requirements for quality of materials and construction:
 - a. Doors: Show vertical-edge, top, and bottom construction; core construction; and hinge and other applied hardware reinforcement.
 - b. Frames: Show profile, corner joint, floor and wall anchors, and silencers. Include separate section showing fixed hollow metal panels.
- D. Other Action Submittals:
 - 1. Schedule: Provide a schedule of hollow metal work prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with door hardware schedule.
- E. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, for each type of hollow metal door and frame assembly.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal work from single source from single manufacturer.
- B. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to NFPA 252 or UL 10C.
 - 1. Temperature-Rise Limit: At vertical exit enclosures and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than **450 deg F** above ambient after 30 minutes of standard fire-test exposure.
- C. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257 or UL 9. Label each individual glazed lite.

- D. Smoke-Control Door Assemblies: Comply with NFPA 105 or UL 1784
 - E. Install doors in accordance with SDI-100 and building code standards for labeled doors
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project-site storage. Do not use non-vented plastic.
 - 1. Provide additional protection to prevent damage to finish of factory-finished units.
 - B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
 - C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch-high wood blocking. Do not store in a manner that traps excess humidity.
 - 1. Provide minimum 1/4-inch space between each stacked door to permit air circulation.
- 1.6 PROJECT CONDITIONS
- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.
- 1.7 COORDINATION
- A. Coordinate installation of anchorages for hollow metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Basis of Design: Ceco Door Products; an Assa Abloy Group company.; Product Imperial Series Doors, Maxim Series Doors, and CF Series Frames
 - 2. Amweld Building Products, LLC.
 - 3. Basis of Design: Benchmark; a division of Therma-Tru Corporation.
 - 4. Curries Company; an Assa Abloy Group company.
 - 5. Deansteel Manufacturing Company, Inc.
 - 6. Firedoor Corporation.
 - 7. Fleming Door Products Ltd.; an Assa Abloy Group company.
 - 8. Habersham Metal Products Company.
 - 9. Kewanee Corporation (The).
 - 10. Mesker Door Inc.
 - 11. Pioneer Industries, Inc.
 - 12. Security Metal Products Corp.
 - 13. Steelcraft; an Ingersoll-Rand company.
 - 14. Windsor Republic Doors.

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
- C. Frame Anchors: ASTM A 591/A 591M, Commercial Steel (CS), 40Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M, hot-dip galvanized according to ASTM A 153/A 153M, Class B.
- D. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

- E. Powder-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow metal frames of type indicated.
- F. Mineral-Fiber Insulation: ASTM C 665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool with **6- to 12-lb/cu. ft.** density; with maximum flame-spread and smoke-development indexes of 25 and 50, respectively; passing ASTM E 136 for combustion characteristics.
- G. Bituminous Coating: Cold-applied asphalt mastic, SSPC-Paint 12, compounded for **15-mil** dry film thickness per coat. Provide inert-type noncorrosive compound free of asbestos fibers, sulfur components, and other deleterious impurities.

2.3 STANDARD HOLLOW METAL DOORS

- A. General: Provide doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8.
 - 1. Design: Flush panel.
 - 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, polystyrene, polyurethane, polyisocyanurate, mineral-board, or vertical steel-stiffener core.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 - b. Thermal-Rated (Insulated) Doors: Where indicated, provide doors fabricated with thermal-resistance value (R-value) of not less than **6.0 deg F x h x sq. ft./Btu** when tested according to ASTM C 1363.
 - 1) Locations: Exterior doors.
 - 3. Vertical Edges for Single-Acting Doors: Manufacturer's standard.
 - a. Beveled Edge: **1/8 inch in 2 inches**.
 - 4. Vertical Edges for Double-Acting Doors: Round vertical edges with **2-1/8-inch** radius.
 - 5. Top and Bottom Edges: Closed with flush or inverted **0.042-inch-** thick, end closures or channels of same material as face sheets.
 - 6. Tolerances: Comply with SDI 117, "Manufacturing Tolerances for Standard Steel Doors and Frames."
- B. Doors: Face sheets fabricated from metallic-coated steel sheet. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
 - 1. Level 3 and Physical Performance Level A (Extra Heavy Duty), Model 1 (Full Flush).
 - a. Width: **1-3/4 inches**.
 - b. 14 gauge construction.
- C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- D. Fabricate concealed stiffeners and hardware reinforcement from either cold- or hot-rolled steel sheet.

2.4 OVERSIZED METAL DOORS

2.5 STANDARD HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Frames: Fabricated from metallic-coated steel sheet.
 - 1. Fabricate frames with mitered or coped corners.
 - 2. Fabricate frames as full profile welded unless otherwise indicated.
 - 3. Frames for Level 3 Steel Doors: **12 gauge-** (thick steel sheet).
- C. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 with reinforcement plates from same material as frames.'

2.6 OVERSIZED METAL FRAMES

2.7 FRAME ANCHORS

- A. Jamb Anchors:
 - 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, not less than **0.042 inch** thick, with corrugated or perforated straps not less than **2 inches** wide by **10 inches** long; or wire anchors not less than **0.177 inch** thick.
 - 2. Stud-Wall Type: Designed to engage stud, welded to back of frames; not less than **0.042 inch** thick.
 - 3. Post installed Expansion Type for In-Place Concrete or Masonry: Minimum **3/8-inch**-diameter bolts with expansion shields or inserts. Provide pipe spacer from frame to wall, with throat reinforcement plate, welded to frame at each anchor location.
- B. Floor Anchors: Formed from same material as frames, not less than **0.042 inch** thick, and as follows:
 - 1. Monolithic Concrete Slabs: Clip-type anchors, with two holes to receive fasteners.
 - 2. Separate Topping Concrete Slabs: Adjustable-type anchors with extension clips, allowing not less than **2-inch** height adjustment. Terminate bottom of frames at finish floor surface.

2.8 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Ceiling Struts: Minimum **1/4-inch-thick by 1-inch-** wide steel.
- C. Grout Guards: Formed from same material as frames, not less than **0.016 inch** thick.

2.9 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. To ensure proper assembly at Project site, clearly identify work that cannot be permanently factory assembled before shipment.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in SDI 117.
- C. Hollow Metal Doors:
 - 1. Exterior Doors: Provide weep-hole openings in bottom of exterior doors to permit moisture to escape. Seal joints in top edges of doors against water penetration.
 - 2. Astragals: Provide overlapping astragal on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum **3/4 inch** beyond edge of door on which astragal is mounted.
- D. Hollow Metal Frames: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
 - 1. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
 - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 3. Grout Guards: Weld guards to frame at back of hardware mortises in frames to be grouted.
 - 4. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
 - 5. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than **18 inches** from top and bottom of frame. Space anchors not more than **32 inches** o.c. and as follows:
 - 1) Two anchors per jamb up to **60 inches** high.
 - 2) Three anchors per jamb from **60 to 90 inches** high.
 - 3) Four anchors per jamb from **90 to 120 inches** high.
 - b. Stud-Wall Type: Locate anchors not more than **18 inches** from top and bottom of frame. Space anchors not more than **32 inches** o.c. and as follows:
 - 1) Three anchors per jamb up to **60 inches** high.
 - 2) Four anchors per jamb from **60 to 90 inches** high.
 - 3) Five anchors per jamb from **90 to 96 inches** high.

- 4) Two anchors per head for frames above 42 inches wide and mounted in metal-stud partitions.
 - c. Compression Type: Not less than two anchors in each jamb.
 - d. Postinstalled Expansion Type: Locate anchors not more than 6 inches from top and bottom of frame. Space anchors not more than 26 inches o.c.
 - 6. Door Silencers: Except on weather-stripped doors, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
 - b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.
 - E. Fabricate concealed stiffeners, edge channels, and hardware reinforcement from either cold- or hot-rolled steel sheet.
 - F. Hardware Preparation: Factory prepare hollow metal work to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
 - 1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
 - 2. Reinforce doors and frames to receive nontemplated, mortised and surface-mounted door hardware.
 - 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
- 2.10 STEEL FINISHES
- A. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
 - B. Examine roughing-in for embedded and built-in anchors to verify actual locations before frame installation.
 - C. For the record, prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
 - D. Proceed with installation only after unsatisfactory conditions have been corrected.
- 3.2 PREPARATION
- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
 - B. Prior to installation, adjust and securely brace welded hollow metal frames for squareness, alignment, twist, and plumbness to the following tolerances:
 - 1. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - 2. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - 3. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - 4. Plumbness: Plus or minus 1/16 inch measured at jambs on a perpendicular line from head to floor.
 - C. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with SDI 100, Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11.
 - 1. Set frames accurately in position, plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.
 - a. At fire-protection-rated openings, install frames according to NFPA 80.
 - b. Where frames are fabricated in sections because of shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces.
 - c. Remove temporary braces necessary for installation only after frames have been properly set and secured.
 - d. Check plumbness, squareness, and twist of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
 - e. Field apply bituminous coating to backs of frames that are filled with grout containing antifreezing agents.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with powder-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 3. Metal-Stud Partitions: Solidly pack mineral-fiber insulation behind frames.
 - 4. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with grout.
 - 5. Concrete Walls: Solidly fill space between frames and concrete with grout. Take precautions, including bracing frames, to ensure that frames are not deformed or damaged by grout forces.
 - 6. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 7. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
 - 8. Ceiling Struts: Extend struts vertically from top of frame at each jamb to overhead structural supports or substrates above frame unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction. Provide adjustable wedged or bolted anchorage to frame jamb members.
 - 9. Installation Tolerances: Adjust hollow metal door frames for squareness, alignment, twist, and plumb to the following tolerances:
 - a. Squareness: Plus or minus **1/16 inch** measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus **1/16 inch** measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus **1/16 inch** measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus **1/16 inch** measured at jambs at floor.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: **1/8 inch** plus or minus **1/16 inch**.
 - b. Between Edges of Pairs of Doors: **1/8 inch** plus or minus **1/16 inch**.
 - c. Between Bottom of Door and Top of Threshold: Maximum **3/8 inch**.

- d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum $\frac{3}{4}$ inch.
 - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.
- 3.4 ADJUSTING AND CLEANING
- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
 - B. Remove grout and other bonding material from hollow metal work immediately after installation.
 - C. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

END OF SECTION 08 11 13

SECTION 08 34 00 – METAL DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

- A. This Section includes the following:
 - 1. Side-hinged, steel sound control door assemblies.

1.2 RELATED SECTIONS

- A. Section 08700 - Door Hardware.
- B. Section 09900 - Paints and Coatings.

1.3 REFERENCES

- A. ASTM A 1008 - Standard Specification for Steel, Carbon, Cold-Rolled Sheet, Commercial Quality.
- B. ASTM A 569 - Standard Specification for Steel, Carbon, (0.15 Maximum Percent), Hot-Rolled Sheet and Strip, Commercial Quality.
- C. ASTM A 653/A 653M - Standard Specification for Steel Sheet, Zinc Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot Dip Process.

1.4 SUBMITTALS

- A. Product Data:
 - 1. Include information indicating compliance with assembly performance requirements, construction details, material descriptions, and finishes.
- B. Shop Drawings:
 - 1. Elevations of each type and style of door; details of doors, frames, anchorages, wall-opening conditions, sound control seals, door bottoms, and thresholds; and locations of reinforcements and preparations for hardware.
- C. Samples for Initial Selection: For units with factory-applied finishes, manufacturer's standard finish sheets, showing full range of available finishes.
- D. Samples for Verification: For each type of exposed finish not less than 3 by 5 inches.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For sound control door assemblies.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A manufacturer capable of fabricating sound control door assemblies that meet or exceed assembly performance requirements indicated and of documenting this performance by test reports and calculations.
- B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- C. Acoustical Testing Agency Qualifications: An independent agency accredited as an acoustical laboratory in accordance with NIST's National Voluntary Laboratory Accreditation Program.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver doors and frames palletized, wrapped, or crated to provide protection during transit and Project-site storage.
- B. Welded Frames: Deliver with two temporary shipping spreader bars each, tack welded across bottom of frames.
- C. Upon delivery, remove cardboard and wrappings from doors and frames to promote air circulation.
- D. Do not use nonvented plastic or canvas to cover doors and frames to prevent entrapping moisture.
- E. Store doors and frames vertically under cover at Project site, spaced with blocking that provides a minimum 1/4-inch space between each stacked unit to permit air circulation between components. Stand doors on top end on minimum 4-inch- high wood blocking, to avoid damage to bottom end, unless otherwise indicated in manufacturer's written instructions.

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of sound control door assemblies that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of product materials and workmanship.
 - b. Failures of assemblies to have NIC ratings within 5 dB of laboratory STC ratings specified when tested in accordance with ASTM E336, with results calculated in accordance with ASTM E413.
 - c. Faulty operation of sound seals.
 - d. Deterioration of metals, metal finishes, and other materials beyond normal use or weathering.
- B. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 SIDE-HINGED, STEEL DOOR ASSEMBLIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
1. Allmark Door
 2. AMBICO Limited
 3. Ceco Door; AADG, Inc.; ASSA ABLOY
 4. Cogan Wire and Metal Products
 5. Curries, AADG, Inc.; ASSA ABLOY Group
 6. IAC Acoustics
 7. Krieger Specialty Products Company
 8. Noise Barriers, LLC.
 9. Overly Door Company
 10. Pioneer Industries; AADG, Inc.; ASSA ABLOY

2.2 MATERIALS

- A. Steel sheet: One of the following:
1. Cold-rolled steel sheet conforming to ASTM A 1008, commercial quality.
 2. Hot-rolled steel sheet conforming to ASTM A 569, pickled and oiled, commercial quality.
 3. Conductive stainless required for RF. Do Not paint perimeter contact area. Level, cold rolled sheet steel conforming to ASTM A 240, commercial quality.
 4. Galvanized steel sheet: ASTM A 653/A 653M, commercial quality, minimum A60 zinc coating.
 5. Primer: Meeting ASTM B 117 salt spray for 150 hours, and ASTM D 1735 water fog test for organic coatings for 200 hours.

2.3 COMPONENTS

- A. Doors:
1. Door material shall be 14ga stainless steel.
 2. Horizontal edges:
 - a. Close top and bottom edges of doors with continuous steel channels, 16 gage minimum; spot-weld channels to both door faces.
 - b. Provide additional flush closing channel at top edge of doors; spot-weld channel to both door faces.
- B. Frames: Fabricate in accordance with Architect-approved shop drawings, and as follows:
1. Frames for interior use: Fabricate from stainless steel sheet, minimum 14-gage thickness as detailed on architectural drawings.
 - a. Profiles and anchors shall be custom fabricated to suit wall conditions and to provide adequate anchoring.
 - b. Frames to have continuous contact flange to interface with RF Shielding material on walls and floor (to be provided by others).
 2. When shipping limitations so dictate, fabricate frames for large openings in sections designed for assembly in the field; install alignment plates or angles, of same material and gage as frame, at each joint.
 3. Hardware preparation:

- a. Mortise, reinforce, drill, and tap frames at factory for fully templated mortised hardware only, in accordance with Architect-approved shop drawings and supplied templates.
 - b. Provide reinforcing plates at surface-mounted or non-templated hardware locations.
 - 4. Floor anchors:
 - a. Fabricate of same material as frame material; minimum 14 gage.
 - b. Weld anchors inside each jamb for floor anchorage.
 - 5. Plaster guards: Fabricate from minimum 22 gage steel; weld in place at hardware mortises on frames to be set in plaster, masonry, or concrete openings.
 - 6. Frames will be shipped knock-down for field assembling by others.
 - 7. Frames will be 4-sided with embedded bottom sill to be attached in the field by others.
- C. Hardware and hardware preparation:
- 1. Factory provided heavy weight hinges.
 - 2. Factory provided 2-point latching devices for each door leaf.
 - 3. Factory provided RF gasketed astragal for the meeting stile.

2.4 FINISH

- A. All tool marks and surface imperfections shall be removed and exposed faces of all welded joints shall be dressed smooth.
- B. Assemblies shall be treated and shall be coated on all accessible surfaces with a rust-inhibitive primer which meets ASTM B117 salt spray for 150 hours, and ASTM D1735 water fog test for organic coatings for 200 hours, and which is fully cured prior to shipment. Prime shall cover all surfaces, except RF contact points, without runs, smears or bare spots.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verification of conditions:
 - 1. Prior to installation, check and correct frames for size, swing, squareness, alignment, twist and plumb.
 - 2. Verify openings are in accordance with approved shop drawings.
- B. Installer's examination:
 - 1. Have installer of this section examine conditions under which construction activities of this section are to be performed, then submit written notification if such conditions are unacceptable.
 - 2. Transmit two copies of installer's report to Architect within 24 hours of receipt.
 - 3. Beginning construction activities of this section before unacceptable conditions have been corrected is prohibited.
 - 4. Beginning construction activities of this section indicates installer's acceptance of conditions.

3.2 PREPARATION

- A. Inspect framing before application to ensure the opening to receive the frames are properly frames, reinforced and that there is a provision for RF Interface.

- B. Inspect all doors and frames for freight or jobsite damage, and review cut outs for conformance to hardware schedule.

3.3 INSTALLATION

- A. Install units in accordance with approved shop drawings and manufacturer's printed installation instructions; in addition, install steel components in accordance with HMMA 840.
- B. Securely attach to wall framing system. Frames to be installed plumb and square.
- C. Provide any necessary additional reinforcing to ensure a rigid and permanent installation.
- D. Hang doors and install hardware and adjust for smooth operation without binding or sticking.
- E. Install gasketing systems, retainers, retainer covers, fixed door bottoms, cam-lift hinges, thresholds and sills in accordance with manufacturer's printed instructions.
- F. Installation of all other door hardware is specified in Section 08710.
- G. Field painting is specified in Section 09900.
 - 1. Remove hardware prior to painting and re-install after painting is complete.
- H. Allow proper clearances in accordance with manufacturer's printed instructions.

3.4 FIELD QUALITY CONTROL

- A. Engage and pay for the field services of manufacturer's authorized representative to train, supervise and certify installer ahead of time (preferably before labor begins, at setting of 1st frame, hanging of 1st door and ahead of handover, field testing or the like -- or at least:
 - 1. Inspect completed installation of door and frame assemblies.
 - 2. Test all components through a minimum of ten complete cycles of operation.
 - 3. Verify each component is correctly installed.
 - 4. Direct installer in adjusting components for correct operation.
 - 5. Issue certified statement of compliance of installed door and frame assemblies to Architect-approved shop drawings.
 - 6. Instruct Owner's maintenance personnel in correct operation and maintenance procedures for components of door and frame assemblies.
- B. Notify Architect a minimum of four (4) calendar days prior to scheduled testing dates.

3.5 MAINTENANCE

- A. Instruct the Owner's Maintenance Personnel regarding the proper operation and maintenance of these doors.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Hardware for Standard steel and solid core wood doors.
- B. Related Sections
 - 1. Section 08 11 13 Hollow Metal Doors & Frames

1.2 REFERENCES

- A. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
- B. ANSI A 156 - Door Hardware (ANSI/BHMA Standards)
- C. NFPA 80 - Fire Doors and Windows.
- D. AWI - Architectural Woodwork Institute - Architectural Wood Work Quality Standards.
- E. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
- F. NFPA 252 - Fire Tests of Door Assemblies.
- G. UL 10B - Safety Fire Tests of Door Assemblies.
- H. American Disabilities Act Accessibility Guidelines.
- I. BHMA - Builders Hardware Manufacturers Association - A156 Series.
- J. UL 305 - Safety Panic Hardware.

1.3 SUBMITTALS

- A. Submit under provisions of Division 01.
- B. Verification of Door and Hardware Schedule – submit written confirmation that supplier has reviewed and verified the function and compatibility of the products furnished and installed under this section.
- C. Keying Information – sample submittal format follows this section
- D. Key biting schedule data – sample format follows this section
- E. Submittal Sequence: Submit verified schedule at earliest possible date, particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.
- F. Keying Meeting and Schedule: Arrange for a keying meeting with the Architect and Owner, hardware supplier, and other involved parties prior to return of the reviewed finish hardware schedule, to insure all locksets are functionally correct and keying fulfill the project requirements. Initial keying meeting to occur within 60 days of Notice to Proceed. As soon as possible after the keying conference, typed copies of the keying schedule shall be furnished to the Owner and Architect for review.
- G. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g. hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings or other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule. Allow 30 days minimum for A/E and City of Moscow to review the submittal
- H. Templates: Furnish hardware templates to each fabricator of door, frames and other work to be factory prepared for the installation of hardware. Check shop drawings of such other work to confirm that adequate provisions are made for

- proper location and installation of hardware.
- I. Contract Close-out Requirements.
 1. Project Record Documents.
 - a. Submit under provisions of Division 01.
 - b. Record actual locations of installed cylinders and their master key code.
 2. Operation and Maintenance Data
 - a. Submit under provisions of Division 01.
 - b. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with the following requirements:
 1. ANSI A117.1
 2. NFPA 101.
 3. NFPA 80.
 4. NFPA 252.
 5. American Disabilities Act Accessibility Guidelines.
 6. BHMA - A115 Series.
- B. Qualifications
 1. Manufacturer: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
 2. Hardware Supplier: Company specializing in supplying commercial door hardware with 5 years documented experience, approved by manufacturer, and located within 150 miles of the project
 3. Hardware Supplier Personnel: Employ a certified Architectural Hardware Consultant (AHC) to assist in the work of this section. AHC should review construction documents and verify hardware function for given location or requirements for a complete code complying, functioning installation.
- C. Regulatory Requirements
 1. Conform to applicable code for requirements applicable to fire rated doors and frames.
 2. Fire Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Division 01.
- B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
- C. Deliver keys to Owner by security shipment direct from hardware supplier.
- D. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- E. Provide secure lock-up for hardware delivered to the project but not yet installed. Control handling and installation of hardware items which are not immediately replaceable so that completion of the work will not be delayed by hardware losses, both before and after installation.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Division 01.
- B. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.7 EXTENDED WARRANTY

- A. Under provisions of Division 01. Include coverage for all hardware.
- B. Extended Warranty - Manufacturer's standard for individual item.

1.8 MAINTENANCE

- A. Provide under provisions of Division 01.
- B. Provide special wrenches and tools applicable to each different or special hardware component.
- C. Provide maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: The numbers shown for the hardware items are taken from the catalogs of the manufacturers indicated and are for the purpose of establishing quality, design, and function. Except as listed as approved substitutes by item basis, no other manufacturer substitutions will be allowed unless approved by the Architect ten (10) days prior to bid opening. No substitutions will be allowed after bid opening.
- B. The numbers shown in the hardware groups are taken from the catalogs of the following manufacturers and are for the purpose of establishing quality, design and function. Except as listed, no substitution will be allowed unless approved by the Architect.

ITEM	MANUFACTURER	APPROVED SUBSTITUTE
Butts	Stanley	Hager, McKinney
Continuous Hinges	Pemko	None
Locksets, Latchsets	Schlage	None
Cylinders	Schlage/Primus (Ext.)	None
Exit Devices	Precision	None
Removable Mullions	Precision	None
Flushbolts	Ives	DCI
Latch Guards	Trimco	Ives
Push/Pull Plates	Trimco	Ives
Closers	Norton	None
Wall Stops	Trimco	Ives
Overhead Stops	Rixson	ABH, Glynn Johnson
Magnetic Holders	Rixson	Norton, LCN
Protection Plates	Trimco	Ives
Thresholds	Pemko	Reese, National Guard
Door Bottoms	Pemko	Reese, National Guard
Gasketing	Pemko	Reese, National Guard
Door Drip Cap	Pemko	

2.2 MATERIALS/PRODUCTS:

- A. Provide end products of one manufacturer for each item specified..
- B. Finishes: BHMA 1301 Standards.
 - 1. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lockset (or push-pull units) for color and texture.

2. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's standard, but in no case less than specified for the applicable units of hardware by referenced standards.
3. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI A156.18 "Materials and Finishes Standard" and Builders Hardware Manufacturer's Association (BHMA), including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
4. Hardware in general to be BHMA 626 and /or 652, Satin Chromium Plated. Applicable Stainless Steel hardware shall be BHMA 630, Satin Stainless Steel.
5. Door closers to be in plastic covers finished to match other hardware.
- C. Hardware shall meet NFPA-80 requirements for Fire Assembly Rating and be Underwriters Laboratories, Inc. approved for specific application: See Door Schedule.
- D. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
- E. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws, except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.
- F. Provide concealed fasteners for hardware units which are exposed when door is closed, except when no standard units of type specified are available with concealed fasteners. Do not use through-bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each through-bolt or use hex screw fasteners.

2.3 KEYING

- A. Review the keying system with the City of Moscow and provide the type required (master, grandmaster or great-grandmaster), integrated with the existing system
- B. Existing system is: Schlage Primus Level III. (No Substitution). Comply with the City of Moscow's instructions for master keying, and, except as otherwise indicated; provide individual change keys for each lock which is not designated to be keyed alike with a group of related locks. Provide temporary cylinders for use during the construction period
- C. Provide construction cores and keys during the construction period. Permanent cores and keys prepared according to the accepted keying schedule will be furnished to the owner by the local factory representative prior to occupancy. The Owner or Owner's agent will install permanent interchangeable cores and return the construction cores to the factory representative.
- D. All cylinders shall be keyed into the existing masterkey system.
- E. Furnish keys and related hardware in the following quantities:
 1. 20 Each 35-053F Primus key blanks
 2. 5 each 35-053J Primus key blanks
 3. 1 each 35-052F Control key blanks
 4. 10 each Great Grand Master Key Blanks
 5. 20 each 35-101F key blanks
 6. 4 each Master Padlocks 6621 WB
 7. 3 each Master Drivers 298-0628
 8. 3 each Cylinders 21-002F 626
- F. Key all doors.

2.4 HINGES

A. General

1. ANSI A 156J
2. Quantity per door leaf height (minimum):
1 pair to 5'-0" high
1-1/2 pair 5'-1" to 7'-7"
2 pair 7'-7" to 10'-0"
3. Hinge height (minimum):
4 1/2" to 3'-0" door width
5" 3'-1" to 4'-0"
4. Hinge width (minimum): twice the door thickness, plus the jamb trim project at 180 degree swing.
5. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template produced units.
6. Screws: Furnish Phillips flat-head machine and/or wood screws for installation of units. Finish screw heads to match surface of hinges or pivots. Provide stainless steel fasteners on exterior doors.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges - Steel pins.
 - b. Non-Ferrous Hinges - Stainless steel pins.
 - c. Out-Swinging Doors - Non-removable Pins(NRP). Use set screw in barrel type.
 - d. Tips - Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.

B. Mortise Hinges

1. Full Mortise Hinges, 5-knuckle, flat button tip, anti-friction bearing type. Use Brass/Bronze type hinges on all exterior exposed doors.
2. Hinge A: High frequency use , heavy weight (entry, class, restroom)
Stanley: FBB 168 Steel (652) ANSI A 8111
FBB 199 Brass/Bronze (626) ANSI A 2111
McKinney: T4B3786 Steel (652)
T4B3386 Brass/Bronze (626)
3. Hinge B: Average frequency used, standard weight (office, storage mechanical)
Stanley: FBB 179 Steel (652) ANSI A 8112
FBB 191 Brass/Bronze (626) ANSI A 2112
McKinney: TB3713 Steel (652)
TB3313 Brass/Bronze (626)

2.5 LOCKSETS AND LATCHES

A. General

1. ANSI A156.2, Series 4000, Grade 1 ANSI A117.1, Accessibility Code
2. Features:
 - a. Lockset and Trim: BHMA 626 Finished.
1) Trim: 06L (mortise) & RHO (cylindrical)
 - b. Backset: 2-3/4 inch.
 - c. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware.
 - d. Latchbolt: 9/16" minimum throw, 3/4" on Fire Door pairs, and Auxiliary Deadlocking Latchbolt feature.

B. Mortise & Cylindrical

1. Lockset x ANSI No. ____
2. ANSI No.

- F75 Passage
- F76 Privacy
- F81 Entry/Office
- F84 Classroom
- F86 Storage/Mechanical

- 3. Approved Manufacturers:
 - a. Schlage
 - b. No other approved manufacturers

2.7 CLOSERS

A. General

- 1. ANSI A156.4, Grade 7 ANSI A117.1 Accessibility Code
- 2. Provide closer on active leaf of non-rated paired doors.
- 3. Install closer on interior (push) side of door.
- 4. Size closer as per Manufacturer's recommendations.
- 5. Install thru-bolts with backer plates on all wood doors.
- 6. Provide parallel arm mounting ANSI/BHMA CO2021. Use regular arm mounting only where parallel mounting is not appropriate or recommended.
- 7. Provide heavy duty type arms.
- 8. Provide hold-open type arms except where fire rated assemblies occur: see Hardware Schedule in Section 08 71 00.
- 9. Covers: 7500 P Norton (molded plastic); Color: Aluminum, BHMA 689.

B. Schedule:

Item	Location	Norton No.
1. Closer B	Door Stop, Hold Open, Handicap Rated, Exterior Doors	UN17500 H,

C. Other approved Manufacturer's: None

2.8 PUSH-PULLS

A. General

- 1. ANSI/BHMA 626 finished.
- 2. Plates: 1/8" extruded, beveled top and bottom, 4" x 16".
- 3. Pulls: Bolt Through Door, 3/4" diameter x 8".
- 4. Push Plates: Countersink pull through bolts and cover with push plates.

B. Schedule:

- 1. Push/Pull — 1001-3/1017-3 - Trimco.

2.9 STOPS AND HOLDERS

A. General

- 1. ANSI A156.16
ANSI A117.1 Accessibility code.
- 2. ANSI/BHMA 626 finished.
- 3. Fasteners
 - a. Machine screws and threaded anchors at concrete or masonry.
 - b. Self tapping screws at wood or metal framing.
- 4. Metal risers at carpet floors.
- 5. Electromagnetic Holder
 - a. ANSI A156.15.
 - b. Underwriters Laboratory, Inc. (U.L.)
 - c. Fail Safe Operation
 - d. Power Source: 24 V. AC/DC from Fire Alarm System. Coordinate with Division 26.
 - e. Provide extension arms and special mounting plates as required for complete installation of each electromagnetic holder. Contractor shall provide any special mounting hardware as a part of

the base bid.

B.	Schedule		
1.	<u>Wall Stop</u>	1270CV	Trimco
2.	<u>Floor Stop</u>	1209, 1211	Trimco
3.	<u>Door Holder</u>	1220	Trimco

2.10 BOLTS

A.	General		
1.	ANSI A156.16		
2.	ANSI/BHMA 626 finished.		
3.	Automatic top and bottom bolts on inactive leaf of a pair of fire assembly rated doors, complete with dust-proof strike.		
B.	Schedule:		
1.	Flush Bolt	FB458	Ives
a.	Approved Substitute:	Glynn Johnson	
2.	Floor Strike	DP2	Ives
a.	Approved Substitute:	Glynn Johnson	
3.	Automatic Flush Bolts	842/942	Ives
a.	Approved Substitute:	Glynn Johnson	

2.11 DOOR PLATES

A.	General		
1.	ANSI A156.6		
2.	Stainless Steel ANSIBHMA 630 finished		
3.	Width of door leaf less 1 1/2" at single doors and less 1" at pairs		
4.	Solid Metal (0.050 inch), all edges beveled		
5.	Install on push side of door		
B.	Schedule:		
1.	Kickplate: width specified above x 10" high	Trimco	

2.12 THRESHOLDS

A.	General		
1.	ANSI A117.1, Accessibility Code		
2.	Aluminum, ANSIBBHMA 719 finished		
3.	Thermal Break		
4.	Stainless Steel Anchors		
B.	Schedule:		
1.	Threshold	253 x 3AFG	PEMKO
2.	Threshold, Special - Division 5 Fabrication		

2.13 WEATHERSTRIP AND SEALS

A.	General		
1.	NFPA 80, 2-5.4 at fire rated and smoke assembly doors		
2.	Aluminum, ANSI/BHMA 719 finished		
3.	Seals, vinyl and silicone		
B.	Schedule:		
1.	Door Seal	S88D	PEMKO (Fire/Smoke/weather)
2.	Meeting Stile Seal	18061	PEMKO
3.	Door Sweep	18062	PEMKO (Exterior Door)

2.15 DOOR COORDINATOR

A.	General		
1.	ANSI A156.3		
2.	Steel, Primed, ANSIBHMA 600 <u>finished</u> .		
3.	Provide filler tube-infill, strike and brackets.		

2.16 DOOR DRIP CAP

A. General

1. Clear Anodized Aluminum, 343
2. Install full width of door opening with 2" extension of coverage on both sides of operable door.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Division 01.
- B. Verify that doors and frames are ready to receive work and dimensions are as instructed by the Manufacturer.
- C. Verify that electric power is available to power operated devices and of the correct characteristics.

3.2 INSTALLATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- B. Use templates provided by hardware item manufacturer.
- C. Conform to ANSI 117.1 and American Disabilities Act Guidelines for positioning requirements for the handicapped.
- D. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protection with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- E. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- G. Set supporting elements of thresholds for exterior doors in full bed of Type E sealant as specified in Section 07 92 00.

3.3 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Division 01.
- B. Architectural Hardware Consultant to inspect finished installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.4 ADJUST AND CLEAN

- A. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to punch list, acceptance or occupancy, and make final check and adjustments of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Continued Maintenance Service: Approximately six months after the acceptance of hardware in each area and before substantial completes the installer, accompanied by representatives of the latch and lock, exit device, and closer manufacturers, shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware, and to consult with and instruct the City of Moscow's personnel in recommended additions to the maintenance procedures. Replace hardware items which have

deteriorated or failed due to faulty design, materials, or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.5 HARDWARE SCHEDULE - HARDWARE GROUPS

HW1 (#103A, #103B – Exterior Door)

- 3 ea Hinges T4A3786 26D 4 1/2 x 4 1/2
- 1 ea Lockset Schlage ALX53P
- 1 ea Closer/Stop UNI7500 689 x 6191 x 6891
- 2 ea Kickplate K1050 24 x 2 LTDW 630 B4E
- 1 ea Wall Stop 1270CV 626
- 1 set Gasket S88D
- 1 ea Door Drip Cap 343

HW2 (#101, #102 Utility Room, Interior Door)

- 3 ea Hinges T4A3786 26D 4 1/2 x 4 1/2
- 1 ea Lockset Schlage ALX53P
- 1 ea Cylinder 30-001 626
- 1 ea Closer/Stop UNI7500 689 x 6191 x 6891
- 2 ea Kickplate K1050 24 x 2 LTDW 630 B4E
- 1 ea Wall Stop 1270CV 626
- 1 ea Threshold 271AK x LAR
- 2 ea Door Sweep 18062CNB x TEK x LAR
- 1 set Gasket S88D
- 1 ea Door Drip Cap 343

HW3 (#100A / #100B Mens / Stage Door)

- 3 ea Hinges by Mnfr
- 1 ea Deadbolt L464L 626
- 1 ea Cylinder 30-001 626
- 1 set Push/Pull — 1001-3/1017-3 626
- 2 ea Kickplate K1050 24 x 2 LTDW 630 B4E
- 1 ea Wall Stop 1270CV 626
- 1 ea Threshold 271AK x LAR
- 2 ea Door Sweep 18062CNB x TEK x LAR
- 1 set Gasket S88D

END OF SECTION 08 71 00

1
Page 199 of 317
Page 214

SECTION 09 91 00 - PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes

1. All surface preparation throughout the project
2. All site-applied painting and clear finish application on the project.
3. Surface finish schedule.

B. Related Sections

2. Mechanical items: Painting of anchors/hangers, piping, mechanical equipment, ductwork, insulation, etc. shall be performed by this section except where specifically stated otherwise in Division 22, or 23. All paint materials and methods, regardless of installer, shall meet the requirements set forth in Section 09 91 00 for Products and Execution. Upon completion of the project, all materials exposed to view shall be painted.
3. Electrical items: Painting of anchors/hangers, piping, mechanical equipment, ductwork, insulation, etc. shall be performed by this section except where specifically stated otherwise in Division 26, 27, or 28. All paint materials and methods, regardless of installer, shall meet the requirements set forth in Section 09 91 00 for Products and Execution. Upon completion of the project, all materials exposed to view shall be painted.

1.2 REFERENCES

- A. ASTM D 16 - Terminology Relating to Paint, Varnish, Lacquer, and Related Products.
- B. ASTM D 2016 - Test Method for Moisture Content of Wood.
- C. ASTM E 84 - Test Method for Surface Burning Characteristics of Building Materials.

1.3 SUBMITTALS

- A. Submit product data under provisions of Division 01.
- B. Provide product data on all finishing products.
- C. Submit three (3) 8"x 10" paint draw downs of each specified paint material in each specified color and sheen

1.4 QUALITY ASSURANCE

A. Qualifications

1. Product Manufacturer: Company specializing in manufacturing quality paint and finish products with three years experience.
2. Applicator: Company specializing in commercial painting and finishing approved by product manufacturer.

B. Field Samples

1. Provide samples under provisions of Division 01.
2. Before proceeding with paint application, finish one complete typical wall with trim, door frames, doors, etc. of each paint type and color scheme required, clearly indicating selected colors, finish texture, materials and workmanship
2. Provide field sample panel, on at least 100-sq. ft. of surface until required sheen, color and texture are achieved.
3. Locate where directed.
4. Once each scheme has written approval of the Architect and the Owner, sample may remain as part of the Work.
5. If approved, sample area will serve as a minimum standard for workmanship throughout work

C. Regulatory Requirements

1. Conform to ASTM E 84 for flame/smoke rating requirements for finishes.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver products to site under provisions of Division 01.
- B. Store and protect products under provisions of Division 01.
- C. Deliver products to site in sealed and labeled containers; inspect to verify acceptance.
- D. Container labeling to include manufacturer's name, type of paint, brand name, brand code, coverage, surface preparation, drying time, cleanup, color designation, and instructions for mixing and reducing.
- E. Store paint materials at minimum ambient temperature of 45 degrees F and a maximum of 90 degrees F, in well ventilated area, unless required otherwise by manufacturer's instructions.
- F. Take precautionary measures to prevent fire hazards and spontaneous combustion.

1.6 PROJECT/SITE CONDITIONS

- A. Provide continuous ventilation and heating facilities to maintain surface and ambient temperatures above 50 degrees for 24 hours before, during, and 48 hours after application of finishes, unless required otherwise by manufacturer's instructions.
- B. Do not apply exterior coatings during rain or snow, or when relative humidity is above 85 percent unless required otherwise by manufacturer's instructions.
- C. Minimum Application Temperatures for Latex Paints: 50 degrees F; unless required otherwise by manufacturer's instructions.
- D. Minimum Application Temperature for Varnish Finishes: 65 degrees F, unless required otherwise by manufacturer's instructions.
- E. Provide lighting level of 80-ft candles measured mid-height at substrate surface.

1.7 SPECIAL WARRANTY

- A. Under provisions of Division 01.
- B. Provide Manufacturer's Standard Material Warranty.

1.8 MAINTENANCE

- A. Extra Stock: provide 10 gallons of each type and color of paint or coating used.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. PAINT, STAIN, AND URETHANE
 - 1. Sherwin-Williams Company
 - 2. Columbia Paint Corporation
 - 3. Pittsburgh Paints
 - 4. Benjamin Moore
 - 5. Parker Paints
 - 6. Dupont
- B. HIGH PERFORMANCE COATING – EXPOSED EXTERIOR STEEL
 - 1. Basis of Design: Sherwin Williams
 - a. By substitution request: Carboline products equivalent to basis of design
 - b. By substitution request: Tnemec products equivalent to basis of design
- C. HIGH PERFORMANCE COATING – Elastomeric Paint
 - 1. Sherwin Williams
- D. PAINTED/SEALED CONCRETE FLOORS
 - 1. Sherwin Williams Armorseal seal finish system
- E. Substitutions: Under provisions of Division 01.

2.2 MATERIALS

- A. Coatings: Ready mixed, except field catalyzed coatings. Process pigments to a soft paste consistency, capable of being readily and uniformly dispersed to a homogeneous coating.
- B. Coatings: Good flow and brushing properties; capable of drying or curing free of streaks or sags.
- C. Provide a tint variation between all under coats and the final coat.

- D. Accessory Materials: Linseed oil, shellac, turpentine, paint thinners and other materials not specifically indicated but required to achieve the finishes specified, of commercial quality.
- E. Refer to schedule at end of Section for surface finishes.
- F. VOC Content of Field-Applied Interior Primers, Paints, Coatings, Stains, and Transparent Finishes: Provide products that comply with the following limits for VOC content, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24); these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:
1. Flat Paints, Coatings, and Primers: VOC content of not more than 50 g/L.
 2. Nonflat Paints, Coatings, and Primers: VOC content of not more than 150 g/L.
 3. Anti-Corrosive and Anti-Rust Paints Applied to Ferrous Metals: VOC content not more than 250 g/L.
 4. Floor Coatings: VOC content not more than 100 g/L.
 5. Shellacs, Clear: VOC content not more than 730 g/L.
 6. Shellacs, Pigmented: VOC content not more than 550 g/L.
 7. Clear Wood Finishes, Varnishes: VOC content not more than 350 g/L.
 8. Clear Wood Finishes, Lacquers: VOC content not more than 550 g/L.
 9. Stains: VOC content not more than 250 g/L.
- G. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop.
1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing one or more benzene rings).
 2. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.
 - q. Lead.
 - r. Mercury.
 - s. Methyl ethyl ketone.
 - t. Methyl isobutyl ketone.
 - u. Methylene chloride.
 - v. Naphthalene.
 - w. Toluene (methylbenzene).
 - x. 1,1,1-trichloroethane.
 - y. Vinyl chloride.

PART 3 - EXECUTION

3.1 EXAMINATION

City of Moscow – East City Park Stage
Moscow, Idaho

09 91 00 - 3
7/31/2026

- A. Verify that substrate is ready to receive work as instructed by the product manufacturer.
- B. Examine surfaces scheduled to be finished prior to commencement of work. Report any condition that may potentially affect proper application.
- C. Measure moisture content of surfaces using an electronic moisture meter. Do not apply finishes unless moisture content of surfaces are below the following maximums:
 - 1. Gypsum Wallboard: 12 percent.
 - 2. Masonry, Concrete, and Concrete Unit Masonry: 12 percent.
 - 3. Interior Located Wood: 15 percent, measured in accordance with ASTM D 2016.
 - 4. Concrete Floors: 12 percent.
 - 5. Beginning of installation indicates acceptance of substrate.
- D. Ensure surface temperatures or the surrounding air temperature is above 45 deg F before applying finishes. Minimum application temperatures for latex paints for interior work is 45 degrees F and 50 degrees F for exterior work. Minimum application temperature for varnish and stain finishes is 65 degrees F.
- E. Provide adequate continuous ventilation and sufficient heating facilities to maintain temperatures above 45 degrees F for 24 hours before, during and 48 hours after application of finishes.
- F. Provide minimum 80 foot candles of lighting on surfaces to be finished. No exceptions

3.2 PREPARATION

- A. Remove electrical plates, hardware, light fixture trim, and fittings prior to preparing for finishing.
- B. Correct defects, patch and fill substrate cracks, dents, holes, and other surface inconsistencies to match adjacent surfaces. Clean surfaces which affect work of this Section.
- C. Shellac and seal marks which may bleed through surface finishes.
- D. Impervious Surfaces: Remove mildew by scrubbing with solution of tri-sodium phosphate and bleach. Rinse with clean water and allow surface to dry.
- E. Concrete Floors: Schedule to receive clear wear surface, remove contamination, shot blast and prepare according to wear surface manufacturers instructions. Verify required acid-alkali balance is achieved. Allow to dry.
- F. Concrete floors scheduled to receive sealer: Prepare floor according to sealer manufacturer's instructions.
- G. Siding Surfaces: Latex fill minor defects. Spot prime defects after repair.
- H. Galvanized Surfaces: Remove surface contamination and oils and wash with solvent. Apply coat of etching primer.
- I. Concrete and CMU Surfaces Scheduled to Receive Paint Finish: Remove dirt, loose paint, mortar, scale, salt or alkali powder, and other foreign matter. Remove oil and grease with a solution of tri-sodium phosphate; rinse well and allow to dry. Remove stains caused by weathering of corroding metals with a solution of sodium metasilicate after thoroughly wetting with water. Allow to dry. Confirm all surfaces are smooth and structurally sound. All loosely adhering paint, coatings and concrete shall be completely removed by scraping, pressure washing, blasting or other mechanical means. Chalky, oxidized or contaminated surfaces must be washed with Marathon Cleaning Concentrate (MCC) or equal biodegradable cleaner.
 - 1. All cracks greater than hairline shall be routed to 1/16" and caulked with NP-1 urethane sealant.
- J. Shop Primed Steel Surfaces: Sand and scrape to remove loose primer and rust. Feather edges to make touch-up patches inconspicuous. Clean surfaces with solvent. Prime bare steel surfaces. Prime metal items including shop primed items.
- K. Steel Doors: Remove surface contamination and oils and wash with solvent. Seal top and bottom edges with primer.
- L. At dissimilar materials all joints are to be caulked interior or exterior. All joints larger than 1/16" is to be caulked or filled.

3.3 APPLICATION

- A. Apply products in accordance with manufacturer's instructions.
- B. Do not apply finishes to surfaces that are not dry.

- C. Apply each coat to uniform finish, without streaking, telegraphing of drywall joints or brush marks.
- D. Apply finish coats of paint slightly darker than preceding prime coat unless otherwise approved.
- E. Sand lightly between coats to achieve required finish.
- F. Allow applied coat to dry before next coat is applied.
- G. Back-roll all spray applied primer and finish coats on gypsum board, plaster finishes, CMU, dimensional lumber, sheathing and fiber cement siding.
- H. Prime back surfaces of interior and exterior woodwork with primer paint.
- I. Seal concrete floors with polyurethane sealer.
- J. Elastomeric Paint:
 - a. Application – Primer, apply per manufacturer's full recommendations.
 - b. Application – Topcoat, apply per manufacturer's full recommendations.
- K. Paint all roof top items, including but not limited to, ducts, pipe vents, roof hatches smoke vents, and ladders.
- L. Paint all Mechanical and Electrical Equipment exposed to public view, this shall include but not be limited to, ducts, conduits, fitting, suspension/anchors and boxes. Protect interior reflector surfaces of light fixtures from any paint application or overspray.
- M. Replace electrical plates, hardware, light fixture trim, and fittings removed prior to finishing.
- N. Field finish surfaces not factory pre-finished. Extend finish all the way behind all case-work and floor and wall mounted equipment.
- O. Protection
 - 1. Adequately protect other surfaces from paint and damage. Repair damage as a result of inadequate or unsuitable protection.
 - 2. Furnish sufficient drop cloths, shields and protective equipment to prevent spray or droppings from fouling surfaces not being painted and in particular, surfaces within storage and preparation area.
 - 3. Place cotton waste, cloths and materials which may constitute a fire hazard in closed metal containers and remove daily from site.
 - 4. Remove electrical plates, surface hardware, mechanical equipment, fittings and fastenings, prior to painting operations. These items are to be carefully stored, cleaned and replaced on completion of work in each area. Do not use solvent to clean hardware that may remove permanent lacquer finish.
- P. Mechanical and Electrical Equipment
 - 1. Refer to mechanical and electrical sections with respect to painting and finishing requirements, color coding, identification banding of equipment, ducting, piping and conduit.
 - 2. Remove grilles, covers and access panels for mechanical and electrical systems from location, sand and paint separately.
 - 3. Finish paint primed and existing field painted equipment to color selected.
 - 4. Prime and paint insulated and bare pipes, conduits, boxes, insulated and bare ducts, hangers, brackets, collars and supports, except where items are plated or covered with a pre-finished coating.
- Q. Site items
 - 1. Site CMU reference plans and/or coordinate with Architect prior to painting.
 - 2. All exposed steel, CMU and piping is to be painted, coordinate color with Architect prior to painting.

3.4 CLEANING

- A. As Work proceeds, promptly remove paint where spilled, splashed, or spattered.
- B. During progress of Work maintain premises free of unnecessary accumulation of tools, equipment, surplus materials, and debris.
- C. Collect cotton waste, cloths, and material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

3.5 PROTECTION

- A. Protect elements surrounding the work of this Section from damage or disfiguration.
- B. Repair damage to other surfaces caused by work of this Section.
- C. Furnish drop cloths, shields, and protective methods to prevent spray or droppings from disfiguring other surfaces.
- D. Remove empty paint containers from site.

3.9 SCHEDULES

- A. Shop-Primed Items for Site Finishing.
 - 1. Standard steel doors and frames (Division 08): All exposed surfaces , tops and bottoms of doors.
- B. Exterior Surfaces
 - 1.
 - 1. **Exposed Exterior Steel and field painted metals.**
 - a. **Primer: Sherwin Williams Pro-Cryl Primer, applied at 3.0 mil dry film thickness**
 - b. **Intermediate Coat: Sherwin Williams Sher-Cryl HPA, applied at 3.0 -4.0 mil thickness**
 - c. **Finish Coat: Sherwin Williams Sher-Cryl HPA, applied at 3.0 -4.0 mil thickness**
 - d. **Approved substitution: Carboline or Themec system by approved substitution in accordance with Division 01 procedures.**
 - 2. Steel Shop Primed (exterior hollow metal doors and frames only):
 - a. Touch up with zinc chromate primer per TTP-645A specifications.
 - b. Two Coats alkyd enamel, gloss, 3.0 mil gloss per TTP-37D specifications.
 - 3. Exposed Concrete Masonry Units Surfaces (Clear Masonry Sealer and Graffiti Protection). Integrally colored masonry units as indicated in the drawings and specifications.
 - a. Specified in Division 3.
 - 4. Clear Finished Exterior Exposed Wood Members (Glued-lam & CLT):
 - a. One coat stain. Penetrating alkyd oil, wiping type, color selected by Architect.
 - b. One coat: Sikken's – Cetol 1 base coat, applied according to manufacturer's requirements.
 - c. Two coats Sikken's – Cetol 23 top coats, applied according to manufacturer's requirements.
- C. Interior Surfaces
 - 1. Steel - Primed:
 - a. Touch-up with original primer.
 - b. Paint Finish - One coat acrylic primer. 1.5 mil min.
 - c. Paint Finish - Two coats Alkyd (Pro Mar 200) semi-gloss finish. 3 mil min
 - 2. Concrete Block:
 - a. Paint Finish-one coat alkali resistant acrylic primer. 2.5 mil min
 - b. Paint Finish-one coat ("Polymide") acrylic-epoxy block filler. 1.5 mil min
 - c. Paint Finish- two coats semi-gloss (high solids) "Aquapon" Polymide-epoxy coating. 3 mil min
 - 3. Concrete Floors (PFS – Paint on Floor Sealer):
 - a. Paint Finish-one coat Sherwin Williams Armorseal 33 Primer. 1 mil min
 - b. Paint Finish-two coats Sherwin Williams Armorseal 1000 HS Epoxy color coat; 1.5 mil min. each coat
 - c. Clear Floor Finish- Sherwin Williams Armorseal 1000 HS Epoxy clear coat. 3 mil min.
- D. Colors – Reference Finish Schedule and Finish Materials Designations and as selected by Architect.

END OF SECTION 09 91 00

SECTION 26 05 19 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conductors and cables, including detailed information on materials, construction, ratings, listings, and available sizes, configurations, and stranding.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 CONDUCTOR AND CABLE APPLICATIONS

- A. Do not use conductors and cables for applications other than as permitted by NFPA 70 and product listing.
- B. Provide single conductor building wire installed in suitable raceway unless otherwise indicated, permitted, or required.
- C. Nonmetallic-sheathed cable is not permitted.
- D. Service entrance cable is not permitted.
- E. Armored cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
 - 1) Maximum Length: 6 feet (1.8 m).
 - b. Where concealed in hollow stud walls, above accessible ceilings, and under raised floors for branch circuits up to 20 A.
 - 1) Exception: Provide single conductor building wire in raceway for circuit homerun from first outlet to panelboard.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Where not approved for use by the authority having jurisdiction.
 - b. Where exposed to damage.
 - c. For damp, wet, or corrosive locations.
- F. Metal-clad cable is permitted only as follows:
 - 1. Where not otherwise restricted, may be used:
 - a. Where concealed above accessible ceilings for final connections from junction boxes to luminaires.
 - 1) Maximum Length: 6 feet (1.8 m).
 - b. Where concealed in hollow stud walls, above accessible ceilings, and under raised floors for branch circuits up to 20 A.
 - 1) Exception: Provide single conductor building wire in raceway for circuit homerun from first outlet to panelboard.
 - 2. In addition to other applicable restrictions, may not be used:
 - a. Where not approved for use by the authority having jurisdiction.
 - b. Where exposed to damage.
 - c. For damp, wet, or corrosive locations, unless provided with a PVC jacket listed as suitable for those locations.

2.2 CONDUCTOR AND CABLE GENERAL REQUIREMENTS

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.

- C. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, etc. as required for a complete operating system.
- D. Comply with NEMA WC 70.
- E. Thermoplastic-Insulated Conductors and Cables: Listed and labeled as complying with UL 83.
- F. Thermoset-Insulated Conductors and Cables: Listed and labeled as complying with UL 44.
- G. Conductors for Grounding and Bonding: Also comply with Section 26 05 26.
- H. Conductors and Cables Installed Exposed in Spaces Used for Environmental Air (only where specifically permitted): Plenum rated, listed and labeled as suitable for use in return air plenums.
- I. Conductor Material:
 - 1. Provide copper conductors except where aluminum conductors are specifically indicated. Substitution of aluminum conductors for copper is not permitted. Conductor sizes indicated are based on copper unless specifically indicated as aluminum. Conductors designated with the abbreviation "AL" indicate aluminum.
 - 2. Copper Conductors: Soft drawn annealed, 98 percent conductivity, uncoated copper conductors complying with ASTM B3, ASTM B8, or ASTM B787/B787M unless otherwise indicated.
 - 3. Tinned Copper Conductors: Comply with ASTM B33.
 - 4. Aluminum Conductors (only where specifically indicated or permitted for substitution): AA-8000 series aluminum alloy conductors recognized by ASTM B800 and compact stranded in accordance with ASTM B801 unless otherwise indicated.
- J. Minimum Conductor Size: 12 AWG.
 - 1. Control Circuits: 14 AWG.
- K. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- L. Conductor Color Coding:
 - 1. Color code conductors as indicated unless otherwise required by the authority having jurisdiction. Maintain consistent color coding throughout project.
 - 2. Color Coding Method: Integrally colored insulation.
 - a. Conductors size 4 AWG and larger may have black insulation color coded using vinyl color coding electrical tape.
 - 3. Color Code:
 - a. 240/120 V, 1 Phase, 3 Wire System:
 - 1) Phase A: Black.
 - 2) Phase B: Red.
 - 3) Neutral/Grounded: White.
 - b. Equipment Ground, All Systems: Green.
 - c. Travelers for 3-Way and 4-Way Switching: Pink.
 - d. For modifications or additions to existing wiring systems, comply with existing color code when existing code complies with NFPA 70 and is approved by the authority having jurisdiction.
 - e. For control circuits, comply with manufacturer's recommended color code.

2.3 SINGLE CONDUCTOR BUILDING WIRE

- A. Description: Single conductor insulated wire.
- B. Conductor Stranding:
 - 1. Feeders and Branch Circuits:
 - a. Size 10 AWG and Smaller: Solid.
 - b. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation:
 - 1. Copper Building Wire: Type THHN/THWN or THHN/THWN-2, except as indicated below.
 - a. Installed Underground: Type XHHW-2.

2.4 ARMORED CABLE

- A. Description: NFPA 70, Type AC cable listed and labeled as complying with UL 4, and listed for use in classified firestop systems to be used.
- B. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation: Type THHN.
- E. Grounding: Combination of interlocking armor and integral bonding wire.
- F. Armor: Steel, interlocked tape.

2.5 METAL-CLAD CABLE

- A. Description: NFPA 70, Type MC cable listed and labeled as complying with UL 1569, and listed for use in classified firestop systems to be used.
- B. Conductor Stranding:
 - 1. Size 10 AWG and Smaller: Solid.
 - 2. Size 8 AWG and Larger: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation: Type THHN, THHN/THWN, or THHN/THWN-2.
- E. Grounding: Full-size integral equipment grounding conductor.
- F. Armor: Steel, interlocked tape.
- G. Provide PVC jacket applied over cable armor where indicated or required for environment of installed location.

2.6 POWER AND CONTROL TRAY CABLE

- A. Description: NFPA 70, Type TC cable listed and labeled as complying with UL 1277.
- B. Conductor Stranding: Stranded.
- C. Insulation Voltage Rating: 600 V.
- D. Insulation: Type XHHW or XHHW-2.
- E. Jacket: PVC or Chlorinated Polyethylene (CPE).

2.7 WIRING CONNECTORS

- A. Description: Wiring connectors appropriate for the application, suitable for use with the conductors to be connected, and listed as complying with UL 486A-486B or UL 486C as applicable.
- B. Connectors for Grounding and Bonding: Comply with Section 26 05 26.
- C. Wiring Connectors for Splices and Taps:
 - 1. Copper Conductors Size 8 AWG and Smaller: Use twist-on insulated spring connectors.
 - 2. Copper Conductors Size 6 AWG and Larger: Use mechanical connectors or compression connectors.
- D. Wiring Connectors for Terminations:
 - 1. Provide terminal lugs for connecting conductors to equipment furnished with terminations designed for terminal lugs.
 - 2. Provide compression adapters for connecting conductors to equipment furnished with mechanical lugs when only compression connectors are specified.
 - 3. Where over-sized conductors are larger than the equipment terminations can accommodate, provide connectors suitable for reducing to appropriate size, but not less than required for the rating of the overcurrent protective device.
 - 4. Copper Conductors Size 8 AWG and Larger: Use mechanical connectors or compression connectors where connectors are required.
- E. Do not use insulation-piercing or insulation-displacement connectors designed for use with conductors without stripping insulation.
- F. Do not use push-in wire connectors as a substitute for twist-on insulated spring connectors.

- G. Twist-on Insulated Spring Connectors: Rated 600 V, 221 degrees F (105 degrees C) for standard applications and 302 degrees F (150 degrees C) for high temperature applications; pre-filled with sealant and listed as complying with UL 486D for damp and wet locations.
- H. Mechanical Connectors: Provide bolted type or set-screw type.
- I. Compression Connectors: Provide circumferential type or hex type crimp configuration.

2.8 ACCESSORIES

- A. Electrical Tape:
 - 1. Vinyl Color Coding Electrical Tape: Integrally colored to match color code indicated; listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
 - 2. Vinyl Insulating Electrical Tape: Complying with ASTM D3005 and listed as complying with UL 510; minimum thickness of 7 mil (0.18 mm); resistant to abrasion, corrosion, and sunlight; conformable for application down to 0 degrees F (-18 degrees C) and suitable for continuous temperature environment up to 221 degrees F (105 degrees C).
- B. Oxide Inhibiting Compound: Listed; suitable for use with the conductors or cables to be installed.
- C. Wire Pulling Lubricant:
 - 1. Listed and labeled as complying with UL 267.
 - 2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
 - 3. Suitable for use at installation temperature.
- D. Cable Ties: Material and tensile strength rating suitable for application.
- E. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Circuiting Requirements:
 - 1. Maintain separation of Class 1, Class 2, and Class 3 remote-control, signaling, and power-limited circuits in accordance with NFPA 70.
 - 2. Maintain separation of wiring for emergency systems in accordance with NFPA 70.
 - 3. Common Neutrals: Unless otherwise indicated, sharing of neutral/grounded conductors among up to three single phase branch circuits of different phases installed in the same raceway is not permitted. Provide dedicated neutral/grounded conductor for each individual branch circuit.
- B. Install products in accordance with manufacturer's instructions.
- C. Perform work in accordance with NECA 1 (general workmanship).
- D. Install aluminum conductors in accordance with NECA 104.
- E. Install armored cable (Type AC) in accordance with NECA 120.
- F. Install metal-clad cable (Type MC) in accordance with NECA 120.
- G. Secure and support conductors and cables in accordance with NFPA 70 using suitable supports and methods approved by the authority having jurisdiction. Provide independent support from building structure. Do not provide support from raceways, piping, ductwork, or other systems.
 - 1. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conductors and cables to lay on ceiling tiles.
- H. Terminate cables using suitable fittings.
- I. Install conductors with a minimum of 12 inches (300 mm) of slack at each outlet.
- J. Make wiring connections using specified wiring connectors.
 - 1. Connections for Aluminum Conductors: Fill connectors with oxide inhibiting compound where not pre-filled by manufacturer.

- K. Insulate splices and taps that are made with uninsulated connectors using methods suitable for the application, with insulation and mechanical strength at least equivalent to unspliced conductors.
- L. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.
- M. Unless specifically indicated to be excluded, provide final connections to all equipment and devices, including those furnished by others, as required for a complete operating system.

END OF SECTION 26 05 19

SECTION 26 05 26 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for grounding and bonding system components.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 GROUNDING AND BONDING REQUIREMENTS

- A. Do not use products for applications other than as permitted by NFPA 70 and product listing.
- B. Unless specifically indicated to be excluded, provide all required components, conductors, connectors, conduit, boxes, fittings, supports, accessories, etc. as necessary for a complete grounding and bonding system.
- C. Where conductor size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
- D. Grounding System Resistance:
 - 1. Achieve specified grounding system resistance under normally dry conditions unless otherwise approved by Architect. Precipitation within the previous 48 hours does not constitute normally dry conditions.
 - 2. Grounding Electrode System: Not greater than 5 ohms to ground, when tested according to IEEE 81 using "fall-of-potential" method.
- E. Grounding Electrode System:
 - 1. Provide connection to required and supplemental grounding electrodes indicated to form grounding electrode system.
 - a. Provide continuous grounding electrode conductors without splice or joint.
 - b. Install grounding electrode conductors in raceway where exposed to physical damage. Bond grounding electrode conductor to metallic raceways at each end with bonding jumper.
 - 2. Metal Underground Water Pipe(s):
 - a. Provide connection to underground metal domestic and fire protection (where present) water service pipe(s) that are in direct contact with earth for at least 10 feet (3.0 m) at an accessible location not more than 5 feet (1.5 m) from the point of entrance to the building.
 - b. Provide bonding jumper(s) around insulating joints/pipes as required to make pipe electrically continuous.
 - c. Provide bonding jumper around water meter of sufficient length to permit removal of meter without disconnecting jumper.
 - 3. Metal In-Ground Support Structure:
 - a. Provide connection to metal in-ground support structure that is in direct contact with earth in accordance with NFPA 70.
 - 4. Concrete-Encased Electrode:
 - a. Provide connection to concrete-encased electrode consisting of not less than 20 feet (6.0 m) of either steel reinforcing bars or bare copper conductor not smaller than 4 AWG embedded within concrete foundation or footing that is in direct contact with earth in accordance with NFPA 70.
 - 5. Ground Rod Electrode(s):
 - a. Provide two electrodes unless otherwise indicated or required.
 - b. Space electrodes not less than 10 feet (3.0 m) from each other and any other ground electrode.

6. Provide additional ground electrode(s) as required to achieve specified grounding electrode system resistance.
 7. Ground Bar: Provide ground bar, separate from service equipment enclosure, for common connection point of grounding electrode system bonding jumpers as permitted in NFPA 70. Connect grounding electrode conductor provided for service-supplied system grounding to this ground bar.
 - a. Ground Bar Size: 1/4 by 2 by 12 inches (6 by 50 by 300 mm) unless otherwise indicated or required.
 - b. Where ground bar location is not indicated, locate in accessible location as near as possible to service disconnect enclosure.
 - c. Ground Bar Mounting Height: 18 inches (450 mm) above finished floor unless otherwise indicated.
 8. Ground Riser: Provide common grounding electrode conductor not less than 3/0 AWG for tap connections to multiple separately derived systems as permitted in NFPA 70.
- F. Service-Supplied System Grounding:
1. For each service disconnect, provide grounding electrode conductor to connect neutral (grounded) service conductor to grounding electrode system. Unless otherwise indicated, make connection at neutral (grounded) bus in service disconnect enclosure.
 2. For each service disconnect, provide main bonding jumper to connect neutral (grounded) bus to equipment ground bus where not factory-installed. Do not make any other connections between neutral (grounded) conductors and ground on load side of service disconnect.
- G. Grounding for Separate Building or Structure Supplied by Feeder(s) or Branch Circuits:
1. Provide grounding electrode system for each separate building or structure.
 2. Provide equipment grounding conductor routed with supply conductors.
 3. For each disconnecting means, provide grounding electrode conductor to connect equipment ground bus to grounding electrode system.
 4. Do not make any connections and remove any factory-installed jumpers between neutral (grounded) conductors and ground.
- H. Bonding and Equipment Grounding:
1. Provide bonding for equipment grounding conductors, equipment ground busses, metallic equipment enclosures, metallic raceways and boxes, device grounding terminals, and other normally non-current-carrying conductive materials enclosing electrical conductors/equipment or likely to become energized as indicated and in accordance with NFPA 70.
 2. Provide insulated equipment grounding conductor in each feeder and branch circuit raceway. Do not use raceways as sole equipment grounding conductor.
 3. Where circuit conductor sizes are increased for voltage drop, increase size of equipment grounding conductor proportionally in accordance with NFPA 70.
 4. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
 5. Terminate branch circuit equipment grounding conductors on solidly bonded equipment ground bus only. Do not terminate on neutral (grounded) or isolated/insulated ground bus.
 6. Provide bonding jumper across expansion or expansion/deflection fittings provided to accommodate conduit movement.
 7. Provide bonding for interior metal piping systems in accordance with NFPA 70. This includes, but is not limited to:
 - a. Metal water piping where not already effectively bonded to metal underground water pipe used as grounding electrode.
 - b. Metal gas piping.
 - c. Metal process piping.

2.2 GROUNDING AND BONDING COMPONENTS

A. General Requirements:

1. Provide products listed, classified, and labeled as suitable for the purpose intended.
2. Provide products listed and labeled as complying with UL 467 where applicable.
- B. Conductors for Grounding and Bonding, in Addition to Requirements of Section 26 05 26:
 1. Use insulated copper conductors unless otherwise indicated.
 - a. Exceptions:
 - 1) Use bare copper conductors where installed underground in direct contact with earth.
 - 2) Use bare copper conductors where directly encased in concrete (not in raceway).
- C. Connectors for Grounding and Bonding:
 1. Description: Connectors appropriate for the application and suitable for the conductors and items to be connected; listed and labeled as complying with UL 467.
 2. Unless otherwise indicated, use exothermic welded connections for underground, concealed and other inaccessible connections.
 3. Unless otherwise indicated, use mechanical connectors, compression connectors, or exothermic welded connections for accessible connections.
- D. Ground Bars:
 1. Description: Copper rectangular ground bars with mounting brackets and insulators.
 2. Size: As indicated.
 3. Holes for Connections: As indicated or as required for connections to be made.
- E. Ground Rod Electrodes:
 1. Comply with NEMA GR 1.
 2. Material: Copper-bonded (copper-clad) steel.
 3. Size: 3/4 inch (19 mm) diameter by 10 feet (3.0 m) length, unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Ground Rod Electrodes: Unless otherwise indicated, install ground rod electrodes vertically. Where encountered rock prohibits vertical installation, install at 45 degree angle or bury horizontally in trench at least 30 inches (750 mm) deep in accordance with NFPA 70 or provide ground plates.
 1. Outdoor Installations: Unless otherwise indicated, install with top of rod 6 inches (150 mm) below finished grade.
 2. Indoor Installations: Unless otherwise indicated, install with 4 inches (100 mm) of top of rod exposed.
- D. Make grounding and bonding connections using specified connectors.
 1. Remove nonconductive paint, enamel, or similar coating at threads, contact points, and contact surfaces.

END OF SECTION 26 05 26

SECTION 26 05 29 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for channel/strut framing systems, nonpenetrating rooftop supports, and post-installed concrete/masonry anchors.

PART 2 - PRODUCTS

2.1 SUPPORT AND ATTACHMENT COMPONENTS

- A. General Requirements:
 - 1. Comply with the following. Where requirements differ, comply with most stringent.
 - a. NFPA 70.
 - b. Applicable building code.
 - c. Requirements of authorities having jurisdiction.
 - 2. Provide required hangers, supports, anchors, fasteners, fittings, accessories, and hardware as necessary for complete installation of electrical work.
 - 3. Provide products listed, classified, and labeled as suitable for purpose intended, where applicable.
 - 4. Where support and attachment component types and sizes are not indicated, select in accordance with manufacturer's application criteria as required for load to be supported with minimum safety factor of 1.5. Include consideration for vibration, equipment operation, and shock loads where applicable.
 - 5. Do not use products for applications other than as permitted by NFPA 70 and product listing.
 - 6. Do not use wire, chain, perforated pipe strap, or wood for permanent supports unless specifically indicated or permitted.
 - 7. Steel Components: Use corrosion-resistant materials suitable for environment where installed.
 - a. Indoor Dry Locations: Use zinc-plated steel or approved equivalent unless otherwise indicated.
 - b. Outdoor and Damp or Wet Indoor Locations: Use galvanized steel, stainless steel, or approved equivalent unless otherwise indicated.
 - c. Zinc-Plated Steel: Electroplated in accordance with ASTM B633.
 - d. Galvanized Steel: Hot-dip galvanized after fabrication in accordance with ASTM A123/A123M or ASTM A153/A153M.
- B. Conduit and Cable Supports: Straps and clamps suitable for conduit or cable to be supported.
 - 1. Conduit Straps: One-hole or two-hole type; steel or malleable iron.
 - 2. Conduit Clamps: Bolted type unless otherwise indicated.
- C. Outlet Box Supports: Hangers and brackets suitable for boxes to be supported.
- D. Metal Channel/Strut Framing Systems:
 - 1. Description: Factory-fabricated, continuous-slot, metal channel/strut and associated fittings, accessories, and hardware required for field assembly of supports.
 - 2. Comply with MFMA-4.
- E. Hanger Rods: Threaded, zinc-plated steel unless otherwise indicated.
- F. Anchors and Fasteners:
 - 1. Unless otherwise indicated and where not otherwise restricted, use anchor and fastener types indicated for specified applications.
 - 2. Post-Installed Concrete and Masonry Anchors: Evaluated and recognized by ICC Evaluation Service, LLC (ICC-ES) for compliance with applicable building code.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install hangers and supports in accordance with NECA 1.
- C. Install anchors and fasteners in accordance with ICC Evaluation Services, LLC (ICC-ES) evaluation report conditions of use where applicable.
- D. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- E. Unless specifically indicated or approved by Owner/Architect, do not provide support from suspended ceiling support system or ceiling grid.
- F. Unless specifically indicated or approved by Owner/Architect, do not provide support from roof deck.
- G. Do not penetrate or otherwise notch or cut structural members without approval of Structural Engineer.
- H. Equipment Support and Attachment:
 - 1. Use metal, fabricated supports or supports assembled from metal channel/strut to support equipment as required.
 - 2. Use metal channel/strut secured to studs to support equipment surface mounted on hollow stud walls when wall strength is not sufficient to resist pull-out.
 - 3. Use metal channel/strut to support surface-mounted equipment in wet or damp locations to provide space between equipment and mounting surface.
 - 4. Unless otherwise indicated, mount floor-mounted equipment on properly sized concrete pad 4 inches (100 mm) in height.
 - 5. Securely fasten floor-mounted equipment. Do not install equipment such that it relies on its own weight for support.

END OF SECTION 26 05 29

SECTION 26 05 33.13 - CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for conduits and fittings.
- B. Project Record Documents: Record actual routing for conduits installed underground, conduits embedded within concrete slabs, and conduits 2-inch (53 mm) trade size and larger.

PART 2 - PRODUCTS

2.1 CONDUIT APPLICATIONS

- A. Do not use conduit and associated fittings for applications other than as permitted by NFPA 70, manufacturer's instructions, and product listing.
- B. Unless otherwise indicated and where not otherwise restricted, use conduit types indicated for specified applications. Where more than one listed application applies, comply with most restrictive requirements. Where conduit type for particular application is not specified, use galvanized steel rigid metal conduit.
- C. Underground:
 - 1. Under Slab on Grade: Use rigid PVC conduit.
 - 2. Exterior, Direct-Buried: Use rigid PVC conduit.
 - 3. Exterior, Embedded Within Concrete: Use rigid PVC conduit.
 - 4. Where rigid polyvinyl chloride (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or schedule 80 rigid PVC conduit where emerging from underground.
 - 5. Where rigid polyvinyl (PVC) conduit larger than 2-inch (53 mm) trade size is provided, use galvanized steel rigid metal conduit (RMC) elbows or PVC-coated galvanized steel rigid metal conduit (RMC) elbows for bends.
 - 6. Where galvanized steel rigid metal conduit (RMC) or galvanized steel intermediate metal conduit (IMC) is installed in direct contact with earth where soil has resistivity of less than 2000 ohm-centimeters or is characterized as severely corrosive based on soils report or local experience, use corrosion protection tape, factory-applied corrosion protection coating, or field-applied corrosion protection compound acceptable to authorities having jurisdiction to provide supplementary corrosion protection.
 - 7. Where galvanized steel electrical metallic tubing (EMT) is installed in direct contact with earth, use corrosion protection tape, factory-applied corrosion protection coating, or field-applied corrosion protection compound acceptable to authorities having jurisdiction to provide supplementary corrosion protection.
 - 8. Where aluminum rigid metal conduit (RMC) or aluminum electrical metallic tubing (EMT) is installed in direct contact with earth, use corrosion protection tape, factory-applied corrosion protection coating, or field-applied corrosion protection compound acceptable to authorities having jurisdiction to provide supplementary corrosion protection.
 - 9. Where galvanized rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT) emerges from concrete into soil, use corrosion protection tape, factory-applied corrosion protection coating, or field-applied corrosion protection compound acceptable to authorities having jurisdiction to provide supplementary corrosion protection for minimum of 4 inches (100 mm) on either side of where conduit emerges.
- D. Concealed Within Masonry Walls: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).
- E. Concealed Within Hollow Stud Walls: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or aluminum electrical metallic tubing (EMT).

- F. Concealed Above Accessible Ceilings: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or aluminum electrical metallic tubing (EMT).
- G. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).
- H. Exposed, Interior, Not Subject to Physical Damage: Use aluminum rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), galvanized steel electrical metallic tubing (EMT), or aluminum electrical metallic tubing (EMT).
- I. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).
- J. Exposed, Exterior, Not Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC), galvanized steel intermediate metal conduit (IMC), or galvanized steel electrical metallic tubing (EMT).
- K. Exposed, Exterior, Subject to Severe Physical Damage: Use galvanized steel rigid metal conduit (RMC) or galvanized steel intermediate metal conduit (IMC).
- L. Flexible Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit (FMC).
- M. Flexible Connections to Vibrating Equipment:
 - 1. Dry Locations: Use flexible metal conduit (FMC).
 - 2. Damp, Wet, or Corrosive Locations: Use liquidtight flexible metal conduit (LFMC).
 - 3. Maximum Length: 6 feet (1.8 m) unless otherwise indicated.
- N. Fished in Existing Walls, Where Necessary: Use flexible metal conduit (FMC), galvanized steel electrical metallic tubing (EMT), or aluminum electrical metallic tubing (EMT).

2.2 CONDUIT - GENERAL REQUIREMENTS

- A. Comply with NFPA 70.
- B. Electrical Service Conduits: See Section 26 21 00 for additional requirements.
- C. Fittings for Grounding and Bonding: See Section 26 05 26 for additional requirements.
- D. Provide conduit, fittings, supports, and accessories required for complete raceway system.
- E. Provide products listed, classified, and labeled as suitable for purpose intended.
- F. Minimum Conduit Size, Unless Otherwise Indicated:
 - 1. Branch Circuits: 3/4-inch (21 mm) trade size.
 - 2. Underground, Interior: 1-inch (27 mm) trade size.
 - 3. Underground, Exterior: 1-inch (27 mm) trade size.
- G. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

2.3 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.
- B. Fittings:
 - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
 - 2. Material: Use steel or malleable iron.
 - 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.

2.4 ALUMINUM RIGID METAL CONDUIT (RMC)

- A. Description: NFPA 70, Type RMC aluminum rigid metal conduit complying with ANSI C80.5 and listed and labeled as complying with UL 6A.
- B. Fittings:
 - 1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6A.
 - 2. Material: Use aluminum.

3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
- 2.5 GALVANIZED STEEL INTERMEDIATE METAL CONDUIT (IMC)
- A. Description: NFPA 70, Type IMC galvanized steel intermediate metal conduit complying with ANSI C80.6 and listed and labeled as complying with UL 1242.
- B. Fittings:
1. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 1242.
 2. Material: Use steel or malleable iron.
 3. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
- 2.6 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)
- A. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit with external polyvinyl chloride (PVC) coating complying with NEMA RN 1 and listed and labeled as complying with UL 6.
- B. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil, 0.040 inch (1.02 mm).
- C. PVC-Coated Boxes and Fittings:
1. Manufacturer: Same as manufacturer of PVC-coated conduit to be installed.
 2. Nonhazardous Locations: Use boxes and fittings listed and labeled as complying with UL 514A, UL 514B, or UL 6.
 3. Material: Use steel or malleable iron.
 4. Exterior Coating: Polyvinyl chloride (PVC), minimum thickness of 40 mil, 0.040 inch (1.02 mm).
- D. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil, 0.015 inch (0.38 mm).
- 2.7 FLEXIBLE METAL CONDUIT (FMC)
- A. Description: NFPA 70, Type FMC standard-wall steel flexible metal conduit listed and labeled as complying with UL 1, and listed for use in classified firestop systems.
- B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 2. Material: Use steel or malleable iron.
- 2.8 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)
- A. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 2. Material: Use steel or malleable iron.
- 2.9 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)
- A. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.
- B. Fittings:
1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 2. Material: Use steel or malleable iron.
 3. Connectors and Couplings: Use compression/gland or set-screw type.
 - a. Do not use indenter type connectors and couplings.

- 2.10 ALUMINUM ELECTRICAL METALLIC TUBING (EMT)
- A. Description: NFPA 70, Type EMT aluminum electrical metallic tubing listed and labeled as complying with UL 797A.
 - B. Fittings:
 - 1. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; listed for use with aluminum EMT.
 - 2. Material: Use aluminum.
 - 3. Connectors and Couplings: Use compression/gland or set-screw type.
 - a. Do not use indenter type connectors and couplings.
- 2.11 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT
- A. Description: NFPA 70, Type PVC rigid polyvinyl chloride conduit complying with NEMA TC 2 and listed and labeled as complying with UL 651; Schedule 40 unless otherwise indicated, Schedule 80 where subject to physical damage; rated for use with conductors rated 90 degrees C.
 - B. Fittings:
 - 1. Manufacturer: Same as manufacturer of conduit to be connected.
 - 2. Description: Fittings complying with NEMA TC 3 and listed and labeled as complying with UL 651; material to match conduit.
- 2.12 ACCESSORIES
- A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil, 0.020 inch (0.51 mm).
 - B. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.
 - C. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 1,250 lbf (5.6 kN).
 - D. Sealing Systems for Concrete Penetrations:
 - 1. Sleeves: Provide water stop ring or cement coating that bonds to concrete to prevent water infiltration.
 - 2. Rate for minimum of 40 psig; suitable for sealing around conduits to be installed.
 - E. Sealing Systems for Roof Penetrations: Premanufactured components and accessories as required to preserve integrity of roofing system and maintain roof warranty; suitable for conduits and roofing system to be installed; designed to accommodate existing penetrations where applicable.
 - F. Flashing Panels for Exterior Wall Penetrations: Premanufactured components and accessories as required to preserve integrity of building envelope; suitable for conduits and facade materials to be installed.
 - G. Firestop Sleeves: Listed; provide as required to preserve fire resistance rating of building elements.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- A. Install products in accordance with manufacturer's instructions.
 - B. Install conduit in accordance with NECA 1.
 - C. Install galvanized steel rigid metal conduit (RMC) in accordance with NECA 101.
 - D. Install aluminum rigid metal conduit (RMC) in accordance with NECA 102.
 - E. Install intermediate metal conduit (IMC) in accordance with NECA 101.
 - F. Install PVC-coated galvanized steel rigid metal conduit (RMC) using only tools approved by manufacturer.
 - G. Install rigid polyvinyl chloride (PVC) conduit in accordance with NECA 111.
 - H. Conduit Routing:
 - 1. Conceal conduits unless specifically indicated to be exposed.
 - 2. Conduits in the following areas may be exposed, unless otherwise indicated:

- a. Electrical rooms.
 - b. Mechanical equipment rooms.
 - c. Within joists in areas with no ceiling.
- 3. Unless otherwise approved, do not route exposed conduits:
 - a. Across floors.
 - b. Across roofs.
 - c. Across top of parapet walls.
 - d. Across building exterior surfaces.
- 4. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points.
- 5. Arrange conduit to provide no more than 150 feet (46 m) between pull points.
- 6. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
- 7. Maintain minimum clearance of 6 inches (150 mm) between conduits and piping for other systems.
- I. Conduit Support:
 - 1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 26 05 29.
 - 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
 - 3. Installation Above Suspended Ceilings: Do not provide support from ceiling support system. Do not provide support from ceiling grid or allow conduits to lay on ceiling tiles.
- J. Connections and Terminations:
 - 1. Use approved zinc-rich paint or conduit joint compound on field-cut threads of galvanized steel conduits prior to making connections.
 - 2. Where two threaded conduits must be joined and neither can be rotated, use three-piece couplings or split couplings. Do not use running threads.
 - 3. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
 - 4. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.
 - 5. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
- K. Penetrations:
 - 1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
 - 2. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
 - 3. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
 - 4. Make penetrations for roof-mounted equipment within associated equipment openings and curbs where possible to minimize roofing system penetrations. Where penetrations are necessary, seal as indicated or as required to preserve integrity of roofing system and maintain roof warranty.
 - 5. Install firestopping to preserve fire resistance rating of partitions and other elements; see Section 07 84 00.
- L. Underground Installation:
 - 1. Provide trenching and backfilling.
 - 2. Minimum Cover, Unless Otherwise Indicated or Required:
 - a. Underground, Exterior: 18 inches (460 mm).
 - b. Under Slab on Grade: 12 inches (300 mm) to bottom of slab.
 - 3. Provide underground warning tape along entire conduit length for service entrance where not concrete-encased; see Section 26 05 53.

- M. Concrete Encasement: Where conduits not otherwise embedded within concrete are indicated to be concrete-encased, provide minimum concrete cover of 3 inches (76 mm) on all sides unless otherwise indicated.
- N. Conduit Movement Provisions: Where conduits are subject to movement, provide expansion and expansion/deflection fittings to prevent damage to enclosed conductors or connected equipment. This includes, but is not limited to:
1. Where conduits cross structural joints intended for expansion, contraction, or deflection.
 2. Where calculated in accordance with NFPA 70 for rigid polyvinyl chloride (PVC) conduit installed above ground to compensate for thermal expansion and contraction.
 3. Where conduits are subject to earth movement by settlement or frost.
- O. Conduit Sealing:
1. Use foam conduit sealant to prevent entry of moisture and gases. This includes, but is not limited to:
 - a. Where conduits enter building from outside.
 - b. Where service conduits enter building from underground distribution system.
 - c. Where conduits enter building from underground.
 - d. Where conduits may transport moisture to contact live parts.
 2. Where conduits cross barriers between areas of potential substantial temperature differential, use foam conduit sealant at accessible point near penetration to prevent condensation. This includes, but is not limited to:
 - a. Where conduits pass from outdoors into conditioned interior spaces.
 - b. Where conduits pass from unconditioned interior spaces into conditioned interior spaces.
 - c. Where conduits penetrate coolers or freezers.
 3. Where conduits cross boundaries of hazardous/classified locations, provide identified/listed sealing fittings or conduit mechanical seals as approved by authorities having jurisdiction; locate as indicated or in accordance with NFPA 70.
- P. Provide pull string in each empty conduit and in conduits where conductors and cables are to be installed by others. Leave minimum slack of 12 inches (300 mm) at each end.

END OF SECTION 26 05 33.13

SECTION 26 05 33.16 - BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for cabinets and enclosures, boxes for hazardous (classified) locations, floor boxes, and underground boxes/enclosures.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 BOXES

A. General Requirements:

1. Do not use boxes and associated accessories for applications other than as permitted by NFPA 70 and product listing.
2. Provide all boxes, fittings, supports, and accessories required for a complete raceway system and to accommodate devices and equipment to be installed.
3. Provide products listed, classified, and labeled as suitable for the purpose intended.
4. Where box size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.
5. Provide grounding terminals within boxes where equipment grounding conductors terminate.

B. Outlet and Device Boxes Up to 100 cubic inches (1,650 cu cm), Including Those Used as Junction and Pull Boxes:

1. Use sheet-steel boxes for dry locations unless otherwise indicated or required.
2. Use cast iron boxes or cast aluminum boxes for damp or wet locations unless otherwise indicated or required; furnish with compatible weatherproof gasketed covers.
3. Use cast iron boxes or cast aluminum boxes where exposed galvanized steel rigid metal conduit or exposed intermediate metal conduit (IMC) is used.
4. Use cast aluminum boxes where aluminum rigid metal conduit is used.
5. Use nonmetallic boxes where exposed rigid PVC conduit is used.
6. Use suitable concrete type boxes where flush-mounted in concrete.
7. Use suitable masonry type boxes where flush-mounted in masonry walls.
8. Use raised covers suitable for the type of wall construction and device configuration where required.
9. Use shallow boxes where required by the type of wall construction.
10. Do not use "through-wall" boxes designed for access from both sides of wall.
11. Sheet-Steel Boxes: Comply with NEMA OS 1, and list and label as complying with UL 514A.
12. Cast Metal Boxes: Comply with NEMA FB 1, and list and label as complying with UL 514A; furnish with threaded hubs.
13. Nonmetallic Boxes: Comply with NEMA OS 2, and list and label as complying with UL 514C.
14. Boxes for Supporting Luminaires and Ceiling Fans: Listed as suitable for the type and weight of load to be supported; furnished with fixture stud to accommodate mounting of luminaire where required.
15. Boxes for Ganged Devices: Use multigang boxes of single-piece construction. Do not use field-connected gangable boxes unless specifically indicated or permitted.

C. Cabinets and Enclosures, Including Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):

1. Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E, or UL 508A.
2. Junction and Pull Boxes Larger Than 100 cubic inches (1,650 cu cm):
 - a. Provide screw-cover or hinged-cover enclosures unless otherwise indicated.
3. Cabinets and Hinged-Cover Enclosures, Other Than Junction and Pull Boxes:
- D. Underground Boxes/Enclosures:
 1. Description: In-ground, open bottom boxes furnished with flush, non-skid covers with legend indicating type of service and stainless steel tamper resistant cover bolts.
 2. Depth: As required to extend below frost line to prevent frost upheaval, but not less than 12 inches (300 mm).
 3. Applications:
 - a. Sidewalks and Landscaped Areas Subject Only to Occasional Nondeliberate Vehicular Traffic: Use polymer concrete enclosures, with minimum SCTE 77 Tier 8 load rating.
 - b. Parking Lots, in Areas Subject Only To Occasional Nondeliberate Vehicular Traffic: Use polymer concrete enclosures, with minimum SCTE 77 Tier 15 load rating.
 - c. Do not use polymer concrete enclosures in areas subject to deliberate vehicular traffic.
 4. Polymer Concrete Underground Boxes/Enclosures: Comply with SCTE 77.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install boxes in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards where mounting heights are not indicated.
- C. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- D. Provide separate boxes for emergency power and normal power systems.
- E. Unless otherwise indicated, provide separate boxes for line voltage and low voltage systems.
- F. Flush-mount boxes in finished areas unless specifically indicated to be surface-mounted.
- G. Unless otherwise indicated, boxes may be surface-mounted where exposed conduits are indicated or permitted.
- H. Box Locations:
 1. Locate boxes to be accessible. Provide access panels in accordance with Section 08 31 00 as required where approved by the Architect.
 2. Locate boxes so that wall plates do not span different building finishes.
 3. Locate boxes so that wall plates do not cross masonry joints.
 4. Unless otherwise indicated, where multiple outlet boxes are installed at the same location at different mounting heights, install along a common vertical center line.
 5. Do not install flush-mounted boxes on opposite sides of walls back-to-back. Provide minimum 6 inches (150 mm) horizontal separation unless otherwise indicated.
 6. Fire Resistance Rated Walls: Install flush-mounted boxes such that the required fire resistance will not be reduced.
- I. Box Supports:
 1. Secure and support boxes in accordance with NFPA 70 and Section 26 05 29 using suitable supports and methods approved by the authority having jurisdiction.
 2. Provide required seismic controls in accordance with Section 26 05 48.
 3. Provide independent support from building structure except for cast metal boxes (other than boxes used for fixture support) supported by threaded conduit connections in accordance with NFPA 70. Do not provide support from piping, ductwork, or other systems.

- 4. Installation Above Suspended Ceilings: Do not provide support from ceiling grid or ceiling support system.
- J. Floor-Mounted Cabinets: Mount on properly sized 4 inch (100 mm) high concrete pad.
- K. Install boxes as required to preserve insulation integrity.
- L. Underground Boxes/Enclosures:
 - 1. Install enclosure on gravel base, minimum 6 inches (150 mm) deep.
 - 2. Flush-mount enclosures located in concrete or paved areas.
 - 3. Mount enclosures located in landscaped areas with top at 1 inch (25 mm) above finished grade.
 - 4. Install additional bracing inside enclosures in accordance with manufacturer's instructions to minimize box sidewall deflections during backfilling. Backfill with cover bolted in place.
- M. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
- N. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 07 84 00.

END OF SECTION 26 05 33.16

SECTION 26 05 33.23 - SURFACE RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets including dimensions, knockout sizes and locations, materials, fabrication details, finishes, service condition requirements, and accessories.
 - 1. Surface Raceway Systems: Include information on fill capacities for conductors and cables.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 RACEWAY REQUIREMENTS

- A. Provide all components, fittings, supports, and accessories required for a complete raceway system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Do not use raceways for applications other than as permitted by NFPA 70 and product listing.

2.2 SURFACE RACEWAY SYSTEMS

- A. Surface Metal Raceways: Listed and labeled as complying with UL 5.

2.3 WIREWAYS

- A. Description: Lay-in wireways and wiring troughs with removable covers; listed and labeled as complying with UL 870.
- B. Wireway Type, Unless Otherwise Indicated:
 - 1. Indoor Clean, Dry Locations: NEMA EN 10250, Type 1, painted steel with screw-cover.
 - 2. Outdoor Locations: NEMA EN 10250, Type 3R, painted steel with screw-cover; include provision for padlocking.
- C. Finish for Painted Steel Wireways: Manufacturer's standard grey unless otherwise indicated.
- D. Minimum Wireway Size: 4 by 4 inches (100 by 100 mm) unless otherwise indicated.
- E. Where wireway size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Install raceways plumb and level.
- D. Arrange wireways and associated raceway connections to comply with NFPA 70, including but not limited to requirements for deflected conductors and wireways used as pullboxes. Increase size of wireway where necessary.
- E. Secure and support raceways in accordance with Section 26 05 29 at intervals complying with NFPA 70 and manufacturer's requirements.
- F. Close unused raceway openings.

END OF SECTION 26 05 33.23

SECTION 26 05 36 - CABLE TRAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for cable tray system components and accessories. Include dimensions, materials, fabrication details, finishes, and span/load ratings.

PART 2 - PRODUCTS

2.1 CABLE TRAY SYSTEM - GENERAL REQUIREMENTS

- A. Provide new cable tray system consisting of all required components, fittings, supports, accessories, etc. as necessary for a complete system.
- B. Provide products listed, classified, and labeled as suitable for the purpose intended.
- C. Do not use cable tray for applications other than as permitted by NFPA 70 and product listing/classification.
- D. Provide cable tray system and associated components suitable for use at indicated span/load ratings under the service conditions at the installed location.
- E. Unless otherwise indicated, specified span/load ratings are based on safety factor of 1.5 and working load only (no additional concentrated static load), with ratings for metal cable tray systems in accordance with NEMA BI 50015.
- F. Unless otherwise indicated, specified load/fill depths and inside widths are nominal values, with values for metal cable tray systems in accordance with NEMA BI 50015 including applicable allowable tolerances.

2.2 METAL CABLE TRAY SYSTEMS

- A. Comply with NEMA BI 50015.
- B. Finishes:
 - 1. Zinc Electroplated Steel: Comply with ASTM B633.
 - 2. Mill-Galvanized Before Fabrication (Pre-Galvanized) Steel: Comply with ASTM A653/A653M, G90 coating.
- C. Metal Ladder Cable Tray:
 - 1. Material: Mill-galvanized before fabrication (pre-galvanized) steel.
 - 2. Load/Fill Depth: As indicated on drawings.
 - 3. Span/Load Rating: As indicated on drawings.
 - 4. Rung Spacing: 9 inches (229 mm) on center for straight lengths.
 - 5. Inside Width: As indicated on drawings.
 - 6. Inside Radius of Fittings: 12 inches (305 mm).

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install cable tray in accordance with NECA 1 (general workmanship), and NEMA VE 2.
- C. Unless otherwise indicated, arrange cable tray to be parallel or perpendicular to building lines.
- D. Arrange cable tray to provide required clearances and maintain cable access.
- E. Install cable tray plumb and level, with sections aligned and with horizontal runs at the proper elevation.
- F. Cable Tray Movement Provisions:
 - 1. Provide suitable expansion fittings where cable tray is subject to movement, including but not limited to:
 - a. Where cable tray crosses structural joints intended for expansion.
 - b. Long straight cable tray runs in accordance with NEMA VE 2.

2. Use expansion guides in lieu of hold-down clamps where prescribed in NEMA VE 2.
3. Set gaps for expansion fittings in accordance with NEMA VE 2.
- G. Cable Provisions:
 1. Use suitable fixed barrier strips to maintain separation of cables as indicated and as required by NFPA 70.
 2. Use suitable drop-out fittings or bushings where cables exit cable tray as required to maintain minimum cable bending radius.
 3. Use suitable cable support fittings for long vertical cable tray runs with heavy cables.
- H. Provide end closures at unconnected ends of cable tray runs.
- I. Cable Tray Support:
 1. Use manufacturer's recommended hangers and supports, located in accordance with NEMA VE 2 and manufacturer's requirements, but not exceeding specified span unless otherwise approved by Engineer. Provide required support and attachment in accordance with Section 26 05 29, where not furnished by cable tray manufacturer.
 2. Provide independent support from building structure. Do not provide support from piping, ductwork, or other systems.
- J. Grounding and Bonding Requirements, in Addition to Requirements of Section 26 05 26:
 1. Comply with grounding and bonding requirements of NEMA VE 2.
- K. Cable Installation:
 1. Comply with cable installation requirements of NEMA VE 2.
 2. Use cable clamps or cable ties to fasten conductors/cables to vertical and horizontal runs of cable tray.
 - a. Distance Between Fastening Points for Vertical Runs: 18 inches (450 mm).
 - b. Distance Between Fastening Points for Horizontal Runs: As required to maintain spacing and confine conductor/cable within the cable fill area.
- L. Penetrations: Install firestopping to preserve fire resistance rating of building elements, using materials and methods specified in Section 07 84 00.
- M. Identification Requirements, in Addition to Those Specified in Section 26 05 53.
- N. Install cable tray covers where indicated and as follows:

END OF SECTION 26 05 36

SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 IDENTIFICATION REQUIREMENTS

A. Identification for Equipment:

1. Use identification nameplate to identify each piece of electrical distribution and control equipment and associated sections, compartments, and components.
 - a. Panelboards:
 - 1) Identify ampere rating.
 - 2) Identify voltage and phase.
 - 3) Identify power source and circuit number. Include location when not within sight of equipment.
 - 4) Use typewritten circuit directory to identify load(s) served for panelboards with a door. Identify spares and spaces using pencil.
 - 5) For power panelboards without a door, use identification nameplate to identify load(s) served for each branch device. Do not identify spares and spaces.
 - b. Enclosed switches, circuit breakers, and motor controllers:
 - 1) Identify voltage and phase.
 - 2) Identify power source and circuit number. Include location when not within sight of equipment.
 - 3) Identify load(s) served. Include location when not within sight of equipment.
2. Service Equipment:
 - a. Use identification nameplate to identify each service disconnecting means.
 - b. For buildings or structures supplied by more than one service, or any combination of branch circuits, feeders, and services, use identification nameplate or means of identification acceptable to authority having jurisdiction at each service disconnecting means to identify all other services, feeders, and branch circuits supplying that building or structure. Verify format and descriptions with authority having jurisdiction.
3. Available Fault Current Documentation: Use identification label to identify the available fault current and date calculations were performed at locations requiring documentation by NFPA 70 including but not limited to the following.
 - a. Service equipment.
 - b. Industrial machinery.
 - c. Panelboards.
 - d. Switchboards.
4. Arc Flash Hazard Warning Labels: Use warning labels to identify arc flash hazards for electrical equipment, such as switchboards, panelboards, industrial control panels, meter socket enclosures, and motor control centers that are likely to require examination, adjustment, servicing, or maintenance while energized.

5. Use warning signs to identify electrical hazards for entrances to all rooms and other guarded locations that contain exposed live parts operating at 600 V nominal or less with the word message "DANGER; Electrical hazard; Authorized personnel only" or approved equivalent.
 6. Use warning signs to identify electrical hazards for entrances to all buildings, vaults, rooms, or enclosures containing exposed live parts or exposed conductors operating at over 600 V nominal with the word message "DANGER; HIGH VOLTAGE; KEEP OUT".
 7. Use warning labels to identify electrical hazards for equipment, compartments, and enclosures containing exposed live parts or exposed conductors operating at over 600 V nominal with the word message "DANGER; HIGH VOLTAGE; KEEP OUT".
 8. Use warning labels, identification nameplates, or identification labels to identify electrical hazards for equipment where multiple power sources are present with the word message "DANGER; Hazardous voltage; Multiple power sources may be present; Disconnect all electric power including remote disconnects before servicing" or approved equivalent.
- B. Identification for Conductors and Cables:
1. Color Coding for Power Conductors 600 V and Less: Comply with Section 26 05 19.
 2. Use identification nameplate or identification label to identify color code for ungrounded and grounded power conductors inside door or enclosure at each piece of feeder or branch-circuit distribution equipment when premises has feeders or branch circuits served by more than one nominal voltage system.
- C. Identification for Devices:
1. Wiring Device and Wallplate Finishes: Comply with Section 26 27 26.
 2. Use identification label or engraved wallplate to identify serving branch circuit for all receptacles.
 - a. For receptacles in public areas or in areas as directed by Architect, provide identification on inside surface of wallplate.
 3. Use identification label or engraved wallplate to identify load controlled for wall-mounted control devices controlling loads that are not visible from the control location and for multiple wall-mounted control devices installed at one location.
 4. Use identification label to identify receptacles protected by upstream GFI protection, where permitted.
- D. Identification for Luminaires:
1. Use permanent red dot on luminaire frame to identify luminaires connected to emergency power system.
- 2.2 IDENTIFICATION NAMEPLATES AND LABELS
- A. Identification Nameplates:
1. Materials:
 - a. Indoor Clean, Dry Locations: Use plastic nameplates.
 - b. Outdoor Locations: Use plastic, stainless steel, or aluminum nameplates suitable for exterior use.
 2. Plastic Nameplates: Two-layer or three-layer laminated acrylic or electrically non-conductive phenolic with beveled edges; minimum thickness of 1/16 inch (1.6 mm); engraved text.
 3. Stainless Steel Nameplates: Minimum thickness of 1/32 inch (0.8 mm); engraved or laser-etched text.
 4. Aluminum Nameplates: Anodized; minimum thickness of 1/32 inch (0.8 mm); engraved or laser-etched text.
- B. Identification Labels:
1. Materials: Use self-adhesive laminated plastic labels; UV, chemical, water, heat, and abrasion resistant.
 2. Text: Use factory pre-printed or machine-printed text. Do not use handwritten text unless otherwise indicated.
- C. Format for Equipment Identification:
1. Minimum Size: 1 inch (25 mm) by 2.5 inches (64 mm).

2. Legend:
 - a. Equipment designation or other approved description.
 3. Text: All capitalized unless otherwise indicated.
 4. Minimum Text Height:
 - a. Equipment Designation: 1/2 inch (13 mm).
 5. Color:
 - a. Normal Power System: White text on black background.
 - D. Format for General Information and Operating Instructions:
 1. Minimum Size: 1 inch (25 mm) by 2.5 inches (64 mm).
 2. Legend: Include information or instructions indicated or as required for proper and safe operation and maintenance.
 3. Text: All capitalized unless otherwise indicated.
 4. Minimum Text Height: 1/4 inch (6 mm).
 5. Color: Black text on white background unless otherwise indicated.
 - E. Format for Caution and Warning Messages:
 1. Minimum Size: 2 inches (51 mm) by 4 inches (100 mm).
 2. Legend: Include information or instructions indicated or as required for proper and safe operation and maintenance.
 3. Text: All capitalized unless otherwise indicated.
 4. Minimum Text Height: 1/2 inch (13 mm).
 5. Color: Black text on yellow background unless otherwise indicated.
 - F. Format for Receptacle Identification:
 1. Minimum Size: 3/8 inch (10 mm) by 1.5 inches (38 mm).
 2. Legend: Power source and circuit number or other designation indicated.
 3. Text: All capitalized unless otherwise indicated.
 4. Minimum Text Height: 3/16 inch (5 mm).
 5. Color: Black text on clear background.
- 2.3 UNDERGROUND WARNING TAPE
- A. Materials: Use foil-backed detectable type polyethylene tape suitable for direct burial, unless otherwise indicated.
 - B. Foil-backed Detectable Type Tape: 3 inches (76 mm) wide, with minimum thickness of 5 mil (0.1 mm), unless otherwise required for proper detection.
 - C. Legend: Type of service, continuously repeated over full length of tape.
 - D. Color:
 1. Tape for Buried Power Lines: Black text on red background.
- 2.4 WARNING SIGNS AND LABELS
- A. Comply with ANSI Z535.2 or ANSI Z535.4 as applicable.
 - B. Warning Signs:
 1. Materials:
 - a. Indoor Dry, Clean Locations: Use factory pre-printed rigid plastic or self-adhesive vinyl signs.
 - b. Outdoor Locations: Use factory pre-printed rigid aluminum signs.
 2. Minimum Size: 7 by 10 inches (178 by 254 mm) unless otherwise indicated.
 - C. Warning Labels:
 1. Materials: Use factory pre-printed or machine-printed self-adhesive polyester or self-adhesive vinyl labels; UV, chemical, water, heat, and abrasion resistant; produced using materials recognized to UL 969.
 2. Machine-Printed Labels: Use thermal transfer process printing machines and accessories recommended by label manufacturer.
 3. Minimum Size: 2 by 4 inches (51 mm by 102 mm) unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Secure nameplates to exterior surfaces of enclosures using stainless steel screws and to interior surfaces using self-adhesive backing or epoxy cement.
- C. Install underground warning tape above buried lines with one tape per trench at 3 inches (75 mm) below finished grade.
- D. Secure rigid signs using stainless steel screws.

END OF SECTION 26 05 53

SECTION 26 09 23 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Include ratings, configurations, standard wiring diagrams, dimensions, colors, service condition requirements, and installed features.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

1.3 WARRANTY

- A. Provide five year manufacturer warranty for all occupancy sensors.
- B. Provide two year manufacturer warranty for all daylighting controls.

PART 2 - PRODUCTS

2.1 LIGHTING CONTROL DEVICES - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Unless specifically indicated to be excluded, provide all required conduit, wiring, connectors, hardware, components, accessories, etc. as required for a complete operating system.

2.2 OCCUPANCY SENSORS

- A. All Occupancy Sensors:
 - 1. Description: Factory-assembled commercial specification grade devices for indoor use capable of sensing both major motion, such as walking, and minor motion, such as small desktop level movements, according to published coverage areas, for automatic control of load indicated.
 - 2. Turn-Off Delay: Field adjustable, with time delay settings up to 30 minutes.
 - 3. Compatibility (Non-Dimming Sensors): Suitable for controlling incandescent lighting, low-voltage lighting with electronic and magnetic transformers, fluorescent lighting with electronic and magnetic ballasts, LED lighting, and fractional motor loads, with no minimum load requirements.
 - 4. Load Rating for Line Voltage Occupancy Sensors: As required to control the load indicated on drawings.
 - 5. Where wired sensors are indicated, wireless sensors are acceptable provided that all components and wiring modifications necessary for proper operation are included.
 - 6. Wireless Sensors:
 - a. RF Range: 30 feet (9 m) through typical construction materials.
 - b. Electromagnetic Interference/Radio Frequency Interference (EMI/RFI) Limits: Comply with FCC requirements of 47 CFR 15, for Class B application.
 - c. Power: Battery-operated with minimum ten-year battery life.
- B. Wall Switch Occupancy Sensors:
 - 1. All Wall Switch Occupancy Sensors:
 - a. Description: Occupancy sensors designed for installation in standard wall box at standard wall switch mounting height with a field of view of 180 degrees, integrated manual control capability, and no leakage current to load in off mode.
 - b. Finish: Match finishes specified for wiring devices in Section 26 27 26, unless otherwise indicated.
 - 2. Passive Infrared (PIR) Wall Switch Occupancy Sensors: Capable of detecting motion within an area of 900 square feet (83.6 sq m).
 - 3. Ultrasonic Wall Switch Occupancy Sensors: Capable of detecting motion within an area of 400 square feet (37.2 sq m).

4. Passive Infrared/Ultrasonic Dual Technology Wall Switch Occupancy Sensors: Capable of detecting motion within an area of 900 square feet (83.6 sq m).
- C. Wall Dimmer Occupancy Sensors:
 1. General Requirements:
 - a. Description: Occupancy sensors designed for installation in standard wall box at standard wall switch mounting height with a field of view of 180 degrees, integrated dimming control capability , and no leakage current to load in off mode.
 - b. Dimmer: Solid-state with continuous full-range even control following square law dimming curve, integral radio frequency interference filtering, power failure preset memory, air gap switch accessible without removing wall plate, and listed as complying with UL 1472; type and rating suitable for load controlled.
 - c. Finish: Match finishes specified for wiring devices in Section 26 27 26, unless otherwise indicated.
 2. Passive Infrared (PIR) Wall Dimmer Occupancy Sensors: Capable of detecting motion within an area of 900 square feet (83.6 sq m).
- D. Ceiling Mounted Occupancy Sensors:
 1. All Ceiling Mounted Occupancy Sensors:
 - a. Description: Low profile occupancy sensors designed for ceiling installation.
 - b. Unless otherwise indicated or required to control the load indicated on drawings, provide low voltage units, for use with separate compatible accessory power packs.
 - c. Occupancy sensor to be field selectable as either manual-on/automatic-off or automatic on/off.
 - d. Finish: White unless otherwise indicated.
 2. Passive Infrared (PIR) Ceiling Mounted Occupancy Sensors:
 - a. Standard Range Sensors: Capable of detecting motion within an area of 450 square feet (41.8 square meters) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 - b. Extended Range Sensors: Capable of detecting motion within an area of 1,200 square feet (111.5 sq m) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 3. Ultrasonic Ceiling Mounted Occupancy Sensors:
 - a. Standard Range Sensors: Capable of detecting motion within an area of 500 square feet (46.5 sq m) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 - b. Medium Range Sensors: Capable of detecting motion within an area of 1,000 square feet (92.9 sq m) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 - c. Extended Range Sensors: Capable of detecting motion within an area of 2,000 square feet (185.8 sq m) at a mounting height of 9 feet (2.7 m).
 4. Passive Infrared/Ultrasonic Dual Technology Ceiling Mounted Occupancy Sensors:
 - a. Standard Range Sensors: Capable of detecting motion within an area of 450 square feet (41.8 sq m) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 - b. Extended Range Sensors: Capable of detecting motion within an area of 1,200 square feet (111.5 sq m) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 5. Passive Infrared/Acoustic Dual Technology Ceiling Mounted Occupancy Sensors:
 - a. Standard Range Sensors: Capable of detecting motion within an area of 450 square feet (41.8 sq m) at a mounting height of 9 feet (2.7 m), with a field of view of 360 degrees.
 - b. Extended Range Sensors: Capable of detecting motion within an area of 1,200 square feet (111.5 sq m) at a mounting height of 9 feet (2.7 m).
- E. Luminaire Mounted Occupancy Sensors: Designed for direct luminaire installation and control, suitable for use with specified luminaires.

- F. Power Packs for Low Voltage Occupancy Sensors:
 - 1. Description: Plenum rated, self-contained low voltage class 2 transformer and relay compatible with specified low voltage occupancy sensors for switching of line voltage loads.
 - 2. Provide quantity and configuration of power and slave packs with all associated wiring and accessories as required to control the load indicated on drawings.
 - 3. Input Supply Voltage: Dual rated for 120/277 V ac.
 - 4. Load Rating: As required to control the load indicated on drawings.
- G. Power Packs for Wireless Occupancy Sensors:
 - 1. Description: Plenum rated, self-contained relay compatible with specified wireless occupancy sensors for switching of line voltage loads.
 - 2. Input Supply Voltage: Dual rated for 120/277 V ac.

2.3 OUTDOOR MOTION SENSORS

- A. Description: Factory-assembled wet location listed device suitable for wall or ceiling/eave mounting, with integral swivel for field adjustment of coverage, capable of detecting motion for automatic control of load indicated.
- B. Sensor Technology: Passive Infrared (PIR) designed to detect occupancy by sensing movement of thermal energy between zones.
- C. Turn-Off Delay: Field adjustable, with time delay settings available up to 15 minutes.
- D. Integral Photocell: For dusk to dawn operation.
- E. Manual Override: Activated by switching power off to unit and then back on.
- F. Load Rating: 1,000 W incandescent and fluorescent load at 120 V ac.
- G. Coverage: Capable of detecting motion within a distance of 50 feet (15 m) at a mounting height of 8 feet (2.4 m), with a field of view of 270 degrees.

2.4 TIME SWITCHES

- A. Digital Electronic Time Switches:
 - 1. Description: Factory-assembled solid state programmable controller with LCD display, listed and labeled as complying with UL 916 or UL 917.
 - 2. Program Capability:
 - a. 7-Day Time Switches: Single channel, capable of different schedule for each day of the week with additional holiday schedule available to override normal schedule for selected days.
 - b. Astronomic Time Switches: Single channel, capable of different schedule for each day of the week with additional holiday schedule available to override normal schedule for selected days and field-configurable astronomic feature to automatically adjust for seasonal changes in sunrise and sunset times.
 - 3. Schedule Capacity: Not less than 16 programmable on/off operations.
 - 4. Provide power outage backup to retain programming and maintain clock.
 - 5. Manual override: Capable of overriding current schedule both permanently and temporarily until next scheduled event.
 - 6. Input Supply Voltage: As indicated on the drawings.

2.5 OUTDOOR PHOTO CONTROLS

- A. Stem-Mounted Outdoor Photo Controls:
 - 1. Description: Direct-wired photo control unit with threaded conduit mounting stem and field-adjustable swivel base, listed and labeled as complying with UL 773A.
 - 2. Housing: Weatherproof, impact resistant polycarbonate.
 - 3. Photo Sensor: Cadmium sulfide.
 - 4. Provide external sliding shield for field adjustment of light level activation.
 - 5. Light Level Activation: 1 to 5 footcandles (10.8 to 53.8 lux) turn-on and 3 to 1 turn-off to turn-on ratio with delayed turn-off.
 - 6. Voltage: As required to control the load indicated on the drawings.
 - 7. Load Rating: As required to control the load indicated on the drawings.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install lighting control devices in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
- B. Install lighting control relays furnished under Section 25 36 26
- C. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of lighting control devices provided under this section.
 - 1. Mounting Heights: Unless otherwise indicated, as follows:
 - a. Wall Switch Occupancy Sensors: 48 inches (1.2 m) above finished floor.
- D. Install lighting control devices in accordance with manufacturer's instructions.
- E. Unless otherwise indicated, connect lighting control device grounding terminal or conductor to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
- F. Where required and not furnished with lighting control device, provide wall plate in accordance with Section 26 27 26.
- G. Provide required supports in accordance with Section 26 05 29.
- H. Occupancy Sensor Locations:
 - 1. Location Adjustments: Locations indicated are diagrammatic and only intended to indicate which rooms or areas require devices. Provide quantity and locations as required for complete coverage of respective room or area based on manufacturer's recommendations for installed devices.
 - 2. Locate ultrasonic and dual technology passive infrared/ultrasonic occupancy sensors a minimum of 4 feet (1.2 m) from air supply ducts or other sources of heavy air flow and as per manufacturer's recommendations, in order to minimize false triggers.
- I. Outdoor Photo Control Locations:
 - 1. Where possible, locate outdoor photo controls with photo sensor facing north. If north facing photo sensor is not possible, install with photo sensor facing east, west, or down.
 - 2. Locate outdoor photo controls so that photo sensors do not face artificial light sources, including light sources controlled by the photo control itself.
- J. Install outdoor photo controls so that connections are weatherproof. Do not install photo controls with conduit stem facing up in order to prevent infiltration of water into the photo control.
- K. Where indicated or required, provide cabinet or enclosure in accordance with Section 26 05 33.16 for mounting of lighting control device system components.

END OF SECTION 26 09 23

SECTION 26 21 00 - LOW-VOLTAGE ELECTRICAL SERVICE ENTRANCE

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Utility Company letter of availability for providing electrical service to project.
- B. Product Data: Provide manufacturer's standard catalog pages and data sheets for each product. Include ratings, configurations, standard wiring diagrams, outline and support point dimensions, finishes, weights, service condition requirements, and installed features.

1.2 QUALITY ASSURANCE

- A. Comply with the following:
 - 1. IEEE C2 (National Electrical Safety Code).
 - 2. NFPA 70 (National Electrical Code).
 - 3. The requirements of the Utility Company.

PART 2 - PRODUCTS

2.1 ELECTRICAL SERVICE REQUIREMENTS

- A. Provide new electrical service consisting of all required conduits, conductors, equipment, metering provisions, supports, accessories, etc. as necessary for connection between Utility Company point of supply and service entrance equipment.
- B. Electrical Service Characteristics: As indicated on drawings.
- C. Utility Company: AVISTA.
- D. Division of Responsibility:
 - 1. Pad-Mounted Utility Transformers:
 - a. Transformer Vaults and Pads: Furnished and installed by Contractor per Utility Company requirements.
 - b. Transformers: Furnished and installed by Utility Company.
 - c. Transformer Grounding Provisions: Furnished and installed by Contractor per Utility Company requirements.
 - d. Transformer Protective Bollards: Furnished and installed by Contractor per Utility Company requirements.
 - e. Primary:
 - 1) Trenching and Backfilling: Provided by Contractor.
 - 2) Conduits: Furnished and installed by Contractor.
 - 3) Conductors: Furnished and installed by Utility Company.
 - f. Secondary:
 - 1) Trenching and Backfilling: Provided by Contractor.
 - 2) Conduits: Furnished and installed by Contractor.
 - 3) Conductors: Furnished and installed by Contractor (Service Point at transformer).
 - 2. Pole-Mounted Utility Transformers:
 - a. Utility Poles: Furnished and installed by Utility Company.
 - b. Transformers: Furnished and installed by Utility Company.
 - c. Transformer Grounding Provisions: Furnished and installed by Utility Company.
 - d. Primary: Furnished and installed by Utility Company.
 - e. Secondary - Underground Service:
 - 1) Conduits: Furnished and installed by Contractor.
 - 2) Conductors: Furnished and installed by Contractor (Service Point at utility pole).
 - 3. Terminations at Service Point: Provided by Utility Company.
 - 4. Metering Provisions:

- a. Meter Bases: Furnished and installed by Contractor per Utility Company requirements.
- E. Products Furnished by Contractor: Comply with Utility Company requirements.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install products in accordance with manufacturer's instructions and Utility Company requirements.
- B. Perform work in accordance with NECA 1 (general workmanship).
- C. Arrange equipment to provide minimum clearances and required maintenance access.

END OF SECTION 26 21 00

SECTION 26 24 16 - PANELBOARDS

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets for panelboards, enclosures, overcurrent protective devices, and other installed components and accessories.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 PANELBOARDS - GENERAL REQUIREMENTS

- A. Provide products listed, classified, and labeled as suitable for the purpose intended.
- B. Short Circuit Current Rating:
 - 1. Provide panelboards with listed short circuit current rating not less than the available fault current at the installed location as indicated on the drawings.
- C. Panelboards Used for Service Entrance: Listed and labeled as suitable for use as service equipment according to UL 869A.
- D. Mains: Configure for top or bottom incoming feed as indicated or as required for the installation.
- E. Bussing: Sized in accordance with UL 67 temperature rise requirements.
 - 1. Provide fully rated neutral bus unless otherwise indicated, with a suitable lug for each feeder or branch circuit requiring a neutral connection.
 - 2. Provide solidly bonded equipment ground bus in each panelboard, with a suitable lug for each feeder and branch circuit equipment grounding conductor.
- F. Conductor Terminations: Suitable for use with the conductors to be installed.
- G. Enclosures: Comply with NEMA EN 10250, and list and label as complying with UL 50 and UL 50E.
 - 1. Boxes: Galvanized steel unless otherwise indicated.
 - a. Provide wiring gutters sized to accommodate the conductors to be installed.
 - 2. Lockable Doors: All locks keyed alike unless otherwise indicated.
- H. Future Provisions: Prepare all unused spaces for future installation of devices including bussing, connectors, mounting hardware and all other required provisions.
- I. Surge Protective Devices: Where factory-installed, internally mounted surge protective devices are provided in accordance with Section 26 43 00, list and label panelboards as a complete assembly including surge protective device.
- J. Multi-Section Panelboards: Provide enclosures of the same height, with feed-through lugs or sub-feed lugs and feeders as indicated or as required to interconnect sections.

2.2 POWER DISTRIBUTION PANELBOARDS

- A. Description: Panelboards complying with NEMA PB 1, power and feeder distribution type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.
- B. Conductor Terminations:
 - 1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 2. Main and Neutral Lug Type: Mechanical.
- C. Bussing:
 - 1. Phase and Neutral Bus Material: Aluminum.
 - 2. Ground Bus Material: Aluminum.
- D. Circuit Breakers:
 - 1. Provide bolt-on type or plug-in type secured with locking mechanical restraints.

- E. Enclosures:
 - 1. Provide surface-mounted enclosures unless otherwise indicated.

2.3 LIGHTING AND APPLIANCE PANELBOARDS

- A. Description: Panelboards complying with NEMA PB 1, lighting and appliance branch circuit type, circuit breaker type, and listed and labeled as complying with UL 67; ratings, configurations and features as indicated on the drawings.
- B. Conductor Terminations:
 - 1. Main and Neutral Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 2. Main and Neutral Lug Type: Mechanical.
- C. Bussing:
 - 1. Phase and Neutral Bus Material: Aluminum.
 - 2. Ground Bus Material: Aluminum.
- D. Circuit Breakers: Thermal magnetic bolt-on type unless otherwise indicated.
- E. Enclosures:
 - 1. Provide surface-mounted or flush-mounted enclosures as indicated.
 - 2. Provide clear plastic circuit directory holder mounted on inside of door.

2.4 OVERCURRENT PROTECTIVE DEVICES

- A. Molded Case Circuit Breakers:
 - 1. Description: Quick-make, quick-break, over center toggle, trip-free, trip-indicating circuit breakers listed and labeled as complying with UL 489, and complying with FS W-C-375 where applicable; ratings, configurations, and features as indicated on the drawings.
 - 2. Interrupting Capacity:
 - a. Provide circuit breakers with interrupting capacity as required to provide the short circuit current rating indicated, but not less than:
 - b. Fully Rated Systems: Provide circuit breakers with interrupting capacity not less than the short circuit current rating indicated.
 - 3. Conductor Terminations:
 - a. Lug Material: Aluminum, suitable for terminating aluminum or copper conductors.
 - 4. Thermal Magnetic Circuit Breakers: For each pole, furnish thermal inverse time tripping element for overload protection and magnetic instantaneous tripping element for short circuit protection.
 - 5. Provide the following circuit breaker types where indicated:
 - a. Ground Fault Circuit Interrupter (GFCI) Circuit Breakers: Listed as complying with UL 943, class A for protection of personnel.
 - b. Ground Fault Equipment Protection Circuit Breakers: Designed to trip at 30 mA for protection of equipment.
 - 6. Do not use handle ties in lieu of multi-pole circuit breakers.
 - 7. Provide multi-pole circuit breakers for multi-wire branch circuits as required by NFPA 70.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Install products in accordance with manufacturer's instructions.
- C. Install panelboards in accordance with NECA 407 and NEMA PB 1.1.
- D. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.
- E. Provide required support and attachment in accordance with Section 26 05 29.
- F. Provide required seismic controls in accordance with Section 26 05 48.
- G. Mount panelboards such that the highest position of any operating handle for circuit breakers or switches does not exceed 79 inches (2000 mm) above the floor or working platform.

- H. Provide minimum of six spare 1 inch (27 mm) trade size conduits out of each flush-mounted panelboard stubbed into accessible space above ceiling and below floor.
- I. Provide grounding and bonding in accordance with Section 26 05 26.
- J. Provide filler plates to cover unused spaces in panelboards.

END OF SECTION 26 24 16

SECTION 26 27 26 - WIRING DEVICES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's catalog information showing dimensions, colors, and configurations.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.
- B. Products: Listed, classified, and labeled as suitable for the purpose intended.

PART 2 - PRODUCTS

2.1 WIRING DEVICE APPLICATIONS

- A. Provide wiring devices suitable for intended use and with ratings adequate for load served.
- B. For single receptacles installed on an individual branch circuit, provide receptacle with ampere rating not less than that of the branch circuit.
- C. Provide weather resistant GFCI receptacles with specified weatherproof covers for receptacles installed outdoors or in damp or wet locations.
- D. Provide GFCI protection for receptacles installed within 6 feet (1.8 m) of sinks.
- E. Provide GFCI protection for receptacles installed in kitchens.
- F. Provide GFCI protection for receptacles serving electric drinking fountains.
- G. Unless noted otherwise, do not use combination switch/receptacle devices.

2.2 WIRING DEVICE FINISHES

- A. Provide wiring device finishes as described below unless otherwise indicated.
- B. Wiring Devices, Unless Otherwise Indicated: White with white galvanized steel wall plate.
- C. Wiring Devices Installed in Finished Spaces: White with white galvanized steel wall plate.
- D. Wiring Devices Installed in Unfinished Spaces: Gray with galvanized steel wall plate.
- E. Wiring Devices Installed in Wet or Damp Locations: White with specified weatherproof cover.

2.3 WALL SWITCHES

- A. Wall Switches - General Requirements: AC only, quiet operating, general-use snap switches with silver alloy contacts, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 20 and where applicable, FS W-S-896; types as indicated on the drawings.

2.4 WALL DIMMERS

- A. Wall Dimmers - General Requirements: Solid-state with continuous full-range even control following square law dimming curve, integral radio frequency interference filtering, power failure preset memory, air gap switch accessible without removing wall plate, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 1472; types and ratings suitable for load controlled as indicated on the drawings.
- B. Control: Slide control type with separate on/off switch.
- C. Power Rating, Unless Otherwise Indicated or Required to Control the Load Indicated on the Drawings:

2.5 RECEPTACLES

- A. Receptacles - General Requirements: Self-grounding, complying with NEMA WD 1 and NEMA WD 6, and listed as complying with UL 498, and where applicable, FS W-C-596; types as indicated on the drawings.
 - 1. NEMA configurations specified are according to NEMA WD 6.
- B. Convenience Receptacles:

1. Standard Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R; single or duplex as indicated on the drawings.
 2. Weather Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as weather resistant type complying with UL 498 Supplement SD suitable for installation in damp or wet locations; single or duplex as indicated on the drawings.
 3. Tamper Resistant Convenience Receptacles: Industrial specification grade, 20A, 125V, NEMA 5-20R, listed and labeled as tamper resistant type; single or duplex as indicated on the drawings.
- C. GFCI Receptacles:
1. GFCI Receptacles - General Requirements: Self-testing, with feed-through protection and light to indicate ground fault tripped condition and loss of protection; listed as complying with UL 943, class A.
 2. Standard GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style.
 3. Weather Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as weather resistant type complying with UL 498 Supplement SD suitable for installation in damp or wet locations.
 4. Tamper Resistant GFCI Receptacles: Industrial specification grade, duplex, 20A, 125V, NEMA 5-20R, rectangular decorator style, listed and labeled as tamper resistant type.
- 2.6 WALL PLATES
- A. Wall Plates: Comply with UL 514D.
1. Configuration: One piece cover as required for quantity and types of corresponding wiring devices.
 2. Size: Oversized.
 3. Screws: Metal with slotted heads finished to match wall plate finish.
- B. Nylon Wall Plates: Smooth finish, high-impact thermoplastic.
- C. Weatherproof Covers for Damp Locations: Gasketed, cast aluminum, with self-closing hinged cover and corrosion-resistant screws; listed as suitable for use in wet locations with cover closed.

PART 3- EXECUTION

3.1 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship) and, where applicable, NECA 130, including mounting heights specified in those standards unless otherwise indicated.
 - B. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of wiring devices provided under this section.
 - C. Install wiring devices in accordance with manufacturer's instructions.
 - D. Install permanent barrier between ganged wiring devices when voltage between adjacent devices exceeds 300 V.
 - E. Connect wiring devices by wrapping conductor clockwise 3/4 turn around screw terminal and tightening to proper torque specified by the manufacturer. Where present, do not use push-in pressure terminals that do not rely on screw-actuated binding.
 - F. Unless otherwise indicated, connect wiring device grounding terminal to branch circuit equipment grounding conductor and to outlet box with bonding jumper.
 - G. Install wall dimmers to achieve full rating specified and indicated after derating for ganging as instructed by manufacturer.
 - H. Do not share neutral conductor on branch circuits utilizing wall dimmers.
- END OF SECTION 26 27 26

SECTION 26 43 00 - SURGE PROTECTIVE DEVICES

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Include detailed component information, voltage, surge current ratings, repetitive surge current capacity, voltage protection rating (VPR) for all protection modes, maximum continuous operating voltage (MCOV), nominal discharge current (I-n), short circuit current rating (SCCR), connection means including any required external overcurrent protection, enclosure ratings, outline and support point dimensions, weight, service condition requirements, and installed features.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 SURGE PROTECTIVE DEVICES - GENERAL REQUIREMENTS

- A. Description: Factory-assembled surge protective devices (SPDs) for 60 Hz service; listed, classified, and labeled as suitable for the purpose intended; system voltage as indicated on the drawings.
- B. Unless otherwise indicated, provide field-installed, externally-mounted or factory-installed, internally-mounted SPDs.
- C. List and label as complying with UL 1449, Type 1 when connected on line side of service disconnect overcurrent device and Type 1 or 2 when connected on load side of service disconnect overcurrent device.
- D. Protected Modes:
 - 1. Single Split Phase Systems: L-N, L-G, N-G, L-L.
- E. UL 1449 Voltage Protection Ratings (VPRs):
 - 1. 208Y/120V System Voltage: Not more than 1,000 V for L-N, L-G, and N-G modes and 1,200 V for L-L mode.
- F. UL 1449 Maximum Continuous Operating Voltage (MCOV): Not less than 115% of nominal system voltage.
- G. Enclosure Environment Type per NEMA EN 10250: Unless otherwise indicated, as specified for the following installation locations:

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Perform work in accordance with NECA 1 (general workmanship).
- B. Arrange equipment to provide minimum clearances in accordance with manufacturer's instructions and NFPA 70.

END OF SECTION 26 43 00

SECTION 26 51 00 - INTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, installed accessories, and ceiling compatibility; include model number nomenclature clearly marked with all proposed features.
 - 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
 - b. Include IES LM-79 test report upon request.
 - 2. Provide electronic files of photometric data certified by a National Voluntary Laboratory Accreditation Program (NVLAP) lab or independent testing agency in IES LM-63 standard format upon request.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.2 LUMINAIRES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Recessed Luminaires:
 - 1. Ceiling Compatibility: Comply with NEMA LE 4.
 - 2. Luminaires Recessed in Insulated Ceilings: Listed and labeled as IC-rated, suitable for direct contact with insulation and combustible materials.
- H. LED Luminaires:
 - 1. Components: UL 8750 recognized or listed as applicable.
 - 2. Tested in accordance with IES LM-79 and IES LM-80.
 - 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.3 EMERGENCY LIGHTING UNITS

- A. Description: Emergency lighting units complying with NFPA 101 and all applicable state and local codes, and listed and labeled as complying with UL 924.
- B. Battery:
 - 1. Size battery to supply all connected lamps, including emergency remote heads where indicated.

2.4 EXIT SIGNS

- A. Description: Exit signs complying with NFPA 101 and applicable state and local codes, and listed and labeled as complying with UL 924.
- B. Powered Exit Signs: Internally illuminated with LEDs unless otherwise indicated.
 - 1. Self-Powered Exit Signs:
 - a. Battery: Sealed, maintenance-free, nickel cadmium unless otherwise indicated.

2.5 BALLASTS AND DRIVERS

- A. Dimmable LED Drivers:
 - 1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
 - 2. Control Compatibility: Fully compatible with the dimming controls to be installed.

2.6 LED REPLACEMENT LAMPS

- A. Description: Light-emitting diode (LED) self-ballasted lamps listed as complying with UL 1993; intended for replacement of existing lamps of other light source types, including but not limited to, incandescent, fluorescent, and high intensity discharge (HID); suitable for installation in luminaire to be retrofitted.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.
- B. Install products in accordance with manufacturer's instructions.
- C. Install luminaires securely, in a neat and workmanlike manner, as specified in NECA 500 (commercial lighting) and NECA 502 (industrial lighting).
- D. Provide required support and attachment in accordance with Section 26 05 29.
- E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- F. Suspended Ceiling Mounted Luminaires:
 - 1. Do not use ceiling tiles to bear weight of luminaires.
 - 2. Do not use ceiling support system to bear weight of luminaires unless ceiling support system is certified as suitable to do so.
 - 3. Secure lay-in luminaires to ceiling support channels using listed safety clips at four corners.
- G. Recessed Luminaires:
 - 1. Non-IC Rated Luminaires: Maintain required separation from insulation and combustible materials according to listing.
 - 2. Luminaires Recessed in Fire-Rated Ceilings: Install using accessories and firestopping materials to meet regulatory requirements for fire rating.
- H. Suspended Luminaires:
 - 1. Unless otherwise indicated, specified mounting heights are to bottom of luminaire.
- I. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
- J. Bond products and metal accessories to branch circuit equipment grounding conductor.
- K. Emergency Lighting Units:
 - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
- L. Exit Signs:
 - 1. Unless otherwise indicated, connect unit to unswitched power from same circuit feeding normal lighting in same room or area. Bypass local switches, contactors, or other lighting controls.
- M. Identify luminaires connected to emergency power system in accordance with Section 26 05 53.

N. Install lamps in each luminaire.

END OF SECTION 26 51 00

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SECTION 26 56 00 - EXTERIOR LIGHTING

PART 1 - GENERAL

1.1 SUBMITTALS

- A. Product Data: Provide manufacturer's standard catalog pages and data sheets including detailed information on luminaire construction, dimensions, ratings, finishes, mounting requirements, listings, service conditions, photometric performance, weight, effective projected area (EPA), and installed accessories; include model number nomenclature clearly marked with all proposed features.
 - 1. LED Luminaires:
 - a. Include estimated useful life, calculated based on IES LM-80 test data.
 - b. Include IES LM-79 test report upon request.
- B. Certificates for Poles and Accessories: Manufacturer's documentation that products are suitable for the luminaires to be installed and comply with designated structural design criteria.

1.2 QUALITY ASSURANCE

- A. Comply with requirements of NFPA 70.

PART 2 - PRODUCTS

2.1 LUMINAIRE TYPES

- A. Furnish products as indicated in luminaire schedule included on the drawings.

2.2 LUMINAIRES

- A. Provide products that comply with requirements of NFPA 70.
- B. Provide products that are listed and labeled as complying with UL 1598, where applicable.
- C. Provide products listed, classified, and labeled as suitable for the purpose intended.
- D. Unless otherwise indicated, provide complete luminaires including lamp(s) and all sockets, ballasts, reflectors, lenses, housings and other components required to position, energize and protect the lamp and distribute the light.
- E. Unless specifically indicated to be excluded, provide all required conduit, boxes, wiring, connectors, hardware, poles, foundations, supports, trims, accessories, etc. as necessary for a complete operating system.
- F. Provide products suitable to withstand normal handling, installation, and service without any damage, distortion, corrosion, fading, discoloring, etc.
- G. Provide luminaires listed and labeled as suitable for wet locations unless otherwise indicated.
- H. LED Luminaires:
 - 1. Components: UL 8750 recognized or listed as applicable.
 - 2. Tested in accordance with IES LM-79 and IES LM-80.
 - 3. LED Estimated Useful Life: Minimum of 50,000 hours at 70 percent lumen maintenance, calculated based on IES LM-80 test data.

2.3 BALLASTS AND DRIVERS

- A. Dimmable LED Drivers:
 - 1. Dimming Range: Continuous dimming from 100 percent to five percent relative light output unless dimming capability to lower level is indicated, without flicker.
 - 2. Control Compatibility: Fully compatible with the dimming controls to be installed.

2.4 LED REPLACEMENT LAMPS

- A. Description: Light-emitting diode (LED) self-ballasted lamps listed as complying with UL 1993; intended for replacement of existing lamps of other light source types, including but not limited to, incandescent, fluorescent, and high intensity discharge (HID); suitable for installation in luminaire to be retrofitted.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Coordinate locations of outlet boxes provided under Section 26 05 33.16 as required for installation of luminaires provided under this section.
- B. Install products in accordance with manufacturer's instructions.
- C. Install luminaires in accordance with NECA/IESNA 501.
- D. Provide required support and attachment in accordance with Section 26 05 29.
- E. Install luminaires plumb and square and aligned with building lines and with adjacent luminaires.
- F. Suspended Luminaires:
 - 1. Unless otherwise indicated, specified mounting heights are to bottom of luminaire.
- G. Wall-Mounted Luminaires: Unless otherwise indicated, specified mounting heights are to center of luminaire.
- H. Bond products and metal accessories to branch circuit equipment grounding conductor.
- I. Install lamps in each luminaire.

END OF SECTION 26 56 00

CLEARING AND GRUBBING
Section 31 11 00

PART 1 SCOPE

- 1.1 Section Includes
 - A. Clearing and Grubbing
 - 1. Removing and disposing of existing features.
 - 2. Removing and disposing of trees, stumps, brush, roots, shrubs, logs and windfalls.
 - 3. Stripping and disposing of the top layer of plants and grasses down past the root zone. 4-inch minimum depth or as recommended in the geotechnical report, or directed by Engineer.
 - 4. Removing and disposing of all miscellaneous debris and other objectionable matter.
- 1.2 Related Documents
 - A. ITD's Standard Specifications Section 200 – Earthwork
- 1.3 Description of Work
 - A. This covers the clearing and grubbing of the site.
- 1.4 Regulatory Requirements
 - A. Conform to applicable code for disposal of debris.
 - B. Coordinate clearing work with utility companies.
- 1.5 Submittals
 - A. Submit for Engineer's Review When Required: Damaged tree replacement/repair (per 3.1.A.5.C).
 - B. Property Owner Disposal Agreements if required by the Engineer (per 3.6.B.5).

PART 2 MATERIALS – Not applicable to this Section.

PART 3 EXECUTION

- 3.1 Clearing and Grubbing
 - A. Protection
 - 1. Locate and protect all aboveground and belowground utilities or relocate as directed by the Contract.
 - 2. Protect benchmarks and survey monuments from damage and displacement.
 - 3. Protect adjacent private and public land and crops in adjacent fields from damage.
 - 4. Protect existing roads, railroad and irrigation canals from damage.
 - 5. Retain, protect and water any desirable trees or vegetation on or adjacent to the site using the following procedures.
 - a. Existing trees not designated for removal should be protected before site demolition begins.
 - 1) Protection should consist of a highly visible, barrier to be placed at or outside the drip line of the tree(s).
 - 2) Unless approved by the **ENGINEER**, no equipment, vehicles, building materials, chemicals, stockpiles or debris shall be placed inside the protection barriers.
 - b. Unless otherwise approved by the **ENGINEER**, disruption of the irrigation facilities serving trees will not be allowed.
 - c. Before the **CONTRACTOR** leaves the site, all existing trees which have been significantly damaged due to construction activities shall be replaced or repaired per **ENGINEER's** approval by a certified arborist at the expense of the **CONTRACTOR**.

- d. No changes in grade should be made within the protection area around trees.
- e. Should excavation damage or break roots greater than one (1") inch in diameter, make a clean saw cut through the undamaged portion of the root behind the break perpendicular to the root.
- f. If required by the **CITY** or **ENGINEER**, hire an approved tree service to trim trees, prior to beginning excavation.
- 6. The **CONTRACTOR** is responsible for damage resulting from construction operations.
- 7. Take reasonable care to avoid damage by construction operations to streams and lakes adjacent to the construction area.
- 8. Preserve and protect all vegetation and ground cover not within the construction area, including areas not requiring grading, as directed.
- B. Removal and Disposal
 - 1. Complete clearing and grubbing to the limits defined by a line drawn five (5') feet outside the grading area, unless shown on the **Contract Documents** or as directed.
 - 2. Preserve and protect trees within the construction area not designated for removal in an approved manner as directed. Paint cut and scarred areas of retained trees or shrubs with an asphaltum base paint prepared especially for tree surgery.
 - 3. Unless otherwise provided, all merchantable timber in the clearing area not removed from the right-of-way prior to the beginning of construction becomes the property of the **CONTRACTOR**.
 - 4. Remove all brush and shrubs from the site including the roots. Dispose of the shrubs and brush off-site at a location provided by the **CONTRACTOR**. Do not dispose of brush and shrubs by burning or burial in backfill or trenches.
 - 5. Strip all soils, heavy growths of grass, and sod that comprise the organic root-zone. Complete stripping four (4") inches deep or as recommended by the **ENGINEER**. Berm the stripped material to line and grade if depicted on the **Contract Documents**. Do not use the stripped materials as backfill or trench backfill.
 - 6. Unless otherwise directed remove all stumps within the clearing limits.
 - 7. Dispose of materials at locations that comply with all Federal, State, and Local Regulations.
- C. Cleanup
 - 1. Upon completion of the site work and project, clean the entire work area. Remove all excess excavated material, rocks, boulders, brush, trees, pipe, or debris of any type from the site and dispose at a site selected by the **CONTRACTOR** and acceptable to Federal, State, and Local Regulations.

PART 4 **PAYMENT**

- 4.1 The accepted quantities of **Clearing and Grubbing** will be paid for at the contract unit price "per square yard", for which price and payment shall include all labor, equipment, materials, and incidentals for the complete removal as shown by the Plans and called for in these Specifications

END OF SECTION

AGGREGATE BASE
Section 32 11 23

PART 1 SCOPE

- 1.1 Related Documents
- A. The other Contract Documents complement the requirements of this section.
 - B. Other sections of this Specification may relate, and impose additional work and/or additional materials upon this section. Contractor to coordinate any cross-referencing of Specification sections.
- 1.2 Description of Work
- A. This section covers the construction of the aggregate base course called for on the Plans, complete.
- 1.3 Standard Specifications
- A. Standard specifications referenced herein shall be the latest edition of the Idaho Standards for Public Works Construction and the City of Moscow Standard Construction Specifications.

PART 2 MATERIALS

- 2.1 Geotextile fabric shall be Type II and shall be in accordance with City of Moscow **Standard Construction Specifications ES-6**.
- 2.2 The aggregate base course shall be 3/4-inch minus crushed rock containing sufficient fine material to serve as binder. The material shall be hard and durable and shall be in accordance with City of Moscow **Standard Construction Specifications ES-7**.
- A. 1-1/4" (-) Aggregate shall conform to the following gradation:

Sieve Size	Percent Passing
1-1/2 inch	100
1 inch	90-100
1/2 inch	60-80
No. 4	35-60
No. 8	25-50
No. 30	10-30
No. 200	2-9

The sand equivalent shall not be less than 30 if 5 percent or more of the material passes the No. 200 sieve. Sand equivalent will not be required if less than 5 percent passes the No. 200 sieve.

- B. 3/4" (-) Aggregate shall conform to the following gradation:

Sieve Size	Percent Passing
1-1/2 inch	-
1 inch	100
3/4 inch	90-100
No. 4	40-65
No. 8	30-50
No. 200	3-9

The sand equivalent shall not be less than 30 if 5 percent or more of the material passes the No. 200 sieve. Sand equivalent will not be required if less than 5 percent passes the No. 200 sieve.

PART 3 EXECUTION

- 3.1 **CONTRACTOR** shall install geotextile fabric on prepared subgrade in accordance with City of Moscow **Standard Construction Specifications ES-6** and **ES-7**.
- 3.2 The aggregate base course shall be spread on the prepared subgrade and geotextile fabric in a uniform layer (or layers), without segregation, to such loose depth that when compacted, the course shall have a minimum thickness of eight (8) inches. Water shall be applied over the base material in the amount as shown required to achieve specified compaction. The water shall be thoroughly mixed with the aggregate by processing until the mixture is uniform throughout. Compaction shall be accomplished by using pneumatic or vibratory rollers. Rolling operation shall be continued until the aggregate is compacted to not less than ninety-five percent (95%) of the maximum density at optimum moisture as determined by **AASHTO Designation T99**.

PART 4 PAYMENT

- 4.1 Accepted **Aggregate Base** will be paid for at the contract unit price "per cubic yard", for which price and payment shall include all labor, materials, and incidentals for the complete installation as shown by the Plans and called for in these Specifications.

END OF SECTION

ASPHALT PAVEMENT
Section 32 12 16

PART 1 SCOPE

- 1.1 Related Documents
 - A. The other Contract Documents complement the requirements of this section.
 - B. Other sections of this Specification may relate, and impose additional work and/or additional materials upon this section. Contractor to coordinate any cross-referencing of Specification sections.
- 1.2 Description of Work
 - A. This section covers the construction of the street pavement called for on the Plans, complete.
- 1.3 Standard Specifications
 - A. Standard specifications referenced herein shall be the latest edition of the Idaho Standards for Public Works Construction and the City of Moscow Standard Construction Specifications.

PART 2 MATERIALS

- 2.1 The Plant Hot Mix Asphalt Pavement shall consist of a mixture of aggregate, filler (if required) and asphalt. The Plant HMA material shall conform to the requirements of SUPERPAVE HOT MIX ASPHALT, City of Moscow **Standard Construction Specifications**.

PART 3 EXECUTION

- 3.1 The Plant Hot Mix Asphalt material shall be placed on the prepared and properly finished Aggregate Top Course in accordance with the requirements of SUPERPAVE HOT MIX ASPHALT, City of Moscow **Standard Construction Specifications**. The completed Bituminous Pavement Surface shall conform to the dimensional requirements of the **Civil Plan**, sheet C2.0/C2.1 and the asphalt section identified on sheet C3.0 as shown in the **Construction Plans**.
- 3.2 All improper workmanship and defective materials resulting from overheating, improper handling or application shall be removed from the surface section by the **CONTRACTOR** and be replaced with approved materials and workmanship at his own expense. The completed pavement surface shall be smooth, dense and of uniform texture and appearance. All areas shall drain with flow lines free of depressions which permit water to stand.

PART 4 PAYMENT

- 4.1 The accepted quantities of **Asphalt Pavement** will be paid for at the contract unit price "per ton", for which price and payment shall include all labor, equipment, materials, and incidentals for the complete installation as shown by the Plans and called for in these Specifications.

END OF SECTION

CONCRETE SIDEWALK
Section 32 16 23

PART 1 SCOPE

- 1.1 Related Documents
 - A. The other Contract Documents complement the requirements of this section.
 - B. Other sections of this Specification may relate, and impose additional work and/or additional materials upon this section. Contractor to coordinate any cross-referencing of Specification sections.
- 1.2 Description of Work
 - A. This covers the installation of new concrete sidewalk and pedestrian ramps in the development at the locations shown on the plans.
- 1.3 Standard Specifications
 - A. Standard specifications referenced herein shall be the latest edition of the Idaho Standards for Public Works Construction, and the City of Moscow Standard Construction Specifications.

PART 2 MATERIALS

- 2.1 All Concrete sidewalk and pedestrian ramps shall conform to the City of Moscow **Standard Drawings, Plans, and the Specifications**.

PART 3 EXECUTION

- 3.1 The sidewalk shall conform to the City of Moscow **Standard Drawing No. 7**.
- 3.2 Pedestrian Ramps shall conform to the City of Moscow **Standard Drawing No. 8**. **CONTRACTOR** shall field verify forms and check slopes before placing concrete. **CONTRACTOR** is responsible for the construction of the ADA compliant ramps. Any ramp or landing not conforming to ADA requirements will be removed and replaced at the **CONTRACTOR'S** expense.

PART 4 PAYMENT

- 4.1 Payment for **Concrete Sidewalk** shall be at the contract unit price "per square yard", for which price and payment shall include all labor, equipment, materials, aggregate base, and incidentals for the complete installation as shown on the Plans and called for in these Specifications.

END OF SECTION

PAVEMENT MARKINGS
Section 32 17 23

PART 1 SCOPE

- 1.1 Related Documents
 - A. The other Contract Documents complement the requirements of this section.
 - B. Other sections of this Specification may relate, and impose additional work and/or additional materials upon this section. Contractor to coordinate any cross-referencing of Specification sections.
 - C. MUTCD
- 1.2 Description of Work
 - A. This section covers the permanent pavement marking of the project.
- 1.3 Standard Specifications
 - A. Standard specifications referenced herein shall be the latest edition of the Idaho Standards for Public Works Construction and the City of Moscow Standard Construction Specifications.

PART 2 MATERIALS

- 2.1 Pavement markings are required to meet **MUTCD standards**.

PART 3 EXECUTION

- 3.1 Contractor is required to coordinate with the exact location of pavement markings with **CITY**.

PART 4 PAYMENT

- 4.1 Accepted **4" Waterborne Pavement Marking** will be paid for at the contract unit price "per lineal foot", for which price and payment shall include all labor, equipment, materials, and incidentals for the complete items as herein specified.

END OF SECTION

STORM SEWER PIPE
Section 33 41 00

PART 1 SCOPE

- 1.1 Related Documents
 - A. The other Contract Documents complement the requirements of this section.
 - B. Other sections of this Specification may relate, and impose additional work and/or additional materials upon this section. Contractor to coordinate any cross-referencing of Specification sections.
- 1.2 Description of Work
 - A. This section covers the installation of storm drain pipe called for on the Plans, complete.
- 1.3 Standard Specifications
 - A. Standard specifications referenced herein shall be the latest edition of the Idaho Standards for Public Works Construction and the City of Moscow Standard Construction Specifications.

PART 2 MATERIALS

- 2.1 Storm Drain Pipe shall conform to the requirements of the appropriate sections of the City of Moscow **Standard Construction Specifications**. Storm Sewer Pipe and fittings for Storm Sewer and Catch Basin laterals up to and including eight (8") inch diameter where called for on the Plans.
- 2.2 Pipe and fitting jointing shall be bell and spigot utilizing and elastomeric gasket meeting the requirements of **ASTM F-477** for a water tight joint.

PART 3 EXECUTION

- 3.1 Excavation and backfill for Storm Sewer Pipes shall be in accordance with **SECTION 200 – EARTHWORK**. Storm Sewer pipelines shall be constructed in accordance with the requirements of City of Moscow **Standard Construction Specifications**, including Class F backfill within street x-section.
- 3.2 All solid, debris, etc., that remains in the pipe following its installation is the **CONTRACTOR's** responsibility to remove. The water for flushing the lines shall be furnished by the **CONTRACTOR**. The **ENGINEER** will direct the **CONTRACTOR** which lines need to be cleaned.

PART 4 PAYMENT

- 4.1 Accepted **Storm Sewer Pipe** will be paid for at the contract unit price "per lineal foot", for which price and payment shall include all labor, equipment, materials, and incidentals for the complete items as herein specified.

END OF SECTION

STORM SEWER AREA DRAINS
Section 33 44 13

PART 1 SCOPE

- 1.1 Related Documents
 - A. The other Contract Documents complement the requirements of this section.
 - B. Other sections of this Specification may relate, and impose additional work and/or additional materials upon this section. Contractor to coordinate any cross-referencing of Specification sections.
- 1.2 Description of Work
 - A. This section covers the installation of the area drains called for on the Plans, complete.
- 1.3 Standard Specifications
 - A. Standard specifications referenced herein shall be the latest edition of the Idaho Standards for Public Works Construction and the City of Moscow Standard Construction Specifications.

PART 2 MATERIALS

- 2.1 The area drain shall be a **Nyloplast® Area Drain** manufactured by ADS or an approved equal. The grate and frame shall be suitable for the intended loading conditions and installation location and shall conform to applicable City of Moscow Standard Drawings where required. Installation shall be in accordance with the manufacturer's recommendations and the project plans.

PART 3 EXECUTION

Installation of the drainage structures, including excavation and backfill, shall be in accordance with City of Moscow **Standard Drawings**.

PART 4 PAYMENT

- 4.1 Accepted **Storm Sewer Area Drains** will be paid for at the contract unit price "per each", for which price and payment shall include all labor, equipment, materials, and incidentals for the complete item as herein specified.

END OF SECTION

Attachment "B"

MOSCOW EAST CITY PARK
STAGE REPLACEMENT

900 E 3RD STREET
MOSCOW, ID 83843

DESIGN TEAM

OWNER

CITY OF MOSCOW
120 2. A STREET
MOSCOW, ID 83843
TEL: (208) 883-7027

CONTACT:
CODY RIDDLE

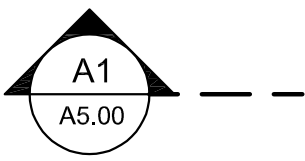
ARCHITECTURAL

DESIGN WEST ARCHITECTS P.A.
254 EAST MAIN STREET
PULLMAN, WASHINGTON 99163
TEL: (509) 332-3113
FAX: (509) 332-3327

CONTACT:
NED WARNICK

SYMBOLS

BUILDING SECTION



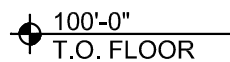
WALL SECTION



DETAIL



ELEVATION MARK



REVISIONS



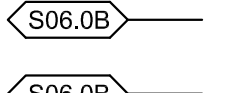
SEE SHEET A6.00

WINDOW TYPES



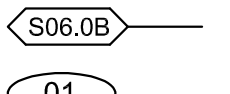
SEE SHEET A8.00

FLOOR & WALL ASSEMBLIES



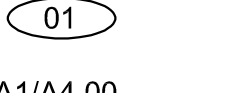
SEE SHEET A8.30

ROOF ASSEMBLIES

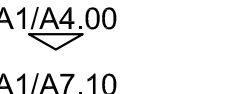


SEE SHEET A8.30

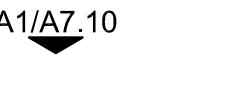
DOOR NUMBER



EXTERIOR ELEVATION



INTERIOR ELEVATION



CODE SUMMARY

Jurisdictional Authorities:

City of Moscow
504 S Washington Street
Moscow, ID 83843
Phone: (208) 883-7022
Justin Goodwin, Building Official

Project:

East City Park Stage

Applicable Requirements:

International Building Code, 2018 edition
ANSI A117.1 2017, ADA-AG Accessibility requirements
IECC, 2020 edition

Construction type: V - B
Occupancy class: A-5, Park Restrooms
Fire Protection: None - Required

Allowable Areas & Heights:

Allowable Areas / Heights: (Table 504): Type V-B Construction
Occupancy: A-5; Area and Height is Unlimited

Fire Resistive Requirements for Construction Components:

Type V - B (Table 601 and 602)

Component:	A
Exterior bearing Walls:	1 hour<10 feet (non-combustible) no rating elsewhere (non-combustible)
Exterior Non-Bearing Walls:	1 hour<10 feet (non-combustible) no rating elsewhere (non-combustible)
Exterior Openings:	Ref. Table 705.8
Interior Bearing Walls:	no rating
Interior Non-Bearing Walls:	no rating
Structural Frame:	no rating
Permanent Partitions:	no rating
Shaft Enclosures:	no rating
Floor & Floor/Ceilings:	no rating
Roofs & Roof/Ceilings:	no rating Class "C" (Table 1505.1)

ENERGY CODE:

Compliance per 2020 IECC 101.5.2
Building is unconditioned

Sanitation Systems & Plumbing Fixtures:

IBC Chapter 29, table 2902.1

Approximately 560 SF.

Estimated Occupant Loads:

Occupant load: 560 sf / 15 net = 38 Occupants

The existing restroom facilities are adequate for the occupant load:

male = 1 w.c., 2 urinals
2 lavs provided
female = 3 w.c.
2 lavs provided

In addition to the existing facility a Family Assisted unit is required per IBC 1109.2.1

(1) Family Assisted use toilet and lav. provided
1 drinking fountain required, 1 drinking fountain provided (ADA)
1 service sink required, 1 service sink provided

DRAWING INDEX

GENERAL:

G1.00 COVER SHEET

CIVIL:

C1.0 EXISTING CONDITIONS & DEMO PLAN
C2.0 CIVIL PLAN
C3.0 DETAILS

ARCHITECTURAL:

A1.00 SITE PLAN
A3.30 FLOOR PLANS
A4.00 ELEVATIONS
A4.10 ELEVATIONS
A5.00 SECTIONS
A8.00 ASSEMBLIES & DETAILS

STRUCTURAL:

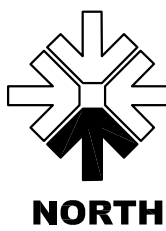
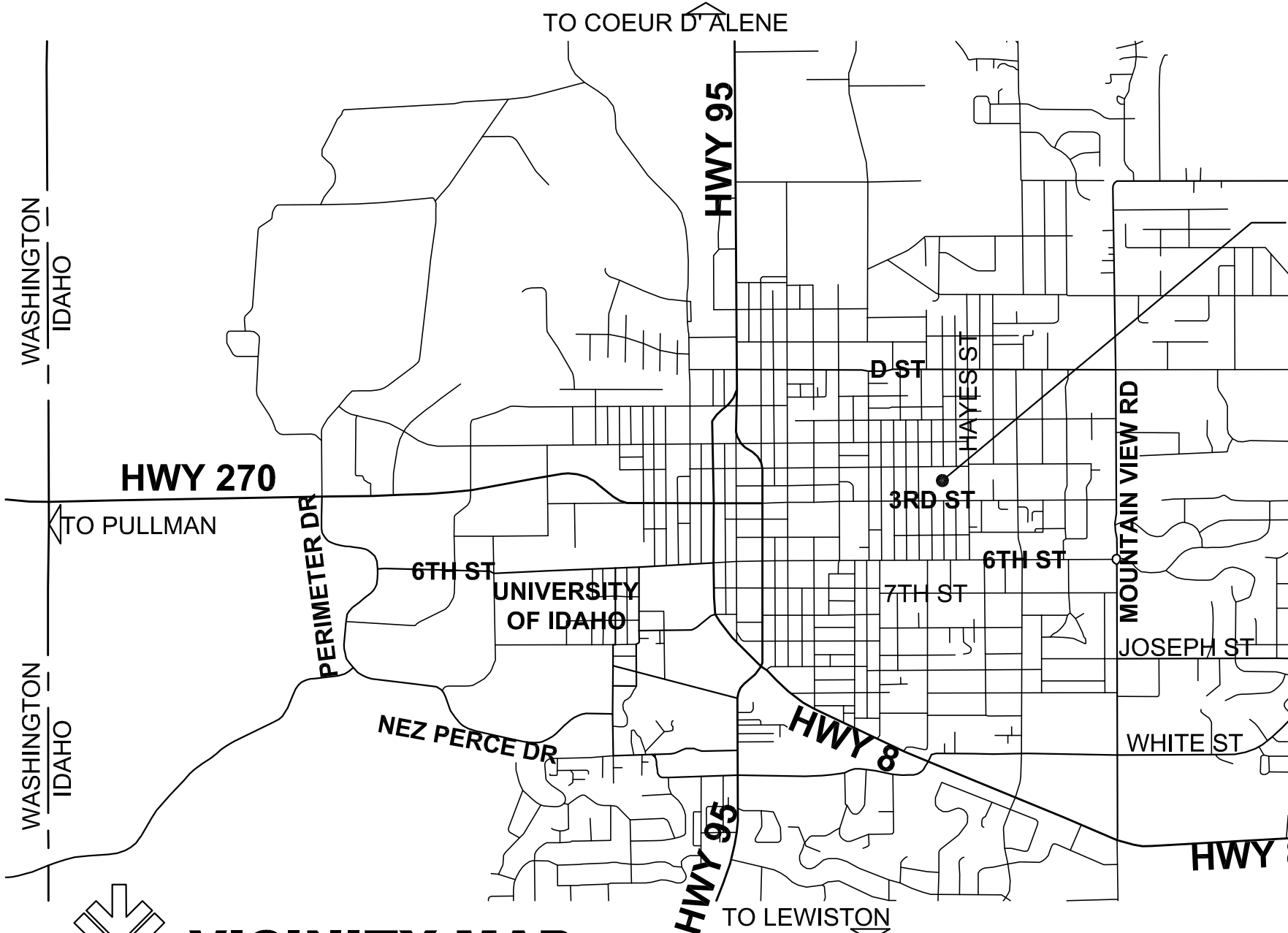
S1.01 GENERAL STRUCTURAL NOTES
S1.01 LEGEND & ABBREVS
S1.02 TYPICAL DETAILS
S1.03 TYPICAL DETAILS
S1.04 FLOOR / FDN PLAN
S3.30 ROOF FRAMING PLAN
S3.31 DETAILS
S4.01 DETAILS

ELECTRICAL:

E001 LEGENDS & ABBREVIATIONS
E002 GENERAL NOTES
E003 SCHEDULES AND SINGLE LINE
E100 ELECTRICAL - LIGHTING
E101 ELECTRICAL - POWER
E102 ELECTRICAL - SITE
E200 DETAILS

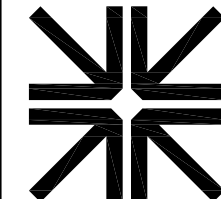
GENERAL NOTES

- CONTRACTOR TO VERIFY WITH UTILITIES EXACT LOCATION OF EXISTING UNDERGROUND SERVICES. CONTACT CALL BEFORE YOU DIG AT: (800) 342-1585
- ALL WORK SHALL COMPLY WITH THE REQUIREMENTS OF THESE DRAWINGS, THE SPECIFICATIONS, AND THE CURRENT EDITIONS OF THE IBC, UMC, UPC, IECC AND ALL CITY OF MOSCOW REGULATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL REQUIRED PERMITS AND PROVIDING ALL REQUIRED DOCUMENTATION FOR ISSUANCE OF PERMITS, INCLUDING ANY AND ALL ENGINEERING, STAMPED AND SIGNED BY REGISTERED PROFESSIONAL ENGINEERS IN THE STATE OF IDAHO APPROPRIATE TO THE DISCIPLINE.
- THE CONTRACTOR AGREES TO ASSUME SAFE AND COMPLETE RESPONSIBILITY FOR THE JOB SITE DURING THE COURSE OF THE PROJECT, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY. THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND THAT THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE ARCHITECT AND OWNER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR ARCHITECT, OR THIRD PARTY IN VIOLATION OF THE LAW OR IN TRESPASS. THE CONTRACTOR SHALL PRACTICE SAFETY AT ALL TIMES AND SHALL FURNISH, ERECT, AND MAINTAIN SUCH FENCES, BARRICADES, LIGHTS, AND SIGNS NECESSARY TO GIVE ADEQUATE PROTECTION TO THE PUBLIC AT ALL TIMES. THE ARCHITECT MAKES NO WARRANTY THAT THE CONSTRUCTION-PHASE FENCES, ETC., ARE ADEQUATE TO ENSURE SAFETY DURING CONSTRUCTION OPERATIONS.
- PLAN INTENT: THESE DRAWINGS REPRESENT EXISTING CONDITIONS (CONTRACTOR TO VERIFY ALL ACTUAL CONDITIONS), AND THE FINISHED FACILITIES AND UNLESS OTHERWISE INDICATED, THEY DO NOT SHOW THE METHOD OF CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PRODUCE THE FINISHED FACILITIES AND TO PROTECT THE WORK AND PROPERTY, THE SAFETY OF THE WORKERS, AND OTHER PERSONS DURING CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE ABOVE MEASURES AND VISITS TO THE SITE BY THE ARCHITECT SHALL NOT INCLUDE OBSERVATION OF SAFETY MEASURES.
- FIELD VERIFY ALL BUILDING POINTS OF CONNECTIONS AND HEIGHTS.



VICINITY MAP

DESIGN WEST
ARCHITECTS P.A.



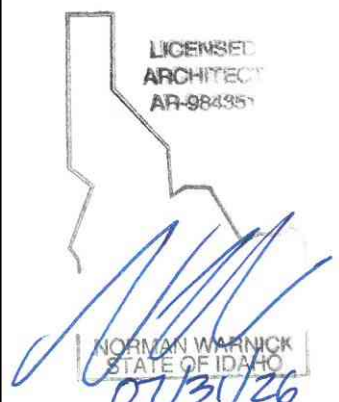
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• KENNEWICK, WASHINGTON • OREGON, OREGON •
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DRAWN BY
BE

CHECKED BY
NW

JOB NUMBER
24035

REVISIONS



MOSCOW EAST CITY PARK
STAGE REPLACEMENT

900 E 3RD STREET
MOSCOW, ID 83843

DATE

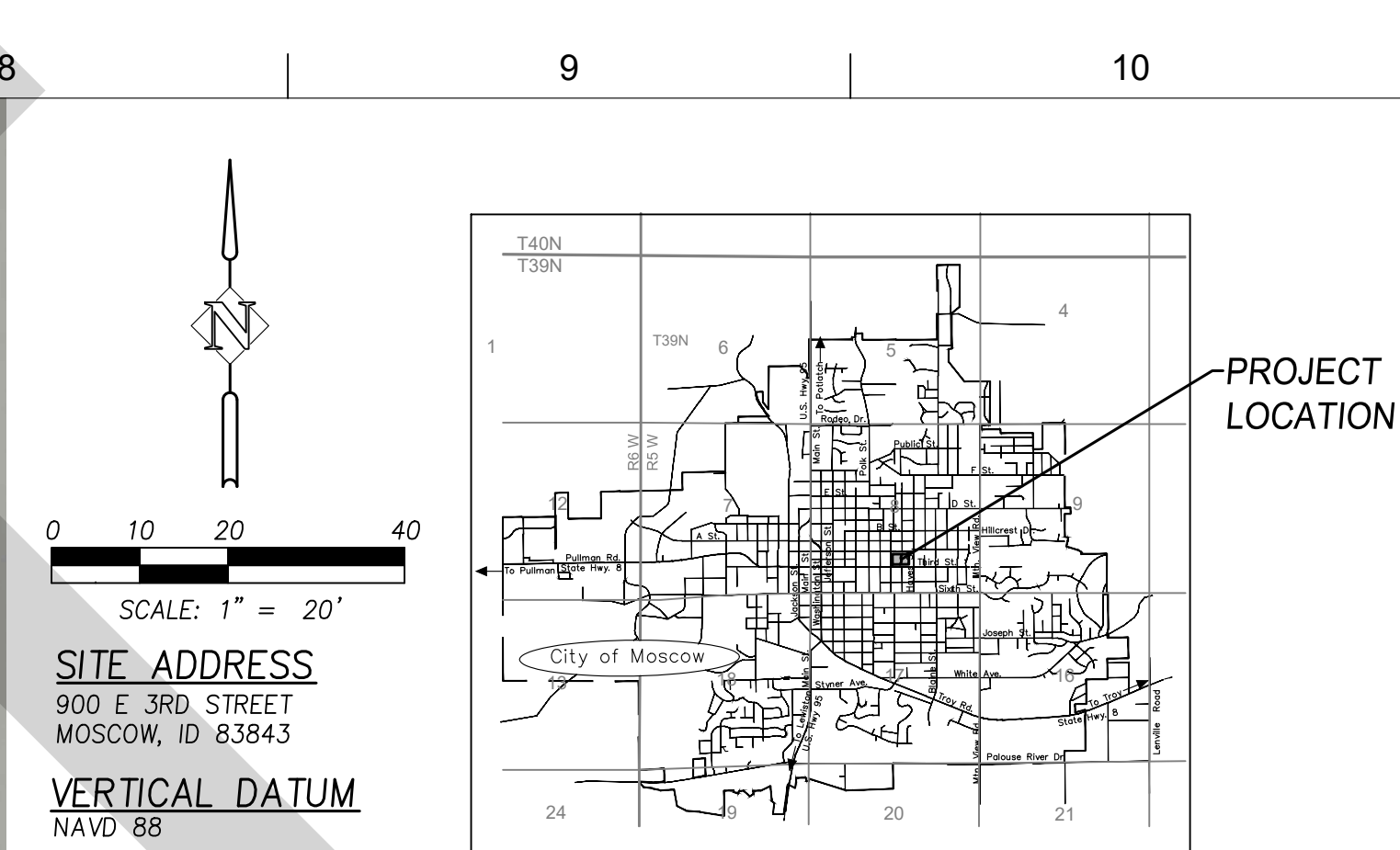
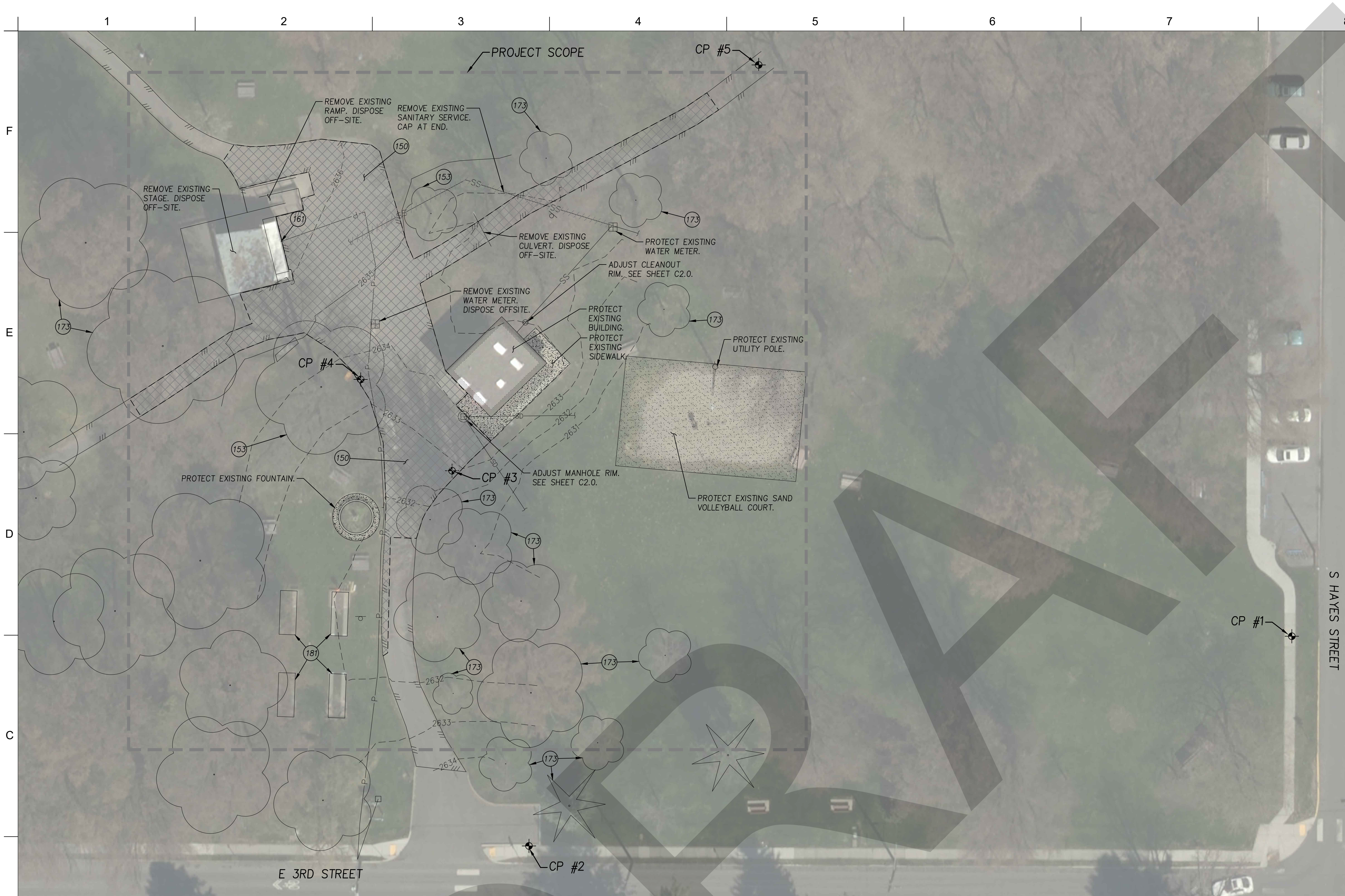
07/31/2026

SHEET NAME

COVER
SHEET

SHEET

G1.00



SITE ADDRESS
900 E 3RD STREET
MOSCOW, ID 83843

VERTICAL DATUM
NAVD 88

HORIZONTAL DATUM
NAD 83

ENGINEER
SYNTIER ENGINEERING, INC.
ATTN: SCOTT SUMNER, P.E., P.L.S.
805 N MAIN ST, STE 107
MOSCOW, ID 83843
TEL: 208.882.8776
CELL: 208.596.7912
E-MAIL: SCOTT@SYNTIERENGR.COM

IMPERVIOUS AREA
TOTAL IMPERVIOUS AREA WITHIN PROJECT SCOPE = 0.24 AC
REPLACED IMPERVIOUS AREA = 0.21 AC
NEWLY CREATED IMPERVIOUS AREA= 0 AC

DEMOLITION NOTES:

- (150) SAWCUT AND REMOVE ASPHALT, AND/OR CONCRETE SIDEWALK, DISPOSE OFF-SITE.
- (153) REMOVE EXISTING TREE.
- (161) DISCONNECT EXISTING POWER. SEE SHEET C2.0 FOR MORE INFORMATION.
- (173) PROTECT EXISTING TREE.
- (181) RELOCATE EXISTING HORSE SHOE PITS. COORDINATE LOCATION WITH CITY OF MOSCOW PARKS AND RECREATION.

PARKING STALL COUNT	
ADA	0
ADA VAN	1
STANDARD (EXCLUDING ADA)	2
COMPACT	0
REMOVED	0
TOTAL INCREASE IN PARKING	3

GENERAL NOTES

- THE CONTRACTOR SHALL HAVE AT ALL TIMES ON-SITE, THE APPROVED CONSTRUCTION DRAWINGS, CITY OF MOSCOW STANDARD SPECIFICATIONS & STANDARD DRAWINGS, AND ALL OTHER APPLICABLE SPECIFICATIONS BOOKS AND MANUALS. ELECTRONIC EQUIVALENT ARE ACCEPTABLE.
- ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THESE DRAWINGS AND THE APPLICABLE REQUIREMENTS OF THE CITY OF MOSCOW STANDARDS AND STANDARD CONSTRUCTION SPECIFICATIONS.
- A PRE-CONSTRUCTION CONFERENCE WITH THE CITY STAFF AND UTILITY AGENCIES IS REQUIRED BEFORE COMMENCING WORK.
- EXISTING UNDERGROUND UTILITIES SHOWN ON THESE DRAWINGS ARE NOT GUARANTEED ACCURATE OR COMPLETE. CALL 1-800-342-1585 FOR UTILITY LOCATES BEFORE BEGINNING CONSTRUCTION. ALL PER STATE LAW, EXISTING TOPOGRAPHIC INFORMATION SHOWN IS BASED ON SURVEY PERFORMED BY SYNTIER ENGINEERING.
- ALL CONSTRUCTION MUST COMPLY WITH THE MOST CURRENT STATE OF IDAHO STANDARDS FOR PUBLIC DRINKING WATER SYSTEMS.
- INFORM CITY AND OTHER INSPECTORS OF WORK SCHEDULES, INCLUDING WEEKENDS AND HOLIDAYS.
- CONTRACTOR RESPONSIBLE FOR NOTIFYING THE CITY FOR INSPECTIONS OF THE WORK, NO EXCEPTIONS. PHONE 1-208-883-7034. SEE CITY OF MOSCOW CONSTRUCTION STANDARDS FOR INSPECTION REQUIREMENTS.
- CONTRACTOR SHALL KEEP ALL EXISTING UTILITIES THAT ARE TO REMAIN, IN-SERVICE AND PROTECT THEM DURING CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR MEASUREMENTS AND QUANTITIES FOR THE WORK TO BE DONE.
- CONTRACTOR SHALL PROVIDE MATERIAL SUBMITTALS CERTIFYING THAT ALL MATERIALS COMPLY WITH OR EXCEED PLANS & SPECIFICATIONS.
- CONTRACTOR IS RESPONSIBLE FOR PROVIDING AS-BUILT DRAWINGS OF WATER, STORM, AND SANITARY SEWER SYSTEMS AND SERVICES, AT THE WYE/SADDLE AT THE MAIN, AT ANY AND ALL BENDS, AND AT THE PROPERTY LINE. A POINT FILE OR ALL SURVEYED POINTS SHALL BE PROVIDED TO THE CITY ALONG WITH THE REQUIRED AS-BUILTS PRIOR TO FINAL INSPECTION.
- EASEMENT DESCRIPTIONS TO BE FURNISHED BY THE DEVELOPER'S ENGINEER; EASEMENT DOCUMENTS TO BE PREPARED BY THE CITY.
- CONTRACTOR SHALL PROTECT ALL EXISTING PROPERTY CORNERS & MONUMENTS, ANY DAMAGE CAUSED BY THE CONSTRUCTION ACTIVITIES SHALL BE REMEDIED AT THE CONTRACTOR'S EXPENSE.
- CONTRACTOR SHALL SUBMIT CONCRETE MIX DESIGN FOR CITY APPROVAL.

PRIOR TO CONSTRUCTION ACTIVITIES

- INFORM CITY, AND OTHER INSPECTORS, OF WORK SCHEDULED FOR WEEKENDS OR HOLIDAYS. CONTRACTOR WILL BE BILLED FOR INSPECTIONS SCHEDULED FOR WEEKENDS OR HOLIDAYS.
- CONSTRUCT GRAVEL PADS AT ENTRANCES TO SITE, AS INDICATED ON PLAN.
- PLACE SILT FENCE AND CHECK DAMS AS INDICATED ON PLAN PRIOR TO ANY EXCAVATION OR EMBANKMENT WORK. IN GENERAL, CHECK DAMS SHALL BE PLACED AT MINIMUM 100 FOOT SPACING IN ALL SWALES AND DITCHES AND AT MINIMUM 50 FOOT SPACING ALONG SILT FENCE. ON SLOPES GREATER THAN 10% CHECK DAMS SHALL BE MADE OF ROCK, STRAW BALES, OR SILT FENCE, PER MOSCOW CITY STANDARDS.
- GRADE ACCESS ROAD(S) TO ROADWAY CROSS-SLOPE TO PROVIDE DRAINAGE TO ROADSIDE DITCHES.
- PLACE ALL SILT FENCING AND STRAW BALES TO PROTECT EXISTING STORM WATER DRAINAGE FACILITIES THAT WILL BE IMPACTED BY THIS WORK. PROTECT EXISTING FACILITIES ON ADJACENT PROPERTY, AS NECESSARY. EXISTING CATCH BASINS SHALL BE PROTECTED BY APPROPRIATE BEST MANAGEMENT PRACTICES. MAINTAIN UNIMPEDED FLOW INTO CATCH BASINS THROUGHOUT CONSTRUCTION.

EROSION CONTROL NOTES

- EROSION CONTROL MEASURES AS SET FORTH IN THIS PLAN SHALL APPLY TO ALL CONSTRUCTION ACTIVITIES RELATIVE TO THIS SITE, BUT NOT LIMITED TO, ALL EARTHWORK AND INSTALLATION OF PUBLIC IMPROVEMENTS.
- SHOULD THE CITY DETERMINE THAT THE EROSION CONTROL MEASURES INSTALLED AS INDICATED ON THIS EROSION CONTROL PLAN ARE INADEQUATE AND/OR INEFFECTIVE, THE CITY ENGINEER SHALL DIRECT THE IMPLEMENTATION OF ADDITIONAL EROSION CONTROL MEASURES (AT THE EXPENSE OF THE CONTRACTOR) TO ALLEVIATE INADEQUACIES.
- IT IS NECESSARY FOR ANY PROJECT LARGER THAN ONE ACRE IN SIZE TO HAVE A DEQ NOTICE OF INTENT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER A IPDES GENERAL PERMIT (NOI PHASE II) FORM ON FILE WITH THE IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY AT:
WWW2.DEQ.IDAHO.GOV/WATER/IPDES
- LEWISTON REGIONAL OFFICE
IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY
118 F ST
LEWISTON, ID, 83501
PHONE: (208) 799-4370

WHEN APPLICABLE, A STORMWATER CONSTRUCTION GENERAL PERMIT (CGP) AND A STORM WATER POLLUTION PREVENTION PLAN PERMITTING (SWPPP) ARE REQUIRED.

STORM DRAINAGE & SANITARY SEWER NOTES

- SANITARY AND STORM STUBS SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH CITY OF MOSCOW STANDARD DRAWING NO. 28; GREEN PVC PIPE FOR SANITARY STUBS WITH MARKER TAPE, WHITE PVC PIPE FOR STORM DRAIN STUBS WITH MARKER TAPE.
- CITY OF MOSCOW IS OPERATOR OF WATER AND SEWER FACILITIES SERVING THIS DEVELOPMENT.
- ALL TRENCH EXCAVATION AND BACKFILL COMPLY WITH OSHA STANDARDS, STRICTLY ENFORCED.
- ALL SATURATED, LOOSE, OR DISTURBED SOIL SHALL BE REMOVED FROM THE BOTTOM OF UTILITY TRENCHES PRIOR TO PLACEMENT OF PIPE BEDDING. PIPE BEDDING SHALL BE PLACED IN ACCORDANCE WITH CITY OF MOSCOW STANDARDS. PIPE MATERIALS SHALL BE AS FOLLOWS: WITHIN PUBLIC RIGHT-OF-WAY: SDR 35 PVC, (ASTM D-3034), WITH INTEGRAL GASKETED BELL AND SPIGOT JOINTS, FROM RIGHT-OF-WAY TO WITHIN 2' OF THE HOUSE: SDR 35 PVC, (ASTM D-3034), WITH INTEGRAL GASKETED BELL AND SPIGOT JOINTS OR SCHEDULE 40 ABS PLASTIC PIPE WITH GLUED FITTINGS.
- PRIOR TO TESTING AND INSPECTION OF STORM SYSTEM, ALL PARTS OF THE SYSTEM SHALL BE CLEANED OF ALL DEBRIS.
- TESTING OF STORM PIPING SHALL BE IN ACCORDANCE WITH CITY OF MOSCOW REQUIREMENTS.
- ALL ON-SITE STORMWATER FACILITIES SHALL BE PUBLICLY MAINTAINED.
- SANITARY SEWER PIPE SHALL BE PVC ASTM D3034, SDR35 OR CLASS 52 D.I.P. UNLESS SPECIFICALLY IDENTIFIED ON THE PLANS.
- STORM SEWER PIPE SHALL BE ADS PIPE.
- SEWER SERVICE LATERALS SHALL BE CONNECTED TO THE NEW MAINS WITH MANUFACTURED WYES. CONNECTION TO EXISTING MAINS REQUIRE ROMAC 'CB' SADDLES, OR EQUIVALENT. SEWER SERVICES SHALL CONNECT TO THE SANITARY SEWER MAIN AT A POINT ABOVE THE CENTERLINE OF THE PIPE.
- ALL PIPE CONNECTIONS AT MANHOLES SHALL BE CORED AND RUBBER BOOTED.
- CONTRACTOR SHALL COORDINATE ALL BUILDING SANITARY CONNECTIONS WITH PLUMBING PLANS PRIOR TO CONSTRUCTION.

SHEET INDEX

- 1 C1.0 EXISTING CONDITIONS & DEMO PLAN
- 2 C2.0 CIVIL PLAN
- 3 C3.0 DETAILS

PROJECT CONTROL POINT LIST

NO.	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1849163.357	2314085.331	2631.49	SET MAG NAIL
2	1849087.890	2313810.839	2636.51	SET MAG NAIL
3	1849222.945	2313783.157	2632.90	SET MAG NAIL
4	1849255.784	2313750.269	2633.53	SET MAG NAIL
5	1849368.987	2313893.4910	2639.41	SET MAG NAIL

UTILITY STATEMENT

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED AS ACCURATELY AS POSSIBLE FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. SYNTIER ENGINEERING, INC. MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. FURTHER, WE DO NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN EXACT LOCATION INDICATED, ALTHOUGH WE DO CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE.

UNDERGROUND SERVICE ALERT
ONE-CALL NUMBER
811
CALL TWO BUSINESS DAYS BEFORE YOU DIG

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SYNTIER
Engineering, Inc.
805 N Main Street, Suite 107 Moscow, ID 83843
www.syntierengr.com 208.882.8776

PROFESSIONAL ENGINEER
SCOTT A SUMNER
18186
STATE OF IDAHO
7/31/24

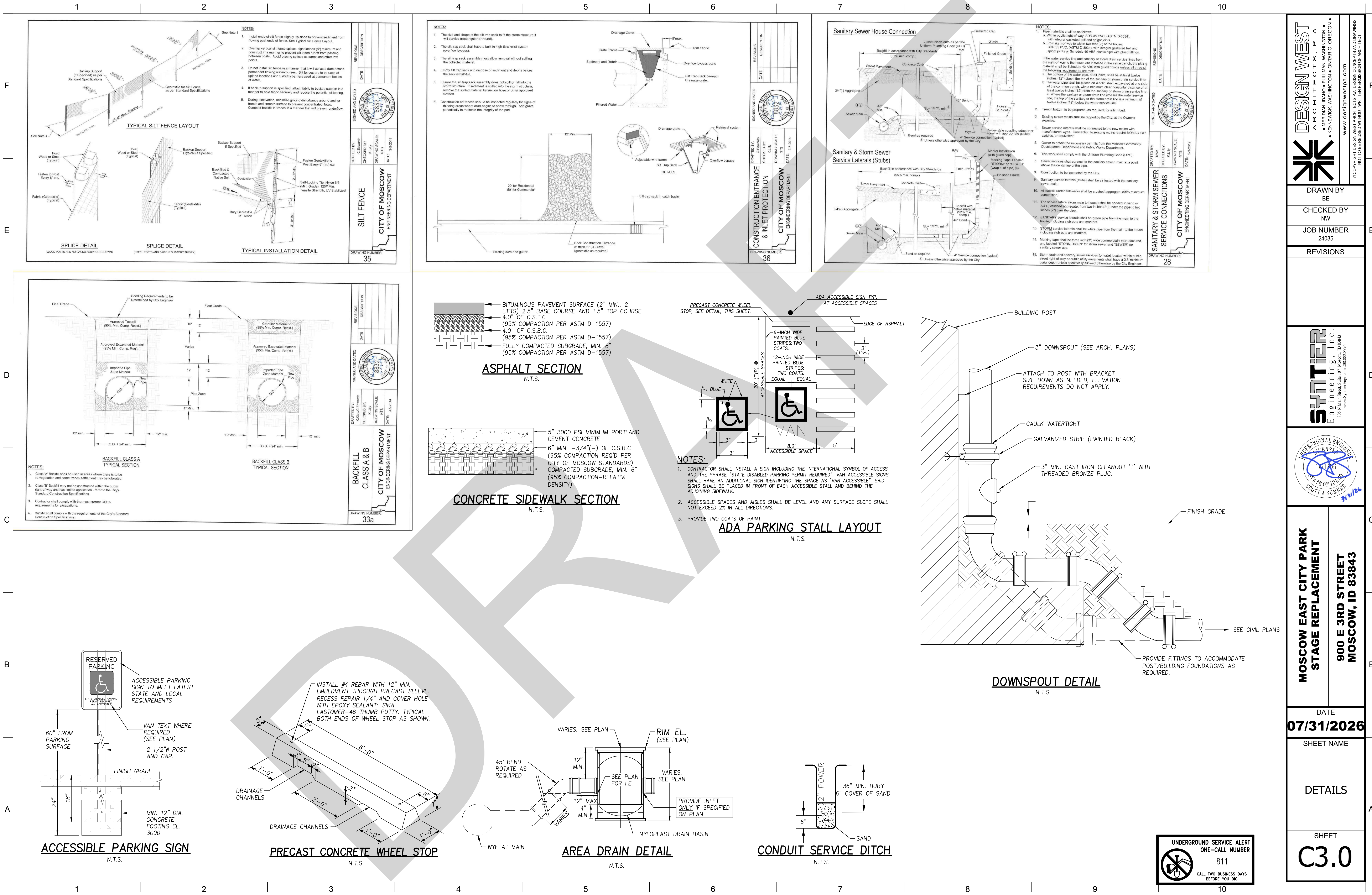
MOSCOW EAST CITY PARK
STAGE REPLACEMENT

900 E 3RD STREET
MOSCOW, ID 83843

DATE
07/31/2026

SHEET NAME
EXISTING CONDITIONS & DEMO PLAN

SHEET
C1.0



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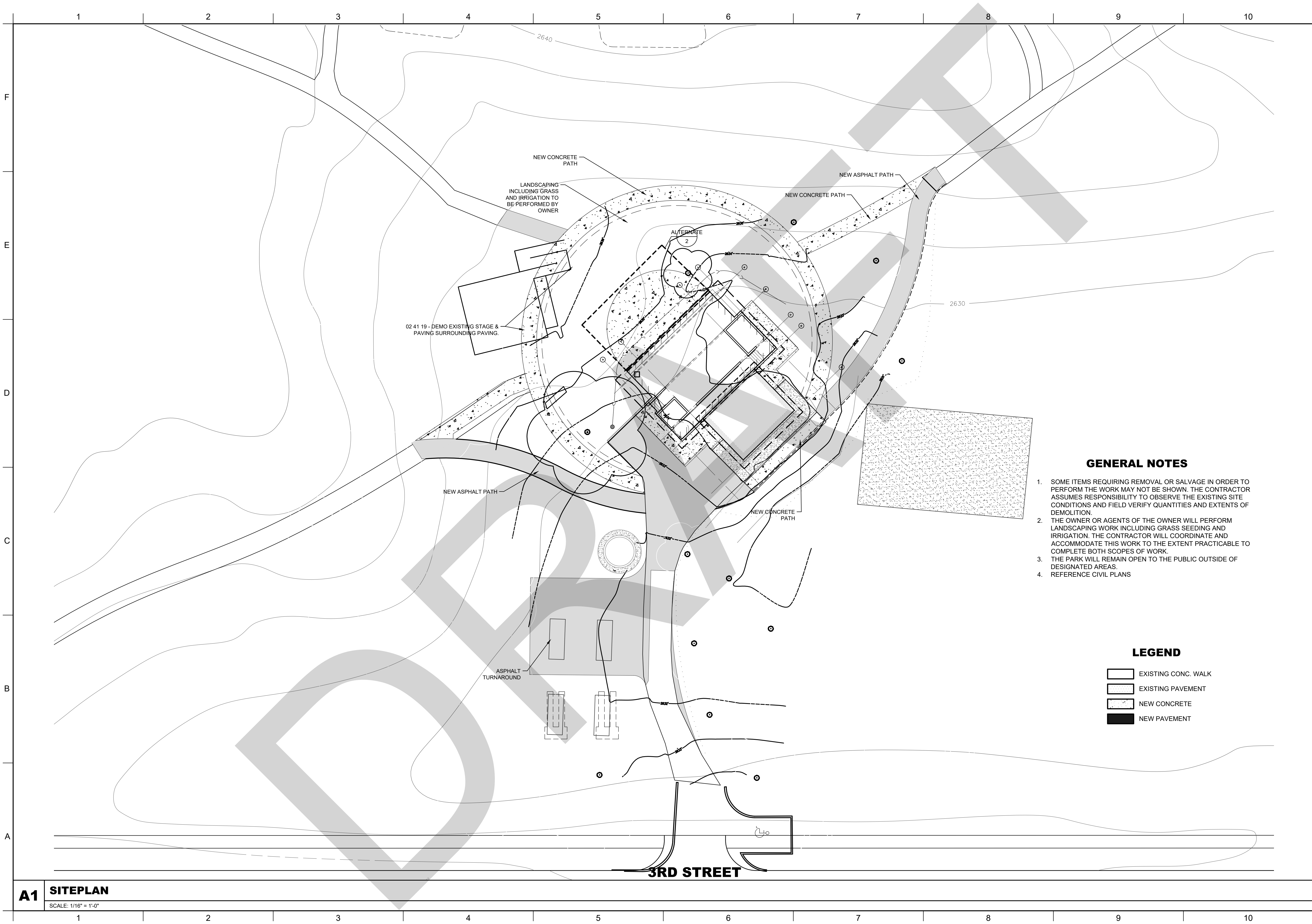
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JOB NUMBER
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REVISIONS

SYNTIER
Engineering, Inc.
www.syntiereng.com 206.262.5176

PROFESSIONAL ENGINEER
SCOTT A. SUMNER
14186
STATE OF IDAHO
3/1/24

MOSCOW EAST CITY PARK
STAGE REPLACEMENT
900 E 3RD STREET
MOSCOW, ID 83843
DATE
07/31/2026
SHEET NAME
DETAILS
SHEET
C3.0

Brian Edwards 7/31/2026 9:11:44 AM



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REVISIONS

LICENSEE
ARCHITECT
AR-88455
07/31/26

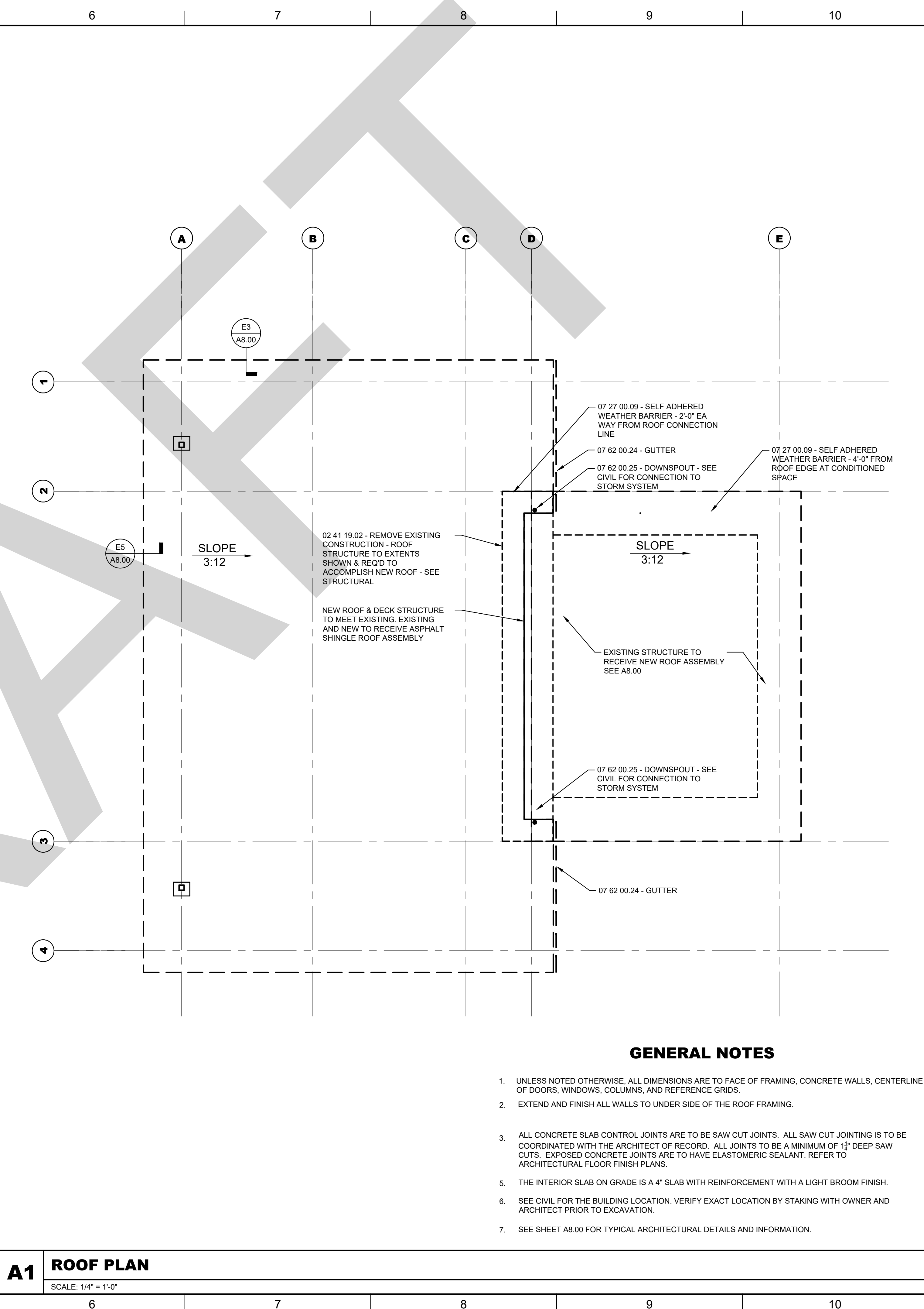
**MOSCOW EAST CITY PARK
STAGE REPLACEMENT**

**900 E 3RD STREET
MOSCOW, ID 83843**

DATE
07/31/2026

SHEET NAME
SITEPLAN

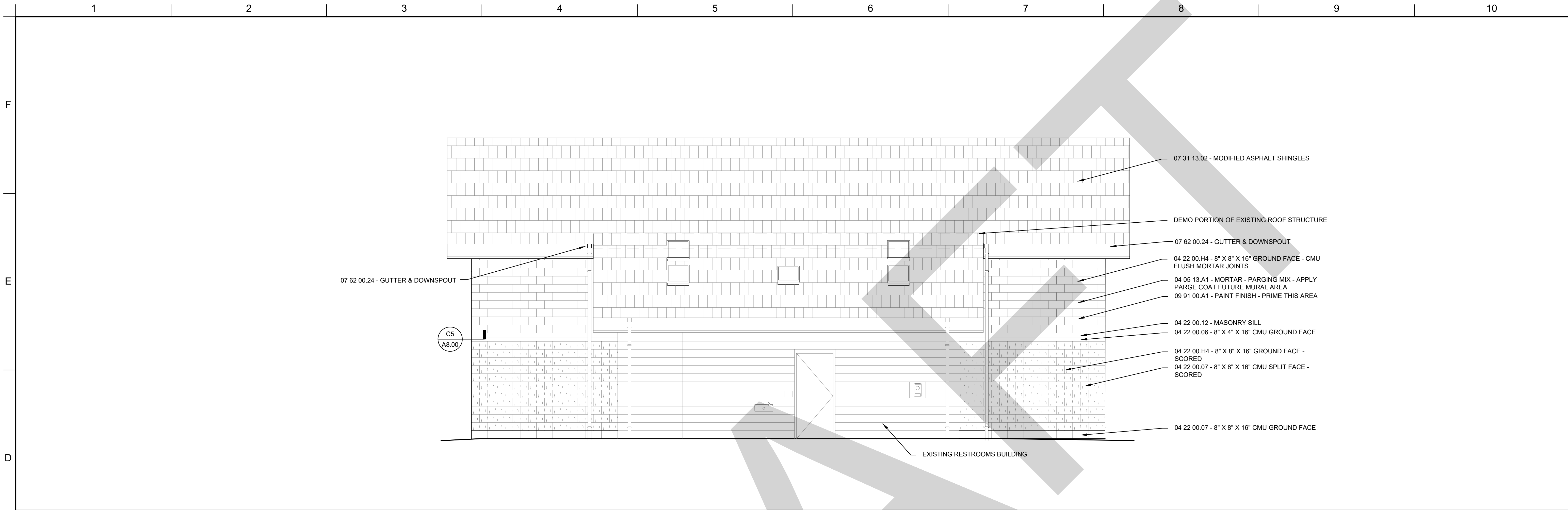
SHEET
A1.00



A3.30

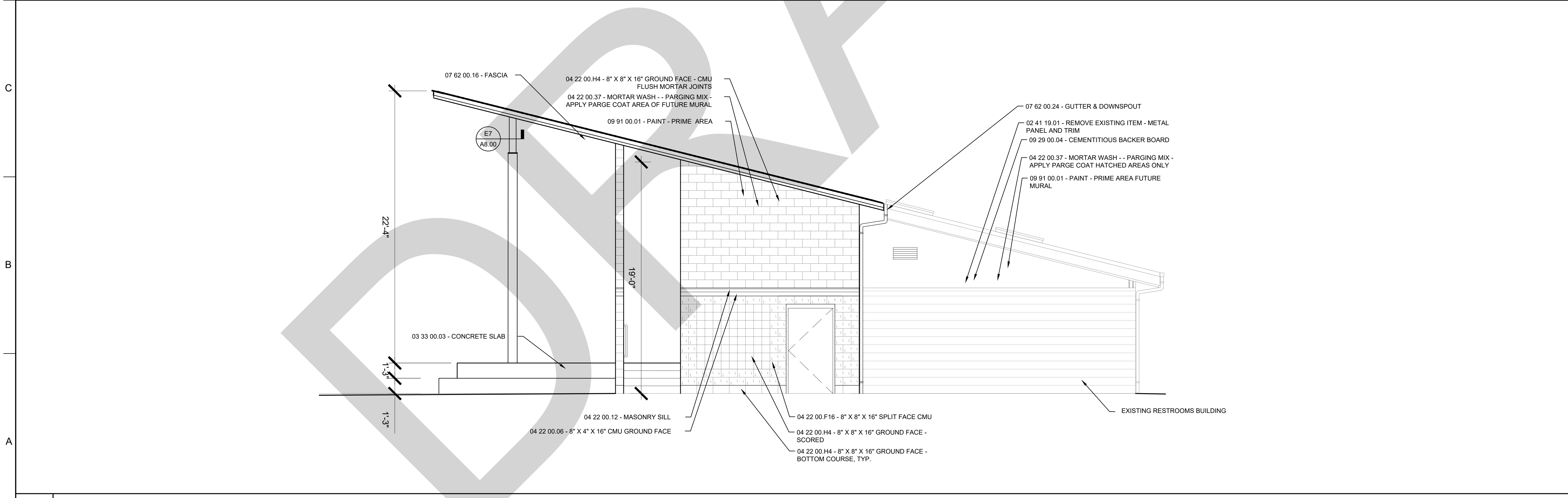
1. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE TO FACE OF FRAMING, CONCRETE WALLS, CENTERLINE OF DOORS, WINDOWS, COLUMNS, AND REFERENCE GRIDS.
2. EXTEND AND FINISH ALL WALLS TO UNDER SIDE OF THE ROOF FRAMING.
3. ALL CONCRETE SLAB CONTROL JOINTS ARE TO BE SAW CUT JOINTS. ALL SAW CUT JOINTING IS TO BE COORDINATED WITH THE ARCHITECT OF RECORD. ALL JOINTS TO BE A MINIMUM OF 1" DEEP SAW CUTS. EXPOSED CONCRETE JOINTS ARE TO HAVE ELASTOMERIC SEALANT. REFER TO ARCHITECTURAL FLOOR FINISH PLANS.
5. THE INTERIOR SLAB ON GRADE IS A 4" SLAB WITH REINFORCEMENT WITH A LIGHT BROOM FINISH.
6. SEE CIVIL FOR THE BUILDING LOCATION. VERIFY EXACT LOCATION BY STAKING WITH OWNER AND ARCHITECT PRIOR TO EXCAVATION.
7. SEE SHEET A8.00 FOR TYPICAL ARCHITECTURAL DETAILS AND INFORMATION.

Blair Edwards 7/30/2026 3:27:04 PM



D1 NORTH ELEVATION

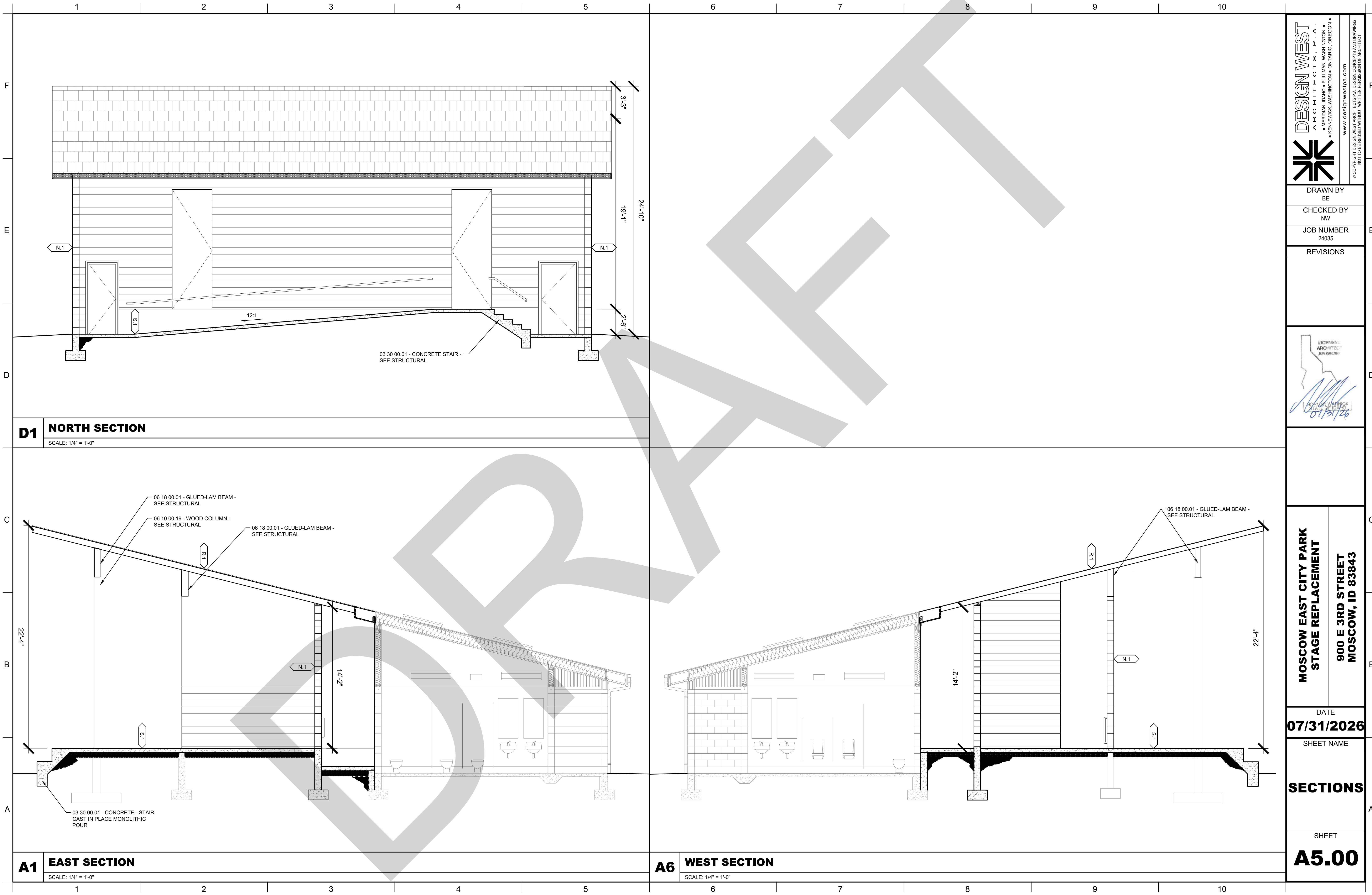
SCALE: 1/4" = 1'-0"



A1 EAST ELEVATION

SCALE: 1/4" = 1'-0"

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MOSCOW EAST CITY PARK STAGE REPLACEMENT	
900 E 3RD STREET MOSCOW, ID 83843	
DATE 07/31/2026	
SHEET NAME ELEVATIONS	
SHEET A4.00	



D1 NORTH SECTION

SCALE: 1/4" = 1'-0"

A1 EAST SECTION

SCALE: 1/4" = 1'-0"

A6 WEST SECTION

SCALE: 1/4" = 1'-0"

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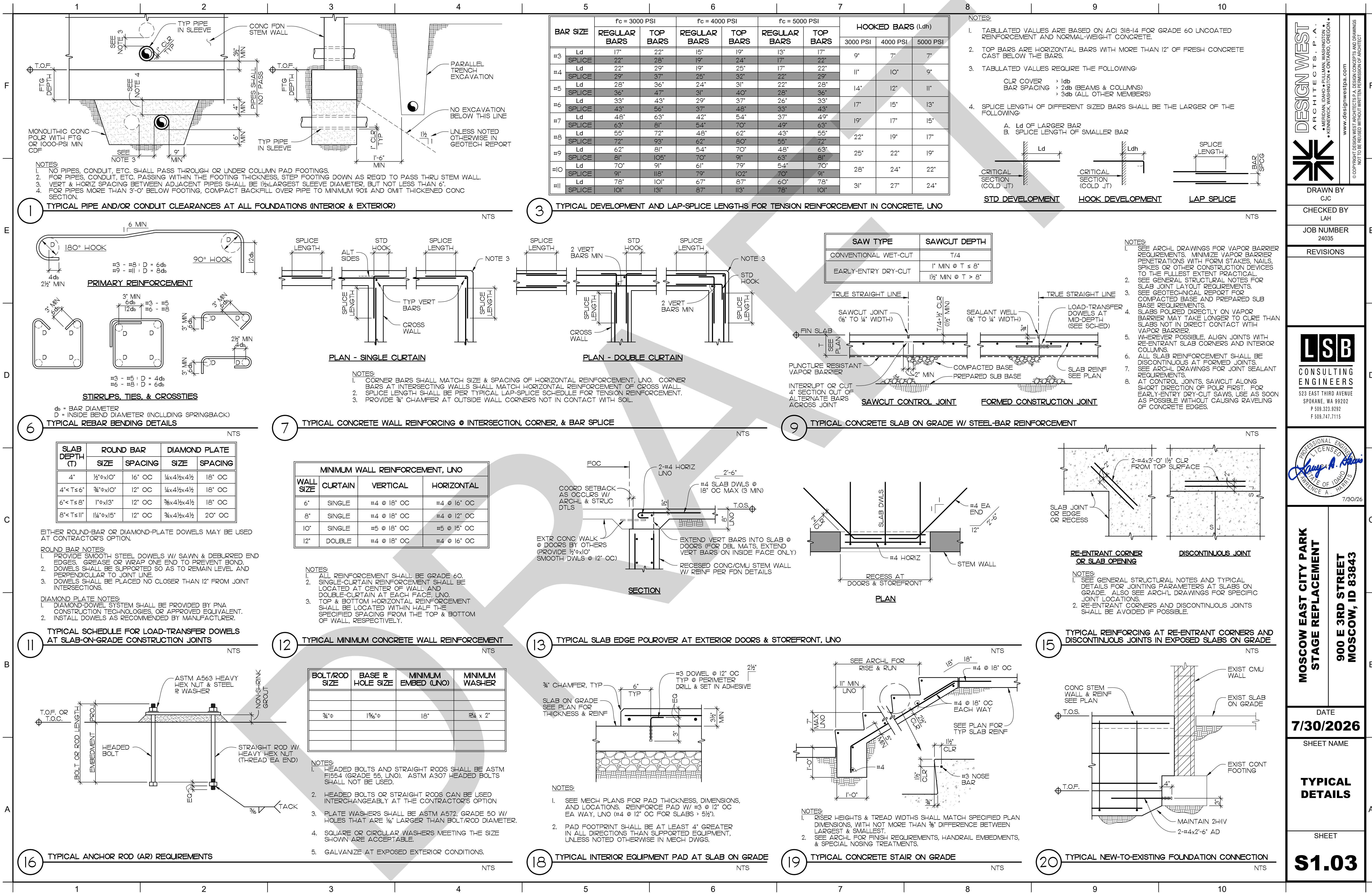
**MOSCOW EAST CITY PARK
STAGE REPLACEMENT**
**900 E 3RD STREET
MOSCOW, ID 83843**

DATE
07/31/2026

SHEET NAME

SECTIONS

SHEET
A5.00



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DRAWN BY
CJC

CHECKED BY
LAH

JOB NUMBER
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CONSULTING
ENGINEERS
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SPOKANE, WA 99202
P 509.323.9292
F 509.747.7115

PROFESSIONAL ENGINEER
LICENSED
JAMES A. SHAW
STATE OF IDAHO
EXPIRATION DATE 12/31/2026
7/30/26

MOSCOW EAST CITY PARK
STAGE REPLACEMENT

900 E 3RD STREET
MOSCOW, ID 83843

DATE
7/30/2026

SHEET NAME
TYPICAL
DETAILS

SHEET
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NO. 1 FEB 83

23 EAST THIRD AVENUE
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P 509.323.9292
F 509.747.7115



MOSCOW EAST CITY PARK STAGE REPLACEMENT

900 E 3RD STREET
MOSCOW ID 83843

DATE _____

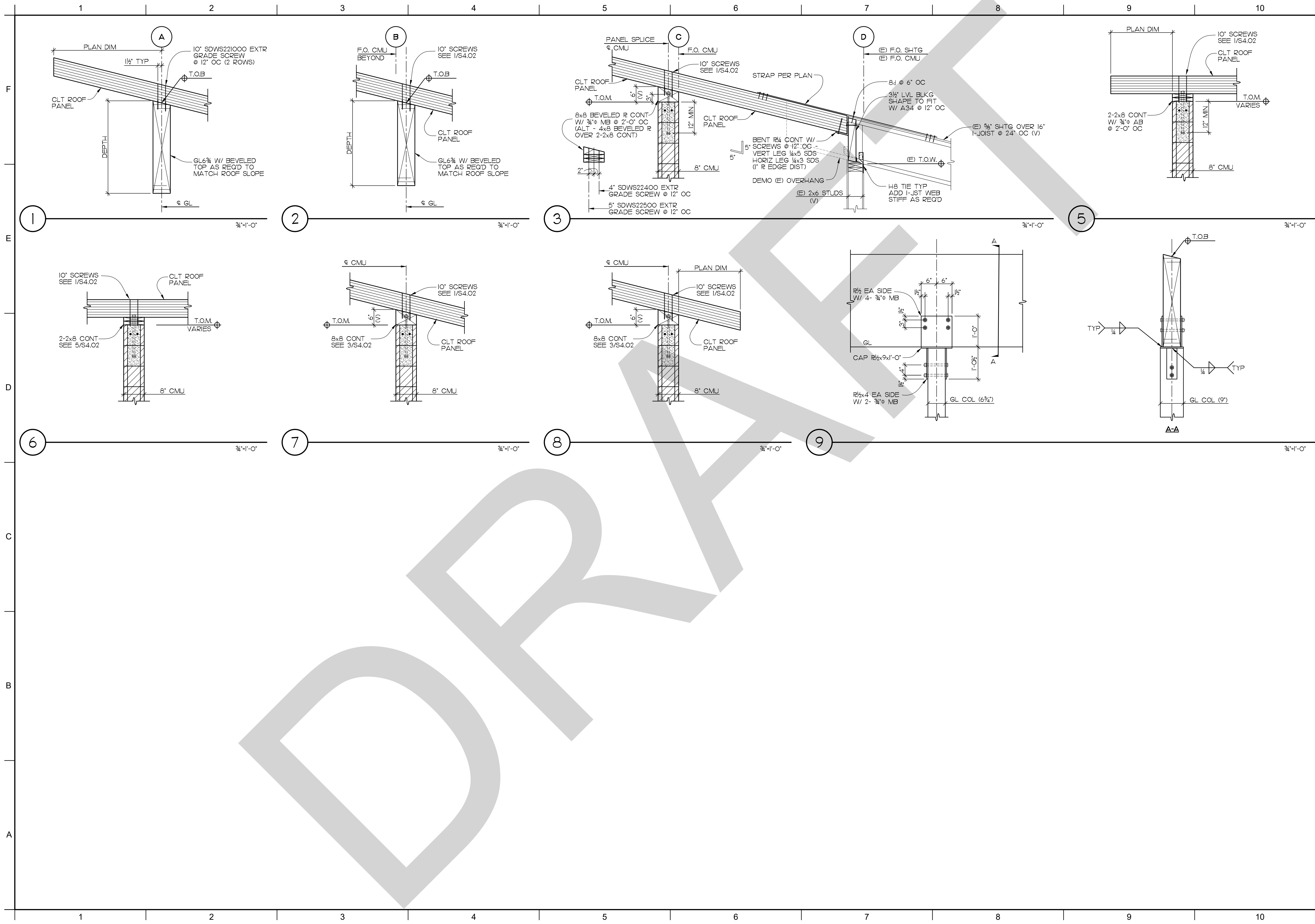
30/2026

SHEET NAME

ROOF FRAMING PLAN

SHEET

53.31



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LSB CONSULTING ENGINEERS 523 EAST THIRD AVENUE SPOKANE, WA 99202 P 509.323.9292 F 509.747.7115	
MOSCOW EAST CITY PARK STAGE REPLACEMENT	900 E 3RD STREET MOSCOW, ID 83843
DATE 7/30/2026	
SHEET NAME DETAILS	
SHEET S4.02	

F

E

D

C

B

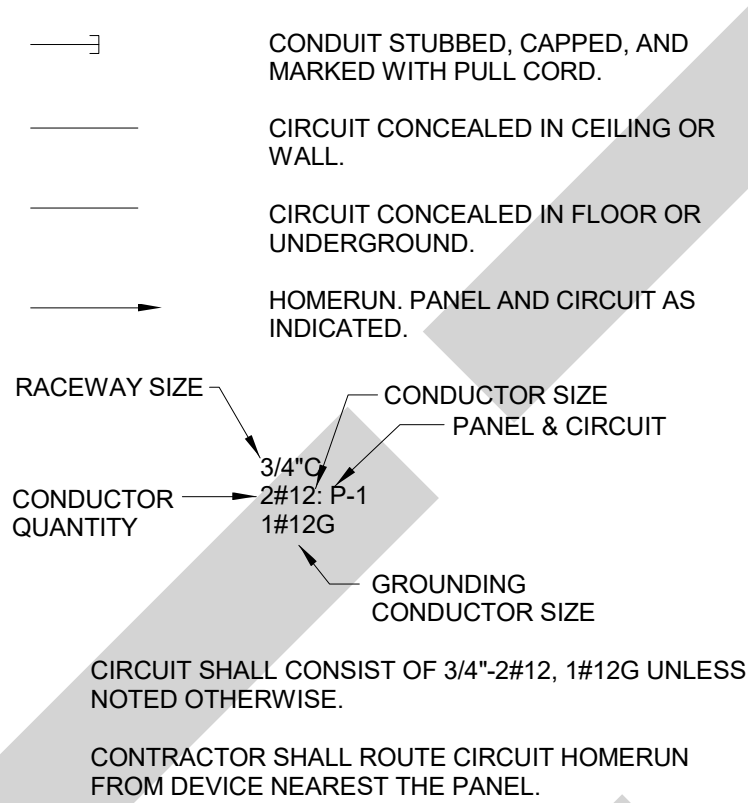
A

ABBREVIATIONS

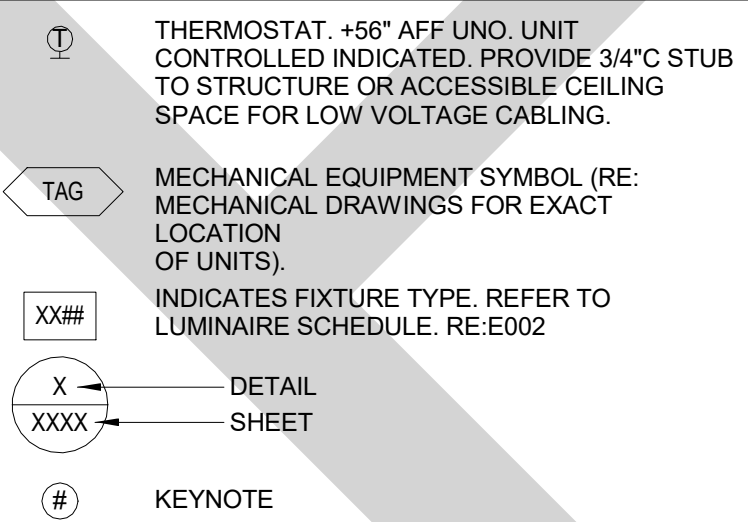
(E) EXISTING	M MAGNETIC CONTACTOR COIL
(D) DEMOLISH	MAU MAKEUP AIR UNIT
(F) FUTURE	MAX MAXIMUM
(R) RELOCATED	MB MAIN BREAKER
(RE) REPLACED	MCA MINIMUM CIRCUIT AMPACITY
A AMPERES	MCB MAIN CIRCUIT BREAKER
AC ABOVE COUNTER	MCC MOTOR CONTROL CENTER
ADA AMERICANS WITH DISABILITIES ACT	MM THOUSAND CIRCULAR MILS
AF AMPERE FRAME	MCP MOTOR CIRCUIT PROTECTOR
AFC AVAILABLE FAULT CURRENT	MFR MANUFACTURER
AFF ABOVE FINISHED FLOOR	MH MANHOLE
AFG ABOVE FINISHED GRADE	MIN MINIMUM
AHJ AUTHORITY HAVING JURISDICTION	MISC MISCELLANEOUS
AIC AMPERES INTERRUPTING CAPACITY (SYMMETRICAL)	MLO MAIN LUGS ONLY
AS AMP SWITCH	MOCP MAXIMUM OVERCURRENT PROTECTION
AT AMP TRIP	MS MOTOR STARTER
ATS AUTOMATIC TRANSFER SWITCH	MTD MOUNTED
AVG AVERAGE	MW MICROWAVE
AWG AMERICAN WIRE GAUGE	N NEUTRAL
BAS BUILDING AUTOMATION SYSTEM	NC NORMALLY CLOSED
BFG BELOW FINISHED GRADE	NCL NON CRITICAL LOAD
BMS BUILDING MANAGEMENT SYSTEM	NEC NATIONAL ELECTRICAL CODE
C CONDUIT	NEMA NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
CB CIRCUIT BREAKER	NIC NOT IN CONTRACT
CKT CIRCUIT	NO NORMALLY OPEN
CL CRITICAL LOAD	NTS NOT TO SCALE
CM CEILING MOUNTED	OFCI OWNER FURNISHED CONTRACTOR INSTALLED
CO CONDUIT ONLY, PROVIDE PULL-LINE	OL OVERLOAD
CT CURRENT TRANSFORMER	OS OCCUPANCY SENSOR
DC DIRECT CURRENT	P POLE
DET DETAIL	PC PHOTOCELL
DISC DISCONNECT	PVC POLYVINYL CHLORIDE
E EMERGENCY/CRITICAL CARE	RCP REFLECTIVE CEILING PLAN
EF EXHAUST FAN	RCPT RECEPTACLE
EMT ELECTRICAL METALLIC TUBING	REF REFRIGERATOR
ENT ELECTRICAL NON-METALLIC TUBING	RE: REFER TO
EPO EMERGENCY POWER OFF	RGS RIGID GALVANIZED STEEL
EWC ELECTRIC WATER COOLER	RIB RELAY IN A BOX
EWB ELECTRIC WATER HEATER	SER SERVICE ENTRANCE RATED
F FUSE	SF SQUARE FOOT
FA FIRE ALARM	SPD SURGE PROTECTION DEVICE
FACP FIRE ALARM CONTROL PANEL	SPST SINGLE POLE SINGLE THROW
FLA FULL LOAD AMPS	TC TIME CLOCK
FSD FIRE SMOKE DAMPER	TDR TIME DELAY RELAY
FVNR FULL VOLTAGE NON-REVERSING	TJB TERMINAL JUNCTION BOX
G GROUND	TK TOE KICK
GND GROUND	TP TWISTED PAIR
GFI GROUND FAULT INTERRUPTION	TT TWISTED TRIAD
GFCI GROUND FAULT CIRCUIT INTERRUPTION	TSP TWISTED SHIELDED PAIR
GFP GROUND FAULT PROTECTION	TST TWISTED SHIELDED TRIAD
H HEAT	TTB TELEPHONE TERMINAL BOARD
HH HANDHOLE	TVSS TRANSIENT VOLTAGE SURGE SUPPRESSER
HID HIGH INTENSITY DISCHARGE	TYP TYPICAL
HOA HAND OFF AUTO	UH UNIT HEATER
HP HORSE POWER	UNO UNLESS NOTED OTHERWISE
HVAC HEATING, VENTILATING, & AIR CONDITIONING	UPS UNINTERRUPTIBLE POWER SYSTEM/SUPPLY
IC INTERRUPTING CAPACITY	USB UNIVERSAL SERIAL BUS
ID IN-DUCT/INTER-DUCT	USB-C UNIVERSAL SERIAL BUS TYPE C
IG ISOLATED GROUND	V VOLT
JJB JUNCTION BOX	VA VOLT AMPERE
KVA KILOVOLT AMPERES	WG PROVIDE PROTECTIVE WIRE GUARD
KW KILOWATT	WU WHILE IN USE
KWH KILOWATT HOUR	WP WEATHER PROOF/NEMA 3R
LF LINEAR FEET	XFMR TRANSFORMER
LTG LIGHTING	
LTS LIGHTS	

NOTE:
SYMBOLS AND ABBREVIATIONS ON THE DRAWINGS ARE TO BE INTERPRETED IN ACCORDANCE WITH THE LEGENDS ON THIS SHEET. NOT ALL SYMBOLS AND ABBREVIATIONS INDICATED ON THIS SHEET ARE NECESSARILY USED FOR THIS PROJECT.

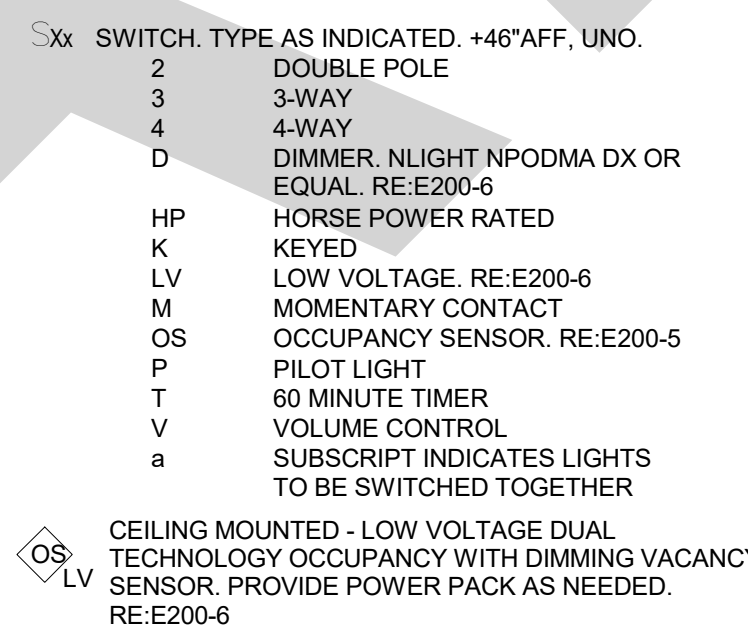
CIRCUITING SYMBOLS



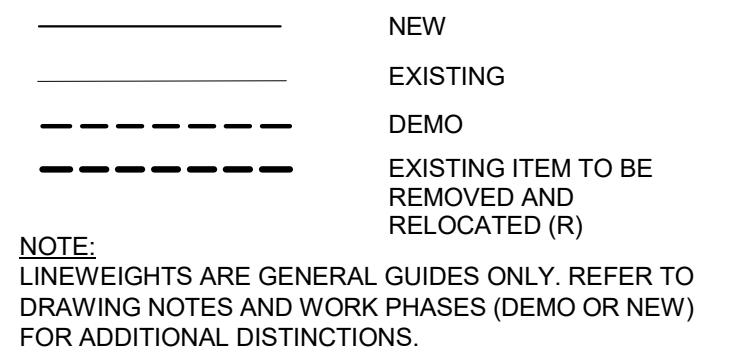
MISC. SYMBOLS



SWITCHES



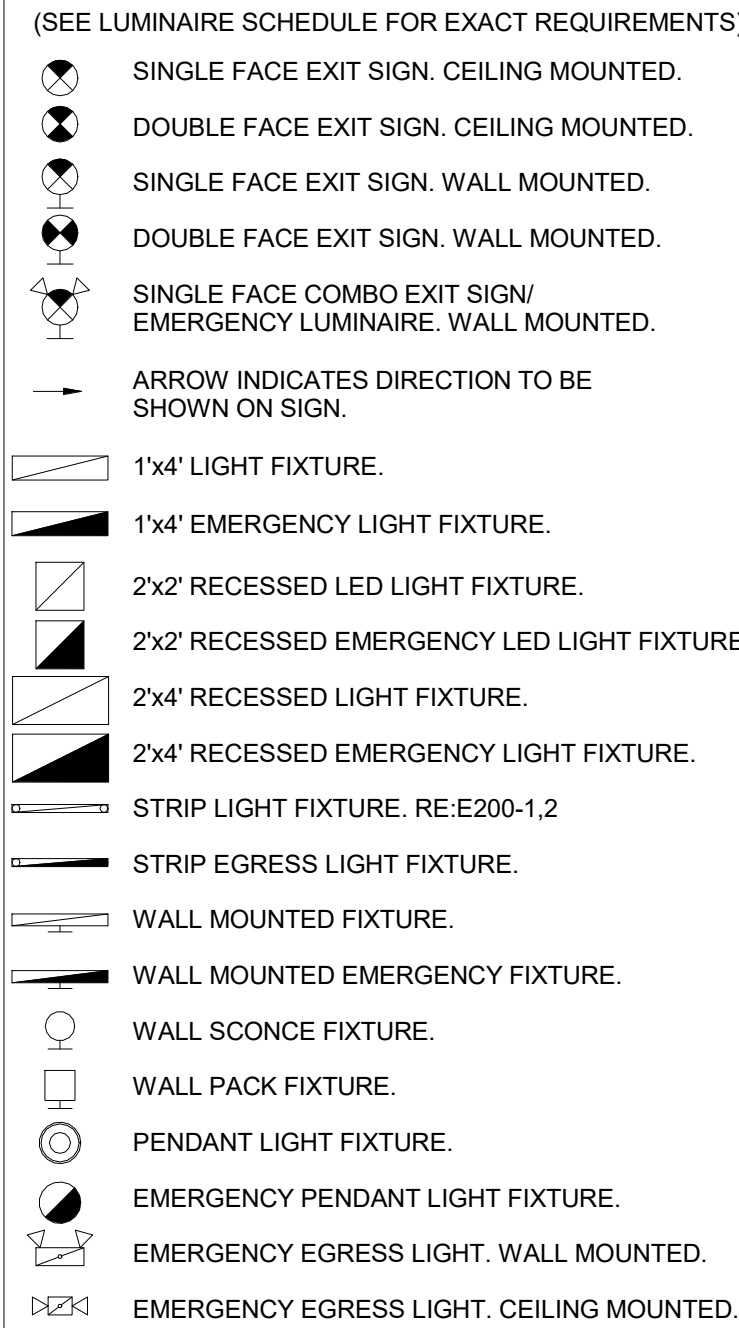
LINEWEIGHT LEGEND



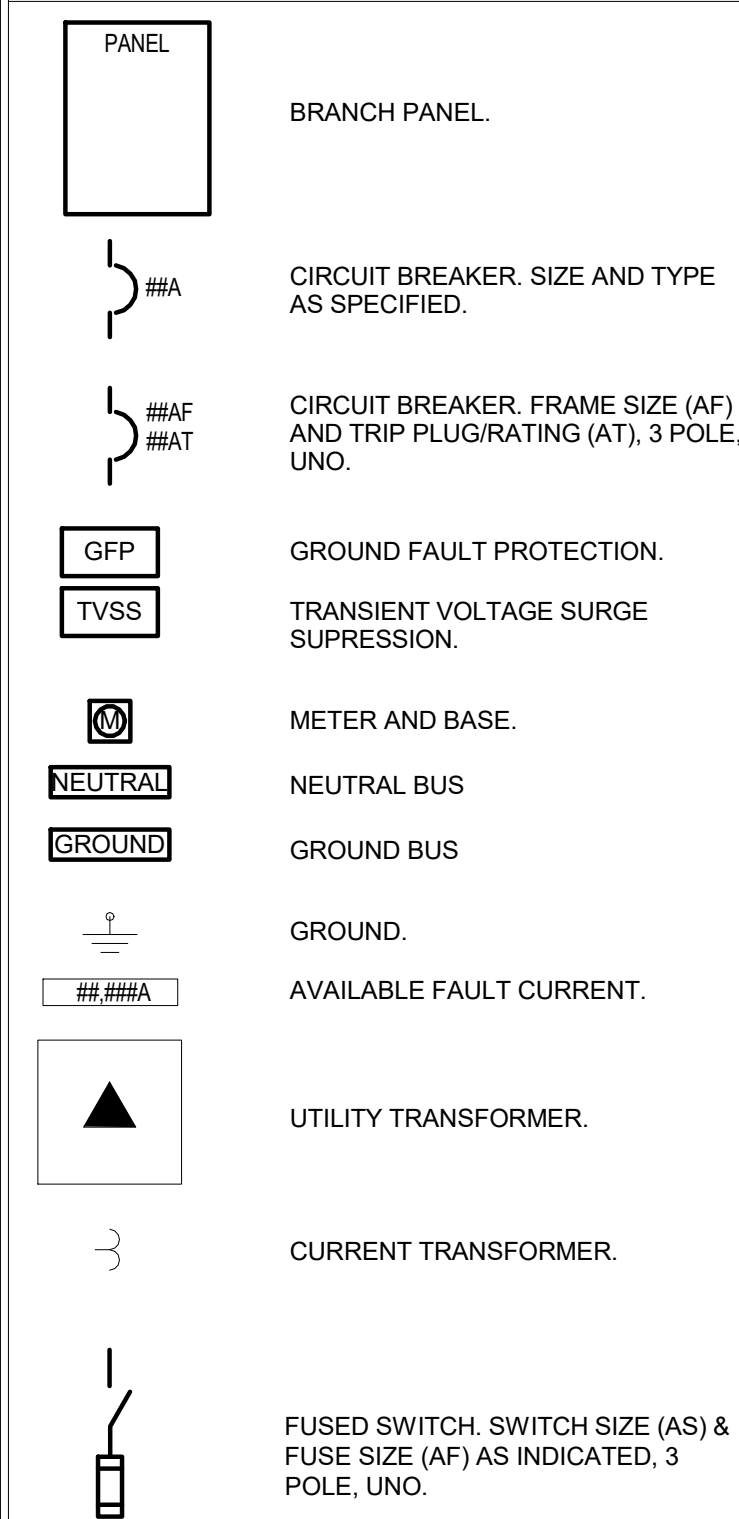
POWER SYMBOLS

TYPE OF DEVICE					DESCRIPTION
STANDARD	WITH GFCI	HALF SWITCHED	WITH USB	WITH ISOLATED GND	
					SIMPLEX NEMA 5-20A OUTLET. +18" AFF UNO.
					SIMPLEX NEMA 5-20A OUTLET. MTD ABOVE COUNTER UNO.
					DUPLEX NEMA 5-20A OUTLET. +18" AFF UNO.
					DUPLEX NEMA 5-20A OUTLET. MTD ABOVE COUNTER UNO.
					DUPLEX NEMA 5-20A OUTLET. FLUSH FLOOR MTD WITH BRASS COVER PLATE UNO.
					DUPLEX NEMA 5-20A OUTLET. CEILING MTD UNO.
					FOURPLEX NEMA 5-20A OUTLET. +18" AFF UNO.
					FOURPLEX NEMA 5-20A OUTLET. MTD ABOVE COUNTER UNO.
					FOURPLEX NEMA 5-20A OUTLET. FLUSH FLOOR MTD WITH BRASS COVER PLATE UNO.
					FOURPLEX NEMA 5-20A OUTLET. CEILING MTD UNO.
					CONNECTION POINT TO EQUIPMENT SPECIFIED, FURNISHED, AND INSTALLED UNDER OTHER SECTIONS. ELECTRICAL CONTRACTOR TO SUPPLY RACEWAY AND CONDUCTORS AND MAKE FINAL CONNECTION TO EQUIPMENT. VERIFY SIZE AND TYPE WITH EQUIPMENT SUPPLIER.
					MOTOR STARTER/CONTACTOR.
					COMBINATION STARTER AND DISCONNECT.
					NON-FUSED DISCONNECT SWITCH. SIZE AS INDICATED, NEMA 1 UNO, 3 POLE UNO.
					FUSED DISCONNECT SWITCH. SIZE AS INDICATED, NEMA 1 UNO, 3 POLE UNO.
					FLOOR MOUNTED JUNCTION BOX WITH POWERED CONNECTION
					JUNCTION BOX.
					JUNCTION BOX, WALL MOUNTED.
					SURFACE MOUNTED PANELBOARD/ENCLOSURE. SEE SCHEDULE FOR TYPE.
					FLUSH MOUNTED PANELBOARD/ENCLOSURE. SEE SCHEDULE FOR TYPE.

LIGHTING



ONE LINE



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LICENSED
15383
STATE OF IDAHO
BENJAMIN M. JEWITT

MOSCOW EAST CITY PARK
STAGE REPLACEMENT
900 E 3RD STREET
MOSCOW, ID 83843

DATE
7/31/2026

SHEET NAME
LEGENDS &
ABBRE-
VIATIONS

SHEET
E001

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F											
E											
D											
C											
B											
A											
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GENERAL NOTES

- REFER TO SPECIFICATIONS AND ALL OTHER DIVISION DOCUMENTS FOR ADDITIONAL REQUIREMENTS.
- ALL ELECTRICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, INTERNATIONAL FIRE CODE, AND ALL OTHER STATE AND LOCAL CODES. CONTRACTOR SHALL IMMEDIATELY NOTIFY ENGINEER IN WRITING IF PORTIONS OF THE DESIGN SET OR FIELD CONDITIONS DO NOT MEET REQUIRED CODES.
- ALL DRAWINGS ARE SCHEMATIC IN NATURE. FURNISH AND INSTALL A COMPLETE ELECTRICAL SYSTEM AS DEPICTED FROM THE PLANS AND SPECIFICATIONS. ALL APPURTENANCES NOT INDICATED TO MAKE A WORKING SYSTEM MUST BE INCLUDED IN THE CONTRACTOR'S BID. IF THERE APPEARS TO BE ANY ITEMS IN CONFLICT WITH THE DRAWINGS, INCONSISTENCIES WITH DESIGN OR INTENT, OR NEED FOR CLARIFICATION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CLARIFY THESE ITEMS PRIOR TO BID IN WRITING WITH THE ENGINEER. IF THE CONTRACTOR FAILS TO CLARIFY ANY QUESTIONS OR INCONSISTENCY, HE ACCEPTS RESPONSIBILITY TO CORRECT AT HIS COST ANY SUCH ITEM TO MEET INTENT AS DEFINED BY THE ENGINEER.
- LOCATIONS OF ALL DEVICES ARE SHOWN SCHEMATICALLY. COORDINATE WITH THE ARCHITECTURAL DRAWINGS, REFLECTED CEILING PLANS, ELEVATIONS, CASEWORK, AND SUPPLIER'S SHOP DRAWINGS FOR EXACT LOCATION PRIOR TO ROUGH-IN.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WORK WITH OTHER TRADES.
- ELECTRICAL CONTRACTOR SHALL ARRANGE ALL INSPECTIONS AND PAY ALL FEES. SUBMIT COPY OF FINAL INSPECTION REPORT TO THE OWNER.
- SEAL ALL PENETRATIONS IN FIRE RATED WALLS, FLOORS, AND CEILINGS WITH A U.L. APPROVED FIRE STOP SYSTEM. THIS INCLUDES BUT IS NOT LIMITED TO ELECTRICAL DEVICE, RACEWAY, AND CABLE PENETRATIONS. COORDINATE WITH ARCHITECTURAL PLANS FOR ALL FIREWALL LOCATIONS/DESIGNATIONS.
- ALL RECESSED LIGHTING FIXTURES, SPEAKERS, RECEPTACLES, SWITCHES, ETC. MOUNTED IN THE FIRE RATED CEILINGS OR WALL SHALL BE ENCLOSED WITH AN APPROVED ENCLOSURE CARRYING THE SAME FIRE RATING AS THE CEILING OR WALLS BY THIS CONTRACTOR. ALL FIRE RATED WALLS TO MAINTAIN ORIGINAL FIRE RATINGS.
- ALL WIRING DEVICES SHALL BE OF THE SAME MANUFACTURER AND SHALL MATCH THROUGHOUT. VERIFY WITH SPECIFICATIONS AND OWNER/ARCHITECT FOR DEVICE COLOR(S) & FINISHES.
- COLOR CODE WIRES AS FOLLOWS:

CONDUCTORS	120/240V
PHASE A	BLACK
PHASE B	RED
NEUTRAL	WHITE
GROUND	GREEN
- ALL WIRE SIZE #8 OR LARGER SHALL BE STRANDED TYPE THHN/THWN, ALL WIRE #10 OR SMALLER TO BE SOLID TYPE.
- PROVIDE A GROUND CONDUCTOR IN ALL RACEWAYS.
- WHERE APPLICABLE, PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT.
- NUMBER ADJACENT TO LIGHT FIXTURE INDICATES PANEL AND POLE CIRCUIT POSITION TO WHICH DEVICE/CEILING SHALL BE CIRCUITED. PROVIDE MINIMUM #12 AWG & #12 AWG GND CU IN 3/4" UNLESS NOTED OTHERWISE. CONDUCTORS AND GROUND TO BE INCREASED TO #10 AWG FOR CIRCUIT LENGTHS GREATER THAN 100'.
- PROVIDE MINIMUM 220 LB PULL STRING IN ALL EMPTY RACEWAYS.
- PROVIDE ALL EXPANSION FITTINGS, PITCH POCKETS, EQUIPMENT SUPPORTS, AND ACCESS DOORS AS REQUIRED FOR ELECTRICAL WORK.
- ALL CONDUIT RUNS USING PVC CONDUIT SHALL USE RGD OR IMC FOR ANY BEND OVER 45 DEGREES AND ALL 90 DEGREE ELBOWS.
- ALL UNDERGROUND CONDUITS SHALL BE MINIMUM OF 1" CONDUIT THROUGHOUT UNDERGROUND SYSTEM UNLESS OTHERWISE INDICATED.
- ALL CONDUIT PENETRATING SLAB IN EXPOSED LOCATIONS SHALL BE RIGID STEEL.
- CATALOG NUMBERS USED IN SYMBOLS LIST AND FIXTURE SCHEDULE ARE TO BE AS NOTED OR APPROVED EQUALS. MAINTAIN SPECIFIED GRADE.
- THE CONTRACTOR SHALL ENSURE THAT THE ENTIRE ELECTRICAL SYSTEM ASSOCIATED WITH THIS PROJECT IS GROUNDED IN ACCORDANCE WITH ALL APPLICABLE PROVISIONS OF ARTICLE 250 OF THE N.E.C.
- DO NOT CUT OR ALTER STRUCTURAL MEMBERS WITHOUT PRIOR APPROVAL OF THE ARCHITECT AND STRUCTURAL ENGINEER.
- ALL MATERIALS SHALL BE NEW AND SHALL BE LISTED BY A NATIONALLY RECOGNIZED LISTING AGENCY.
- ALL RACEWAYS IN FINISHED SPACES SHALL BE CONCEALED.
- ALL CONDUIT AND RACEWAY SHALL BE RUN CONCEALED UNLESS NOTED OTHERWISE, AND SHALL BE RUN PARALLEL OR PERPENDICULAR TO STRUCTURAL MEMBERS, WALLS, CEILINGS, OR FLOORS.
- PROVIDE METALLIC RACEWAY FOR WIRING RUNNING THROUGH WALLS, FLOOR, AND CEILINGS. ALL WIRING AND CABLING NOT INSTALLED IN METALLIC RACEWAYS SHALL BE PLENUM RATED.
- EACH TRADE CONTRACTOR IS RESPONSIBLE FOR SUSPENDED SUPPORTS NOT SHOWN ON STRUCTURAL DRAWINGS. ALL SUBCONTRACTORS SHALL COORDINATE WITH EACH OTHER FOR ELEVATION PRIORITY PLACEMENT OF GRADED PIPES, LARGE DUCTWORK, EQUIPMENT, CONDUIT, FIRE PROTECTION, AND LIGHTING.

GENERAL NOTES - LIGHTING

- IT SHALL BE CONTRACTOR'S RESPONSIBILITY TO VERIFY TYPE OF CEILING SYSTEMS AND TO FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN SUBJECT CEILING. WHERE FIXTURES ARE RECESSED IN PLASTER OR DRYWALL CEILINGS, THEY SHALL BE COMPLETE WITH NECESSARY MOUNTING HARDWARE AND PLASTER FRAMES.
- REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATION OF LUMINAIRES.
- REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF EXTERIOR LUMINAIRES.
- REFER TO ARCHITECTURAL PLANS TO DETERMINE PENDANT LENGTH AND ELEVATIONS.
- REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS OF INTERIOR LUMINAIRES AND MOUNTING HEIGHTS.
- COORDINATE THE FINAL LOCATION OF LUMINAIRES IN MECHANICAL ROOMS AND ATTIC SPACES TO AVOID CONFLICTS WITH DUCT WORK, PIPING, AND MECHANICAL EQUIPMENT.
- ALL LUMINAIRES SHALL BE INSTALLED IN COMPLIANCE WITH NEC ARTICLE 410.
- ROUTE ALL EXTERIOR LIGHTING CIRCUITS VIA LIGHTING CONTROL PANEL.
- INSTALL AND WIRE REMOTE DRIVERS. REFER TO LUMINAIRE SCHEDULE. MOUNT IN ACCESSIBLE LOCATIONS. SHOW LOCATIONS ON THE AS-BUILT DRAWINGS.
- PROVIDE UN-SWITCHED SENSING/CHARGING CONDUCTOR TO ALL EXIT SIGNS, EMERGENCY FIXTURES, AND BATTERY-BACKED LUMINAIRES. SENSING/CHARGING CONDUCTOR(S) SHALL NOT BE ROUTED THROUGH LIGHTING CONTROL PANEL.
- ALL SWITCHES TO BE 20 AMP 277 VOLT SPECIFICATION GRADE.
- LOWER CASE LETTER 'x' NEXT TO SWITCH/LIGHT FIXTURE INDICATES SWITCHING INTENTION.
- EMERGENCY LIGHTING SYMBOLS ARE SHADED ON THE LIGHTING PLANS. EMERGENCY SOURCE SHALL BE BATTERY BACKED BALLAST WITH MINIMUM OF 1400 LUMEN OUTPUT FOR A 90 MINUTE PERIOD, UNLESS NOTED OTHERWISE.
- LUMINAIRE SCHEDULE INDICATES BASIS OF DESIGN. ALL OTHER MANUFACTURERS AND SUBSTITUTIONS MUST MEET OR EXCEED ALL REQUIREMENTS OF THE BASIS OF DESIGN. FIXTURES TO BE CONSIDERED 'EQUAL'. SEE LUMINAIRE SCHEDULE.
- ALL CUSTOM COLOR AND FINISHES TO BE CONFIRMED WITH ARCHITECT/OWNER PRIOR TO PURCHASE.
- ALL FIXTURE(S) TO BE LED TYPE UNLESS NOTED OTHERWISE.
- UNDER COUNTER LIGHT LUMINAIRE LENGTH TO BE VERIFIED WITH ARCHITECTURAL ELEVATIONS AND CASEWORK PRIOR TO PURCHASE INSTALLATION.
- ALL ADJUSTABLE LUMINAIRES TO AIMED AS DIRECTED BY THE OWNER/ARCHITECT.
- PROVIDE ADDITIONAL SWITCH LEGS, TRAVELERS, GROUNDS, NEUTRALS, ETC. TO FACILITATE CONTROL OF LIGHTING FIXTURES TO MEET THE INTENT OF THE DESIGN.
- PROVIDE CLASS 2 WIRING BETWEEN ALL LIGHT FIXTURES AND CONTROL DEVICES TO FACILITATE NECESSARY LIGHTING CONTROL.
- ALL FIXTURES WITHIN A GIVEN ROOM/AREA ARE OF THE SAME TYPE INDICATED UNLESS NOTED OTHERWISE.

GENERAL NOTES - SINGLE/ONE LINE

- FEEDERS ARE COPPER UNLESS NOTED OTHERWISE.
- MINIMUM SHORT CIRCUIT RATING TO BE 10,000 ASYM FOR 208V PANELS AND 14,000 ASYM FOR 480V PANELS.
- THE ONE-LINE DIAGRAM IS DIAGRAMMATIC, AND DOES NOT SHOW THE ACTUAL ROUTING OF THE RACEWAYS.
- REFER TO PANEL SCHEDULES FOR ADDITIONAL INFORMATION.
- ALL BUSSING SHALL BE FULLY RATED.
- ALL DISTRIBUTION TRANSFORMERS SHALL BE K-4 AND NEMA TP-1 RATED UNLESS NOTED OTHERWISE.
- NOT ALL CIRCUIT BREAKERS MAY BE SHOWN. REFER TO PANEL AND SWITCHBOARD SCHEDULES FOR OTHER LOADS SERVED, AND SPARE CIRCUIT BREAKERS.

GENERAL NOTES - POWER

- OUTLETS AND DEVICES SHALL NOT BE MOUNTED BACK TO BACK ON THE SAME WALL, BUT WILL HAVE MINIMAL LATERAL SEPARATION OF 12" OR (1) STUD SPACE.
- LOCATIONS OF WALL MOUNTED DEVICES ARE SHOWN SCHEMATICALLY AND ARE NOT DIMENSIONED. COORDINATE WITH THE ARCHITECTURAL DRAWINGS, ELEVATIONS, AND CASEWORK/EQUIPMENT SUPPLIER'S SHOP DRAWINGS FOR EXACT LOCATION OF DEVICES PRIOR TO ROUGH-IN.
- CONTRACTOR IS RESPONSIBLE FOR FIELD COORDINATING THE LOCATION(S) OF ELECTRICAL EQUIPMENT, DISCONNECTS, J-BOXES, ETC. CONTRACTOR TO COORDINATE ROUTING OF ALL FEEDERS, CONDUITS, CONDUCTORS, ETC. WITH FIELD CONDITIONS.
- ALL WORKING SPACE CLEARANCES AND EGRESS ABOUT ELECTRICAL PANELS, SWITCHGEAR, ETC. SHALL COMPLY WITH NEC ARTICLE 110.26 AND ALL LOCAL CODES.
- MECHANICAL EQUIPMENT POWER CONTROL DEVICES (STARTERS, COMBINATION STARTERS, VFDS, ETC.) AND UNIT DISCONNECTS SHALL BE PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE ON THE EQUIPMENT SCHEDULE OR PLANS.
- SEE MECHANICAL PLANS FOR EXACT LOCATION OF ALL MECHANICAL EQUIPMENT. CONTRACTOR MUST COORDINATE WITH DIV 22/23 FOR ALL MECHANICAL/PLUMING EQUIPMENT.
- PRIOR TO ORDERING EQUIPMENT OR ROUGH-IN, COORDINATE WITH THE MECHANICAL CONTRACTOR TO ESTABLISH THE ACTUAL LOAD, OVERCURRENT PROTECTION REQUIREMENTS, AND DISCONNECTING REQUIREMENTS FOR EACH PIECE OF EQUIPMENT. MODIFICATIONS TO CIRCUITING, FUSING, DISCONNECT(S), ETC. MAY BE REQUIRED TO MEET EQUIPMENT MANUFACTURER'S REQUIREMENTS AND NAMEPLATE VALUES. CONTRACTOR TO NOTIFY ENGINEER OF RECORD OF ANY DISCREPANCIES/CHANGES.
- PRIOR TO ROUGH-IN OF ALL EQUIPMENT SPECIFIED BY OTHER DIVISIONS, COORDINATE WITH THE EQUIPMENT MANUFACTURER TO ESTABLISH ALL REQUIREMENTS FOR EACH PIECE OF EQUIPMENT.
- MOUNT ALL DEVICES ABOVE COUNTERS 6" ABOVE BACKSPLASH UNLESS NOTED OTHERWISE.
- LABEL ALL RECEPTACLE FACE PLATES WITH PANEL AND CIRCUIT NUMBER. LABEL CAN BE PLACED ON THE INSIDE OF FACE PLATES.
- PROVIDE EQUIPMENT LABELS FOR ALL MAJOR EQUIPMENT, DISCONNECT SWITCHES, WIRING GUTTERS, VFDS, SWITCHBOARDS, PANELBOARDS, ETC. TO IDENTIFY EQUIPMENT OR EQUIPMENT SERVED. LABELS SHALL BE 1/8" THICK OF PHENOLIC MATERIAL, MACHINE ENGRAVED.
- ALL RECEPTACLES TO BE TAMPER-RESISTANT PER NEC 406.12.
- CONTROLLED RECEPTACLES TO BE UNIQUELY IDENTIFIED PER NEC 406.

GENERAL NOTES - UTILITY & SERVICE

- THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL COORDINATION ASSOCIATED WITH THE SERVING UTILITY, INCLUDING BUT NOT LIMITED TO: TRENCHING, BACKFILL, CONDUIT(S), CONDUCTORS, TERMINATIONS, METERING REQUIREMENTS, CT-CAN, SERVICE DISCONNECT, COMPLETING AND SUBMITTING ALL NECESSARY APPLICATIONS FOR SERVICE.
- ELECTRICAL CONTRACTOR SHALL PAY ALL UTILITY CONNECTION CHARGES.
- OBTAIN ALL REQUIRED PERMITS AND EASEMENTS.
- CONDUCTORS ARE COPPER UNLESS NOTED OTHERWISE.

GENERAL NOTES - RENOVATION

- ALL EXISTING TO REMAIN DEVICES, FIXTURE(S), EQUIPMENT, ETC. OPERATIONAL PRIOR TO RENOVATION SHALL REMAIN OPERATIONAL AFTER RENOVATION. CONTRACTOR TO MAINTAIN CONTINUITY OF ALL LINE/LOW VOLTAGE CIRCUITING/CABLING. EXTEND CONDUIT, CONDUCTORS, CABLING, ETC. AS REQUIRED TO MAINTAIN CONTINUITY.
- ALL EXISTING SWITCHES AND DUPLEX RECEPTACLES IN THE AREA OF RENOVATION THAT ARE TO REMAIN AND BE RE-USED SHALL BE REPLACED IN PLACE WITH NEW RECEPTACLE(S), SWITCH(ES) AND FACEPLATES TO MATCH NEW DEVICES.
- EXISTING HOME RUN CONDUITS IN REMODELED AREAS TO BE RETAINED WHEREVER POSSIBLE. HOME RUN CONDUITS ARE TO BE EXTENDED TO NEW FIXTURE, OUTLET, OR SWITCH LOCATION AND NEW WIRING PULLED INTO PANEL.
- ELECTRICAL CONTRACTOR SHALL PATCH AND REPAIR ALL WALLS, CEILINGS, AND FLOORS, WHICH ARE TO REMAIN AS REQUIRED BY ANY ALTERATIONS, REMOVAL, AND/OR INSTALLATION OF ADDITIONAL EQUIPMENT INCLUDED IN ELECTRICAL WORK.
- EXISTING CONDUIT MAY BE REUSED IF IN GOOD CONDITION. CONTRACTOR TO VERIFY CONDITION OF CONDUIT WHERE POSSIBLE. REUSED CONDUIT SHALL HAVE A SWAB PULLED PRIOR TO NEW CONDUCTORS BEING INSTALLED.
- EXACT LOCATION OF EXISTING EQUIPMENT MUST BE FIELD VERIFIED.
- ALL EXISTING EQUIPMENT CLEARANCES TO BE MAINTAINED AND MUST BE VERIFIED WITH ANY NEW EQUIPMENT TO BE INSTALLED.
- ALL EXISTING CIRCUITING FOR EQUIPMENT, RECEPTACLE(S), LIGHT FIXTURE(S), ETC. IN THE RENOVATION AREA SHALL BE VERIFIED. CONTRACTOR SHALL IDENTIFY/MARK EXISTING CIRCUIT/PANEL ON DEVICE/EQUIPMENT.
- CONSIDERABLE EFFORT HAS BEEN MADE TO VERIFY EXISTING CONDITIONS AND LOCATIONS OF EXISTING EQUIPMENT WITH AS-BUILT DRAWINGS AND SITE OBSERVATIONS. DISCREPANCIES MAY EXIST BETWEEN ACTUAL CONDITIONS AND PLANS. CONTRACTOR SHOULD VERIFY ALL EXISTING CONDITIONS FOR DISCREPANCIES IN THE PLANS. CONTRACTOR IS EXPECTED TO WORK THROUGH DISCREPANCIES WITH THE ASSISTANCE FROM THE BUILDING OWNER, ARCHITECT, AND ELECTRICAL ENGINEER.

GENERAL NOTES - SITE

- COORDINATE ROUTING OF UNDERGROUND RACEWAYS WITH ALL NEW AND EXISTING UTILITIES. REFER TO CIVIL DRAWINGS.
- CALL BEFORE YOU DIG. CONTRACT WITH A LOCATOR SERVICE TO MARK THE LOCATION OF ALL EXISTING UNDERGROUND UTILITIES PRIOR TO EXCAVATION.
- ALL SITE LIGHTING CIRCUITS TO BE CONTROLLED VIA LIGHTING CONTROL PANEL.
- PROVIDE ALL REQUIRED CUTTING, PATCHING, EXCAVATION, COMPACTION, AND PATCHING FOR INSTALLATION OF UNDERGROUND RACEWAYS.
- BACKFILL ALL TRENCHES WITH STRUCTURAL BACKFILL PER SPECIFICATIONS.
- PROVIDE GLARE SHIELDS FOR ALL POLE MOUNTED LUMINAIRES.



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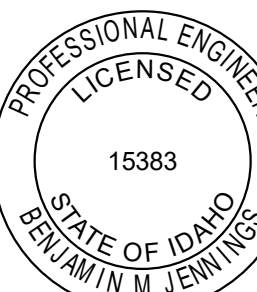
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MOSCOW EAST CITY PARK
STAGE REPLACEMENT

900 E 3RD STREET
MOSCOW, ID 83843

DATE

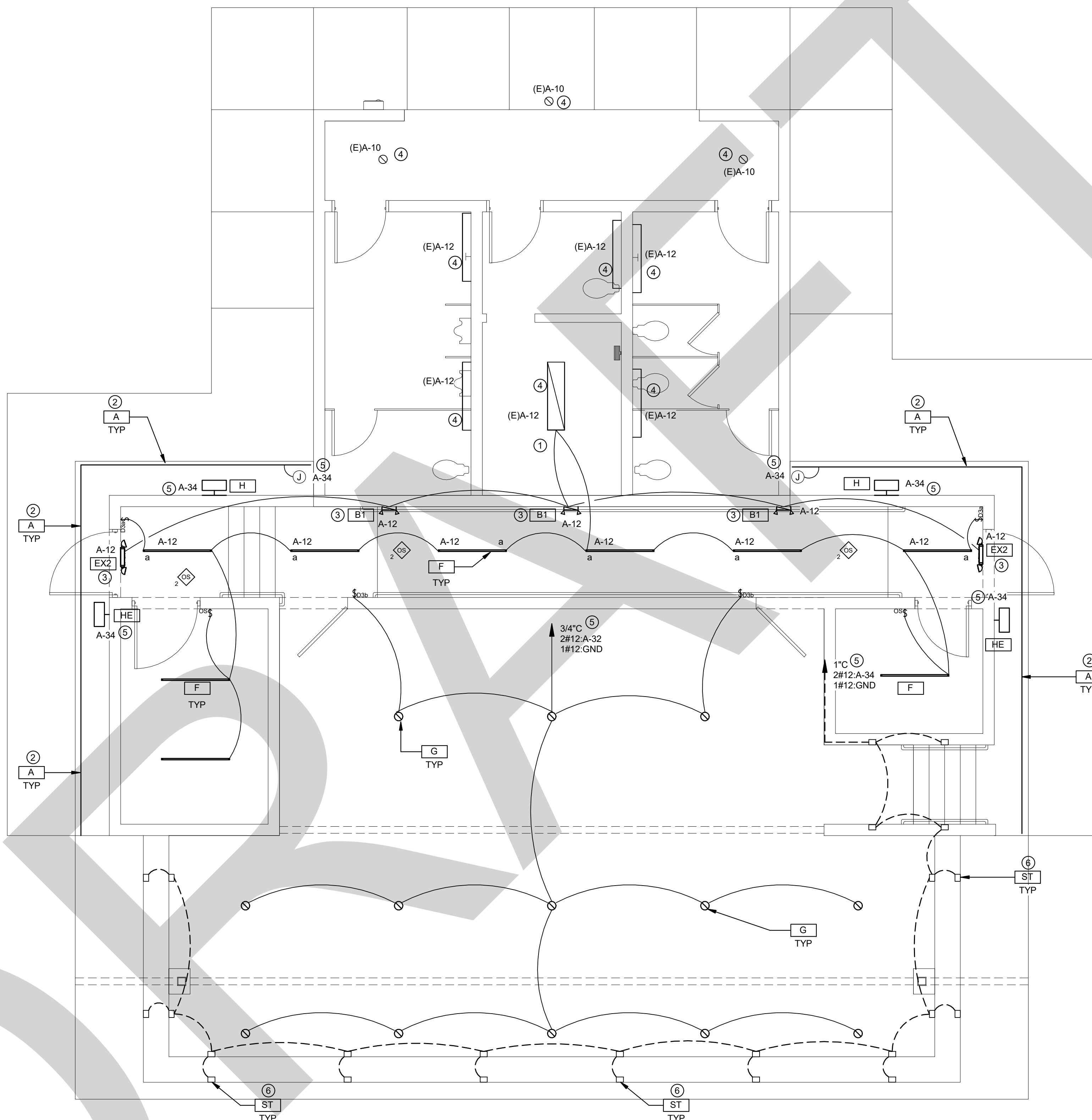
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NOTES

SHEET

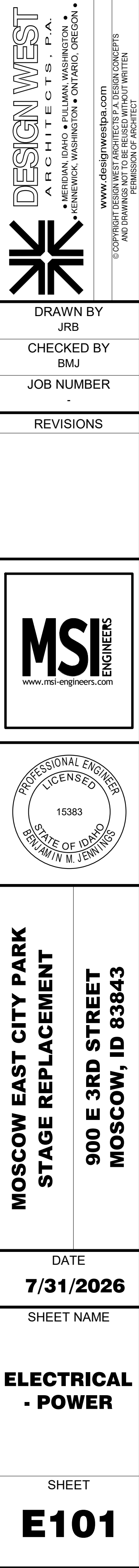
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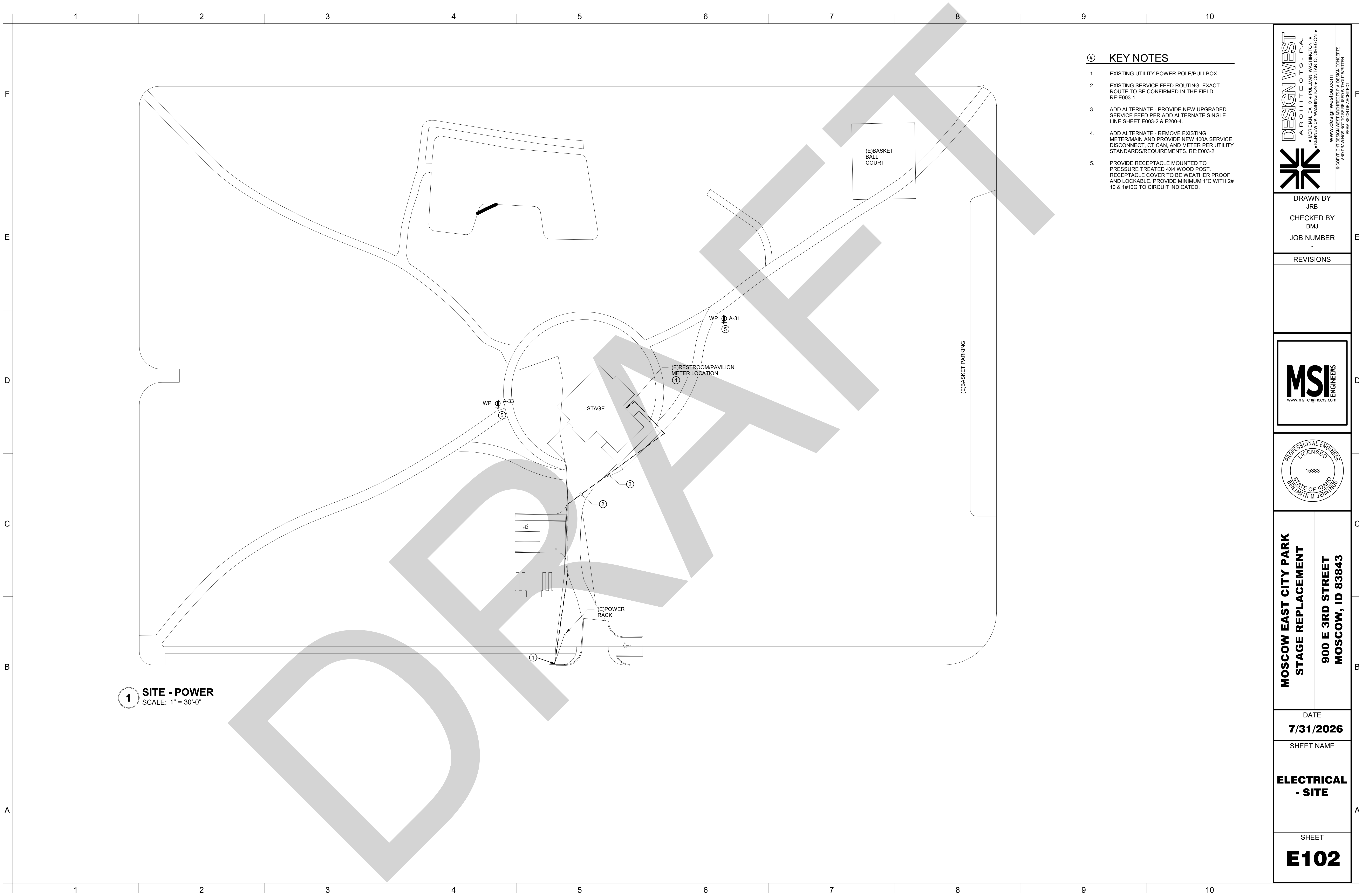


2 LIGHTING
SCALE: 1/4" = 1'-0"

- # KEY NOTES**
1. INTERCEPT AND EXTEND UN-SWITCHED CIRCUIT TO NEW FIXTURE(S) INDICATED. PROVIDE MINIMUM 3/4"C WITH 2#12 & 1#12G CU.
 2. FACADE LED FIXTURE TO BE MOUNTED UNDER AWNING. CONFIRM EXACT MOUNTING LOCATION WITH ARCHITECTURAL ELEVATIONS.
 3. PROVIDE UN-SWITCHED CIRCUIT INDICATED TO EXIT/BUGEYE FIXTURE.
 4. EXISTING FIXTURE TO REMAIN. RETAIN AND PROTECT.
 5. CIRCUIT TO BE ROUTED THROUGH LIGHTING CONTROL PANEL 'LCP' THEN TO CIRCUIT INDICATED. RE E200-3
 6. STEP LIGHT FIXTURE TO BE MOUNTED TO BACK OF CONCRETE STEP. PROVIDE RECESSED J-BOX AS REQUIRED BY LIGHT FIXTURE MANUFACTURER TO FACILITATE INSTALLATION OF RECESSED STEP LIGHT. CONFIRM EXACT LOCATION(S) WITH OWNER/ARCHITECT.

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MOSCOW EAST CITY PARK STAGE REPLACEMENT	900 E 3RD STREET MOSCOW, ID 83843
DATE 7/31/2026	
SHEET NAME ELECTRICAL - LIGHTING	
SHEET E100	





- # KEY NOTES
- EXISTING UTILITY POWER POLE/PULLBOX.
 - EXISTING SERVICE FEED ROUTING. EXACT ROUTE TO BE CONFIRMED IN THE FIELD. RE:E003-1
 - ADD ALTERNATE - PROVIDE NEW UPGRADED SERVICE FEED PER ADD ALTERNATE SINGLE LINE SHEET E003-2 & E200-4.
 - ADD ALTERNATE - REMOVE EXISTING METER/MAIN AND PROVIDE NEW 400A SERVICE DISCONNECT, CT CAN, AND METER PER UTILITY STANDARDS/REQUIREMENTS. RE:E003-2
 - PROVIDE RECEPTACLE MOUNTED TO PRESSURE TREATED 4X4 WOOD POST. RECEPTACLE COVER TO BE WEATHER PROOF AND LOCKABLE. PROVIDE MINIMUM 1" C WITH 2# 10 & 1#10G TO CIRCUIT INDICATED.

1 SITE - POWER
SCALE: 1" = 30'-0"

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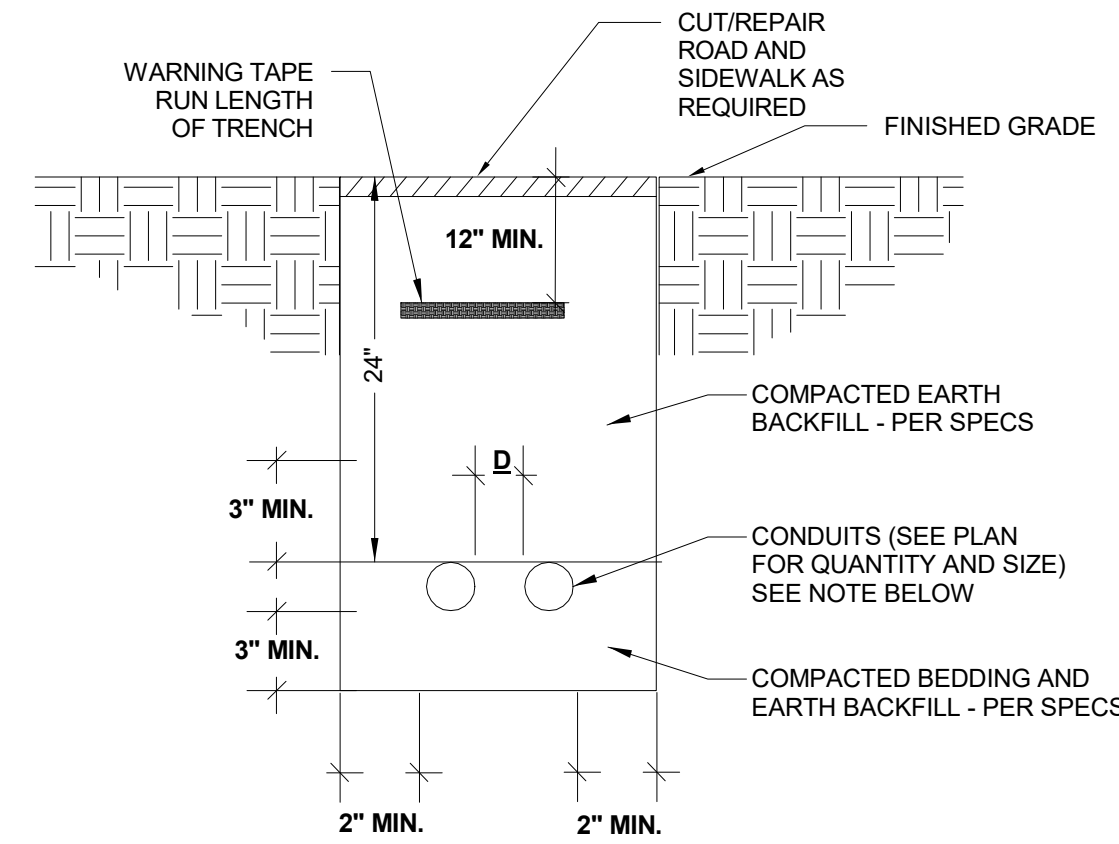
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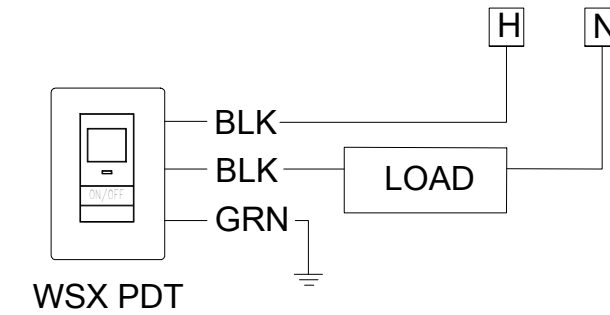
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7/31/2026

SHEET NAME
ELECTRICAL
- SITE

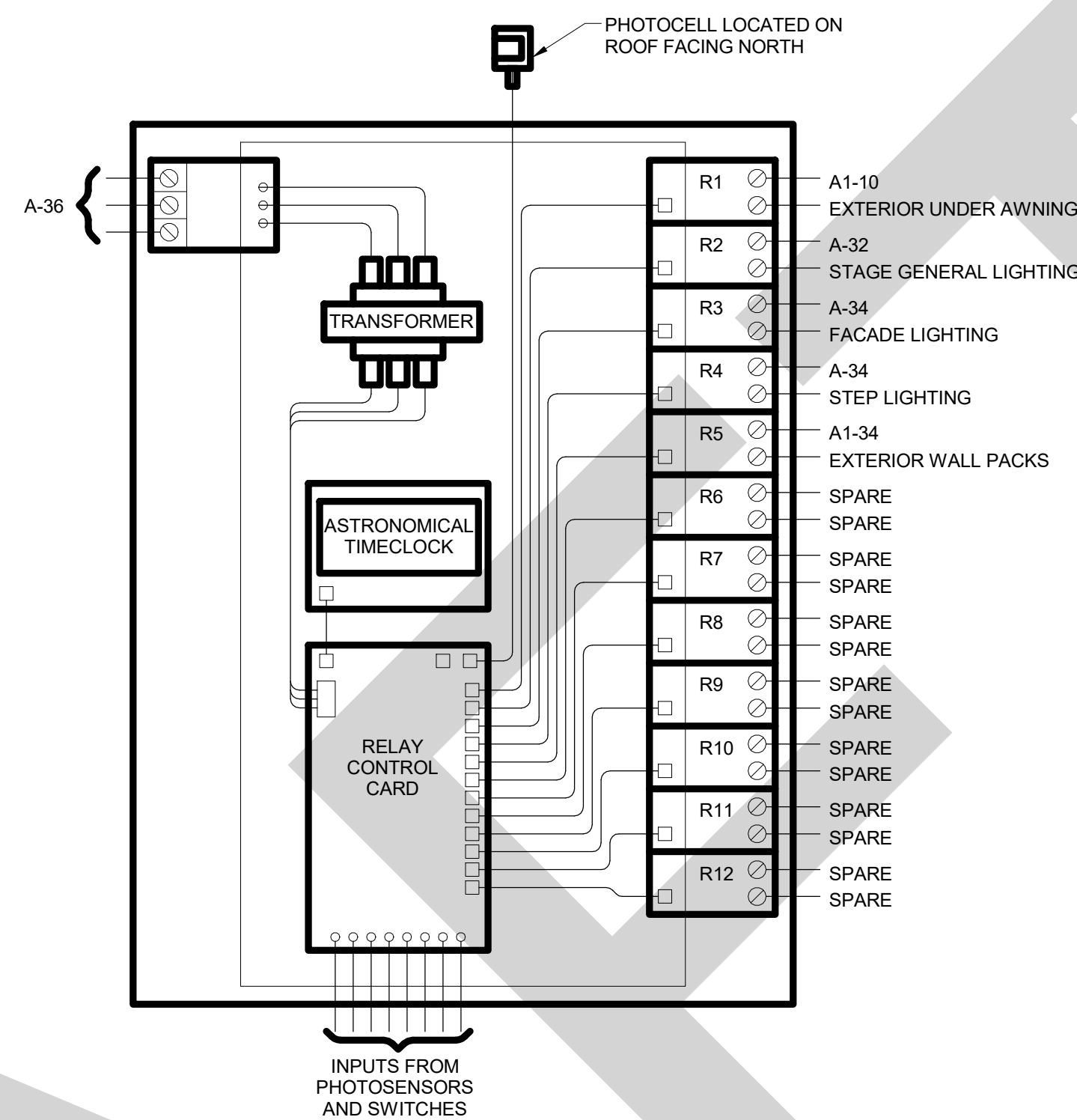
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E102



4 UNDERGROUND DUCT BANK DETAIL
Scale: NOT TO SCALE

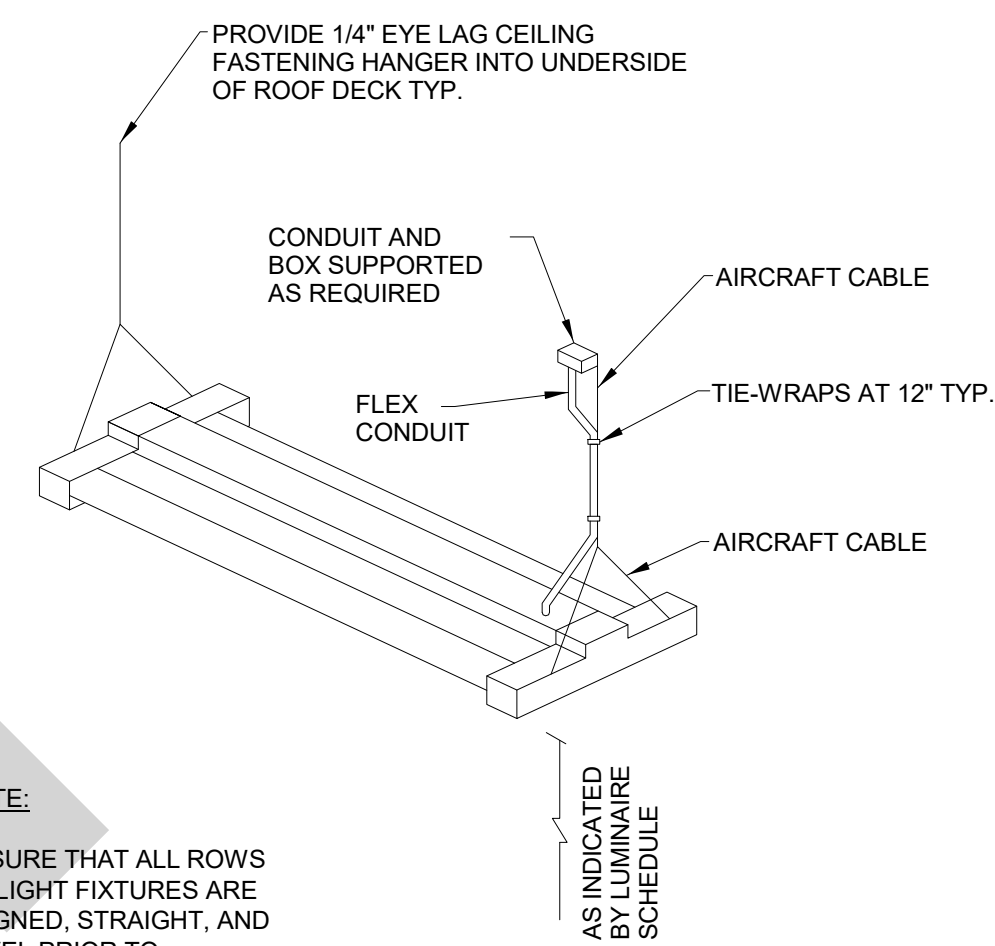


5 OCC SWITCH CONTROL DIAGRAM
Scale: NOT TO SCALE

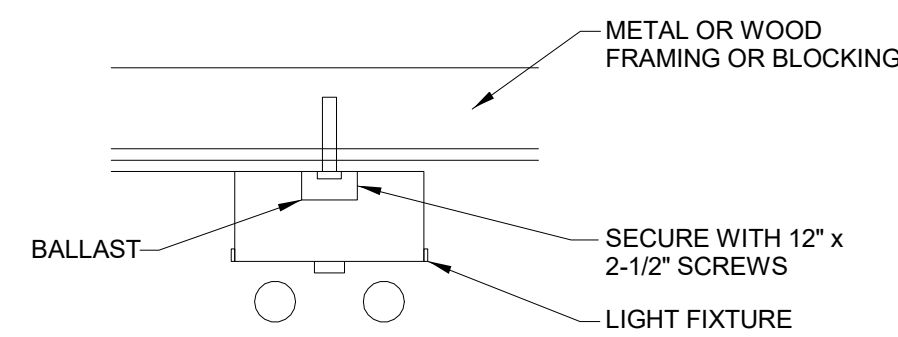


- NOTES**
- DETAIL SHOWN FOR DESIGN INTENT. COORDINATE SPECIFIC REQUIREMENTS WITH MANUFACTURER'S LITERATURE. CONTROL PANEL REQUIREMENTS AND SPECIFICATIONS. PROVIDE A MINIMUM OF (12) 1-POLE RELAYS.
 - RELAY SHALL BE SUITABLE FOR LED FIXTURES.
- CONTROL PANEL REQUIREMENTS**
- PANEL SHALL BE CAPABLE OF LIGHT SWEEP ON/OFF CONTROLS FOR BUILDING LIGHTING SHUT DOWN.
- PROVIDE LOCAL OVERRIDE SWITCHING NEXT TO PANEL.
- TIMER TO SWEEP LIGHTS OFF AT NIGHT PER OWNER REQUIREMENTS.
- EACH RELAY SHALL BE CAPABLE OF INDIVIDUAL CONTROL.
- COORDINATE EXACT DESIGNED OPERATION REQUIREMENTS WITH END USER PRIOR TO PROJECT COMPLETION.

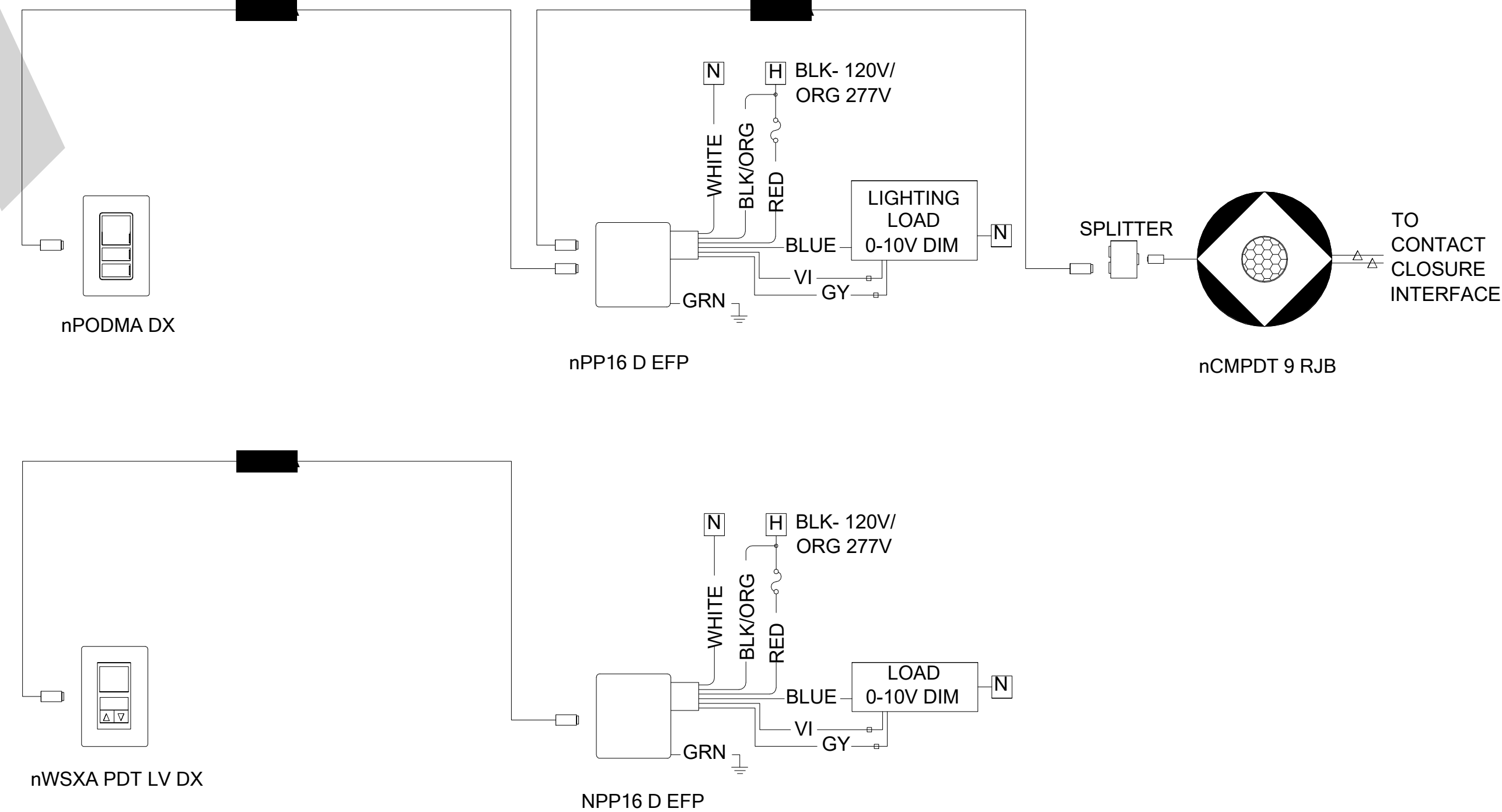
3 LIGHTING CONTROL PANEL DETAIL
Scale: NOT TO SCALE



1 SUSPENDED LIGHT MOUNTING
Scale: NOT TO SCALE



2 SURFACE MOUNT FIXTURE HARD CLG
Scale: NOT TO SCALE



6 TYPICAL LV LIGHTING CONTROL DIAGRAM
Scale: NOT TO SCALE

?rr_afkclr A

DOCUMENT 00 30 00 - BID PROPOSAL FORM

Project:

City of Moscow
Moscow East City Park Stage Replacement
MOSCOW, IDAHO

BID OPENING DATE:
BID DUE TIME:
BID OPENING TIME:

August 25, 2026
2:00 P.M.
2:05 P.M.

BID OPENING LOCATION:

City Council Chambers of Moscow City Hall, 2026 East Third Street

BIDDER'S NAME AND ADDRESS:

Mangum Construction LLC

1451 Bridge Street

Clarkston, WA 99403

TO: The City of Moscow, Idaho

The bidder, in compliance with the Invitation for Bids for the above-referenced project, having examined the drawings, specifications, related documents, and the site of the proposed work, and having become familiar with local conditions surrounding the proposed work, including availability of materials and labor, hereby proposes to perform all work in accordance with the contract documents, within the time limits set therein, and at the prices stated below, which are to cover all expenses incurred in performing the work.

The bidder acknowledges the receipt of the Addenda listed below and have included these provisions in the bid:

Addendum No. 01 Dated 08/13/2026

Addendum No. 02 Dated 08/20/2026

Addendum No. Dated

BASE PROPOSAL: ALL WORK NOT DEFINED IN A BID ALTERNATE, Bidder agrees to perform all of the base proposal work described in the specifications and shown on the plans for the sum of

six hundred sixty eight thousand dollars and 00/100 Dollars

\$ 668,000.00 (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

BID ALTERNATE NO. 1:

ALTERNATE No. 1 – Concrete Dancer Plaza: Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

~~10,475.00~~ ten thousand four hundred seventy five dollars 00/100 Dollars

\$ 10,475.00 (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

Bidders Initials

MM

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 1
8/12/2026

BID ALTERNATE NO. 2:

ALTERNATE No. 2 – Widened concrete circulation path: Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

six thousand three hundred fifty dollars and ⁰⁰/₁₀₀ Dollars
\$ 6,350.00 (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

BID ALTERNATE NO. 3:

ALTERNATE No. 3 – Service Entrance Rated Service Panelboard With 400A Main Breaker Panel: Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

twenty eight thousand dollars and ⁰⁰/₁₀₀ Dollars
\$ 28,000.00 (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

The undersigned further agrees that the Owner shall have the right to accept, reject, or waive any irregularities with the bids deemed to be in the best interest of the City of Moscow.

In submitting this bid, the bidder agrees:

The bidder understands that the Owner reserves the right to reject any or all bids and to waive any irregularities in the bidding.

In submitting this bid, the bidder agrees:

1. The bid shall remain valid and may not be withdrawn for a period of forty-five (45) calendar days after the scheduled closing time for receiving bids. Bid alternate pricing shall remain valid for (90) calendar days following the bid opening, should the Owner choose to accept bid alternates after contract award.
2. To accept the provision of the Instruction to Bidders regarding disposition of Bid Security.
3. The bid security attached, in the amount of 5% of the bid amount, is to become the property of the Owner in the event the contract and bond are not executed with the time set forth as liquidated damages for the delay and additional expense to the Owner caused thereby.
4. To furnish within five (5) days after receipt of properly prepared Agreement Between Owner and Contractor the following documents: Performance Bond and Labor and Materials Payment Bond in the amounts of 100% of the bid amount by the surety company authorized to do business in the State of Idaho, a Certificate of Insurance issued by a surety company authorized to do business in the State of Idaho and accompanied by Power of Attorney, a Contractor's Affidavit Concerning Taxes, and the Public Works Contract Report on Subcontractors
5. To accomplish the work in accordance with the bidding documents and commence work on or before the date of Notice to Proceed.
6. To complete the work by the Date of Substantial Completion which shall be One hundred twenty (151) consecutive calendar days or less after Notice to Proceed.

Bidders Initials MM

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 2
8/12/2026

7. That the contract drawings may be supplemented by additional drawings and specifications in explanation and elaboration of the contract drawings and it is agreed that such supplemental drawings, when not in conflict with the base contract documents, will have the same force and effect as if attached hereto and that when received they will be considered a part of the contract.

8. To execute the work using the sub-contractors named below in the Bid Form Submittal.

The Idaho Naming Law (Section 67-2310, Idaho Code) and requires that general contractors must list the business name and Public Works license number of certain subcontractors. The law stipulates that these will be the major fire sprinkler, mechanical, and electrical subcontractors who the general contractor agrees to engage to do the work. **The firms listed below must be those who will actually do the work on site regardless of contractual considerations between the general contractor and subcontractors.** If the scope of project itself does not include mechanical or electrical components, any firm hired to do incidental piping or wiring such as installation of temporary services, need not be listed. The names and addresses of subcontractors who will accomplish the work, subject to approval of the Owner and architect, if the undersigned is awarded the contract, are as follows:

Plumbing system
Name of Plumbing contractor AA Construction 1144 Brush Creek RD Arley ID No _____
Public Works license number 047885

Electrical system
Name of electrical contractor Gropp Electric No _____
Public Works license number Permit - C - 14557

QUALIFICATIONS / EXPERIENCE: The bidder certifies that the attached form lists the 5 most recent public works projects in excess of \$250,000 contract value that have been, or are being, accomplished by the contractor. These project references will be used as a basis to determine if the apparent low bid is made by a responsible and competent contractor.

Enclosed is bid guarantee consisting of: Bid Bond in the amount of five percent (5%) of the bid amount. (Bid Bond) (Cashier's Check)

The undersigned notifies that they are, or are capable of becoming prior to contract execution, a Public Works Contractor and if currently licensed their Idaho State Public Works Contractor's License No. is 029263-Unlimited-3, and is domiciled in the State of Washington.

Dated at Clarkston, WA 99403 this 25th day of August, 2026.

Respectfully submitted,

Mangum Construction LLC
Name of Bidder (Company)

1451 Bridge Street
Business Address

Clarkston, WA 99403
City, State, Zip Code

509-758-7877
Telephone

(Seal, if bid is by a corporation)

Shane Marshall Mangum
Signature of authorized representative

Member
Title

Bidders Initials MM

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 3
8/12/2026

QUALIFICATIONS / EXPERIENCE: The bidder certifies that the list below contains the five most recent public works projects in excess of \$250,000 contract value that have been, or are being, accomplished by the contractor over the past three year period. Use additional copies of this form if necessary to list all projects. These project references will be used as a basis to determine if the apparent low bid is made by a responsible and competent contractor.

Project Title:	Location:	Reference: Architect or Client (Name & telephone number)
----------------	-----------	---

Lewis-Clark State College Parrish House, 623 6th Ave, Lewiston, ID 83501.	Andrew Gibler	208-791-5089
---	---------------	--------------

ITD Fleming House, 9021 Hwy 12, Kooskia, ID 83539,	Tony Pirc	208-334-8600
--	-----------	--------------

State Hospital North-Nurses Station Safety Upgrades, 300 Hospital Drive, Orofino ID 83544.	Andrew Gibler	208-791-5089
--	---------------	--------------

Idaho Transportation Department Truck Wash Renovation, 2600 Frontage Rd, Lewiston, ID 83501.	Tony Pirc	208-334-8600
--	-----------	--------------

Idaho Transportation Department Clarkia Salt Shed, Milepost 58.1 Hwy 3 Clarkia ID, 83812.	Tony Pirc	208-334-8600
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END OF DOCUMENT 00 30 00

Bidders Initials 

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 4
8/12/2026

CONTRACTOR'S AFFIDAVIT CONCERNING TAXES

STATE OF (Washington)

COUNTY OF (Asotin)

Pursuant to the Idaho Code, Title 63, Chapter 15, I the undersigned, being duly sworn, deposes and certify that all taxes, excises and license fees due to the State or its taxing units, for which I or my property is liable then due or delinquent, has been paid, or arrangements have been made, before entering into a contract for construction of any public works in the State of Idaho.

Name of Contractor
Mangum Construction LLC

Address
1451 Bridge Street

City and State
Clarkston, WA 99403

By
Authorized Representative

Subscribed and sworn to before me this 25th day of August, 2026

Marshall Mangum

NOTARY PUBLIC, residing at

Sidnee J Mangum
Asotin, WA



Commission expires 11/01/2026

City of Moscow – East City Park Stage
Moscow, Idaho

00 01 00 - 1
7/31/2026

**CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE**

STATE OF (Washington)
COUNTY OF (Asotin)

Pursuant to the Idaho Code, Section 72-1717, I, the undersigned, being duly sworn, depose and certify that Mangum Construction LLC is in compliance with the provisions of Idaho Code section 72-1717; that Mangum Construction LLC Provides a drug-free workplace program that complies with the provisions of Idaho Code, title 72, chapter 17 and will maintain such program throughout the life of a state construction contract and that Mangum Construction LLC Shall subcontract work only to subcontractors meeting the requirements of Idaho Code, section 72-1717(1)(a).

Mangum Construction LLC
Name of Contractor

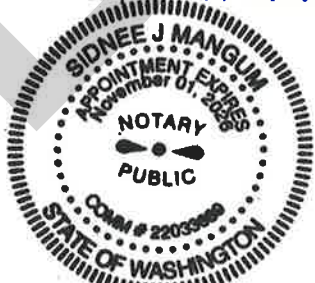
1451 Bridge Street
Address

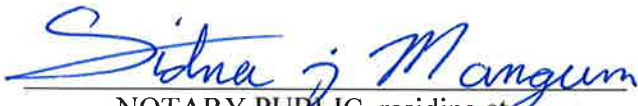
Clarkston, WA 99403
City and State

By 
(Signature)

Subscribed and sworn to before me this 25th day of August, 2026.

Commission expires: 11/01/2026




NOTARY PUBLIC, residing at
Asotin, Washington

BID BOND

Lexon Insurance Company

155 NE 100th Street, Suite 201, Seattle, WA 98125

CONTRACTOR:

(Name, legal status and address)

Mangum Construction LLC
1451 Bridge St
Clarkston, WA 99403

SURETY:

(Name, legal status and principal place of business)

Lexon Insurance Company
155 NE 100th ST, Ste. 201
Seattle, WA 98125

OWNER:

(Name, legal status and address)

City of Moscow
206 Est Third Street
Moscow, ID 83843

BOND AMOUNT: Five Percent (5%) of the total amount bid

PROJECT:

(Name, location or address, and Project number, if any)

City of Moscow East City Park Stage Replacement
Moscow, ID

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 17th day of August, 2026


(Witness)

Mangum Construction LLC


(Principal) Marshall Mangum (Seal)

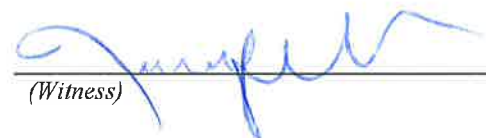
Managing Member

(Title)

Lexon Insurance Company


(Surety) Thomas D Rossetto (Seal)




(Witness)

Attorney-in-Fact

(Title)

The Company executing this bond vouches that this document conforms to American Institute of Architects Document A310, 2010 edition



KNOW ALL BY THESE PRESENTS, that **Endurance Assurance Corporation**, a Delaware corporation ("EAC"), **Endurance American Insurance Company**, a Delaware corporation ("EAIC"), **Lexon Insurance Company**, a Texas corporation ("LIC"), and/or **Bond Safeguard Insurance Company**, a South Dakota corporation ("BSIC"), each, a "Company" and collectively, "**Sompo International**," do hereby constitute and appoint: **Bryan P. Welch, Dean Foster, Jennifer W. Peterson, Thomas D. Rossetto, Ryan Wiita** as true and lawful Attorney(s)-In-Fact to make, execute, seal, and deliver for, and on its behalf as surety or co-surety; bonds and undertakings given for any and all purposes, also to execute and deliver on its behalf as aforesaid renewals, extensions, agreements, waivers, consents or stipulations relating to such bonds or undertakings provided, however, that no single bond or undertaking so made, executed and delivered shall obligate the Company for any portion of the penal sum thereof in excess of the sum of **One Hundred Million Dollars (\$100,000,000.00)**.

Such bonds and undertakings for said purposes, when duly executed by said attorney(s)-in-fact, shall be binding upon the Company as fully and to the same extent as if signed by the President of the Company under its corporate seal attested by its Corporate Secretary.

This appointment is made under and by authority of certain resolutions adopted by the board of directors of each Company by unanimous written consent effective the 30th day of March, 2023 for BSIC and LIC and the 17th day of May, 2023 for EAC and EAIC, a copy of which appears below under the heading entitled "Certificate".

This Power of Attorney is signed and sealed by facsimile under and by authority of the following resolution adopted by the board of directors of each Company by unanimous written consent effective the 30th day of March, 2023 for BSIC and LIC and the 17th day of May, 2023 for EAC and EAIC and said resolution has not since been revoked, amended or repealed:

RESOLVED, that the signature of an individual named above and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signature or seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached.

IN WITNESS WHEREOF, each Company has caused this instrument to be signed by the following officers, and its corporate seal to be affixed this 25th day of May, 2023.

Endurance Assurance Corporation
By: *Richard M. Appel*
Richard Appel: SVP & Senior Counsel



Endurance American Insurance Company
By: *Richard M. Appel*
Richard Appel: SVP & Senior Counsel



Lexon Insurance Company
By: *Richard M. Appel*
Richard Appel: SVP & Senior Counsel



Bond Safeguard Insurance Company
By: *Richard M. Appel*
Richard Appel: SVP & Senior Counsel



ACKNOWLEDGEMENT

On this 25th day of May, 2023, before me, personally came the above signatories known to me, who being duly sworn, did depose and say that he/she is an officer of each of the Companies; and that he executed said instrument on behalf of each Company by authority of his office under the by-laws of each Company.

By: *Amy Taylor*

Amy Taylor, Notary Public - My Commission Expires 3/9/27



CERTIFICATE

I, the undersigned Officer of each Company, DO HEREBY CERTIFY that:

1. That the original power of attorney of which the foregoing is a copy was duly executed on behalf of each Company and has not since been revoked, amended or modified; that the undersigned has compared the foregoing copy thereof with the original power of attorney, and that the same is a true and correct copy of the original power of attorney and of the whole thereof;
2. The following are resolutions which were adopted by the board of directors of each Company by unanimous written consent effective 30th day of March, 2023 for BSIC and LIC and the 17th day of May, 2023 for EAC and EAIC and said resolutions have not since been revoked, amended or modified:

"RESOLVED, that each of the individuals named below is authorized to make, execute, seal and deliver for and on behalf of the Company any and all bonds, undertakings or obligations in surety or co-surety with others: RICHARD M. APPEL, MATTHEW E. CURAN, MARGARET HYLAND, SHARON L. SIMS, CHRISTOPHER L. SPARRO, and be it further

RESOLVED, that each of the individuals named above is authorized to appoint attorneys-in-fact for the purpose of making, executing, sealing and delivering bonds, undertakings or obligations in surety or co-surety for and on behalf of the Company."

3. The undersigned further certifies that the above resolutions are true and correct copies of the resolutions as so recorded and of the whole thereof.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal this 17th day of August, 2026.

By: *Daniel S. Lurie*

Daniel S. Lurie, Secretary

NOTICE: U. S. TREASURY DEPARTMENT'S OFFICE OF FOREIGN ASSETS CONTROL (OFAC)

No coverage is provided by this Notice nor can it be construed to replace any provisions of any surety bond or other surety coverage provided. This Notice provides information concerning possible impact on your surety coverage due to directives issued by OFAC. **Please read this Notice carefully.**

The Office of Foreign Assets Control (OFAC) administers and enforces sanctions policy, based on Presidential declarations of "national emergency". OFAC has identified and listed numerous foreign agents, front organizations, terrorists, terrorist organizations, and narcotics traffickers as "Specially Designated Nationals and Blocked Persons". This list can be located on the United States Treasury's website - <https://www.treasury.gov/resource-center/sanctions/SDN-List>.

In accordance with OFAC regulations, if it is determined that you or any other person or entity claiming the benefits of any coverage has violated U.S. sanctions law or is a Specially Designated National and Blocked Person, as identified by OFAC, any coverage will be considered a blocked or frozen contract and all provisions of any coverage provided are immediately subject to OFAC. When a surety bond or other form of surety coverage is considered to be such a blocked or frozen contract, no payments nor premium refunds may be made without authorization from OFAC. Other limitations on the premiums and payments may also apply.

Any reproductions are void.

Surety Claims Submission: LexonClaimAdministration@sompo-intl.com

Telephone: 615-553-9500 Mailing Address: Sompo International; 12890 Lebanon Road; Mount Juliet, TN 37122-2870

Mangum Construction, LLC
1451 Bridge Street
Clarkston, WA 99403

Bid Enclosed

City of Moscow
East City Park Stage
Replacement



153pm

Attachment "D"



ADDENDUM NO. 1
DWA Project # 25101
August 12, 2026

To the Plans and Specifications for: **City of Moscow – East City Park
Stage Replacement
Moscow, Idaho**

TO ALL CONTRACTORS SUBMITTING BIDS ON THE ABOVE SUBJECT: This Addendum is hereby made a part of the Contract Documents pertaining to the above project and shall be binding upon each contractor submitting bids. Bids submitted shall be for the full and complete cost of incorporating these changes into the contract, no further claims shall be allowed for work associated with this addendum. It shall further be the responsibility of each Contractor to notify his sub-contractors concerning the contents of this addendum as they specifically apply to them. The following changes hereby become a part of the Contract Documents. Acknowledge receipt of this Addendum in the space provided on the Bid Proposal. Failure to do so may subject Bidder to disqualification.

GENERAL NOTE: The additions, revisions, clarifications and corrections contained herein shall be made to drawings and specifications for the project and shall be included in scope of work and proposals to be submitted. Reference made below to specifications and drawings shall be as a general guide only. Bidder shall determine the work affected by Addendum items.

GENERAL:

1.1 BIDDING AND CONTRACT REQUIREMENTS

INFORMATION: A Pre-Bid Meeting was held on Tuesday, August 11th. The meeting minutes including sign-in sheets from that meeting are attached to this Addendum. The information contained in these pre-bid meeting minutes is hereby incorporated into the contract and is binding upon all bidders.

SECTION 00 30 00 – BID PROPOSAL FORM

REVISION: The Bid Proposal Form has been revised to include a section for each of the Three (3) Bid Alternates. See attached form.

REVISION: Minor edits to the Bid Proposal Form for formatting and clarity.

REVISION: Revision to Item 6 on the Bid Proposal Form to read "To complete the work by the Date of Substantial Completion which shall be One hundred twenty (151) consecutive calendar days or less after Notice to Proceed."

SECTION 00 10 00 – INSTRUCTIONS TO BIDDERS

CLARIFICATION: **Article 2.1.2** of the Instructions to Bidders states "It has attended the pre-bid meeting(s) as required by the Bidding Documents." The pre-bid meeting(s) attendance are **NOT** required by the bidding documents.

SPECIFICATIONS:

1.2 SECTION 09 91 00 – PAINTING

REVISION: Painting Schedules at exterior CMU and Cement Backer Board with sparge mortar coat (mural areas) to include:

- (2) coats Loxon Masonry Primer from Sherwin Williams**
- (1) coat Sherwin Williams exterior paint base color TBD**

DRAWINGS:

1.3 SHEET A1.00 – SITE PLAN

REVISION: Note: Salvage Bike Racks to reinstall at new location to be determined by Owner.



1.4 SHEET E102 – ELECTRICAL – SITE

CLARIFICATION: An existing spare 2" conduit runs from the power vault to building meter location. This may be utilized for the Bid Alternate #3 400A Service.

CLARIFICATION: Existing electrical ground box in the area of the new stage footprint is to be removed and accommodations made to maintain or reconnect the existing site power.

CLARIFICATION: Power to the existing stage is to be partially removed to a termination point outside (south of) the project area. Power to be stubbed for future reconnection at this point – coordinate with Owner / Architect.

List of Documents:	Size	No. Of Pages:
Addendum 1	8-1/2" x 11"	2
Pre bid Meeting Minutes and Sign in Sheet	8-1/2" x 11"	4
Revised Bid Forms	8-1/2" x 11"	4

END OF ADDENDUM NO. 1.

Pre-Bid Meeting Agenda

East City Park
Stage Replacement

Owner – City of Moscow
DWA Project #25101
August 11, 2026 – 10:00 AM

Participants:

Sign-in sheet

Issued Date: Will be August 12, 2026

Included in Addendum #1

PROJECT OVERVIEW ITEMS

1. *Meeting's Purpose:* The Pre-Bid Meeting and Walk-Through is held to acquaint potential bidders with the East City Park Stage Replacement project. Questions will be directed to the owner's representative and design team and tours conducted, allowing the bidders to see firsthand the project site and scope of work.
2. *Introductions:*
 - Owner's Representative: David Schott
 - Architect: Design West Architects, P.A., Brian Edwards, Architect
3. *Project Summary – scope, cost, and schedule:*
 - The project consists of, but is not limited to, the construction of approximately 536 sf unconditioned CMU building, additional 1,000sf covered stage, and site improvements, including add alternates.
 - The add alternates include:
 - #1 Concrete Dancer's Plaza
 - #2 Widened concrete circulation path
 - #3 Service Entrance Rated Service Panelboard With 400A Main Breaker Panel
 - The preliminary project estimate for the Base Bid and Alternate scope is in the approximate range of \$820,000.
 - Review of the project schedule, bidders/contractors will be expected to provide sufficient resources to comply with the project duration requirements contained in the bidding documents.:
 - Liquidated damages shall begin and accrue from the failure to meet any of the deadlines defined in the project schedule below.
 - The contractor shall plan and execute the work to comply with the following schedule:
 - 151 calendar days from day of Notice to Proceed. Includes all the work of the project. Reference the drawings for area and work.
 - The 1-year warranty period shall begin on the date of Substantial Completion
 - Project Final Completion shall be achieved within 30 consecutive calendar days following the issuance of Substantial Completion. Reference specification 01 77 00 and Owner-Contractor Contract for Project Closeout and Final Completion requirements.
4. *Addendum Schedule:*
 - Addendum #1 will be issued on August 12th, 2026. The meeting minutes of this pre-bid meeting will be distributed by way of addendum #1.
 - Substitution requests can be submitted to the Architect (cholstad@designwestpa.com). The cut-off for substitution requests is end of the business day on, August 15^h, 2026.
 - General Contractors have the responsibility of providing subcontractors with addenda information, because addenda will be issued only to listed plan-holders. Plans are available at the plan rooms listed in the notice to bidders.
 - A list of Plan Holders is available at the architect's office & the plan rooms. Please notify architect if unable to submit bid and return your bid documents immediately for a full refund.
 - Within (10) days after bid opening, return plans, project manual and addenda for refund.
 - *Bidding & Contract Procedures:* Sealed proposals to The City of Moscow, Idaho, at the City Clerk's office, third floor of City Hall, 206 East Third Street, P.O. Box 9203, Moscow, Idaho, 83843, until 2:00 p.m., prevailing local time, Tuesday, August 25, 2026. Sealed bids will be read aloud at City Council Chambers of Moscow City Hall, 206 East Third Street, Moscow, Idaho 83843 at 2:05 p.m. prevailing local time on August 25, 2026. The following is required to be submitted with your bid, **NO EXCEPTIONS**. If any of the items below are not submitted the bid will be considered **NON-RESPONSIVE**.

1. **License Number as a Contractor in the state of Idaho.**
 2. **Bid Proposal forms (provided with bid documents) completed & signed by Contractor, including related Subcontractor Listing.**
 3. **Bid security, in an amount not less than five percent (5%) of the total amount of the bid. The security may be in the form of a bond, or a certified or cashier's check.**
 4. **All blanks, on all bid form documents are to be filled out.**
 5. **No qualifications may be added to the bid form.**
- Review insurance and bonding requirements with your provider prior to submitting bid.**

5. *Project General Items:*

- The existing park and parking lots will be occupied and fully operational through this project. The contractor must coordinate their work to minimize disruption use of the existing surrounding site. All utility shut downs must be scheduled in advance, as defined in the contract documents.
- Contractor shall be aware of the site constraints, including accessibility and staging requirements in the vicinity of the building. The contractor will be allowed the use of the area as noted in the contract documents. The contractor is responsible for security and safety within these areas.
- A pre-construction meeting will be conducted prior to the commencement of the work. A date for this meeting has yet to be defined; it will be coordinated with the selected contractor.
- The Owner will not provide pricing adjustments to reflect fluctuations in material market prices. All bid prices must be fixed, and held as defined in the bidding and contract documents
- The work on the project shall be done under the supervision of the general contractor. Any time a sub-contractor is on site, there shall be a representative of the general contractor available to oversee and supervise this work. The contractor shall provide a phone number for a superintendent who is locally available, as well as an email to receive any job-related documents.
- This Project is NOT Prevailing Wage

6. *Project Specific items*

- The job site be kept clean, and all locations open to the public will be immediately cleaned upon completion of contractor's work.
- No smoking or loud music on the premises.
- Existing Restroom plans are available for your review.

PROJECT SITE VISIT:

- The group will walk through the project site, and a brief description of the work involved will be provided by the architect.

CONTRACTOR QUESTIONS:

Q – Does the Contractor need to provide temporary restroom facilities?

A – One park restroom remains open and heated through the winter months. The Contractor may use the park restroom facilities but will need to provide temporary facilities when restrooms are not accessible due to construction activities. The Contractor shall allow access to the facilities to the public when it is safe to do so. Coordinate shutdowns with the Owner/Architect.

Q – Will the contractor demo the existing irrigation system in the project area?

A – Yes, the Contractor shall remove any existing irrigation lines and sprinkler heads in the project area and cap the branch lines outside and mark them for the Owner's workers. Irrigation wiring is expected to be located only near 3rd Street.

Q – Will the City handle landscape seed and sod scope?

A – Yes, this scope is by Owner.

Q - Is there a required date to complete site work to allow for seeding?

A – The only contractual deadline is the substantial completion date for the project. However, the Owner would like to seed and modify the irrigation system as soon as possible so the Contractor shall coordinate and provide an overall construction schedule with Owner installed landscaping noted at the initial construction meeting.

Q - What is the CMU manufacturer and color?

A – Oldcastle Khaki – However, any of the specified manufacturers are acceptable to provide the closest color match.

Q – Will the Contractor demo the horseshoe pits?

A – Yes

Q – Does the Contractor need to maintain a paved public circulation path when access to the existing is restricted?

A – No

PRE-BID MEETING SIGN-IN FORM

[illegible]

DOCUMENT 00 30 00 - BID PROPOSAL FORM

Project:

City of Moscow
Moscow East City Park Stage Replacement
MOSCOW, IDAHO

BID OPENING DATE:
BID DUE TIME:
BID OPENING TIME:

August 25, 2026
2:00 P.M
2:05 P.M

BID OPENING LOCATION:

City Council Chambers of Moscow City Hall, 2026 East Third Street

BIDDER'S NAME AND ADDRESS:

TO: **The City of Moscow, Idaho**

The bidder, in compliance with the Invitation for Bids for the above-referenced project, having examined the drawings, specifications, related documents, and the site of the proposed work, and having become familiar with local conditions surrounding the proposed work, including availability of materials and labor, hereby proposes to perform all work in accordance with the contract documents, within the time limits set therein, and at the prices stated below, which are to cover all expenses incurred in performing the work.

The bidder acknowledges the receipt of the Addenda listed below and have included these provisions in the bid:

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

BASE PROPOSAL: ALL WORK NOT DEFINED IN A BID ALTERNATE, Bidder agrees to perform all of the base proposal work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$ _____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

BID ALTERNATE NO. 1:

ALTERNATE No. 1 – Concrete Dancer Plaza: Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$ _____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

Bidders Initials _____

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 1
8/12/2026

BID ALTERNATE NO. 2:

ALTERNATE No. 2 – Widened concrete circulation path: Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$_____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

BID ALTERNATE NO. 3:

ALTERNATE No. 3 – Service Entrance Rated Service Panelboard With 400A Main Breaker Panel:

Bidder agrees to perform all of the work described in the specifications and shown on the plans for the sum of

_____ Dollars

\$_____ (Amount shall be shown in both words and figures. If there is a discrepancy, the amount shown in words shall govern.)

The undersigned further agrees that the Owner shall have the right to accept, reject, or waive any irregularities with the bids deemed to be in the best interest of the City of Moscow.

In submitting this bid, the bidder agrees:

The bidder understands that the Owner reserves the right to reject any or all bids and to waive any irregularities in the bidding.

In submitting this bid, the bidder agrees:

1. The bid shall remain valid and may not be withdrawn for a period of forty-five (45) calendar days after the scheduled closing time for receiving bids. Bid alternate pricing shall remain valid for (90) calendar days following the bid opening, should the Owner choose to accept bid alternates after contract award.
2. To accept the provision of the Instruction to Bidders regarding disposition of Bid Security.
3. The bid security attached, in the amount of 5% of the bid amount, is to become the property of the Owner in the event the contract and bond are not executed with the time set forth as liquidated damages for the delay and additional expense to the Owner caused thereby.
4. To furnish within five (5) days after receipt of properly prepared Agreement Between Owner and Contractor the following documents: Performance Bond and Labor and Materials Payment Bond in the amounts of 100% of the bid amount by the surety company authorized to do business in the State of Idaho, a Certificate of Insurance issued by a surety company authorized to do business in the State of Idaho and accompanied by Power of Attorney, a Contractor's Affidavit Concerning Taxes, and the Public Works Contract Report on Subcontractors
5. To accomplish the work in accordance with the bidding documents and commence work on or before the date of Notice to Proceed.
6. To complete the work by the Date of Substantial Completion which shall be One hundred twenty (151) consecutive calendar days or less after Notice to Proceed.

Bidders Initials _____

7. That the contract drawings may be supplemented by additional drawings and specifications in explanation and elaboration of the contract drawings and it is agreed that such supplemental drawings, when not in conflict with the base contract documents, will have the same force and effect as if attached hereto and that when received they will be considered a part of the contract.
8. To execute the work using the sub-contractors named below in the Bid Form Submittal.

The Idaho Naming Law (Section 67-2310, Idaho Code) and requires that general contractors must list the business name and Public Works license number of certain subcontractors. The law stipulates that these will be the major fire sprinkler, mechanical, and electrical subcontractors who the general contractor agrees to engage to do the work. **The firms listed below must be those who will actually do the work on site regardless of contractual considerations between the general contractor and subcontractors.** If the scope of project itself does not include mechanical or electrical components, any firm hired to do incidental piping or wiring such as installation of temporary services, need not be listed. The names and addresses of subcontractors who will accomplish the work, subject to approval of the Owner and architect, if the undersigned is awarded the contract, are as follows:

Plumbing system _____ No _____
Name of Plumbing contractor _____
Public Works license number _____

Electrical system _____ No _____
Name of electrical contractor _____
Public Works license number _____

QUALIFICATIONS / EXPERIENCE: The bidder certifies that the attached form lists the 5 most recent public works projects in excess of \$250,000 contract value that have been, or are being, accomplished by the contractor. These project references will be used as a basis to determine if the apparent low bid is made by a responsible and competent contractor.

Enclosed is bid guarantee consisting of: _____ in the amount of five percent (5%) of the bid amount. (Bid Bond) (Cashier's Check)

The undersigned notifies that they are, or are capable of becoming prior to contract execution, a Public Works Contractor and if currently licensed their Idaho State Public Works Contractor's License No. is _____, and is domiciled in the State of _____.

Dated at _____ this _____ day of _____, 20____.

Respectfully submitted,

Name of Bidder (Company)

(Seal, if bid is by a corporation)

Business Address

Signature of authorized representative

City, State, Zip Code

Title

Telephone

Bidders Initials _____

City of Moscow – East City Park Stage
Moscow, Idaho

00 30 00 - 3
8/12/2026

QUALIFICATIONS / EXPERIENCE: The bidder certifies that the list below contains the five most recent public works projects in excess of \$250,000 contract value that have been, or are being, accomplished by the contractor over the past three year period. Use additional copies of this form if necessary to list all projects. These project references will be used as a basis to determine if the apparent low bid is made by a responsible and competent contractor.

Project Title:

Location:

Reference: Architect or Client
(Name & telephone number)

END OF DOCUMENT 00 30 00

Bidders Initials _____

Attachment "E"

Design West Architects
ADDENDUM NO. 2

City of Moscow – East City Park
Stage Replacement
August 20, 2026
Page 1



ADDENDUM NO. 2 DWA Project # 25101 August 20, 2026

To the Plans and Specifications for:

**City of Moscow – East City Park
Stage Replacement
Moscow, Idaho**

TO ALL CONTRACTORS SUBMITTING BIDS ON THE ABOVE SUBJECT: This Addendum is hereby made a part of the Contract Documents pertaining to the above project and shall be binding upon each contractor submitting bids. Bids submitted shall be for the full and complete cost of incorporating these changes into the contract, no further claims shall be allowed for work associated with this addendum. It shall further be the responsibility of each Contractor to notify his sub-contractors concerning the contents of this addendum as they specifically apply to them. The following changes hereby become a part of the Contract Documents. Acknowledge receipt of this Addendum in the space provided on the Bid Proposal. Failure to do so may subject Bidder to disqualification.

GENERAL NOTE: The additions, revisions, clarifications and corrections contained herein shall be made to drawings and specifications for the project and shall be included in scope of work and proposals to be submitted. Reference made below to specifications and drawings shall be as a general guide only. Bidder shall determine the work affected by Addendum items.

SPECIFICATIONS:

1.1 SECTION 02 41 19 – SELECTIVE STRUCTURE DEMOLITION

CLARIFICATION: Section 1.6 H – Hazardous materials are not expected to be present in the existing structure.

1.2 SECTION 08 71 00 – DOOR HARDWARE

REVISION: See Revised Specification attached

CLARIFICATION: See City of Moscow Door Specification Guideline, hereby incorporated into the project Specifications.

<u>List of Documents:</u>	<u>Size</u>	<u>No. Of Pages:</u>
Addendum 1	8-½" x 11"	1
Specification 08 71 00	8-½" x 11"	9
City of Moscow Parks Door Hardware Specification	8-½" x 11"	5

END OF ADDENDUM NO. 1.

SECTION 08 71 00 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes
 - 1. Hardware for Standard steel and solid core wood doors.
- B. Related Sections
 - 1. Section 08 11 13 Hollow Metal Doors & Frames

1.2 REFERENCES

- A. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
- B. ANSI A 156 - Door Hardware (ANSI/BHMA Standards)
- C. NFPA 80 - Fire Doors and Windows.
- D. AWI - Architectural Woodwork Institute - Architectural Wood Work Quality Standards.
- E. NFPA 101 - Code for Safety to Life from Fire in Buildings and Structures.
- F. NFPA 252 - Fire Tests of Door Assemblies.
- G. UL 10B - Safety Fire Tests of Door Assemblies.
- H. American Disabilities Act Accessibility Guidelines.
- I. BHMA - Builders Hardware Manufacturers Association - A156 Series.
- J. UL 305 - Safety Panic Hardware.

1.3 SUBMITTALS

- A. Submit under provisions of Division 01.
- B. Verification of Door and Hardware Schedule – submit written confirmation that supplier has reviewed and verified the function and compatibility of the products furnished and installed under this section.
- C. Keying Information – sample submittal format follows this section
- D. Key biting schedule data – sample format follows this section
- E. Submittal Sequence: Submit verified schedule at earliest possible date, particularly where acceptance of hardware schedule must precede fabrication of other work (e.g., hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings of other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule.
- F. Keying Meeting and Schedule: Arrange for a keying meeting with the Architect and Owner, hardware supplier, and other involved parties prior to return of the reviewed finish hardware schedule, to insure all locksets are functionally correct and keying fulfill the project requirements. Initial keying meeting to occur within 60 days of Notice to Proceed. As soon as possible after the keying conference, typed copies of the keying schedule shall be furnished to the Owner and Architect for review.
- G. Submittal Sequence: Submit schedule at earliest possible date particularly where acceptance of hardware schedule must precede fabrication of other work (e.g. hollow metal frames) which is critical in the project construction schedule. Include with schedule the product data, samples, shop drawings or other work affected by finish hardware, and other information essential to the coordinated review of hardware schedule. Allow 30 days minimum for A/E and City of Moscow to review the submittal
- H. Templates: Furnish hardware templates to each fabricator of door, frames and other work to be factory prepared for the installation of hardware. Check shop drawings of such other work to confirm that adequate provisions are made for

- proper location and installation of hardware.
- I. Contract Close-out Requirements.
 1. Project Record Documents.
 - a. Submit under provisions of Division 01.
 - b. Record actual locations of installed cylinders and their master key code.
 2. Operation and Maintenance Data
 - a. Submit under provisions of Division 01.
 - b. Maintenance Data: Include data on operating hardware, lubrication requirements, and inspection procedures related to preventative maintenance.

1.4 QUALITY ASSURANCE

- A. Perform work in accordance with the following requirements:
 1. ANSI A117.1
 2. NFPA 101.
 3. NFPA 80.
 4. NFPA 252.
 5. American Disabilities Act Accessibility Guidelines.
 6. BHMA - A115 Series.
- B. Qualifications
 1. Manufacturer: Obtain each type of hardware (latch and locksets, hinges, closers, etc.) from a single manufacturer, although several may be indicated as offering products complying with requirements.
 2. Hardware Supplier: Company specializing in supplying commercial door hardware with 5 years documented experience, approved by manufacturer, and located within 150 miles of the project
 3. Hardware Supplier Personnel: Employ a certified Architectural Hardware Consultant (AHC) to assist in the work of this section. AHC should review construction documents and verify hardware function for given location or requirements for a complete code complying, functioning installation.
- C. Regulatory Requirements
 1. Conform to applicable code for requirements applicable to fire rated doors and frames.
 2. Fire Rated Openings: Provide hardware for fire-rated openings in compliance with NFPA Standard No. 80 and local building code requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, protect and handle products to site under provisions of Division 01.
- B. Package hardware items individually; label and identify each package with door opening code to match hardware schedule.
- C. Deliver keys to Owner by security shipment direct from hardware supplier.
- D. Inventory hardware jointly with representatives of hardware supplier and hardware installer until each is satisfied that count is correct.
- E. Provide secure lock-up for hardware delivered to the project but not yet installed. Control handling and installation of hardware items which are not immediately replaceable so that completion of the work will not be delayed by hardware losses, both before and after installation.

1.6 SEQUENCING AND SCHEDULING

- A. Coordinate work under provisions of Division 01.
- B. Coordinate the work with other directly affected sections involving manufacture or fabrication of internal reinforcement for door hardware.

1.7 EXTENDED WARRANTY

- A. Under provisions of Division 01. Include coverage for all hardware.
- B. Extended Warranty - Manufacturer's standard for individual item.

1.8 MAINTENANCE

- A. Provide under provisions of Division 01.
- B. Provide special wrenches and tools applicable to each different or special hardware component.
- C. Provide maintenance tools and accessories supplied by hardware component manufacturer.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: The numbers shown for the hardware items are taken from the catalogs of the manufacturers indicated and are for the purpose of establishing quality, design, and function. Except as listed as approved substitutes by item basis, no other manufacturer substitutions will be allowed unless approved by the Architect ten (10) days prior to bid opening. No substitutions will be allowed after bid opening.
- B. The numbers shown in the hardware groups are taken from the catalogs of the following manufacturers and are for the purpose of establishing quality, design and function. Except as listed, no substitution will be allowed unless approved by the Architect.

ITEM	MANUFACTURER	APPROVED SUBSTITUTE
Continuous Hinges	Stanley	Hager
Locksets, Latchsets	Best	None
Cylinders	Best	None
Exit Devices	Precision	Von Duprin
Astragal	NGP	Pemko
Flushbolts	Trimco	Hager, Rockwood
Push/Pull Plates	Trimco	Hager, Rockwood
Closers	Stanley	LCN
Wall Stops	Trimco	Hager, Rockwood
Overhead Stops	ABH	Hager, Rockwood
Magnetic Holders	ABH	By substitution
Protection Plates	Trimco	By substitution
Thresholds	NGP	Pemko
Door Bottoms	NGP	Pemko
Gasketing	NGP	Pemko
Door Drip Cap	NGP	Pemko

2.2 MATERIALS/PRODUCTS:

- A. Provide end products of one manufacturer for each item specified..
- B. Finishes: BHMA 1301 Standards.
 - 1. Provide matching finishes for hardware units at each door or opening, to the greatest extent possible, and except as otherwise indicated. Reduce differences in color and textures as much as commercially possible where the base metal or metal forming process is different for individual units of hardware exposed at the same door or opening. In general, match items to the manufacturer's standard finish for the latch and lockset (or push-pull units) for color and texture.
 - 2. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness and other qualities complying with manufacturer's

- standard, but in no case less than specified for the applicable units of hardware by referenced standards.
3. The designations used in schedules and elsewhere to indicate hardware finishes are those listed in ANSI A156.18 "Materials and Finishes Standard" and Builders Hardware Manufacturer's Association (BHMA), including coordination with the traditional U.S. finishes shown by certain manufacturers for their products.
 4. Hardware in general to be BHMA 626 and /or 652, Satin Chromium Plated. Applicable Stainless Steel hardware shall be BHMA 630, Satin Stainless Steel.
 5. Door closers to be in plastic covers finished to match other hardware.
- C. Hardware shall meet NFPA-80 requirements for Fire Assembly Rating and be Underwriters Laboratories, Inc. approved for specific application: See Door Schedule.
 - D. Fasteners: Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation. Do not provide hardware which has been prepared for self-tapping sheet metal screws, except as specifically indicated.
 - E. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws, except as otherwise indicated. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of such other work as closely as possible, including "prepared for paint" in surfaces to receive painted finish.
 - F. Provide concealed fasteners for hardware units which are exposed when door is closed, except when no standard units of type specified are available with concealed fasteners. Do not use through-bolts for installation where bolt head or nut on opposite face is exposed in other work, except where it is not feasible to adequately reinforce the work. In such cases, provide sleeves for each through-bolt or use hex screw fasteners.

2.3 KEYING

- A. Review the keying system with the City of Moscow and provide the type required (master, grandmaster or great-grandmaster), integrated with the existing system
- B. Keying System: Best Cylindrical 93K Series. (No Substitution). Comply with the City of Moscow's instructions for master keying, and, except as otherwise indicated; provide individual change keys for each lock which is not designated to be keyed alike with a group of related locks. Provide temporary cylinders for use during the construction period
- C. Provide construction cores and keys during the construction period. Permanent cores and keys prepared according to the accepted keying schedule will be furnished to the owner by the local factory representative prior to occupancy. The Owner or Owner's agent will install permanent interchangeable cores and return the construction cores to the factory representative.
- D. All cylinders shall be keyed into the existing masterkey system.
- E. Furnish keys and related hardware in the following quantities:
 1. 20 Each 9K-AB Cormax key blanks
 2. 5 each 9K-D Cormax key blanks
 3. 10 each Master Key Blanks
 4. 4 each Cylinders 93K Series
- F. Key all doors.

2.4 HINGES

- A. General
 1. ANSI A 156J
 2. Quantity per door leaf height (minimum):
1 pair to 5'-0" high

- 1-1/2 pair 5'-1" to 7'-7"
- 2 pair 7'-7" to 10'-0"
- 3. Hinge height (minimum):
 - 4 1/2" to 3'-0" door width
 - 5" 3'-1" to 4'-0"
- 4. Hinge width (minimum): twice the door thickness, plus the jamb trim project at 180 degree swing.
- 5. Templates: Except for hinges and pivots to be installed entirely (both leaves) into wood doors and frames, provide only template produced units.
- 6. Screws: Furnish Phillips flat-head machine and/or wood screws for installation of units. Finish screw heads to match surface of hinges or pivots. Provide stainless steel fasteners on exterior doors.
- 7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges - Steel pins.
 - b. Non-Ferrous Hinges - Stainless steel pins.
 - c. Out-Swinging Doors - Non-removable Pins(NRP). Use set screw in barrel type.
 - d. Tips - Flat button and matching plug, finished to match leaves, except where hospital tip (HT) indicated.

B. Mortise Hinges

- 1. Full Mortise Hinges, 5-knuckle, flat button tip, anti-friction bearing type. Use Brass/Bronze type hinges on all exterior exposed doors.
- 2. Hinge A: High frequency use , heavy weight (entry, class, restroom)
 - Stanley: Stanley FBB191 x NRP (Exterior doors) 626
 - Hager: Equal
- 3. Hinge B: Average frequency used, standard weight (office, storage mechanical)
 - Stanley: FBB168 (Heavy use non traffic interior doors) 652
FBB179 (Interior doors) 652
 - Hager: Equal

2.5 LOCKSETS AND LATCHES

A. General

- 1. ANSI A156.2, Series 4000, Grade 1 ANSI A117.1, Accessibility Code
- 2. Features:
 - a. Lockset and Trim: Best Cylindrical, 93K Series
 - 1) 14D Trim 626
 - b. Backset: 2-3/4 inch.
 - c. Strikes: Provide manufacturer's standard wrought box strike for each latch or lock bolt, with curved lip extended to protect frame, finished to match hardware.
 - d. Latchbolt: 9/16" minimum throw, 3/4" on Fire Door pairs, and Auxiliary Deadlocking Latchbolt feature.

B. Mortise & Cylindrical

- 1. Lockset x ANSI No. ____
- 2. ANSI No.
 - 9K-AB Office/Entrance Function-Faculty, Administration
 - 9K-R Classroom Function
 - 9K-S Communicating Function-doors between rooms
 - 9K-D Storeroom Function-Janitor, Storage, Boiler rooms
 - 9K-N Passage Function
- 3. Approved Manufacturers:
 - a. Best
 - b. No other approved manufacturers

2.7 CLOSERS

A. General

1. ANSI A156.4, Grade 7 ANSI A117.1 Accessibility Code
2. Provide closer on active leaf of non-rated paired doors.
3. Install closer on interior (push) side of door.
4. Size closer as per Manufacturer's recommendations.
5. Install thru-bolts with backer plates on all wood doors.
6. Provide parallel arm mounting ANSI/BHMA CO2021. Use regular arm mounting only where parallel mounting is not appropriate or recommended.
7. Provide heavy duty type arms.
8. Provide hold-open type arms except where fire rated assemblies occur: see Hardware Schedule in Section 08 71 00.

B. Schedule:

Item	Location	Norton No.
1. Closer B	Stanley QDC100 Rated, Exterior Doors	QDC115 x SN

C. Other approved Manufacturer's: LCN 4040 XP

2.8 PUSH-PULLS

A. General

1. ANSI/BHMA 626 finished.
2. Plates: 1/8" extruded, beveled top and bottom, 4" x 16".
3. Pulls: Bolt Through Door, 3/4" diameter x 8".
4. Push Plates: Countersink pull through bolts and cover with push plates.

B. Schedule:

1. Push/Pull — 1001 x 1018-3B - Trimco.

2.9 STOPS AND HOLDERS

A. General

1. ANSI A156.16
ANSI A117.1 Accessibility code.
2. ANSI/BHMA 626 finished.
3. Fasteners
 - a. Machine screws and threaded anchors at concrete or masonry.
 - b. Self tapping screws at wood or metal framing.
4. Metal risers at carpet floors.
5. Electromagnetic Holder
 - a. ANSI A156.15.
 - b. Underwriters Laboratory, Inc. (U.L.)
 - c. Fail Safe Operation
 - d. Power Source: 24 V. AC/DC from Fire Alarm System. Coordinate with Division 26.
 - e. Provide extension arms and special mounting plates as required for complete installation of each electromagnetic holder. Contractor shall provide any special mounting hardware as a part of the base bid.

B. Schedule

1. <u>Wall Stop</u>	1270CV	Trimco
2. <u>Floor Stop</u>	1214CK	Trimco
3. <u>Door Holder</u>	4400 Series	ABH

2.10 BOLTS

A. General

1. ANSI A156.16
2. ANSI/BHMA 626 finished.
3. Automatic top and bottom bolts on inactive leaf of a pair of fire assembly

rated doors, complete with dust-proof strike.

B. Schedule:

1. Flush Bolt 3917 Trimco
 - a. Approved Substitute: Hager, Rockwood
3. Automatic Flush Bolts 3810 x 3810 Trimco
 - a. Approved Substitute: Hager, Rockwood

2.11 DOOR PLATES

A. General

1. ANSI A156.6
2. Stainless Steel ANSIBHMA 630 finished
3. Width of door leaf less 1 1/2" at single doors and less 1" at pairs
4. Solid Metal (0.050 inch), all edges beveled
5. Install on push side of door

B. Schedule:

1. Kickplate: width specified above x 10" high Trimco

2.12 THRESHOLDS

A. General

1. ANSI A117.1, Accessibility Code
2. Aluminum, ANSIBHMA 719 finished
3. Thermal Break
4. Stainless Steel Anchors

B. Schedule:

1. Threshold 513 NGP
2. Threshold, Pemko

2.13 WEATHERSTRIP AND SEALS

A. General

1. NFPA 80, 2-5.4 at fire rated and smoke assembly doors
2. Aluminum, ANSI/BHMA 719 finished
3. Seals, vinyl and silicone

B. Schedule:

1. Door Seal 513 NGP, Pemko
2. Meeting Stile Seal 18061 PEMKO
3. Door Sweep 18062 PEMKO (Exterior Door)

2.15 DOOR COORDINATOR

A. General

1. ANSI A156.3
2. Steel, Primed, ANSIBHMA 600 finished.
3. Provide filler tube-infill, strike and brackets.

2.16 DOOR DRIP CAP

A. General

1. Clear Anodized Aluminum, 343
2. Install full width of door opening with 2" extension of coverage on both sides of operable door.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify site conditions under provisions of Division 01.
- B. Verify that doors and frames are ready to receive work and dimensions are as instructed by the Manufacturer.

- C. Verify that electric power is available to power operated devices and of the correct characteristics.

3.2 INSTALLATION

- A. Mount hardware units at heights indicated in "Recommended Locations for Builders Hardware for Standard Steel Doors and Frames" by the Door and Hardware Institute, except as specifically indicated or required to comply with governing regulations, and except as may be otherwise directed by Architect.
- B. Use templates provided by hardware item manufacturer.
- C. Conform to ANSI 117.1 and American Disabilities Act Guidelines for positioning requirements for the handicapped.
- D. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces which are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protection with finishing work specified in the Division 9 sections. Do not install surface-mounted items until finishes have been completed on the substrate.
- E. Set units level, plumb and true to line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units which are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
- G. Set supporting elements of thresholds for exterior doors in full bed of Type E sealant as specified in Section 07 92 00.

3.3 FIELD QUALITY CONTROL

- A. Field inspection and testing will be performed under provisions of Division 01.
- B. Architectural Hardware Consultant to inspect finished installation and certify that hardware and installation has been furnished and installed in accordance with manufacturer's instructions and as specified.

3.4 ADJUST AND CLEAN

- A. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to punch list, acceptance or occupancy, and make final check and adjustments of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- B. Continued Maintenance Service: Approximately six months after the acceptance of hardware in each area and before substantial completes the installer, accompanied by representatives of the latch and lock, exit device, and closer manufacturers, shall return to the project and re-adjust every item of hardware to restore proper function of doors and hardware, and to consult with and instruct the City of Moscow's personnel in recommended additions to the maintenance procedures. Replace hardware items which have deteriorated or failed due to faulty design, materials, or installation of hardware units. Prepare a written report of current and predictable problems (of substantial nature) in the performance of the hardware.

3.5 HARDWARE SCHEDULE - HARDWARE GROUPS

HW1 (#103A, #103B – Exterior Door)

- 3 ea Hinges FBB191 x NRP
- 1 ea Lockset Best 9K-AB
- 1 ea Closer/Stop Stanley QDC115 x SN
- 2 ea Kickplate Trimco KO050 10" x 2" LDW x B3E x CSK
- 1 ea Wall Stop Trimco 1270 CXCP Wall Stop

- 1 set Gasket NGP 601A
- 1 ea Door Drip Cap NGP 16A x 4" ODW

HW2 (#101, #102 Utility Room, Interior Door)

- 3 ea Hinges T4A3786 26D 4 1/2 x 4 1/2
- 1 ea Lockset Schlage ALX53P
- 1 ea Cylinder 30-001 626
- 1 ea Closer/Stop UNI7500 689 x 6191 x 6891
- 2 ea Kickplate K1050 24 x 2 LTDW 630 B4E
- 1 ea Wall Stop 1270CV 626
- 1 ea Threshold 271AK x LAR
- 2 ea Door Sweep 18062CNB x TEK x LAR
- 1 set Gasket S88D
- 1 ea Door Drip Cap 343

HW3 (#100A / #100B Stage Door)

- 3 ea Hinges by Mnfr
- 1 ea Best 83T-S/38H-R- Deadlock
- 1 ea Cylinder
- 1 set Push/Pull —1001 x 1018-3B
- 2 ea Kickplate KO050 10" x 2" LDW x B3E x CSK
- 1 ea Wall Stop 1270 CXCP Wall Stop
- 1 set Gasket NGP 5050B

END OF SECTION 08 71 00

City of Moscow Parks

650 N. Van Buren
Moscow, ID 83843

DOOR HARDWARE

SPECIFICATION GUIDELINE

SECTION 08710

Created August 2015

City of Moscow Parks

650 N. Van Buren
Moscow, ID 83843

Contact: Jay Lewis
Phone: 208-669-0418
Email: jlewis@ci.moscow.id.us

DOOR HARDWARE SPECIFICATION GUIDELINE SECTION 08710

Creation Date: August 2015

The purpose of this booklet is to support the facility's building standards for door hardware. The facility maintains the following hardware and is currently stocking replacement parts. The products listed in this booklet are to be used without substitution on new construction and modernization projects unless products are listed in this package as an alternate.

It is the intent of this booklet to provide guidelines for the architect's specification section 08710, for product groups and the hardware schedule. It remains the architect's responsibility to coordinate these products to meet the applicable building codes, life safety codes, and ADA requirements.

Section 08710-door hardware preamble must specify the following:

Door and frame prep

Before hardware installation, verify that all doors and frames are properly prepared to receive the specified hardware. Hollow metal frames shall be prepared for ANSI strike plates per A115.1-2 (4-7/8" high), hinge preps will be mortised and reinforced with a minimum of 10 gauge reinforcement material; minimum of 14 gauge reinforcement material for closer. Hollow metal doors shall be properly prepared and reinforced with a minimum of 16-gauge material for either mortised or cylindrical locks as specified. It is preferred that all hollow metal doors receiving door closers have 14 gauge reinforcement. If this is not possible, the use of sex bolts is mandatory. Wood doors shall be factory prepared to receive the scheduled hardware.

Hardware installation

The manufacturer's representative for the locking devices and closing devices must inspect and approve, in writing, the installation of their products. Hardware installed incorrectly must be reported to the architect prior to the architect's final punch list.

For Specifications contact:

Jenny Senner CSI, CDT
Architectural Consultant Representative
Stanley Security Solutions
Phone: (206) 419-5479
Jenny.Senner@sbdinc.com

For Questions contact:

Alan Sharpe
End User Consultant
Stanley Security Solutions
Phone: (425) 269-3365
Alan.Sharpe@sbdinc.com

SPECIFICATION GUIDELINE

Manufacturers and Products

City of Moscow Parks – STANDARDS – Substitutions or Alternates not permitted unless noted below.

Edit Date: August, 2015

DOOR HARDWARE				
Description	Manufacturer	Model / Series	Finish	
<u>Hanging Devices</u>				
Continuous Hinge	Stanley	661HD/662HD (Exterior and interior high use doors)	628	
Mortise Hinge	Stanley	FBF191 x NRP (Exterior doors)	626	
		FBF168 (Heavy use non traffic interior doors)	652	
		FBF179 (Interior doors)	652	
Alternate	Hager			
<u>Securing Devices</u>				
Lock Set	Best	Cylindrical, 93K Series, 14D Trim	626	
		Electrified Cylindrical 9KW Series, 14D Trim	626	
	<u>Lock Function</u>	<u>Room type</u>		
	9K-AB	Office/Entrance Function-Faculty, Administration		
	9K-R	Classroom Function		
	9K-S	Communicating Function-doors between rooms		
	9K-D	Storeroom Function-Janitor, Storage, Boiler rooms		
	9K-N	Passage Function		
		• Grade 1 cylindrical and mortise locks to have interior locking directions for intruder functions. Must meet or exceed 4,000,000 cycles in accordance with ANSI Standard 156.2 Operational Reliability Cycle Test. Minimum Warranty: 7 years, lost motion levers exterior only, deadbolt where specified		
Alternate	No substitutions			
Auxiliary Locks	Best	83T-S/38H-R- Deadlock	626	
Alternate	No Substitution			
Padlocks Cabinet/Drawer Locks	Best	21B-interior / 41B-exterior	626	
	Best	5L		
Alternate	No Substitution			
Key System	Best	SFIC Cormax Patented Removable/Interchangeable Core 7-pin Standard Keyway (Existing System) Provide Visual Key Control with the keys stamped “DO Not Duplicate”, stamp keys and cores and serialize. Provide a Knox box at specified locations.		
Alternate	No substitutions, all cores must be pinned to and keys must cut to the existing Best factory Patented master keyed system, three keys per core. Provided by Contractor.			
Exit Device	Precision Apex	2000 Series – use for high-use doors	630	
		2403CD x 2003C (single door, narrow stile, exterior)	630	
		2401CD x 2001 X 2403CD x 2003C X KR822 (pr, narrow stile, ext.)	630	
		2103CD x Trim (at single door, exterior)	630	
		2101CD x 2103CD x NL Trim X KR822 (at pairs, exterior)	630	
		FL2108 x VR4908A (rated single doors)	630	
		FL2101 X FL2108 x VR4908A x FLKR822 (rated pairs)	630	
		N674DA-3 Dummy push bars at vestibule doors	630	
		• All Exit devices must have deadlocking latch bolt		

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DOOR HARDWARE			
Description	Manufacturer	Model / Series	Finish
		• Keyed removable mullions • Provide vandal resistant levers • All exit devices are to be mounted using SNB (Thru bolts) • Less Bottom Rod (LBR) for all vertical rod devices • Must meet or exceed 5,000,000 cycles in accordance with ANSI Standard 156.13 Operational Reliability Cycle Test. Minimum Warranty: 5 year	
Alternate	Von Duprin	98 Series	
Coordinator	Trimco	3094 Series x 2/3095 /or/ 3096	600
		• Use coordinator where required by fire code	
Alternate	Hager		
Alternate	Rockwood		
Automatic Flush Bolts	Trimco	3810 x 3810 (Automatic) (metal doors)	626
		3815 x 3815 (Automatic) (wood doors)	626
Alternate	Hager		
Alternate	Rockwood		
Manual Flush Bolts	Trimco	3917 (Manual) (metal doors)	626
		3913 (Manual) (wood doors)	626
Alternate	Hager		
Alternate	Rockwood		
Closing Device			
Surface Closer	Stanley QDC100	QDC115 x SN (exterior out swinging) QDC115 x SN/QDC111 x SN (interior)	
		• Provide Compression stop arm as needed • Minimum Warranty: 30 year mechanical, tri-pack mounting, non-handed, delayed action, covers to be held in place with friction points, all weather fluid.	
Alternate	LCN 4040 XP		
Automatic Operator	Stanley	D-4990 Series with square push plate actuators as required by the project	
Stops & Holders			
Overhead Door Holder	ABH	1000 Series (Overhead Concealed-Heavy Duty)	626
		4000 Series (Overhead Concealed-Standard Duty)	626
		4400 Series (Overhead Surface-Standard Duty)	626
Alternate	Hager		
Alternate	Rockwood		
Door Stop	Trimco	1270 CXCP Wall Stop (Interior)	626
		1211 -Floor Stop (Interior)	626
		1214CK -Floor Stop (Exterior)	626
		1261- Floor Stop/Holder at all restrooms	626
		• Allow for maximum swing of doors • Backing required at wall stops	
Alternate	Hager		
Alternate	Rockwood		

SPECIFICATION GUIDELINE

Manufacturers and Products

City of Moscow Parks – STANDARDS – Substitutions or Alternates not permitted unless noted below.

Edit Date: August, 2015

Description		Manufacturer	DOOR HARDWARE Model / Series	Finish
Accessories				
Push / Pull Bars		Trimco	1731	626
Alternate		Hager		
Alternate		Rockwood		
Push / Pull Plate		Trimco	1001 x 1018-3B	626
Alternate		Hager		
Alternate		Rockwood		
Kick Plate		Trimco	KO050 10" x 2" LDW x B3E x CSK (Single doors) KO050 10" x 1" LDW x B3E x CSK(Pair doors)	626 626
Mop Plate		Trimco	KO050 4" x 2" LDW x B3E x CSK (Single doors) KO050 4" x 1" LDW x B3E x CSK (Pair doors)	626 626
Alternate		Hager		
Alternate		Rockwood		
Electromagnets		ABH	2120	626
Alternate		Owner approved equal		
Threshold		NGP	513 (1/2" x 5" Saddle threshold) • Architect to coordinate with project conditions	MIL
Alternate		Pemko		
Smoke Seal		NGP	5050B	
Alternate		Pemko		
Weather Seal		NGP	600A(at head and jambs) 601A (at sill on door – surface mount)	628 628
Alternate		Pemko		
Astragal		NGP	139SP	628
Alternate		Pemko		
Meeting Stile		NGP	9600A	628
Alternate		Pemko		
Drip Guard		NGP	16A x 4" ODW (Exterior doors exposed to rain)	628
Alternate		Pemko		
Door Silencer		Trimco	1229A (Metal Frames) 1229B (Wood Frames)	Gray Gray
Alternate		Hager		
Alternate		Rockwood		

COMMITTEE / CITY COUNCIL STAFF REPORT

DATE: Monday, September 14, 2026



AGENDA ITEM TITLE

Ordinance Amending Moscow City Code Title 4, Chapters 1, 3, and 6, Regarding Manufactured Homes and Accessory Dwelling Units (ACTION ITEM) - Mike Ray

RESPONSIBLE STAFF

Michael Ray, Assistant CD Director/Planning Manager

ADDITIONAL PRESENTER(S)

DESCRIPTION

Senate Bill 1354a – Accessory Dwelling Units and House Bill 800 – Manufactured Homes are two bills that were signed into law during the 2026 Idaho Legislative Session. The proposed ordinance is intended to bring Moscow City Code into compliance with the new laws. The Planning and Zoning Commission conducted a public hearing on the proposed ordinance on August 12, 2026, and recommended approval to City Council. The public hearing before City Council has been scheduled for September 21, 2026.

REVIEWED BY

Planning and Zoning Commission

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend forwarding the proposed ordinance for public hearing at the Council's upcoming September 21, 2026, meeting; or provide staff further direction.

STAFF RECOMMENDATION

Recommend forwarding the proposed ordinance for public hearing at the Council's upcoming September 21, 2026, meeting.

OTHER RESOURCES

FISCAL IMPACT

PERSONNEL IMPACT

ATTACHMENTS

1. Staff Memo
2. Ordinance 2026 -Amending Title 4 CH1_ CH3_ CH6_ final
3. Public Hearing Notice
4. P&Z Minutes

Memo

To: Mayor and City Council

From: Mike Ray, AICP, Planning Manager

Date: September 9, 2026

Re: Amendment of Moscow City Code Title 4, Chapters 1, 3, and 6; Providing for the Amendment of the Definition of Manufactured Home and Accessory Dwelling Unit Standards

House Bill No. 800

During the 2026 Idaho Legislative Session, House Bill No. 800 was passed and signed by the Governor amending Idaho Code § 67-6509A, which revised provisions regarding the siting of manufactured homes in residential areas. The revisions allow for manufactured duplexes to be placed on multi-family lots. Additionally, the changes also allow single section manufactured homes that are at least 400 sf to be placed on lots zoned for single-family homes and multi-sectional manufactured homes that are at least 800 sf to be placed on lots zoned for multi-family homes.

State code currently requires that all land zoned single-family residential allow for the siting of manufactured homes. A governing board may adopt any or all of the following placement standards, or any less restrictive standards, for the approval of manufactured homes located outside mobile home parks:

- a. The manufactured home shall be multisectional and enclose a space of not less than one thousand (1,000) square feet;
- b. The manufactured home shall be placed on an excavated and back filled foundation and enclosed at the perimeter such that the home is located not more than twelve (12) inches above grade, except when placed on a basement foundation;
- c. The manufactured home shall have a pitched roof, except that no standards shall require a slope of greater than a nominal three (3) feet in height for each twelve (12) feet in width;
- d. The manufactured home shall have exterior siding and roofing which in color, material, and appearance is similar to the exterior siding and roofing material commonly used on residential dwellings within the community or which is comparable to the predominant materials used on surrounding dwellings as determined by the local permit approval authority;
- e. The manufactured home shall have a garage or carport constructed of like materials if zoning ordinances would require a newly constructed nonmanufactured home to have a garage or carport;

- f. In addition to the provisions of paragraphs (a) through (e) of this subsection, a city or county may subject a manufactured home and the lot upon on which it is sited to any development standard, architectural requirement, and minimum size requirements to which a conventional single-family residential dwelling on the same lot would be subjected.

That City of Moscow currently allows for the siting of manufactured homes on any lot which would allow a single-family dwelling and has adopted sections 'a' through 'd' above. In order to bring the City Code into compliance with House Bill No. 800, the following changes to the manufactured home placement standards are being proposed:

- a. The manufactured home ~~shall be~~ may be either a single section or multisectional and shall enclose a space of ~~not less than one thousand (1,000) square feet~~ at least four hundred (400) square feet for a single section or eight hundred (800) square feet for a multisectional manufactured home; and
- b. The manufactured home shall be placed on an excavated and backfilled foundation and enclosed at the perimeter such that the home is located not more than twelve inches (12") above grade, except when placed on a basement foundation; and
- c. The manufactured home shall have a pitched roof of at least three feet (3') in vertical rise for each twelve feet (12') in horizontal run; and
- d. The manufactured home shall have any exterior siding and roofing material which is approved by the City for site-built homes; and

Senate Bill No. 1354

During the 2026 Idaho Legislative Session, Senate Bill No. 1354 was passed and signed by the Governor adding a new section, Idaho Code § 67-6541, to establish a definition and provisions regarding Accessory Dwelling Units. Within the new ADU section, it states that no city shall ban ADUs in any residential zoning area. Additionally, by February 1, 2027, each city governing board shall amend its comprehensive plan and land use regulations for all land zoned for single family residential uses, except for lands falling within an area defined as a historic district under section 67-4607, Idaho Code, or designated as a historic property pursuant to section 67-4614, Idaho Code, to:

- a. Allow for either one (1) internal accessory dwelling unit within the single-family dwelling or one (1) detached accessory dwelling unit per lot in the rear yard or subject to setbacks required of the primary dwelling;
- b. Prohibit requiring any off-street parking or guest parking for any accessory dwelling unit unless the principal dwelling unit does not have off-street parking or the street is not paved and designed or constructed for on-street parking or unless the principal dwelling unit is within one-fourth (1/4) mile of transit, an employment area, or commercial services;
- c. Prohibit imposing impact fees or utility connection fees on accessory dwelling units that are greater than those imposed on other single-family dwellings;
- d. Prohibit limiting the size of an accessory dwelling unit to less than one thousand (1000) square feet or seventy-five percent (75%) of the size of the primary dwelling;

- e. Prohibit an owner-occupancy requirement for the primary dwelling or for the accessory dwelling unit;
- f. Prohibit imposing a limit on building height that is less than the height of an existing single-family primary dwelling on a lot; and
- g. Prohibit restrictions for accessory dwelling units that are more restrictive than restrictions for single-family dwellings within the same zoning district with regard to setbacks, lot size, or coverage or building frontage

Since 2015, the City of Moscow has permitted ADUs within all residential zones subject to certain specific use standards which address size, maximum occupancy, owner occupancy, and off-street parking. Based upon the new State code changes, the City is proposing to make the following modifications to the specific use standards:

A. Accessory Dwelling Units:

1. Applicability and Purpose. These standards shall apply to Accessory Dwelling Units which are permitted by this Code. These standards are intended to help promote the benefits of Accessory Dwelling Units, while also preserving neighborhood character and creating predictability and certainty for established neighborhoods.
2. Specific Standards.
 - a. General. Accessory Dwelling Units must meet all applicable regulations for the zoning district in which they are located, except as otherwise expressly stated within this Section.
 - b. Size. The floor area of the Accessory Dwelling Unit may not exceed ~~six hundred (600)~~ one thousand (1,000) square feet or ~~forty percent (40%)~~ seventy-five percent (75%) of the gross floor area of the principal dwelling, whichever is less.
 - c. Maximum Occupancy. The number of persons allowed to reside within an Accessory Dwelling Unit shall be limited to ~~two (2)~~ four (4).
 - ~~d. Owner Occupancy.~~
 - ~~i. Prior to the issuance of a building permit for an Accessory Dwelling Unit, the property owner must record a deed restriction upon the property which states that the property owner will reside on the property, within either the principal dwelling or Accessory Dwelling Unit. The deed restriction must be approved by the City Attorney and shall be binding upon the heirs, assigns, and subsequent purchasers of the property.~~
 - ~~ii. Owner occupancy means a property owner, as reflected in real property records, who makes his or her legal residence at the property, as evidenced by voter registration or similar means and actually resides at the property for more than six (6) months out of any given year. Owner occupancy may also include a named natural person with an ownership or benefit in a private trust, but shall not extend to corporate trusts.~~
 - ~~iii. The Zoning Administrator may waive this requirement for temporary absences of greater than six (6) months for military service, employment sabbatical, or family medical leave qualified absences.~~

~~Temporary leave waivers for other reasons must be reviewed and approved by the City Council.~~

- d. Off-street parking. One (1) off-street parking space shall be required for the Accessory Dwelling Unit, only if there are currently no off-street parking spaces provided in addition to that required for the principal dwelling on the property.

The Planning and Zoning Commission conducted a public hearing on the proposed amendments within the draft ordinance on August 12, 2026, and recommended approval to City Council. The public hearing before City Council has been scheduled for September 21, 2026.

ORDINANCE NO. 2026-__

AN ORDINANCE OF THE CITY OF MOSCOW, IDAHO, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO; PROVIDING FOR THE AMENDMENT OF MOSCOW CITY CODE TITLE 4, CHAPTER 1, SECTION 1-6, DEFINITIONS FOR MANUFACTURED HOME; PROVIDING FOR THE AMENDMENT OF MOSCOW CITY CODE TITLE 4, CHAPTER 3, SECTION 3-5.A., SPECIFIC USE STANDARDS FOR ACCESSORY DWELLING UNITS; PROVIDING FOR THE AMENDMENT OF MOSCOW CITY CODE TITLE 4, CHAPTER 6, SECTION 6-2.E.7. PARKING TABLE; PROVIDING THAT THE PROVISIONS OF THIS ORDINANCE BE DEEMED SEVERABLE; AND PROVIDING FOR THIS ORDINANCE TO BE IN FULL FORCE AND EFFECT FROM THE DATE OF ITS PASSAGE, APPROVAL, AND PUBLICATION ACCORDING TO LAW.

WHEREAS, during the 2026 Idaho Legislative Session, House Bill No. 800 was passed and signed by the Governor amending Idaho Code § 67-6509A, which revised provisions regarding the siting of manufactured homes in residential areas; and

WHEREAS, in order to be in compliance with House Bill No. 800 upon its effective date of July 1, 2026, the City is amending the definition of Manufactured Home; and

WHEREAS, during the 2026 Idaho Legislative Session, Senate Bill No. 1354 was passed and signed by the Governor adding of a new section, Idaho Code § 67-6541, to establish a definition and provisions regarding Accessory Dwelling Units; and

WHEREAS, in order to be in compliance with Senate Bill No. 1354 upon its effective date of July 1, 2026, the City is amending the specific use standards for Accessory Dwelling Units which include size, minimum occupancy, owner occupancy and off-street parking requirements; and

WHEREAS, the off-street parking table needs to be updated for compliance with Senate Bill No. 1354 and the passage of Ordinance 2026-04; and

WHEREAS, on _____, 2026, the Planning and Zoning Commission conducted a public hearing upon the amendments contained herein and recommended approval to the City Council; and

WHEREAS, on _____, 2026, the City Council conducted a public hearing and considered and adopted the amendments contained herein;

NOW, THEREFORE, BE IT ORDAINED BY THE MAYOR AND CITY COUNCIL OF THE CITY OF MOSCOW AS FOLLOWS:

SECTION 1: All matters stated above are found to be true and correct and are incorporated herein by reference as if copied in their entirety and shall be adopted with the following sections of this Ordinance.

SECTION 2: That Title 4, Chapter 1, Section 1-6 of the Moscow City Code be, and the same is hereby amended to read as follows:

...

Sec. 1-6. Definitions.

For the purpose of this Zoning Code, certain words and terms used herein are defined as follows:

- A. All words used in the present tense include the future tense; all words in the plural number include the singular number, and all words in the singular number include plural number; unless the natural construction of the wording indicates otherwise. The word "lot" includes the word "plot"; the word "building" includes the word "structure"; and the word "shall" is mandatory and not directory. The word "used" shall be deemed also to include "designed, intended or arranged to be used."
- B. Where applicable, uses have been named and defined using the 2012 North American Industry Classification System (NAICS) which is the standard used by the Federal government in classifying business establishments. The uses that are defined by NAICS will have an associated NAICS code in parenthesis following the named use (i.e., Bowling Centers (NAICS 713950)). In many cases, this Code has used an abbreviated definition, which is further defined using the 2012 NAICS Manual that is published on the United States Census Bureau website. Many NAICS subsectors include multiple industries that are included within the subsector. In some circumstances, certain industries have specifically been excluded from subsectors because of incompatibility with certain zoning districts.
- C. Unless otherwise specified, all distances shall be measured horizontally.
- D. Definitions used herein:
 - 1. *Accessory Dwelling Unit.* A secondary dwelling unit that is accessory to a single family dwelling on a single lot, containing complete housekeeping facilities and which is added to, created within, or detached from the principal dwelling unit and subject to the Specific Use Standards of this Code.
 - 2. *Accessory Use.* A minor or second use for which a lot, structure or building is designed or employed in conjunction with but subordinate to its primary use. The term is synonymous with "secondary use."
 - 3. *Affected Person.* A person who shows to the City, by a preponderance of evidence, that such person has an interest which may be adversely affected by the issuance or denial of a permit authorizing development or by a decision of the City.
 - 4. *Agencies, Brokerages and Other Insurance Related Activities (NAICS 5242).* Establishments primarily engaged in (1) acting as agents (i.e., brokers) in selling annuities and insurance policies; or (2) providing other employee benefits and insurance related services, such as claims adjustment and third party administration.
 - 5. *Agriculture, Animal Production and Aquaculture (NAICS 112).* Establishments that raise or fatten animals for the sale of animals or animal products and/or raise aquatic plants and animals in controlled or selected aquatic environments for the sale of aquatic plants, animals, or their products.
 - 6. *Agriculture, Crop Production (NAICS 111).* Establishments such as farms, orchards, groves, greenhouses, and nurseries, primarily engaged in growing crops, plants, vines, or trees and their seeds.

7. *Alley*. A passageway open to public travel which affords generally a secondary means of vehicular access to abutting lots and is not intended for general traffic circulation.
8. *Alterations*. A change or rearrangement of the structural parts of existing facilities, or an enlargement by extending the sides or increasing the height or depth, or the moving from one (1) location to another. In buildings for business, commercial, industrial or similar uses, the installation or rearrangement of partitions affecting more than one-third (1/3) of a single floor area shall be considered an alteration.
9. *Animal Slaughtering and Processing (NAICS 31161)*. Establishments primarily engaged in one (1) or more of the following: (1) slaughtering animals; (2) preparing processed meats and meat byproducts; and (3) rendering and/or refining animal fat, bones, and meat scraps. This industry includes establishments primarily engaged in assembly cutting and packing of meats (i.e., boxed meats) from purchased carcasses.
10. *Antenna Tower*. A structure to house or hold a device which transmits or receives television, radio, or telephone communications but excluding those which are used as accessory to a residential use.
11. *Amusement and Recreation Industries (NAICS 713990)*. Establishments (except amusement parks and arcades; gambling industries; golf courses and country clubs; skiing facilities; marinas; fitness and recreational sports centers; and bowling centers) primarily engaged in providing recreational and amusement services.
12. *Archery/Shooting Ranges*. A controlled area of activity, located indoors, specifically designed for the discharging of projectiles at targets.
13. *Automobile and RV Dealers (NAICS 4411)*. Establishments primarily engaged in retailing new and used automobiles and light trucks, such as sport utility vehicles, and passenger and cargo vans.
14. *Automotive Repair and Maintenance (NAICS 8111)*. Establishments involved in providing repair and maintenance services for automotive vehicles, such as passenger cars, trucks, and vans, and all trailers. Establishments in this industry group employ mechanics with specialized technical skills to diagnose and repair the mechanical and electrical systems for automotive vehicles, repair automotive interiors, and paint or repair automotive exteriors.
15. *Basement*. That portion of a building partly underground and having at least one-half (1/2) of its height more than five feet (5') below the adjoining finish grade.
16. *Bed and Breakfast Inn*. Establishments primarily engaged in providing short-term lodging (durations of less than twenty-one (21) consecutive days per guest) for compensation in private homes or accessory buildings where the owner resides upon the property and where breakfast may or may not be provided.
17. *Bedroom*. A room other than a living room, kitchen, or bathroom containing an egress window and a minimum of seventy (70) square feet of floor area with no horizontal dimension less than 7 feet. Sinks, final or rough-in plumbing, or other plumbing features that could be reasonably expected to permit or allow for the installation of a sink, shall not be permitted within any bedroom. All bedrooms shall be accessed from common areas within the dwelling such as a living room or kitchen and shall not be designed in a manner which would allow independent occupancy unless otherwise permitted by this code.

18. *Boarding House.* A building occupied by its owner in which not more than six (6) roomers, lodgers and/or boarders are housed or fed for compensation on a weekly or longer basis.
19. *Bowling Centers (NAICS 713950).* Establishments engaged in operating bowling centers. These establishments often provide food and beverage services.
20. *Broadcasting (NAICS 515).* Establishments that create content or acquire the right to distribute content and subsequently broadcast the content.
21. *Building Area.* The total ground coverage of a building or structure which provides shelter measured from the outside of its external walls or supporting members or from a point four feet (4') in from the outside edge of a cantilevered roof, whichever covers the greatest area.
22. *Building or Structure.* "Building" means any structure having a roof, but excluding all forms of vehicles even though immobilized. When a use is required to be within a building, or where special authority granted pursuant to this Zoning Code requires that a use shall be within an entirely enclosed building, then the term "building" means one so designed and constructed that all exterior walls of the structures shall be solid from the ground to the roof line, and shall contain no openings except for windows and doors which are designed so that they may be closed.
23. *Building or Structure, Accessory.* A subordinate building or structure, the use of which is incidental to the use of the main building on the same lot, attached to or located adjacent to a home, or on the same lot, including awnings, steps, porches, carports, garages, and storage buildings. Accessory buildings or structures may contain incidental uses such as but not limited to workshops, artist studios, hobby spaces, and accessory living spaces for residents of the main building which are not to be rented out for compensation unless otherwise permitted by this Code. Size limitations contained within this Code pertaining to accessory buildings or structures shall apply to the enclosed building footprint (the enclosed land area occupied by such accessory structure).
24. *Building or Structure, Detached.* A building surrounded on all sides by open space and which is located more than two feet (2') from the principal/primary structure.
25. *Building Height.* The vertical distance measured from the average elevation of the proposed finished grade at the front of the building to the highest point on the roof or parapet wall.
26. *Building Line.* The line of that face or corner or part of a building nearest the property line.
27. *Building Material Sales and Garden Equipment/Supplies (NAICS 444).* Establishments that retail new building material and garden equipment and supplies from fixed point-of-sale locations. Establishments in this subsector have display equipment designed to handle lumber and related products and garden equipment and supplies that may be kept either indoors or outdoors under covered areas.
28. *Business, Professional, Political, Social Advocacy, Grantmaking, and Similar Organizations (NAICS 8132, 8133, 8139).* See individual NAICS sectors for definitions.
29. *Cemeteries and Crematories (NAICS 812220).* Establishments primarily engaged in operating sites or structures reserved for the interment of human or animal remains and/or cremating the dead.

30. *Child Care Facility*. Any business, place of business or establishment which provides Child Care. This definition includes any premises, location, play area, playground, organization, institution, partnership, school, home, residence, dwelling, group home, foster home, place or facility whether such business or concern calls itself a mini school, kindergarten, nursery, pre-school, club, cooperative, mother's-day-out, learning center or any other business whose activity is the same or substantially similar to a Child Care operation or concern.
- a. The definition of Child Care Facility shall not include:
- (1) Any institution, school or facility operated by or under the direction of the State of Idaho, by any agency or political subdivision of the State of Idaho, or by any other public body or public entity.
 - (2) Any elementary, junior high, or high school licensed and designated as such by the State of Idaho.
 - (3) Any medical or hospital facility operated pursuant to license issued by the State of Idaho.
- b. There shall be four (4) classifications of Child Care Facility:
- (1) Family Child Care Facility: A Child Care Facility providing Child Care for five (5) or fewer children;
 - (2) Group Child Care Facility: A Child Care Facility providing Child Care for six (6) to twelve (12) children;
 - (3) Small Child Care Facility: A Child Care Facility providing Child Care for thirteen (13) to twenty (20) children; and
 - (4) Large Child Care Facility: A Child Care Facility providing Child Care for twenty-one (21) or more children.
 - (5) The number of children in each of the above classifications (1) through (4) may be increased with the addition of school-aged children (first grade and up) from 3:00 p.m. until 6:00 p.m. on weekdays, on teacher work days, and on snow days, without affecting the classification level.
31. *Civic and Social Organizations (NAICS 813410)*. Establishments primarily engaged in promoting the civic and social interests of their members. Establishments in this industry may operate bars and restaurants for their members.
32. *Coffee/Espresso Stand*. A beverage service establishment where drive-up window service is the primary customer access.
33. *Commercial and Industrial Machinery and Equipment Repair and Maintenance (NAICS 811310)*. Establishments primarily engaged in the repair and maintenance of commercial and industrial machinery and equipment.
34. *Commercial Banking (NAICS 522110)*. Establishments primarily engaged in accepting demand and other deposits and making commercial, industrial, and consumer loans. Commercial banks and branches of foreign banks are included in this industry.
35. *Community Center*. A building or group of buildings in which members of a community may gather for group activities, social support, educational activities, cultural activities, and other purposes. They may sometimes be open for the whole community or for a specialized group within the greater community.
36. *Conditional Use*. "Conditional use" means a use permitted in one (1) or more zoning district as defined by this Zoning Code but which, because of characteristics peculiar

to such use, or because of size, technological processes or equipment, or because of the exact location with reference to surroundings, streets and existing improvements or demands upon public facilities, requires a special degree of control to make uses consistent with and compatible to other existing or permissible uses in the same zoning district(s).

37. *Conditional Use Permit*. "Conditional Use Permit" means the documented evidence of authority granted by the Board of Adjustment to locate a conditional use at a particular location.
38. *Construction Contractor Services (NAICS 238)*. Establishments whose primary activity is performing specific activities (e.g., pouring concrete, site preparation, plumbing, painting, and electrical work) involved in building construction or other activities that are similar for all types of construction, but that are not responsible for the entire project.
39. *Consumer Goods Rental (NAICS 5322)*. Establishments primarily engaged in renting personal and household-type goods. Establishments classified in this industry group generally provide short-term rental although in some instances, the goods may be leased for longer periods of time. These establishments often operate from a retail-like or store-front facility.
40. *Correctional Institutions (NAICS 922140)*. Government establishments primarily engaged in managing and operating correctional institutions. The facility is generally designed for the confinement, correction, and rehabilitation of adult and/or juvenile offenders sentenced by a court.
41. *Credit Unions (NAICS 522130)*. Establishments primarily engaged in accepting members' share deposits in cooperatives that are organized to offer consumer loans to their members.
42. *Dance Halls*. Establishments where amplified sound or music is provided for entertainment.
43. *Data Processing, Hosting, and Related Services (NAICS 518)*. Establishments that provide the infrastructure for hosting and/or data processing services.
44. *Dormitory*. A building typically located at a college or university, containing a number of private or semiprivate rooms for residents, usually along with common bathroom facilities and recreation areas.
45. *Drinking Places (Alcoholic Beverages) (NAICS 722410)*. Establishments known as bars, taverns, nightclubs, or drinking places primarily engaged in preparing and serving alcoholic beverages for immediate consumption. These establishments may also provide limited food services.
46. *Dwelling, Single Family*. A detached building or manufactured home containing one (1) kitchen designed for, and occupied exclusively by, one (1) family. A second kitchen may be permitted with a recorded deed restriction, so long as the property is used as a single-family dwelling only with no physical separation established to separate living quarters within the dwelling which would allow the structure to be used and occupied by two families living independently of each other. The classification "single family dwelling" shall include any home in which eight (8) or fewer unrelated mentally and/or physically handicapped or elderly persons reside; and which is supervised. Resident staff, if employed, need not be related to each other or to any of the mentally or physically handicapped or elderly persons residing

- in the home. No more than two (2) such staff shall reside in the dwelling at any one (1) time.
47. *Dwelling, Townhouse.* A structure which contains three (3) or more attached single family dwelling units that share a single common wall and where each unit is located upon a separate platted lot to allow for individual sale.
 48. *Dwelling, Twinhome.* A structure which contains two (2) attached single family dwelling units that share a single common wall and where each unit is located upon a separate platted lot to allow for individual sale.
 49. *Dwelling, Two (2) Family.* A building containing two (2) kitchens and designed to be occupied by two (2) families living independently of each other.
 50. *Dwelling, Multi-Family.* A building designed to house three (3) or more families living independently of each other and having one (1) yard in common.
 51. *Dwelling Unit.* A building or portion thereof providing complete housekeeping facilities for one (1) family. Housekeeping facilities provide permanent provisions for living, sleeping, eating, cooking, and sanitation, and shall be limited to one (1) kitchen and two (2) washer and dryer sets per dwelling unit unless otherwise permitted by this Code. The term "dwelling" shall not be deemed to include motel, hotel, tourist home, bed and breakfast inn, or boarding house.
 52. *Educational Services (NAICS 611).* Establishments that provide instruction and training in a wide variety of subjects. The instruction and training is provided by specialized establishments, such as schools, colleges, universities, and training centers.
 53. *Electronic and Precision Equipment Repair and Maintenance (NAICS 8112).* Establishments primarily engaged in repairing electronic equipment, such as computers and communications equipment, and highly specialized precision instruments.
 54. *Established Grade.* The high point of the sidewalk at the front or side lot line as established by the City.
 55. *Fairgrounds.* An area where outdoor fairs, circuses, exhibitions, etc. are held.
 56. *Family.*
 - a. For purposes of this "family" definition:
 - (1) "related" shall mean persons related by blood, marriage, adoption, and/or guardianship or other duly authorized relationship, and
 - (2) "family" shall not mean any society, club, fraternity, sorority, association, lodge, federation, bed and breakfast inn, boarding house, or other like use or organization, and
 - (3) there shall be no more than one (1) "family" per dwelling unit, unless otherwise permitted by this Code.
 - (4) "living together as a single housekeeping unit" shall mean where all occupants of the dwelling unit enjoy a common right to use the entire dwelling, despite informal arrangements among members to designate certain areas as individual sleeping spaces, and where such persons share household living arrangements, including, but not limited to, rental or mortgage payments, utility payments, groceries, chores, maintenance of the premises, and common sanitary, living, and cooking supplies and/or facilities.

- (5) “related by blood” shall mean persons related in any combination of the following: parents, step-parents, children, step-children, siblings, step-siblings, half-siblings, uncles, aunts, nephews, nieces, grandparents, grandchildren, great grandparents, great grandchildren, and first cousins.
 - b. One (1) or more related persons living together as a single housekeeping unit in a dwelling unit; or
 - c. Not more than four (4) persons living together as a single housekeeping unit in a dwelling unit, when one (1) or more of them is not related to any other person in such dwelling unit; or
 - d. Two (2) persons who are not related and any number of additional persons related to either of such two (2) unrelated persons, as long as all persons are living together as a single housekeeping unit in such dwelling unit; or
 - e. Eight (8) or fewer unrelated mentally and/or physically handicapped or elderly persons reside; and which is supervised. Resident staff, if employed, need not be related to each other or to any of the mentally or physically handicapped or elderly persons residing in the home. No more than two (2) such staff shall reside in the dwelling at any one (1) time.
- 57. *Farm and Garden Machinery and Equipment Merchant Wholesalers (NAICS 423820)*. Establishments primarily engaged in the merchant wholesale distribution of specialized machinery, equipment, and related parts generally used in agricultural, farm, and lawn and garden activities.
 - 58. *Fitness Centers (NAICS 713940)*. Establishments primarily engaged in operating fitness and recreational sports facilities featuring exercise and other active physical fitness conditioning or recreational sports activities, such as swimming, skating, or racquet sports.
 - 59. *Floor Area*. The sum of the gross horizontal areas of the floors of a building or buildings, measured from the exterior faces of exterior walls and from the center line of division walls. Floor area shall include: basement space, elevator shafts and stairwells at each floor, mechanical equipment rooms or attic spaces with headroom of seven feet (7') six inches (6"), exterior steps or stairs, terraces, breezeways and open spaces.
 - 60. *Fraternity, Sorority Or Student Cooperative*. A building occupied by and maintained exclusively for students affiliated with an academic or professional college or university, or other recognized institution of higher learning and regulated by such institution.
 - 61. *Functional Open Space*. Land within a development which is permanently reserved as open space, free from permanent structures, useful for recreational or social use by the residents of the development. Such space shall be located on grade and may be provided via a private yard, deck, or patio area. Functional open space shall not include parking areas or required landscape buffers and the smallest dimension of such open space shall not be less than fifteen feet (15').
 - 62. *Funeral Homes and Funeral Services (NAICS 812210)*. Establishments primarily engaged in preparing the dead for burial or interment and conducting funerals (i.e., providing facilities for wakes, arranging transportation for the dead, selling caskets and related merchandise). Funeral homes combined with crematories are included in this industry.

63. *Garage and/or Workshop, Private.* An enclosed space for the storage of one (1) or more private vehicles for residents of the premises.
64. *Garden, Accessory.* The use of land for growing of produce and/or plants that is accessory to a permitted principal use, and where the produce from the garden is primarily grown for the consumption and use or donation by the person(s) residing or employed upon the subject property. Accessory Gardens may include the keeping of animals and fowl as permitted by this Code. On-site retail sales are not permitted in association with Accessory Gardens unless specifically permitted under this Code.
65. *Garden, Community.* The collective use of land for growing of produce and/or plants conducted by a group of people, where the site is commonly divided into plots that individuals may rent for the season, where the produce or plant materials grown upon the site are intended for consumption, use, or donation by the person(s) cultivating the land. On-site retail sales are not permitted in association with Community Gardens unless specifically permitted under this Code.
66. *Garden, Market.* The use of land for growing of produce and/or plants that is conducted by a single individual or a group of individuals where the produce or plant materials grown upon the site are intended to be sold for consumption by others. Market Gardens may include the keeping of animals and fowl as permitted by this Code. On-site retail sales are not permitted in association with Market Gardens unless specifically permitted under this Code.
67. *Gasoline Stations (NAICS 447).* Establishments that retail automotive fuels (e.g., gasoline, diesel fuel, gasohol, alternative fuels) and automotive oils or retail these products in combination with convenience store items. These establishments have specialized equipment for the storage and dispensing of automotive fuels.
68. *General Freight Trucking (NAICS 4841).* Establishments primarily engaged in providing general freight trucking.
69. *Golf Courses and Country Clubs (NAICS 713910).* Establishments primarily engaged in operating golf courses (except miniature) which also may include dining facilities and other recreational facilities that are known as country clubs. These establishments often provide food and beverage services, equipment rental services, and golf instruction services.
70. *Golf Facilities, Miniature.* Establishments engaged in operating a novelty golf game played with a putter on a miniature course usually having tunnels, bridges, sharp corners, and obstacles. These establishments often provide food and beverage services.
71. *Government Office Buildings.* A building or rooms in which the business of a department of government administration is carried out. Government office buildings include, but are not limited to, courthouses, local city government offices, and libraries.
72. *Habitable Floor.* Any floor usable for living purposes, which includes working, sleeping, eating, cooking or recreation, or a combination thereof. A floor used only for storage purposes is not a "habitable floor."
73. *Health Care Services (Ambulatory) (NAICS 621).* Establishments that provide health care services directly or indirectly to ambulatory patients and do not usually provide inpatient services. Health practitioners in this subsector provide outpatient services,

with the facilities and equipment not usually being the most significant part of the production process.

74. *Hospitals (NAICS 622)*. Establishments that provide medical, diagnostic, and treatment services that include physician, nursing, and other health services to inpatients and the specialized accommodation services required by inpatients. Hospitals may also provide outpatient services as a secondary activity. Establishments in the Hospitals subsector provide inpatient health services, many of which can only be provided using the specialized facilities and equipment that form a significant and integral part of the production process.
75. *Hotels and Motels (NAICS 721110)*. Establishments primarily engaged in providing short-term lodging in facilities known as hotels, motor hotels, resort hotels, and motels. The establishments in this industry may offer food and beverage services, recreational services, conference rooms and convention services, laundry services, parking, and other services.
76. *Kitchen*. That portion of a dwelling unit devoted to the preparation or cooking of food for the purpose of consumption by residents of the dwelling unit. For the purposes of this Code a kitchen is a food preparation area containing cabinetry and/or countertops, a sink, and one or more of the following: a refrigerator, cooking device, dishwasher, a natural gas stub or supply, or a 220-volt electrical outlet/wiring.
77. *Large Retail Establishment*.
 - a. A single retail establishment; or any combination of retail establishments in a single building with shared private off-street parking (such as a shopping mall); or any combination of retail establishments in separate and abutting buildings which are planned, constructed, and/or managed as a single property with shared private off-street parking (such as a shopping center); and
 - b. Which is greater than forty thousand (40,000) square feet of gross floor area.
78. *Laundries and Drycleaners (NAICS 812310)*. Establishments primarily engaged in (1) operating facilities with coin-operated or similar self-service laundry and dry cleaning equipment for customer use on the premises; and/or (2) supplying and servicing coin-operated or similar self-service laundry and dry cleaning equipment for customer use in places of business operated by others, such as apartments and dormitories.
79. *Lot*. A lot, in the meaning of this Zoning Code, is a single tract of land, no matter how legally described, whether by metes and bounds and/or by lot or lots and block designation as in a recorded plat, which at the time of applying for a building permit is designated by its owner or developer as the tract to be used, developed or built upon as a unit of land under single ownership or control and assigned to the particular use for which the building permit is being secured and having frontage on or access to a public street.
80. *Lot Area*. The total horizontal area within the boundary lines of a lot, excluding areas of dedicated and prescriptive public or railroad rights-of-way. The lot area shall include all utility easements and any flag pole portion of a flat lot.
81. *Lot, Corner*. A lot at the junction of and fronting on two (2) or more intersecting streets.
82. *Lot, Depth*. The mean dimension of the lot from the front street line to the rear line.

83. *Lot, Flag.* A lot with access provided to the part of the lot designated for use as a building site by a narrow corridor.
84. *Lot, Interior.* A lot fronting on one (1) street.
85. *Lot Line, Front.* The front lot line is the property boundary that abuts a public or private street; the front lot line for an undeveloped corner lot is either one (1) of the property boundaries that abuts a public or private street, as selected by the property owner.
86. *Lot Line, Rear.* The boundary line of a lot that is opposite and most distant from the front lot line.
87. *Lot Line, Side.* Any lot line not a rear lot line or a front lot line shall be considered a side lot line.
88. *Lot Line, Street Side.* The street side lot line is the property boundary on a corner lot that abuts a public or private street which is not considered the front lot line.
89. *Lot, Through.* A lot fronting on two (2) streets that do not intersect on the parcel's lot lines.
90. *Lot, Width.* The dimension of the lot line at the street, or in an irregular shaped lot the dimension across the lot at the building line, or in a corner lot the narrow dimension of the lot at a street or building line.
91. *Manufactured (Mobile) Home Dealers (NAICS 453930).* Establishments primarily engaged in retailing new and/or used manufactured homes (i.e., mobile homes), parts, and equipment.
92. *Manufactured Home.* A structure as defined by Idaho Code Section 39-4105(8) and which meets the following additional standards:
- The manufactured home ~~shall be~~ may be either a single section or multisectional and shall enclose a space of ~~not less than one thousand (1,000) square feet at least four hundred (400) square feet for a single section or eight hundred (800) square feet for a multisectional manufactured home~~; and
 - The manufactured home shall be placed on an excavated and backfilled foundation and enclosed at the perimeter such that the home is located not more than twelve inches (12") above grade, except when placed on a basement foundation; and
 - The manufactured home shall have a pitched roof of at least three feet (3') in vertical rise for each twelve feet (12') in horizontal run; and
 - The manufactured home shall have any exterior siding and roofing material which is approved by the City for site-built homes; and
 - The manufactured home shall not be permitted within an area defined as a historic district under Section 67-4607, Idaho Code.
93. *Manufacturing, Aerospace Product and Parts Manufacturing (NAICS 3364).* Establishments primarily engaged in one (1) or more of the following: (1) manufacturing complete aircraft, missiles, or space vehicles; (2) manufacturing aerospace engines, propulsion units, auxiliary equipment or parts; (3) developing and making prototypes of aerospace products; (4) aircraft conversion (i.e., major modifications to systems); and (5) complete aircraft or propulsion systems overhaul and rebuilding (i.e., periodic restoration of aircraft to original design specifications).
94. *Manufacturing, Beverage (NAICS 3121).* Establishments primarily engaged in manufacturing soft drinks, ice, and purifying and bottling water; manufacturing

brewery products; winery products; and distillery products. Also included is (1) the artificially carbonating of water; (2) the brewing of beer, ale, malt liquors, and nonalcoholic beer; (3) growing of the grapes, and the manufacturing of wine and brandy, or making of wine or brandy from purchased materials, and the blending of wines and brandies; and (4) the distilling of potable liquors (except brandies) and the blending of liquors and other ingredients.

95. *Manufacturing, Computer and Electronic Product (NAICS 334)*. Establishments that manufacture computers, computer peripherals, communications equipment, and similar electronic products, and establishments that manufacture components for such products.
96. *Manufacturing, Electrical Equipment, Appliance, and Component (NAICS 335)*. Establishments that manufacture products that generate, distribute and use electrical power.
97. *Manufacturing, Light*. The manufacturing, compounding, treatment, processing, assembling, packaging, or testing of goods or equipment that is primarily indoors and which does not present any adverse effect upon surrounding property from smoke, noise, vibration, dust, glare, air pollution, or water pollution.
98. *Manufacturing, Medical Equipment and Supplies (NAICS 3391)*. Establishments primarily engaged in manufacturing medical equipment and supplies.
99. *Manufacturing, Pharmaceutical and Medicine (NAICS 3254)*. Establishments primarily engaged in one (1) or more of the following: (1) manufacturing biological and medicinal products; (2) processing (i.e., grading, grinding, and milling) botanical drugs and herbs; (3) isolating active medicinal principals from botanical drugs and herbs; and (4) manufacturing pharmaceutical products intended for internal and external consumption in such forms as ampoules, tablets, capsules, vials, ointments, powders, solutions, and suspensions.
100. *Manufacturing, Heavy*. The extraction, processing or treatment of raw materials, or the manufacturing, compounding, treatment, processing, assembling, packaging, testing, handling, or storage of explosive or radioactive materials or products.
101. *Motorized Vehicle*. A motor driven conveyance capable of carrying one (1) or more passengers.
102. *Movie Theaters (NAICS 512131)*. Establishments primarily engaged in operating motion picture theaters (except drive-ins) and/or exhibiting motion pictures or videos at film festivals, and so forth.
103. *Museums and Art Galleries (NAICS 712110)*. Establishments primarily engaged in the preservation and exhibition of objects of historical, cultural, and/or educational value.
104. *Nonconforming Building Use*. The use of a building or structure which was a lawful use at the time this Zoning Code was passed but which use, because of the passage of this Zoning Code, does not conform to the regulations of the zoning district in which the use exists.
105. *Nonconforming Use*. A use which lawfully occupied a building or land at the time this Zoning Code becomes effective and which does not conform with the use regulations of the zoning district in which it is located.
106. *Nursing and Residential Care Facilities (NAICS 623)*. Establishments that provide residential care combined with either nursing, supervisory, or other types of care as

required by the residents. In this subsector, the facilities are a significant part of the production process and the care provided is a mix of health and social services with the health services being largely some level of nursing services.

107. *Off-Street Parking*. Parking facilities for motor vehicles located on private property.
108. *Parking Lots and Garages (NAICS 812930)*. Establishments primarily engaged in providing parking space for motor vehicles, usually on an hourly, daily, or monthly basis and/or valet parking services. For the purposes of this Code, a parking lot is an off-street parking facility designed for more than four (4) parking spaces.
109. *Personal and Household Goods Repair and Maintenance (NAICS 8114)*. Establishments primarily engaged in home and garden equipment and appliance repair and maintenance; reupholstery and furniture repair; footwear and leather goods repair; and other personal and household goods repair and maintenance.
110. *Personal Care Services (NAICS 8121)*. Establishments such as barber and beauty shops, that provide appearance care services to individual consumers.
111. *Parking Space*. A usable space for the storage of one (1) passenger automobile or commercial vehicle, exclusive of access drives, aisles, or ramps, within a public or private parking lot or a building that meets the parking standards of this Code.
112. *Pet Care Services (NAICS 812910)*. Establishments primarily engaged in providing pet care services (except veterinary), such as boarding, grooming, sitting, and training pets.
113. *Planned Unit Development (PUD)*. The PUD is characterized by a unified site design for a number of housing units and/or other buildings where clustering of buildings and utilization of open space will allow for enhanced land use. Through a PUD, a development may be planned as a unit and the density of use may be calculated on the basis of the entire project, rather than on a lot by lot basis. Individual uses and structures in a PUD need not comply with specific building locations, height, building size, floor area, lot size and open space requirements of the underlying basic zone provided that requirements set forth herein are complied with, and the development as a whole is harmonious with the community, particularly adjacent land uses.
114. *Principal Use*. The primary or predominant use(s) to which a property is or may be devoted.
115. *Professional, Scientific, and Technical Services (NAICS 541)*. Establishments engaged in processes where human capital is the major input. These establishments make available the knowledge and skills of their employees, often on an assignment basis, where an individual or team is responsible for the delivery of services to the client. The individual industries of this subsector are defined on the basis of the particular expertise and training of the services provider.
116. *Public Service and Utility Facility*. Public facilities necessary to serve the neighborhood or community, including, but not limited to, fire stations, police stations, national guard armories, fire training facilities, pumping stations, electrical substations, and telephone switching facilities.
117. *Publishing Industries (except Internet) (NAICS 511)*. Establishments engaged in the publishing of newspapers, magazines, other periodicals, and books, as well as directory and mailing list and software publishing.
118. *Public Utility*. A public service corporation performing some public service and subject to special governmental regulations, or a governmental agency performing

similar public services, the services by either of which are paid for directly by the recipients thereof. Such services shall include, but are not limited to, water supply, electric power, gas and transportation for persons and freight.

119. *Railroad Yards (NAICS 488210)*. Establishments primarily engaged in providing specialized services for railroad transportation, including servicing, routine repairing (except factory conversion, overhaul or rebuilding of rolling stock), and maintaining rail cars; loading and unloading rail cars; and operating independent terminals.
120. *Real Estate Services (NAICS 531)*. Establishments that are primarily engaged in renting or leasing real estate to others; managing real estate for others; selling, buying, or renting real estate for others; and providing other real estate related services, such as appraisal services.
121. *Religious Facilities (NAICS 813110)*. Establishments primarily engaged in (1) operating religious organizations, such as churches, religious temples, and monasteries; and/or (2) establishments primarily engaged in administering an organized religion or promoting religious activities.
122. *Rental and Leasing Services (NAICS 532)*. Establishments that provide a wide array of tangible goods, such as automobiles, computers, consumer goods, and industrial machinery and equipment, to customers in return for a periodic rental or lease payment.
123. *Restaurants (NAICS 72251)*. Establishments primarily engaged in one (1) of the following: (1) providing food services to patrons who order and are served while seated (i.e., waiter/waitress service), and pay after eating; (2) providing food services to patrons who generally order or select items (e.g., at a counter, in a buffet line) and pay before eating; or (3) preparing and/or serving a specialty snack (e.g., ice cream, frozen yogurt, cookies) and/or nonalcoholic beverages (e.g., coffee, juices, sodas) for consumption on or near the premises.
124. *Retail Sales (NAICS 44-45)*. Establishments engaged in retailing merchandise, generally without transformation, and rendering services incidental to the sale of merchandise.
125. *Riding Stables*. Establishments where horses are kept for riding, driving, or stabling for compensation.
126. *RV (Recreational Vehicle) Parks and Campgrounds (NAICS 721211)*. Establishments primarily engaged in operating sites to accommodate campers and their equipment, including tents, tent trailers, travel trailers, and RVs (recreational vehicles). These establishments may provide access to facilities, such as washrooms, laundry rooms, recreation halls and playgrounds, stores, and snack bars.
127. *Savings Institutions (NAICS 522120)*. Establishments primarily engaged in accepting time deposits, making mortgage and real estate loans, and investing in high-grade securities. Savings and loan associations and savings banks are included in this industry.
128. *Sawmills (NAICS 321113)*. Establishments primarily engaged in sawing dimension lumber, boards, beams, timbers, poles, ties, shingles, shakes, siding, and wood chips from logs or bolts.
129. *Scrap Yards / Material Recycling (NAICS 423930)*. Establishments primarily engaged in the merchant wholesale distribution of automotive scrap, industrial scrap,

and other recyclable materials. Included in this industry are auto wreckers primarily engaged in dismantling motor vehicles for the purpose of wholesaling scrap.

130. *Securities, Commodity Contracts, and Other Financial Investments and Related Activities (NAICS 523)*. Establishments that are primarily engaged in one (1) of the following: (1) underwriting securities issues and/or making markets for securities and commodities; (2) acting as agents (i.e., brokers) between buyers and sellers of securities and commodities; (3) providing securities and commodity exchange services; and (4) providing other services, such as managing portfolios of assets; providing investment advice; and trust, fiduciary, and custody services.
131. *Self-Storage Facilities (NAICS 531130)*. Establishments primarily engaged in renting or leasing space for self-storage. These establishments provide secure space (i.e., rooms, compartments, lockers, containers, or outdoor space) where clients can store and retrieve their goods.
132. *Setback*. The distance that buildings or uses must be removed from their lot lines. Setbacks shall be measured, where applicable, from proposed or actual public or private street right-of-way lines. When measuring front and street side yard setbacks for lots that abut a Local Residential Street, as designated upon the Thoroughfare Plan within the City's Comprehensive Plan, the front and street side setbacks shall be measured from the building lot side of the public sidewalk to the nearest point of the wall of the main building on the lot. In such cases where sidewalks do not exist in the front or street side of a building lot, the Zoning Administrator shall determine the point of measurement based upon the location of adjacent principal structures, the likelihood of future sidewalk installation, and the anticipated location of such future sidewalk.
133. *Sign*. A presentation, display, or representation of words or letters, or of a figure, design, picture, painting, color pattern, logo, emblem, symbol, trademark or other representation so as to give notice, advertise, call attention to, or identify an entity.
134. *Software Publishers (NAICS 5112)*. Establishments primarily engaged in computer software publishing or publishing and reproduction. Establishments in this industry carry out operations necessary for producing and distributing computer software, such as designing, providing documentation, assisting in installation, and providing support services to software purchasers. These establishments may design, develop, and publish, or publish only.
135. *Stadiums and Sports Arenas (NAICS 713940)*. Establishments primarily engaged in operating fitness and recreational sports facilities featuring exercise and other active physical fitness conditioning or recreational sports activities, such as swimming, skating, or racquet sports.
136. *Street*. A public thoroughfare which affords the principal means of access to abutting properties.
137. *Telecommunications Services (NAICS 517)*. Establishments that provide telecommunications and the services related to that activity (e.g., telephony, including Voice over Internet Protocol (VoIP); cable and satellite television distribution services; Internet access; telecommunications reselling services). The Telecommunications subsector is primarily engaged in operating, and/or providing access to facilities for the transmission of voice, data, text, sound, and video.

138. *Temporary Use.* A land use established for a limited duration which does not require permanent site improvements. Temporary Uses include, but are not limited to, the erection of temporary structures for activities such as fruit and vegetable sales, Christmas tree sales, fireworks sales, art sales, and other retail sales permitted in the zoning district within which the proposed use is to be located.
139. *Use.* The purpose land, a building or a structure now serves or for which it is occupied, maintained, arranged, designed or intended.
140. *Use District.* A portion or portions of the City designated on the Moscow Zoning Map as one (1) or more of the categories listed and described in this Zoning Code.
141. *Variance.* A modification of the bulk and placement requirements of the ordinance as to lot size, lot coverage, width, depth, front yard, side yard, rear yard, setbacks, parking space, height of buildings, or other ordinance provision affecting the size or shape of a structure or the placement of the structure upon lots, or the size of lots.
142. *Veterinary Services (NAICS 541940).* Establishments of licensed veterinary practitioners primarily engaged in the practice of veterinary medicine, dentistry, or surgery for animals; and establishments primarily engaged in providing testing services for licensed veterinary practitioners.
143. *Warehousing and Storage (NAICS 493).* Establishments that are primarily engaged in operating warehousing and storage facilities for general merchandise, refrigerated goods, and other warehouse products. These establishments provide facilities to store goods. They do not sell the goods they handle. These establishments take responsibility for storing the goods and keeping them secure. They may also provide a range of services, often referred to as logistics services, related to the distribution of goods.
144. *Wholesale Uses (NAICS 423).* Establishments that sell capital or durable goods to other businesses.
145. *Yard.* An open unoccupied space, except as otherwise permitted in this Code, in the front, rear or side on the same lot with a building or proposed building, which extends along a lot line and at right angles to the lot line to a depth or width specified in the setback requirements of the zoning district where the property is located.

(Ord. 2018-07, 05/21/2018)

...

SECTION 3: That Title 4, Chapter 3, Section 3-5. A. of the Moscow City Code be, and the same is hereby amended to read as follows:

...

Sec. 3-5. Specific Use Standards.

A. Accessory Dwelling Units:

1. Applicability and Purpose. These standards shall apply to Accessory Dwelling Units which are permitted by this Code. These standards are intended to help promote the benefits of Accessory Dwelling Units, while also preserving neighborhood character and creating predictability and certainty for established neighborhoods.
2. Specific Standards.

- a. General. Accessory Dwelling Units must meet all applicable regulations for the zoning district in which they are located, except as otherwise expressly stated within this Section.
- b. Size. The floor area of the Accessory Dwelling Unit may not exceed ~~six hundred (600)~~ one thousand (1,000) square feet or ~~forty percent (40%)~~ seventy-five percent (75%) of the gross floor area of the principal dwelling, whichever is less.
- c. Maximum Occupancy. The number of persons allowed to reside within an Accessory Dwelling Unit shall be limited to ~~two (2)~~ four (4).
- d. ~~Owner Occupancy.~~
 - i. ~~Prior to the issuance of a building permit for an Accessory Dwelling Unit, the property owner must record a deed restriction upon the property which states that the property owner will reside on the property, within either the principal dwelling or Accessory Dwelling Unit. The deed restriction must be approved by the City Attorney and shall be binding upon the heirs, assigns, and subsequent purchasers of the property.~~
 - ii. ~~Owner occupancy means a property owner, as reflected in real property records, who makes his or her legal residence at the property, as evidenced by voter registration or similar means and actually resides at the property for more than six (6) months out of any given year. Owner occupancy may also include a named natural person with an ownership or benefit in a private trust, but shall not extend to corporate trusts.~~
 - iii. ~~The Zoning Administrator may waive this requirement for temporary absences of greater than six (6) months for military service, employment sabbatical, or family medical leave qualified absences. Temporary leave waivers for other reasons must be reviewed and approved by the City Council.~~
 - iv. ~~In the event the owner is unable to reside on the property as required herein, only one (1) of the dwelling units on the property may be occupied.~~
- e. Off-street parking. One (1) off-street parking space shall be required for the Accessory Dwelling Unit, only if there are currently no off-street parking spaces provided in addition to that required for the principal dwelling on the property.

...

(Ord. 2010-24, 11/15/2010; 2011-15, 09/19/2011; 2012-23, 12/03/2012; 2013-15, 08/19/2013; 2015-06, 04/06/2015; 2015 07, 05/04/2015; 2018-07, 05/21/2018; 2019-12, 12/02/2019; 2020-14, 11/16/2020; 2021-09, 07/19/2021; 2024-04, 03/04/2024; 2026-04, 07/06/2026).

...

SECTION 4: That Title 4, Chapter 6, Section 6-2.E.7. of the Moscow City Code be, and the same is hereby amended to read as follows:

...

- 7. Minimum Number of Automobile Parking Spaces Required by use of building or site:

RESIDENTIAL USES	Minimum Number of Automobile Parking Spaces Required ²
Dwellings in Residential Zones	
Single Family (up to 4 unrelated individuals)	2 per du, plus 1 per bedroom in excess of 4 bedrooms
Two Family	
Twinhome	
Townhouse	
Single Family Dwelling Unit (up to 6 unrelated individuals)	
Multiple Family (3 or more units)	Studio or one bedroom: 1.25 per du Two bedroom: 1.75 per du Three or more bedroom: 0.75 per bedroom
Mobile Home Parks	2 per mobile home
Group Living	
Boarding House (occupied by owner, up to 6 boarders)	2 per du, plus 1 per bedroom in excess of 4 bedrooms
Dormitories	1 per 2 occupants based upon anticipated max occupancy
Fraternity, Sorority, and Cooperative Houses	1 per 2 occupants based upon anticipated max occupancy
Accessory Uses	
Accessory Dwelling Unit	1 in addition to principal structure requirements only if there are currently no off-street parking spaces provided for the principal dwelling on the property

NON-RESIDENTIAL USES	Minimum Number of Automobile Parking Spaces Required ²
Agricultural Uses	
Agriculture, Animal Production	None Required
Agriculture, Crop Production	None Required
Animals and Fowl (as permitted by City Code Title 10)	None Required
Animal Slaughtering and Processing	None Required
Gardens (Market and Community) no on-site retail sales	None Required
With on-site retail sales	None Required
Sawmills	None Required
Amusement and Recreation Facilities	
Archery/Shooting Ranges (indoor only)	1.5 per firing lane
Bowling Centers	6 per lane
Dance Halls	1 per 100 sf
Fitness Centers	1 per 300 sf
Golf Courses and Country Clubs	4 per hole
Miniature Golf Facilities	4 per hole
Movie Theaters	1 per 4 seats
Riding Stables	1 per 3 stalls
Stadiums and Sports Arenas (Ice/Roller Rinks, Gymnasiums, Ballfields)	1 per 8 seats, plus 1 per 100 sf of assembly space without fixed seats ³

...

Animal-Related Business	
Veterinary Services	1 per 200 sf
Pet Care Services	1 per 400 sf
Financial, Technology, and Professional Services	
Agencies, Brokerages and Other Insurance Related Activities	1 per 400 sf
Broadcasting Studios	1 per 400 sf
Business, Professional, Political, Social Advocacy, Grantmaking, and Similar Organizations	1 per 400 sf
Commercial Banking, Savings Institutions, and Credit Unions	1 per 400 sf
Construction Contractor Services	1 per 400 sf of office space
Data Processing, Hosting, and Related Services	1 per 400 sf
Professional, Scientific, and Technical Services	1 per 400 sf
Publishing Industries (except Internet)	1 per 400 sf
Real Estate Services	1 per 400 sf
Securities, Commodity Contracts, and Other Financial Investments	1 per 400 sf
Software Publishers	1 per 400 sf
Food and Beverage Service	
Coffee/Esspresso Stand	1 per 200 sf
Drinking Places (Alcoholic Beverages)	1 per 200 sf
Restaurants	1 per 200 sf
Manufacturing	
Beverage Manufacturing	1 per 1,000 sf
Manufacturing, Heavy	
Manufacturing, Light	
Aerospace Product and Parts Manufacturing	
Computer and Electronic Product Manufacturing	
Electrical Equipment, Appliance, and Component Manufacturing	
Medical Equipment and Supplies Manufacturing	
Pharmaceutical and Medicine Manufacturing	
Public/Institutional Uses	
Antenna Towers (new)	1 stall per site
Co-Location	None Required
Cemeteries	None Required
Child Day Care Services	
Family, 5 or fewer children	2 per child care facility
Group, 6 to 12 children	2 per child care facility plus the loading zone requirements of Section 4-3-4. D.
Small, 13 to 20 children	3 per facility plus the loading zone requirements of Section 4-3-4. D.
Large, 21 or more children	4 per facility plus the loading zone requirements of Section 4-3-4. D.

Civic and Social Organizations	1 per 4 seats or 100 inches of bench seating, plus 1 per 100 square feet of open assembly area
Community/Neighborhood Center	1 per 4 seats or 100 inches of bench seating, plus 1 per 100 square feet of open assembly area
Correctional Institutions	1 per each 6 beds
Educational Services	Kindergarten, Elementary & Middle Schools: 2 spaces per classroom and 1 for every 8 seats in largest assembly area; High Schools: 5 spaces per classroom and 1 for every 8 seats in largest assembly area;
Fairgrounds	1 per 8 seats and 1 per 100 sf of assembly space without fixed seats
Funeral Homes and Funeral Services	1 per 75 sf used for assembly
Government Office Buildings	1 per 400 sf
Health Care Services (Ambulatory)	1 per 200 sf
Hospitals	1 per bed
Museums and Art Galleries	1 per 500 sf
Nursing and Residential Care Facilities	1 per 3 beds
Public Parks & Recreational Facilities (operated by local government)	1 per 8 seats and 1 per 100 sf of assembly space without fixed seats ³
Public Service and Utility Facilities	None Required
Religious Facilities	1 per 4 seats or 100 inches of bench seating, plus 1 per 100 square feet of open assembly area
Telecommunications Services	1 per 400 sf
Retail and Personal Services	
Consumer Goods Rental	1 per 400 sf
Laundries and Drycleaners	1 per 400 sf
Personal Care Services	1 per 400 sf
Retail Sales (excluding 4411 & 444)	1 per 400 sf; 1 per 800 sf for retail stores handling bulky merchandise (furniture, appliances, etc.)
Large Retail Establishment	
Storage Services	
Self-Storage Facilities	1 per 300 sf of sales or office area
Warehouses/Wholesale Uses	1 per 2,000 sf
Temporary Uses¹	
Vehicles and Equipment	
Automobile and RV Dealers	1 per 800 sf
Automotive Repair and Maintenance	
Building Material Sales & Garden Equipment/Supplies	
Commercial and Industrial Machinery and Equipment Repair and Maintenance	
Electronic and Precision Equipment Repair and Maintenance	
Gas Stations	
Heavy Equipment Sales (mobile homes, farm equipment)	
Parking Lots and Garages	None Required
Personal and Household Goods Repair and Maintenance	1 per 800 sf
Railroad Yards and General Freight Trucking	1 per 2 employees on maximum work shift, but not less than 1 per 1,000 sf
Rental and Leasing Services	1 per 800 sf
Scrap Yards/Material Recycling ¹	1 per 300 sf of sales or office area

Visitor Accommodations	
Bed and Breakfast	0.5 per bedroom
Hotels and Motels	1 per sleeping room
RV Parks and Campgrounds	1 per each trailer/tent or RV space

NOTES	
¹ Or applicant provide parking survey and summary to document peak on-street parking demand for the neighborhood for Zoning Administrator and/or Board of Adjustment determination that adequate parking is available.	
² Exemptions to minimum off-street parking requirements in CB, UMC, and U Zones. See Section 4-6-5(E)(4)	
³ Or as determined by the Zoning Administrator, in consideration of operating characteristics of the use	

...

SECTION 5: SEVERABILITY. Provisions of this Ordinance shall be deemed severable and the invalidity of any provision of this Ordinance shall not affect the validity of the remaining provisions. The remaining sections of Title 4, Chapter 1, Chapter 3, and Chapter 6 that are unmodified by this Ordinance shall be in full force and effect.

SECTION 6: EFFECTIVE DATE. After its passage and adoption, a summary of this Ordinance, under the provisions of the Idaho Code, shall be published once in the official newspaper of the City of Moscow. This Ordinance shall be in full force and effect from and after the date of its passage, approval and publication according to law.

PASSED on Motion by the Following Vote:

	Aye	Nay	Abstain	Absent
Scott Sumner	_____	_____	_____	_____
Sage McCetich	_____	_____	_____	_____
Bryce Blankenship	_____	_____	_____	_____
Drew Davis	_____	_____	_____	_____
Sandra Kelly	_____	_____	_____	_____
Evan Holmes	_____	_____	_____	_____

ADOPTED by the City Council of the City of Moscow, Idaho and **APPROVED** by the Mayor of the City of Moscow, this ____ day of _____, 2026.

Hailey Lewis, Mayor

CERTIFICATION and ATTESTATION. I hereby certify that the above is a true copy of an Ordinance passed at a regular meeting of the City Council, City of Moscow, held on _____, 2026.

Laurie M. Hopkins, City Clerk

NOTICE OF PUBLIC HEARING

Legislative Hearing Providing for the Amendment of Title 4, Chapter 1, 3, and 6 of Moscow City Code Regarding Amendments to Manufactured Homes and Accessory Dwelling Units.

A public hearing at which you may be present and speak will be conducted before the City of Moscow City Council at which time the following proposal will be considered:

Legislative Hearing Providing for the Amendment of Moscow City Code Title 4, Chapters 1, 3, and 6; Providing for the Amendment of the Definition of Manufactured Home and Accessory Dwelling Unit Standards.

The City of Moscow Planning and Zoning Commission conducted a public hearing for the proposed ordinance on August 12, 2026, and recommended approval to City Council.

HEARING DATE: Monday, September 21, 2026

HEARING LOCATION: Council Chambers on the Second Floor of Moscow City Hall
206 East Third Street, Moscow, Idaho

MEETING TIME: 7:00 p.m.

Note: Meeting start time is not necessarily indicative of hearing start time for the proposal advertised in this notice. Multiple hearings and/or agenda items may make it difficult to determine hearing start time, which could occur late in the meeting. The file containing information on this matter is available for public review at the Community Development Department located in the Haddock Building at 504 S Washington Street, Moscow, Idaho. Call 883-7035 to get a meeting agenda and further information about the matter.

Verbal testimony at the hearing is generally limited to three (3) minutes time. Public participants desiring to submit textual materials to the decision-making board shall make that submission at least five (5) calendar working days in advance of the scheduled meeting. Emailed comments can be received at P&Z@ci.moscow.id.us. Materials provided tardy may be admitted for consideration subject to the discretion of the decision-making board. You may obtain further information about the public hearing process and procedures on the City's Website at:

<https://www.ci.moscow.id.us/593/Public-Hearing-Notices>

Laurie M. Hopkins, Moscow City Clerk



Jennifer R. Fleischman, Deputy City Clerk

Published: Saturday, September 5, 2026

PLANNING & ZONING COMMISSION



Dennis Wilson
Commission Chair
P&Z@ci.moscow.id.us

Regular Meeting ~Minutes~

Mike Ray
Staff Liaison
208.883.7008

<https://www.ci.moscow.id.us/457/Planning-Zoning-Commission>

Wednesday
August 12, 2026

7:00 PM

Council Chambers
206 E. Third Street

Wilson called the meeting to order at 6:59 PM

MEMBERS PRESENT: Dennis Wilson, Chair; Rich Beebe, Joel Hamilton, Nels Reese, Victoria Seever, Matthew Smith
MEMBERS ABSENT: Scott Gropp, Cole Mize, Sue Scott
OTHERS: Evan Holmes, Sage McCetich, Scott Sumner
STAFF: Jennifer Fleischman, Mike Ray

REGULAR AGENDA

1. Approval of Minutes from July 22, 2026 (ACTION ITEM)

Seever moved for approval of the minutes as written, seconded by Smith. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion carried.

2. Public Comment

Time limit 15 minutes. Members of the Public may speak to the Commission regarding matters NOT on the Agenda nor currently pending before the Planning and Zoning Commission. Please state your name and resident city for the record and limit your remarks to three (3) minutes.

John Slagboom, Moscow, read his comments regarding a specific building application pending before the City of Moscow, the recent Zoning Code amendments, and cost of public records requests. He requested the Commissioners release some City records without cost (see attached).

3. Public Hearing: Proposal for a Rezone and Preliminary Subdivision Plat for property generally located east of the intersection of Third Street and Mountain View Road, within the City of Moscow, known as Harvest Hills 2nd Addition. Permit Applications LUP2026-0024 and LUP2026-0025 (ACTION ITEM)

1. Proposed Rezone of a two point six eight (2.68) acre area from the Moderate Density, Single Family Residential (R-2) Zone to the Medium Density Residential (R-3) Zone.

2. Proposed Preliminary Subdivision Plat of a 17.2-acre area to create sixty-four (64) parcels averaging 9,080 square feet in size, referred to as the Harvest Hills 2nd Addition.

Ray presented the proposed rezone and preliminary plat as described above, and recommended the Commission recommend approval to City Council with no conditions. There was a short conversation about the current storm runoff that frequently occurs on the subject property that comes from the Rolling Hills subdivision to the south. Some grading has already been completed on the property, similar to what has been required for development of the surrounding subdivisions.

Public Hearing opened at 7:21 PM

Phil Rheingans (applicant), Moscow, provided more information regarding the proposed project. The twin

homes in Harvest Hills 1st Addition were sold at varying prices, proportionate to the cost of developing the infrastructure and land.

James Nance, Moscow, spoke in favor of the project and was glad to see the land developed.

Scott Oplinger, Moscow, was in favor of the project and appreciated the proposed pedestrian pathway connections.

Jim Masciotra, Moscow, spoke in opposition of the project with concerns of the storm runoff draining into the creek and affecting houses in the floodplain.

Claudia Deobald, Moscow, was against the project and talked about her worries with runoff into the creek and insufficient stormwater retention.

Tracy Hellman, Moscow, spoke neutrally but had questions about the effect of more houses with the dark sky ordinance.

Cliff Todd, Moscow, had concerns about the topography and hydrology of the proposed lots in relation to the weeds growing along the southern edge of the property.

Linda Hardesty, Moscow, was neutral about the proposed development, but had concerns about the safety impacts for foot traffic with connecting Jansen St to Third St. She encouraged the Commission to make the connection a pedestrian pathway instead of a road.

Lyndee Walker, Moscow, also shared her concerns about connecting Jansen St to Third St and the safety of children walking to and from school.

Jeannie Farmer, Moscow, complained about the current parking along Third St in regard to the twin homes built in the 1st Addition. She was worried about the future quality of the neighborhood.

Emily Klarquist, Moscow, spoke against the project because of the parking issues along Third Street.

Björn Pellmyr, Moscow, shared his concerns about the hydrology of the subject property and increased risk of flooding from the creek.

Jerry Schutz, Moscow, spoke in neutral about the connection of Third Street and Sixth Street.

Phil Rheingans (applicant), Moscow, addressed some of the comments regarding water runoff on the subject property and proposed improvements to the storm drains. The City required Jansen Street to connect with Third Street according to a prior Memorandum of Understanding (MOU). He informed the Commission that the stormwater retention ponds are appropriately sized based on Engineering.

Scott Becker (applicant's representative), Moscow, talked about the detention ponds in more detail as well as the engineering of the storm drain infrastructure. He also mentioned the requirement for full cut-off lighting according to Moscow Zoning Code.

Public Hearing closed at 7:54 PM

The Commission talked about the public's comments regarding weed control, parking along Third Street, and the proposed increased density of homes. There continued to be a discussion about parking concerns in other areas of the City in comparison. Staff reminded the Commissioners that there is a signed MOU regarding the connection to Jansen Street.

Reese moved to recommend approval of the proposed Rezone request with no conditions, seconded by

Seever. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion carried.

Smith moved to recommend approval of the proposed Harvest Hills 2nd Addition Preliminary Plat, with a condition that City Council review and consider developing that portion of Jansen Street as a pedestrian pathway instead of a road. The motion was seconded by Hamilton. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion carried.

Seever moved to direct Staff to draft the Relevant Criteria and Standards for both the Harvest Hills 2nd Addition Rezone and Preliminary Plat, seconded by Reese. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion carried.

4. Public Hearing: Proposal for a Variance at 510 and 520 Empire Lane. Permit Application LUP2026-0020 (ACTION ITEM)

Proposed variance application to reduce the required exterior setback for an existing manufactured home park from fifteen (15) feet to nine and a half (9.5) feet in order to separate an existing single-family dwelling from the existing manufactured home park within the Multiple-Family Residential (R-4) Zoning District, per Moscow City Code 6-2-9.C.

Ray presented the proposed variance as described above, and recommended the Commission recommend approval to City Council with two conditions. The subject mobile home park and single-family dwelling have been established and occupied for many years. There are no fire safety concerns with the building's locations in relation to each other.

Public Hearing opened at 8:20 PM

Jerry Schutz (applicant), Moscow, talked about the history of the property and Empire Lane, as well as the reasons behind the requested lot line division, lot line adjustment, and subsequent Variance.

Scott Sumner, Moscow, speaking as a Moscow citizen, was in favor of the project because of his personal connections to the mobile home park.

Public Hearing closed at 8:24 PM

Seever moved to approve the proposed Variance request, with the two conditions as recommended by Staff. The motion was seconded by Beebe. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion carried.

Seever moved to direct Staff to draft the Relevant Criteria and Standards, seconded by Beebe. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion carried.

5. Public Hearing: Legislative Hearing Providing for the Amendment of Title 4, Chapters 1, 3, and 6 of Moscow City Code Regarding Amendments to Accessory Dwelling Unit (ADU) and Manufactured Home Requirements (ACTION ITEM)

Senate Bill 1354a – Accessory Dwelling Units and House Bill 800 – Manufactured Homes are two bills that were signed in to law during the 2026 Idaho Legislative Session. The proposed ordinance is intended to bring the Moscow City Code into compliance with the new laws.

Ray presented the proposed Code Amendment as described above, and recommended the Commission approve and put before City Council. There was a brief conversation about Idaho State Code parking requirements for ADU's.

Public Hearing opened at 8:36 PM

Nils Peterson, Moscow, speaking as the Executive Director of Hills and Rivers Housing Trust, was in favor of the proposed amendment.

Jerry Schutz, Moscow, was in favor of the amendment and asked for more clarification on parking requirements.

Matthew Becker, Moscow, spoke in favor of the proposed amendment and appreciated Idaho Legislations' State Code Amendment that drove it.

Public Hearing closed at 8:41 PM

The Commissioners talked about the proposed changes to ADU's as well as affordability of local housing in general.

Beebe moved to recommend approval of the proposed Code Amendment for Accessory Dwelling Unit and Manufactured Home Requirements, as written. The motion was seconded by Hamilton. Roll Call Vote; Ayes: Unanimous (6). Nays: None. Abstentions: None. Motion Carried.

6. Approval of Reasoned Statement of Relevant Criteria and Standards (ACTION ITEM)

Proposal for a Comprehensive Plan Land Use Designation and Zoning Designation for a 44.01-Acre Area Proposed to be Annexed into the City of Moscow and Generally Located on the West Side of Orchard Avenue, North of the Orchard Ave/Trail Road Intersection. Permit Application LUP2025-0033

1. *Proposal to retain the current Comprehensive Plan Land Use Designation of Auto-Urban Residential.*

2. *Proposal to rezone the subject property from the Agriculture Forestry (AF) Zone to a combination of the Moderate Density, Single Family Residential (R-2) Zone and the Suburban Residential (SR) Zone.*

Seever moved for approval of both the Relevant Criteria and Standards for the Comprehensive Plan Designation and Rezone request, seconded by Smith. Roll Call Vote; Ayes: Hamilton, Reese, Seever, Smith, Wilson (5). Nays: None. Abstentions: Beebe (1). Motion Carried.

7. Citizen Survey Questions (ACTION ITEM)

The City has distributed Citizen Surveys to 1,200 randomly selected addresses every two years since 2002.

The 2026 Citizen Survey will be distributed this fall, and every City Commission has been requested to provide two questions to be included in the survey.

Ray presented draft questions provided by two of the Commissioners for consideration of including in the upcoming Citizen survey. Staff will compile final draft sample questions based on the discussion to bring before the Commission at the next meeting.

REPORTS

1. *Transportation Commission meeting report.*

The next meeting of the Transportation Commission is scheduled for Thursday, August 13th.

ANNOUNCEMENTS

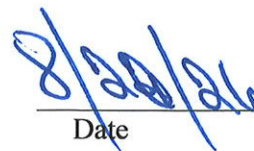
UPCOMING EVENTS/MEETINGS

The next Planning & Zoning Commission regular meeting is scheduled for August 26, 2026.

The meeting was adjourned at 9:13 PM



Dennis Wilson, Chair


Date

Jennifer Fleischman

From: John Slagboom <john.slagboom@me.com>
Sent: Wednesday, August 12, 2026 8:16 PM
To: Planning & Zoning Commission
Subject: Written copy of my public comment, P&Z meeting of August 12 (Ordinance 2026-04)

CAUTION: This message originated from outside the City of Moscow's network. Exercise caution when clicking links or opening attachments. If in doubt, please contact Information Systems at extension 7004.

Commissioners,

Below is the text of the public comment I delivered at tonight's meeting, for your records and for the meeting record.

The two requests in it stand. First, the 111 plan sets staff told this Commission it reviewed: the property list and the review criteria. My records request for that list is invoiced at \$242.68 which I, frankly, cannot afford. Each of you can ask staff for it directly. Second, the specific buildings behind the plan sets staff showed this Commission in May and gave the Council before its July vote.

Chair and Commissioners, my name is John Slagboom. I live at 924 East A Street.

A builder told me about a young father, about my age, whose family saved five years to build on Spotswood Street. The City said the permits would issue once the old building came down. It issued the demolition permit on October 6. The building came down in late October. It stamped the plans Final Reviewed Plans on October 29. Six days later, it stopped everything on that parcel, in writing. Seven applications sit there today. To my knowledge, the only permit ever issued is the demolition.

That family is young, like mine: single income, saving what we can, trying to get ahead. They did everything right. Their losses stand near \$600,000, not including the daily opportunity cost of not having a building occupied with tenants.

Three questions.

One: why did the City issue a demolition permit, then no permit once the building was down?

Two: if the plans did not meet code, why did the City approve and stamp them?

Three: if they did meet code, what gave the City the power to stop the permits? Plans stamped, demolition permitted, then nothing. This looks like a rug-pull.

I pulled the City's permit reports and the full public files behind these projects. This summer, a dozen duplex applications sat waiting. At least eight were withdrawn in the last two weeks. Meanwhile, the City issued permits for buildings with the same kinds of features. I ask staff to name the written standard, in force on November 13, that passes one and fails the other.

The standards codified by Ordinance 2026-04 were enforced for eight months before Council adopted them, through staff memos whose own text said the Code needed an amendment. Zoning law is written by this Commission and the elected Council, not by staff memo. If that was not illegal, it is still deeply concerning: zoning standards passed informally by memo, and seemingly applied unevenly.

I ask for two things. First, the 111-plan study staff cited to you: the property list and the criteria that were used to build it. My records request sits invoiced at almost \$250, which I cannot afford. Each of you can ask for it at no cost. Second, the specific buildings behind the plan sets on the PowerPoint staff showed this Commission this May, and gave the Council in July.

The Spotswood plans passed two Fire Department reviews in the City's own records. I am not asking anyone to touch building safety codes, only the zoning rules that decide what housing people may build, and where. Please consider re-reviewing this zoning code and pull it back where you can, to make room for affordable housing. Thank you.

John Slagboom
924 East A Street, Moscow, Idaho
john.slagboom1@gmail.com

Sent from my iPhone

COMMITTEE / CITY COUNCIL STAFF REPORT

DATE: Monday, September 14, 2026



AGENDA ITEM TITLE

Pine View Addition Final Plat (ACTION ITEM) - Mike Ray

RESPONSIBLE STAFF

Michael Ray, Assistant CD Director/Planning Manager

ADDITIONAL PRESENTER(S)

DESCRIPTION

Joe and Pam Juscen are requesting approval of the Final Plat for the Pine View Addition. On May 6, 2024, Moscow City Council approved the annexation, comprehensive plan land use designation, and zoning designation of a 22.93-acre area of land generally located east of the current terminus of Moser Street. Also included in the proposal was a preliminary subdivision plat to create 40 lots ranging from 12,077 square feet to 27,491 square feet in size, referred to as Pine View Subdivision. The application was approved by the Council with eight conditions. On October 15, 2025, the applicant submitted the final subdivision plat to be reviewed by the Planning and Zoning Commission and City Council. The Planning and Zoning Commission reviewed the final plat at their regular meeting on August 26, 2026, and recommended approval to City Council.

REVIEWED BY

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend approval of the Pine View Addition Final Plat; or provide staff further direction.

STAFF RECOMMENDATION

Recommend approval of the Pine View Addition Final Plat.

OTHER RESOURCES

FISCAL IMPACT

PERSONNEL IMPACT

ATTACHMENTS

1. Final Plat Memo
2. Final Plat
3. Council Minutes and RCS

Memo

To: City Council
From: Mike Ray, AICP - Planning Manager
Date: September 9, 2026
Re: Pine View Addition Final Plat Review

The Planning & Zoning Commission conducted a public hearing on March 27, 2024, to consider the request of Joe and Pam Juscen for an Annexation, Comprehensive Plan Land Use Designation, Rezone, and Preliminary Plat for a 22.93-acre area of land generally located east of the current terminus of Moser Street, referred to as Pine View Addition. After considering public testimony and the relevant criteria and standards, the Planning and Zoning Commission recommended approval of the Comp Plan Land Use Designation and Rezone with no conditions and recommended approval of the preliminary subdivision plat with the following conditions:

1. The proposed subdivision shall be analyzed in the City's water system model to verify that the current design will have adequate potable and fire flow requirements, and if there are deficiencies the applicant shall be responsible for the construction of the improvements needed to adequately serve the subdivision.
2. The applicant shall work with the City to determine whether the 'D' Street sanitary sewer connection is sufficient to accommodate the proposed subdivision, and if there are deficiencies the applicant shall be responsible for the construction of the improvements needed to adequately serve the subdivision.
3. In accordance with a prior development agreement (Latah County Instrument No. 412000), the applicant shall be responsible for the construction of all public improvements from the current terminus of Moser Street to the subject property.
4. The applicant shall be required to conduct a detailed stormwater discharge analysis to include any mitigation actions necessary to ensure that the stormwater facility shall have no downstream adverse impacts subject to the approval of the City Engineer.
5. An emergency vehicle turnaround will need to be provided at the eastern terminus of Whitetail Lane and the road, improvements, and utilities will need to be extended to the eastern property boundary of the subject property.
6. The applicant shall provide adequate access to at least every other manhole for the sanitary sewer and storm sewer mains for maintenance.
7. The applicant shall connect the water line in the Whitetail Lane cul-de-sac to the water line in Moser Street for water quality and redundancy purposes.
8. The applicant shall extend a pedestrian walkway from Whitetail Lane south to Moser Street and north to the property boundary of the adjacent undeveloped property.

City Council then conducted a public hearing on May 6, 2024, and approved the Pine View Addition Annexation, Comprehensive Plan Land Use Designation, Rezone, and Preliminary Plat with the same conditions recommended by the Planning and Zoning Commission.

On October 15, 2025, the applicant submitted the final subdivision plat to be reviewed by the Planning and Zoning Commission and City Council. Staff has reviewed the final plat for conformance with City and State Code requirements and the conditions of approval and found it to be in conformance. The Planning and Zoning Commission reviewed the final plat at their regular meeting on August 26, 2026, and recommended approval to City Council.



**CITY OF MOSCOW
COMMUNITY
DEVELOPMENT**
Ph.: 208-883-7035
504 S. Washington Street
jfleischman@ci.moscow.id.us
mray@ci.moscow.id.us

For City Use Only			
Date Received			
Dept	Fee Type	Fees	Paid
CDV	Application Fee	\$492.00 plus \$29.50/lot	
Receipt Number			

APPLICATION FOR FINAL SUBDIVISION PLAT

(Please type or print plainly with blue ink.)

APPLICANT:

Name: Joe and Pam Jusen Phone: 509-595-2251
Address: 705 E 8th St Moscow, ID 83843 Email: idahojuscens@gmail.com

OWNER: (if other than applicant)

Name: _____ Phone: _____
Address: _____ Email: _____

ENGINEER/SURVEYOR:

Name: Hodge & Associates, Inc Phone: 208-882-3520
Address: 405 S Washington St Moscow, ID 83843 Email: hodge@moscow.com

Primary point of contact (select one): Applicant ☐ Owner ☐ Engineer/Surveyor ☒

PROPERTY:

- Proposed Subdivision Name: Pine View Addition
- Address(es) or Parcel Number(s): RPM00000097850, RPM00000097825, RPM00000097885
- Legal Description: Please attach copy of full description.
- Gross Area of all land involved: 22.89 acres, and/or _____ sq. ft.
- Total Net Area of land area, exclusive of proposed or existing public street and/or other public lands:
17.58 acres, and/or _____ square feet.
- Total number of lots: 40 Average lot size: 19,145 sq. ft.

SEWER AND WATER MAIN OVERSIZING REIMBURSEMENT POLICY:

Oversizing of utilities will not be eligible for reimbursement from the City unless a written request is submitted to the City Engineer prior to approval of the project construction drawings and a written approval of such request is issued by the City Engineer.

FINAL PLAT CHECKLIST:

All final plats, including the legal description of the exterior boundary, shall be prepared in accordance with the Idaho Code. Final plats shall be drawn to a scale no larger than 1"=100' unless pre-approved by the City Engineer. The final plat drawing shall not be substantially different than the approved preliminary plat for the subdivision and shall contain the following information:

- ☒ 1. Name of subdivision and its location by section, township, range, and county, with drawing scale, date of submission, and north arrow.
- ☒ 2. Name, address, phone number, registration number and seal of the professional land surveyor preparing the plat, and name of subdivider and owners of property being platted.
- ☒ 3. Boundary lines of property being platted including bearings, distances and curve data based on an accurate survey in the field closing within the tolerances prescribed by Idaho Code; lines of departure and owners of unplatted adjoining property; and lots, blocks and names of adjoining subdivisions. Adjoining subdivision lots shall be shown with dashed lines.
- ☒ 4. Names and widths of all proposed streets; bearings, distances, and curve data of all street centerlines; location, width, purpose, and dimensions of easements; location and description of all property being dedicated for public use. All curves shall be described by central angle, radius, arc length, and chord bearing and distance.
- ☒ 5. Location, name, and widths of adjacent street rights-of-way, the location and width of adjacent public easements, and the location and purpose of any adjacent property previously dedicated for public use.
- ☒ 6. Lots and blocks with lots numbered consecutively within each block; bearings, distances, and curve data for each lot; the square footage of lots less than one acre in size or acreage of lots one acre or greater. Blocks shall be labeled consecutively. All curves shall be described by central angle, radius, arc length, and chord bearing and distance.
- ☒ 7. Location and description of all monuments, including found monuments. If interior monuments are not set at the time the plat is recorded (as allowed by Idaho Code), include a statement indicating the date which they shall be set. Said date shall be approved by the City Engineer.
- ☒ 8. Basis of bearing used to determine bearings shown on the plat.
- ☒ 9. Point of beginning of the subdivision with ties to the point of beginning from a minimum of two established corners of the Public Land Survey System (PLSS) in one or more of the sections containing the subdivision. List the recording numbers of the corner perpetuation and filing forms of the PLSS monuments. List horizontal coordinates for each PLSS monument and the point of beginning based on the Idaho Coordinate System West Zone. All coordinates values shall be grid coordinates based on the North American Datum of 1983 (NAD83) and specified as such.
- ☒ 10. Street centerline monuments at each intersection, point of curvature, and point of tangency. Street monuments shall be constructed in accordance with City of Moscow Standard Specifications for street monuments. All other monuments shall be as prescribed by Idaho Code.
- ☒ 11. Signed certificate by the owners of the land containing a correct legal description of the land, with the statement containing their intentions to include the same in the plat, and make a dedication of all public rights-of-way, easements, and parkland. The owner(s)'s signatures upon the certificate shall be

notarized upon the plat by an officer duly authorized to take acknowledgements. If the property is being mortgaged, the signature of the mortgagee's representative is also required.

- ☒ 12. Signed certificate by the land surveyor, stating that the plat is correct and accurate, the land survey of the platted property was performed by them or under their direct supervision, the monuments indicated on the plat have been located as described, and the surveying and platting was done in accordance with Idaho Code. The statement shall be accompanied by the seal of the registered professional land surveyor, signed and dated. The surveyor shall in every case have a valid certificate of registration with the Idaho Board of Registration of Professional Engineers and Professional Land Surveyors.
- ☒ 13. Signed certificate by the City of Moscow Planning and Zoning Commission with date of approval.
- ☒ 14. Certificate stating that the City Council has approved the plat and accepts all public dedications as shown thereon. The certificate shall be signed by the Mayor and attested to by the City Clerk.
- ☒ 15. Certificate by the City Engineer that the plat conforms to the requirements of Title 50, Chapter 13, of the Idaho Code, and with the requirements of Moscow City Code Title 5, Chapter 1.
- ☒ 16. Signed certification by the subdivider stating the City of Moscow has agreed in writing to supply water to all the lots in the subdivision from the municipal water system.
- ☒ 17. Certificate signed and sealed by the Latah County Surveyor stating the plat and computations have been checked and the plat meets the requirements of Title 50, Chapter 13 of the Idaho Code.
- ☒ 18. Certificate of satisfaction of the sanitary restrictions, to be endorsed by the Latah County Recorder at the time of filing if the sanitary restrictions have been satisfied according to Idaho Code, Section 50-1326.
- ☒ 19. Certificate that taxes have been paid to date on the property to be signed by the Latah County Treasurer at the time of filing.
- ☒ 20. Certificate of recording, to be signed by the Latah County Recorder at the time of filing.

The following items must be submitted with this application before it will be processed:

1. Application fees
2. One full-sized Final Plat Map and one electronic copy.

I understand this information is a public record and may be posted to a public website. I declare and certify under penalty of perjury pursuant to the law of the State of Idaho that the foregoing is true and correct and that I have legal authority to submit this Application.

Signature of Applicant

Date

Signature of Property Owner (if different)

Date

LEGAL DESCRIPTION

A parcel of land located in the West Half of the Southeast Quarter of Section 9, Township 39 North, Range 5 West, Boise Meridian, Latah County, Idaho, described as follows:

Commencing at the northwest corner of the Northwest Quarter of the Southeast Quarter of Section 9, Thence along the north line thereof, S89°36'45"E, 658.48 feet to the northeast corner of a parcel of land described in Quitclaim Deed, Instrument #616270, Latah County Records, also a point on the south line of a parcel of land described in Warranty Deed, Instrument #550272, Latah County Records, and the Point of Beginning.

Thence continuing along said north line and along said south line and the south line of a parcel described in Quitclaim Deed, Instrument #611364, Latah County Records, S89°36'45"E, 311.60 feet;

Thence leaving said common line, S00°32'24"W, 208.00 feet;

Thence S77°26'57"E, 198.73 feet;

Thence S28°59'58"E, 190.43 feet;

Thence S00°00'02"W, 236.44 feet;

Thence N51°16'00"E, 73.49 feet to a point on the east line of the Northwest Quarter of the Southeast Quarter of Section 9 and the west line of a parcel of land described in Corrected Quitclaim Deed, Instrument #632094, Latah County Records;

Thence along said east line and along said west line, S00°29'32"W, 312.56 feet to the northeast corner of a parcel of land described in Warranty Deed, Instrument #538806, Latah County Records;

Thence leaving said common line along the north boundary of the parcel described in said Warranty Deed, the following two courses:

S58°06'51"W, 175.00 feet;

Thence S66°51'51"W, 165.62 feet to the northwest corner of said parcel;

Thence S58°39'33"W, 145.56 feet;

Thence 71.81 feet along a curve to the right, said curve having a Delta = 30°28'31",

Radius = 135.00 feet, Chord = 70.96 feet and a Chord Bearing = S73°53'48"W;

Thence S12°53'20"W, 52.00 feet;

Thence 59.02 feet along a curve to the right, said curve having a Delta = 15°22'15",

Radius = 220.00 feet, Chord = 58.84 and a Chord Bearing = S20°34'28"W;

Thence S28°15'36"W, 98.59 feet to the northwest corner of Lot 12, Block 2 of Rolling Hills 10th Addition, Instrument #634835, Latah County Records;

Thence along the north line of Rolling Hills 10th Addition, N89°31'36"W, 230.53 feet to the northwest corner of Lot 2, Block 3 thereof and a point on the east boundary of City of Moscow, Moser Park, described in Deed of Dedication, Instrument #412761, Latah County Records;

Thence leaving said north line, along said east boundary the following two courses:

N60°05'36"E, 30.00 feet;

Thence N18°30'02"W, 47.17 feet to the northeast corner of Moser Park;

Thence along the north boundary thereof the following two courses:

N54°01'22"W, 84.31 feet;

Thence N77°05'53"W, 398.00 feet to the southeast corner of a parcel of land described in Warranty Deed, Instrument #618456, Latah County Records;

Thence leaving said north boundary, along the east line of the parcel described in said Warranty Deed, N13°00'02"E, 117.26 feet to the northeast corner of said parcel;

Thence along the north boundary thereof the following two courses:

N77°06'40"W, 61.56 feet;

Thence 31.09 feet along a curve to the left, said curve having a Delta = 7°55'02",

Radius = 225.00 feet, Chord = 31.07 feet and a Chord Bearing = N81°04'11"W to the

northwest corner of said parcel and a point on the north boundary of Moser Park;

Thence along said north boundary, 10.01 feet, along a curve to the left, said curve having a Delta = 2°33'00", Radius = 225.00 feet, Chord = 10.01 feet and a Chord Bearing = N86°18'12"W to a point on the west line of the Northwest Quarter of the Southeast Quarter of Section 9 and the east line of Moser Estates Third Addition to the City of Moscow, Instrument #390760, Latah County Records;

Thence along said west line and along said east line N00°43'57"E, 50.02 feet to the southwest corner of a parcel of land described in Warranty Deed, Instrument #629629, Latah County Records;

Thence leaving said common line, along the south boundary of the parcel described in said Warranty Deed the following two courses:

S87°34'42"E, 1.48 feet;

Thence 8.56 feet along curve to the right, said curve having a Delta = 1°47'01",

Radius = 275.00 feet, Chord = 8.56 feet and a Chord Bearing = S86°41'11"E to the

southwest corner of a parcel of land described in Warranty Deed, Instrument #456068, Latah County Records;

Thence along the south boundary thereof the following two courses:

41.68 feet along a curve to the right, said curve having a Delta = 8°41'00",

Radius = 275.00 feet, Chord = 41.64 feet and a Chord Bearing = S81°27'11"E;

Thence S77°06'40"E 48.29 feet, to the southeast corner of said parcel;

Thence along the east line thereof, N13°00'00"E, 120.00 feet to the northeast corner of said parcel;

Thence along the north line thereof, N77°02'22"W, 126.86 feet to a point on the west line of the Northwest Quarter of the Southeast Quarter of Section 9 and the east line of Moser Estates Third Addition;

Thence along said west line and along said east line and the east line of Moser Estates Fourth Addition to the City of Moscow, Instrument #391351, Latah County Records, N00°43'57"E, 208.35 feet to a point on said west line and on the east line of Moser Estates Fourth Addition and the southwest corner of the parcel of land described in Quitclaim Deed, Instrument #616270;

Thence leaving said common line, along the south line of said parcel, S89°33'46"E, 660.67 feet to the southeast corner thereof;

Thence along the east line of said parcel, N00°32'24"E, 653.79 feet to the Point of Beginning.

Parcel contains 22.89 acres, more or less.

DEDICATION

Know all persons by these presents, that Joseph F Juscen and Pamela J Persoon-Juscen, owners of the land and premises described above, have caused said land to be subdivided and platted as shown hereon as an addition to the City of Moscow, Latah County, Idaho, to be known as the Pine View Addition to the City of Moscow, Latah County, Idaho. The easements as shown on this plat are hereby reserved for public access and utility purposes as designated hereon and no permanent structures are to be erected within the lines of said easements. The owner certifies that all lots within this plat will be eligible to receive water service from an existing water system, be the water system municipal, a water district, a public utility subject to the regulation of the Idaho public utilities commission, or a mutual or nonprofit water company, and the existing water distribution system has agreed in writing to serve all of the lots in the subdivision (Section 50-1334, Idaho Code). The owner does herewith declare to offer for dedication to the public for public use the street right-of-ways.

In witness thereof, the undersigned have set their hand and seal.

Joseph F Juscen

Pamela J Persoon-Juscen

APPROVALS

Moscow Planning and Zoning Commission

Approval of this plat by the City of Moscow certifies agreement to allow connection of the above described property to the municipal water system and satisfies Section 50-1334, Idaho Code. Examined and approved by action of the Moscow Planning and Zoning Commission at a regular meeting with a quorum present this _____ day of _____, 2026.

Chairperson Planning and Zoning Commission

Moscow City Council

Examined and approved by action of the Moscow City Council at a regular meeting with a quorum present this _____ day of _____, 2026. Dedication of all public streets and easements described on this plat is hereby accepted in accordance with Section 50-1313, Idaho Code.

Mayor, City of Moscow

Clerk City of Moscow

City Engineer, City of Moscow

Examined and approved by the City Engineer this _____ day of _____, 2026. Plat conforms to the requirements of Title 50, Chapter 13 of the Idaho Code and with requirements of Moscow City Code Title 5, Chapter 1.

City Engineer, City of Moscow

Latah County Surveyor

This plat has been checked and meets the the requirements of Title 50, Chapter 13, Idaho Code. Examined and approved by the Latah County Surveyor this _____ day of _____, 2026.

Latah County Surveyor

Latah County Treasurer

I hereby certify that taxes and assessments on property shown hereon have been paid for 2025 and preceding years as of this _____ day of _____, 2026.

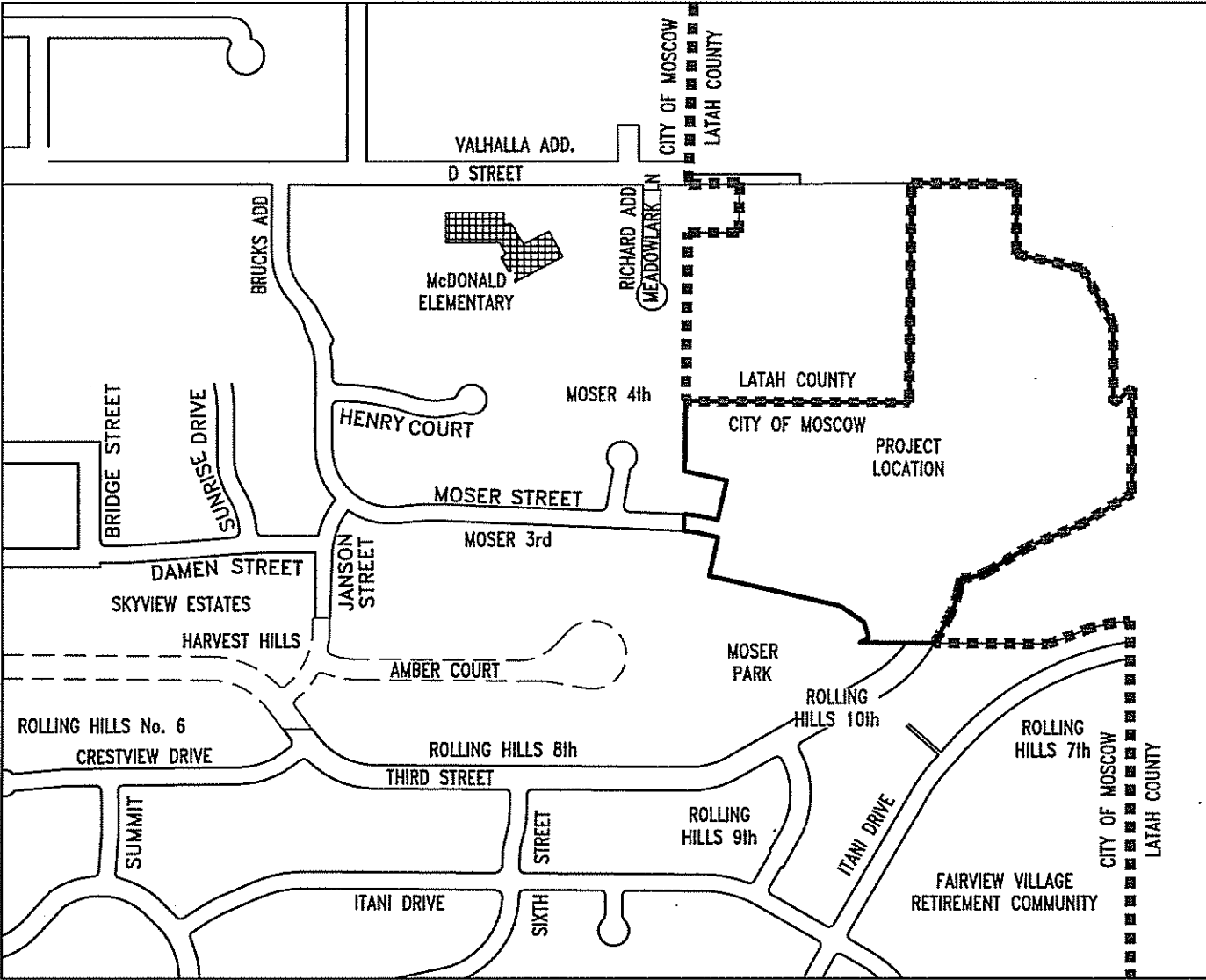
Latah County Treasurer

Public Health - Idaho North Central Health District

Sanitary restrictions as required by Idaho Code, Title 50, Chapter 13 have been satisfied. Sanitary restrictions may be reimposed, in accordance with Section 50-1326, Idaho Code, by the issuance of a certificate of disapproval.

Senior Environmental Health Specialist
Idaho North Central Health District

Date



VICINITY MAP

ACKNOWLEDGMENTS

State of _____

County of _____

On this _____ day of _____, 2026, before me, the undersigned Notary Public in and for the State of _____, personally appeared Joseph F Juscen and Pamela J Persoon-Juscen, known or identified to me to be the people whose names are subscribed to the foregoing instrument, and acknowledged to me that he executed the same.

In witness whereof, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

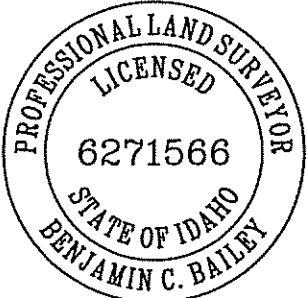
Notary Public, _____

Residing in _____

My Commission Expires _____

SURVEYOR'S CERTIFICATE

I, Benjamin Bailey, PLS #6271566, State of Idaho, hereby certify that the above platted and described property represents a survey performed by me or under my supervision in accordance with the laws of the State of Idaho, and that the streets, lots, distances, and monuments have been measured and located as shown thereon. The interior monuments will be set in accordance with Idaho Code 50-1303, on or before September 1st, 2027 as referenced on the plat and approved by the City of Moscow. Witness my hand and seal this _____ day of _____, 2026.



Benjamin Bailey, PLS #6271566 8-19-2026

P.O. Box 9728
Moscow, Idaho 83843
(208) 882-5520

Benjamin C. Bailey, PLS
Professional Land Surveyor
State of Idaho

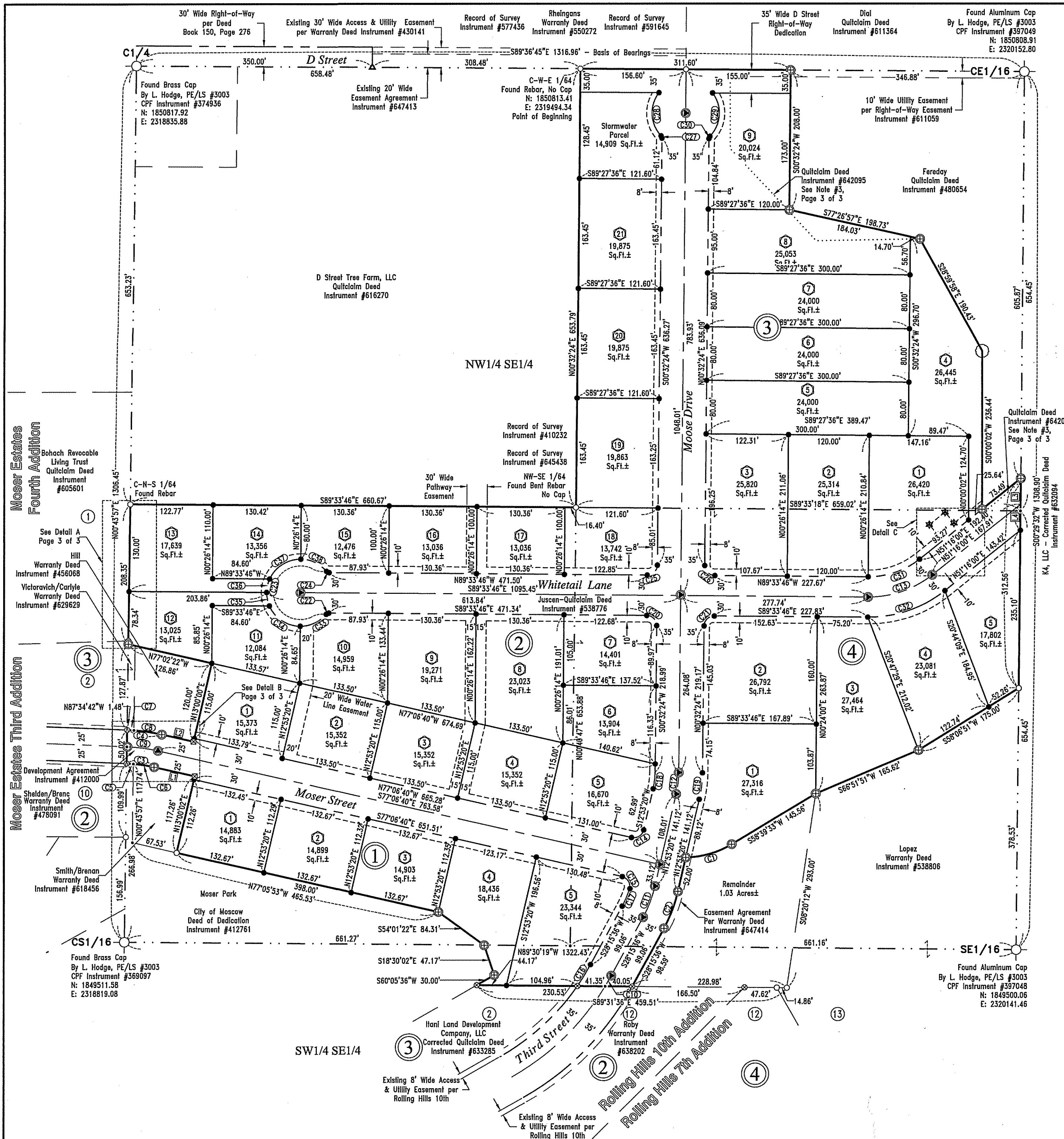
PRELIMINARY
NOT FOR
RECORDING

Pine View Addition
to the City of Moscow, Latah County, Idaho
Joseph F Juscen and Pamela J Persoon-Juscen

Drafted by:	SW
Checked by:	BB
File Name:	4410 plat.dwg
Tab:	Sign
Plot Style:	Primary.ctb
Project:	3831-07-13
Date:	8/19/26

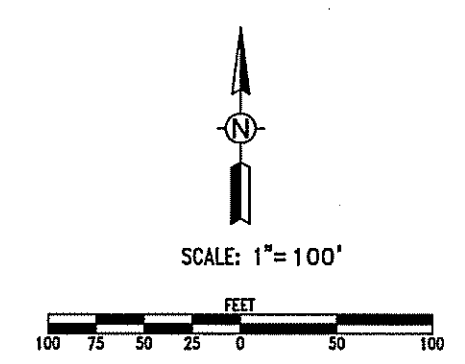
1 of 3

Section 9, T39N, R5W, BM

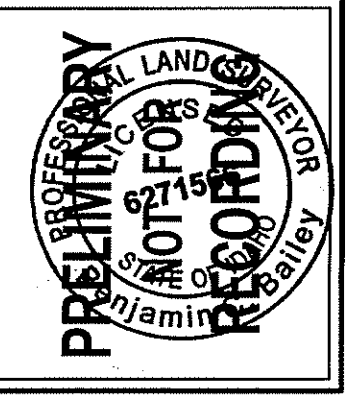


Basis of Bearings
The Basis of Bearings for this survey is identical to the Idaho Coordinate System, West Zone, NAD 83 as shown between the found northwest corner of the Southeast Quarter of Section 9 and the found northeast corner of the Northwest Quarter of said Southeast Quarter, said bearing being S89°36'45\"/>

- Legend**
- Found Monument as Described
 - Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" - See Note 5, Page 3 of 3
 - Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" In Monument Case and Cover Per City of Moscow MSCD-20000.201
 - Set 1/2" Diameter Rebar w/Plastic Cap Stamped "Easement PLS 6271566"
 - Found 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566"
 - Found 1" Brass Plug Stamped "Hodge PLS 6271566"
 - Utility Box @ Corner Location per Record of Survey Instrument #645438
 - Tree w/ Shiner @ Corner Location per Record of Survey Instrument #645438
 - Found 1/2" Diameter Rebar w/Plastic Cap Stamped "Easement PLS 6271566"
 - Found 5/8" Diameter Rebar w/Aluminum Cap Stamped "Rim Rock PLS 17534"
 - Found 5/8" Diameter Rebar w/Plastic Cap Stamped "Hodge 3003" or as Described
 - Calculated Position
 - Line Data - See Line Table, Page 3 of 3
 - Curve Data - See Curve Table, Page 3 of 3
 - Block Number
 - Lot Number - This Platting
 - Lot Number - Other Plats
 - Plat Boundary Line
 - Lot line - This Platting
 - Boundary Adjustment Per Record of Survey Instrument #, See Note 3, Page 3 of 3
 - Adjacent Parcel Boundary Line
 - Section Subdivision Line
 - Centerline
 - Right-of-Way
 - Access and Utility Easement - This Platting
 - Existing Easement - as Described



Professional Land Surveyor
P.O. Box 8728
Moscow, Idaho 83843
(208) 882-3520
Bridges & Associates, Inc.
Surveying & Mapping
Surveying & Mapping
Surveying & Mapping



Pine View Addition
to the City of Moscow, Latah County, Idaho
Joseph F. Juscen and Pamela J. Persoon-Juscen

Drafted by:	SW
Checked by:	BB
File Name:	4410 plat.dwg
Tab:	Layout
Plot Style:	Primary.ctb
Project:	3831-07-13
Date:	8/19/26

Section 9, T39N, R5W, BM

Surveyor Narrative

1. The purpose of this survey was to subdivide and plat the Juscen property, as described in Quitclaim Deed, Instrument #538776 and shown on Record of Survey, Instrument #645438 as shown hereon.
2. See Record of Survey, Instrument #645438 for survey record data and boundary resolution.
3. See Record of Survey, Instrument #645438 for Boundary Line Adjustments between Juscen and Fereday prior to this platting.
4. Right-of-Way Easement, Instrument #240872 provides for a buried power cable to be "placed as close as feasible to the north line of the North Line of the NE1/4 NW1/4 SE1/4, Section 9 Township 39 North, Range 5 West, BM."
5. Interior monuments to be set by September 1st, 2027.
6. All coordinates shown are based on the North American Datum of 1983 (NAD83)

Survey References:

1. Deed, Instrument #221549, Book 150 of Deeds, Page 276-277, Hall to Highway District No. 2.
2. Moser Estates Third Addition, Instrument #390760, by L. Hodge, PE/LS #3003.
3. Moser Estates Fourth Addition, Instrument #391351, by L. Hodge, PE/LS #3003.
4. Record of Survey, Instrument #410232, by L. Hodge, PE/LS #3003
5. Deed of Dedication, Instrument #412761, Moser Land Trust to City of Moscow.
6. Warranty Deed, Instrument #456068, Jarret to Hill.
7. Warranty Deed, Instrument #478091 Jung to Shelden & Brenc.
8. Quitclaim Deed, Instrument #480654, Michael R. Fereday & Jennifer D. Fereday to Michael R. Fereday & Jennifer R. Fereday.
9. Rolling Hills 7th Addition, Instrument #500535, by L. Hodge, PE/LS #3003.
10. Quitclaim Deed, Instrument #538776, McGurkin to Juscen.
11. Warranty Deed, Instrument #538806, McGurkin to Lopez.
12. Warranty Deed, Instrument #550272, Zasodny to Rheingans.
13. Record of Survey, Instrument #577436, by J. Goettsche, PLS #9584.
14. Record of Survey, Instrument #591645, by D. Priest, PLS #6449.
15. Quitclaim Deed, Instrument #605601, Gregory & Carolyn Bohach to Bohach Revocable Living Trust.
16. Right of Way Easement, Instrument #611059, Fereday to Avista Corporation.
17. Quitclaim Deed, Instrument #611364, Jodi Dial to Sam Dial.
18. Quitclaim Deed, Instrument #616270, Wang to D Street Treefarm, LLC.
19. Warranty Deed, Instrument #618456, Bruce to Smith & Brennan.
20. Warranty Deed, Instrument #629629, Jahns to Victorovich & Carlyle.
21. Corrected Quitclaim Deed, Instrument #632094, K,K,K, & K, LLC to K4, LLC.
22. Corrected Quitclaim Deed, Instrument #633285, Itani Land Company, LLC to Itani Development IV, Inc.
23. Rolling Hills 10th Addition, Instrument #634835, by T. Wardle, PLS #22509
24. Warranty Deed, Instrument #638202, Itani Development IV, Inc to Roby/Frey.
25. Quitclaim Deed, Instrument #642095, Fereday to Juscen.
26. Record of Survey, Instrument #645438, by B. Bailey, PLS #6271566.
27. Easement Agreement, Instrument #647413, Rheingans to City of Moscow.
28. Easement Agreement, Instrument #647414, Juscen to City of Moscow.

Legend

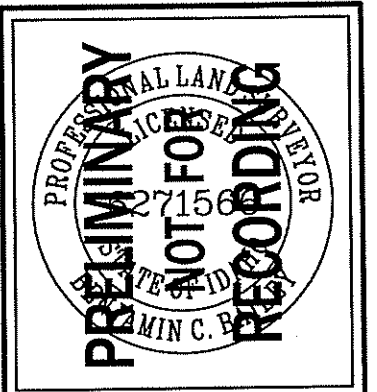
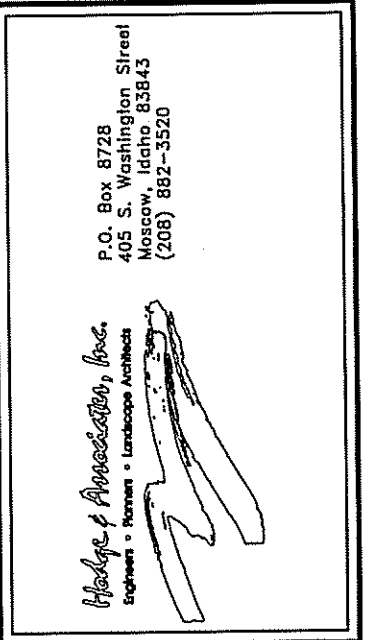
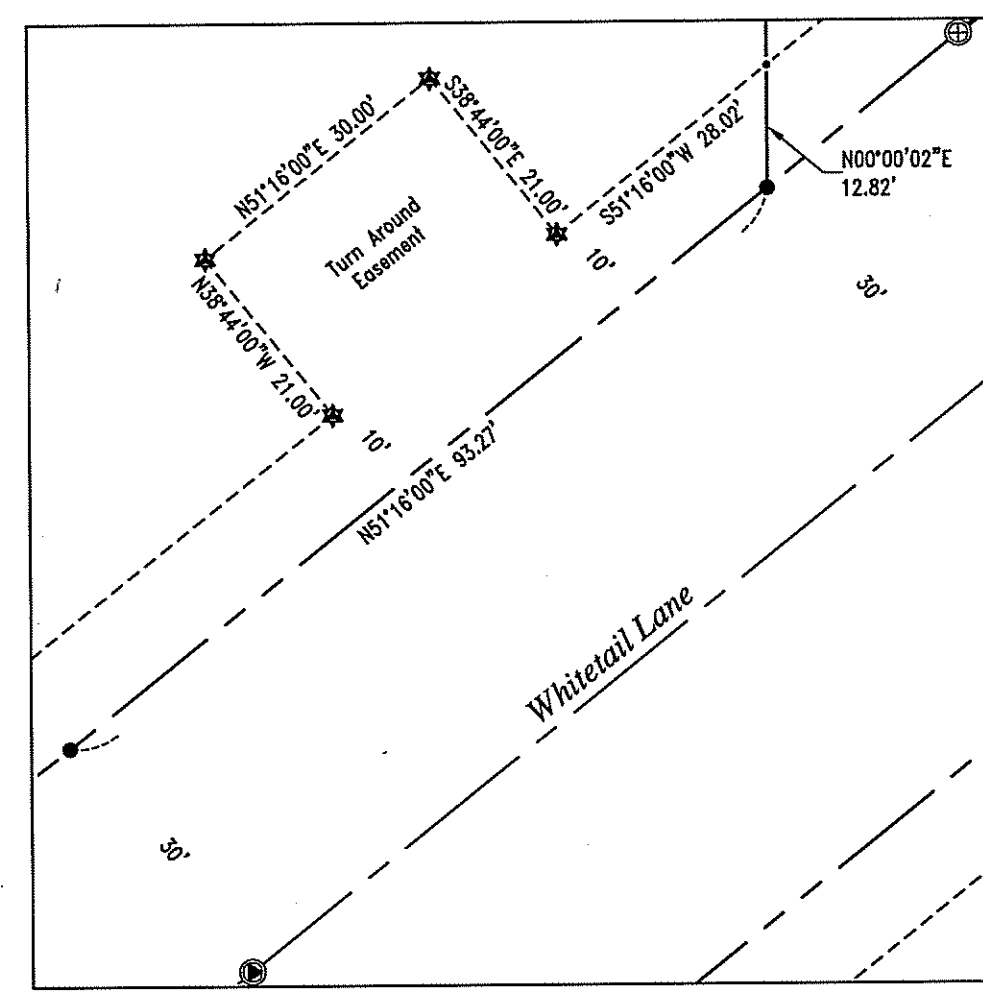
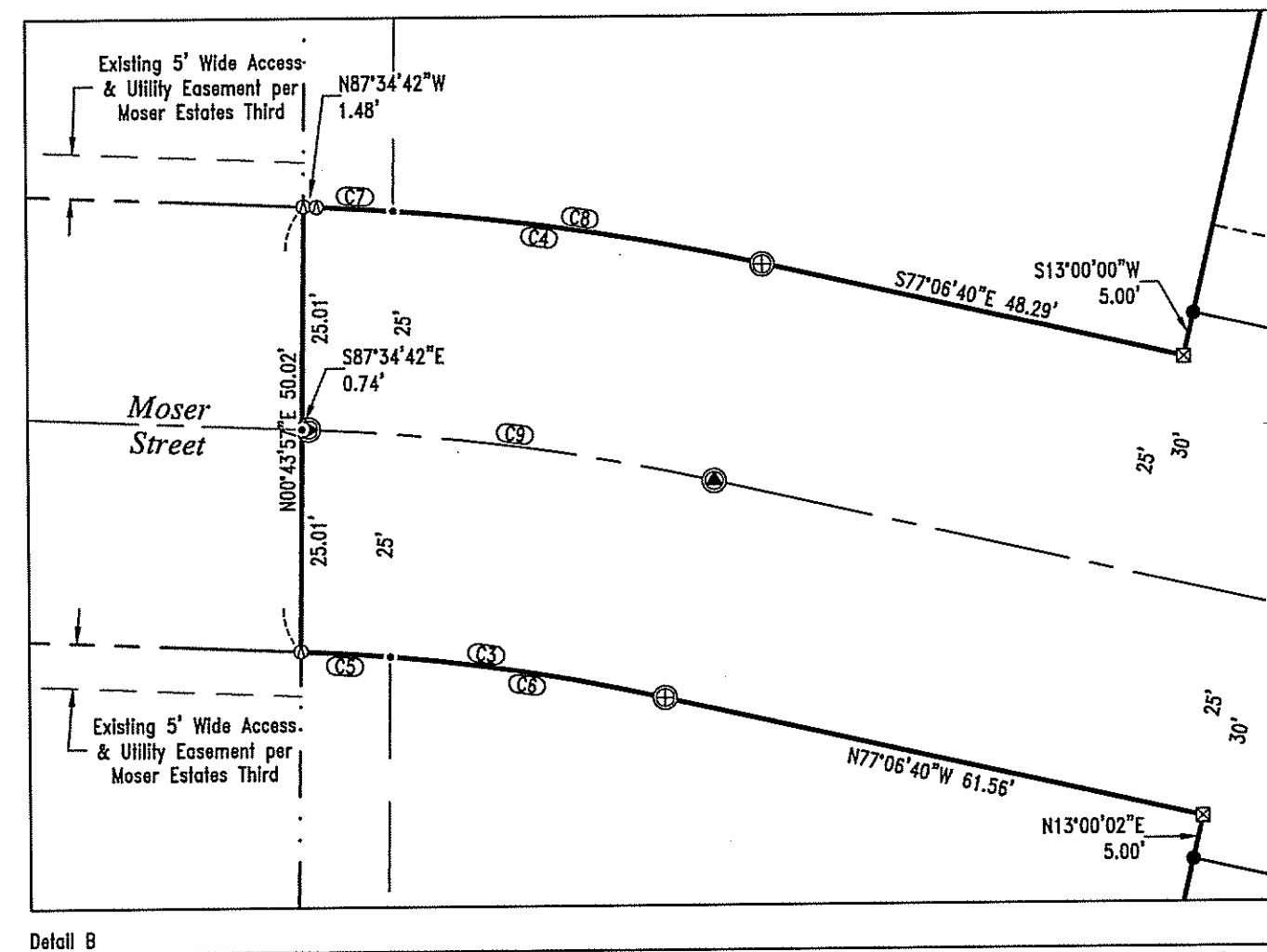
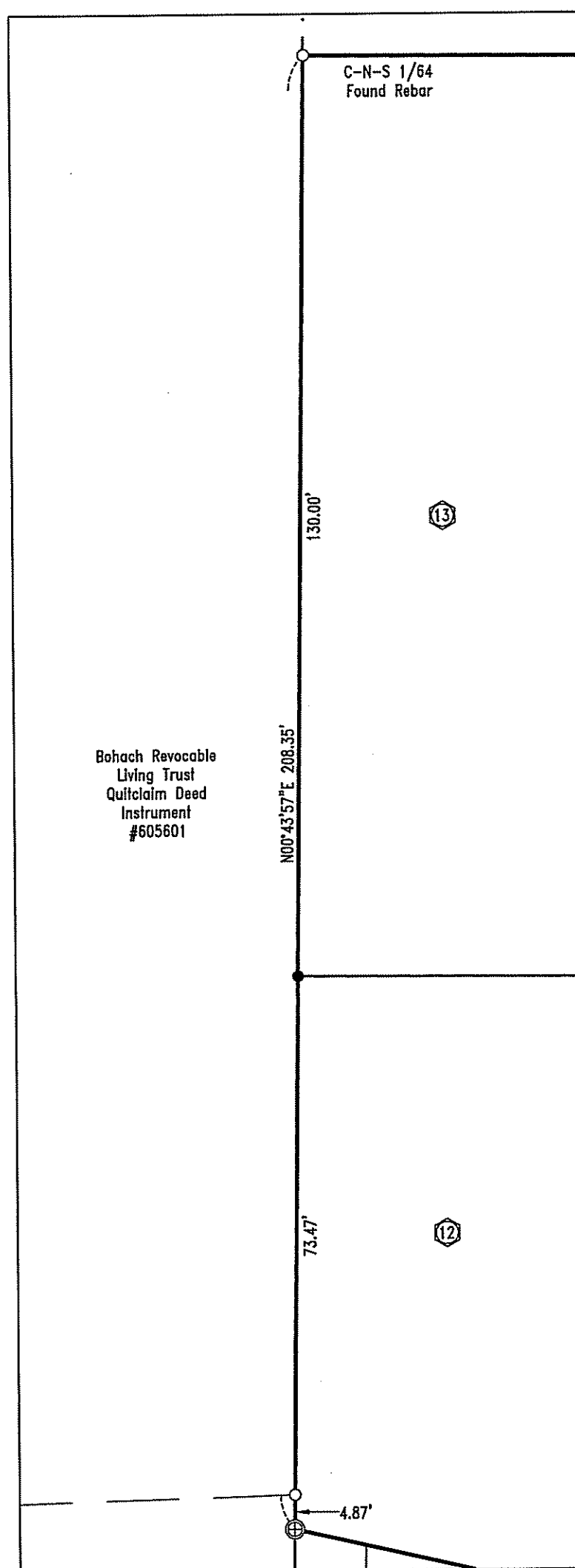
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- ⊙ Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" In Monument Case and Cover Per City of Moscow MSCD-20000.201
- ★ Set 1/2" Diameter Rebar w/Plastic Cap Stamped "Easement PLS 6271566"
- ⊕ Found 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566"
- ⊙ Found 1" Brass Plug Stamped "Hodge PLS 6271566"
- ⊙ Utility Box ⊙ Corner Location per Record of Survey Instrument #645438
- ▲ Found 1/2" Diameter Rebar w/Plastic Cap Stamped "Easement PLS 6271566"
- ⊙ Found 5/8" Diameter Rebar w/Aluminum Cap Stamped "Rim Rock PLS 17534"
- Found 5/8" Diameter Rebar w/Plastic Cap Stamped "Hodge 3003" or as Described
- Calculated Position
- LI Line Data - See Line Table, Page 3 of 3
- CI Curve Data - See Curve Table, Page 3 of 3
- ① Block Number
- ① Lot Number - This Platting
- ① Lot Number - Other Plats
- Plat Boundary Line
- Lot line - This Platting
- Adjacent Parcel Boundary Line
- Section Subdivision Line
- Centerline
- Right-of-Way
- Access and Utility Easement - This Platting
- Existing Easement - as Described

Curve	Length	Delta	Radius	Chord	Chrd Brng
C1	71.81'	30°28'31"	135.00'	70.96'	N73°53'48"E
C2	59.02'	15°22'15"	220.00'	58.84'	S20°34'28"W
C3	41.10'	10°28'02"	225.00'	41.05'	N82°20'41"W
C4	50.24'	10°28'02"	275.00'	50.17'	N82°20'41"W
C5	10.01'	2°33'00"	225.00'	10.01'	N86°18'12"W
C6	31.09'	7°55'02"	225.00'	31.07'	N81°04'11"W
C7	8.56'	1°47'01"	275.00'	8.56'	N86°41'11"W
C8	41.68'	8°41'00"	275.00'	41.64'	N81°27'11"W
C9	45.75'	10°25'00"	251.62'	45.68'	S82°21'11"E
C10	18.21'	2°42'35"	385.00'	18.21'	N29°36'53"E
C11	49.63'	15°22'15"	185.00'	49.48'	N20°34'28"E
C12	32.33'	12°20'56"	150.00'	32.27'	N06°42'52"E
C13	102.55'	39°10'14"	150.00'	100.56'	N70°51'07"E

Curve	Length	Delta	Radius	Chord	Chrd Brng
C14	23.56'	90°00'00"	15.00'	21.21'	S57°53'20"W
C15	24.88'	95°02'59"	15.00'	22.13'	S29°35'10"E
C16	37.55'	6°08'49"	350.00'	37.53'	S31°20'00"W
C17	27.02'	10°19'16"	150.00'	26.98'	S23°05'57"W
C18	24.79'	12°20'56"	115.00'	24.74'	S06°42'52"W
C19	39.87'	12°20'56"	185.00'	39.80'	N06°42'52"E
C20	23.59'	90°06'11"	15.00'	21.23'	S44°30'41"E
C21	23.53'	89°53'49"	15.00'	21.19'	N45°29'19"E
C22	4.41'	50°28'44"	5.00'	4.26'	N65°11'52"E
C23	245.18'	280°57'27"	50.00'	63.64'	S00°26'14"W
C24	4.41'	50°28'44"	5.00'	4.26'	N64°19'25"W
C25	23.53'	89°53'49"	15.00'	21.19'	S45°29'19"W
C26	23.59'	90°06'11"	15.00'	21.23'	N44°30'41"W

Curve	Length	Delta	Radius	Chord	Chrd Brng
C27	3.78'	43°20'30"	5.00'	3.69'	S21°07'51"E
C28	69.86'	80°03'32"	50.00'	64.32'	S02°46'20"E
C29	70.13'	80°21'50"	50.00'	64.52'	N03°42'00"E
C30	3.78'	43°20'30"	5.00'	3.69'	N22°12'40"E
C31	82.04'	39°10'14"	120.00'	80.45'	S70°51'07"W
C32	123.06'	39°10'14"	180.00'	120.68'	N70°51'07"E
C33	44.05'	50°28'44"	50.00'	42.64'	N65°11'52"E
C34	57.96'	66°25'19"	50.00'	54.77'	S56°21'07"E
C35	20.58'	23°34'41"	50.00'	20.43'	S11°21'07"E
C36	20.58'	23°34'41"	50.00'	20.43'	S12°13'34"W
C37	57.96'	66°25'19"	50.00'	54.77'	S57°13'34"W
C38	44.05'	50°28'44"	50.00'	42.64'	N64°19'25"W

Line	Bearing	Distance
L1	N77°06'40"W	61.56'
L2	S77°06'40"E	48.29'
L3	N00°29'32"E	38.73'
L4	N00°29'32"E	38.73'



Pine View Addition
to the City of Moscow, Latah County, Idaho
Joseph F Juscen and Pamela J Persoon-Juscen

Drafted by:	SW
Checked by:	MED
File Name:	4410 plat.dwg
Tab:	Details
Plot Style:	Primary.ctb
Project:	3831-07-13
Date:	8/19/26

Moscow City Council



Regular Meeting ~Minutes~

www.ci.moscow.id.us

Laurie M. Hopkins
City Clerk

208.883.7015

Monday, May 6, 2024

7:00 PM

**Council Chambers
206 E. Third St.**

The meeting was called to order at 7:00 p.m.

PRESENT: Mayor Art Bettge, Bryce Blankenship, Drew Davis, Sandra Kelly, Hailey Lewis, Julia Parker, Gina Taruscio

STAFF: Bill Belknap, Mia Bautista, Cody Riddle, Mike Ray, David Schott, Tyler Palmer, Anthony Dahlinger, Karen Potter, Steve Schultz, Ryan Debaun, Karl Riedinger, Dustin Blaker, police officers, Laurie M. Hopkins

PLEDGE OF ALLEGIANCE

Council President Taruscio led the Pledge of Allegiance.

PROCLAMATION

Bike Month

Mayor Bettge read the proclamation and presented it to Tonya Denison.

Public Service Recognition Week

Mayor Bettge read the proclamation.

REGULAR AGENDA

1. Approval of Moscow City Council April 15, 2024 Minutes - Laurie M. Hopkins

Kelly moved and Davis seconded to approve the minutes of April 15, 2024 as presented. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

2. Staff Recognition

Palmer provided a background of Steve Persell's time at the city and his completion of the Road Master program. He introduced Jayme Kootz from LHTAC.

Kootz explained the Road Master program has 22 courses and is similar to a master's degree. She presented a plaque and a jacket in honor of his completion.

3. Mayors Appointments (ACTION ITEM)

Mayor Bettge presented to the City Council for consideration the appointment of Garrett LaCivita to the Sustainable Environment Commission. Kelly moved and Taruscio seconded approval of the appointment. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

4. Public Comment and Mayor's Response Period (limit 15 minutes)

David Hall (rural Moscow) recognized staff for the addition of event parking during the Renaissance Fair.

Breanna Sipley (Moscow), is advocating the development of a new resident owned community. The residents in her mobile home park have formed a co-op, she says there is little she can do while still under private ownership. Land trust options cannot guarantee the long-term fair and affordable housing residents deserve.

Susie James (rural Moscow) explained how a resident owned community is formed. She is still looking into funding for a new community. A resident owned community creates stability. She wants to see affordable housing for everyone in the community.

Kathy Dawes (Moscow), is running for Idaho Legislature. She spoke with Breanna Sipley and those issues will become more difficult due to a bill brought forth by Representative Mitchell. Local government should be able to implement protection. She requests the City Council create a local housing authority to be discussed at the next council meeting.

5. Oath of Office for Anthony Dahlinger as Police Chief - Laurie M. Hopkins

Belknap provided a brief introduction regarding the appointment of Anthony Dahlinger to the office of Police Chief. Hopkins administered the Oath of Office and his wife Jessica pinned his badge. Chief Dahlinger said words of thanks.

6. Citizen Commission Report – Moscow Pathways Commission – David Schott / Tanya Denison

Schott introduced Tanya Denison. Denison went through the members of the Commission and past accomplishments which include the annual Bike Tour and Bike to Work Day; the second Annual Pedestrian Tour and display banner revisions. This next year they will work on possible articles in the city utility billing newsletter; promote inclusivity through public engagement for people of all abilities and promoting ideas for improvements to pathways and connections. Council members commented and asked questions.

7. Public Hearing: Pine View Annexation, Comprehensive Plan Land Use Designation, Zoning Designation, and Preliminary Plat (ACTION ITEM) - Mike Ray

The applicants, Joe and Pam Jusen, are proposing a Comprehensive Plan land use designation, zoning designation, and a preliminary subdivision plat for a 22.93-acre property proposed to be annexed into the City of Moscow and generally located east of the current terminus of Moser Street. The current Comprehensive Plan Land Use Designation is Auto-Urban Residential and the proposal is to retain that designation. The zoning of the subject property is currently Agriculture Forestry (AF) and the proposal is to rezone to the Moderate Density, Single Family Residential (R-2) Zone. The proposed preliminary plat is a 22.93-acre area with 40 lots ranging from 12,077 square feet to 27,491 square feet in size, referred to as Pine View Subdivision. The City of Moscow Planning and Zoning Commission conducted a public hearing for the proposed Comprehensive Plan Land Use Designation, Rezone, and Preliminary Plat on March 27, 2024 and recommended approval with eight conditions.

PROPOSED ACTIONS: Conduct the public hearing upon the annexation, Comprehensive Plan land use designation, zoning designation, and preliminary plat and upon consideration of any testimony presented:

1. Approve the Annexation Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary; or consider the Annexation Ordinance on first reading; or reject the Annexation Ordinance; or take other action as deemed appropriate.
2. If the Annexation Ordinance is approved, approve the proposed Comprehensive Plan Land Use

Designation Resolution and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or reject the proposed Comprehensive Plan Land Use Designation Resolution and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other action as deemed appropriate.

3. If the Annexation Ordinance is approved and the Comprehensive Plan Land Use Designation Resolution is approved, approve the proposed Zoning Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or consider the Zoning Ordinance on first reading; or reject the Zoning Ordinance and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other action as deemed appropriate.

4. If the Annexation Ordinance is approved, the Comprehensive Plan Land Use Designation Resolution is approved, and the proposed Zoning Ordinance is approved, approve the preliminary plat for Pine View Addition with the eight (8) conditions recommended by the Planning and Zoning Commission and the additional condition recommended by Staff and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or approve the preliminary plat with no conditions and direct staff to prepare a Reasoned Statement of Relevant Criteria; or reject the preliminary plat and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other such action deemed appropriate.

Mayor Bettge opened the public hearing at 7:39 p.m. Ray introduced the item as written above and described allowed uses in the comprehensive plan designation and zoning; utilities; streets and listed the recommended conditions of approval.

Scott Becker, representing the applicant, doesn't believe sewer would be overwhelmed as the lots are larger with less density. He doesn't anticipate any large issues with the conditions.

Mayor Bettge asked for testimony in favor.

Greg Bohach (Moscow) lives on Rose Court and is in support of the application. He does have one concern which is foot traffic from students and suggested a path adjacent to the tree farm.

Mayor Bettge asked for testimony in opposition. Hearing none, he asked for general testimony.

Katie Palch (Moscow) asked which elementary school this neighborhood would fall into.

Becker responded to comments saying he was in contact with the owner of the tree farm and he doesn't want anyone going through his property and has no intention of providing any of his property. Becker is unaware of the division for the elementary schools.

Mayor Bettge closed the hearing at 7:57 p.m.

Taruscio moved to approve the Annexation Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary. Parker seconded. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

Mayor Bettge read Ordinance #2024-06 by title:

AN ORDINANCE OF THE CITY OF MOSCOW, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO; PROVIDING THAT LAND DESCRIBED IN SECTION 2 OF THIS ORDINANCE BE ANNEXED TO THE CITY OF MOSCOW; PROVIDING THAT THE PROVISIONS OF THIS ORDINANCE BE DEEMED SEVERABLE; PROVIDING FOR THIS ORDINANCE TO BE IN FULL FORCE AND EFFECT FROM AND AFTER PASSAGE, APPROVAL AND PUBLICATION ACCORDING TO LAW.

Kelly moved to approve the proposed Comprehensive Plan Land Use Designation Resolution and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Davis seconded. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

Parker moved to approve the proposed Zoning Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Kelly seconded. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

Mayor Bettge read Ordinance #2024-07 by title:

AN ORDINANCE OF THE CITY OF MOSCOW, IDAHO, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO; PROVIDING FOR THE REZONING OF A TWENTY-TWO POINT NINE THREE (22.93) ACRE PROPERTY, DESCRIBED IN SECTION 2, FROM AGRICULTURE/FORESTRY (AF) TO MODERATE DENSITY, SINGLE FAMILY RESIDENTIAL (R-2); PROVIDING THAT THE PROVISIONS OF THIS ORDINANCE BE DEEMED SEVERABLE; PROVIDING FOR THIS ORDINANCE TO BE IN FULL FORCE AND EFFECT FROM AND AFTER ITS PASSAGE, APPROVAL AND PUBLICATION ACCORDING TO LAW.

Taruscio moved to approve the preliminary plat for Pine View Addition with the eight (8) conditions recommended by the Planning and Zoning Commission and the additional condition recommended by Staff and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Kelly seconded. Roll Call Vote: Five (5): Unanimous. Nays: One (Lewis). Abstentions: None. Motion carried.

8. Public Hearing: Wildrose Court Annexation, Comprehensive Plan Land Use Designation, Zoning Designation, Planned Unit Development, and Preliminary Plat (ACTION ITEM) - Mike Ray

The applicant, Provvidenza, LLC, is proposing a Comprehensive Plan land use designation, zoning designation, Planned Unit Development (PUD), and preliminary subdivision plat a 2.53-acre property proposed to be annexed into the City of Moscow and generally located east of the current terminus of Wildrose Drive and south of Flomer Lane within the City of Moscow. The current Comprehensive Plan Land Use Designation is Auto-Urban Residential and the proposal is to retain the Auto-Urban Residential designation. The zoning of the subject property is currently Low Density, Single Family Residential (R-1) Zone and the proposal is to rezone to the Moderate Density, Single Family Residential (R-2) Zone. The proposed preliminary plat and Planned Unit Development (PUD) of the 2.53-acre area is to create 16 lots ranging from 3,000 square feet to 10,666 square feet in size, referred to as Wildrose Court subdivision. The City of Moscow Planning and Zoning Commission conducted a public hearing for the proposed Comprehensive Plan Land Use Designation, Rezone, PUD, and Preliminary Plat on March 27, 2024 and recommended approval with six conditions.

PROPOSED ACTIONS: Conduct the public hearing upon the annexation, Comprehensive Plan land use designation, zoning designation, PUD, and preliminary plat and upon consideration of any testimony presented:

1. Approve the Annexation Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary; or consider the Annexation Ordinance on first reading; or reject the Annexation Ordinance; or take other action as deemed appropriate.
2. If the Annexation Ordinance is approved, approve the proposed Comprehensive Plan Land Use Designation Resolution and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or reject the proposed Comprehensive Plan Land Use Designation Resolution and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other action as deemed

appropriate.

3. If the Annexation Ordinance is approved and Comprehensive Plan Land Use Designation Resolution is approved, approve the proposed Zoning Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or consider the Zoning Ordinance on first reading; or reject the Zoning Ordinance and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other action as deemed appropriate.

4. If the Annexation Ordinance is approved, the Comprehensive Plan Land Use Designation Resolution is approved, and the proposed Zoning Ordinance is approved, approve the PUD for Wildrose Court with one (1) condition and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or approve the PUD with no conditions and direct staff to prepare a Reasoned Statement of Relevant Criteria; or reject the PUD and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other such action deemed appropriate.

5. If the Annexation Ordinance is approved, the Comprehensive Plan Land Use Designation Resolution is approved, the proposed Zoning Ordinance is approved, and the PUD is approved, approve the preliminary plat for Wildrose Court Addition with five (5) conditions and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria; or approve the preliminary plat with no conditions and direct staff to prepare a Reasoned Statement of Relevant Criteria; or reject the preliminary plat and direct staff to prepare a Reasoned Statement of Relevant Criteria; or take other such action deemed appropriate.

Mayor Bettge opened the hearing at 8:07 p.m. Ray introduced the item as written above and described the zoning and preliminary plat. The interior street is a private drive and there is open space and a pathway in the northwest corner of the plat. The applicant has proposed a PUD to coincide with the preliminary plat and is requesting numerous Zoning Code deviations to accommodate smaller lot sizes and more compact development. Fifteen of the lots would have a similar style of single-family home of approximately 1,500 to 1,600 sf in size with multiple floor plan options per floor. Illustrations of the homes were shown. Ray went over the density bonuses which included sustainable development practices, pedestrian and bicycle connectivity, and landscaping.

In response to Council questions, Belknap provided a history on the Southeast Sewer District area. Ray said staff is working with ITD about a right turn lane onto Roxbury.

Scott Becker, representing the applicant, said when the developer was looking at development options, they were going to divide into five lots with a cul-de-sac and leave it in the county but that wasn't allowed in the Area of City Impact. This proposal provides the extra density the City needs. One challenge was making sure the stormwater was captured on the site and didn't flow to the other properties. Blankenship asked if the development is too dense. Becker said they reduced this from 18 to 16 homes.

Mayor Bettge asked for testimony in favor. Hearing none, he asked for testimony in opposition. He said the City received a letter from Scott and Ruth Butler in opposition and it was entered into the record.

JJ McCallie (Moscow) said he moved to Moscow in 2022 from Eugene and spoke on the density reductions. With a 25% reduction in setbacks, a home will be placed 15 feet away from his fence. The reductions make the development more of a R-3 Zone which is not in character with the neighborhood. He feels it is appropriate to at least require privacy fencing. He feels the proposal should be rejected.

Katie Palch (Moscow) feels the density is too much pointing out there aren't 16 homes in the R-1 Zone. There will be increased parking on Roxbury, Ridgeview and Wildrose. She feels the proposal is not in character with the neighborhood.

Roy Derrick (Moscow) is adjacent to the development and will have 2 houses 15 feet from his property looking down into his back yard. A concern is safety in regards to the connection of Roxbury to Highway 8. He questions why this development is super high density. He pointed out three high density developments that the homes are only two floors and recommends these homes are no larger than two floors.

No general testimony was provided.

Dave Dail (applicant) said he has been working with the city and county for 2 years and had four proposals that wouldn't work. He is providing needed homes.

Mayor Bettge closed the hearing at 8:46 p.m.

Lewis said there is an increased need for density; likes it is not a through street, it is infill which is encouraged, and feels it was an honest effort by the property owner to find something that works.

Davis said he supports growth and the council has advocated for density. When living in the Area of City Impact, growth is expected.

Taruscio agreed infill has been advocated for. She heard the testimony and understands about having a house so close. While growth is not comfortable, she is in favor.

Kelly also agreed the Council has advocated for growth; the testimony is heartbreaking but it is an open area and will serve a lot of needs. She said the Council is representing the overall health of the city.

Parker thinks it is good development and meets the criteria. She feels it is nice to have smaller single family units and is happy to see a diversity of housing in the area. If we stop growing a housing stock, no one will be able to continue to live here.

Blankenship felt nervous about the density of the 15 units and the size and impact on the neighbors. He respects the need for more accessible housing and appreciated the applicant trying to make the units environmentally friendly.

Mayor Bettge called a recess at 9:00 p.m. The meeting reconvened at 9:01 p.m.

Taruscio moved to approve the Annexation Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary. Kelly seconded. Roll Call Vote: Ayes: Five (5). Nays: One (Blankenship). Abstentions: None. Motion carried.

Mayor Bettge read Ordinance 2024-08 by title:

AN ORDINANCE OF THE CITY OF MOSCOW, IDAHO, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO; PROVIDING THAT LAND DESCRIBED IN SECTION 2 OF THIS ORDINANCE BE ANNEXED TO THE CITY OF MOSCOW; PROVIDING THAT THE PROVISIONS OF THIS ORDINANCE BE DEEMED SEVERABLE; PROVIDING FOR THIS ORDINANCE TO BE IN FULL FORCE AND EFFECT FROM AND AFTER PASSAGE, APPROVAL AND PUBLICATION ACCORDING TO LAW.

Kelly moved to approve the proposed Comprehensive Plan Land Use Designation Resolution and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Davis seconded. Roll Call Vote: Ayes: Five (5). Nays: One. (Blankship). Abstentions: None. Motion carried.

Kelly moved, Taruscio seconded, to approve the proposed Zoning Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Roll Call Vote: Ayes: Five (5). Nays: One (Blankenship). Abstentions: None. Motion carried.

Mayor Bettge read Ordinance 2024-09 by title:

AN ORDINANCE OF THE CITY OF MOSCOW, IDAHO, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO; PROVIDING FOR THE REZONING OF AN APPROXIMATELY TWO POINT FIVE THREE (2.53) ACRE PROPERTY, DESCRIBED IN SECTION 2, FROM LOW DENSITY, SINGLE FAMILY RESIDENTIAL (R-1) TO MODERATE DENSITY, SINGLE FAMILY RESIDENTIAL (R-2); PROVIDING THAT THE PROVISIONS OF THIS ORDINANCE BE DEEMED SEVERABLE; PROVIDING FOR THIS ORDINANCE TO BE IN FULL FORCE AND EFFECT FROM AND AFTER ITS PASSAGE, APPROVAL AND PUBLICATION ACCORDING TO LAW.

Taruscio moved to approve the PUD for Wildrose Court with one (1) condition and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Kelly seconded. Roll Call Vote: Ayes: Four (4). Nays: Two (Blankenship, Lewis). Abstentions: None. Motion carried.

Taruscio moved to approve the preliminary plat for Wildrose Court Addition with five (5) conditions and adopt the Planning and Zoning Commission Reasoned Statement of Relevant Criteria. Kelly seconded. Roll Call Vote: Ayes: Four (4). Nays: Two (Blankenship, Lewis). Abstentions: None. Motion carried.

The Mayor called a recess at 9:03 p.m. The meeting reconvened at 9:09 p.m.

9. Professional Services Agreement-East City Park Stage Conceptual Design (ACTION ITEM) - Cody Riddle

Staff is seeking Council authorization to enter into a Professional Services Agreement with Design West Architects, at a cost of \$18,700. If approved, this will result in a 30% conceptual design and updated cost estimate, that will inform a funding and timing strategy for replacement of the stage at East City Park.

PROPOSED ACTIONS: Approve the Professional Services Agreement with Design West Architects, or take other action as deemed appropriate.

Riddle introduced the item as written above adding the project was advanced within the capital improvement plan. The design will build off of the previous design and outreach and will still reach out to the larger groups using the stage. Design West worked on this project previously, bathroom design, outreach and three alternatives. The 30% is primarily focused on the stage and when the project goes to full construction design, the full site improvements would be included.

Lewis likes the load in/out for the stage footprint where it is. She is worried about what will be paved in order to create new in/out access. She does not want to move the agreement forward as is.

In response to questions, Belknap said the previous design established the location of the bathroom with the intent the stage be supported by the bathroom electrical and mechanical. If the Council feels it needs to be somewhere else, the project can start from scratch.

Parker said the information was already gathered and doesn't know what would be benefitted by starting over. Kelly said she agrees with Lewis on the loading area. She would like to take a longer look and get more input as the public may have different opinions now. Taruscio said she can see the urgency for a covered stage but is not a fan of reinventing wheel. Belknap said staff would need six months to rescope

the project and can do so if that is the Council's desire. Blankenship didn't like idea of committing to the plan and wanted to pause. Belknap provided more background and information.

Davis moved to approve the agreement. Taruscio seconded. Roll Call Vote: Ayes: Three (Parker, Davis, Taruscio). Nays: Three (Blankenship, Lewis, Kelly). Abstentions: None. Mayor Bettge broke the tie with an aye vote. Motion carried.

Discussion ensued regarding the previous study, layout and concerns.

10. Franchise Agreement with the Port of Lewiston (ACTION ITEM) - Bill Belknap

The Port of Lewiston recently received a grant to install fiber optic cables from Lewiston to the City of Moscow. The Ports focus is providing long-haul service for internet service providers and not end-user services. City staff were approached by the Port with a request to install fiber optic cables within the City's public rights-of-way. The Port has a franchise agreement with the City of Lewiston to allow the installation of fiber optics cables within Lewiston. Staff has prepared a franchise agreement with the Port of Lewiston to allow the proposed fiber optic cable installation within the City's public rights-of-way under certain terms and conditions. In exchange, the Port will pay the City 5% of the gross revenues they receive from leasing fiber to internet service providers. Additionally, Idaho Code requires that franchise agreements be authorized by Ordinance. Staff has prepared an ordinance for the Council's consideration.

PROPOSED ACTIONS: Approve the Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary; or consider the Ordinance on first reading and that it be read by title; or reject the Ordinance; or take such other action deemed appropriate.

Belknap introduced the item as written above adding the agreement is modeled off a City of Lewison agreement and has a term of 20 years. The primary focus is multiple pathways to major hub locations and will use rural paths away from the other fiber lines on Highway 95 so there is redundancy and prevents in the case of a dig or emergency, all fiber being down at the same time.

Blankenship moved to approve the Ordinance under suspension of the rules requiring three complete and separate readings and that it be read by title and published by summary. Parker seconded. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

Mayor Bettge read Ordinance 2024-10 by title:

AN ORDINANCE OF THE CITY OF MOSCOW, IDAHO, A MUNICIPAL CORPORATION OF THE STATE OF IDAHO; GRANTING A NON-EXCLUSIVE FRANCHISE TO THE PORT OF LEWISTON TO INSTALL, OPERATE AND MAINTAIN FIBER OPTIC LINES AND RELATED FACILITIES; PROVIDING FOR AND ESTABLISHING A FRANCHISE FEE; PROVIDING THAT THE PROVISIONS OF THIS ORDINANCE BE DEEMED SEVERABLE; AND PROVIDING FOR THIS ORDINANCE TO BE IN FULL FORCE AND EFFECT FROM THE DATE OF ITS PASSAGE, APPROVAL, AND PUBLICATION ACCORDING TO LAW.

11. Port of Lewiston Conduit Lease Agreement (ACTION ITEM) - Bill Belknap

The Port of Lewiston recently received a grant to install fiber optic cables from Lewiston to the City of Moscow. The Ports focus is providing long-haul service for internet service providers and not end-user services. City staff were approached by the Port with a request to lease available conduit pathways along their proposed installation route which includes a pathway from the Mountain View and Highway 8 intersection to the intersection of Sweet Avenue and South Main Street. The City has an existing spare conduit that is not currently being utilized and which can be made available for the Port's use. Staff has prepared a lease agreement for the subject conduit which includes a requirement

for the installation of an innerduct (a divider within the conduit that divides the conduit into multiple smaller pathways) which will preserve future capacity in the conduit for the City's use. The lease term is 20 years with a one-time lump sum lease payment of \$33,101 due to the grant funding for the project.

PROPOSED ACTIONS: Approve the proposed lease agreement; or take other action as deemed appropriate.

Belknap introduced the item as written above.

Parker moved to approve the lease agreement. Taruscio seconded. Roll Call Vote: Ayes: Unanimous. Nays: None. Abstentions: None. Motion carried.

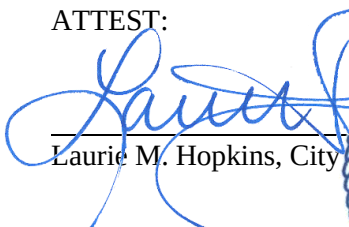
REPORTS

Due to the late hour, reports were postponed.

ADJOURN

It was moved, seconded and mutually agreed upon to adjourn at 9:49 p.m.

ATTEST:



Laurie M. Hopkins, City Clerk





Arthur D. Bettge, Mayor

**BEFORE THE CITY COUNCIL
OF THE CITY OF MOSCOW, COUNTY OF LATAH,
STATE OF IDAHO**

REASONED STATEMENT OF RELEVANT CRITERIA AND STANDARDS

REASONED STATEMENT OF RELEVANT CRITERIA AND STANDARDS REGARDING THE REVIEW OF A TWENTY-TWO POINT NINE THREE (22.93) ACRE AREA OF LAND PROPOSED TO BE ANNEXED INTO THE CITY OF MOSCOW AND GENERALLY LOCATED EAST OF THE CURRENT TERMINUS OF MOSER STREET.

WHEREAS, the applicant filed an application for Annexation, Comprehensive Plan Land Use Designation, Rezone, and Preliminary Plat on February 8, 2024; and

WHEREAS, this matter came before the Moscow Planning and Zoning Commission during a duly noticed public hearing on March 27, 2024; and

WHEREAS, this matter came before the Moscow City Council during a duly noticed public hearing on May 6, 2024; and

WHEREAS, having reviewed the application, including all exhibits entered, and having considered the issues presented by the applicant and the opponents:

THE CITY COUNCIL OF THE CITY OF MOSCOW, IDAHO, AFTER DUE DELIBERATION AND CONSIDERATION, HEREBY CONCLUDES:

I. RELEVANT FACTS AND CONCLUSIONS

1. The City Council considered the request pursuant to the City of Moscow 2019 Comprehensive Plan, City of Moscow Zoning Ordinance, the Local Land Use Planning Act, and other applicable development regulations.
2. The subject property is a 22.93-acre property proposed to be annexed into the City of Moscow and generally located east of the current terminus of Moser Street.
3. The subject property is currently an open field with the exception of two driveways providing access to two single family dwellings to the east of the subject property. The Moser Estates subdivisions are located to the west of the subject property and Moser Park is located to the southwest. The Rolling Hills 10th Subdivision is currently being platted to the south, which will extend Third Street to the subject property. Agricultural land is located to the east and rural residential properties are located to the north.
4. Within the 2019 Moscow Comprehensive Plan, the subject property is currently designated as Auto-Urban Residential and the proposal is to retain that designation.
5. Auto-Urban Residential (AU-R) designated areas,

“contain predominantly single-family detached homes on lots ranging from 7,000 to 11,000 square feet in size and are more isolated from surrounding uses which may require residents to rely more on automobile transportation. This designation includes those areas generally anticipated to be developed for low- to moderate-density residential uses at densities between three to six units per acre which could include a mix of detached single-family, twinhome, and townhome residential dwellings. Appropriate current zoning for Auto-Urban Residential designated areas include Low Density Residential (R-1), Moderate Density Single Family Residential (R-2) and Medium Density Residential (R-3) in order to include a mixture of attached and detached dwellings where appropriate.”

6. The subject property and adjacent properties immediately to the north and east within Latah County are currently designated as Agriculture/Forestry (AF).
7. Properties to the west and south of the subject property are currently designated as the Moderate Density, Single Family Residential (R-2) Zoning District.
8. The subject property has existing access via Moser Street, and will have access via Third Street when the Rolling Hills 10th Subdivision is extended to the southern portion of the property, which is anticipated this summer. Moser Street is a local neighborhood street which will be constructed to the 28-foot-wide street standard which includes curb, gutter, tree lawns, and sidewalks on both sides of the street and on-street parking on one side of the street.
9. The applicant conducted a neighborhood meeting with affected property owners within 600 feet of the subject property on October 5, 2023 to discuss the proposed rezone.

BASED ON THE ABOVE RELEVANT FACTS AND CONCLUSIONS, THE CITY COUNCIL OF THE CITY OF MOSCOW HEREBY FINDS THE FOLLOWING RELEVANT CRITERIA AND STANDARDS:

II. RELEVANT CRITERIA AND STANDARDS

1. **The proposed Comprehensive Plan amendment is consistent with Comprehensive Plan goals, objectives, and implementation actions.** The proposal to retain the existing designation of Auto-Urban Residential is consistent with the purposes, goals, objectives and policies of the Comprehensive Plan and are consistent with the surrounding properties, as well as the surrounding land use and development patterns.
2. **The proposed Comprehensive Plan amendment would provide for the logical and orderly location of land uses, community services and facilities.** The City Council finds that the proposed designation of Auto-Urban Residential is logical and harmonious with the surrounding land uses and development, and is consistent with the land use designations of the surrounding property to the west and south of the subject property.
3. **The uses expected to occur as a result of the Comprehensive Plan amendment will be compatible with the surrounding area.** The zoning districts that are consistent with the Auto-Urban Residential designation exist within the current City Limits boundary to the west and to the south.
4. **The size, type, and density of development expected to occur as a result of the Comprehensive Plan amendment will not place an undue burden upon delivery of services provided by any political subdivision within the planning jurisdiction.** The proposed designation is suitable for the area and will not unduly burden the neighborhood of public infrastructure. The subject property

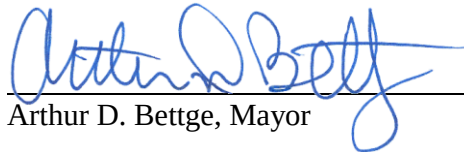
has direct access, via Moser Street and eventually Third Street, as well as sufficient and available public utility services to meet the needs of existing and future development.

5. **The proposed Comprehensive Plan amendment is deemed to be appropriate in consideration of changing conditions within the community that are not reflected within the current Comprehensive Plan (such as new development or re-development, land use patterns and/or trends, traffic patterns and/or volume, market demands, community vision and/or needs, capital improvements, or new or revised City plans).** The proposal is to retain the existing Comprehensive Plan land use designation of Auto-Urban Residential, which is consistent with the surrounding area.

III. DECISION

Based on the above Reasoned Statement of Relevant Criteria, the City of Moscow City Council approves the proposal to retain the current Comprehensive Plan Land Use Designation of Auto-Urban Residential for the 22.93-acre property generally located east of the current terminus of Moser Street.

PASSED BY THE CITY COUNCIL OF THE CITY OF MOSCOW this 6th day of May, 2024.



Arthur D. Bettge, Mayor

**BEFORE THE CITY COUNCIL
OF THE CITY OF MOSCOW, COUNTY OF LATAH,
STATE OF IDAHO**

REASONED STATEMENT OF RELEVANT CRITERIA AND STANDARDS

REASONED STATEMENT OF RELEVANT CRITERIA AND STANDARDS REGARDING A REQUEST FOR THE REZONE OF A TWENTY-TWO POINT NINE THREE (22.93) ACRE AREA OF LAND PROPOSED TO BE ANNEXED INTO THE CITY OF MOSCOW AND GENERALLY LOCATED EAST OF THE CURRENT TERMINUS OF MOSER STREET FROM THE AGRICULTURE FORESTRY (AF) ZONE TO THE MODERATE DENSITY, SINGLE FAMILY RESIDENTIAL (R-2) ZONE.

WHEREAS, the applicant filed an application for Annexation, Comprehensive Plan Land Use Designation, Rezone, and Preliminary Plat on February 8, 2024; and

WHEREAS, this matter came before the Moscow Planning and Zoning Commission during a duly noticed public hearing on March 27, 2024; and

WHEREAS, this matter came before the Moscow City Council during a duly noticed public hearing on May 6, 2024; and

WHEREAS, having reviewed the application, including all exhibits entered, and having considered the issues presented by the applicant and the opponents:

THE CITY COUNCIL OF THE CITY OF MOSCOW, IDAHO, AFTER DUE DELIBERATION AND CONSIDERATION, HEREBY CONCLUDES:

I. RELEVANT FACTS AND CONCLUSIONS

1. The City Council considered the request pursuant to the City of Moscow 2019 Comprehensive Plan, City of Moscow Zoning Ordinance, the Local Land Use Planning Act, and other applicable development regulations.
2. The subject property is a 22.93-acre property proposed to be annexed into the City of Moscow and generally located east of the current terminus of Moser Street.
3. The subject property is currently an open field with the exception of two driveways providing access to two single family dwellings to the east of the subject property. The Moser Estates subdivisions are located to the west of the subject property and Moser Park is located to the southwest. The Rolling Hills 10th Subdivision is currently being platted to the south, which will extend Third Street to the subject property. Agricultural land is located to the east and rural residential properties are located to the north.
4. Within the 2019 Moscow Comprehensive Plan, the subject property is currently designated as Auto-Urban Residential and the proposal is to retain that designation.

5. Auto-Urban Residential (AU-R) designated areas,

“contain predominantly single-family detached homes on lots ranging from 7,000 to 11,000 square feet in size and are more isolated from surrounding uses which may require residents to rely more on automobile transportation. This designation includes those areas generally anticipated to be developed for low- to moderate-density residential uses at densities between three to six units per acre which could include a mix of detached single-family, twinhome, and townhome residential dwellings. Appropriate current zoning for Auto-Urban Residential designated areas include Low Density Residential (R-1), Moderate Density Single Family Residential (R-2) and Medium Density Residential (R-3) in order to include a mixture of attached and detached dwellings where appropriate.”
6. The subject property and adjacent properties immediately to the north and east within Latah County are currently designated as Agriculture/Forestry (AF).
7. Properties to the west and south of the subject property are currently designated as the Moderate Density, Single Family Residential (R-2) Zoning District.
8. The applicant is proposing to rezone the subject property from the Agriculture Forestry (AF) Zone to the Moderate Density, Single Family Residential (R-2) Zoning District.
9. According to the City of Moscow Zoning Code, the R-2 Zoning District is a moderate density residential zone appropriate where the following circumstances are present:
 1. Single family dwellings predominate.
 2. The terrain is not harshly irregular and smaller lot sizes can be accommodated without extensive earthwork.
 3. Utilities and other public facilities are adequate for the densities allowed.
 4. Existing lot development patterns and policies embodied in the Plan will also guide application of this zoning district.
10. Uses permitted within the R-2 Zone include single-family residential dwellings, market and community gardens, group child care facilities, and public parks and recreational facilities. The minimum lot size for parcels within the R-2 Zone is 7,000 sf and the minimum lot width is 60 feet.
11. The subject property has existing access via Moser Street, and will have access via Third Street when the Rolling Hills 10th Subdivision is extended to the southern portion of the property, which is anticipated this summer. Moser Street is a local neighborhood street which will be constructed to the 28-foot-wide street standard which includes curb, gutter, tree lawns, and sidewalks on both sides of the street and on-street parking on one side of the street.
12. The applicant conducted a neighborhood meeting with affected property owners within 600 feet of the subject property on October 5, 2023 to discuss the proposed rezone.

BASED ON THE ABOVE RELEVANT FACTS AND CONCLUSIONS, THE CITY COUNCIL OF THE CITY OF MOSCOW HEREBY FINDS THE FOLLOWING RELEVANT CRITERIA AND STANDARDS:

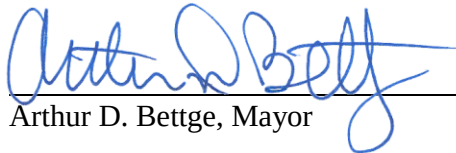
II. RELEVANT CRITERIA AND STANDARDS

1. **The proposed rezone is consistent with Comprehensive Plan goals, objectives, and implementation actions.** The proposed rezone is consistent with the proposed 2019 Comprehensive Plan Land Use Designations of Auto-Urban Residential.
2. **The proposed rezone would provide for the logical and orderly location of land uses and community services and facilities.** The proposed designation of the Moderate Density, Single Family Residential (R-2) Zoning District provides for the continuation of the existing R-2 Zone to the west and to the south. The proposed zoning and uses are consistent with the surrounding area and will not unduly burden the neighborhood of public infrastructure.
3. **The uses expected to occur as a result of the rezone will be compatible with the surrounding area.** The proposed zoning is consistent with adjacent zoning districts and will create a logical and orderly zoning configuration for the subject area. The adjacent properties to the west and south of the subject property are residential subdivisions which are the same designation as the subject property.
4. **The size, type, and density of development expected to occur as a result of the rezone will not place an undue burden upon delivery of services provided by any political subdivision within the planning jurisdiction.** The proposed zoning and uses are suitable for the area and will not unduly burden the area of public infrastructure.
5. **The size, type, and density of development expected to occur as a result of the rezone can be adequately served by the existing transportation network, public facilities and services.** The subject property has street access via Moser Street and eventually Third Street, which can adequately serve any proposed development allowed in the R-2 Zone. The subject property has sufficient and available public utility services to meet the needs of existing and future development.

III. DECISION

Based on the above Reasoned Statement of Relevant Criteria, the City Council of the City of Moscow approves the rezone request for the twenty-two point nine three (22.93) acre property generally located east of the current terminus of Moser Street from the Agriculture Forestry (AF) Zone to the Moderate Density, Single Family Residential (R-2) Zone with no conditions.

PASSED BY THE CITY COUNCIL OF THE CITY OF MOSCOW this 6th day of May, 2024.



Arthur D. Bettge, Mayor

**BEFORE THE CITY COUNCIL
OF THE CITY OF MOSCOW, COUNTY OF LATAH,
STATE OF IDAHO**

REASONED STATEMENT OF RELEVANT CRITERIA AND STANDARDS

REASONED STATEMENT OF RELEVANT CRITERIA AND STANDARDS REGARDING A REQUEST FOR A PRELIMINARY SUBDIVISION PLAT OF A TWENTY-TWO POINT NINE THREE (22.93) ACRE AREA OF LAND PROPOSED TO BE ANNEXED INTO THE CITY OF MOSCOW AND GENERALLY LOCATED EAST OF THE CURRENT TERMINUS OF MOSER STREET, KNOWN AS PINE VIEW ADDITION TO THE CITY OF MOSCOW, IDAHO.

WHEREAS, the applicant filed an application for Annexation, Comprehensive Plan Land Use Designation, Rezone, and Preliminary Plat on February 8, 2024; and

WHEREAS, this matter came before the Moscow Planning and Zoning Commission during a duly noticed public hearing on March 27, 2024; and

WHEREAS, this matter came before the Moscow City Council during a duly noticed public hearing on May 6, 2024; and

WHEREAS, having reviewed the application, including all exhibits entered, and having considered the issues presented by the applicant and the opponents:

THE CITY COUNCIL OF THE CITY OF MOSCOW, IDAHO, AFTER DUE DELIBERATION AND CONSIDERATION, HEREBY CONCLUDES:

I. RELEVANT FACTS AND CONCLUSIONS

1. The City Council considered the request pursuant to the City of Moscow 2019 Comprehensive Plan, City of Moscow Zoning Ordinance, the Local Land Use Planning Act, and other applicable development regulations.
2. The subject property is a 22.93-acre property proposed to be annexed into the City of Moscow and generally located east of the current terminus of Moser Street.
3. The subject property is currently an open field with the exception of two driveways providing access to two single family dwellings to the east of the subject property. The Moser Estates subdivisions are located to the west of the subject property and Moser Park is located to the southwest. The Rolling Hills 10th Subdivision is currently being platted to the south, which will extend Third Street to the subject property. Agricultural land is located to the east and rural residential properties are located to the north.
4. Within the 2019 Moscow Comprehensive Plan, the subject property is currently designated as Auto-Urban Residential and the proposal is to retain that designation.
5. Auto-Urban Residential (AU-R) designated areas,

“contain predominantly single-family detached homes on lots ranging from 7,000 to 11,000 square feet in size and are more isolated from surrounding uses which may require residents to rely more on automobile transportation. This designation includes those areas generally anticipated to be developed for low- to moderate-density residential uses at densities between three to six units per acre which could include a mix of detached single-family, twinhome, and townhome residential dwellings. Appropriate current zoning for Auto-Urban Residential designated areas include Low Density Residential (R-1), Moderate Density Single Family Residential (R-2) and Medium Density Residential (R-3) in order to include a mixture of attached and detached dwellings where appropriate.”

6. The subject property and adjacent properties immediately to the north and east within Latah County are currently designated as Agriculture/Forestry (AF).
7. Properties to the west and south of the subject property are currently designated as the Moderate Density, Single Family Residential (R-2) Zoning District.
8. The applicant is proposing to rezone the subject property from the Agriculture Forestry (AF) Zone to the Moderate Density, Single Family Residential (R-2) Zoning District.
9. According to the City of Moscow Zoning Code, the R-2 Zoning District is a moderate density residential zone appropriate where the following circumstances are present:
 1. Single family dwellings predominate.
 2. The terrain is not harshly irregular and smaller lot sizes can be accommodated without extensive earthwork.
 3. Utilities and other public facilities are adequate for the densities allowed.
 4. Existing lot development patterns and policies embodied in the Plan will also guide application of this zoning district.
10. Uses permitted within the R-2 Zone include single-family residential dwellings, market and community gardens, group child care facilities, and public parks and recreational facilities. The minimum lot size for parcels within the R-2 Zone is 7,000 sf and the minimum lot width is 60 feet.
11. The applicant is proposing to subdivide the 22.93-acre area with 40 lots ranging from 12,077 square feet to 27,491 square feet in size, referred to as Pine View Subdivision.
12. All of the proposed lots are within the R-2 Zone and meet the minimum lot size and width requirements.
13. The subject property has existing access via Moser Street, and will have access via Third Street when the Rolling Hills 10th Subdivision is extended to the southern portion of the property, which is anticipated this summer. Moser Street is a local neighborhood street which will be constructed to the 28-foot-wide street standard which includes curb, gutter, tree lawns, and sidewalks on both sides of the street and on-street parking on one side of the street.
14. Another local street, Whitetail Lane, extends in the east/west direction through the center of the subdivision and terminates in a cul-de-sac on the western portion of the property and extends to the property line of the adjacent undeveloped property on the east side. Whitetail lane will be constructed to the 28-foot-wide local street standard.
15. Third Street will be extended through the subdivision in the northerly direction and will change street names to Moose Drive at its intersection with Moser Street. Moose Drive will extend to

the northern property line and terminate in a cul-de-sac for fire truck turnaround requirements. However, right-of-way will be extended to the north property line to allow for the future connection with 'D' Street when it is extended in the future. Third Street and Moose Drive are designated as collector streets with a 34-foot-wide roadway with two travel lanes, bike lanes on both sides of the street, and curbing and gutters on both sides of the street.

16. There is currently a corridor dedicated at the end of Moser Street which is intended to provide access to the Moser Park property. The Council finds that a pedestrian walkway shall be extended from Whitetail Lane south to Moser Street in order to provide a more direct pedestrian route to the park property, as well as a shorter distance to McDonald School. The Council also finds that a pedestrian walkway shall be provided from Whitetail Lane north to the property boundary of the adjacent undeveloped property for future pedestrian connectivity if that property were to be developed at some point in the future.
17. Water services are proposed to be extended throughout the subdivision from the existing main within Moser Street and the future main along the Third Street alignment within Rolling Hills 10th Addition.
18. It is anticipated that under commonly observed household water use within the City (114 gallons per day per occupant) that the proposed development could be reasonably anticipated to use approximately 3.74 million gallons of water per year (40 du x 2.25 occupants/du x 114 gallons/occupant x 365 days/year = 3.74 M gallons/year).
19. Sanitary sewer is proposed to be extended throughout the subdivision and conveyed along an existing utility easement along the future alignment of 'D' Street. The subject property is considered developable in the Comprehensive Sewer System Plan.
20. Storm sewer will be piped and directed to a stormwater detention pond in the northwest corner of the subdivision. The detention facilities of the proposed development will need to meet Moscow's Stormwater Runoff Control Standards which require the stormwater to be detained to the pre-development rate. The stormwater is then conveyed to existing mains within 'D' Street.
21. The proposed subdivision falls under the requirements of the parkland dedication codes of the City. However, the parkland dedication requirements have previously been satisfied with a parkland dedication of 1.37 acres towards the creation of the City's Moser Park property in 1994. Therefore, no further parkland dedication is required.
22. The applicant conducted a neighborhood meeting with affected property owners within 600 ft. of the subject property on October 5, 2023 to discuss the proposal.

BASED ON THE ABOVE RELEVANT FACTS AND CONCLUSIONS, THE CITY COUNCIL OF THE CITY OF MOSCOW HEREBY FINDS THE FOLLOWING RELEVANT CRITERIA AND STANDARDS:

II. RELEVANT CRITERIA AND STANDARDS

1. **The proposed subdivision is in conformance with all applicable City Code requirements.**
The proposed preliminary plat is consistent with and in conformance with the requirements and provisions of the Moderate Density, Single Family Residential (R-2) Zoning District, including lot area, dimensions and other relevant provisions. The proposed preliminary plat is also in conformance with the general requirements of the Moscow Subdivision Ordinance including, but not limited to, the provision of the logical and orderly connection to the City's street network, public utilities, and the provision of public parkland.

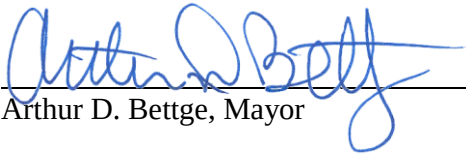
2. **The proposed subdivision is in general conformance with the Comprehensive Plan.** The proposed preliminary plat is consistent with the City of Moscow Comprehensive Plan and provides for the logical and orderly development and extension of the City's street system. The proposed lots sizes and densities are consistent with the proposed Comprehensive Plan Land Use designation of Auto-Urban Residential.
3. **Public Services and utilities are available or can be made available and are adequate to accommodate the proposed subdivision.** The subject property has direct access to Moser Street and eventually Third Street. Water and Sewer connections are readily available in the area and are proposed to be extended through the subdivision.
4. **The proposed subdivision will not be detrimental to the public health, safety, or general welfare.** The proposed preliminary plat provides for the extension of City streets and services and will not be detrimental to the public health, safety, or general welfare.

III. DECISION

Based on the above Reasoned Statement of Relevant Criteria, the City Council of the City of Moscow approves the preliminary subdivision plat request for the twenty-two point nine three (22.93) acre property generally located east of the current terminus of Moser Street with the following conditions:

1. The proposed subdivision shall be analyzed in the City's water system model to verify that the current design will have adequate potable and fire flow requirements, and if there are deficiencies the applicant shall be responsible for the construction of the improvements needed to adequately serve the subdivision.
2. The applicant shall work with the City to determine whether the 'D' Street sanitary sewer connection is sufficient to accommodate the proposed subdivision, and if there are deficiencies the applicant shall be responsible for the construction of the improvements needed to adequately serve the subdivision.
3. In accordance with a prior development agreement (Latah County Instrument No. 412000), the applicant shall be responsible for the construction of all public improvements from the current terminus of Moser Street to the subject property.
4. The applicant shall be required to conduct a detailed stormwater discharge analysis to include any mitigation actions necessary to ensure that the stormwater facility shall have no downstream adverse impacts subject to the approval of the City Engineer.
5. An emergency vehicle turnaround will need to be provided at the eastern terminus of Whitetail Lane and the road, improvements, and utilities will need to be extended to the eastern property boundary of the subject property.
6. The applicant shall provide adequate access to at least every other manhole for the sanitary sewer and storm sewer mains for maintenance.
7. The applicant shall connect the water line in the Whitetail Lane cul-de-sac to the water line in Moser Street for water quality and redundancy purposes.
8. The applicant shall extend a pedestrian walkway from Whitetail Lane south to Moser Street and north to the property boundary of the adjacent undeveloped property.

PASSED BY THE CITY COUNCIL OF THE CITY OF MOSCOW this 6th day of May, 2024.



Arthur D. Bettge, Mayor

COMMITTEE / CITY COUNCIL STAFF REPORT

DATE: Monday, September 14, 2026



AGENDA ITEM TITLE

Pine View Addition Development and Monumentation Agreements (ACTION ITEM) - Bob Buvel

RESPONSIBLE STAFF

Bob Buvel, Senior Civil Engineer

ADDITIONAL PRESENTER(S)

DESCRIPTION

Pamela J. Persoon-Juscen and Joseph F. Juscen III have submitted to the City a final plat for the Pine View Addition Subdivision located east of the terminus of Moser Street. On October 15, 2025, the City Council approved the preliminary plat for this property. The final plat will be presented for City Council approval on September 21, 2026. If Council approves the final plat, a development and monumentation agreements will be required. The development agreement is necessary to address construction of public improvements, parkland dedication, and the provision of as-constructed drawings. The monumentation agreement is required as the interior property corners will not be set until after the final plat has been filed, the earthwork has been completed, and the utilities have been installed. In such instances, an agreement obligating the establishment of these interior corners is required by Idaho Code. Staff has prepared both agreements for the Council's approval.

REVIEWED BY

n/a

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend approval of the Development and Monumentation Agreements for the Pine View Addition; deny the agreements; or provide staff with further direction.

STAFF RECOMMENDATION

Recommend approval of the Development and Monumentation Agreements for the Pine View Addition.

OTHER RESOURCES

n/a

FISCAL IMPACT

n/a

PERSONNEL IMPACT

n/a

ATTACHMENTS

1. Development Agreement - Pine View Addition_final
2. Monumentation Agreement - Pine View Addition_final with attachment

After Recording Return to:
City of Moscow City Clerk
PO Box 9203
Moscow, ID 83843

Space above this line for Recorder's use only

DEVELOPMENT AGREEMENT
BETWEEN PAMELA J. PERSOON-JUSCEN AND JOSEPH F. JUSCEN III
AND CITY OF MOSCOW, IDAHO

THIS DEVELOPMENT AGREEMENT BETWEEN PAMELA J. PERSOON-JUSCEN AND JOSEPH F. JUSCEN III AND THE CITY OF MOSCOW, IDAHO is entered into this ____ day of _____, 2026, by and between Pamela J. Persoon-Juscen and Joseph F. Juscen III, wife and husband, whose current address is 705 East Eighth Street, Moscow, Idaho, 83843, (hereinafter "DEVELOPER") and the City of Moscow, Idaho, a municipal corporation of the State of Idaho, 206 East Third Street, Moscow, Idaho, 83843 (hereinafter "CITY").

WITNESSETH:

WHEREAS, DEVELOPER desires to develop property to be known as Pine View Addition Subdivision located within the City of Moscow, Idaho; and

WHEREAS, DEVELOPER understands that public improvements required herein are standards required pursuant to Moscow City Code Title 5, Chapter 1 and are authorized by Idaho Code Sections 67-6513 and 67-6518; and

WHEREAS, DEVELOPER and CITY believe that, without the public improvements required herein, CITY would not be able to otherwise provide for mitigation of the effects of the subdivision development on the ability of CITY to deliver services, without compromising quality of such service delivery to current City residents, or without imposing substantial additional costs upon current City residents to accommodate the proposed subdivision; and

WHEREAS, CITY desires to ensure that public improvements, consisting of water mains, fire hydrants, water services, sanitary sewer mains and stubs, storm sewer mains and stubs, storm water detention facilities, street lighting, franchise utilities, erosion control, streets, paving, curbs, traffic control devices, and sidewalks are constructed; and

WHEREAS, DEVELOPER understands that a waiver of public improvements is available pursuant to the Moscow City Code, but DEVELOPER specifically does not wish to request such a waiver and wishes to enter into this Agreement; and

WHEREAS, DEVELOPER enters into this Agreement of DEVELOPER's own free will and accord, without coercion, without inducement, and at DEVELOPER's request; and

WHEREAS, DEVELOPER has read this Agreement, has understood it, and has had the opportunity to avail themselves of legal and other counsel prior to entering into this Agreement and prior to signing it;

NOW, THEREFORE, DEVELOPER and CITY hereby agree that all matters stated above are found to be true and correct and are incorporated herein by reference as if copied in their entirety and shall be adopted with the following:

I. PROPERTY AFFECTED

This Agreement affects property to be known as Pine View Addition Subdivision (hereinafter "Subdivision") within the City of Moscow, Latah County, Idaho more particularly described as follows:

A parcel of land located in the West Half of the Southeast Quarter of Section 9, Township 39 North, Range 5 West, Boise Meridian, Latah County, Idaho, described as follows:

Commencing at the northwest corner of the Northwest Quarter of the Southeast Quarter of Section 9, Thence along the north line thereof, S89°36'45" E, 658.48 feet to the northeast corner of a parcel of land described in Quitclaim Deed, Instrument #616270, Latah County Records, also a point on the south line of a parcel of land described in Warranty Deed, Instrument #550272, Latah County Records, and the **Point of Beginning**:

Thence continuing along said north line and along said south line and the south line of a parcel described in Quitclaim Deed, Instrument #611364, Latah County Records, S89°36'45" E, 311.60 feet;

Thence leaving said common line, S00°32'24" W, 208.00 feet;

Thence S77°26'57" E, 198.73 feet;

Thence S28°59'58" E, 190.43 feet;

Thence S00°00'02" W, 236.44 feet;

Thence N51°16'00" E, 73.49 feet to a point on the east line of the Northwest Quarter of the Southeast Quarter of Section 9 and the west line of a parcel of land described in Corrected Quitclaim Deed, Instrument #632094, Latah County Records;

Thence along said east line and along said west line, S00°29'32" W, 312.56 feet to the northeast corner of a parcel of land described in Warranty Deed, Instrument #538806, Latah County Records;

Thence leaving said common line along the north boundary of the parcel described in said Warranty Deed, the following two courses:

S58°06'51" W, 175.00 feet;

Thence S66°51'51" W, 165.62 feet to the northwest corner of said parcel;

Thence S58°39'33" W, 145.56 feet;

Thence 71.81 feet along a curve to the right, said curve having a Delta = 30°28'31", Radius = 135.00 feet, Chord = 70.96 feet and a Chord Bearing = S73°53'48" W;

Thence S12°53'20" W, 52.00 feet;

Thence 59.02 feet along a curve to the right, said curve having a Delta = 15°22'15", Radius = 220.00 feet, Chord = 58.84 and a Chord Bearing = S20°34'28" W;

Thence S28°15'36" W, 98.59 feet to the northwest corner of Lot 12, Block 2 of Rolling Hills 10th addition, Instrument #634835, Latah County Records;

Thence along the north line of Rolling Hills 10th Addition, N89°31'36" W, 230.53 feet to the northwest corner of Lot 2, Block 3 thereof and a point on the east boundary of City of Moscow, Moser Park, described in Deed of Dedication, Instrument #412761, Latah County Records;

Thence leaving said north line, along said east boundary the following two courses:

N60°05'36" E, 30.00 feet;

Thence N18°30'02" W, 47.17 feet to the northeast corner of Moser Park;

Thence along the north boundary thereof the following two courses:

N54°01'22" W, 84.31 feet;

Thence N77°05'53" W, 398.00 feet to the southeast corner of a parcel of land described in Warranty Deed, Instrument #618456, Latah County Records;

Thence leaving said north boundary, along the east line of the parcel described in said Warranty Deed, N13°00'02" E, 117.26 feet to the northeast corner of said parcel;

Thence along the north boundary thereof the following two courses:

N77°06'40" W, 61.56 feet;

Thence 31.09 feet along a curve to the left, said curve having a Delta = 7°55'02", Radius = 225.00 feet, Chord = 31.07 feet and a Chord Bearing = N81°04'11" W to the northwest corner of said parcel and a point on the north boundary of Moser Park;

Thence along said north boundary, 10.01 feet, along a curve to the left, said curve having a Delta = 2°33'00", Radius = 225.00 feet, Chord = 10.01 feet and a Chord Bearing = N86°18'12" W to a point on the west line of the Northwest Quarter of the Southeast Quarter of Section 9 and the east line of Moser Estates Third Addition to the City of Moscow, Instrument #390760, Latah County Records;

Thence along said west line and along said east line N00°43'57" E, 50.02 feet to the southwest corner of a parcel of land described in Warranty Deed, Instrument #629629, Latah County Records;

Thence leaving said common line, along the south boundary of the parcel described in said Warranty Deed the following two courses:

S87°34'42" E, 1.48 feet;

Thence 8.56 feet along curve to the right, said curve having a Delta = 1°47'01", Radius = 275.00 feet, Chord = 8.56 feet and a Chord Bearing = S86°41'11" E to the southwest corner of a parcel of land described in Warranty Deed, Instrument #456068, Latah County Records;

Thence along the south boundary thereof the following two courses:

41.68 feet along a curve to the right, said curve having a Delta = 8°41'00", Radius = 275.00 feet, Chord = 41.64 feet and a Chord Bearing = S81°27'11" E;

Thence S77°06'40" E 48.29 feet, to the southeast corner of said parcel;

Thence along the east line thereof, N13°00'00" E, 120.00 feet to the northeast corner of said parcel; Thence along the north line thereof, N77°02'22" W, 126.86 feet to a point on the west line of the Northwest Quarter of the Southeast Quarter of Section 9 and the east line of Moser Estates Third Addition;

Thence along said west line and along said east line and the east line of Moser Estates Fourth Addition to the City of Moscow, Instrument #391351, Latah County Records,

N00°43'57" E, 208.35 feet to a point on said west line and on the east line of Moser Estates Fourth Addition and the southwest corner of the parcel of land described in Quitclaim Deed, Instrument #616270;

Thence leaving said common line, along the south line of said parcel, S89°33'46" E, 660.67 feet to the southeast corner thereof;

Thence along the east line of said parcel, N00°32'24" E, 653.79 feet to the **Point of Beginning**.

Parcel contains 22.89 acres, more or less.

II. PUBLIC IMPROVEMENTS

DEVELOPER agrees to install, at DEVELOPER's expense, within the Subdivision, public improvements and appurtenances required by Moscow City Code Title 5, Chapter 1, Sections 1-4 and 1 5, including, but not limited to:

- A. Water mains, valves, fire hydrants, water services, sanitary sewer mains and stubs, storm sewer mains and stubs, storm water detention facilities, street lighting, franchise utilities, erosion control, streets, paving, curbs, traffic control devices (to include but not be limited to stop signs and street signs), and sidewalks; all in accordance with CITY Standard Construction Specifications and Standard Construction Drawings duly adopted by Resolution 2021-07 of the City Council (hereinafter "CITY Standards") and as may be amended and in accordance with approved engineering plans; and
- B. In accordance with a prior development agreement (Latah County Instrument No. 412000), DEVELOPER agrees to construct all public improvements from the current terminus of Moser Street to the Subdivision.

III. TERM

This Agreement shall remain in full force and effect in accordance with all of its terms and conditions as follows:

- A. Until all public improvements have been completed, dedicated and accepted by CITY; and
- B. Until the warranty period for public improvements has expired; and
- C. Until all development fees, as required and assessed by CITY, have been paid in full.

IV. CITY'S COVENANT

CITY shall issue building permits to DEVELOPER's Subdivision only after the following have occurred:

- A. Payment of all applicable development fees required and assessed by CITY; and
- B. CITY has determined that the construction of all required public improvements is complete or after adequate security, as described in Moscow City Code Title 5, Chapter 1, Section 1-10 and as described in Sections VI, VII and VIII herein, has been provided to ensure construction and warranty repairs of the required public improvements; and
- C. Compliance with applicable CITY permit issuance requirements.
- D. The term “building permits” used throughout this Agreement shall refer to permits for the construction of buildings or structures and shall not include permits required for the construction of the public improvements required herein.

V. DEVELOPER’S COVENANT

- A. DEVELOPER agrees to construct, at DEVELOPER’s expense, the public improvements described in Section II of this Agreement, all in accordance with CITY approved engineering design plans, to CITY Standards, during and under the terms of this Agreement; and
- B. DEVELOPER agrees to furnish to CITY, at DEVELOPER’s expense, engineering design plans (for the required public improvements) prepared by an Idaho Licensed Professional Engineer. Such plans shall be approved by the CITY Engineer prior to beginning any public improvements’ construction; and
- C. DEVELOPER agrees that DEVELOPER shall construct the public improvements described in Section II of this Agreement, within twelve (12) months from the date of the issuance of the first building permit in the Subdivision Development; and
- D. If DEVELOPER fails to complete installation of the required public improvements within twelve (12) months from the date of the issuance of the first building permit, to CITY Standards and as per the approved plans, CITY shall revoke occupancy of the entire Subdivision Development and shall revoke any applicable permit issued to DEVELOPER by CITY.
- E. DEVELOPER agrees to furnish to CITY, at DEVELOPER’s expense, legal description(s), exhibits, and dedication documents for all public improvements and rights-of-way to be dedicated to CITY. Dedication documents shall be prepared by an Idaho Licensed Professional Land Surveyor and shall be approved by the CITY Engineer and recorded with the Latah County Recorder’s office prior to the beginning of the one-year warranty period as described in Section VIII of this Agreement.

VI. SECURITY FOR IMPROVEMENTS

In lieu of DEVELOPER's construction and installation of all public improvements required herein, and CITY'S acceptance of such for ownership and maintenance, CITY agrees that, upon receipt of the adequate security described in Moscow City Code Title 5, Chapter 1, Section 1-10, it will issue building permits (upon payment of all CITY development fees and satisfaction of Moscow City Code requirements) for DEVELOPER's Subdivision Development. If DEVELOPER fails to complete installation of the public improvements as required by CITY within twelve (12) months from the date of the issuance of the first building permit in the Subdivision Development, CITY may utilize the security and cause the public improvements to be made and attach a lien on the property in the amount of CITY expense incurred as a result of DEVELOPER's failure to comply with this Agreement, pursuant to the provisions for General Lien's in Idaho Code Title 45, Chapter 1. Any engineering or construction costs in excess of the security shall be borne by DEVELOPER. Any additional construction services that shall be performed subject to the laws of the State of Idaho, relative to public works contracting and bidding, shall be borne by DEVELOPER.

VII. FORM OF SECURITY

DEVELOPER agrees to provide security for the public improvements in an amount to be determined by CITY Engineer. This security shall be in the form of cash, construction bond, irrevocable letter of credit from a certified bank or financial institution, or such other form of security acceptable to CITY. Such security shall be provided to CITY prior to the issuance of building permits by CITY. The security must be effective for a minimum period of one (1) year from the date of the issuance of the first building permit in the Subdivision Development. If this security is in the form of an irrevocable letter of credit or bond, the secured public improvements shall be constructed at least ninety (90) days prior to the expiration date of the security. If the public improvements identified and described in Section II are not completed within twelve (12) months from the issuance of the first building permit in the Subdivision Development, CITY may claim the security and complete said public improvements using the security. The amount of the security may, from time to time, be modified as deemed appropriate by CITY Engineer as conditions warrant.

If for any reason the security for such public improvements is withdrawn by DEVELOPER or the security or financial institution, or the value or terms thereof is compromised in any way, CITY shall immediately cease issuing building permits and shall revoke any building permits and/or occupancy permits issued pursuant to the terms contained herein, and further, DEVELOPER shall hold CITY harmless for any and all causes of action or damages alleged to have been sustained because of the revocation of such building permits. If any building permits and/or occupancy permits are revoked pursuant to this Section, such building permits and/or occupancy permits shall be re-issued upon receipt by CITY of new or additional security as required herein.

VIII. WARRANTY

- A. All required public improvements, once constructed, dedicated and accepted by CITY for ownership and maintenance, shall remain free of defects in materials and workmanship for a period of one (1) year following the date of CITY's written acceptance of such required public improvements (hereinafter "Warranty Period").
- B. DEVELOPER shall be responsible for correcting any and all deficiencies which occur within the Warranty Period.
- C. Prior to issuance of any building permit in the Subdivision Development, a warranty Security or performance bond in the amount of fifteen percent (15%) of the estimated value of the required public improvements, as determined by CITY Engineer, shall be furnished to CITY by the DEVELOPER. This warranty Security shall be held by CITY or shall name CITY as a holder of the warranty Security or as the beneficiary of the bond and shall be in effect for the Warranty Period.
- D. If DEVELOPER fails to correct any deficiency within a reasonable amount of time, CITY may claim the warranty Security and correct the deficiency.
- E. The warranty Security may be in any form allowed under Section VII of this Agreement.

IX. PARKLAND DEDICATION

As part of the subdivision process, pursuant to Moscow City Code Title 5, Chapter 1, Section 1-5.F., this proposed Subdivision Development falls under the following requirements:

The parkland dedication requirements for the proposed Pine View Addition Subdivision were previously met with a parkland dedication of 1.37 acres to the City of Moscow. The 1.37 acres were added to Moser Park per the McGurkin Development Agreement dated October 3, 1994. With this being the case, no parkland dedication is required for this addition.

X. PHASING

No phasing is being proposed for construction of this addition.

XI. AS-CONSTRUCTED DRAWINGS

DEVELOPER agrees to furnish, prior to acceptance by CITY of the public improvements as required herein, one (1) set of complete, mylar and AutoCAD, final as-constructed drawings for the public improvements described herein, unless such requirement is waived by CITY Engineer.

XII. FAILURE TO COMPLY

DEVELOPER agrees to pay all expenses incurred by CITY in enforcing this Agreement.

XIII. BINDING ON HEIRS, ASSIGNS AND PURCHASER

This Agreement shall be binding upon the heirs, executors, administrators, and assignees of the Parties, and subsequent purchasers of the property described herein.

XIV. OCCUPANCY

DEVELOPER agrees that no person shall be allowed to occupy any part of the development for any purpose until the described public improvements are completed and accepted by CITY for maintenance or as otherwise provided for by a subsequent development agreement between the Parties.

XV. VENUE AND ATTORNEY FEES

The Parties agree that, should any provision of this Agreement be litigated in the future, venue for such litigation shall be with the District Court of the Second Judicial District of the State of Idaho in and for the County of Latah. In the event either Party incurs legal expenses to enforce the terms and conditions of this Agreement, the prevailing Party is entitled to recover reasonable attorney's fees and other costs and expenses, whether the same are incurred with or without a lawsuit.

XVI. ENTIRE AGREEMENT, MODIFICATION AND SEVERABILITY

This Agreement constitutes the entire understanding and agreement between the Parties with respect to the matters discussed herein and supersedes all prior agreements, negotiations, and discussions between the Parties. DEVELOPER and CITY agree that the provisions of this Agreement may be modified only upon request of DEVELOPER accompanied by a complete set of development plans, and acceptance of such modification by the Moscow City Council or by a subsequent development agreement between the Parties. The terms and conditions of this Agreement shall be deemed severable. If any part of this Agreement is held invalid or unenforceable by a court of competent jurisdiction or due to a change in law, the remaining portions of the Agreement shall remain in full force and effect.

XVII. COVENANTS TO RUN WITH LAND

This Agreement shall run with the land affected hereby, as shall all covenants contained herein, and shall be to the benefit of CITY, its successors and assigns. This Agreement shall be recorded with the Latah County Recorder.

XVIII. NOTICES

Any notice required or called for by this Agreement shall be deemed served upon the Party to whom it is sent when delivered by certified United States mail to the following addresses:

DEVELOPER:

CITY:

Pamela J. Persoon-Juscen
Joseph F. Juscen III
705 E. Eighth Street
Moscow, ID 83843
Phone: (509) 595-2251

City of Moscow, Idaho
Scott Bontrager, City Engineer
PO Box 9203
Moscow, ID 83843
Phone: (208) 883-7034

XIX. HEADINGS, CAPTIONS AND TITLES FOR CONVENIENCE.

Headings captions, and titles of sections of this Agreement are for the convenience of reference only, and are not intended to define, limit, or describe the scope or intent of any provision of this Agreement, and shall not affect the construction of any provision of this Agreement.

XX. UNDERSTANDING.

DEVELOPER has read and understands this Agreement and agrees with the contents and conditions thereof. DEVELOPER understands that the terms of this Agreement are contractually and legally binding and that no verbal statement to the contrary, by any person, can void or alter the terms of this Agreement. Specifically, DEVELOPER has had the opportunity to avail themselves of legal counsel and of other counsel before entering into this Agreement and before signing it, and hereby enters into this Agreement knowingly, voluntarily, willingly, and without inducement.

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective the date first above written.

We, Pamela J. Persoon-Juscen and Joseph F. Juscen III, certify, under the penalty of perjury pursuant to the law of the State of Idaho, that the foregoing is true and correct and that we have legal authority to enter into this Agreement.

DEVELOPER:

CITY:

Owners:

City of Moscow, Idaho

Pamela J. Persoon-Juscen

Hailey Lewis, Mayor

Joseph F. Juscen III

ATTEST:

Laurie M. Hopkins, City Clerk

ACKNOWLEDGEMENTS

STATE OF IDAHO)
) ss:
COUNTY OF LATAH)

On this ____ day of _____, 2026, before me, the undersigned, a Notary in and for said State, personally appeared Pamela J. Persoon-Juscen, known to me to be the person named above and acknowledged that they executed the foregoing document and has full legal authority to enter into this Development Agreement.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year herein above written.

Notary Public for the State of Idaho
Residing at _____
My commission expires _____

STATE OF IDAHO)
) ss:
COUNTY OF LATAH)

On this ____ day of _____, 2026, before me, the undersigned, a Notary in and for said State, personally appeared Joseph F. Juscen III, known to me to be the person named above and acknowledged that they executed the foregoing document and has full legal authority to enter into this Development Agreement.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year herein above written.

Notary Public for the State of Idaho
Residing at _____
My commission expires _____

After Recording Return to:
City of Moscow City Clerk
PO Box 9203
Moscow, ID 83843

Space above this line for Recorder's use only

**MONUMENTATION AGREEMENT
BETWEEN PAMELA J. PERSOON-JUSCEN AND JOSEPH F. JUSCEN III AND
CITY OF MOSCOW, IDAHO**

THIS MONUMENTATION AGREEMENT (hereinafter "Agreement") is entered into this _____ day of _____, 2026 by and between Pamela J. Persoon-Juscen And Joseph F. Juscen III, 705 East Eighth Street, Moscow, Idaho, 83843, (hereinafter "DEVELOPER") and the City of Moscow, Idaho, a municipal corporation of the State of Idaho, 206 East Third Street, Moscow, Idaho, 83843 (hereinafter "CITY") for the purpose of subdividing real property within CITY.

WITNESSETH:

WHEREAS, DEVELOPER is the owner of certain premises located in CITY, commonly known as Pine View Addition Subdivision; and

WHEREAS DEVELOPER has not, at this time, set interior monuments as required by Idaho Code Section 50-1303; and

WHEREAS, DEVELOPER desires to record the final plat of Pine View Addition Subdivision; and

WHEREAS, Idaho Code Sections 50-1331 and 50-1333 allow the setting of interior monuments for subdivisions following the recordings of the final plat; and

WHEREAS, the Parties mutually desire to ensure that such monuments be installed;

NOW, THEREFORE, it is agreed that all matters stated above are found to be true and correct and are incorporated herein by this reference as if copied in their entirety and for and in consideration of the following mutual promises, DEVELOPER and CITY hereby agree and covenant as follows:

1. **PROPERTY AFFECTED:** The Property which is subject to this Agreement is described as Pine View Addition Subdivision (hereinafter "Subdivision"), as shown by the plat provided herein on Attachment "A" and incorporated herein by reference.
2. **PROFESSIONAL LAND SURVEYOR:** For the purpose of this Agreement, the Professional Land Surveyor (hereinafter "Surveyor") for the platting of Subdivision is Benjamin C. Bailey, Idaho PLS #6271566.

3. CONDITIONS OF RECORDING WITHOUT MONUMENTATION: Pursuant to Idaho Code Section 50-1333, DEVELOPER may record the final plat of Subdivision prior to the setting of interior monuments if:
 - A. The exterior monuments have been set;
 - B. The Subdivision plat includes a certification by Surveyor that the interior monuments for Subdivision shall be set in accordance with Idaho Code Section 50-1303, on or before a specified date and the said interior monuments shall be referenced on the Subdivision plat with a unique symbol. The time for setting the interior monuments shall not exceed one (1) calendar year from the date the Subdivision plat is recorded or as otherwise specified by written agreement with CITY; and
 - C. DEVELOPER furnishes to CITY a cash deposit in the amount equal to one hundred twenty percent (120%) of the estimated cost of performing the work for the interior monumentation for Subdivision. The estimated cost of performing such work will be determined by the Surveyor.
4. DEVELOPER'S COVENANT: DEVELOPER agrees as follows:
 - A. To have installed, at DEVELOPER's expense, all interior monuments within the Subdivision, as required by Idaho law;
 - B. To have the interior monuments set by Surveyor, except as allowed otherwise under Section 7 of this Agreement;
 - C. To have installed all required interior monuments on or before the date specified on the Subdivision plat; and
 - D. To furnish CITY with a cash deposit in the amount of Seven Thousand, Five Hundred Dollars (\$7,500.00), which is equal to the one hundred twenty percent (120%) of the Six Thousand, Two Hundred Fifty Dollars (\$6,250.00) estimated by Surveyor to set Subdivision interior monuments.
5. CITY COVENANT: That upon the compliance of DEVELOPER with the terms and conditions of this Agreement, CITY shall advise the Latah County Recorder that the requirements of Idaho Code Sections 50-1331 through 50-1333 have been met and security in the amount of Seven Thousand Five Hundred Dollars (\$7,500.00) has been deposited with CITY as required by Section 4. D. of this Agreement.
6. RETURN OF DEPOSIT: If DEVELOPER pays Surveyor for performing the interior monumentation work and furnishes CITY with proof of such payment, CITY shall, within two (2) months after such notice, return the cash deposit upon a finding that such payment has been made, or CITY may, upon written request of DEVELOPER, pay Surveyor from moneys within a cash deposit held by CITY for such purpose, and return the excess amount of the cash deposit, if any, to DEVELOPER.

7. **FAILURE OF SURVEYOR TO PERFORM MONUMENTATION:** In the event of the death, disability, retirement of Surveyor, or upon the failure of Surveyor to set such monuments in accordance with law, CITY may direct the County Surveyor in their official capacity or may contract with an Idaho professional land surveyor in private practice, to set such monuments and reference such monuments for recording as provided in Idaho Code Sections 50-1331 through 50-1333. The fees of the County Surveyor or private surveyor shall be paid by DEVELOPER in accordance with the terms of this Agreement.
8. **FAILURE OF DEVELOPER TO PAY FOR MONUMENTATION:** In the event DEVELOPER fails or refuses to authorize the payment for interior monumentation, Surveyor may request payment from CITY, and upon inspection by CITY of such interior monumentation, CITY shall pay Surveyor from the proceeds of the cash deposit. Any costs associated with the installation of such monuments in excess of the security shall be borne by DEVELOPER.
9. **TERM AND SEVERABILITY:** This Agreement shall remain in effect until all monuments as described herein have been installed and accepted by CITY. Provisions of this Agreement shall be deemed severable. If any part of this Agreement is held invalid or unenforceable by a court of competent jurisdiction or due to a change in law, the remaining provisions of this Agreement shall remain in full force and effect.
10. **HEADINGS, CAPTIONS AND TITLES:** Headings, captions, and titles of sections of this Agreement are for the convenience of reference only, and are not intended to define, limit, or describe the scope or intent of any provision of this Agreement, and shall not affect the construction of any provision of this Agreement.
11. **COVENANTS TO RUN WITH LAND:** This Agreement shall run with the land and benefits and burdens herein described shall be binding on the Parties, heirs, assigns and successors and interest. This Agreement shall be recorded with the Latah County Recorder.

IN WITNESS WHEREOF, the Parties have executed this Agreement to be effective the date first above written.

We, Pamela J. Persoon-Juscen and Joseph F. Juscen III, certify under the penalty of perjury pursuant to the law of the State of Idaho, that the foregoing is true and correct and that we have legal authority to execute this Agreement.

DEVELOPERS:

CITY:

Pamela J. Persoon-Juscen

Hailey Lewis, Mayor

Joseph F. Juscen III

ATTEST:

Laurie M. Hopkins, City Clerk

Approved as to Form:

Mia Bautista, City Attorney

ACKNOWLEDGMENT

STATE OF IDAHO)
) ss.
COUNTY OF LATAH)

On this _____ day of _____, 2026, before me, the undersigned, a Notary in and for said State, personally appeared Pamela J. Persoon-Juscen, known to me to be the person named above and acknowledged that they executed the foregoing document and has full legal authority to enter into this Monumentation Agreement.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the date hereinabove written.

NOTARY PUBLIC for the State of _____
Residing at _____
My Commission expires: _____

STATE OF IDAHO)
) ss:
COUNTY OF LATAH)

On this ____ day of _____, 2026, before me, the undersigned, a Notary in and for said State, personally appeared Joseph F. Juscen III, known to me to be the person named above and acknowledged that they executed the foregoing document and has full legal authority to enter into this Monumentation Agreement.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year herein above written.

Notary Public for the State of Idaho
Residing at _____
My commission expires _____

Attachment "A"

Section 9, T39N, R5W, BM

LEGAL DESCRIPTION

A parcel of land located in the West Half of the Southeast Quarter of Section 9, Township 39 North, Range 5 West, Boise Meridian, Latah County, Idaho, described as follows:

Commencing at the northwest corner of the Northwest Quarter of the Southeast Quarter of Section 9, Thence along the north line thereof, S89°36'45"E, 658.48 feet to the northeast corner of a parcel of land described in Quitclaim Deed, Instrument #616270, Latah County Records, also a point on the south line of a parcel of land described in Warranty Deed, Instrument #550272, Latah County Records, and the Point of Beginning.

Thence continuing along said north line and along said south line and the south line of a parcel described in Quitclaim Deed, Instrument #611364, Latah County Records, S89°36'45"E, 311.60 feet;

Thence leaving said common line, S00°32'24"W, 208.00 feet;

Thence S77°26'57"E, 198.73 feet;

Thence S28°59'58"E, 190.43 feet;

Thence S00°00'02"W, 236.44 feet;

Thence N51°16'00"E, 73.49 feet to a point on the east line of the Northwest Quarter of the Southeast Quarter of Section 9 and the west line of a parcel of land described in Corrected Quitclaim Deed, Instrument #632094, Latah County Records;

Thence along said east line and along said west line, S00°29'32"W, 312.56 feet to the northeast corner of a parcel of land described in Warranty Deed, Instrument #538806, Latah County Records;

Thence leaving said common line along the north boundary of the parcel described in said Warranty Deed, the following two courses:

S58°06'51"W, 175.00 feet;

Thence S66°51'51"W, 165.62 feet to the northwest corner of said parcel;

Thence S58°39'33"W, 145.56 feet;

Thence 71.81 feet along a curve to the right, said curve having a Delta = 30°28'31", Radius = 135.00 feet, Chord = 70.96 feet and a Chord Bearing = S73°53'48"W;

Thence S12°53'20"W, 52.00 feet;

Thence 59.02 feet along a curve to the right, said curve having a Delta = 15°22'15", Radius = 220.00 feet, Chord = 58.84 and a Chord Bearing = S20°34'28"W;

Thence S28°15'36"W, 98.59 feet to the northwest corner of Lot 12, Block 2 of Rolling Hills 10th Addition, Instrument #634835, Latah County Records;

Thence along the north line of Rolling Hills 10th Addition, N89°31'36"W, 230.53 feet to the northwest corner of Lot 2, Block 3 thereof and a point on the east boundary of City of Moscow, Moser Park, described in Deed of Dedication, Instrument #412761, Latah County Records;

Thence leaving said north line, along said east boundary the following two courses:

N60°05'36"E, 30.00 feet;

Thence N18°30'02"W, 47.17 feet to the northeast corner of Moser Park;

Thence along the north boundary thereof the following two courses:

N54°01'22"W, 84.31 feet;

Thence N77°05'53"W, 398.00 feet to the southeast corner of a parcel of land described in Warranty Deed, Instrument #618456, Latah County Records;

Thence leaving said north boundary, along the east line of the parcel described in said Warranty Deed, N13°00'02"E, 117.26 feet to the northeast corner of said parcel;

Thence along the north boundary thereof the following two courses:

N77°06'40"W, 61.56 feet;

Thence 31.09 feet along a curve to the left, said curve having a Delta = 7°55'02", Radius = 225.00 feet, Chord = 31.07 feet and a Chord Bearing = N81°04'11"W to the northwest corner of said parcel and a point on the north boundary of Moser Park;

Thence along said north boundary, 10.01 feet, along a curve to the left, said curve having a Delta = 2°33'00", Radius = 225.00 feet, Chord = 10.01 feet and a Chord Bearing = N86°18'12"W to a point on the west line of the Northwest Quarter of the Southeast Quarter of Section 9 and the east line of Moser Estates Third Addition to the City of Moscow, Instrument #390760, Latah County Records;

Thence along said west line and along said east line N00°43'57"E, 50.02 feet to the southwest corner of a parcel of land described in Warranty Deed, Instrument #629629, Latah County Records;

Thence leaving said common line, along the south boundary of the parcel described in said Warranty Deed the following two courses:

S87°34'42"E, 1.48 feet;

Thence 8.56 feet along curve to the right, said curve having a Delta = 1°47'01", Radius = 275.00 feet, Chord = 8.56 feet and a Chord Bearing = S86°41'11"E to the southwest corner of a parcel of land described in Warranty Deed, Instrument #456068, Latah County Records;

Thence along the south boundary thereof the following two courses:

41.68 feet along a curve to the right, said curve having a Delta = 8°41'00", Radius = 275.00 feet, Chord = 41.64 feet and a Chord Bearing = S81°27'11"E;

Thence S77°06'40"E 48.29 feet, to the southeast corner of said parcel;

Thence along the east line thereof, N13°00'00"E, 120.00 feet to the northeast corner of said parcel;

Thence along the north line thereof, N77°02'22"W, 126.86 feet to a point on the west line of the Northwest Quarter of the Southeast Quarter of Section 9 and the east line of Moser Estates Third Addition;

Thence along said west line and along said east line and the east line of Moser Estates Fourth Addition to the City of Moscow, Instrument #391351, Latah County Records, N00°43'57"E, 208.35 feet to a point on said west line and on the east line of Moser Estates Fourth Addition and the southwest corner of the parcel of land described in Quitclaim Deed, Instrument #616270;

Thence leaving said common line, along the south line of said parcel, S89°33'46"E, 660.67 feet to the southeast corner thereof;

Thence along the east line of said parcel, N00°32'24"E, 653.79 feet to the Point of Beginning.

Parcel contains 22.89 acres, more or less.

Know all persons by these presents, that Joseph F Juscen and Pamela J Persoon-Juscen, owners of the land and premises described above, have caused said land to be subdivided and platted as shown hereon as an addition to the City of Moscow, Latah County, Idaho, to be known as the Pine View Addition to the City of Moscow, Latah County, Idaho. The easements as shown on this plat are hereby reserved for public access and utility purposes as designated hereon and no permanent structures are to be erected within the lines of said easements. The owner certifies that all lots within this plat will be eligible to receive water service from an existing water system, be the water system municipal, a water district, a public utility subject to the regulation of the Idaho public utilities commission, or a mutual or nonprofit water company, and the existing water distribution system has agreed in writing to serve all of the lots in the subdivision (Section 50-1334, Idaho Code).

The owner does herewith declare to offer for dedication to the public for public use the street right-of-ways.

In witness thereof, the undersigned have set their hand and seal.

Joseph F Juscen

Pamela J Persoon-Juscen

APPROVALS

Moscow Planning and Zoning Commission

Approval of this plat by the City of Moscow certifies agreement to allow connection of the above described property to the municipal water system and satisfies Section 50-1334, Idaho Code. Examined and approved by action of the Moscow Planning and Zoning Commission at a regular meeting with a quorum present this _____ day of _____, 2026.

Chairperson Planning and Zoning Commission

Moscow City Council

Examined and approved by action of the Moscow City Council at a regular meeting with a quorum present this _____ day of _____, 2026. Dedication of all public streets and easements described on this plat is hereby accepted in accordance with Section 50-1313, Idaho Code.

Mayor, City of Moscow

Clerk City of Moscow

City Engineer, City of Moscow

Examined and approved by the City Engineer this _____ day of _____, 2026. Plat conforms to the requirements of Title 50, Chapter 13 of the Idaho Code and with requirements of Moscow City Code Title 5, Chapter 1.

City Engineer, City of Moscow

Latah County Surveyor

This plat has been checked and meets the requirements of Title 50, Chapter 13, Idaho Code. Examined and approved by the Latah County Surveyor this _____ day of _____, 2026.

Latah County Surveyor

Latah County Treasurer

I hereby certify that taxes and assessments on property shown hereon have been paid for 2025 and preceding years as of this _____ day of _____, 2026.

Latah County Treasurer

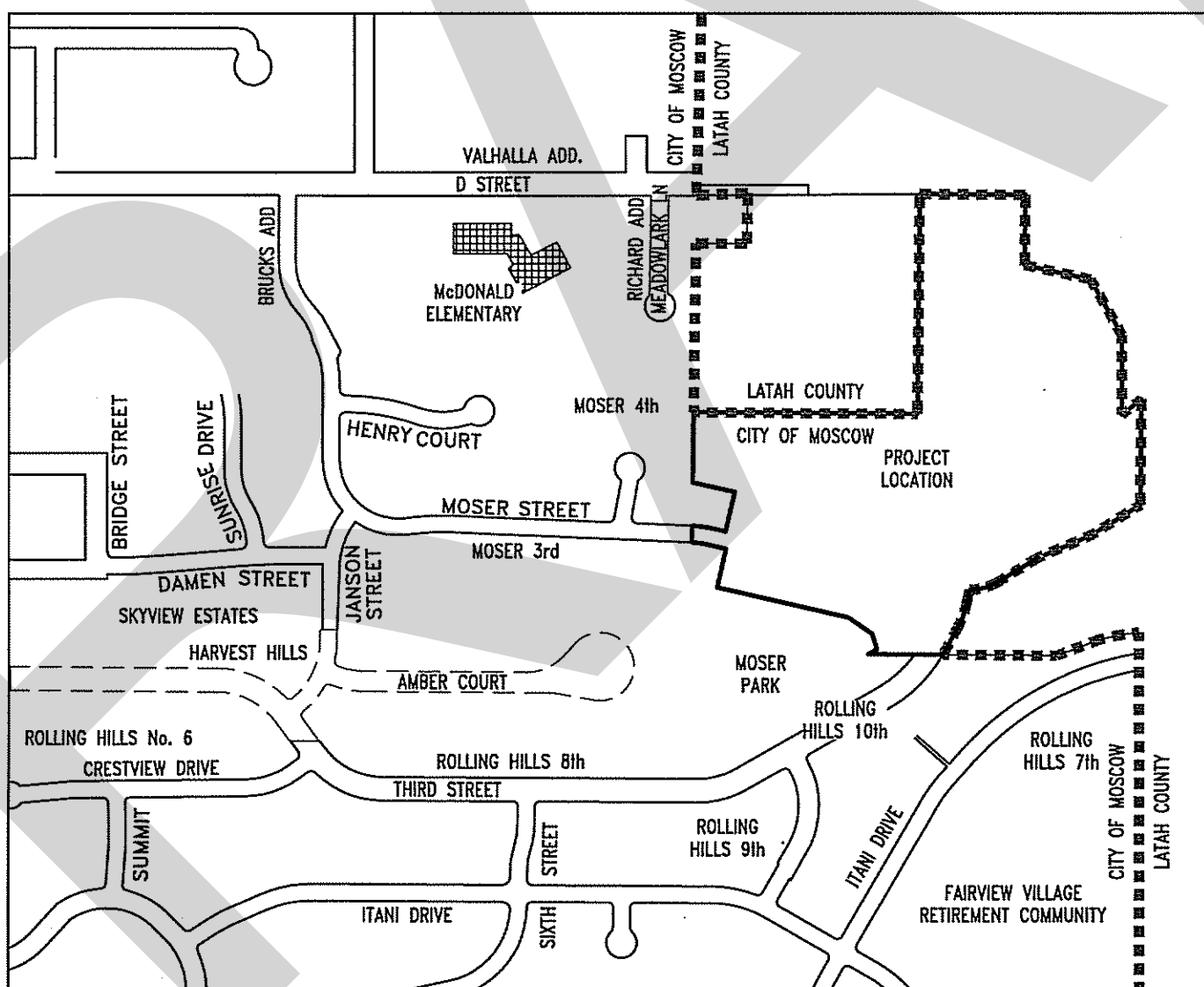
Public Health - Idaho North Central Health District

Sanitary restrictions as required by Idaho Code, Title 50, Chapter 13 have been satisfied. Sanitary restrictions may be reimposed, in accordance with Section 50-1326, Idaho Code, by the issuance of a certificate of disapproval.

Senior Environmental Health Specialist

Date

Idaho North Central Health District



VICINITY MAP

ACKNOWLEDGMENTS

State of _____

County of _____

On this _____ day of _____, 2026, before me, the undersigned Notary Public in and for the State of _____, personally appeared Joseph F Juscen and Pamela J Persoon-Juscen, known or identified to me to be the people whose names are subscribed to the foregoing instrument, and acknowledged to me that he executed the same.

In witness whereof, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

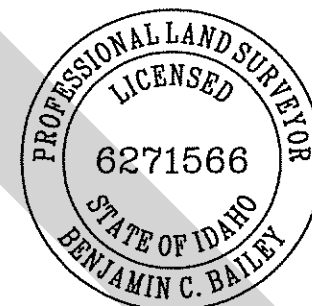
Notary Public, _____

Residing in _____

My Commission Expires _____

SURVEYOR'S CERTIFICATE

I, Benjamin Bailey, PLS #6271566, State of Idaho, hereby certify that the above platted and described property represents a survey performed by me or under my supervision in accordance with the laws of the State of Idaho, and that the streets, lots, distances, and monuments have been measured and located as shown thereon. The interior monuments will be set in accordance with Idaho Code 50-1303, on or before September 1st, 2027 as referenced on the plat and approved by the City of Moscow. Witness my hand and seal this _____ day of _____, 2026.



Benjamin Bailey, PLS #6271566 8-19-2026

PRELIMINARY
NOT FOR
RECORDING

Pine View Addition
to the City of Moscow, Latah County, Idaho
Joseph F Juscen and Pamela J Persoon-Juscen

Drafted by: SW

Checked by: BB

File Name: 4410 plat.dwg

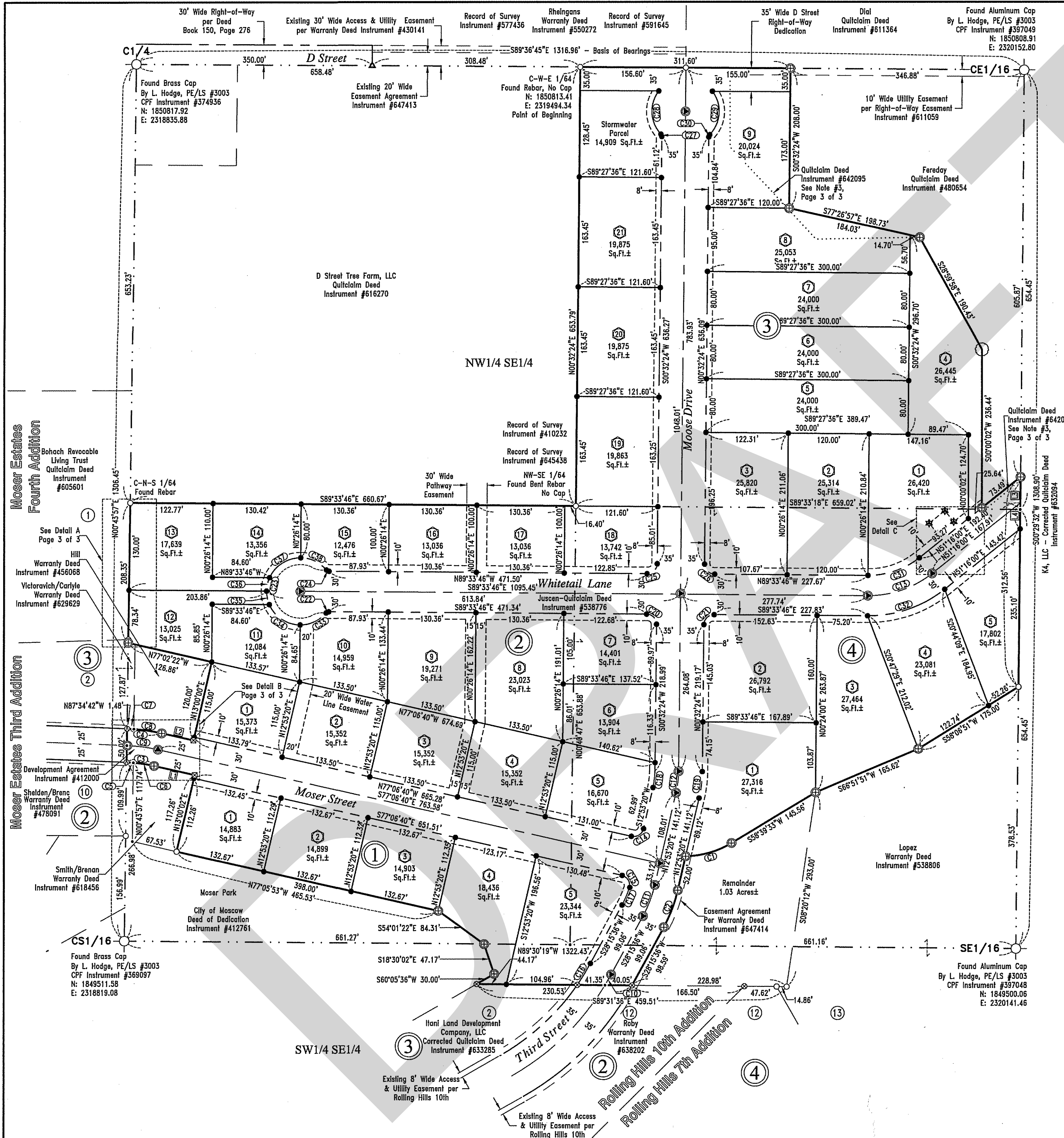
Tab: Sign

Plot Style: Primary.ctb

Project: 3831-07-13

Date: 8/19/26

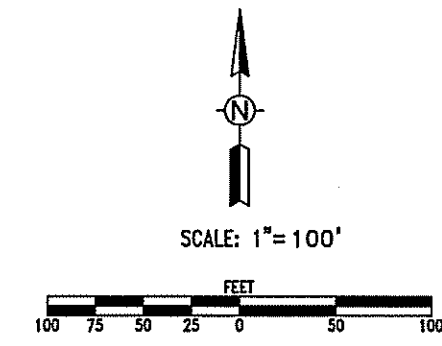
1 of 3



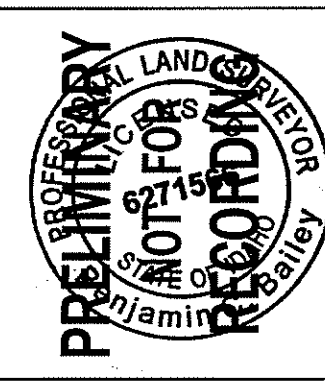
Basis of Bearings
The Basis of Bearings for this survey is identical to the Idaho Coordinate System, West Zone, NAD 83 as shown between the found northwest corner of the Southeast Quarter of Section 9 and the found northeast corner of the Northwest Quarter of said Southeast Quarter, said bearing being S89°36'45"E.

Legend

- Found Monument as Described
- Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" - See Note 5, Page 3 of 3
- Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" in Monument Case and Cover Per City of Moscow MSCD-20000.201
- Set 1/2" Diameter Rebar w/Plastic Cap Stamped "Easement PLS 6271566"
- Found 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566"
- Found 1" Brass Plug Stamped "Hodge PLS 6271566"
- Utility Box @ Corner Location per Record of Survey Instrument #645438
- Tree w/ Shiner @ Corner Location per Record of Survey Instrument #645438
- Found 1/2" Diameter Rebar w/Plastic Cap Stamped "Easement PLS 6271566"
- Found 5/8" Diameter Rebar w/Aluminum Cap Stamped "Rim Rock PLS 17534"
- Found 5/8" Diameter Rebar w/Plastic Cap Stamped "Hodge 3003" or as Described
- Calculated Position
- Line Data - See Line Table, Page 3 of 3
- Curve Data - See Curve Table, Page 3 of 3
- Block Number
- Lot Number - This Platting
- Lot Number - Other Plats
- Plat Boundary Line
- Lot line - This Platting
- Boundary Adjustment Per Record of Survey Instrument # , See Note 3, Page 3 of 3
- Adjacent Parcel Boundary Line
- Section Subdivision Line
- Centerline
- Right-of-Way
- Access and Utility Easement - This Platting
- Existing Easement - as Described



P.F. Box 8728
Moscow, Idaho 83843
(208) 882-3520



8-19-2026

Pine View Addition
to the City of Moscow, Latah County, Idaho
Joseph F. Juscen and Pamela J. Persoon-Juscen

Drafted by:	SW
Checked by:	BB
File Name:	4410 plat.dwg
Tab:	Layout
Plot Style:	Primary.ctb
Project:	3831-07-13
Date:	8/19/26

Curve Table

Curve	Length	Delta	Radius	Chord	Chrd Brng
C1	71.81'	30°28'31"	135.00'	70.96'	N73°53'48"E
C2	59.02'	15°22'15"	220.00'	58.84'	S20°34'28"W
C3	41.10'	10°28'02"	225.00'	41.05'	N82°20'41"W
C4	50.24'	10°28'02"	275.00'	50.17'	N82°20'41"W
C5	10.01'	2°33'00"	225.00'	10.01'	N86°18'12"W
C6	31.09'	7°55'02"	225.00'	31.07'	N81°04'11"W
C7	8.56'	1°47'01"	275.00'	8.56'	N86°41'11"W
C8	41.68'	8°41'00"	275.00'	41.64'	N81°27'11"W
C9	45.75'	10°25'00"	251.62'	45.68'	S82°21'11"E
C10	18.21'	2°42'35"	385.00'	18.21'	N29°36'53"E
C11	49.63'	15°22'15"	185.00'	49.48'	N20°34'28"E
C12	32.33'	12°20'56"	150.00'	32.27'	N06°42'52"E
C13	102.55'	39°10'14"	150.00'	100.56'	N70°51'07"E

Curve Table

Curve	Length	Delta	Radius	Chord	Chrd Brng
C14	23.56'	90°00'00"	15.00'	21.21'	S57°53'20"W
C15	24.88'	95°02'59"	15.00'	22.13'	S29°35'10"E
C16	37.55'	6°08'49"	350.00'	37.53'	S31°20'00"W
C17	27.02'	10°19'16"	150.00'	26.98'	S23°05'57"W
C18	24.79'	12°20'56"	115.00'	24.74'	S06°42'52"W
C19	39.87'	12°20'56"	185.00'	39.80'	N06°42'52"E
C20	23.59'	90°06'11"	15.00'	21.23'	S44°30'41"E
C21	23.53'	89°53'49"	15.00'	21.19'	N45°29'19"E
C22	4.41'	50°28'44"	5.00'	4.26'	N65°11'52"E
C23	245.18'	280°57'27"	50.00'	63.64'	S00°26'14"W
C24	4.41'	50°28'44"	5.00'	4.26'	N64°19'25"W
C25	23.53'	89°53'49"	15.00'	21.19'	S45°29'19"W
C26	23.59'	90°06'11"	15.00'	21.23'	N44°30'41"W

Curve Table

Curve	Length	Delta	Radius	Chord	Chrd Brng
C27	3.78'	43°20'30"	5.00'	3.69'	S21°07'51"E
C28	69.86'	80°03'32"	50.00'	64.32'	S02°46'20"E
C29	70.13'	80°21'50"	50.00'	64.52'	N03°42'00"E
C30	3.78'	43°20'30"	5.00'	3.69'	N22°12'40"E
C31	82.04'	39°10'14"	120.00'	80.45'	S70°51'07"W
C32	123.06'	39°10'14"	180.00'	120.68'	N70°51'07"E
C33	44.05'	50°28'44"	50.00'	42.64'	N65°11'52"E
C34	57.96'	66°25'19"	50.00'	54.77'	S56°21'07"E
C35	20.58'	23°34'41"	50.00'	20.43'	S11°21'07"E
C36	20.58'	23°34'41"	50.00'	20.43'	S12°13'34"W
C37	57.96'	66°25'19"	50.00'	54.77'	S57°13'34"W
C38	44.05'	50°28'44"	50.00'	42.64'	N64°19'25"W

Line Table

Line	Bearing	Distance
L1	N77°06'40"W	61.56'
L2	S77°06'40"E	48.29'
L3	N00°29'32"E	38.73'
L4	N00°29'32"E	38.73'

Surveyor Narrative

- The purpose of this survey was to subdivide and plat the Juscen property, as described in Quitclaim Deed, Instrument #538776 and shown on Record of Survey, Instrument #645438 as shown hereon.
- See Record of Survey, Instrument #645438 for survey record data and boundary resolution.
- See Record of Survey, Instrument #645438 for Boundary Line Adjustments between Juscen and Fereday prior to this platting.
- Right-of-Way Easement, Instrument #240872 provides for a buried power cable to be "placed as close as feasible to the north line of the North Line of the NE1/4 NW1/4 SE1/4, Section 9 Township 39 North, Range 5 West, BM."
- Interior monuments to be set by September 1st, 2027.
- All coordinates shown are based on the North American Datum of 1983 (NAD83)

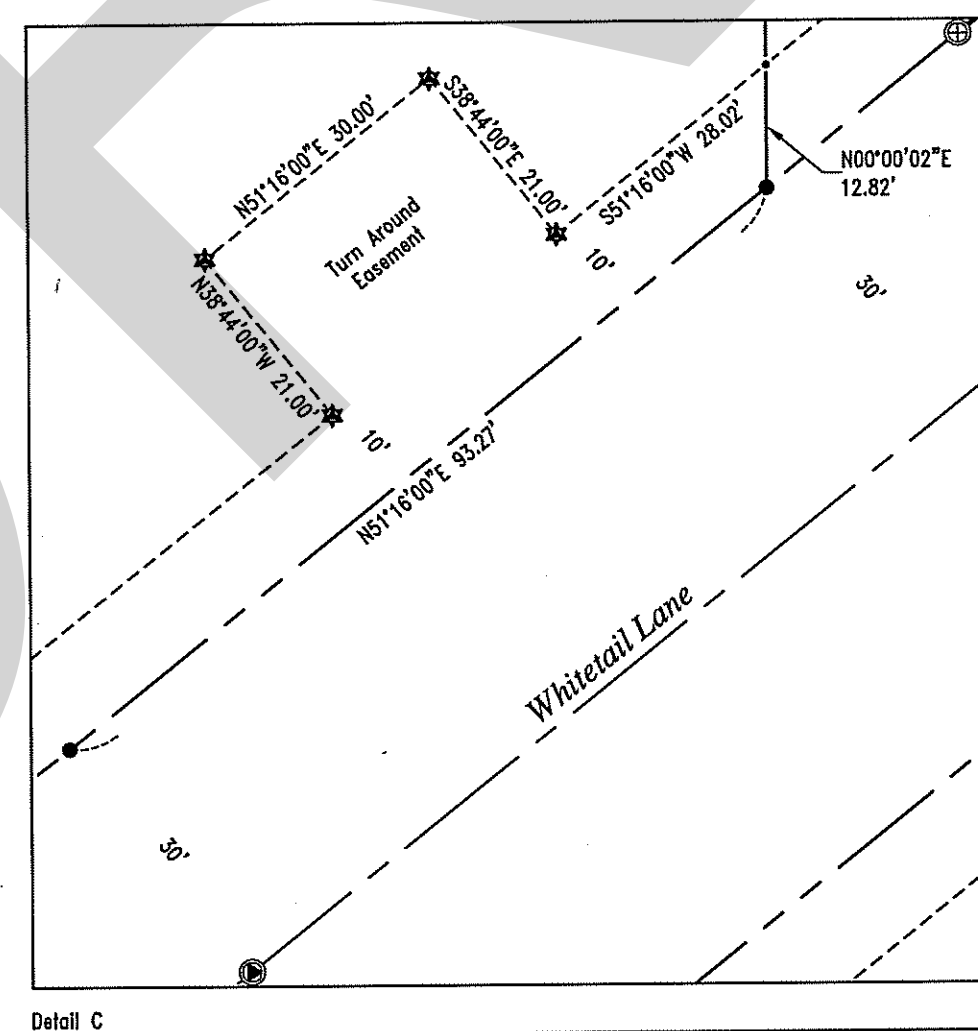
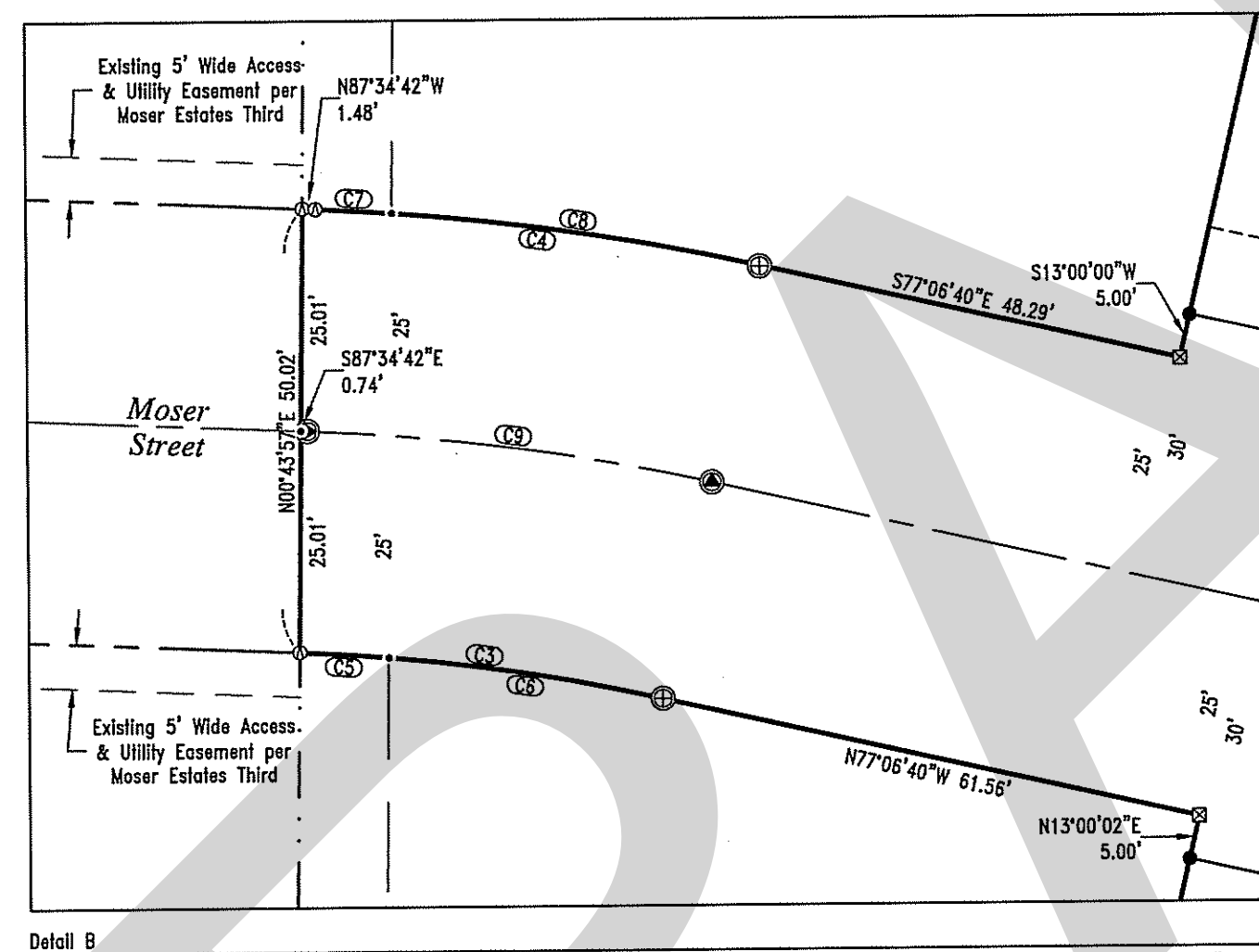
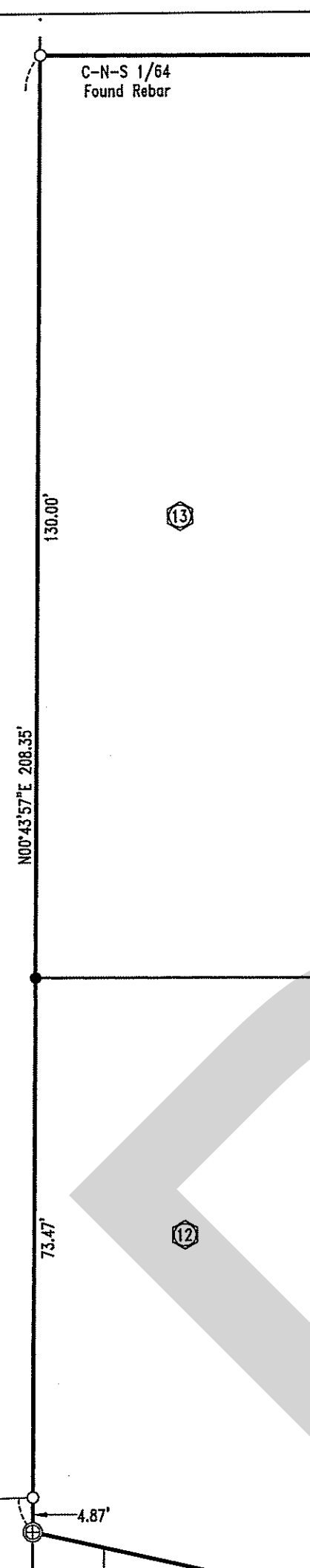
Survey References:

- Deed, Instrument #221549, Book 150 of Deeds, Page 276-277, Hall to Highway District No 2.
- Moser Estates Third Addition, Instrument #390760, by L. Hodge, PE/LS #3003.
- Moser Estates Fourth Addition, Instrument #391351, by L. Hodge, PE/LS #3003.
- Record of Survey, Instrument #410232, by L. Hodge, PE/LS #3003
- Deed of Dedication, Instrument #412761, Moser Land Trust to City of Moscow.
- Warranty Deed, Instrument #456068, Jarret to Hill.
- Warranty Deed, Instrument #478091 Jung to Shelden & Brenc.
- Quitclaim Deed, Instrument #480654, Michael R. Fereday & Jennifer D. Fereday to Michael R. Fereday & Jennifer R. Fereday.
- Rolling Hills 7th Addition, Instrument #500535, by L. Hodge, PE/LS #3003.
- Quitclaim Deed, Instrument #538776, McGurkin to Juscen.
- Warranty Deed, Instrument #538806, McGurkin to Lopez.
- Warranty Deed, Instrument #550272, Zasodny to Rheingans.
- Record of Survey, Instrument #577436, by J. Goettsche, PLS #9584.
- Record of Survey, Instrument #591645, by D. Priest, PLS #6449.
- Quitclaim Deed, Instrument #605601, Gregory & Carolyn Bohach to Bohach Revocable Living Trust.
- Right of Way Easement, Instrument #611059, Fereday to Avista Corporation.
- Quitclaim Deed, Instrument #611364, Jodi Dial to Sam Dial.
- Quitclaim Deed, Instrument #616270, Wang to D Street Treefarm, LLC.
- Warranty Deed, Instrument #618456, Bruce to Smith & Branan.
- Warranty Deed, Instrument #629629, Johns to Victoravitch & Carlyle.
- Corrected Quitclaim Deed, Instrument #632094, K,K,K, & K, LLC to K4, LLC.
- Corrected Quitclaim Deed, Instrument #633285, Itani Land Company, LLC to Itani Development IV, Inc.
- Rolling Hills 10th Addition, Instrument #634835, by T. Wardle, PLS #22509
- Warranty Deed, Instrument #638202, Itani Development IV, Inc to Roby/Frey.
- Quitclaim Deed, Instrument #642095, Fereday to Juscen.
- Record of Survey, Instrument #645438, by B. Bailey, PLS #6271566.
- Easement Agreement, Instrument #647413, Rheingans to City of Moscow.
- Easement Agreement, Instrument #647414, Juscen to City of Moscow.

Legend

- Found Monument as Described
- Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" - See Note 5, Page 3 of 3
- Set 5/8" Diameter Rebar w/Aluminum Cap Stamped "Hodge PLS 6271566" In Monument Case and Cover Per City of Moscow MSCD-20000.201
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- Section Subdivision Line
- Centerline
- Right-of-Way
- Access and Utility Easement - This Platting
- Existing Easement - as Described

Bohach Revocable Living Trust
Quitclaim Deed
Instrument #605601



COMMITTEE / CITY COUNCIL STAFF REPORT

DATE: Monday, September 14, 2026



AGENDA ITEM TITLE

Existing City Shop Renovation Project - Bid Results and Contract Award (ACTION ITEM) - Bill Belknap

RESPONSIBLE STAFF

Bill Belknap, City Administrator

ADDITIONAL PRESENTER(S)

DESCRIPTION

The City is in the process of making a number of improvements to the City's shop facility located on North Polk Street. Those improvements have included the construction of a new shop facility to house the Fleet and Parks Departments, the construction of a new dry materials storage facility, and the renovation of the existing shop building to house the Streets and Stormwater Departments. The new City shop is nearing completion, and the dry materials storage building is complete. The City opened bids for the renovation of the existing shop building on July 30th and received bids ranging from a low bid of \$1,074,000 to a high bid of \$1,262,000. The project cost estimate was \$997,246. Staff is recommending the award of the project to Ginno Construction of Idaho in the amount of \$1,074,000.

REVIEWED BY

PROPOSED ACTIONS

PROPOSED ACTIONS: Recommend acceptance of the base bid from Ginno Construction of Idaho, Inc., and award the contract in the amount of \$1,074,000 and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount, or provide staff with further direction.

STAFF RECOMMENDATION

Recommend acceptance of the base bid from Ginno Construction of Idaho, Inc., and award the contract in the amount of \$1,074,000 and authorize staff approval of construction change orders in an amount not to exceed 5% of the contract amount, or provide staff with further direction.

OTHER RESOURCES

FISCAL IMPACT

PERSONNEL IMPACT

ATTACHMENTS

1. Bid Tab Form
2. Construction Agreement _Moscow City Shop Remodel_final with attachments (D is placeholder)

BID TAB FORM - City Shop Renovation Project

General Contractor	Bid Bond	Addenda 1,2,3,4	PW License	ALCOHOL AND DRUG-FREE WORKPLACE	Base Bid	Bid Compared to Estimate (Dollars)	Bid Compared to Estimate (Percentage)
Estimate					\$997,246		
CB Construction Inc.	x	x	x	x	\$1,197,700	\$200,454	20.1%
Ginno Construction of Idaho, Inc.	x	x	x	x	\$1,074,000	\$76,754	7.7%
Kenaston Corporation	x	x	x	x	\$1,199,100	\$201,854	20.2%
Mangum Construction	x	x	x	x	\$1,134,000	\$136,754	13.7%
Wellens General Contractors	x	x	x	x	\$1,262,000	\$264,754	26.5%

**CONSTRUCTION AGREEMENT
FOR MOSCOW CITY SHOP PROJECT
BETWEEN CITY OF MOSCOW, IDAHO
AND GINNO CONSTRUCTION OF IDAHO, INC.**

THIS CONSTRUCTION AGREEMENT FOR MOSCOW CITY SHOP REMODEL PROJECT BETWEEN CITY OF MOSCOW, IDAHO, AND GINNO CONSTRUCTION OF IDAHO, INC. (hereinafter "Agreement"), dated this ____ day of _____, 2026, by and between City of Moscow, Idaho, a municipal corporation of the State of Idaho, 206 East Third Street, Moscow, Idaho, 83843 (hereinafter "CITY"), and Ginno Construction of Idaho, 3893 N. Schreiber Way, Coeur d'Alene, Idaho, 83815 (hereinafter "CONTRACTOR"):

WITNESSETH:

WHEREAS, pursuant to the invitation of CITY, extended through an "Invitation to Bid", see Attachments 'A' and 'B', CONTRACTOR submitted a Bid Proposal containing an offer invited by said invitation; and

WHEREAS, CITY has determined that said offer was the lowest responsive Bid Proposal; and

WHEREAS, CITY has accepted CONTRACTOR's Bid Proposal for the Base Bid;

NOW THEREFORE, it is agreed that all matters stated above are found to be true and correct and are incorporated herein by this reference as if copied in their entirety and for and in consideration of the following mutual promise, the Parties to this Agreement hereby agree and covenant as follows:

**ARTICLE 1.
CONTRACT DOCUMENTS**

The Contract Documents which comprise the entire Agreement between CITY and CONTRACTOR concerning the work to be performed, are this Agreement, pages one (1) through seven (7), and the following:

1. Lombard Conrad Architects Specifications dated June 22, 2026, Attachment 'A' consisting of 562 pages;
2. Moscow City Shop Remodel Permit Set dated June 22, 2026, Attachment 'B' consisting of 39 pages;
3. Bid Proposal of CONTRACTOR, dated July 30, 2026, Attachment 'C', consisting of 6 pages;
4. Performance and Payment Bonds and Insurance Certificates, Attachment "D";
5. Three (3) Addenda:
 - a. Addendum #1, Attachment 'E', consisting of 42 pages;
 - b. Addendum #2, Attachment 'F', consisting of 18 pages;
 - c. Addendum #3, Attachment 'G', consisting of 1 page
5. Change Orders, which may be delivered or issued after the effective date of this Agreement.

There are no Contract Documents other than those listed in Article 1. This Agreement may only be amended by change order as provided in Attachment 'A'.

ARTICLE 2. WORK

CONTRACTOR shall complete the entire work as specified, indicated and required under the Contract Documents, contained herein under Article 1. for CITY project (hereinafter "Project") titled:

MOSCOW CITY SHOP PROJECT

ARTICLE 3. CONTRACT TIME/SUBSTANTIAL COMPLETION

The work to be performed pursuant to this Agreement shall be substantially complete within 180 consecutive calendar days after commencement of construction, unless adjustment of the Agreement time is made in accordance with the provisions of the Contract Documents. CONTRACTOR shall begin work in conformance with the Contract Documents.

CONTRACTOR and CITY recognize that time is of the essence and that CITY will suffer financial loss if the Project is not completed within the time specified above, unless approved extensions thereof are permitted in accordance with the terms of the Contract Documents. The Parties also recognize the delays, expense, and difficulties involved in proving, in a legal or arbitration proceeding, the actual loss suffered by CITY if the Project is not completed on time. Accordingly, instead of requiring any such proof, CITY and CONTRACTOR agree that as liquidated damages for delay (but not as a penalty), CONTRACTOR shall pay CITY Two Hundred and Fifty Dollars (\$250) for each day that expires after the time specified above for Substantial Completion until the Project is substantially complete. After Substantial Completion, if CONTRACTOR shall neglect, refuse, or fail to complete the remaining Project within the Time of Completion or by any proper extension thereof granted by CITY, CONTRACTOR shall pay CITY Two Hundred and Fifty Dollars (\$250) for each day that expires after the time specified above for completion, until the Project is completed and ready for final payment.

ARTICLE 4. CONTRACT SUM

CITY shall pay CONTRACTOR for completion of the work for the Project in accordance with the Contract Documents for the Base Bid in the amount of One Million, Seventy-Four Thousand Dollars (\$1,074,000) as submitted by CONTRACTOR. In no event shall the Contract amount exceed CONTRACTOR's bid amount of One Million, Seventy-Four Thousand Dollars (\$1,074,000), unless otherwise authorized by CITY by written agreement. Said Contract Sum shall be paid in accordance with the Contract Documents.

ARTICLE 5. TERMINATION

Termination provisions are governed by the attached Contract Documents.

ARTICLE 6. INDEPENDENT CONTRACTOR

The Parties warrant by their signatures that no employer-employee relationship is established between CONTRACTOR and CITY by the terms of this Agreement. It is understood by the Parties hereto that CONTRACTOR is an independent contractor and, as such, neither CONTRACTOR nor CONTRACTOR's employees, agents, representatives or subcontractors, if any, are employees of CITY for any purpose, including for purposes of tax, retirement system, and social security (FICA) withholding.

ARTICLE 7. SCOPE OF SERVICES

CONTRACTOR shall perform all work required by the Contract Documents. All work shall be completed in accordance with the specifications and plans established for this Project.

ARTICLE 8. HOLD HARMLESS/INDEMNIFICATION

In addition to other rights granted to CITY by the Contract Documents, CONTRACTOR agrees to indemnify, defend, and hold harmless CITY, its officers, agents, employees, and engineers, from and against any and all losses, lawsuits, actions, claims, judgments for damages, or any injuries or damages received or sustained by any person, persons, or property, and losses, expenses, and other costs, including litigation costs and attorney's fees, arising out of, resulting from, or in connection with the acts, performances, activities, errors or omissions by CONTRACTOR, CONTRACTOR's servants, agents, officers, employees, representatives, guests, business invitees or its subcontractors; or on account of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any claims or amounts recovered from any infringements of patent, trademark or copyright; or from any claims or amounts arising out of or recovered under the Workers' Compensation Act or any other law, ordinance, order, or decree.

ARTICLE 9. CONFLICT OF INTEREST

CONTRACTOR covenants that it presently has no interest and will not acquire any interest, direct or indirect, in the Project, which would conflict in any manner or degree with the performance of CONTRACTOR's services hereunder. CONTRACTOR further covenants that, in performing this Agreement, CONTRACTOR will employ no person who has any such interest. Should any conflict of interest arise during the performance of this Agreement, CONTRACTOR shall immediately disclose such conflict to CITY.

ARTICLE 10.
ENTIRE AGREEMENT, MODIFICATION AND ASSIGNABILITY

This Agreement and the attachments hereto contain the entire Agreement between the Parties, and no statements, promises, or inducements made by either Party, or agents of either Party are valid or binding unless contained herein. This Agreement may not be enlarged, modified or altered except upon written agreement signed by the Parties hereto. CONTRACTOR may not subcontract or assign its rights (including the right to compensation) or duties arising hereunder, other than as provided within the Contract Documents, without the prior written consent and express authorization of CITY.

ARTICLE 11.
LICENSES AND ADHERENCE TO LAW REQUIRED

CONTRACTOR represents that it possesses the skill and experience necessary and all licenses required to perform the services under this Agreement. CONTRACTOR further agrees to comply with all applicable Federal, State and Local statutes and regulations in the performance of the services hereunder, and are hereby made a part of this Agreement and shall be adhered to at all times. Violation of any of these statutes or regulations by CONTRACTOR shall be deemed material and shall subject CONTRACTOR to termination of this Agreement for cause. No pleas of misunderstanding or ignorance on the part of CONTRACTOR will, in any way, serve to modify the provisions of this requirement. CONTRACTOR and its surety shall indemnify, defend and hold harmless CITY and its employees, agents, engineers and representatives against any claim or liability arising from or based on the violation of any such laws, codes, ordinances, or regulations, whether by CONTRACTOR, CONTRACTOR's employees, or its subcontractors.

Anti-Boycott Against Israel Act. CONTRACTOR certifies it is not currently engaged in, and will not for the duration of this Agreement engage in, a boycott of goods and services from Israel or territories under its control. Failure to comply with Idaho Code § 67-2346 will result in this Agreement being void as against public policy.

Ownership or Operation by China. Pursuant to Idaho Code § 67-2359, CONTRACTOR certifies that it is not currently owned or operated by the government of China and will not for the duration of this Agreement be owned or operated by the government of China. The terms in this section defined in Idaho Code § 67-2359 shall have the meaning defined therein.

Employment of Residents of Idaho. Pursuant to Idaho Code § 44-1001, CONTRACTOR certifies that it will employ ninety-five percent (95%) bona fide Idaho residents, as that term is defined in Idaho Code § 44-1003, as employees for the completion of the terms required in this Agreement. If CONTRACTOR employs less than fifty (50) employees on this Project, CONTRACTOR may employ up to ten percent (10%) nonresidents for the completion of the terms required in this Agreement. In all cases, CONTRACTOR agrees to give a preference to bona fide Idaho residents. The Parties agree that if Project involves the expenditure of federal aid funds, that this clause will not be enforced in a manner that conflicts with federal statutes prescribing a labor preference for veterans or prohibiting unlawful discrimination or preferences among United States citizens.

Not an Abortion Provider or Affiliate. Pursuant to Idaho Code Title 18 Chapter 87, CONTRACTOR certifies that it is not an abortion provider or an affiliate of any abortion provider

and does not, and will not for the duration of this Agreement, authorize the use of state facilities or public funds for abortion related activity.

Anti-Boycott of Certain Sectors. Pursuant to Idaho Code § 67-2347A, CONTRACTOR certifies that it is not engaged in, and will not for the duration of this Agreement engage in, a boycott of any individual or company because the individual or company 1) engages in or supports the exploration, production, utilization, transportation, sale or manufacture of fossil fuel-based energy, timber, minerals, hydroelectric power, nuclear power, or agriculture or 2) engages in or supports the manufacture, distribution, sale, or use of firearms, as defined in Idaho Code § 18-3302 (2)(d).

ARTICLE 12. EMPLOYMENT DISCRIMINATION

It is illegal under the U.S. Federal law to discriminate against an employee, either intentionally or through disparate impact, on account of race, color, gender, religion, sex (including pregnancy), national origin, disability or genetic information, age (40 and older), marital or familial status, sexual orientation, or gender identity. CONTRACTOR shall not discriminate against any employee or applicant for employment. CONTRACTOR's action under this Section shall include, but not be limited to, the following: employment, upgrading, demotion or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. CONTRACTOR agrees to post in conspicuous places, available to employees and other applicants for employment, notices setting forth the provisions of this non-discrimination Section.

ARTICLE 13. LEGAL FEES

In the event either Party incurs legal expenses to enforce the terms and conditions of this Agreement, the prevailing Party is entitled to recover reasonable attorney's fees and other costs and expenses, whether the same are incurred with or without a lawsuit.

ARTICLE 14. JURISDICTION, VENUE AND NONWAIVER

It is agreed that this Agreement shall be construed under and governed by the laws of the State of Idaho. In the event of litigation concerning it, it is agreed that proper venue shall be the District Court of the Second Judicial District of the State of Idaho, in and for the County of Latah. Failure of CITY to exercise any of the rights under this Agreement, or breach thereof, shall not be deemed to be a waiver of such right or a waiver of any subsequent breach.

ARTICLE 15. SPECIAL WARRANTY

CONTRACTOR warrants that nothing of monetary value has been given, promised or implied as remuneration or inducement to enter into this Agreement. CONTRACTOR declares that no improper personal, political or social activities have been used or attempted in an effort to influence

the outcome of the competition, discussion, or negotiation leading to the award of this Agreement. Any such activity by CONTRACTOR shall make this Agreement null and void. CONTRACTOR further warrants that all materials and goods supplied under this Agreement shall be of good merchantable quality and that all services will be performed in a good workmanlike manner. CONTRACTOR acknowledges that it will be liable for any breach of this warranty.

ARTICLE 16. COMMUNICATIONS

Such communications as are required by this Agreement shall be satisfied by mailing or by personal delivery to the Parties at the following address:

CONTRACTOR:

Ginno Construction of Idaho
Kyle Wells
3893 N. Schreiber Way,
Coeur d'Alene, Idaho, 83815

CITY:

City of Moscow
Bill Belknap
206 East Third Street
P O Box 9203
Moscow, Idaho 83843

ARTICLE 17. NON-APPROPRIATIONS

This Agreement is contingent upon CITY receiving the necessary funding to cover the obligations of CITY. In the event that such funding is not received or appropriated, then, and in that event, CITY's obligations under this Agreement shall cease and each Party shall be released from further performance under this Agreement without any liability to the other Party, and CONTRACTOR shall be entitled to receive just and equitable compensation for any work satisfactorily completed hereunder.

ARTICLE 18. APPROVAL REQUIRED AND SEVERABILITY

This Agreement shall not become effective or binding until approved by CITY. The terms of this Agreement shall be deemed severable. If any part of this Agreement is held invalid or unenforceable by a court of competent jurisdiction or due to a change in law, the remaining portions of the Agreement will, nevertheless, remain in full force and effect so long as the remainder of this Agreement is capable of completion.

ARTICLE 19. DRUG/TOBACCO FREE FACILITIES

All CITY facilities are drug and tobacco free facilities. Any drug and/or tobacco use (smoked or smokeless) is prohibited at all times in all areas of CITY facilities.

**ARTICLE 20.
HEADINGS, TITLES AND CAPTIONS**

Headings, captions, and titles of sections of this Agreement are for the convenience of reference only, and are not intended to define, limit, or describe the scope or intent of any provision of this Agreement, and shall not affect the construction of any provision of this Agreement.

**ARTICLE 21.
EXECUTION**

IN WITNESS WHEREOF, said CONTRACTOR and CITY have caused this Agreement to be executed on the day and year first above written.

This Agreement may be executed by the use of electronic signatures pursuant to Idaho Code § 28-50-107. If electronic signatures are utilized, the acknowledgement before a notary is not required.

I, Rich Wells, certify under the penalty of perjury pursuant to the law of the State of Idaho, that the foregoing is true and correct and that I am an authorized agent to bind Ginno Construction of Idaho, Inc. to this Agreement. If I am signing this document utilizing an electronic signature, I understand that my electronic signature is valid and binding upon me to the same force and effect as a handwritten signature.

CONTRACTOR:

Ginno Construction of Idaho, Inc.

CITY:

City of Moscow, Idaho

Rich Wells, President

Hailey Lewis, Mayor

ATTEST:

Laurie M. Hopkins, City Clerk

Approved as to Form:

Mia Bautista, City Attorney

ACKNOWLEDGMENT

STATE OF _____)
) ss.
COUNTY OF _____)

On this _____ day of _____, 2026, before me, a Notary Public in and for said State, appeared Rich Wells, known to me to be the person named above and acknowledged that they executed the foregoing document as the duly authorized representative for Ginno Construction of Idaho, Inc.

Notary Public for the State of _____
Residing at _____
My commission expires _____

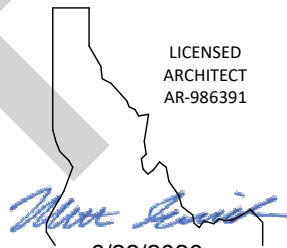
LOMBARD
CONRAD
ARCHITECTS

PROJECT: **Moscow City Shop – Existing Shop TI**
650 N. Van Buren Steet
Moscow, ID 83843

OWNER: **City of Moscow, Idaho**
504 S. Washington Street
Moscow, ID. 83843

ARCHITECT: **Lombard-Conrad Architects**
472 W. Washington St.
Boise, ID 83702
208-345-6677

CONTACT: **Matt Geserick**


LICENSED
ARCHITECT
AR-986391
6/22/2026
MATTHEW GESERICK
STATE OF IDAHO

JOB NO.: 24000.01
DATE: 06/22/2026

TABLE OF CONTENTS

COVER & TABLE OF CONTENTS

- 000101 - Cover
- 000110 Table of Contents

DIVISION 00 — PROCUREMENT AND CONTRACTING REQUIREMENTS

- 003 - Advertisement for Bid
- 004 - Bid Proposal Form
- 0041 - AIA Document A701 Instructions to Bidders
- 005 - AIA Document A201 General Conditions of the Contract for Construction
- 006 - Supplemental Conditions
- 007 - Certificate of Substantial Completion Form
- 00912 - Standard Form of Guarantee
- 00919 - Contractor Subcontractor Information List
- 00920 - Consent of Surety
- 00921 - AIA Document A312 Performance Bond
- 00922 - AIA Document A312 Payment Bond
- 00923 - AIA Document A310 Bid Bond

DIVISION 01 — GENERAL REQUIREMENTS

- 011000 - SUMMARY
- 012500 - SUBSTITUTION PROCEDURES
 - 012500 Substitution Request Form
- 012600 - CONTRACT MODIFICATION PROCEDURES
- 012900 - PAYMENT PROCEDURES
- 013100 - PROJECT MANAGEMENT AND COORDINATION
- 013200 - CONSTRUCTION PROGRESS DOCUMENTATION
- 013300 - SUBMITTAL PROCEDURES
- 014000 - QUALITY REQUIREMENTS
- 015000 - TEMPORARY FACILITIES AND CONTROLS
- 015400 - SECURITY
- 016000 - PRODUCT REQUIREMENTS
- 017300 - EXECUTION
- 017700 - CLOSEOUT PROCEDURES
- 017823 - OPERATION AND MAINTENANCE DATA
- 017839 - PROJECT RECORD DOCUMENTS
- 017900 - DEMONSTRATION AND TRAINING

DIVISION 02 — EXISTING CONDITIONS

- 024119 - SELECTIVE DEMOLITION

DIVISION 03 — CONCRETE

- 032000 - CONCRETE REINFORCING
- 033000 - CAST-IN-PLACE CONCRETE
- 033543 - POLISHED CONCRETE FINISHING

DIVISION 05 — METALS

- 051200 - STRUCTURAL STEEL FRAMING

DIVISION 06 — WOOD, PLASTICS, AND COMPOSITES

- 061000 - ROUGH CARPENTRY
- 064100 - ARCHITECTURAL WOOD CASEWORK
- 066400 - PLASTIC PANELING

DIVISION 07 — THERMAL AND MOISTURE PROTECTION

079200 - JOINT SEALANTS

DIVISION 08 — OPENINGS

081113 - HOLLOW METAL DOORS AND FRAMES

081416 - FLUSH WOOD DOORS

087100 - DOOR HARDWARE

DIVISION 09 — FINISHES

092216 - NON-STRUCTURAL METAL FRAMING

092900 - GYPSUM BOARD

095113 - ACOUSTICAL PANEL CEILINGS

096513 - RESILIENT BASE AND ACCESSORIES

096516 - RESILIENT SHEET FLOORING

096519 - RESILIENT TILE FLOORING

096813 - TILE CARPETING

099123 - INTERIOR PAINTING

DIVISION 10 — SPECIALTIES

101423 - PANEL SIGNAGE

102600 - WALL AND DOOR PROTECTION

102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

104400 - FIRE-PROTECTION SPECIALTIES

104413 - FIRE PROTECTION CABINETS

104416 - FIRE EXTINGUISHERS

105113 - METAL LOCKERS

DIVISION 11 — EQUIPMENT

113013 - RESIDENTIAL APPLIANCES

DIVISION 12 — FURNISHINGS

122413 - ROLLER WINDOW SHADES

123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

123661.16 - SOLID SURFACING COUNTERTOPS

DIVISION 22 — PLUMBING

220000 - PLUMBING GENERAL REQUIREMENTS

220100 - PLUMBING

DIVISION 23 — HEATING VENTILATING AND AIR CONDITIONING

230000 - HVAC GENERAL REQUIREMENTS

230100 - HVAC

DIVISION 26 — ELECTRICAL

260100 - BASIC ELECTRICAL REQUIREMENTS

260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

260523 - CONTROL-VOLTAGE ELECTRICAL POWER CABLES

260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

260548 - VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

260923 - LIGHTING CONTROL DEVICES

262213 - LOW-VOLTAGE DISTRIBUTION TRANSFORMERS

262413 - SWITCHBOARDS
262416 - PANELBOARDS
262726 - WIRING DEVICES
262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS
265119 - LED INTERIOR LIGHTING
265219 - EMERGENCY AND EXIT LIGHTING
268000 - ELECTRICAL DEMOLITION AND REPAIR

DIVISION 27 — COMMUNICATIONS

270100 - BASIC COMMUNICATIONS REQUIREMENTS
271100 - COMMUNICATIONS EQUIPMENT ROOM FITTINGS
271500 - COMMUNICATIONS HORIZONTAL CABLING
275133 - EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS

ADVERTISEMENT FOR BIDS

MOSCOW CITY SHOP EXISTING SHOP TI

Sealed bids will be received at City Council Chambers of Moscow City Hall, 206 East Third Street Moscow, Idaho 83843 through 3:00 P.M. prevailing local time on July 30, 2026.

Bid proposals may be mailed prior to the opening to the attention of the City Clerk at 206 East Third Street, Moscow, ID 83843. All mailed proposals must be received prior to the bid opening time listed above and must be marked as "Moscow City Shop Existing Shop TI" on the outside of the bid package.

Proposals will be opened and publicly read at the City Hall at 3:00 P.M. on July 30, 2026. For additional information concerning drawings and specifications, contact Lombard-Conrad Architects, Matt Geserick (208) 780-0022.

Plans, specifications, bid proposal forms and other information are available for examination at:

Associated Builders and Contractors
1760 E Trent Ave.
Spokane Valley, WA 99216
(509) 534-0826
e-mail: admin@abcipc.com

Spokane Regional Plan Center
209 N. Havana St.
Spokane, WA 99202
(509) 328-9600/FAX: 328-7279
e-mail: projectinfo@plancenter.net

Associated General Contractors
4935 E. Trent
Spokane, WA 99212
(509) 535-0391
e-mail: info@nwagc.com

Idaho Associated General Contractors
1649 West Shoreline Dr., Suite 100
Boise, ID 83702
(208) 344-2531

Tri-Cities Construction Council
20 E Kennewick Ave.
Kennewick, WA 99336
(509) 582-7424/FAX: 582-6815
e-mail: shannonam@owt.com

Lewiston-Clarkston Plan Service
2117 - 12th Avenue
Lewiston, ID 83501
(208) 746-3591/FAX: 208-796-7018
e-mail: lcplancenter@gmail.com

Abadan Public Plan Room
603 E. 2nd Ave
Spokane, WA 99202
(509) 747-2964

Missoula Plans Exchange
201 N. Russell
Missoula, MT 59801
(406) 549-5002/FAX: 721-2941
e-mail: tbrooks@mpe.us

Blueprint Specialties
6205 W Overland Dr
Boise, ID 83709
(208) 377-0294

DESCRIPTION OF WORK: The work consists of an interior remodel of 6,110 square feet of the existing shop building. All labor, materials, equipment and services necessary to provide the construction should be included in the bid.

BID BOND: A bid bond equal to 5% of the amount bid must accompany the bid proposal. (See instructions to bidders.)

PUBLIC WORKS CONTRACTOR'S LICENSE: Public Works Contractor's License for the State of Idaho is required to bid on this project. (See instructions to bidders and general conditions for further bidder qualifications.)

CONTRACT TIME: (180) calendar days from commencement of construction, substantial completion no later than 04/01/2027 (see instructions to bidders, bid proposal and agreement.)

ESTIMATED PROJECT COST: \$950,000

PRE-BID CONFERENCE: The pre-bid conference and walk-through will be held on July 15th, at 2:00 P.M. The conference will be held at the existing Moscow City Shop at 650 Van Buren St. Please direct any questions related to the project to Lombard-Conrad Architects, Matt Geserick (208) 780-0022.

END OF ADVERTISEMENT FOR BIDS.

ALL BIDS SHALL BEAR THIS ADDRESS:

City of Moscow
206 East Third Street
Moscow, ID 83843

ARTICLE 1

PROJECT NAME AND LOCATION	Moscow City Shop Existing Shop TI 650 N. Van Buren St. Moscow, ID 83843	
ARCHITECT OR ENGINEER	Lombard-Conrad Architects 472 W. Washington St. Boise, Idaho 83702	(208) 780-0022
CONTRACT TIME	CALENDAR DAYS: 180 consecutive calendar days consecutive calendar days from commencement of construction, substantial completion by no later than 04/01/2027.	
LIQUID. DAMAGES	EACH EXCESS CALENDAR DAY: \$250.00	
BID OPENING	DATE: July 30, 2026 TIME: 3:00 p.m. PLACE: Bid opens at Council Chambers, Moscow City Hall 206 E. Third Street, Moscow, Idaho 83843	
NAME AND ADDRESS OF BIDDER TELEPHONE NO.		
IF PARTNERSHIP NAMES OF PARTNERS		
IF CORPORATION STATE OF INCORPORATION		
BID GUARANTEE Min. 5% of Bid	UNDERLINE ONE: BID BOND, CASH, CERTIFIED CHECK, CASHIER'S CHECK	
ADDENDA RECEIPT ACKNOWLEDGED	ADDENDA NUMBERED: 1____ 2____ 3____ 4____ (Check all that have been received)	
ALLOWANCE ACKNOWLEDGED	NONE LISTED:	

ARTICLE 2

IN COMPLIANCE WITH THE NOTICE TO CONTRACTORS-INVITATION TO BID, AND IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS, THE CONTRACT DOCUMENTS, DRAWINGS AND SPECIFICATIONS FOR THE PROJECT, THE UNDERSIGNED BIDDER, BEING DULY LICENSED TO PERFORM SUCH WORK BY THE STATE OF IDAHO AND BEING THOROUGHLY FAMILIAR WITH ALL LOCAL CONDITIONS AFFECTING THE COST OF THE PROJECT, HAVING CAREFULLY EXAMINED THE SITE, CONTRACT DOCUMENTS, DRAWINGS AND SPECIFICATIONS AND ANY ADDENDA THERETO PREPARED BY THE PROJECT ARCHITECT OR ENGINEER, PROPOSES TO PROVIDE, AND TO FURNISH FOR THE COSTS SET FORTH IN THE FOLLOWING BID SCHEDULE, ALL LABOR AND MATERIAL, TOOLS, UTILITIES, TRANSPORTATION, EQUIPMENT AND SERVICES REQUIRED TO PERFORM AND TO COMPLETE IN A WORKMANLIKE MANNER ALL THE WORK FROM THE DATE OF THE NOTICE TO PROCEED WITHIN THE ESTABLISHED CONSTRUCTION TIME, SUBJECT TO LIQUIDATED DAMAGES FOR EXCESS WORKING TIME AS ESTABLISHED UNDER ARTICLE 1.

ARTICLE 3 BID SCHEDULE**BASE BID DESCRIPTION:** Base Bid.**FOR THE SUM OF:**

_____ DOLLARS (\$))

ALTERNATE #1 DESCRIPTION:**FOR THE SUM OF:**

_____ DOLLARS (\$))

ALTERNATE #2 DESCRIPTION:**FOR THE SUM OF:**

_____ DOLLARS (\$))

ALTERNATE #3 DESCRIPTION:**FOR THE SUM OF:**

_____ DOLLARS (\$))

THE LOW BIDDER WILL BE DETERMINED ON THE BASIS OF THE BASE BID PLUS ANY ALTERNATES WHICH ARE ACCEPTED. ALTERNATES MAY BE ACCEPTED IN ANY ORDER AND ARE NOT REQUIRED TO BE ACCEPTED IN SEQUENTIAL ORDER AS THEY ARE LISTED ON THE BID PROPOSAL FORM.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good for a period of sixty (60) calendar days after the scheduled opening time for receiving bids.

Upon receipt of written Notice of Intent to Award of this bid, Bidder will execute the formal Contract within ten (10) calendar days and deliver a Surety Bond or Bonds as required by Article 7 "Performance and Payment Bonds" of the Instructions to Bidders.

ARTICLE 4 LIST OF SUBCONTRACTORSPlumbing

(Name) _____

(Address) _____

Idaho Plumbing Contractors License No. _____

Heating, Ventilating & Air Conditioning

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho HVAC Contractors License No. _____

Electrical

(Name) _____

(Address) _____

Idaho Public Works Contractors License No. _____

Idaho Electrical Contractors License No. _____

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

Bidder warrants that bid has been prepared and that any contract resulting from acceptance of this bid is subject to Executive Order 2009-10 and the Fixed Price Construction Contract.

The undersigned notifies that it is of this date duly licensed as an Idaho Contractor and further that it possesses Idaho Contractor's License No. _____, and is domiciled in the State of _____.

Dated this _____ day of _____, _____.
(date) (month) (year)

Respectfully submitted by:

(Seal - if bid is by a corporation)

(Company)

(Street or PO Address)

(City, State and zip code)

(Authorized Signature)

(Title)

(Telephone Number)

(FAX Number)

(UEI Number)

Have you remembered to include bid security (bid bond or a certified or cashiers check), Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace?

Execute and Submit with Bid**CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE**

STATE OF _____

COUNTY OF _____

Pursuant to the Section 72-1717, Idaho Code, I, the undersigned, being duly sworn, depose and certify that _____ is in compliance with the provisions of Section 72-1717, Idaho Code; that _____ provides a drug-free workplace program that complies with the provisions of Title 72, Chapter 17, Idaho Code, and will maintain such program throughout the life of a state construction contract; and that _____ shall subcontract Work only to subcontractors meeting the requirements of Section 72-1717(1)(a), Idaho Code.

Name of Contractor_____
Address_____
City and StateBy: _____
(Signature)Subscribed and sworn to before me this _____ day of _____,
_____.

Commission expires:

NOTARY PUBLIC, residing at_____
_____**FAILURE TO EXECUTE THIS AFFIDAVIT AND SUBMIT IT ALONG WITH YOUR BID SHALL
MAKE YOUR BID NON-RESPONSIVE.**

AIA® Document A701® – 2018

Instructions to Bidders

for the following Project:
(Name, location, and detailed description)

Moscow City Shop Existing Shop TI

650 N Van Buren Street
Moscow, ID 83843

THE OWNER:
(Name, legal status, address, and other information)

Bill J. Belknap
City Administrator
City of Moscow
206 East Third Street
Moscow, ID 83843

THE ARCHITECT:
(Name, legal status, address, and other information)

Lombard-Conrad Architects, Inc.
472 W. Washington Street
Boise, ID 83702

TABLE OF ARTICLES

- | | | |
|--|----------|---|
| | 1 | DEFINITIONS |
| | 2 | BIDDER'S REPRESENTATIONS |
| | 3 | BIDDING DOCUMENTS |
| | 4 | BIDDING PROCEDURES |
| | 5 | CONSIDERATION OF BIDS |
| | 6 | POST-BID INFORMATION |
| | 7 | PERFORMANCE BOND AND PAYMENT BOND |
| | 8 | ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS |

ADDITIONS AND DELETIONS:

The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

FEDERAL, STATE, AND LOCAL LAWS MAY IMPOSE REQUIREMENTS ON PUBLIC PROCUREMENT CONTRACTS. CONSULT LOCAL AUTHORITIES OR AN ATTORNEY TO VERIFY REQUIREMENTS APPLICABLE TO THIS PROCUREMENT BEFORE COMPLETING THIS FORM.

It is intended that AIA Document G612™–2017, Owner's Instructions to the Architect, Parts A and B will be completed prior to using this document.

ARTICLE 1 DEFINITIONS

§ 1.1 Bidding Documents include the Bidding Requirements and the Proposed Contract Documents. The Bidding Requirements consist of the advertisement or invitation to bid, Instructions to Bidders, supplementary instructions to bidders, the bid form, and any other bidding forms. The Proposed Contract Documents consist of the unexecuted form of Agreement between the Owner and Contractor and that Agreement's Exhibits, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, all Addenda, and all other documents enumerated in Article 8 of these Instructions.

§ 1.2 Definitions set forth in the General Conditions of the Contract for Construction, or in other Proposed Contract Documents apply to the Bidding Documents.

§ 1.3 Addenda are written or graphic instruments issued by the Architect, which, by additions, deletions, clarifications, or corrections, modify or interpret the Bidding Documents.

§ 1.4 A Bid is a complete and properly executed proposal to do the Work for the sums stipulated therein, submitted in accordance with the Bidding Documents.

§ 1.5 The Base Bid is the sum stated in the Bid for which the Bidder offers to perform the Work described in the Bidding Documents, to which Work may be added or deleted by sums stated in Alternate Bids.

§ 1.6 An Alternate Bid (or Alternate) is an amount stated in the Bid to be added to or deducted from, or that does not change, the Base Bid if the corresponding change in the Work, as described in the Bidding Documents, is accepted.

§ 1.7 A Unit Price is an amount stated in the Bid as a price per unit of measurement for materials, equipment, or services, or a portion of the Work, as described in the Bidding Documents.

§ 1.8 A Bidder is a person or entity who submits a Bid and who meets the requirements set forth in the Bidding Documents.

§ 1.9 A Sub-bidder is a person or entity who submits a bid to a Bidder for materials, equipment, or labor for a portion of the Work.

ARTICLE 2 BIDDER'S REPRESENTATIONS

§ 2.1 By submitting a Bid, the Bidder represents that:

- .1 the Bidder has read and understands the Bidding Documents;
- .2 the Bidder understands how the Bidding Documents relate to other portions of the Project, if any, being bid concurrently or presently under construction;
- .3 the Bid complies with the Bidding Documents;
- .4 the Bidder has visited the site, become familiar with local conditions under which the Work is to be performed, and has correlated the Bidder's observations with the requirements of the Proposed Contract Documents;
- .5 the Bid is based upon the materials, equipment, and systems required by the Bidding Documents without exception; and
- .6 the Bidder has read and understands the provisions for liquidated damages, if any, set forth in the form of Agreement between the Owner and Contractor.

ARTICLE 3 BIDDING DOCUMENTS

§ 3.1 Distribution

§ 3.1.1 Bidders shall obtain complete Bidding Documents, as indicated below, from the issuing office designated in the advertisement or invitation to bid, for the deposit sum, if any, stated therein.

See Bid Advertisement.

§ 3.1.2 Any required deposit shall be refunded to Bidders who submit a bona fide Bid and return the paper Bidding Documents in good condition within ten days after receipt of Bids. The cost to replace missing or damaged paper documents will be deducted from the deposit. A Bidder receiving a Contract award may retain the paper Bidding Documents, and the Bidder's deposit will be refunded.

§ 3.1.3 Bidding Documents will not be issued directly to Sub-bidders unless specifically offered in the advertisement or

invitation to bid, or in supplementary instructions to bidders.

§ 3.1.4 Bidders shall use complete Bidding Documents in preparing Bids. Neither the Owner nor Architect assumes responsibility for errors or misinterpretations resulting from the use of incomplete Bidding Documents.

§ 3.1.5 The Bidding Documents will be available for the sole purpose of obtaining Bids on the Work. No license or grant of use is conferred by distribution of the Bidding Documents.

§ 3.2 Modification or Interpretation of Bidding Documents

§ 3.2.1 The Bidder shall carefully study the Bidding Documents, shall examine the site and local conditions, and shall notify the Architect of errors, inconsistencies, or ambiguities discovered and request clarification or interpretation pursuant to Section 3.2.2.

§ 3.2.2 Requests for clarification or interpretation of the Bidding Documents shall be submitted by the Bidder in writing and shall be received by the Architect at least seven days prior to the date for receipt of Bids.

§ 3.2.3 Modifications and interpretations of the Bidding Documents shall be made by Addendum. Modifications and interpretations of the Bidding Documents made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3 Substitutions

§ 3.3.1 The materials, products, and equipment described in the Bidding Documents establish a standard of required function, dimension, appearance, and quality to be met by any proposed substitution.

§ 3.3.2 Substitution Process

§ 3.3.2.1 Written requests for substitutions shall be received by the Architect at least ten days prior to the date for receipt of Bids. Requests shall be submitted in the same manner as that established for submitting clarifications and interpretations in Section 3.2.2.

§ 3.3.2.2 Bidders shall submit substitution requests on a Substitution Request Form if one is provided in the Bidding Documents.

§ 3.3.2.3 If a Substitution Request Form is not provided, requests shall include (1) the name of the material or equipment specified in the Bidding Documents; (2) the reason for the requested substitution; (3) a complete description of the proposed substitution including the name of the material or equipment proposed as the substitute, performance and test data, and relevant drawings; and (4) any other information necessary for an evaluation. The request shall include a statement setting forth changes in other materials, equipment, or other portions of the Work, including changes in the work of other contracts or the impact on any Project Certifications (such as LEED), that will result from incorporation of the proposed substitution.

§ 3.3.3 The burden of proof of the merit of the proposed substitution is upon the proposer. The Architect's decision of approval or disapproval of a proposed substitution shall be final.

§ 3.3.4 If the Architect approves a proposed substitution prior to receipt of Bids, such approval shall be set forth in an Addendum. Approvals made in any other manner shall not be binding, and Bidders shall not rely upon them.

§ 3.3.5 No substitutions will be considered after the Contract award unless specifically provided for in the Contract Documents.

§ 3.4 Addenda

§ 3.4.1 Addenda will be transmitted to Bidders known by the issuing office to have received complete Bidding Documents.

(Indicate how, such as by email, website, host site/platform, paper copy, or other method Addenda will be transmitted.)

Via email.

§ 3.4.2 Addenda will be available where Bidding Documents are on file.

§ 3.4.3 Addenda will be issued no later than four days prior to the date for receipt of Bids, except an Addendum withdrawing the request for Bids or one which includes postponement of the date for receipt of Bids.

§ 3.4.4 Prior to submitting a Bid, each Bidder shall ascertain that the Bidder has received all Addenda issued, and the Bidder shall acknowledge their receipt in the Bid.

ARTICLE 4 BIDDING PROCEDURES

§ 4.1 Preparation of Bids

§ 4.1.1 Bids shall be submitted on the forms included with or identified in the Bidding Documents.

§ 4.1.2 All blanks on the bid form shall be legibly executed. Paper bid forms shall be executed in a non-erasable medium.

§ 4.1.3 Sums shall be expressed in both words and numbers, unless noted otherwise on the bid form. In case of discrepancy, the amount entered in words shall govern.

§ 4.1.4 Edits to entries made on paper bid forms must be initialed by the signer of the Bid.

§ 4.1.5 All requested Alternates shall be bid. If no change in the Base Bid is required, enter "No Change" or as required by the bid form.

§ 4.1.6 Where two or more Bids for designated portions of the Work have been requested, the Bidder may, without forfeiture of the bid security, state the Bidder's refusal to accept award of less than the combination of Bids stipulated by the Bidder. The Bidder shall neither make additional stipulations on the bid form nor qualify the Bid in any other manner.

§ 4.1.7 Each copy of the Bid shall state the legal name and legal status of the Bidder. As part of the documentation submitted with the Bid, the Bidder shall provide evidence of its legal authority to perform the Work in the jurisdiction where the Project is located. Each copy of the Bid shall be signed by the person or persons legally authorized to bind the Bidder to a contract. A Bid by a corporation shall further name the state of incorporation and have the corporate seal affixed. A Bid submitted by an agent shall have a current power of attorney attached, certifying the agent's authority to bind the Bidder.

§ 4.1.8 A Bidder shall incur all costs associated with the preparation of its Bid.

§ 4.2 Bid Security

§ 4.2.1 Each Bid shall be accompanied by the following bid security:

5% of bid.

§ 4.2.2 The Bidder pledges to enter into a Contract with the Owner on the terms stated in the Bid and shall, if required, furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder. Should the Bidder refuse to enter into such Contract or fail to furnish such bonds if required, the amount of the bid security shall be forfeited to the Owner as liquidated damages, not as a penalty. In the event the Owner fails to comply with Section 6.2, the amount of the bid security shall not be forfeited to the Owner.

§ 4.2.3 If a surety bond is required as bid security, it shall be written on AIA Document A310™, Bid Bond, unless otherwise provided in the Bidding Documents. The attorney-in-fact who executes the bond on behalf of the surety shall affix to the bond a certified and current copy of an acceptable power of attorney. The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 4.2.4 The Owner will have the right to retain the bid security of Bidders to whom an award is being considered until (a) the Contract has been executed and bonds, if required, have been furnished; (b) the specified time has elapsed so that Bids may be withdrawn; or (c) all Bids have been rejected. However, if no Contract has been awarded or a Bidder has not been notified of the acceptance of its Bid, a Bidder may, beginning _____ days after the opening of Bids, withdraw its Bid and request the return of its bid security.

§ 4.3 Submission of Bids

§ 4.3.1 A Bidder shall submit its Bid as indicated below:

See Bid Advertisement.

§ 4.3.2 Paper copies of the Bid, the bid security, and any other documents required to be submitted with the Bid shall be enclosed in a sealed opaque envelope. The envelope shall be addressed to the party receiving the Bids and shall be identified with the Project name, the Bidder's name and address, and, if applicable, the designated portion of the Work for which the Bid is submitted. If the Bid is sent by mail, the sealed envelope shall be enclosed in a separate mailing envelope with the notation "SEALED BID ENCLOSED" on the face thereof.

§ 4.3.3 Bids shall be submitted by the date and time and at the place indicated in the invitation to bid. Bids submitted after the date and time for receipt of Bids, or at an incorrect place, will not be accepted.

§ 4.3.4 The Bidder shall assume full responsibility for timely delivery at the location designated for receipt of Bids.

§ 4.3.5 A Bid submitted by any method other than as provided in this Section 4.3 will not be accepted.

§ 4.4 Modification or Withdrawal of Bid

§ 4.4.1 Prior to the date and time designated for receipt of Bids, a Bidder may submit a new Bid to replace a Bid previously submitted, or withdraw its Bid entirely, by notice to the party designated to receive the Bids. Such notice shall be received and duly recorded by the receiving party on or before the date and time set for receipt of Bids. The receiving party shall verify that replaced or withdrawn Bids are removed from the other submitted Bids and not considered. Notice of submission of a replacement Bid or withdrawal of a Bid shall be worded so as not to reveal the amount of the original Bid.

§ 4.4.2 Withdrawn Bids may be resubmitted up to the date and time designated for the receipt of Bids in the same format as that established in Section 4.3, provided they fully conform with these Instructions to Bidders. Bid security shall be in an amount sufficient for the Bid as resubmitted.

§ 4.4.3 After the date and time designated for receipt of Bids, a Bidder who discovers that it made a clerical error in its Bid shall notify the Architect of such error within two days, or pursuant to a timeframe specified by the law of the jurisdiction where the Project is located, requesting withdrawal of its Bid. Upon providing evidence of such error to the reasonable satisfaction of the Architect, the Bid shall be withdrawn and not resubmitted. If a Bid is withdrawn pursuant to this Section 4.4.3, the bid security will be attended to as follows:

Bid rank.

ARTICLE 5 CONSIDERATION OF BIDS

§ 5.1 Opening of Bids

If stipulated in an advertisement or invitation to bid, or when otherwise required by law, Bids properly identified and received within the specified time limits will be publicly opened and read aloud. A summary of the Bids may be made available to Bidders.

§ 5.2 Rejection of Bids

Unless otherwise prohibited by law, the Owner shall have the right to reject any or all Bids.

§ 5.3 Acceptance of Bid (Award)

§ 5.3.1 It is the intent of the Owner to award a Contract to the lowest responsive and responsible Bidder, provided the Bid has been submitted in accordance with the requirements of the Bidding Documents. Unless otherwise prohibited by law, the Owner shall have the right to waive informalities and irregularities in a Bid received and to accept the Bid which, in the Owner's judgment, is in the Owner's best interests.

§ 5.3.2 Unless otherwise prohibited by law, the Owner shall have the right to accept Alternates in any order or combination, unless otherwise specifically provided in the Bidding Documents, and to determine the lowest responsive and responsible Bidder on the basis of the sum of the Base Bid and Alternates accepted.

ARTICLE 6 POST-BID INFORMATION

§ 6.3 Submittals

§ 6.3.1 After notification of selection for the award of the Contract, the Bidder shall, as soon as practicable or as stipulated in the Bidding Documents, submit in writing to the Owner through the Architect:

- .1 a designation of the Work to be performed with the Bidder's own forces;
- .2 names of the principal products and systems proposed for the Work and the manufacturers and suppliers of each; and
- .3 names of persons or entities (including those who are to furnish materials or equipment fabricated to a special design) proposed for the principal portions of the Work.

§ 6.3.2 The Bidder will be required to establish to the satisfaction of the Architect and Owner the reliability and responsibility of the persons or entities proposed to furnish and perform the Work described in the Bidding Documents.

§ 6.3.3 Prior to the execution of the Contract, the Architect will notify the Bidder if either the Owner or Architect, after due investigation, has reasonable objection to a person or entity proposed by the Bidder. If the Owner or Architect has reasonable objection to a proposed person or entity, the Bidder may, at the Bidder's option, withdraw the Bid or submit an acceptable substitute person or entity. The Bidder may also submit any required adjustment in the Base Bid or Alternate Bid to account for the difference in cost occasioned by such substitution. The Owner may accept the adjusted bid price or disqualify the Bidder. In the event of either withdrawal or disqualification, bid security will not be forfeited.

§ 6.3.4 Persons and entities proposed by the Bidder and to whom the Owner and Architect have made no reasonable objection must be used on the Work for which they were proposed and shall not be changed except with the written consent of the Owner and Architect.

ARTICLE 7 PERFORMANCE BOND AND PAYMENT BOND

§ 7.1 Bond Requirements

§ 7.1.1 If stipulated in the Bidding Documents, the Bidder shall furnish bonds covering the faithful performance of the Contract and payment of all obligations arising thereunder.

§ 7.1.2 If the furnishing of such bonds is stipulated in the Bidding Documents, the cost shall be included in the Bid. If the furnishing of such bonds is required after receipt of bids and before execution of the Contract, the cost of such bonds shall be added to the Bid in determining the Contract Sum.

§ 7.1.3 The Bidder shall provide surety bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 7.1.4 Unless otherwise indicated below, the Penal Sum of the Payment and Performance Bonds shall be the amount of the Contract Sum.

§ 7.2 Time of Delivery and Form of Bonds

§ 7.2.1 The Bidder shall deliver the required bonds to the Owner not later than three days following the date of execution of the Contract. If the Work is to commence sooner in response to a letter of intent, the Bidder shall, prior to commencement of the Work, submit evidence satisfactory to the Owner that such bonds will be furnished and delivered in accordance with this Section 7.2.1.

§ 7.2.2 Unless otherwise provided, the bonds shall be written on AIA Document A312, Performance Bond and Payment Bond.

§ 7.2.3 The bonds shall be dated on or after the date of the Contract.

§ 7.2.4 The Bidder shall require the attorney-in-fact who executes the required bonds on behalf of the surety to affix to the bond a certified and current copy of the power of attorney.

ARTICLE 8 ENUMERATION OF THE PROPOSED CONTRACT DOCUMENTS

§ 8.1 Copies of the proposed Contract Documents have been made available to the Bidder and consist of the following documents:

.1 AIA Document A101™–2017, Standard Form of Agreement Between Owner and Contractor, unless otherwise stated below.

.3 AIA Document A201™–2017, General Conditions of the Contract for Construction, unless otherwise stated below.

.5 Drawings

Title

Moscow City Shop Existing Shop TI

Date

June 22, 2026

.6 Specifications

Section	Title	Date	Pages
Project Manual		June 22, 2026	

.7 Addenda:

Number	Date	Pages
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.8 Other Exhibits:
(Check all boxes that apply and include appropriate information identifying the exhibit where required.)

☐ The Sustainability Plan:

☐ Supplementary and other Conditions of the Contract:

Document	Title	Date	Pages
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.9 Other documents listed below:
(List here any additional documents that are intended to form part of the Proposed Contract Documents.)

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address)

Moscow City Shop Existing Shop TI
650 North Van Buren Street
Moscow, ID 83843

THE OWNER:

(Name, legal status and address)

Bill J. Belknap
City Administrator
City of Moscow
206 East Third Street
Moscow, ID 83843

THE ARCHITECT:

(Name, legal status and address)

Lombard Conrad Architects, Inc.
472 West Washington Street
Boise, ID 83702

TABLE OF ARTICLES

- 1 GENERAL PROVISIONS**
- 2 OWNER**
- 3 CONTRACTOR**
- 4 ARCHITECT**
- 5 SUBCONTRACTORS**
- 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS**
- 7 CHANGES IN THE WORK**
- 8 TIME**
- 9 PAYMENTS AND COMPLETION**
- 10 PROTECTION OF PERSONS AND PROPERTY**
- 11 INSURANCE AND BONDS**
- 12 UNCOVERING AND CORRECTION OF WORK**

ADDITIONS AND DELETIONS:

The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

For guidance in modifying this document to include supplementary conditions, see AIA Document A503™–2017, Guide for Supplementary Conditions.

13 MISCELLANEOUS PROVISIONS

14 TERMINATION OR SUSPENSION OF THE CONTRACT

15 CLAIMS AND DISPUTES

INDEX

(Topics and numbers in bold are Section headings.)

Acceptance of Nonconforming Work

9.6.6, 9.9.3, **12.3**

Acceptance of Work

9.6.6, 9.8.2, 9.9.3, 9.10.1, 9.10.3, **12.3**

Access to Work

3.16, 6.2.1, **12.1**

Accident Prevention

10

Acts and Omissions

3.2, 3.3.2, 3.12.8, 3.18, 4.2.3, 8.3.1, 9.5.1, 10.2.5,
10.2.8, 13.3.2, 14.1, 15.1.2, **15.2**

Addenda

1.1.1

Additional Costs, Claims for

3.7.4, 3.7.5, 10.3.2, **15.1.5**

Additional Inspections and Testing

9.4.2, 9.8.3, **12.2.1**, **13.4**

Additional Time, Claims for

3.2.4, 3.7.4, 3.7.5, 3.10.2, 8.3.2, **15.1.6**

Administration of the Contract

3.1.3, **4.2**, 9.4, 9.5

Advertisement or Invitation to Bid

1.1.1

Aesthetic Effect

4.2.13

Allowances

3.8

Applications for Payment

4.2.5, 7.3.9, 9.2, **9.3**, 9.4, 9.5.1, 9.5.4, 9.6.3, 9.7, 9.10

Approvals

2.1.1, 2.3.1, 2.5, 3.1.3, 3.10.2, 3.12.8, 3.12.9,

3.12.10.1, 4.2.7, 9.3.2, **13.4.1**

Arbitration

8.3.1, **15.3.2**, **15.4**

ARCHITECT

4

Architect, Definition of

4.1.1

Architect, Extent of Authority

2.5, 3.12.7, 4.1.2, 4.2, 5.2, 6.3, 7.1.2, 7.3.4, 7.4, 9.2,
9.3.1, 9.4, 9.5, 9.6.3, 9.8, 9.10.1, 9.10.3, **12.1**, **12.2.1**,
13.4.1, **13.4.2**, **14.2.2**, **14.2.4**, **15.1.4**, **15.2.1**

Architect, Limitations of Authority and
Responsibility

2.1.1, 3.12.4, 3.12.8, 3.12.10, 4.1.2, 4.2.1, 4.2.2,
4.2.3, 4.2.6, 4.2.7, 4.2.10, 4.2.12, 4.2.13, 5.2.1, 7.4,
9.4.2, 9.5.4, 9.6.4, **15.1.4**, **15.2**

Architect's Additional Services and Expenses

2.5, **12.2.1**, **13.4.2**, **13.4.3**, **14.2.4**

Architect's Administration of the Contract

3.1.3, 3.7.4, **15.2**, 9.4.1, 9.5

Architect's Approvals

2.5, 3.1.3, 3.5, 3.10.2, 4.2.7

Architect's Authority to Reject Work

3.5, 4.2.6, **12.1.2**, **12.2.1**

Architect's Copyright

1.1.7, **1.5**

Architect's Decisions

3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 4.2.14, 6.3,
7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4.1, 9.5, 9.8.4, 9.9.1,
13.4.2, **15.2**

Architect's Inspections

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, **13.4**

Architect's Instructions

3.2.4, 3.3.1, 4.2.6, 4.2.7, **13.4.2**

Architect's Interpretations

4.2.11, 4.2.12

Architect's Project Representative

4.2.10

Architect's Relationship with Contractor

1.1.2, **1.5**, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2,
3.5, 3.7.4, 3.7.5, 3.9.2, 3.9.3, 3.10, 3.11, 3.12, 3.16,
3.18, 4.1.2, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5,
9.7, 9.8, 9.9, 10.2.6, 10.3, 11.3, 12, 13.3.2, **13.4**, **15.2**

Architect's Relationship with Subcontractors

1.1.2, 4.2.3, 4.2.4, 4.2.6, 9.6.3, 9.6.4, **11.3**

Architect's Representations

9.4.2, 9.5.1, 9.10.1

Architect's Site Visits

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, **13.4**

Asbestos

10.3.1

Attorneys' Fees

3.18.1, 9.6.8, 9.10.2, **10.3.3**

Award of Separate Contracts

6.1.1, 6.1.2

Award of Subcontracts and Other Contracts for Portions of the Work

5.2

Basic Definitions

1.1

Bidding Requirements

1.1.1

Binding Dispute Resolution

8.3.1, 9.7, 11.5, 13.1, 15.1.2, 15.1.3, 15.2.1, 15.2.5,
15.2.6.1, 15.3.1, 15.3.2, 15.3.3, **15.4.1**

Bonds, Lien

7.3.4.4, 9.6.8, 9.10.2, 9.10.3

Bonds, Performance, and Payment

7.3.4.4, 9.6.7, 9.10.3, **11.1.2**, 11.1.3, **11.5**

Building Information Models Use and Reliance

1.8

Building Permit

3.7.1

Capitalization

1.3

Certificate of Substantial Completion

9.8.3, 9.8.4, 9.8.5

Certificates for Payment

4.2.1, 4.2.5, 4.2.9, 9.3.3, **9.4**, 9.5, 9.6.1, 9.6.6, 9.7,
9.10.1, 9.10.3, 14.1.1.3, **14.2.4**, **15.1.4**

Certificates of Inspection, Testing or Approval
13.4.4

Certificates of Insurance

9.10.2

Change Orders

1.1.1, 3.4.2, 3.7.4, 3.8.2.3, 3.11, 3.12.8, 4.2.8, 5.2.3, 7.1.2, 7.1.3, **7.2**, 7.3.2, 7.3.7, 7.3.9, 7.3.10, 8.3.1, 9.3.1.1, 9.10.3, 10.3.2, 11.2, 11.5, 12.1.2

Change Orders, Definition of
7.2.1

CHANGES IN THE WORK

2.2.2, 3.11, 4.2.8, 7, 7.2.1, 7.3.1, 7.4, 8.3.1, 9.3.1.1, 11.5

Claims, Definition of
15.1.1

Claims, Notice of
1.6.2, 15.1.3

CLAIMS AND DISPUTES

3.2.4, 6.1.1, 6.3, 7.3.9, 9.3.3, 9.10.4, 10.3.3, **15**, 15.4
Claims and Timely Assertion of Claims
15.4.1

Claims for Additional Cost

3.2.4, 3.3.1, 3.7.4, 7.3.9, 9.5.2, 10.2.5, 10.3.2, **15.1.5**

Claims for Additional Time

3.2.4, 3.3.1, 3.7.4, 6.1.1, 8.3.2, 9.5.2, 10.3.2, **15.1.6**

Concealed or Unknown Conditions, Claims for
3.7.4

Claims for Damages

3.2.4, 3.18, 8.3.3, 9.5.1, 9.6.7, 10.2.5, 10.3.3, 11.3, 11.3.2, 14.2.4, 15.1.7

Claims Subject to Arbitration
15.4.1

Cleaning Up

3.15, 6.3

Commencement of the Work, Conditions Relating to
2.2.1, 3.2.2, 3.4.1, 3.7.1, 3.10.1, 3.12.6, 5.2.1, 5.2.3, 6.2.2, 8.1.2, 8.2.2, 8.3.1, 11.1, 11.2, **15.1.5**

Commencement of the Work, Definition of
8.1.2

Communications

3.9.1, **4.2.4**

Completion, Conditions Relating to

3.4.1, 3.11, 3.15, 4.2.2, 4.2.9, 8.2, 9.4.2, 9.8, 9.9.1, 9.10, 12.2, 14.1.2, 15.1.2

COMPLETION, PAYMENTS AND
9

Completion, Substantial

3.10.1, 4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, 9.8, 9.9.1, 9.10.3, 12.2, 15.1.2

Compliance with Laws

2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14.1.1, 14.2.1.3, 15.2.8, 15.4.2, 15.4.3

Concealed or Unknown Conditions

3.7.4, 4.2.8, 8.3.1, 10.3

Conditions of the Contract

1.1.1, 6.1.1, 6.1.4

Consent, Written

3.4.2, 3.14.2, 4.1.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3, 13.2, 15.4.4.2

Consolidation or Joinder
15.4.4

CONSTRUCTION BY OWNER OR BY
SEPARATE CONTRACTORS

1.1.4, **6**

Construction Change Directive, Definition of
7.3.1

Construction Change Directives

1.1.1, 3.4.2, 3.11, 3.12.8, 4.2.8, 7.1.1, 7.1.2, 7.1.3, **7.3**, 9.3.1.1

Construction Schedules, Contractor's

3.10, 3.11, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

Contingent Assignment of Subcontracts

5.4, 14.2.2.2

Continuing Contract Performance

15.1.4

Contract, Definition of

1.1.2

CONTRACT, TERMINATION OR
SUSPENSION OF THE

5.4.1.1, 5.4.2, 11.5, **14**

Contract Administration

3.1.3, 4, 9.4, 9.5

Contract Award and Execution, Conditions Relating to

3.7.1, 3.10, 5.2, 6.1

Contract Documents, Copies Furnished and Use of
1.5.2, 2.3.6, 5.3

Contract Documents, Definition of
1.1.1

Contract Sum

2.2.2, 2.2.4, 3.7.4, 3.7.5, 3.8, 3.10.2, 5.2.3, 7.3, 7.4, **9.1**, 9.2, 9.4.2, 9.5.1.4, 9.6.7, 9.7, 10.3.2, 11.5, 12.1.2, 12.3, 14.2.4, 14.3.2, 15.1.4.2, **15.1.5, 15.2.5**

Contract Sum, Definition of
9.1

Contract Time

1.1.4, 2.2.1, 2.2.2, 3.7.4, 3.7.5, 3.10.2, 5.2.3, 6.1.5, 7.2.1.3, 7.3.1, 7.3.5, 7.3.6, 7, 7, 7.3.10, 7.4, 8.1.1, 8.2.1, 8.2.3, 8.3.1, 9.5.1, 9.7, 10.3.2, 12.1.1, 12.1.2, 14.3.2, 15.1.4.2, 15.1.6.1, 15.2.5

Contract Time, Definition of
8.1.1

CONTRACTOR

3

Contractor, Definition of

3.1, 6.1.2

Contractor's Construction and Submittal
Schedules

3.10, 3.12.1, 3.12.2, 4.2.3, 6.1.3, 15.1.6.2

Contractor's Employees

2.2.4, 3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3, 11.3, 14.1, 14.2.1.1

Contractor's Liability Insurance

11.1

Contractor's Relationship with Separate Contractors and Owner's Forces

3.12.5, 3.14.2, 4.2.4, 6, 11.3, 12.2.4

Contractor's Relationship with Subcontractors

1.2.2, 2.2.4, 3.3.2, 3.18.1, 3.18.2, 4.2.4, 5, 9.6.2, 9.6.7, 9.10.2, 11.2, 11.3, 11.4

Contractor's Relationship with the Architect

1.1.2, 1.5, 2.3.3, 3.1.3, 3.2.2, 3.2.3, 3.2.4, 3.3.1, 3.4.2, 3.5.1, 3.7.4, 3.10, 3.11, 3.12, 3.16, 3.18, 4.2, 5.2, 6.2.2, 7, 8.3.1, 9.2, 9.3, 9.4, 9.5, 9.7, 9.8, 9.9, 10.2.6,

10.3, 11.3, 12, 13.4, 15.1.3, 15.2.1
 Contractor's Representations
 3.2.1, 3.2.2, 3.5, 3.12.6, 6.2.2, 8.2.1, 9.3.3, 9.8.2
 Contractor's Responsibility for Those Performing the Work
 3.3.2, 3.18, 5.3, 6.1.3, 6.2, 9.5.1, 10.2.8
 Contractor's Review of Contract Documents
 3.2
 Contractor's Right to Stop the Work
 2.2.2, 9.7
 Contractor's Right to Terminate the Contract
 14.1
 Contractor's Submittals
 3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 9.2, 9.3, 9.8.2, 9.8.3, 9.9.1, 9.10.2, 9.10.3
 Contractor's Superintendent
 3.9, 10.2.6
 Contractor's Supervision and Construction Procedures
 1.2.2, 3.3, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4, 7.1.3, 7.3.4, 7.3.6, 8.2, 10, 12, 14, 15.1.4
 Coordination and Correlation
 1.2, 3.2.1, 3.3.1, 3.10, 3.12.6, 6.1.3, 6.2.1
 Copies Furnished of Drawings and Specifications
 1.5, 2.3.6, 3.11
 Copyrights
 1.5, **3.17**
 Correction of Work
 2.5, 3.7.3, 9.4.2, 9.8.2, 9.8.3, 9.9.1, 12.1.2, **12.2**, 12.3, 15.1.3.1, 15.1.3.2, 15.2.1
Correlation and Intent of the Contract Documents
1.2
Cost, Definition of
7.3.4
 Costs
 2.5, 3.2.4, 3.7.3, 3.8.2, 3.15.2, 5.4.2, 6.1.1, 6.2.3, 7.3.3.3, 7.3.4, 7.3.8, 7.3.9, 9.10.2, 10.3.2, 10.3.6, 11.2, 12.1.2, 12.2.4, 13.4, 14
Cutting and Patching
3.14, 6.2.5
 Damage to Construction of Owner or Separate Contractors
 3.14.2, 6.2.4, 10.2.1.2, 10.2.5, 10.4, 12.2.4
 Damage to the Work
 3.14.2, 9.9.1, 10.2.1.2, 10.2.5, 10.4, 12.2.4
 Damages, Claims for
 3.2.4, 3.18, 6.1.1, 8.3.3, 9.5.1, 9.6.7, 10.3.3, 11.3.2, 11.3, 14.2.4, 15.1.7
 Damages for Delay
 6.2.3, 8.3.3, 9.5.1.6, 9.7, 10.3.2, 14.3.2
Date of Commencement of the Work, Definition of
8.1.2
Date of Substantial Completion, Definition of
8.1.3
Day, Definition of
8.1.4
 Decisions of the Architect
 3.7.4, 4.2.6, 4.2.7, 4.2.11, 4.2.12, 4.2.13, 6.3, 7.3.4, 7.3.9, 8.1.3, 8.3.1, 9.2, 9.4, 9.5.1, 9.8.4, 9.9.1, 13.4.2, 14.2.2, 14.2.4, 15.1, 15.2

Decisions to Withhold Certification

9.4.1, **9.5**, 9.7, 14.1.1.3

Defective or Nonconforming Work, Acceptance, Rejection and Correction of
 2.5, 3.5, 4.2.6, 6.2.3, 9.5.1, 9.5.3, 9.6.6, 9.8.2, 9.9.3, 9.10.4, 12.2.1

Definitions

1.1, 2.1.1, 3.1.1, 3.5, 3.12.1, 3.12.2, 3.12.3, 4.1.1, 5.1, 6.1.2, 7.2.1, 7.3.1, 8.1, 9.1, 9.8.1, 15.1.1

Delays and Extensions of Time

3.2, **3.7.4**, 5.2.3, 7.2.1, 7.3.1, **7.4**, **8.3**, 9.5.1, **9.7**, 10.3.2, **10.4**, 14.3.2, **15.1.6**, 15.2.5

Digital Data Use and Transmission

1.7

Disputes

6.3, 7.3.9, 15.1, 15.2

Documents and Samples at the Site

3.11

Drawings, Definition of

1.1.5

Drawings and Specifications, Use and Ownership of
 3.11

Effective Date of Insurance

8.2.2

Emergencies

10.4, 14.1.1.2, **15.1.5**

Employees, Contractor's

3.3.2, 3.4.3, 3.8.1, 3.9, 3.18.2, 4.2.3, 4.2.6, 10.2, 10.3.3, 11.3, 14.1, 14.2.1.1

Equipment, Labor, or Materials

1.1.3, 1.1.6, 3.4, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1, 4.2.6, 4.2.7, 5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1, 10.2.4, 14.2.1.1, 14.2.1.2

Execution and Progress of the Work

1.1.3, 1.2.1, 1.2.2, 2.3.4, 2.3.6, 3.1, 3.3.1, 3.4.1, 3.7.1, 3.10.1, 3.12, 3.14, 4.2, 6.2.2, 7.1.3, 7.3.6, 8.2, 9.5.1, 9.9.1, 10.2, 10.3, 12.1, 12.2, 14.2, 14.3.1, 15.1.4

Extensions of Time

3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3, 7.4, 9.5.1, 9.7, 10.3.2, 10.4, 14.3, 15.1.6, **15.2.5**

Failure of Payment

9.5.1.3, **9.7**, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Faulty Work

(See Defective or Nonconforming Work)

Final Completion and Final Payment

4.2.1, 4.2.9, 9.8.2, **9.10**, 12.3, 14.2.4, 14.4.3

Financial Arrangements, Owner's

2.2.1, 13.2.2, 14.1.1.4

GENERAL PROVISIONS

1

Governing Law

13.1

Guarantees (See Warranty)

Hazardous Materials and Substances

10.2.4, **10.3**

Identification of Subcontractors and Suppliers

5.2.1

Indemnification

3.17, **3.18**, 9.6.8, 9.10.2, 10.3.3, 11.3

Information and Services Required of the Owner

2.1.2, **2.2**, 2.3, 3.2.2, 3.12.10.1, 6.1.3, 6.1.4, 6.2.5, 9.6.1, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4

Initial Decision

15.2

Initial Decision Maker, Definition of

1.1.8

Initial Decision Maker, Decisions

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Initial Decision Maker, Extent of Authority

14.2.4, 15.1.4.2, 15.2.1, 15.2.2, 15.2.3, 15.2.4, 15.2.5

Injury or Damage to Person or Property

10.2.8, 10.4

Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3,

9.9.2, 9.10.1, 12.2.1, 13.4

Instructions to Bidders

1.1.1

Instructions to the Contractor

3.2.4, 3.3.1, 3.8.1, 5.2.1, 7, 8.2.2, 12, 13.4.2

Instruments of Service, Definition of

1.1.7

Insurance

6.1.1, 7.3.4, 8.2.2, 9.3.2, 9.8.4, 9.9.1, 9.10.2, 10.2.5,

11

Insurance, Notice of Cancellation or Expiration

11.1.4, 11.2.3

Insurance, Contractor's Liability

11.1

Insurance, Effective Date of

8.2.2, 14.4.2

Insurance, Owner's Liability

11.2

Insurance, Property

10.2.5, 11.2, 11.4, 11.5

Insurance, Stored Materials

9.3.2

INSURANCE AND BONDS

11

Insurance Companies, Consent to Partial Occupancy

9.9.1

Insured loss, Adjustment and Settlement of

11.5

Intent of the Contract Documents

1.2.1, 4.2.7, 4.2.12, 4.2.13

Interest

13.5

Interpretation

1.1.8, 1.2.3, **1.4**, 4.1.1, 5.1, 6.1.2, 15.1.1

Interpretations, Written

4.2.11, 4.2.12

Judgment on Final Award

15.4.2

Labor and Materials, Equipment

1.1.3, 1.1.6, **3.4**, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2, 10.2.1,

10.2.4, 14.2.1.1, 14.2.1.2

Labor Disputes

8.3.1

Laws and Regulations

1.5, 2.3.2, 3.2.3, 3.2.4, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3.1, 13.4.2, 13.5, 14, 15.2.8, 15.4

Liens

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Limitations, Statutes of

12.2.5, 15.1.2, 15.4.1.1

Limitations of Liability

3.2.2, 3.5, 3.12.10, 3.12.10.1, 3.17, 3.18.1, 4.2.6,

4.2.7, 6.2.2, 9.4.2, 9.6.4, 9.6.7, 9.6.8, 10.2.5, 10.3.3,

11.3, 12.2.5, 13.3.1

Limitations of Time

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2.7,

5.2, 5.3, 5.4.1, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3,

9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15,

15.1.2, 15.1.3, 15.1.5

Materials, Hazardous

10.2.4, 10.3

Materials, Labor, Equipment and

1.1.3, 1.1.6, 3.4.1, 3.5, 3.8.2, 3.8.3, 3.12, 3.13, 3.15.1,

5.2.1, 6.2.1, 7.3.4, 9.3.2, 9.3.3, 9.5.1.3, 9.10.2,

10.2.1.2, 10.2.4, 14.2.1.1, 14.2.1.2

Means, Methods, Techniques, Sequences and

Procedures of Construction

3.3.1, 3.12.10, 4.2.2, 4.2.7, 9.4.2

Mechanic's Lien

2.1.2, 9.3.1, 9.3.3, 9.6.8, 9.10.2, 9.10.4, 15.2.8

Mediation

8.3.1, 15.1.3.2, 15.2.1, 15.2.5, 15.2.6, **15.3**, 15.4.1,

15.4.1.1

Minor Changes in the Work

1.1.1, 3.4.2, 3.12.8, 4.2.8, 7.1, 7.4

MISCELLANEOUS PROVISIONS

13

Modifications, Definition of

1.1.1

Modifications to the Contract

1.1.1, 1.1.2, 2.5, 3.11, 4.1.2, 4.2.1, 5.2.3, 7, 8.3.1, 9.7,

10.3.2

Mutual Responsibility

6.2

Nonconforming Work, Acceptance of

9.6.6, 9.9.3, **12.3**

Nonconforming Work, Rejection and Correction of

2.4, 2.5, 3.5, 4.2.6, 6.2.4, 9.5.1, 9.8.2, 9.9.3, 9.10.4,

12.2

Notice

1.6, 1.6.1, 1.6.2, 2.1.2, 2.2.2., 2.2.3, 2.2.4, 2.5, 3.2.4,

3.3.1, 3.7.4, 3.7.5, 3.9.2, 3.12.9, 3.12.10, 5.2.1, 7.4,

8.2.2, 9.6.8, 9.7, 9.10.1, 10.2.8, 10.3.2, 11.5, 12.2.2.1,

13.4.1, 13.4.2, 14.1, 14.2.2, 14.4.2, 15.1.3, 15.1.5,

15.1.6, 15.4.1

Notice of Cancellation or Expiration of Insurance

11.1.4, 11.2.3

Notice of Claims

1.6.2, 2.1.2, 3.7.4, 9.6.8, 10.2.8, **15.1.3**, 15.1.5,

15.1.6, 15.2.8, 15.3.2, 15.4.1

Notice of Testing and Inspections

13.4.1, 13.4.2

Observations, Contractor's

3.2, 3.7.4
Occupancy
2.3.1, 9.6.6, 9.8
Orders, Written
1.1.1, 2.4, 3.9.2, 7, 8.2.2, 11.5, 12.1, 12.2.2.1, 13.4.2, 14.3.1

OWNER

2

Owner, Definition of

2.1.1

Owner, Evidence of Financial Arrangements

2.2, 13.2.2, 14.1.1.4

Owner, Information and Services Required of the

2.1.2, 2.2, 2.3, 3.2.2, 3.12.10, 6.1.3, 6.1.4, 6.2.5, 9.3.2, 9.6.1, 9.6.4, 9.9.2, 9.10.3, 10.3.3, 11.2, 13.4.1, 13.4.2, 14.1.1.4, 14.1.4, 15.1.4

Owner's Authority

1.5, 2.1.1, 2.3.32.4, 2.5, 3.4.2, 3.8.1, 3.12.10, 3.14.2, 4.1.2, 4.2.4, 4.2.9, 5.2.1, 5.2.4, 5.4.1, 6.1, 6.3, 7.2.1, 7.3.1, 8.2.2, 8.3.1, 9.3.2, 9.5.1, 9.6.4, 9.9.1, 9.10.2, 10.3.2, 11.4, 11.5, 12.2.2, 12.3, 13.2.2, 14.3, 14.4, 15.2.7

Owner's Insurance

11.2

Owner's Relationship with Subcontractors

1.1.2, 5.2, 5.3, 5.4, 9.6.4, 9.10.2, 14.2.2

Owner's Right to Carry Out the Work

2.5, 14.2.2

Owner's Right to Clean Up

6.3

Owner's Right to Perform Construction and to Award Separate Contracts

6.1

Owner's Right to Stop the Work

2.4

Owner's Right to Suspend the Work

14.3

Owner's Right to Terminate the Contract

14.2, 14.4

Ownership and Use of Drawings, Specifications and Other Instruments of Service

1.1.1, 1.1.6, 1.1.7, 1.5, 2.3.6, 3.2.2, 3.11, 3.17, 4.2.12, 5.3

Partial Occupancy or Use

9.6.6, 9.9

Patching, Cutting and

3.14, 6.2.5

Patents

3.17

Payment, Applications for

4.2.5, 7.3.9, 9.2, 9.3, 9.4, 9.5, 9.6.3, 9.7, 9.8.5, 9.10.1, 14.2.3, 14.2.4, 14.4.3

Payment, Certificates for

4.2.5, 4.2.9, 9.3.3, 9.4, 9.5, 9.6.1, 9.6.6, 9.7, 9.10.1, 9.10.3, 14.1.1.3, 14.2.4

Payment, Failure of

9.5.1.3, 9.7, 9.10.2, 13.5, 14.1.1.3, 14.2.1.2

Payment, Final

4.2.1, 4.2.9, 9.10, 12.3, 14.2.4, 14.4.3

Payment Bond, Performance Bond and

7.3.4.4, 9.6.7, 9.10.3, 11.1.2

Payments, Progress

9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4

PAYMENTS AND COMPLETION

9

Payments to Subcontractors

5.4.2, 9.5.1.3, 9.6.2, 9.6.3, 9.6.4, 9.6.7, 14.2.1.2

PCB

10.3.1

Performance Bond and Payment Bond

7.3.4.4, 9.6.7, 9.10.3, 11.1.2

Permits, Fees, Notices and Compliance with Laws

2.3.1, 3.7, 3.13, 7.3.4.4, 10.2.2

PERSONS AND PROPERTY, PROTECTION OF

10

Polychlorinated Biphenyl

10.3.1

Product Data, Definition of

3.12.2

Product Data and Samples, Shop Drawings

3.11, 3.12, 4.2.7

Progress and Completion

4.2.2, 8.2, 9.8, 9.9.1, 14.1.4, 15.1.4

Progress Payments

9.3, 9.6, 9.8.5, 9.10.3, 14.2.3, 15.1.4

Project, Definition of

1.1.4

Project Representatives

4.2.10

Property Insurance

10.2.5, 11.2

Proposal Requirements

1.1.1

PROTECTION OF PERSONS AND PROPERTY

10

Regulations and Laws

1.5, 2.3.2, 3.2.3, 3.6, 3.7, 3.12.10, 3.13, 9.6.4, 9.9.1, 10.2.2, 13.1, 13.3, 13.4.1, 13.4.2, 13.5, 14, 15.2.8, 15.4

Rejection of Work

4.2.6, 12.2.1

Releases and Waivers of Liens

9.3.1, 9.10.2

Representations

3.2.1, 3.5, 3.12.6, 8.2.1, 9.3.3, 9.4.2, 9.5.1, 9.10.1

Representatives

2.1.1, 3.1.1, 3.9, 4.1.1, 4.2.10, 13.2.1

Responsibility for Those Performing the Work

3.3.2, 3.18, 4.2.2, 4.2.3, 5.3, 6.1.3, 6.2, 6.3, 9.5.1, 10

Retainage

9.3.1, 9.6.2, 9.8.5, 9.9.1, 9.10.2, 9.10.3

Review of Contract Documents and Field Conditions by Contractor

3.2, 3.12.7, 6.1.3

Review of Contractor's Submittals by Owner and Architect

3.10.1, 3.10.2, 3.11, 3.12, 4.2, 5.2, 6.1.3, 9.2, 9.8.2

Review of Shop Drawings, Product Data and

Samples by Contractor

3.12

Rights and Remedies

1.1.2, 2.4, 2.5, 3.5, 3.7.4, 3.15.2, 4.2.6, 5.3, 5.4, 6.1, 6.3, 7.3.1, 8.3, 9.5.1, 9.7, 10.2.5, 10.3, 12.2.1, 12.2.2, 12.2.4, **13.3**, 14, 15.4

Royalties, Patents and Copyrights

3.17

Rules and Notices for Arbitration

15.4.1

Safety of Persons and Property

10.2, 10.4

Safety Precautions and Programs

3.3.1, 4.2.2, 4.2.7, 5.3, **10.1**, 10.2, 10.4

Samples, Definition of

3.12.3

Samples, Shop Drawings, Product Data and

3.11, **3.12**, 4.2.7

Samples at the Site, Documents and

3.11

Schedule of Values

9.2, 9.3.1

Schedules, Construction

3.10, 3.12.1, 3.12.2, 6.1.3, 15.1.6.2

Separate Contracts and Contractors

1.1.4, 3.12.5, 3.14.2, 4.2.4, 4.2.7, 6, 8.3.1, 12.1.2

Separate Contractors, Definition of

6.1.1

Shop Drawings, Definition of

3.12.1

Shop Drawings, Product Data and Samples

3.11, **3.12**, 4.2.7

Site, Use of

3.13, 6.1.1, 6.2.1

Site Inspections

3.2.2, 3.3.3, 3.7.1, 3.7.4, 4.2, 9.9.2, 9.4.2, 9.10.1, 13.4

Site Visits, Architect's

3.7.4, 4.2.2, 4.2.9, 9.4.2, 9.5.1, 9.9.2, 9.10.1, 13.4

Special Inspections and Testing

4.2.6, 12.2.1, 13.4

Specifications, Definition of

1.1.6

Specifications

1.1.1, **1.1.6**, 1.2.2, 1.5, 3.12.10, 3.17, 4.2.14

Statute of Limitations

15.1.2, 15.4.1.1

Stopping the Work

2.2.2, 2.4, 9.7, 10.3, 14.1

Stored Materials

6.2.1, 9.3.2, 10.2.1.2, 10.2.4

Subcontractor, Definition of

5.1.1

SUBCONTRACTORS

5

Subcontractors, Work by

1.2.2, 3.3.2, 3.12.1, 3.18, 4.2.3, 5.2.3, 5.3, 5.4,

9.3.1.2, 9.6.7

Subcontractual Relations

5.3, 5.4, 9.3.1.2, 9.6, 9.10, 10.2.1, 14.1, 14.2.1

Submittals

3.10, 3.11, 3.12, 4.2.7, 5.2.1, 5.2.3, 7.3.4, 9.2, 9.3, 9.8, 9.9.1, 9.10.2, 9.10.3

Submittal Schedule

3.10.2, 3.12.5, 4.2.7

Subrogation, Waivers of

6.1.1, **11.3**

Substances, Hazardous

10.3

Substantial Completion

4.2.9, 8.1.1, 8.1.3, 8.2.3, 9.4.2, **9.8**, 9.9.1, 9.10.3, 12.2, 15.1.2

Substantial Completion, Definition of

9.8.1

Substitution of Subcontractors

5.2.3, 5.2.4

Substitution of Architect

2.3.3

Substitutions of Materials

3.4.2, 3.5, 7.3.8

Sub-subcontractor, Definition of

5.1.2

Subsurface Conditions

3.7.4

Successors and Assigns

13.2

Superintendent

3.9, 10.2.6

Supervision and Construction Procedures

1.2.2, **3.3**, 3.4, 3.12.10, 4.2.2, 4.2.7, 6.1.3, 6.2.4,

7.1.3, 7.3.4, 8.2, 8.3.1, 9.4.2, 10, 12, 14, 15.1.4

Suppliers

1.5, 3.12.1, 4.2.4, 4.2.6, 5.2.1, 9.3, 9.4.2, 9.5.4, 9.6, 9.10.5, 14.2.1

Surety

5.4.1.2, 9.6.8, 9.8.5, 9.10.2, 9.10.3, 11.1.2, 14.2.2, 15.2.7

Surety, Consent of

9.8.5, 9.10.2, 9.10.3

Surveys

1.1.7, 2.3.4

Suspension by the Owner for Convenience

14.3

Suspension of the Work

3.7.5, 5.4.2, 14.3

Suspension or Termination of the Contract

5.4.1.1, 14

Taxes

3.6, 3.8.2.1, 7.3.4.4

Termination by the Contractor

14.1, 15.1.7

Termination by the Owner for Cause

5.4.1.1, **14.2**, 15.1.7

Termination by the Owner for Convenience

14.4

Termination of the Architect

2.3.3

Termination of the Contractor Employment

14.2.2

TERMINATION OR SUSPENSION OF THE CONTRACT

14

Tests and Inspections

3.1.3, 3.3.3, 3.7.1, 4.2.2, 4.2.6, 4.2.9, 9.4.2, 9.8.3, 9.9.2, 9.10.1, 10.3.2, 12.2.1, **13.4**

TIME

8

Time, Delays and Extensions of

3.2.4, 3.7.4, 5.2.3, 7.2.1, 7.3.1, 7.4, **8.3**, 9.5.1, 9.7, 10.3.2, 10.4, 14.3.2, 15.1.6, 15.2.5

Time Limits

2.1.2, 2.2, 2.5, 3.2.2, 3.10, 3.11, 3.12.5, 3.15.1, 4.2, 5.2, 5.3, 5.4, 6.2.4, 7.3, 7.4, 8.2, 9.2, 9.3.1, 9.3.3, 9.4.1, 9.5, 9.6, 9.7, 9.8, 9.9, 9.10, 12.2, 13.4, 14, 15.1.2, 15.1.3, 15.4

Time Limits on Claims

3.7.4, 10.2.8, 15.1.2, 15.1.3

Title to Work

9.3.2, 9.3.3

UNCOVERING AND CORRECTION OF WORK

12

Uncovering of Work

12.1

Unforeseen Conditions, Concealed or Unknown

3.7.4, 8.3.1, 10.3

Unit Prices

7.3.3.2, 9.1.2

Use of Documents

1.1.1, 1.5, 2.3.6, 3.12.6, 5.3

Use of Site

3.13, 6.1.1, 6.2.1

Values, Schedule of

9.2, 9.3.1

Waiver of Claims by the Architect

13.3.2

Waiver of Claims by the Contractor

9.10.5, 13.3.2, **15.1.7**

Waiver of Claims by the Owner

9.9.3, 9.10.3, 9.10.4, 12.2.2.1, 13.3.2, 14.2.4, **15.1.7**

Waiver of Consequential Damages

14.2.4, 15.1.7

Waiver of Liens

9.3, 9.10.2, 9.10.4

Waivers of Subrogation

6.1.1, **11.3**

Warranty

3.5, 4.2.9, 9.3.3, 9.8.4, 9.9.1, 9.10.2, 9.10.4, 12.2.2, 15.1.2

Weather Delays

8.3, 15.1.6.2

Work, Definition of

1.1.3

Written Consent

1.5.2, 3.4.2, 3.7.4, 3.12.8, 3.14.2, 4.1.2, 9.3.2, 9.10.3, 13.2, 13.3.2, 15.4.4.2

Written Interpretations

4.2.11, 4.2.12

Written Orders

1.1.1, 2.4, 3.9, 7, 8.2.2, 12.1, 12.2, 13.4.2, 14.3.1

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 Basic Definitions

§ 1.1.1 The Contract Documents

The Contract Documents are enumerated in the Agreement between the Owner and Contractor (hereinafter the Agreement) and consist of the Agreement, Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, Addenda issued prior to execution of the Contract, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is (1) a written amendment to the Contract signed by both parties, (2) a Change Order, (3) a Construction Change Directive, or (4) a written order for a minor change in the Work issued by the Architect. Unless specifically enumerated in the Agreement, the Contract Documents do not include the advertisement or invitation to bid, Instructions to Bidders, sample forms, other information furnished by the Owner in anticipation of receiving bids or proposals, the Contractor's bid or proposal, or portions of Addenda relating to bidding or proposal requirements.

§ 1.1.2 The Contract

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Contractor and the Architect or the Architect's consultants, (2) between the Owner and a Subcontractor or a Sub-subcontractor, (3) between the Owner and the Architect or the Architect's consultants, or (4) between any persons or entities other than the Owner and the Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

§ 1.1.3 The Work

The term "Work" means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment, and services provided or to be provided by the Contractor to fulfill the Contractor's obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 The Project

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner and by Separate Contractors.

§ 1.1.5 The Drawings

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules, and diagrams.

§ 1.1.6 The Specifications

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services.

§ 1.1.7 Instruments of Service

Instruments of Service are representations, in any medium of expression now known or later developed, of the tangible and intangible creative work performed by the Architect and the Architect's consultants under their respective professional services agreements. Instruments of Service may include, without limitation, studies, surveys, models, sketches, drawings, specifications, and other similar materials.

§ 1.1.8 Initial Decision Maker

The Initial Decision Maker is the person identified in the Agreement to render initial decisions on Claims in accordance with Section 15.2. The Initial Decision Maker shall not show partiality to the Owner or Contractor and shall not be liable for results of interpretations or decisions rendered in good faith.

§ 1.2 Correlation and Intent of the Contract Documents

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

§ 1.2.1.1 The invalidity of any provision of the Contract Documents shall not invalidate the Contract or its remaining provisions. If it is determined that any provision of the Contract Documents violates any law, or is otherwise invalid or unenforceable, then that provision shall be revised to the extent necessary to make that provision legal and enforceable. In such case the Contract Documents shall be construed, to the fullest extent permitted by law, to give effect to the parties' intentions and purposes in executing the Contract.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words that have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.3 Capitalization

Terms capitalized in these General Conditions include those that are (1) specifically defined, (2) the titles of numbered articles, or (3) the titles of other documents published by the American Institute of Architects.

§ 1.4 Interpretation

In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 Ownership and Use of Drawings, Specifications, and Other Instruments of Service

§ 1.5.1 The Architect and the Architect's consultants shall be deemed the authors and owners of their respective Instruments of Service, including the Drawings and Specifications, and retain all common law, statutory, and other reserved rights in their Instruments of Service, including copyrights. The Contractor, Subcontractors, Sub-subcontractors, and suppliers shall not own or claim a copyright in the Instruments of Service. Submittal or distribution to meet official regulatory requirements or for other purposes in connection with the Project is not to be construed as publication in derogation of the Architect's or Architect's consultants' reserved rights.

§ 1.5.2 The Contractor, Subcontractors, Sub-subcontractors, and suppliers are authorized to use and reproduce the Instruments of Service provided to them, subject to any protocols established pursuant to Sections 1.7 and 1.8, solely and exclusively for execution of the Work. All copies made under this authorization shall bear the copyright notice, if any, shown on the Instruments of Service. The Contractor, Subcontractors, Sub-subcontractors, and suppliers may not use the Instruments of Service on other projects or for additions to the Project outside the scope of the Work without the specific written consent of the Owner, Architect, and the Architect's consultants.

§ 1.6 Notice

§ 1.6.1 Except as otherwise provided in Section 1.6.2, where the Contract Documents require one party to notify or give notice to the other party, such notice shall be provided in writing to the designated representative of the party to whom the notice is addressed and shall be deemed to have been duly served if delivered in person, by mail, by courier, or by electronic transmission if a method for electronic transmission is set forth in the Agreement.

§ 1.6.2 Notice of Claims as provided in Section 15.1.3 shall be provided in writing and shall be deemed to have been duly served only if delivered to the designated representative of the party to whom the notice is addressed by certified or registered mail, or by courier providing proof of delivery.

§ 1.7 Digital Data Use and Transmission

The parties shall agree upon written protocols governing the transmission and use of, and reliance on, Instruments of Service or any other information or documentation in digital form.

§ 1.8 Building Information Models Use and Reliance

Any use of, or reliance on, all or a portion of a building information model without agreement to written protocols governing the use of, and reliance on, the information contained in the model shall be at the using or relying party's sole risk and without liability to the other party and its contractors or consultants, the authors of, or contributors to, the building information model, and each of their agents and employees.

ARTICLE 2 OWNER

§ 2.1 General

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner shall designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. Except as otherwise provided in Section 4.2.1, the Architect does not have such authority. The term "Owner" means the Owner or the Owner's authorized representative.

§ 2.1.2 The Owner shall furnish to the Contractor, within fifteen days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of, or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the site, and the Owner's interest therein.

§ 2.2 Evidence of the Owner's Financial Arrangements

§ 2.2.1 Prior to commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract. The Contractor shall have no obligation to commence the Work until the Owner provides such evidence. If commencement of the Work is delayed under this Section 2.2.1, the Contract Time shall be extended appropriately.

§ 2.2.2 Following commencement of the Work and upon written request by the Contractor, the Owner shall furnish to the Contractor reasonable evidence that the Owner has made financial arrangements to fulfill the Owner's obligations under the Contract only if (1) the Owner fails to make payments to the Contractor as the Contract Documents require; (2) the Contractor identifies in writing a reasonable concern regarding the Owner's ability to make payment when due; or (3) a change in the Work materially changes the Contract Sum. If the Owner fails to provide such evidence, as required, within fourteen days of the Contractor's request, the Contractor may immediately stop the Work and, in that event, shall notify the Owner that the Work has stopped. However, if the request is made because a change in the Work materially changes the Contract Sum under (3) above, the Contractor may immediately stop only that portion of the Work affected by the change until reasonable evidence is provided. If the Work is stopped under this Section 2.2.2, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided in the Contract Documents.

§ 2.2.3 After the Owner furnishes evidence of financial arrangements under this Section 2.2, the Owner shall not materially vary such financial arrangements without prior notice to the Contractor.

§ 2.2.4 Where the Owner has designated information furnished under this Section 2.2 as "confidential," the Contractor shall keep the information confidential and shall not disclose it to any other person. However, the Contractor may disclose "confidential" information, after seven (7) days' notice to the Owner, where disclosure is required by law, including a subpoena or other form of compulsory legal process issued by a court or governmental entity, or by court or arbitrator(s) order. The Contractor may also disclose "confidential" information to its employees, consultants, sureties, Subcontractors and their employees, Sub-subcontractors, and others who need to know the content of such information solely and exclusively for the Project and who agree to maintain the confidentiality of such information.

§ 2.3 Information and Services Required of the Owner

§ 2.3.1 Except for permits and fees that are the responsibility of the Contractor under the Contract Documents, including those required under Section 3.7.1, the Owner shall secure and pay for necessary approvals, easements, assessments and charges required for construction, use or occupancy of permanent structures or for permanent changes in existing facilities.

§ 2.3.2 The Owner shall retain an architect lawfully licensed to practice architecture, or an entity lawfully practicing architecture, in the jurisdiction where the Project is located. That person or entity is identified as the Architect in the Agreement and is referred to throughout the Contract Documents as if singular in number.

§ 2.3.3 If the employment of the Architect terminates, the Owner shall employ a successor to whom the Contractor has no reasonable objection and whose status under the Contract Documents shall be that of the Architect.

§ 2.3.4 The Owner shall furnish surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a legal description of the site. The Contractor shall be entitled to rely on the accuracy of information furnished by the Owner but shall exercise proper precautions relating to the safe performance of the Work.

§ 2.3.5 The Owner shall furnish information or services required of the Owner by the Contract Documents with reasonable promptness. The Owner shall also furnish any other information or services under the Owner's control and relevant to the Contractor's performance of the Work with reasonable promptness after receiving the Contractor's written request for such information or services.

§ 2.3.6 Unless otherwise provided in the Contract Documents, the Owner shall furnish to the Contractor one copy of the Contract Documents for purposes of making reproductions pursuant to Section 1.5.2.

§ 2.4 Owner's Right to Stop the Work

If the Contractor fails to correct Work that is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or repeatedly fails to carry out Work in accordance with the Contract Documents, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity, except to the extent required by Section 6.1.3.

§ 2.5 Owner's Right to Carry Out the Work

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a ten-day period after receipt of notice from the Owner to commence and continue correction of such default or neglect with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such default or neglect. Such action by the Owner and amounts charged to the Contractor are both subject to prior approval of the Architect and the Architect may, pursuant to Section 9.5.1, withhold or nullify a Certificate for Payment in whole or in part, to the extent reasonably necessary to reimburse the Owner for the reasonable cost of correcting such deficiencies, including Owner's expenses and compensation for the Architect's additional services made necessary by such default, neglect, or failure. If current and future payments are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner. If the Contractor disagrees with the actions of the Owner or the Architect, or the amounts claimed as costs to the Owner, the Contractor may file a Claim pursuant to Article 15.

ARTICLE 3 CONTRACTOR

§ 3.1 General

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Contractor shall be lawfully licensed, if required in the jurisdiction where the Project is located. The Contractor shall designate in writing a representative who shall have express authority to bind the Contractor with respect to all matters under this Contract. The term "Contractor" means the Contractor or the Contractor's authorized representative.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents.

§ 3.1.3 The Contractor shall not be relieved of its obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons or entities other than the Contractor.

§ 3.2 Review of Contract Documents and Field Conditions by Contractor

§ 3.2.1 Execution of the Contract by the Contractor is a representation that the Contractor has visited the site, become generally familiar with local conditions under which the Work is to be performed, and correlated personal observations with requirements of the Contract Documents.

§ 3.2.2 Because the Contract Documents are complementary, the Contractor shall, before starting each portion of the Work, carefully study and compare the various Contract Documents relative to that portion of the Work, as well as the information furnished by the Owner pursuant to Section 2.3.4, shall take field measurements of any existing conditions related to that portion of the Work, and shall observe any conditions at the site affecting it. These obligations are for the purpose of facilitating coordination and construction by the Contractor and are not for the purpose of discovering errors, omissions, or inconsistencies in the Contract Documents; however, the Contractor shall promptly report to the Architect any errors, inconsistencies or omissions discovered by or made known to the Contractor as a request for information in such form as the Architect may require. It is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional, unless otherwise specifically provided in the Contract Documents.

§ 3.2.3 The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, but the Contractor shall promptly report to the Architect any nonconformity discovered by or made known to the Contractor as a request for information in such form as the Architect may require.

§ 3.2.4 If the Contractor believes that additional cost or time is involved because of clarifications or instructions the Architect issues in response to the Contractor's notices or requests for information pursuant to Sections 3.2.2 or 3.2.3, the Contractor shall submit Claims as provided in Article 15. If the Contractor fails to perform the obligations of Sections 3.2.2 or 3.2.3, the Contractor shall pay such costs and damages to the Owner, subject to Section 15.1.7, as would have been avoided if the Contractor had performed such obligations. If the Contractor performs those obligations, the Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents, for differences between field measurements or conditions and the Contract Documents, or for nonconformities of the Contract Documents to applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities.

§ 3.3 Supervision and Construction Procedures

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for, and have control over, construction means, methods, techniques, sequences, and procedures, and for coordinating all portions of the Work under the Contract. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences, or procedures, the Contractor shall evaluate the jobsite safety thereof and shall be solely responsible for the jobsite safety of such means, methods, techniques, sequences, or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely notice to the Owner and Architect, and shall propose alternative means, methods, techniques, sequences, or procedures. The Architect shall evaluate the proposed alternative solely for conformance with the design intent for the completed construction. Unless the Architect objects to the Contractor's proposed alternative, the Contractor shall perform the Work using its alternative means, methods, techniques, sequences, or procedures.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for, or on behalf of, the Contractor or any of its Subcontractors.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 Labor and Materials

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

§ 3.4.2 Except in the case of minor changes in the Work approved by the Architect in accordance with Section 3.12.8 or ordered by the Architect in accordance with Section 7.4, the Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order or Construction Change Directive.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Work. The Contractor shall not permit employment of unfit persons or persons not properly skilled in tasks assigned to them.

§ 3.5 Warranty

§ 3.5.1 The Contractor warrants to the Owner and Architect that materials and equipment furnished under the Contract will be of good quality and new unless the Contract Documents require or permit otherwise. The Contractor further warrants that the Work will conform to the requirements of the Contract Documents and will be free from defects, except for those inherent in the quality of the Work the Contract Documents require or permit. Work, materials, or equipment not conforming to these requirements may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, alterations to the Work not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, the Contractor shall furnish

satisfactory evidence as to the kind and quality of materials and equipment.

§ 3.5.2 All material, equipment, or other special warranties required by the Contract Documents shall be issued in the name of the Owner, or shall be transferable to the Owner, and shall commence in accordance with Section 9.8.4.

§ 3.6 Taxes

The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor that are legally enacted when bids are received or negotiations concluded, whether or not yet effective or merely scheduled to go into effect.

§ 3.7 Permits, Fees, Notices and Compliance with Laws

§ 3.7.1 Unless otherwise provided in the Contract Documents, the Contractor shall secure and pay for the building permit as well as for other permits, fees, licenses, and inspections by government agencies necessary for proper execution and completion of the Work that are customarily secured after execution of the Contract and legally required at the time bids are received or negotiations concluded.

§ 3.7.2 The Contractor shall comply with and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities applicable to performance of the Work.

§ 3.7.3 If the Contractor performs Work knowing it to be contrary to applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of public authorities, the Contractor shall assume appropriate responsibility for such Work and shall bear the costs attributable to correction.

§ 3.7.4 Concealed or Unknown Conditions

If the Contractor encounters conditions at the site that are (1) subsurface or otherwise concealed physical conditions that differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature that differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, the Contractor shall promptly provide notice to the Owner and the Architect before conditions are disturbed and in no event later than 14 days after first observance of the conditions. The Architect will promptly investigate such conditions and, if the Architect determines that they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend that an equitable adjustment be made in the Contract Sum or Contract Time, or both. If the Architect determines that the conditions at the site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Architect shall promptly notify the Owner and Contractor, stating the reasons. If either party disputes the Architect's determination or recommendation, that party may submit a Claim as provided in Article 15.

§ 3.7.5 If, in the course of the Work, the Contractor encounters human remains or recognizes the existence of burial markers, archaeological sites or wetlands not indicated in the Contract Documents, the Contractor shall immediately suspend any operations that would affect them and shall notify the Owner and Architect. Upon receipt of such notice, the Owner shall promptly take any action necessary to obtain governmental authorization required to resume the operations. The Contractor shall continue to suspend such operations until otherwise instructed by the Owner but shall continue with all other operations that do not affect those remains or features. Requests for adjustments in the Contract Sum and Contract Time arising from the existence of such remains or features may be made as provided in Article 15.

§ 3.8 Allowances

§ 3.8.1 The Contractor shall include in the Contract Sum all allowances stated in the Contract Documents. Items covered by allowances shall be supplied for such amounts and by such persons or entities as the Owner may direct, but the Contractor shall not be required to employ persons or entities to whom the Contractor has reasonable objection.

§ 3.8.2 Unless otherwise provided in the Contract Documents,

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the site, labor, installation costs, overhead, profit, and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances; and
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and

the allowances under Section 3.8.2.1 and (2) changes in Contractor's costs under Section 3.8.2.2.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner with reasonable promptness.

§ 3.9 Superintendent

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project site during performance of the Work. The superintendent shall represent the Contractor, and communications given to the superintendent shall be as binding as if given to the Contractor.

§ 3.9.2 The Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the name and qualifications of a proposed superintendent. Within 14 days of receipt of the information, the Architect may notify the Contractor, stating whether the Owner or the Architect (1) has reasonable objection to the proposed superintendent or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 3.9.3 The Contractor shall not employ a proposed superintendent to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not change the superintendent without the Owner's consent, which shall not unreasonably be withheld or delayed.

§ 3.10 Contractor's Construction and Submittal Schedules

§ 3.10.1 The Contractor, promptly after being awarded the Contract, shall submit for the Owner's and Architect's information a Contractor's construction schedule for the Work. The schedule shall contain detail appropriate for the Project, including (1) the date of commencement of the Work, interim schedule milestone dates, and the date of Substantial Completion; (2) an apportionment of the Work by construction activity; and (3) the time required for completion of each portion of the Work. The schedule shall provide for the orderly progression of the Work to completion and shall not exceed time limits current under the Contract Documents. The schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project.

§ 3.10.2 The Contractor, promptly after being awarded the Contract and thereafter as necessary to maintain a current submittal schedule, shall submit a submittal schedule for the Architect's approval. The Architect's approval shall not be unreasonably delayed or withheld. The submittal schedule shall (1) be coordinated with the Contractor's construction schedule, and (2) allow the Architect reasonable time to review submittals. If the Contractor fails to submit a submittal schedule, or fails to provide submittals in accordance with the approved submittal schedule, the Contractor shall not be entitled to any increase in Contract Sum or extension of Contract Time based on the time required for review of submittals.

§ 3.10.3 The Contractor shall perform the Work in general accordance with the most recent schedules submitted to the Owner and Architect.

§ 3.11 Documents and Samples at the Site

The Contractor shall make available, at the Project site, the Contract Documents, including Change Orders, Construction Change Directives, and other Modifications, in good order and marked currently to indicate field changes and selections made during construction, and the approved Shop Drawings, Product Data, Samples, and similar required submittals. These shall be in electronic form or paper copy, available to the Architect and Owner, and delivered to the Architect for submittal to the Owner upon completion of the Work as a record of the Work as constructed.

§ 3.12 Shop Drawings, Product Data and Samples

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules, and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier, or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples that illustrate materials, equipment, or workmanship, and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples, and similar submittals are not Contract Documents. Their purpose is to demonstrate how the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents for those portions of the Work for which the Contract Documents require submittals. Review by the Architect is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect is not expected to take responsive action may be so identified in the Contract Documents. Submittals that are not required by the Contract Documents may be returned by the Architect without action.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve, and submit to the Architect, Shop Drawings, Product Data, Samples, and similar submittals required by the Contract Documents, in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of Separate Contractors.

§ 3.12.6 By submitting Shop Drawings, Product Data, Samples, and similar submittals, the Contractor represents to the Owner and Architect that the Contractor has (1) reviewed and approved them, (2) determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and (3) checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples, or similar submittals, until the respective submittal has been approved by the Architect.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from the requirements of the Contract Documents by the Architect's approval of Shop Drawings, Product Data, Samples, or similar submittals, unless the Contractor has specifically notified the Architect of such deviation at the time of submittal and (1) the Architect has given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples, or similar submittals, by the Architect's approval thereof.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples, or similar submittals, to revisions other than those requested by the Architect on previous submittals. In the absence of such notice, the Architect's approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services that constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences, and procedures. The Contractor shall not be required to provide professional services in violation of applicable law.

§ 3.12.10.1 If professional design services or certifications by a design professional related to systems, materials, or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect will specify all performance and design criteria that such services must satisfy. The Contractor shall be entitled to rely upon the adequacy and accuracy of the performance and design criteria provided in the Contract Documents. The Contractor shall cause such services or certifications to be provided by an appropriately licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings, and other submittals prepared by such professional. Shop Drawings, and other submittals related to the Work, designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect. The Owner and the Architect shall be entitled to rely upon the adequacy and accuracy of the services, certifications, and approvals performed or provided by such design professionals, provided the Owner and Architect have specified to the Contractor the performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect will review and approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents.

§ 3.12.10.2 If the Contract Documents require the Contractor's design professional to certify that the Work has been performed in accordance with the design criteria, the Contractor shall furnish such certifications to the Architect at the time and in the form specified by the Architect.

§ 3.13 Use of Site

The Contractor shall confine operations at the site to areas permitted by applicable laws, statutes, ordinances, codes, rules and regulations, lawful orders of public authorities, and the Contract Documents and shall not unreasonably encumber the site with materials or equipment.

§ 3.14 Cutting and Patching

§ 3.14.1 The Contractor shall be responsible for cutting, fitting, or patching required to complete the Work or to make its parts fit together properly. All areas requiring cutting, fitting, or patching shall be restored to the condition existing prior to the cutting, fitting, or patching, unless otherwise required by the Contract Documents.

§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or Separate Contractors by cutting, patching, or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter construction by the Owner or a Separate Contractor except with written consent of the Owner and of the Separate Contractor. Consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold, from the Owner or a Separate Contractor, its consent to cutting or otherwise altering the Work.

§ 3.15 Cleaning Up

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials and rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove waste materials, rubbish, the Contractor's tools, construction equipment, machinery, and surplus materials from and about the Project.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the Owner shall be entitled to reimbursement from the Contractor.

§ 3.16 Access to Work

The Contractor shall provide the Owner and Architect with access to the Work in preparation and progress wherever located.

§ 3.17 Royalties, Patents and Copyrights

The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner and Architect harmless from loss on account thereof, but shall not be responsible for defense or loss when a particular design, process, or product of a particular manufacturer or manufacturers is required by the Contract Documents, or where the copyright violations are contained in Drawings, Specifications, or other documents prepared by the Owner or Architect. However, if an infringement of a copyright or patent is discovered by, or made known to, the Contractor, the Contractor shall be responsible for the loss unless the information is promptly furnished to the Architect.

§ 3.18 Indemnification

§ 3.18.1 To the fullest extent permitted by law, the Contractor shall indemnify and hold harmless the Owner, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), but only to the extent caused by the negligent acts or omissions of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, regardless of whether or not such claim, damage, loss, or expense is caused in part by a party indemnified hereunder. Such obligation shall not be construed to negate, abridge, or reduce other rights or obligations of indemnity that would otherwise exist as to a party or person described in this Section 3.18.

§ 3.18.2 In claims against any person or entity indemnified under this Section 3.18 by an employee of the Contractor, a Subcontractor, anyone directly or indirectly employed by them, or anyone for whose acts they may be liable, the indemnification obligation under Section 3.18.1 shall not be limited by a limitation on amount or type of damages, compensation, or benefits payable by or for the Contractor or a Subcontractor under workers' compensation acts, disability benefit acts, or other employee benefit acts.

ARTICLE 4 ARCHITECT

§ 4.1 General

§ 4.1.1 The Architect is the person or entity retained by the Owner pursuant to Section 2.3.2 and identified as such in the Agreement.

§ 4.1.2 Duties, responsibilities, and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified, or extended without written consent of the Owner, Contractor, and Architect. Consent shall not be unreasonably withheld.

§ 4.2 Administration of the Contract

§ 4.2.1 The Architect will provide administration of the Contract as described in the Contract Documents and will be an Owner's representative during construction until the date the Architect issues the final Certificate for Payment. The Architect will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents.

§ 4.2.2 The Architect will visit the site at intervals appropriate to the stage of construction, or as otherwise agreed with the Owner, to become generally familiar with the progress and quality of the portion of the Work completed, and to determine in general if the Work observed is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect will not be required to make exhaustive or continuous on-site inspections to check the quality or quantity of the Work. The Architect will not have control over, charge of, or responsibility for the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents.

§ 4.2.3 On the basis of the site visits, the Architect will keep the Owner reasonably informed about the progress and quality of the portion of the Work completed, and promptly report to the Owner (1) known deviations from the Contract Documents, (2) known deviations from the most recent construction schedule submitted by the Contractor, and (3) defects and deficiencies observed in the Work. The Architect will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect will not have control over or charge of, and will not be responsible for acts or omissions of, the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications

The Owner and Contractor shall include the Architect in all communications that relate to or affect the Architect's services or professional responsibilities. The Owner shall promptly notify the Architect of the substance of any direct communications between the Owner and the Contractor otherwise relating to the Project. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with Subcontractors and suppliers shall be through the Contractor. Communications by and with Separate Contractors shall be through the Owner. The Contract Documents may specify other communication protocols.

§ 4.2.5 Based on the Architect's evaluations of the Contractor's Applications for Payment, the Architect will review and certify the amounts due the Contractor and will issue Certificates for Payment in such amounts.

§ 4.2.6 The Architect has authority to reject Work that does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable, the Architect will have authority to require inspection or testing of the Work in accordance with Sections 13.4.2 and 13.4.3, whether or not the Work is fabricated, installed or completed. However, neither this authority of the Architect nor a decision made in good faith either to exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect to the Contractor, Subcontractors, suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect will review and approve, or take other appropriate action upon, the Contractor's submittals such as Shop Drawings, Product Data, and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's action will be taken in accordance with the submittal schedule approved by the Architect or, in the absence of an approved submittal schedule, with reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5, and 3.12. The Architect's review shall not constitute approval of safety precautions or of any construction means, methods, techniques, sequences, or procedures. The Architect's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will prepare Change Orders and Construction Change Directives, and may order minor changes in the Work as provided in Section 7.4. The Architect will investigate and make determinations and recommendations regarding concealed and unknown conditions as provided in Section 3.7.4.

§ 4.2.9 The Architect will conduct inspections to determine the date or dates of Substantial Completion and the date of final completion; issue Certificates of Substantial Completion pursuant to Section 9.8; receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor pursuant to Section 9.10; and issue a final Certificate for Payment pursuant to Section 9.10.

§ 4.2.10 If the Owner and Architect agree, the Architect will provide one or more Project representatives to assist in carrying out the Architect's responsibilities at the site. The Owner shall notify the Contractor of any change in the duties, responsibilities and limitations of authority of the Project representatives.

§ 4.2.11 The Architect will interpret and decide matters concerning performance under, and requirements of, the Contract Documents on written request of either the Owner or Contractor. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness.

§ 4.2.12 Interpretations and decisions of the Architect will be consistent with the intent of, and reasonably inferable from, the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and decisions, the Architect will endeavor to secure faithful performance by both Owner and Contractor, will not show partiality to either, and will not be liable for results of interpretations or decisions rendered in good faith.

§ 4.2.13 The Architect's decisions on matters relating to aesthetic effect will be final if consistent with the intent expressed in the Contract Documents.

§ 4.2.14 The Architect will review and respond to requests for information about the Contract Documents. The Architect's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If appropriate, the Architect will prepare and issue supplemental Drawings and Specifications in response to the requests for information.

ARTICLE 5 SUBCONTRACTORS

§ 5.1 Definitions

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the site. The term "Subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term "Subcontractor" does not include a Separate Contractor or the subcontractors of a Separate Contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the site. The term "Sub-subcontractor" is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 Award of Subcontracts and Other Contracts for Portions of the Work

§ 5.2.1 Unless otherwise stated in the Contract Documents, the Contractor, as soon as practicable after award of the Contract, shall notify the Owner and Architect of the persons or entities proposed for each principal portion of the Work, including those who are to furnish materials or equipment fabricated to a special design. Within 14 days of receipt of the information, the Architect may notify the Contractor whether the Owner or the Architect (1) has reasonable objection to any such proposed person or entity or (2) requires additional time for review. Failure of the Architect to provide notice within the 14-day period shall constitute notice of no reasonable objection.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 If the Owner or Architect has reasonable objection to a person or entity proposed by the Contractor, the Contractor shall propose another to whom the Owner or Architect has no reasonable objection. If the proposed but rejected Subcontractor was reasonably capable of performing the Work, the Contract Sum and Contract Time shall be increased or decreased by the difference, if any, occasioned by such change, and an appropriate Change Order shall be issued before commencement of the substitute Subcontractor's Work. However, no increase in the Contract Sum or Contract Time shall

be allowed for such change unless the Contractor has acted promptly and responsively in submitting names as required.

§ 5.2.4 The Contractor shall not substitute a Subcontractor, person, or entity for one previously selected if the Owner or Architect makes reasonable objection to such substitution.

§ 5.3 Subcontractual Relations

By appropriate written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor's Work that the Contractor, by these Contract Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies, and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement that may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

§ 5.4 Contingent Assignment of Subcontracts

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner, provided that

- .1 assignment is effective only after termination of the Contract by the Owner for cause pursuant to Section 14.2 and only for those subcontract agreements that the Owner accepts by notifying the Subcontractor and Contractor; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

When the Owner accepts the assignment of a subcontract agreement, the Owner assumes the Contractor's rights and obligations under the subcontract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than 30 days, the Subcontractor's compensation shall be equitably adjusted for increases in cost resulting from the suspension.

§ 5.4.3 Upon assignment to the Owner under this Section 5.4, the Owner may further assign the subcontract to a successor contractor or other entity. If the Owner assigns the subcontract to a successor contractor or other entity, the Owner shall nevertheless remain legally responsible for all of the successor contractor's obligations under the subcontract.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 Owner's Right to Perform Construction and to Award Separate Contracts

§ 6.1.1 The term "Separate Contractor(s)" shall mean other contractors retained by the Owner under separate agreements. The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and with Separate Contractors retained under Conditions of the Contract substantially similar to those of this Contract, including those provisions of the Conditions of the Contract related to insurance and waiver of subrogation.

§ 6.1.2 When separate contracts are awarded for different portions of the Project or other construction or operations on the site, the term "Contractor" in the Contract Documents in each case shall mean the Contractor who executes each separate Owner-Contractor Agreement.

§ 6.1.3 The Owner shall provide for coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them. The Contractor shall participate with any Separate Contractors and the Owner in reviewing their construction schedules. The Contractor shall make any revisions to its construction schedule deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Contractor, Separate Contractors, and the Owner until subsequently revised.

§ 6.1.4 Unless otherwise provided in the Contract Documents, when the Owner performs construction or operations related to the Project with the Owner's own forces or with Separate Contractors, the Owner or its Separate Contractors shall have the same obligations and rights that the Contractor has under the Conditions of the Contract, including, without excluding others, those stated in Article 3, this Article 6, and Articles 10, 11, and 12.

§ 6.2 Mutual Responsibility

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly notify the Architect of apparent discrepancies or defects in the construction or operations by the Owner or Separate Contractor that would render it unsuitable for proper execution and results of the Contractor's Work. Failure of the Contractor to notify the Architect of apparent discrepancies or defects prior to proceeding with the Work shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work. The Contractor shall not be responsible for discrepancies or defects in the construction or operations by the Owner or Separate Contractor that are not apparent.

§ 6.2.3 The Contractor shall reimburse the Owner for costs the Owner incurs that are payable to a Separate Contractor because of the Contractor's delays, improperly timed activities or defective construction. The Owner shall be responsible to the Contractor for costs the Contractor incurs because of a Separate Contractor's delays, improperly timed activities, damage to the Work or defective construction.

§ 6.2.4 The Contractor shall promptly remedy damage that the Contractor wrongfully causes to completed or partially completed construction or to property of the Owner or Separate Contractor as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 Owner's Right to Clean Up

If a dispute arises among the Contractor, Separate Contractors, and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the Owner may clean up and the Architect will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 General

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents.

§ 7.1.2 A Change Order shall be based upon agreement among the Owner, Contractor, and Architect. A Construction Change Directive requires agreement by the Owner and Architect and may or may not be agreed to by the Contractor. An order for a minor change in the Work may be issued by the Architect alone.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents. The Contractor shall proceed promptly with changes in the Work, unless otherwise provided in the Change Order, Construction Change Directive, or order for a minor change in the Work.

§ 7.2 Change Orders

§ 7.2.1 A Change Order is a written instrument prepared by the Architect and signed by the Owner, Contractor, and Architect stating their agreement upon all of the following:

- .1 The change in the Work;
- .2 The amount of the adjustment, if any, in the Contract Sum; and
- .3 The extent of the adjustment, if any, in the Contract Time.

§ 7.3 Construction Change Directives

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect and signed by the Owner and Architect, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods:

- .1 Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 Unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 As provided in Section 7.3.4.

§ 7.3.4 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the Architect shall determine the adjustment on the basis of reasonable expenditures and savings of those performing the Work attributable to the change, including, in case of an increase in the Contract Sum, an amount for overhead and profit as set forth in the Agreement, or if no such amount is set forth in the Agreement, a reasonable amount. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.4 shall be limited to the following:

- .1 Costs of labor, including applicable payroll taxes, fringe benefits required by agreement or custom, workers' compensation insurance, and other employee costs approved by the Architect;
- .2 Costs of materials, supplies, and equipment, including cost of transportation, whether incorporated or consumed;
- .3 Rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 Costs of premiums for all bonds and insurance, permit fees, and sales, use, or similar taxes, directly related to the change; and
- .5 Costs of supervision and field office personnel directly attributable to the change.

§ 7.3.5 If the Contractor disagrees with the adjustment in the Contract Time, the Contractor may make a Claim in accordance with applicable provisions of Article 15.

§ 7.3.6 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Architect of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.7 A Construction Change Directive signed by the Contractor indicates the Contractor's agreement therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.8 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change that results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Architect. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change.

§ 7.3.9 Pending final determination of the total cost of a Construction Change Directive to the Owner, the Contractor may request payment for Work completed under the Construction Change Directive in Applications for Payment. The Architect will make an interim determination for purposes of monthly certification for payment for those costs and certify for payment the amount that the Architect determines, in the Architect's professional judgment, to be reasonably justified. The Architect's interim determination of cost shall adjust the Contract Sum on the same basis as a Change Order, subject to the right of either party to disagree and assert a Claim in accordance with Article 15.

§ 7.3.10 When the Owner and Contractor agree with a determination made by the Architect concerning the adjustments in the Contract Sum and Contract Time, or otherwise reach agreement upon the adjustments, such agreement shall be effective immediately and the Architect will prepare a Change Order. Change Orders may be issued for all or any part of a Construction Change Directive.

§ 7.4 Minor Changes in the Work

The Architect may order minor changes in the Work that are consistent with the intent of the Contract Documents and do not involve an adjustment in the Contract Sum or an extension of the Contract Time. The Architect's order for minor changes shall be in writing. If the Contractor believes that the proposed minor change in the Work will affect the Contract Sum or Contract Time, the Contractor shall notify the Architect and shall not proceed to implement the change in the Work. If the Contractor performs the Work set forth in the Architect's order for a minor change without prior notice to the Architect that such change will affect the Contract Sum or Contract Time, the Contractor waives any adjustment to the Contract Sum or extension of the Contract Time.

ARTICLE 8 TIME

§ 8.1 Definitions

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 Progress and Completion

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, commence the Work prior to the effective date of insurance required to be furnished by the Contractor and Owner.

§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion within the Contract Time.

§ 8.3 Delays and Extensions of Time

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by (1) an act or neglect of the Owner or Architect, of an employee of either, or of a Separate Contractor; (2) by changes ordered in the Work; (3) by labor disputes, fire, unusual delay in deliveries, unavoidable casualties, adverse weather conditions documented in accordance with Section 15.1.6.2, or other causes beyond the Contractor's control; (4) by delay authorized by the Owner pending mediation and binding dispute resolution; or (5) by other causes that the Contractor asserts, and the Architect determines, justify delay, then the Contract Time shall be extended for such reasonable time as the Architect may determine.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Article 15.

§ 8.3.3 This Section 8.3 does not preclude recovery of damages for delay by either party under other provisions of the Contract Documents.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 Contract Sum

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.1.2 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed so that application of such unit prices to the actual quantities causes substantial

inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 9.2 Schedule of Values

Where the Contract is based on a stipulated sum or Guaranteed Maximum Price, the Contractor shall submit a schedule of values to the Architect before the first Application for Payment, allocating the entire Contract Sum to the various portions of the Work. The schedule of values shall be prepared in the form, and supported by the data to substantiate its accuracy, required by the Architect. This schedule, unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's Applications for Payment. Any changes to the schedule of values shall be submitted to the Architect and supported by such data to substantiate its accuracy as the Architect may require, and unless objected to by the Architect, shall be used as a basis for reviewing the Contractor's subsequent Applications for Payment.

§ 9.3 Applications for Payment

§ 9.3.1 At least ten days before the date established for each progress payment, the Contractor shall submit to the Architect an itemized Application for Payment prepared in accordance with the schedule of values, if required under Section 9.2, for completed portions of the Work. The application shall be notarized, if required, and supported by all data substantiating the Contractor's right to payment that the Owner or Architect require, such as copies of requisitions, and releases and waivers of liens from Subcontractors and suppliers, and shall reflect retainage if provided for in the Contract Documents.

§ 9.3.1.1 As provided in Section 7.3.9, such applications may include requests for payment on account of changes in the Work that have been properly authorized by Construction Change Directives, or by interim determinations of the Architect, but not yet included in Change Orders.

§ 9.3.1.2 Applications for Payment shall not include requests for payment for portions of the Work for which the Contractor does not intend to pay a Subcontractor or supplier, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.2 Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise protect the Owner's interest, and shall include the costs of applicable insurance, storage, and transportation to the site, for such materials and equipment stored off the site.

§ 9.3.3 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which Certificates for Payment have been previously issued and payments received from the Owner shall, to the best of the Contractor's knowledge, information, and belief, be free and clear of liens, claims, security interests, or encumbrances, in favor of the Contractor, Subcontractors, suppliers, or other persons or entities that provided labor, materials, and equipment relating to the Work.

§ 9.4 Certificates for Payment

§ 9.4.1 The Architect will, within seven days after receipt of the Contractor's Application for Payment, either (1) issue to the Owner a Certificate for Payment in the full amount of the Application for Payment, with a copy to the Contractor; or (2) issue to the Owner a Certificate for Payment for such amount as the Architect determines is properly due, and notify the Contractor and Owner of the Architect's reasons for withholding certification in part as provided in Section 9.5.1; or (3) withhold certification of the entire Application for Payment, and notify the Contractor and Owner of the Architect's reason for withholding certification in whole as provided in Section 9.5.1.

§ 9.4.2 The issuance of a Certificate for Payment will constitute a representation by the Architect to the Owner, based on the Architect's evaluation of the Work and the data in the Application for Payment, that, to the best of the Architect's knowledge, information, and belief, the Work has progressed to the point indicated, the quality of the Work is in accordance with the Contract Documents, and that the Contractor is entitled to payment in the amount certified. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion, and to specific qualifications expressed by the Architect. However, the issuance of a Certificate for Payment will not be a representation that the Architect has (1) made exhaustive or continuous on-site

inspections to check the quality or quantity of the Work; (2) reviewed construction means, methods, techniques, sequences, or procedures; (3) reviewed copies of requisitions received from Subcontractors and suppliers and other data requested by the Owner to substantiate the Contractor's right to payment; or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 Decisions to Withhold Certification

§ 9.5.1 The Architect may withhold a Certificate for Payment in whole or in part, to the extent reasonably necessary to protect the Owner, if in the Architect's opinion the representations to the Owner required by Section 9.4.2 cannot be made. If the Architect is unable to certify payment in the amount of the Application, the Architect will notify the Contractor and Owner as provided in Section 9.4.1. If the Contractor and Architect cannot agree on a revised amount, the Architect will promptly issue a Certificate for Payment for the amount for which the Architect is able to make such representations to the Owner. The Architect may also withhold a Certificate for Payment or, because of subsequently discovered evidence, may nullify the whole or a part of a Certificate for Payment previously issued, to such extent as may be necessary in the Architect's opinion to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims, unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or suppliers for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or a Separate Contractor;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay; or
- .7 repeated failure to carry out the Work in accordance with the Contract Documents.

§ 9.5.2 When either party disputes the Architect's decision regarding a Certificate for Payment under Section 9.5.1, in whole or in part, that party may submit a Claim in accordance with Article 15.

§ 9.5.3 When the reasons for withholding certification are removed, certification will be made for amounts previously withheld.

§ 9.5.4 If the Architect withholds certification for payment under Section 9.5.1.3, the Owner may, at its sole option, issue joint checks to the Contractor and to any Subcontractor or supplier to whom the Contractor failed to make payment for Work properly performed or material or equipment suitably delivered. If the Owner makes payments by joint check, the Owner shall notify the Architect and the Contractor shall reflect such payment on its next Application for Payment.

§ 9.6 Progress Payments

§ 9.6.1 After the Architect has issued a Certificate for Payment, the Owner shall make payment in the manner and within the time provided in the Contract Documents, and shall so notify the Architect.

§ 9.6.2 The Contractor shall pay each Subcontractor, no later than seven days after receipt of payment from the Owner, the amount to which the Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of the Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.3 The Architect will, on request, furnish to a Subcontractor, if practicable, information regarding percentages of completion or amounts applied for by the Contractor and action taken thereon by the Architect and Owner on account of portions of the Work done by such Subcontractor.

§ 9.6.4 The Owner has the right to request written evidence from the Contractor that the Contractor has properly paid Subcontractors and suppliers amounts paid by the Owner to the Contractor for subcontracted Work. If the Contractor fails to furnish such evidence within seven days, the Owner shall have the right to contact Subcontractors and suppliers to ascertain whether they have been properly paid. Neither the Owner nor Architect shall have an obligation to pay, or to see to the payment of money to, a Subcontractor or supplier, except as may otherwise be required by law.

§ 9.6.5 The Contractor's payments to suppliers shall be treated in a manner similar to that provided in Sections 9.6.2, 9.6.3 and 9.6.4.

§ 9.6.6 A Certificate for Payment, a progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.7 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors or provided by suppliers shall be held by the Contractor for those Subcontractors or suppliers who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, create any fiduciary liability or tort liability on the part of the Contractor for breach of trust, or entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

§ 9.6.8 Provided the Owner has fulfilled its payment obligations under the Contract Documents, the Contractor shall defend and indemnify the Owner from all loss, liability, damage or expense, including reasonable attorney's fees and litigation expenses, arising out of any lien claim or other claim for payment by any Subcontractor or supplier of any tier. Upon receipt of notice of a lien claim or other claim for payment, the Owner shall notify the Contractor. If approved by the applicable court, when required, the Contractor may substitute a surety bond for the property against which the lien or other claim for payment has been asserted.

§ 9.7 Failure of Payment

If the Architect does not issue a Certificate for Payment, through no fault of the Contractor, within seven days after receipt of the Contractor's Application for Payment, or if the Owner does not pay the Contractor within seven days after the date established in the Contract Documents, the amount certified by the Architect or awarded by binding dispute resolution, then the Contractor may, upon seven additional days' notice to the Owner and Architect, stop the Work until payment of the amount owing has been received. The Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable costs of shutdown, delay and start-up, plus interest as provided for in the Contract Documents.

§ 9.8 Substantial Completion

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use.

§ 9.8.2 When the Contractor considers that the Work, or a portion thereof which the Owner agrees to accept separately, is substantially complete, the Contractor shall prepare and submit to the Architect a comprehensive list of items to be completed or corrected prior to final payment. Failure to include an item on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

§ 9.8.3 Upon receipt of the Contractor's list, the Architect will make an inspection to determine whether the Work or designated portion thereof is substantially complete. If the Architect's inspection discloses any item, whether or not included on the Contractor's list, which is not sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work or designated portion thereof for its intended use, the Contractor shall, before issuance of the Certificate of Substantial Completion, complete or correct such item upon notification by the Architect. In such case, the Contractor shall then submit a request for another inspection by the Architect to determine Substantial Completion.

§ 9.8.4 When the Work or designated portion thereof is substantially complete, the Architect will prepare a Certificate of Substantial Completion that shall establish the date of Substantial Completion; establish responsibilities of the Owner and Contractor for security, maintenance, heat, utilities, damage to the Work and insurance; and fix the time within which the Contractor shall finish all items on the list accompanying the Certificate. Warranties required by the Contract Documents shall commence on the date of Substantial Completion of the Work or designated portion thereof unless otherwise provided in the Certificate of Substantial Completion.

§ 9.8.5 The Certificate of Substantial Completion shall be submitted to the Owner and Contractor for their written acceptance of responsibilities assigned to them in the Certificate. Upon such acceptance, and consent of surety if any, the Owner shall make payment of retainage applying to the Work or designated portion thereof. Such payment shall be

adjusted for Work that is incomplete or not in accordance with the requirements of the Contract Documents.

§ 9.9 Partial Occupancy or Use

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Project. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Contractor considers a portion substantially complete, the Contractor shall prepare and submit a list to the Architect as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect.

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, and Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 Final Completion and Final Payment

§ 9.10.1 Upon receipt of the Contractor's notice that the Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect will promptly make such inspection. When the Architect finds the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-site visits and inspections, the Work has been completed in accordance with the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Architect (1) an affidavit that payrolls, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to remain in force after final payment is currently in effect, (3) a written statement that the Contractor knows of no reason that the insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment, (5) documentation of any special warranties, such as manufacturers' warranties or specific Subcontractor warranties, and (6) if required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts and releases and waivers of liens, claims, security interests, or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien, claim, security interest, or encumbrance. If a lien, claim, security interest, or encumbrance remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging the lien, claim, security interest, or encumbrance, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Architect so confirms, the Owner shall, upon application by the Contractor and certification by the Architect, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed, corrected, and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of the surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Architect prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

§ 9.10.4 The making of final payment shall constitute a waiver of Claims by the Owner except those arising from

- .1 liens, Claims, security interests, or encumbrances arising out of the Contract and unsettled;
- .2 failure of the Work to comply with the requirements of the Contract Documents;
- .3 terms of special warranties required by the Contract Documents; or
- .4 audits performed by the Owner, if permitted by the Contract Documents, after final payment.

§ 9.10.5 Acceptance of final payment by the Contractor, a Subcontractor, or a supplier, shall constitute a waiver of claims by that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 Safety Precautions and Programs

The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 Safety of Persons and Property

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury, or loss to

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the site, under care, custody, or control of the Contractor, a Subcontractor, or a Sub-subcontractor; and
- .3 other property at the site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

§ 10.2.2 The Contractor shall comply with, and give notices required by applicable laws, statutes, ordinances, codes, rules and regulations, and lawful orders of public authorities, bearing on safety of persons or property or their protection from damage, injury, or loss.

§ 10.2.3 The Contractor shall implement, erect, and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards; promulgating safety regulations; and notifying the owners and users of adjacent sites and utilities of the safeguards.

§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3. The Contractor may make a Claim for the cost to remedy the damage or loss to the extent such damage or loss is attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not permit any part of the construction or site to be loaded so as to cause damage or create an unsafe condition.

§ 10.2.8 Injury or Damage to Person or Property

If either party suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, notice of the injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding 21 days after discovery. The notice shall provide sufficient detail to

enable the other party to investigate the matter.

§ 10.3 Hazardous Materials and Substances

§ 10.3.1 The Contractor is responsible for compliance with any requirements included in the Contract Documents regarding hazardous materials or substances. If the Contractor encounters a hazardous material or substance not addressed in the Contract Documents and if reasonable precautions will be inadequate to prevent foreseeable bodily injury or death to persons resulting from a material or substance, including but not limited to asbestos or polychlorinated biphenyl (PCB), encountered on the site by the Contractor, the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and notify the Owner and Architect of the condition.

§ 10.3.2 Upon receipt of the Contractor's notice, the Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the material or substance reported by the Contractor and, in the event such material or substance is found to be present, to cause it to be rendered harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of the material or substance or who are to perform the task of removal or safe containment of the material or substance. The Contractor and the Architect will promptly reply to the Owner in writing stating whether or not either has reasonable objection to the persons or entities proposed by the Owner. If either the Contractor or Architect has an objection to a person or entity proposed by the Owner, the Owner shall propose another to whom the Contractor and the Architect have no reasonable objection. When the material or substance has been rendered harmless, Work in the affected area shall resume upon written agreement of the Owner and Contractor. By Change Order, the Contract Time shall be extended appropriately and the Contract Sum shall be increased by the amount of the Contractor's reasonable additional costs of shutdown, delay, and start-up.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Contractor, Subcontractors, Architect, Architect's consultants, and agents and employees of any of them from and against claims, damages, losses, and expenses, including but not limited to attorneys' fees, arising out of or resulting from performance of the Work in the affected area if in fact the material or substance presents the risk of bodily injury or death as described in Section 10.3.1 and has not been rendered harmless, provided that such claim, damage, loss, or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself), except to the extent that such damage, loss, or expense is due to the fault or negligence of the party seeking indemnity.

§ 10.3.4 The Owner shall not be responsible under this Section 10.3 for hazardous materials or substances the Contractor brings to the site unless such materials or substances are required by the Contract Documents. The Owner shall be responsible for hazardous materials or substances required by the Contract Documents, except to the extent of the Contractor's fault or negligence in the use and handling of such materials or substances.

§ 10.3.5 The Contractor shall reimburse the Owner for the cost and expense the Owner incurs (1) for remediation of hazardous materials or substances the Contractor brings to the site and negligently handles, or (2) where the Contractor fails to perform its obligations under Section 10.3.1, except to the extent that the cost and expense are due to the Owner's fault or negligence.

§ 10.3.6 If, without negligence on the part of the Contractor, the Contractor is held liable by a government agency for the cost of remediation of a hazardous material or substance solely by reason of performing Work as required by the Contract Documents, the Owner shall reimburse the Contractor for all cost and expense thereby incurred.

§ 10.4 Emergencies

In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 15 and Article 7.

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 Contractor's Insurance and Bonds

§ 11.1.1 The Contractor shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Contractor shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located. The Owner, Architect, and Architect's consultants shall be named as additional insureds under the Contractor's commercial general liability policy or as otherwise described in the Contract Documents.

§ 11.1.2 The Contractor shall provide surety bonds of the types, for such penal sums, and subject to such terms and conditions as required by the Contract Documents. The Contractor shall purchase and maintain the required bonds from a company or companies lawfully authorized to issue surety bonds in the jurisdiction where the Project is located.

§ 11.1.3 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall authorize a copy to be furnished.

§ 11.1.4 Notice of Cancellation or Expiration of Contractor's Required Insurance. Within three (3) business days of the date the Contractor becomes aware of an impending or actual cancellation or expiration of any insurance required by the Contract Documents, the Contractor shall provide notice to the Owner of such impending or actual cancellation or expiration. Upon receipt of notice from the Contractor, the Owner shall, unless the lapse in coverage arises from an act or omission of the Owner, have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by the Contractor. The furnishing of notice by the Contractor shall not relieve the Contractor of any contractual obligation to provide any required coverage.

§ 11.2 Owner's Insurance

§ 11.2.1 The Owner shall purchase and maintain insurance of the types and limits of liability, containing the endorsements, and subject to the terms and conditions, as described in the Agreement or elsewhere in the Contract Documents. The Owner shall purchase and maintain the required insurance from an insurance company or insurance companies lawfully authorized to issue insurance in the jurisdiction where the Project is located.

§ 11.2.2 Failure to Purchase Required Property Insurance. If the Owner fails to purchase and maintain the required property insurance, with all of the coverages and in the amounts described in the Agreement or elsewhere in the Contract Documents, the Owner shall inform the Contractor in writing prior to commencement of the Work. Upon receipt of notice from the Owner, the Contractor may delay commencement of the Work and may obtain insurance that will protect the interests of the Contractor, Subcontractors, and Sub-Subcontractors in the Work. When the failure to provide coverage has been cured or resolved, the Contract Sum and Contract Time shall be equitably adjusted. In the event the Owner fails to procure coverage, the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent the loss to the Owner would have been covered by the insurance to have been procured by the Owner. The cost of the insurance shall be charged to the Owner by a Change Order. If the Owner does not provide written notice, and the Contractor is damaged by the failure or neglect of the Owner to purchase or maintain the required insurance, the Owner shall reimburse the Contractor for all reasonable costs and damages attributable thereto.

§ 11.2.3 Notice of Cancellation or Expiration of Owner's Required Property Insurance. Within three (3) business days of the date the Owner becomes aware of an impending or actual cancellation or expiration of any property insurance required by the Contract Documents, the Owner shall provide notice to the Contractor of such impending or actual cancellation or expiration. Unless the lapse in coverage arises from an act or omission of the Contractor: (1) the Contractor, upon receipt of notice from the Owner, shall have the right to stop the Work until the lapse in coverage has been cured by the procurement of replacement coverage by either the Owner or the Contractor; (2) the Contract Time and Contract Sum shall be equitably adjusted; and (3) the Owner waives all rights against the Contractor, Subcontractors, and Sub-subcontractors to the extent any loss to the Owner would have been covered by the insurance had it not expired or been cancelled. If the Contractor purchases replacement coverage, the cost of the insurance shall be charged to the Owner by an appropriate Change Order. The furnishing of notice by the Owner shall not relieve the Owner of any contractual obligation to provide required insurance.

§ 11.3 Waivers of Subrogation

§ 11.3.1 The Owner and Contractor waive all rights against (1) each other and any of their subcontractors, sub-subcontractors, agents, and employees, each of the other; (2) the Architect and Architect's consultants; and (3) Separate Contractors, if any, and any of their subcontractors, sub-subcontractors, agents, and employees, for damages caused by fire, or other causes of loss, to the extent those losses are covered by property insurance required by the Agreement or other property insurance applicable to the Project, except such rights as they have to proceeds of such insurance. The Owner or Contractor, as appropriate, shall require similar written waivers in favor of the individuals and entities identified above from the Architect, Architect's consultants, Separate Contractors, subcontractors, and sub-subcontractors. The policies of insurance purchased and maintained by each person or entity agreeing to waive claims pursuant to this section 11.3.1 shall not prohibit this waiver of subrogation. This waiver of subrogation shall be effective as to a person or entity (1) even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, (2) even though that person or entity did not pay the insurance premium directly or indirectly, or (3) whether or not the person or

entity had an insurable interest in the damaged property.

§ 11.3.2 If during the Project construction period the Owner insures properties, real or personal or both, at or adjacent to the site by property insurance under policies separate from those insuring the Project, or if after final payment property insurance is to be provided on the completed Project through a policy or policies other than those insuring the Project during the construction period, to the extent permissible by such policies, the Owner waives all rights in accordance with the terms of Section 11.3.1 for damages caused by fire or other causes of loss covered by this separate property insurance.

§ 11.4 Loss of Use, Business Interruption, and Delay in Completion Insurance

The Owner, at the Owner's option, may purchase and maintain insurance that will protect the Owner against loss of use of the Owner's property, or the inability to conduct normal operations, due to fire or other causes of loss. The Owner waives all rights of action against the Contractor and Architect for loss of use of the Owner's property, due to fire or other hazards however caused.

§ 11.5 Adjustment and Settlement of Insured Loss

§ 11.5.1 A loss insured under the property insurance required by the Agreement shall be adjusted by the Owner as fiduciary and made payable to the Owner as fiduciary for the insureds, as their interests may appear, subject to requirements of any applicable mortgagee clause and of Section 11.5.2. The Owner shall pay the Architect and Contractor their just shares of insurance proceeds received by the Owner, and by appropriate agreements the Architect and Contractor shall make payments to their consultants and Subcontractors in similar manner.

§ 11.5.2 Prior to settlement of an insured loss, the Owner shall notify the Contractor of the terms of the proposed settlement as well as the proposed allocation of the insurance proceeds. The Contractor shall have 14 days from receipt of notice to object to the proposed settlement or allocation of the proceeds. If the Contractor does not object, the Owner shall settle the loss and the Contractor shall be bound by the settlement and allocation. Upon receipt, the Owner shall deposit the insurance proceeds in a separate account and make the appropriate distributions. Thereafter, if no other agreement is made or the Owner does not terminate the Contract for convenience, the Owner and Contractor shall execute a Change Order for reconstruction of the damaged or destroyed Work in the amount allocated for that purpose. If the Contractor timely objects to either the terms of the proposed settlement or the allocation of the proceeds, the Owner may proceed to settle the insured loss, and any dispute between the Owner and Contractor arising out of the settlement or allocation of the proceeds shall be resolved pursuant to Article 15. Pending resolution of any dispute, the Owner may issue a Construction Change Directive for the reconstruction of the damaged or destroyed Work.

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 Uncovering of Work

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's request or to requirements specifically expressed in the Contract Documents, it must, if requested in writing by the Architect, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered that the Architect has not specifically requested to examine prior to its being covered, the Architect may request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, the Contractor shall be entitled to an equitable adjustment to the Contract Sum and Contract Time as may be appropriate. If such Work is not in accordance with the Contract Documents, the costs of uncovering the Work, and the cost of correction, shall be at the Contractor's expense.

§ 12.2 Correction of Work

§ 12.2.1 Before Substantial Completion

The Contractor shall promptly correct Work rejected by the Architect or failing to conform to the requirements of the Contract Documents, discovered before Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections, the cost of uncovering and replacement, and compensation for the Architect's services and expenses made necessary thereby, shall be at the Contractor's expense.

§ 12.2.2 After Substantial Completion

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly

after receipt of notice from the Owner to do so, unless the Owner has previously given the Contractor a written acceptance of such condition. The Owner shall give such notice promptly after discovery of the condition. During the one-year period for correction of Work, if the Owner fails to notify the Contractor and give the Contractor an opportunity to make the correction, the Owner waives the rights to require correction by the Contractor and to make a claim for breach of warranty. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.5.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual completion of that portion of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall not be extended by corrective Work performed by the Contractor pursuant to this Section 12.2.

§ 12.2.3 The Contractor shall remove from the site portions of the Work that are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction of the Owner or Separate Contractors, whether completed or partially completed, caused by the Contractor's correction or removal of Work that is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations the Contractor has under the Contract Documents. Establishment of the one-year period for correction of Work as described in Section 12.2.2 relates only to the specific obligation of the Contractor to correct the Work, and has no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 Acceptance of Nonconforming Work

If the Owner prefers to accept Work that is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 Governing Law

The Contract shall be governed by the law of the place where the Project is located, excluding that jurisdiction's choice of law rules. If the parties have selected arbitration as the method of binding dispute resolution, the Federal Arbitration Act shall govern Section 15.4.

§ 13.2 Successors and Assigns

§ 13.2.1 The Owner and Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to covenants, agreements, and obligations contained in the Contract Documents. Except as provided in Section 13.2.2, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

§ 13.2.2 The Owner may, without consent of the Contractor, assign the Contract to a lender providing construction financing for the Project, if the lender assumes the Owner's rights and obligations under the Contract Documents. The Contractor shall execute all consents reasonably required to facilitate the assignment.

§ 13.3 Rights and Remedies

§ 13.3.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

§ 13.3.2 No action or failure to act by the Owner, Architect, or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed upon in writing.

§ 13.4 Tests and Inspections

§ 13.4.1 Tests, inspections, and approvals of portions of the Work shall be made as required by the Contract Documents and by applicable laws, statutes, ordinances, codes, rules, and regulations or lawful orders of public authorities. Unless otherwise provided, the Contractor shall make arrangements for such tests, inspections, and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections, and approvals. The Contractor shall give the Architect timely notice of when and where tests and inspections are to be made so that the Architect may be present for such procedures. The Owner shall bear costs of tests, inspections, or approvals that do not become requirements until after bids are received or negotiations concluded. The Owner shall directly arrange and pay for tests, inspections, or approvals where building codes or applicable laws or regulations so require.

§ 13.4.2 If the Architect, Owner, or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection, or approval not included under Section 13.4.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection, or approval, by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Architect of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.4.3, shall be at the Owner's expense.

§ 13.4.3 If procedures for testing, inspection, or approval under Sections 13.4.1 and 13.4.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure, including those of repeated procedures and compensation for the Architect's services and expenses, shall be at the Contractor's expense.

§ 13.4.4 Required certificates of testing, inspection, or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.4.5 If the Architect is to observe tests, inspections, or approvals required by the Contract Documents, the Architect will do so promptly and, where practicable, at the normal place of testing.

§ 13.4.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.5 Interest

Payments due and unpaid under the Contract Documents shall bear interest from the date payment is due at the rate the parties agree upon in writing or, in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 Termination by the Contractor

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped for a period of 30 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, for any of the following reasons:

- .1 Issuance of an order of a court or other public authority having jurisdiction that requires all Work to be stopped;
- .2 An act of government, such as a declaration of national emergency, that requires all Work to be stopped;
- .3 Because the Architect has not issued a Certificate for Payment and has not notified the Contractor of the reason for withholding certification as provided in Section 9.4.1, or because the Owner has not made payment on a Certificate for Payment within the time stated in the Contract Documents; or
- .4 The Owner has failed to furnish to the Contractor reasonable evidence as required by Section 2.2.

§ 14.1.2 The Contractor may terminate the Contract if, through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons or entities performing portions of the Work, repeated suspensions, delays, or interruptions of the entire Work by the Owner as described in Section 14.3, constitute in the aggregate more than 100 percent of the total number of days scheduled for completion, or 120 days in any 365-day period, whichever is less.

§ 14.1.3 If one of the reasons described in Section 14.1.1 or 14.1.2 exists, the Contractor may, upon seven days' notice to the Owner and Architect, terminate the Contract and recover from the Owner payment for Work executed, as well as reasonable overhead and profit on Work not executed, and costs incurred by reason of such termination.

§ 14.1.4 If the Work is stopped for a period of 60 consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, or their agents or employees or any other persons or entities performing portions of the Work because the Owner has repeatedly failed to fulfill the Owner's obligations under the Contract Documents with respect to matters important to the progress of the Work, the Contractor may, upon seven additional days' notice to the Owner and the Architect, terminate the Contract and recover from the Owner as provided in Section 14.1.3.

§ 14.2 Termination by the Owner for Cause

§ 14.2.1 The Owner may terminate the Contract if the Contractor

- .1 repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors or suppliers in accordance with the respective agreements between the Contractor and the Subcontractors or suppliers;
- .3 repeatedly disregards applicable laws, statutes, ordinances, codes, rules and regulations, or lawful orders of a public authority; or
- .4 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the reasons described in Section 14.2.1 exist, and upon certification by the Architect that sufficient cause exists to justify such action, the Owner may, without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven days' notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 Exclude the Contractor from the site and take possession of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 Accept assignment of subcontracts pursuant to Section 5.4; and
- .3 Finish the Work by whatever reasonable method the Owner may deem expedient. Upon written request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 If the unpaid balance of the Contract Sum exceeds costs of finishing the Work, including compensation for the Architect's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. The amount to be paid to the Contractor or Owner, as the case may be, shall be certified by the Initial Decision Maker, upon application, and this obligation for payment shall survive termination of the Contract.

§ 14.3 Suspension by the Owner for Convenience

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work, in whole or in part for such period of time as the Owner may determine.

§ 14.3.2 The Contract Sum and Contract Time shall be adjusted for increases in the cost and time caused by suspension, delay, or interruption under Section 14.3.1. Adjustment of the Contract Sum shall include profit. No adjustment shall be made to the extent

- .1 that performance is, was, or would have been, so suspended, delayed, or interrupted, by another cause for which the Contractor is responsible; or
- .2 that an equitable adjustment is made or denied under another provision of the Contract.

§ 14.4 Termination by the Owner for Convenience

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of notice from the Owner of such termination for the Owner's convenience, the Contractor shall

- .1 cease operations as directed by the Owner in the notice;

- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice, terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

§ 14.4.3 In case of such termination for the Owner's convenience, the Owner shall pay the Contractor for Work properly executed; costs incurred by reason of the termination, including costs attributable to termination of Subcontracts; and the termination fee, if any, set forth in the Agreement.

ARTICLE 15 CLAIMS AND DISPUTES

§ 15.1 Claims

§ 15.1.1 Definition

A Claim is a demand or assertion by one of the parties seeking, as a matter of right, payment of money, a change in the Contract Time, or other relief with respect to the terms of the Contract. The term "Claim" also includes other disputes and matters in question between the Owner and Contractor arising out of or relating to the Contract. The responsibility to substantiate Claims shall rest with the party making the Claim. This Section 15.1.1 does not require the Owner to file a Claim in order to impose liquidated damages in accordance with the Contract Documents.

§ 15.1.2 Time Limits on Claims

The Owner and Contractor shall commence all Claims and causes of action against the other and arising out of or related to the Contract, whether in contract, tort, breach of warranty or otherwise, in accordance with the requirements of the binding dispute resolution method selected in the Agreement and within the period specified by applicable law, but in any case not more than 10 years after the date of Substantial Completion of the Work. The Owner and Contractor waive all Claims and causes of action not commenced in accordance with this Section 15.1.2.

§ 15.1.3 Notice of Claims

§ 15.1.3.1 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered prior to expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party and to the Initial Decision Maker with a copy sent to the Architect, if the Architect is not serving as the Initial Decision Maker. Claims by either party under this Section 15.1.3.1 shall be initiated within 21 days after occurrence of the event giving rise to such Claim or within 21 days after the claimant first recognizes the condition giving rise to the Claim, whichever is later.

§ 15.1.3.2 Claims by either the Owner or Contractor, where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2, shall be initiated by notice to the other party. In such event, no decision by the Initial Decision Maker is required.

§ 15.1.4 Continuing Contract Performance

§ 15.1.4.1 Pending final resolution of a Claim, except as otherwise agreed in writing or as provided in Section 9.7 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments in accordance with the Contract Documents.

§ 15.1.4.2 The Contract Sum and Contract Time shall be adjusted in accordance with the Initial Decision Maker's decision, subject to the right of either party to proceed in accordance with this Article 15. The Architect will issue Certificates for Payment in accordance with the decision of the Initial Decision Maker.

§ 15.1.5 Claims for Additional Cost

If the Contractor wishes to make a Claim for an increase in the Contract Sum, notice as provided in Section 15.1.3 shall be given before proceeding to execute the portion of the Work that is the subject of the Claim. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.4.

§ 15.1.6 Claims for Additional Time

§ 15.1.6.1 If the Contractor wishes to make a Claim for an increase in the Contract Time, notice as provided in Section 15.1.3 shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay, only one Claim is necessary.

§ 15.1.6.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated, and had an adverse effect on the scheduled construction.

§ 15.1.7 Waiver of Claims for Consequential Damages

The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract. This mutual waiver includes

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit, except anticipated profit arising directly from the Work.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 15.1.7 shall be deemed to preclude assessment of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 15.2 Initial Decision

§ 15.2.1 Claims, excluding those where the condition giving rise to the Claim is first discovered after expiration of the period for correction of the Work set forth in Section 12.2.2 or arising under Sections 10.3, 10.4, and 11.5, shall be referred to the Initial Decision Maker for initial decision. The Architect will serve as the Initial Decision Maker, unless otherwise indicated in the Agreement. Except for those Claims excluded by this Section 15.2.1, an initial decision shall be required as a condition precedent to mediation of any Claim. If an initial decision has not been rendered within 30 days after the Claim has been referred to the Initial Decision Maker, the party asserting the Claim may demand mediation and binding dispute resolution without a decision having been rendered. Unless the Initial Decision Maker and all affected parties agree, the Initial Decision Maker will not decide disputes between the Contractor and persons or entities other than the Owner.

§ 15.2.2 The Initial Decision Maker will review Claims and within ten days of the receipt of a Claim take one or more of the following actions: (1) request additional supporting data from the claimant or a response with supporting data from the other party, (2) reject the Claim in whole or in part, (3) approve the Claim, (4) suggest a compromise, or (5) advise the parties that the Initial Decision Maker is unable to resolve the Claim if the Initial Decision Maker lacks sufficient information to evaluate the merits of the Claim or if the Initial Decision Maker concludes that, in the Initial Decision Maker's sole discretion, it would be inappropriate for the Initial Decision Maker to resolve the Claim.

§ 15.2.3 In evaluating Claims, the Initial Decision Maker may, but shall not be obligated to, consult with or seek information from either party or from persons with special knowledge or expertise who may assist the Initial Decision Maker in rendering a decision. The Initial Decision Maker may request the Owner to authorize retention of such persons at the Owner's expense.

§ 15.2.4 If the Initial Decision Maker requests a party to provide a response to a Claim or to furnish additional supporting data, such party shall respond, within ten days after receipt of the request, and shall either (1) provide a response on the requested supporting data, (2) advise the Initial Decision Maker when the response or supporting data will be furnished, or (3) advise the Initial Decision Maker that no supporting data will be furnished. Upon receipt of the response or supporting data, if any, the Initial Decision Maker will either reject or approve the Claim in whole or in part.

§ 15.2.5 The Initial Decision Maker will render an initial decision approving or rejecting the Claim, or indicating that the Initial Decision Maker is unable to resolve the Claim. This initial decision shall (1) be in writing; (2) state the reasons therefor; and (3) notify the parties and the Architect, if the Architect is not serving as the Initial Decision Maker, of any change in the Contract Sum or Contract Time or both. The initial decision shall be final and binding on the parties but subject to mediation and, if the parties fail to resolve their dispute through mediation, to binding dispute resolution.

§ 15.2.6 Either party may file for mediation of an initial decision at any time, subject to the terms of Section 15.2.6.1.

§ 15.2.6.1 Either party may, within 30 days from the date of receipt of an initial decision, demand in writing that the other party file for mediation. If such a demand is made and the party receiving the demand fails to file for mediation within 30 days after receipt thereof, then both parties waive their rights to mediate or pursue binding dispute resolution proceedings

with respect to the initial decision.

§ 15.2.7 In the event of a Claim against the Contractor, the Owner may, but is not obligated to, notify the surety, if any, of the nature and amount of the Claim. If the Claim relates to a possibility of a Contractor's default, the Owner may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

§ 15.2.8 If a Claim relates to or is the subject of a mechanic's lien, the party asserting such Claim may proceed in accordance with applicable law to comply with the lien notice or filing deadlines.

§ 15.3 Mediation

§ 15.3.1 Claims, disputes, or other matters in controversy arising out of or related to the Contract, except those waived as provided for in Sections 9.10.4, 9.10.5, and 15.1.7, shall be subject to mediation as a condition precedent to binding dispute resolution.

§ 15.3.2 The parties shall endeavor to resolve their Claims by mediation which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Mediation Procedures in effect on the date of the Agreement. A request for mediation shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the mediation. The request may be made concurrently with the filing of binding dispute resolution proceedings but, in such event, mediation shall proceed in advance of binding dispute resolution proceedings, which shall be stayed pending mediation for a period of 60 days from the date of filing, unless stayed for a longer period by agreement of the parties or court order. If an arbitration is stayed pursuant to this Section 15.3.2, the parties may nonetheless proceed to the selection of the arbitrator(s) and agree upon a schedule for later proceedings.

§ 15.3.3 Either party may, within 30 days from the date that mediation has been concluded without resolution of the dispute or 60 days after mediation has been demanded without resolution of the dispute, demand in writing that the other party file for binding dispute resolution. If such a demand is made and the party receiving the demand fails to file for binding dispute resolution within 60 days after receipt thereof, then both parties waive their rights to binding dispute resolution proceedings with respect to the initial decision.

§ 15.3.4 The parties shall share the mediator's fee and any filing fees equally. The mediation shall be held in the place where the Project is located, unless another location is mutually agreed upon. Agreements reached in mediation shall be enforceable as settlement agreements in any court having jurisdiction thereof.

§ 15.4 Arbitration

§ 15.4.1 If the parties have selected arbitration as the method for binding dispute resolution in the Agreement, any Claim subject to, but not resolved by, mediation shall be subject to arbitration which, unless the parties mutually agree otherwise, shall be administered by the American Arbitration Association in accordance with its Construction Industry Arbitration Rules in effect on the date of the Agreement. The Arbitration shall be conducted in the place where the Project is located, unless another location is mutually agreed upon. A demand for arbitration shall be made in writing, delivered to the other party to the Contract, and filed with the person or entity administering the arbitration. The party filing a notice of demand for arbitration must assert in the demand all Claims then known to that party on which arbitration is permitted to be demanded.

§ 15.4.1.1 A demand for arbitration shall be made no earlier than concurrently with the filing of a request for mediation, but in no event shall it be made after the date when the institution of legal or equitable proceedings based on the Claim would be barred by the applicable statute of limitations. For statute of limitations purposes, receipt of a written demand for arbitration by the person or entity administering the arbitration shall constitute the institution of legal or equitable proceedings based on the Claim.

§ 15.4.2 The award rendered by the arbitrator or arbitrators shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

§ 15.4.3 The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement, shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

§ 15.4.4 Consolidation or Joinder

§ 15.4.4.1 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may consolidate an arbitration conducted under this Agreement with any other arbitration to which it is a party provided that (1) the arbitration agreement governing the other arbitration permits consolidation, (2) the arbitrations to be consolidated substantially involve common questions of law or fact, and (3) the arbitrations employ materially similar procedural rules and methods for selecting arbitrator(s).

§ 15.4.4.2 Subject to the rules of the American Arbitration Association or other applicable arbitration rules, either party may include by joinder persons or entities substantially involved in a common question of law or fact whose presence is required if complete relief is to be accorded in arbitration, provided that the party sought to be joined consents in writing to such joinder. Consent to arbitration involving an additional person or entity shall not constitute consent to arbitration of any claim, dispute or other matter in question not described in the written consent.

§ 15.4.4.3 The Owner and Contractor grant to any person or entity made a party to an arbitration conducted under this Section 15.4, whether by joinder or consolidation, the same rights of joinder and consolidation as those of the Owner and Contractor under this Agreement.

Supplemental Conditions

The terms and conditions contained herein are a Supplemental Conditions to which the Owner and Contractor agree are in addition to or replacement of the terms of the A201 -2017 AIA Document A201 General Conditions of the Contract for Construction.

In the event of any conflict between the terms and conditions of the AIA A201 and these Supplementary Conditions, these Supplemental Conditions shall control.

In the event of any conflict between the terms and conditions of AIA A201, the Supplementary Conditions, and the EDA Contracting Provisions for Construction Projects, the EDA Contracting Provisions for Construction Projects shall control.

With respect to all of the General Conditions, and all of the Contract Documents, and the entire contractual relationship between the Owner and the Contractor, no oral agreements, of any kind, type, or nature, shall be valid or binding in any manner upon the parties. The only Contract Documents, or agreements of any kind, type or nature, by and between the Owner and the Contractor which shall be valid and enforceable in any manner shall be those which are in writing, and signed by both parties by persons duly authorized, under the law, by both parties to execute said Agreements or Modifications.

With respect to the Contract Documents, any reference to the term "cost", singular or plural, shall mean actual documented cost, without any markup on the part of the Contractor.

With respect to the Contract Documents, any reference to the term "agreement" shall only mean, an agreement in writing, signed by the parties to be charged by the terms of the agreement.

The Contractor, by reason of its expertise and status as a Licensed Public Works General Contractor in the State of Idaho, and by its entry into the agreement and Contract Documents with the Owner, shall be considered in a position of trust and confidence as a fiduciary to the Owner, and the taxpayers as such, and in particular with respect to acting as a guardian of the taxpayer funds used to fund the construction of the Project.

The following Articles of the A201 General Conditions shall be amended as follows:

§1.1.1 The Contract Documents include the Instructions to Bidders, the Contractor's Bid, including that portion of the Contractor's Bid which satisfies Idaho Code Section 67-2310. The Contract Documents shall also include any and all Shop Drawings and Submittals which are approved by the Architect, and which shall be deemed to be authorized by the Contractor even though submitted by any Subcontractor, Sub-Subcontractor or Materials Supplier.

§1.1.2.1 Neither the Architect nor the Architect's consultants shall be considered third party beneficiaries of the Contract or the Contract Documents in the relationship between the Owner and the Contractor. This provision does not affect the Architect's entitlement to performance and enforcement of obligations under the contract as specified in 1.1.2 of the General Conditions. No failure in performance by neither the Owner nor the Contractor shall relieve, in any way, the Architect from the full and complete performance of the duties enumerated herein which duties are, by reference, included within the Agreement for Professional Services dated November 3, 2011, between the Owner and the Architect.

§1.2.1.1 All Contract Documents are intended to be consistent. However, anything provided in one document but not provided in another shall be of like effect as if shown or mentioned in both. This does not constitute a conflict, discrepancy, or error between the two. In the event of directly conflicting provisions, precedence shall be given as follows: (1) Modifications of the Agreement, with those of later date having precedence over those of earlier date; (2) the Agreement; (3) Addenda to the Bid Documents; (4) the General Conditions of the Contract for Construction; (5) the Specifications; (6) the

Drawings, with precedence given to figures in the event of any conflict between figures and scaled measurements, and precedence given to large scale drawings in the event of any conflict between large scale drawings and small scale drawings.

§1.2.1.2 Inconsistencies within any one Contract Document, or inconsistencies not otherwise resolved by the above prioritization, shall be resolved in favor of Owner receiving (a) the greater quality or greater quantity of goods, services or performance, or (b) the greater obligation to Owner in the terms and conditions. Both (a) and (b) shall be resolved in Owner's sole discretion without a change in the contract sum.

§1.2.1.3 Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and (1) the provisions of any standard, specification, manufacturer's specifications, manual, code, or instruction (collectively, "standards"), whether or not specifically incorporated by reference in the Contract Documents, unless the standards provide the better quality or greater quantity of Work to Owner, in which case the standards shall take precedence; or (2) unless local conditions prevent installation in the prescribed manner, in which case, the approval of the Architect and Owner shall be obtained before proceeding with this part of the Work; or (3) the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

§1.2.4 All Work shall be the best of the respective kinds specified or indicated. Should workmanship or materials be required which are not directly or indirectly called for in the Specifications or shown on the Drawings, but are consistent with the Contract Documents and reasonably inferable by them or standard industry practice, said workmanship or materials shall be the same as similar parts that are detailed, indicated or specified, or shall match or exceed the quality of existing improvements, and Contractor shall understand the same to be implied and provide for the same as fully as if it were particularly described or delineated.

§1.2.5 Contractor has included within the Contract Sum all labor, materials, equipment, and services that are likely to be required for the Project in accordance with the requirements of state laws, local building codes, local building officials, manufacturer's recommendations, building standards, and trade practices. To the extent, if at all, that the Contract Documents contain ambiguities, discrepancies, errors, or omissions, and to the extent, if at all, that there are discrepancies between the Contract Documents and the Project site and surveys (collectively referred to hereafter in this Section as "errors and omissions"), Contractor hereby waives any claims for additional compensation or damages or additional time resulting from any such errors and omissions to the extent Contractor has actually observed, or with the exercise of reasonable care should have observed, those errors and omissions and failed to report them to Owner and Architect/Engineer prior to executing the Agreement.

§1.2.6 All of the Work shall conform strictly to the Contract Documents. No change therefrom shall be made without Contract Modification. Where detailed information is lacking, or should discrepancies appear among the Contract Documents, Contractor shall, in writing, with a copy to the Owner, a request for interpretation or information from Architect/Engineer before proceeding with the Work.

§1.2.7 Reference in the Specifications to an article, device, or piece of equipment in the singular number shall apply to as many such articles as are shown on Drawings or required to complete the installation. Mention in the Specifications or indication of the Drawings of articles, products, materials, operations or methods requires Contractor to provide and install such items.

§1.2.8 Conditions of the Contract shall be read by all prime contractors and by each subcontractors or sub-subcontractor and shall be considered a part of each section of the technical Specifications. Provisions of Contract Documents are binding on contractors, subcontractor and sub-

subcontractors for all work shown or indicated on the original Contract Documents plus any additional work authorized by change order, interpretation or field orders.

§1.2.9 The Contractor shall notify the Architect of any condition he finds where, in his judgment, it will be desirable to modify the requirements to produce the best results. If the Contractor fails to make such request, he is deemed to have accepted the specified and/or detailed method of installation as being adequate to produce first class, satisfactory work.

§1.2.10 Requests by the Contractor for written interpretations and/or detail drawings shall be made to the Architect, and copied to the Owner, in a timely manner such as will allow ample time for their preparation and delivery without causing delays in the work. Failure of the Contractor to request needed clarifications and/or his proceeding with affected work prior to receiving same shall indicate his acceptance of any and all costs and/or delays required on account of necessary corrections.

§1.4.1 The Specifications are of the abbreviated or streamlined type and include incomplete sentences. Omission of words or phrases such as "the Contractor shall", "in conformity therewith", "shall be", "as noted on the Drawings", and "according to the plans" are intentional. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings. The misplacement, addition or omission of any letter, word, or punctuation mark shall in no way affect the true spirit, intent, or meaning of the Contract Documents. The words "shown," "indicated," "noted," "scheduled," or words of like effect, shall be understood to mean that reference is made to the Drawings accompanying the Specifications.

§1.4.2 Where the word "similar" or "typical" occurs on the drawings, it shall be used in this general sense and not as meaning identical or exact, and all details shall be worked out in relation to their location and their connection to other parts of the Work. Where there is a question of intent, notify the Architect regarding interpretation.

§1.4.3 Where on any Drawings a portion of the Work is drawn out and the remainder is indicated in outline, the drawn out parts shall apply also to other like portions of the Work. Where ornament or other detail is indicated by starting only, such details shall also apply to other similar parts of the Work, to properly complete the Work in full, unless specifically indicated otherwise.

§1.4.4 Where reference herein is made to products or materials "as approved" or "as selected," selection or approval shall be by Architect/Engineer and Owner.

§1.6.3 The Owner's Representative shall be copied by electronic means on any and all electronic or written communications by and/or between the Contractor, the Contractor's Subcontractors and the Architect.

§1.9 Execution of Contract Documents

§1.9.1 Execution of the Contract by Contractor is a representation by Contractor that the Contract Documents are full and complete, are sufficient to have enabled Contractor to determine the Cost of the Work and Contract Sum, and to enable Contractor to construct the Work described therein, and otherwise to fulfill all its obligations hereunder, including, but not limited to, Contractor's obligation to construct the Work for an amount not in excess of the Contract Sum on or before the Contract time established in the Agreement. Contractor further acknowledges and declares that it and its subcontractors have visited and examined the site, examined all physical, legal and other conditions affecting the Work, and is fully familiar with all of the conditions thereon and there under affecting the same. In connection therewith, Contractor specifically represents and warrants to Owner that it has, by careful examination, satisfied itself as to (1) the nature, location, and character of the Project and the site, including, without limitation, the ground conditions and all structures and obstructions thereon and there under, both natural and man-made, and the surrounding area; (2) the nature, location and character of the general area in which the Project is located, including, without limitation, its climactic conditions, available labor supply and labor

costs, and available equipment supply and equipment costs; and (3) the available quality and quantity of all materials, supplies, tools, equipment, labor and professional services necessary to complete the Work.

§1.9.2 Contractor recognizes the degree of care required for the specific site construction circumstances with respect to safety, protection of pedestrians, cleanliness of the site, health and other laws, and protection of existing utilities, adjacent streets, and property. In arriving at the contract Sum and the Contract Time, contractor has, as an experienced and prudent contractor, exercised its best judgment and expertise to include the impact of such circumstances upon the Contract Sum and the Contract time.

§2.2.1 THIS SECTION IS VOID.

§2.2.2 THIS SECTION IS VOID.

§2.2.3 THIS SECTION IS VOID.

§2.2.4 THIS SECTION IS VOID.

§2.3.4 Add the following to the first sentence of paragraph 2.2.3: "...to the extent that such information is readily available to the Owner."

§2.3.7 Copies of data furnished by Owner or Architect/Engineer to Contractor, or Contractor to Owner or Architect/Engineer that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

§2.3.8 Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within sixty (60) days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the sixty (60) day acceptance period will be corrected by the transferring party. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data creator.

§2.4.1 The term "repeatedly" in this Article, shall mean on more than two (2) occasions after receipt of not less than twenty four (24) hours written notice from either, the Owner, or the Architect. The Contractor agrees that in addition to the Owner's Right to Stop the Work, that any such repeated failure shall be agreed to be sufficient grounds for termination as provided in the Contract Documents.

§3.2.1 Add the following after the first sentence: If document conflicts are not raised in a timely manner, (so that Work can proceed without delay), the Contractor will be deemed to choose the more costly method unless otherwise provided for which shall be at the Contractor's expense.

§3.2.1.1 Within sixty (60) days from the Notice to Proceed, the Contractor shall certify in writing to the Architect that it has made the review required under Subparagraph 3.2.2 and that it has discovered no errors, omissions or inconsistencies or identifying in as much detail as possible all errors, omissions, or inconsistencies the Contractor has discovered. Contractor shall have a continuing obligation during the Project to advise the Architect and Owner's Representative of any errors, omissions or inconsistencies it discovers.

§3.3.1.1 Where construction means, methods, techniques, sequences and procedures are specified, either directly, by reference to industry standards, or otherwise, the Contractor shall review specified procedures and, if they will not produce the intended results, cannot be warranted, or otherwise

are objectionable to the Contractor, the Contractor shall propose alternative procedures. Where no proposal is received in timely manner, the Contractor, by signing the Agreement, has agreed that the specified procedures are acceptable, warrantable and will be used to produce the intended results. The Contractor is responsible for all coordination of all changes, created as a result of shop drawings, with the various subcontractors and suppliers under Contract for work of the Contractor.

§3.4.1.1 Contractor's obligations under Paragraph 3.4.1 shall include, without limitation, the obligation to pay all subcontractors and any other person or entity having bond rights regarding the Project due to their performance of Contractor's obligations under the Contract. Contractor agrees to keep the Project and the Project site free and clear of any and all subcontractor claims (bond claims or otherwise) filed or served by any person or entity at any tier performing the Work or Contractor's obligations under the Contract.

§3.4.1.2 Contractor agrees to indemnify, defend, reimburse and hold harmless (with counsel approved by Owner) Owner and Architect/Engineer from, for, and against any and all claims referenced in Paragraph 3.4.1.1, and actions, suits, or proceedings relating to such claims and any and all related costs and expenses incurred by Owner, including, without limitation, attorneys' fees and expert/consultant fees.

§3.4.3.1 Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. Contractor shall only employ labor on the Project or in connection with the Work capable of working harmoniously with all trades, crafts, and any other individuals associated with the Project. Contractor shall be responsible for labor peace on the Project and shall at all times make its best efforts and judgment as an experienced contractor to adopt and implement policies and practices designed to avoid work stoppages, slowdowns, disputes, or strikes where reasonably possible and practical under the circumstance and shall at all times maintain Project-wide labor harmony. Except as specifically provided in Paragraph 8.3.1, Contractor shall be liable to Owner for all damages suffered by Owner occurring as a result of work stoppages, slowdowns, disputes, or strikes.

§3.4.3.2 The Contractor shall insure, that neither the Contractor, nor any Subcontractor, nor any Sub-Subcontractor shall employ any illegal alien personnel on the Project.

§3.4.4 Subcontractors whose Work is unsatisfactory to Owner or Architect/Engineer, or is considered by Owner or Architect/Engineer to be careless, incompetent, unskilled or otherwise objectionable, shall be dismissed from Work under the Contract upon written notice from Owner or Architect/Engineer. No additional compensation shall be provided to Contractor due to the proper dismissal of a subcontractor by Owner or Architect/Engineer.

§3.4.5 Contractor shall coordinate all Work of like material in order to produce harmony of matching finishes, textures, colors, etc., throughout the various components of the Project.

§3.9.1 Change to read: The Contractor shall employ a competent, full time Superintendent during performance of the Work. Any change in the Superintendent personnel shall be reviewed and approved by the Architect and Owner. The Superintendent shall have full authority to represent the Contractor and communications given to the Superintendent shall be a binding as if given to the Contractor. Important communications shall be confirmed in writing. All other communications shall be similarly confirmed on written request in each case. The name and qualifications of the Superintendent will be submitted before the start of Construction. The Superintendent shall have a thorough understanding of the following:

- .1 A complete understanding of the administrative procedures of the project.
- .2 Project scheduling, sequencing of self-performed and subcontractor work.
- .3 Layout and oversee the installation of each trade involved in the Work.

.4 Be knowledgeable of the installation procedures for each trade involved in the Work.

.5 Applicable building codes.

§3.10.1.1 The Contractor's construction schedule shall be revised and updated not less than every two (2) weeks during the course of the Work on the Project. The Contractor shall deliver each updated construction schedule to both the Architect and the Owner's Representative in a timely manner. The Contractor shall be responsible to notify the Owner's Representative and the Architect, in writing, if and when any element of the Work as planned, is in any way delayed, as reflected or not in the Contractor's construction schedule. It is the intent of this Article that the Owner and the Architect be kept fully informed as to any performance issues in any way affecting the achievement of the construction schedule as planned, in order that any issues relating to the performance of the Work by the Contractor, any Subcontractor, or any Sub-Subcontractor may be addressed in a timely and expeditious manner to avoid delay and cost to the Owner.

§3.10.1.2 It is specifically understood and agreed that the "float" or "slack" time for the whole or any part of the Work as provided in Contractor's construction schedule shall belong solely to Owner.

§3.11.1 In addition, the Contractor shall prepare, keep, and maintain at the site As Built Drawings of all of the Work. At the conclusion of the Project, the Contractor shall deliver one set of As Built Drawings to the Owner and one set of As Built Drawings to the Architect.

§3.12.7.1 All approvals required by this Article shall be in writing.

§3.12.10.1 Owner shall be entitled to deduct from the Contract Sum amounts paid to Architect/Engineer for evaluation of any additional resubmittals by Contractor to the extent such resubmittals by Contractor are not the fault of Owner or Architect/Engineer.

§3.15.1.1 The Contractor shall also be responsible for and shall complete a final clean up prior to turning the Project over to the Owner for beneficial occupancy and use by the Owner.

§3.19 Maintenance and Inspection of Contractor's Books and Records

§3.19 Nondiscrimination

§3.19.1 Contractor shall not discriminate based on race, religion, color, sex, marital status, familial status, national origin, age, mental or physical disability, sexual orientation, gender identity, source of income, or political affiliation in programs, activities, services, benefits or employment. Contractor shall not discriminate against minority-owned, women-owned, or emerging small businesses. Contractor shall include a provision in each subcontract requiring subcontractors to comply with the requirements of this Paragraph.

§7.1.4 Owner will not be responsible for additional costs, fees, or time associated with any altered or additional Work unless a Modification is properly and timely prepared and executed as required in the Contract Documents. Contractor hereby waives any argument that Owner's conduct (including, but not limited to, orally approving changes) amounts to a waiver of the prior, written change requirements of the Contract Documents.

§7.2.2 In order to facilitate checking of quotations for extras or credits, all proposals, except those so minor that their propriety can be seen by inspection, shall be accompanied by a complete itemization of costs, including labor, materials, and subcontracts. Labor and materials shall be itemized in the manner prescribed above. Where major cost items are subcontracts, they shall be itemized also. In no case will a change involving over One Thousand Dollars (\$1,000.00) be approved without such itemization.

§7.2.2.1 No administrative time (at the job site, home office, or any other location) shall be allowed as a line item of the estimated cost of a change order, including the Superintendent's time. Administrative costs are considered to be part of the overhead and profit of the Contractor.

§7.2.2.2 Construction Equipment Usage Costs: For rental cost for materials for machinery and equipment rented from others, the actual rental costs paid plus compensation for furnishing all fuel, oil, lubrication, repairs, maintenance and insurance to the extent that such amounts are not included in the outside rental rate.

.1 Contractor's own equipment and small tools are considered part of the Contractors overhead and profit and no allowance charge will be permitted as part of any change in the Work.

§7.2.3 The amount allowed for overhead and profit on any change order is limited to the amounts indicated in subparagraph 7.2.4 of these Supplementary Conditions.

§7.2.4 For purposes of paragraphs 7.2 and 7.3 of these Supplementary Conditions, the allowance for combined overhead and profit shall be limited as follows, unless otherwise provided in the Contract Documents:

.1 for total changes of \$10,000 or less in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier, combined shall not exceed fifteen percent (15%) of direct costs.

.2 for total changes exceeding \$10,000 in direct cost, the amount allowed for overhead, profit, bonds and insurance for the Contractor and all subcontractors of any tier, combined shall not exceed ten percent (10%) of direct costs.

.3 the Contractor will determine the apportionment between the Contractor and its subcontractors of allowable amounts of overhead, profit, bonds and insurance.

§7.2.5 Any Change Order prepared, including but not limited to those arising by reason of the parties' mutual agreement or by mediation, shall constitute a final and full settlement of all matters relating to or affected by the change in the work, including, but not limited to, all direct, indirect and consequential costs associated with such change and any and all adjustments to the Contract Sum and Contract Time. In the event a Change Order increases the Contract Sum, the Contractor shall include the work covered by such Change Order in the Application for Payment as if such work were originally part of the Project and Contract Documents.

§7.2.6 By the execution of a Change Order, the Contractor agrees and acknowledges that he has had sufficient time and opportunity to examine the change in work which is the subject of the Change Order and that he has undertaken all reasonable efforts to discover and disclose any concealed or unknown conditions which may to any extent affect the Contractor's ability to perform in accordance with the Change Order. Aside from those matters specifically set forth in the Change Order, the Owner shall not be obligated to make any adjustments to either the Contract Sum or Contract Time by reason of any conditions affecting the change in work addressed by the Change Order, which could have reasonably been discovered or disclosed by the Contractor's examination.

§8.1.2.1 The date indicated of commencement will be established in a Notice to Proceed.

§8.1.3.1 The Contractor shall substantially complete the work within **365 consecutive calendar days** after commencement of construction, but no later than March 1, 2026.

§8.3.2.1 Extension of time shall be Contractor's sole remedy for delay unless the same shall have been caused by acts constituting intentional interference by the Owner with Contractor's performance of the Work where and to the extent that such acts continue after Contractor's notice to Owner of such

interference. Owner's exercise of any of its rights under Article 7 Changes in Work regardless of the extent or number of such changes, or Owner exercise of any of its remedies of suspension of Work, or requirement of correction or re-execution of any defective Work, shall not under any circumstances be construed as intentional interference with Contractors performance of the Work.

§8.3.3.1 In no event shall a claim for damages for delay be construed to effect, in any way, the waiver of damages provided for in Article §15.1.6.

§8.3.4 No extension of time for completion will be allowed for delays or suspensions caused by or contributed to by the fault or negligence of Contractor.

.1 To make a request for a change to the Contract time, the Contractor must identify the trades involved, provide a statement from each trade indicating the man hours involved by each, and a statement from the Contractor indicating how the change effects the critical path of the construction.

.2 No change will be granted if the change in Work does not affect the critical construction path as identified on the construction schedule submitted by the Contractor and approved by the Architect.

.3 work that deviates from the Contract Documents and the Architect requires to be corrected, are not grounds for time extensions.

.4 Extreme weather conditions are not necessarily grounds for delay.

§8.3.5 Contractor will be entitled to no delay damages, wage escalation, material escalation, extended overhead, or additional compensation of any kind for any delay except for such delays as may be caused solely by a default of Owner in this Agreement.

§8.3.6 The cost for delay construed to be caused by the Owner, the Architect or their agents must be identified in writing within 7 days of occurrence. Failure to promptly identify delays in writing waives any and all claims of the Contractor to collect for damages arising there from.

§9.2.1 The schedule of values shall be prepared in such a manner that each major item of Work and each subcontracted item of Work is shown as a single line item on AIA Document G703, Application and Certification for Payment, Continuation Sheet. Provide a labor and material breakdown for each general and subcontracted item of Work including mechanical and electrical. All subcontractors of \$50,000 or more must include sub-contract breakdown. Update breakdown with each application for payment.

§9.3.1.3 The form of Application for Payment shall be AIA Document G702, Application and Certificate for Payment supported by AIA Document G703 or Architect's Standard Form, Continuation Sheet; notarized.

§9.3.1.4 Prior to the release of funds (first progress payment); the Contractor shall submit a list of subcontractors, construction schedule, list of all products and materials to be incorporated in the Work, and schedules of values.

§9.3.1.5 Retainage: A sum not to exceed five percent (5%) of the monies earned by the Contractor on estimates during the progress of the improvement or Work shall be reserved by the Owner. Said sum is to be retained by the Owner as a trust fund for the protection and payment of any person or persons, mechanic, subcontractor or material supplier who shall perform any labor upon such Contract or the doing of said work.

9.3.2.1 Off-site storage will not be approved at locations more than thirty (30) miles from the Project site or outside the State of Idaho and any payment for any off-site storage is subject to the following:

- .1 The Contractor must provide at least thirty (30) days' advance written notice of its request to store off-site. Such notice must include a description of the type, quantities, locations and values of materials involved for the next billing cycle. All invoices must indicate the type, quantities and value of materials or equipment for which payment is requested;
- .2 All materials stored off-site must be segregated and clearly marked as being the "Property of the Moscow Police Services Facility"
- .3 The Architect and/or the Owner's Representative must have unrestricted access to the stored materials during all business hours and may physically inventory all invoiced materials and equipment and may physically inspect the storage conditions;
- .4 The Contractor must provide written Consent of Surety to off-site storage of materials and equipment and to payment for such materials and equipment prior to incorporation in the Work. Consent must be from the Surety. Consent of local broker or agent is not acceptable;
- .5 The Contractor must maintain and must provide to the Architect, upon request, a current log of stored materials and equipment, which reflects when materials and equipment are used or added;
- .6 The Contractor must obtain and maintain all risk property insurance at replacement cost, with the College of Southern Idaho listed as loss payee on all materials and equipment stored off-site and in transit.

§9.6.1.1 The Owner shall pay progress payments, following receipt of the Architect's Certificate for Payment, in accord with the usual and ordinary time frame for processing payments and bills by the Owner, and in accordance with law.

§9.6.4.1 The Owner hereby requires, and the Contractor hereby agrees, that the Contractor shall obtain and shall require each Subcontractor to provide to the Contractor, for delivery to the Owner, the Owner's Representative, and the Architect, lien waivers as proof of payment, from each and every Subcontractor, Sub-Subcontractor, material man and supplier. Said lien waivers as proof of payment shall be provided with seven days of the date of each payment to the Contractor. In the event that the Contractor fails to obtain and provide the lien waivers within the time frames provided herein, said failure shall be considered a material breach of the Contract Documents, grounds for termination, and the further exercise of any legal or equitable right the Owner shall choose to exercise.

§9.6.8 With each Application for Payment, Contractor shall furnish a conditional waiver and release of claims for itself and each first-tier subcontractor who furnished labor, equipment, materials or services to the Project during the period covered by the Application for Payment. Upon each payment by Owner, Contractor shall execute and cause first-tier subcontractors to execute an unconditional waiver and release of claim acknowledging receipt of all payments due through the period covered by the previous Application for Payment. The conditional and unconditional claim releases shall be on forms agreed to by the owner, and Contractor shall deliver the executed releases to Owner with its next succeeding Application for Payment, including the Final Application for Payment.

§9.6.9 In addition to the retainage specified in the Agreement, Owner may withhold progress payments or final payment or any portion thereof on account of (1) defective or nonconforming Work not remedied, (2) claims filed or a reasonable basis to believe that such claims will be filed, (3) failure of Contractor to make payments properly for labor, materials, equipment, or subcontracts, (4) failure of Contractor to submit to Owner claim waivers and releases, or (5) significant failure to carry out the Work in strict accordance with this Agreement. Owner may withhold from a progress payment or final payment up to one hundred fifty percent (150%) of the estimated or actual costs associated with the above items.

§9.8.1.1 For Substantial Completion to be achieved, Owner must have received a temporary or final certificate of occupancy and all other governmental approvals as necessary and required for Owner

to occupy or utilize the Work or designated portion thereof for its intended purpose. All Work other than incidental or corrective or punch

list work and final cleaning shall have been completed. The Work is not Substantially Complete if all systems and parts are not useable, if utilities are not connected and operating normally, or if the Work is not accessible by normal vehicular and pedestrian traffic routes. The fact that the Owner may occupy the Work or designated portion thereof does not indicate that the Work is Substantially Complete or is acceptable in whole or in part, nor does such occupation toll or change any liquidated damages from the Owner.

§9.8.2.1 The Contractor, in conjunction and cooperation with the Owner's Representative and the Architect, shall prepare and submit the list of items to be completed, also known as a punch-list, for every segment of the Work, prior to it being covered by other construction Work, in order to allow the Owner, the Owner's Representative and the Architect to inspect and evaluate each segment of the Work.

§9.8.2.2 Upon execution of Certificate of Substantial Completion, the Contractor shall attach a list of each outstanding and unresolved Claim or Lien; any Claim or Lien not so attached and identified, other than retainage and the undisputed balance of the Contract Sum, shall be deemed waived and abandoned.

§9.8.3.1 The Architect, in conjunction, coordination, and simultaneously with the Owner's Representative and the Contractor, shall make the inspection(s) required by this Article.

§9.8.3.2 If the Owner or Architect determines that the Work or designated portion is not substantially complete, the Contractor shall expeditiously complete the Work or designated portion, again request an inspection, and pay the costs associated with the reinspection, including fees of the Architect and consultants of the Architect or Owner.

§9.8.4.1 A Certificate of Substantial Completion shall only be issued after the Architect timely seeks, and obtains, the Owner's review and written approval that the Work is substantially complete.

§9.8.4.2 The Contractor's warranties, and that of all Subcontractor's and Sub-Subcontractors, shall not commence until final completion and final payment by the Owner. The Contractor shall specially warrant all of the Work on the Project for a period of one (1) year from the date of Final Payment, as defined in the Contract Documents.

§9.8.6 Liquidated damages. The Owner will suffer financial loss if the project is not Substantially Complete on the date set forth in the Contract Document. Inasmuch as the actual loss due to the lost use of the facility and inconvenience to Owner and the public are difficult to ascertain, The contractor shall agree, as a condition of the Contract that the Contractor (and his Surety) shall be liable for and shall pay to the Owner the sum hereinafter stipulated as fixed, agreed and liquidated damages for each calendar day of delay until the Work is Substantially Complete: **Two Hundred and Fifty Dollars (\$250.00)**.

§9.10.1.1 If the Architect determines that some or all of the punch list items are not accomplished, the Contractor shall be responsible to the Owner for all costs, including reinspection fees, for any subsequent inspections to determine compliance with the punch list.

§9.10.1.2 The Architect's approval of the final Certificate for Payment shall establish the date of Final Completion upon its execution by the Owner.

§9.10.2.1 Final payment shall not become due until after the Owner has formally accepted the Project (Final Acceptance). To achieve Final Acceptance, the Architect must issue a final Certificate for Payment under subparagraph 9.10.1, an occupancy permit must have been issued, Final Completion must have occurred and the Contractor must have submitted all warranties, guarantees, manuals,

operation instructions, certificates, spare parts, maintenance stock, specified excess material, and other documents or items required by the Contract Documents to the Architect.

§11.1.2.1 The insurance required by Subparagraph 11.1.1 shall be written for not less than the following limits:

1. Workers' Compensation:

- (a) State: Statutory
- (b) Employer's Liability: \$100,000 per Accident
\$500,000 Disease, Policy Limit
\$100,000 Disease, Each Employee

2. Comprehensive or commercial general liability including premises operation; owners and contractors protective liability, products and completed operations liability, personal injury liability (including employee acts), broad form property damage liability and blanket contractual liability:

- (a) For any claim for bodily injury, property damage, personal injury or due to a contractual liability, limits of not less than \$1 million per occurrence.
- (b) For products and completed operations coverage, coverage is to be maintained for a period of two (2) years following final payment.
- (c) For the hazards of explosion, collapse, and underground, commonly referred to as XCU, coverage shall be required if the exposures exist. This coverage may be provided by the subcontractor if the State and prime contractor are named as additional insured.

3. Business auto liability (including owned, non-owned and hired vehicles) in an amount of not less than \$1 million combined single limit.

4. If the General Liability coverage is provided by a Commercial Liability policy, the:

- (a) General Aggregate shall be not less than \$2,000,000.
- (b) Fire legal liability shall be provided in an amount not less than \$500,000 per occurrence.

5. Umbrella Excess Liability: An umbrella policy may be used in combination with other policies to provide a minimum coverage of \$1,000,000.

§11.1.2.2 The Owner shall be named as an additional insured on the insurance required in 11.1.2.1 items 2, 3 and 5 above.

§11.3.1 Change the first sentence to read: Unless otherwise provided, The Contractor, at its sole expense, shall purchase and maintain, in a company or companies lawfully authorized to do business in the jurisdiction in which the Project is located, property insurance written on a builder's risk "all-risk" or equivalent policy form in the amount of the initial Contract Sum, plus value of subsequent Contract Modifications and cost of materials supplied or installed by others, comprising total value for the entire Project at the site on a replacement cost basis without optional deductibles.

§11.4.1.1 The Contractor shall furnish separate performance and payment bonds to the Owner. Each bond shall set forth a penal sum in an amount not less than the Fixed Price Contract Amount and shall include a power of attorney attached to each bond. The signature of both the Contractor (principal) and the Surety are required. If the Surety is incorporated, both bonds must have the corporate seal. Each bond furnished by the Contractor shall incorporate by reference the terms of this Contract as fully as though they were set forth verbatim in such bonds. In the event the Fixed Price Contract Amount is

adjusted by Change Order executed by the Contractor, the penal sum of both the performance bond and the payment bond shall be deemed increased by like amount. The performance and payment bonds furnished by the Contractor shall be AIA Document A312, or a standard surety form certified approved to be the same as the AIA Document A312, and shall be executed by a Surety, or Sureties, reasonably acceptable to the Owner, listed as acceptable by the U.S. Treasury, and authorized to do business in the State of Idaho. Such surety or sureties shall be within the bonding limits listed in the U.S. Treasury circular 570.

§11.4.1.2 Upon the request of any person or entity appearing to be a potential beneficiary of bonds covering payment of obligations arising under the Contract, the Contractor shall promptly furnish a copy of the bonds or shall permit a copy to be made.

§ 11.4.1.3 It is the Contractor's obligation to notify the Surety in the event of changes in the Contract Documents, which in the absence of notification might serve to discharge the Surety's obligations, duties, or liability under bonds or the Contract.

§12.3.1 Nothing contained in this Article shall be considered a contractual duty or requirement for the Owner to accept nonconforming Work, nor shall anything contained herein relieve the Contractor in any way from the requirement to provide the Work in conformance with the Contract Documents.

§13.1.1 The Contract and all interpretation of the Contract Documents shall be governed by the law of the State of Idaho, and the U.S. Government (appropriate regulations).

§13.1.2 Each Contractor and his subcontractors and sub-subcontractors shall comply with all Idaho Statutes with specific reference to Public Works Contractor's State License Law, Title 54, Chapter 19, Idaho Code, as amended.

§15.1.2.1 Claims must be initiated by written notice to the Architect and the other party. An additional claim made after the initial Claim has been implemented by Change Order will not be considered.

§15.1.2.2 Contractor shall cooperate with Architect/Engineer and Owner in an effort to mitigate the alleged or potential damages, delay, or other adverse consequences arising out of the condition which is the cause of such a Claim. Failure to make a Claim within the twenty-one (21) day timeframe will result in Contractor's waiver of the Claim and all related damage. Claims must be made by written notice. Claims must contain reasonably detailed information (including all supporting documents) sufficient to allow meaningful review by Owner and Architect/Engineer. Contractor must provide all impacts to the Contract Time and Contract Sum at the time the Claim is submitted. Failure to do so will result in Contractor's waiver of the Claim and all related damage.

§15.1.5.1 Such notice shall include detailed documentation of the cause or event resulting in the need for the extension of time and a critical path schedule analysis based upon the approved Contractor's construction schedule showing the impact of the cause or event on the critical path of the approved Contractor's schedule. Failure to do so will result in Contractor's waiver of the Claim and all related damages.

§15.1.5.2 A notice of Claim for additional time due to adverse weather conditions shall include the monthly issue of *Local Climatological Data* for the months involved, plus the "Normal, Means and Extremes" table from the latest *Annual Summary of Local Climatological Data*, both of which are published by the US Department of Commerce, National Oceanic and Atmospheric Administration, national Climatic Data Center located in Asheville, NC 28801. Failure to do so will result in Contractor's waiver of the Claim and all related damages. Unless otherwise agreed by Owner and Contractor, the "Normal, Means and Extremes" table shall be the basis for determining the number of adverse weather days and the effect on the Work resulting there from which Contractor should have expected to encounter.

§15.1.8 Concealed or Unknown Conditions. If conditions are encountered at the site which are subsurface or are otherwise concealed or unknown physical conditions which differ materially from those indicated in the Contract Documents or which were not reasonably susceptible of being disclosed by the Contractor's examination of the site in accordance with Subparagraph 3.2.1 of these Supplementary Conditions, then notice by the observing party shall promptly be given to the Architect and the other party before the conditions are disturbed and in no event later than ten (10) days after first observance of the conditions. The Architect will promptly investigate such conditions and, if they differ materially from the Contract Documents or if they were not reasonably susceptible of being disclosed by the Contractor's examination of the site, will recommend an equitable adjustment in the Contract Sum or Contract Time, or both, if the conditions cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Contract. If the Architect determined that the conditions at the site do not warrant an adjustment in the Contract terms, the Architect shall so notify the Owner and Contractor in writing, stating the reasons. If the Owner and the Contractor cannot agree on an equitable adjustment to the Contract terms or otherwise disagree with the determination of the Architect, the matter shall be subject to further proceedings in accordance with Paragraph 15.2.

§15.1.9 The Contractor agrees and acknowledges that he has had sufficient time and opportunity to examine the Contract Documents and the site of the work in order to undertake any necessary actions to determine the character of the subsurface materials and site conditions to be encountered. No adjustment in the Contract Time or Contract Sum shall be permitted in connection with a subsurface, concealed or unknown site condition, which does not differ in any material respect from those conditions, disclosed or which reasonably should have been disclosed or identified by the Contractor's examination of the Contract Documents and the site of the work.

§15.1.10 The Contractor shall not be entitled to an adjustment in Contract Time or in contract Sum for any delay or failure of performance to the extent such delay or failure was caused by the Contractor or anyone for whose acts the Contractor is responsible. The Contractor shall be entitled to an equitable adjustment in Contract Time, and may be entitled to an equitable adjustment in Contract Sum, if the cost or time of failure of performance is delayed or changed due to the fault of the Owner. To the extent any delay or failure of performance was concurrently caused by the Owner and Contractor, the Contractor shall be entitled to an adjustment in the Contract Time for that portion of the delay or failure of performance that was concurrently caused, but shall not be entitled to an adjustment in Contract Sum. In the event that the Contractor is entitled to an adjustment in the Contract Sum, the Owner will pay only for the following verifiable costs directly associated with the time extension or delay: 1) the actual labor costs, fringe benefits, employment taxes and insurance related to the project Superintendent; 2) the cost associated with the fair rental value of the Project Superintendent's vehicle directly related to the time extension; 3) the direct costs attributable to the extension for the field office facility, including telephone lines, utilities, power, lights, water, and sewer (toilets). Mark-up on these costs will not be allowed. The Contractor shall make all reasonable efforts to prevent and mitigate the effects of any delay regardless of cause.

END OF SUPPLEMENTAL CONDITIONS

CERTIFICATE OF SUBSTANTIAL COMPLETION

Date:	Architect:
Project Name:	L/C Project #:
Owner:	Contractor:
Date of Issuance:	Contract Date:

PROJECT OR DESIGNATED PORTION SHALL INCLUDE:

The work performed under this Contract has been reviewed and found to be substantially complete. The Date of Substantial Completion of the Project or portion thereof designated above is hereby established as

Which is also the date of commencement of applicable warranties required by the Contract Documents, except as stated below.

Definition of Date of Substantial Completion

The Date of Substantial Completion of the Work or designated portion thereof is the Date certified by the Architect when construction is sufficiently complete, in accordance with the Contract Documents, so the Owner can occupy or utilize the Work or designated portion thereof for the use for which it is intended, as expressed in the Contract Documents.

A list of items to be completed or corrected, prepared by the Contractor and verified and amended by the Architect, is attached hereto. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. The date of commencement of warranties for items on the attached list will be the date of final payment unless otherwise agreed to in writing.

Lombard Conrad Architects, Inc.	BY	
Architect	Architect / Project Manager	Date

The Contractor will complete or correct the Work on the list of items attached hereto within _____ days from the above Date of Substantial Completion.

BY		
Contractor	Contractor's Representative	Date

The Owner accepts the Work or designated portion thereof as substantially complete and will assume full possession thereof at

Local Time on _____ (Date).

Owner _____ BY _____ Date _____
 Owner's Representative

The responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance shall be as follows: (Note – Owner's and Contractor's legal and insurance counsel should determine and review insurance requirements and coverage; Contractor shall secure consent of surety company, if any.

STANDARD FORM OF GUARANTEE

Each Prime Contractor shall unconditionally guarantee the workmanship and materials of the entire contract to be free of defects and remain free of defects in workmanship and materials for a period of one (1) year(s) from date of Notice of Substantial Completion, Notice of Completion or acceptance of the final payment by the Contractor on the Contract, as called for in the specifications.

Each subcontractor shall unconditionally guarantee the workmanship and materials of his portion of the Contract to be free of defects and remain free of defects in workmanship and materials for a period of one (1) year(s) from the date of Notice of Substantial Completion, Notice of Completion or acceptance of the final payment by the Contractor on the Contract as called for in the specifications. Such guarantees shall be signed by the Subcontractor and shall be countersigned by the Prime Contractor who shall be responsible for the entire work.

ALL Contract Bonds shall remain in full force and effect during the guarantee period.

GUARANTEE

GUARANTEE Under Specification Section No. _____

By: _____
Prime Contractor, Subcontractor or Supplier

Address

We hereby guarantee that the _____
(Description of work or material)

which we have installed at the _____
(Name and location of project)

has been completed in accordance with the plans and specifications and that the work as installed will fulfill the requirements of the guarantee included in the specifications. We agree to repair or replace any or all of our work, together with any other adjacent work which may be displaced in so doing, that may prove to be defective in its workmanship or material within a period of one (1) year from the date of the filing of the Substantial Completion, Notice of Completion or acceptance of the final payment by the Contractor, on the above-named work for the College of Southern Idaho, without any expense whatsoever to the College of Southern Idaho, ordinary wear and tear and unusual abuse or neglect excepted. Any architectural or engineering work required for such repairs and replacements shall be paid in full by the contractor or subcontractor.

Under the terms of this guarantee, the making of repairs under the guarantee may result in extending the guarantee for a like period dating from the completion of the repair work.

In the event the Prime Contractor or the Subcontractor fails to comply with the above-mentioned conditions within five (5) calendar days after being notified of the defect, in writing, by the College of Southern Idaho, we, the Prime Contractor or Subcontractor collectively or separately, do hereby authorize said College of Southern Idaho to proceed to have said defects repaired and made good at our expense and we will honor and pay the costs and charges therefore upon demand. When correction work has been started it shall be carried through to completion.

CONTRACTOR:

Prime Contractor

By: _____
Signed by Prime Contractor

Date

SUBCONTRACTOR:

Subcontractor

By: _____
Signed by Subcontractor

Date

EFFECTIVE DATE OF THIS GUARANTEE

Contractor/Subcontractor Information List

It is the responsibility of the general contractor to provide to the City of Moscow at least a minimum ten (10) days prior to the Pre-Construction Conference the following information for the general contractor and all associated sub-contractors working on said project:

- Legal business name and assumed business name
- Physical and mailing address
- Company officer names and titles
- Federal/State of Idaho Tax ID Numbers
- DUNS Number
- Awarded contract amount
- Type of Trade (i.e. electrician, plumber, etc.)
- Name and title of a person legally authorized to sign documents on behalf of the business entity
- Name of employee appointed to sign and submit Certified Payroll Reports (CPR) on behalf of the business entity.

If the general contractor/subcontractor anticipates paying fringe benefits in the wage decision towards any part and/or fully to bona fide fringe benefit plan(s), an hourly contribution rate for each employee must be determined. It is required the fringe benefit plan and hourly contribution rate be calculated and submitted with the first CPR submittal. Although it is not required, it is highly recommended that these fringe benefit plans be submitted to the City prior to the start of construction so fringe benefit plans can be reviewed for eligibility and an hourly contribution rate can be determined for each participating employee. This can help reduce CPR corrections and costly violations.

CONSENT OF SURETY COMPANY
FOR FINAL PAYMENT

PROJECT NAME: Moscow City Shop Existing Shop TI

TO: Bill Belknap
City Administrator
City of Moscow
206 E. Third Street
Moscow, ID 83843

CONTRACTOR: _____

In accordance with the provisions of the General Conditions, in the Contract between the Owner and the Contractor as indicated above, the Surety Company,

hereby approves of the final payment to the Contractor, _____,
and agrees that final payment to the Contractor shall not relieve the Surety Company of any of its
obligations to the Owner as set forth in said Surety Company's bond, Number _____

IN WITNESS WHEREOF,
the Surety Company has hereunto set its hand this _____ day of _____, _____.

Surety Company

Attest: _____
(Seal)

Signature of Authorized Rep.

The Attorney-in-Fac

AIA® Document A312® – 2010

Performance Bond

CONTRACTOR:

(Name, legal status and address)

OWNER:

(Name, legal status and address)

Bill J. Belknap
City Administrator
City of Moscow
206 East Third Street
Moscow, ID 83843

CONSTRUCTION CONTRACT

Date:

Amount: \$

Description:

(Name and location)

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

SURETY:

(Name, legal status and principal place of business)

ADDITIONS AND DELETIONS:

The author of this document may have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

Company: *(Corporate seal)*

Company: *(Corporate seal)*

CONTRACTOR AS PRINCIPAL
(Signature)

SURETY *(Signature)*

(Printed name and title)

(Printed name and title)

(Any additional signatures appear on the last page of this Performance Bond.)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)



§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner for the performance of the Construction Contract, which is incorporated herein by reference.

§ 2 If the Contractor performs the Construction Contract, the Surety and the Contractor shall have no obligation under this Bond, except when applicable to participate in a conference as provided in Section 3.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation under this Bond shall arise after

- .1 the Owner first provides notice to the Contractor and the Surety that the Owner is considering declaring a Contractor Default. Such notice shall indicate whether the Owner is requesting a conference among the Owner, Contractor and Surety to discuss the Contractor's performance. If the Owner does not request a conference, the Surety may, within five (5) business days after receipt of the Owner's notice, request such a conference. If the Surety timely requests a conference, the Owner shall attend. Unless the Owner agrees otherwise, any conference requested under this Section 3.1 shall be held within ten (10) business days of the Surety's receipt of the Owner's notice. If the Owner, the Contractor and the Surety agree, the Contractor shall be allowed a reasonable time to perform the Construction Contract, but such an agreement shall not waive the Owner's right, if any, subsequently to declare a Contractor Default;
- .2 the Owner declares a Contractor Default, terminates the Construction Contract and notifies the Surety; and
- .3 the Owner has agreed to pay the Balance of the Contract Price in accordance with the terms of the Construction Contract to the Surety or to a contractor selected to perform the Construction Contract.

§ 4 Failure on the part of the Owner to comply with the notice requirement in Section 3.1 shall not constitute a failure to comply with a condition precedent to the Surety's obligations, or release the Surety from its obligations, except to the extent the Surety demonstrates actual prejudice.

§ 5 When the Owner has satisfied the conditions of Section 3, the Surety shall promptly and at the Surety's expense take one of the following actions:

§ 5.1 Arrange for the Contractor, with the consent of the Owner, to perform and complete the Construction Contract;

§ 5.2 Undertake to perform and complete the Construction Contract itself, through its agents or independent contractors;

§ 5.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Construction Contract, arrange for a contract to be prepared for execution by the Owner and a contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Construction Contract, and pay to the Owner the amount of damages as described in Section 7 in excess of the Balance of the Contract Price incurred by the Owner as a result of the Contractor Default; or

§ 5.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor and with reasonable promptness under the circumstances:

- .1 After investigation, determine the amount for which it may be liable to the Owner and, as soon as practicable after the amount is determined, make payment to the Owner; or
- .2 Deny liability in whole or in part and notify the Owner, citing the reasons for denial.

§ 6 If the Surety does not proceed as provided in Section 5 with reasonable promptness, the Surety shall be deemed to be in default on this Bond seven days after receipt of an additional written notice from the Owner to the Surety demanding that the Surety perform its obligations under this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner. If the Surety proceeds as provided in Section 5.4, and the Owner refuses the payment or the Surety has denied liability, in whole or in part, without further notice the Owner shall be entitled to enforce any remedy available to the Owner.

§ 7 If the Surety elects to act under Section 5.1, 5.2 or 5.3, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Construction Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Construction Contract. Subject to the commitment by the Owner to pay the Balance of the Contract Price, the Surety is obligated, without duplication, for

- .1 the responsibilities of the Contractor for correction of defective work and completion of the Construction Contract;
- .2 additional legal, design professional and delay costs resulting from the Contractor's Default, and resulting from

- the actions or failure to act of the Surety under Section 5; and
- .3 liquidated damages, or if no liquidated damages are specified in the Construction Contract, actual damages caused by delayed performance or non-performance of the Contractor.

§ 8 If the Surety elects to act under Section 5.1, 5.3 or 5.4, the Surety's liability is limited to the amount of this Bond.

§ 9 The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Construction Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators, successors and assigns.

§ 10 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 11 Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the work or part of the work is located and shall be instituted within two years after a declaration of Contractor Default or within two years after the Contractor ceased working or within two years after the Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 12 Notice to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears.

§ 13 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 14 Definitions

§ 14.1 Balance of the Contract Price. The total amount payable by the Owner to the Contractor under the Construction Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Construction Contract.

§ 14.2 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and changes made to the agreement and the Contract Documents.

§ 14.3 Contractor Default. Failure of the Contractor, which has not been remedied or waived, to perform or otherwise to comply with a material term of the Construction Contract.

§ 14.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 14.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 15 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 16 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

AIA® Document A312® – 2010

Payment Bond

CONTRACTOR:

(Name, legal status and address)

OWNER:

(Name, legal status and address)

Bill J. Belknap
City Administrator
City of Moscow
206 East Third Street
Moscow, ID 83843

CONSTRUCTION CONTRACT

Date: TBD

Amount: \$

Description:

(Name and location)

Moscow City Shop Existing Shop TI
650 North Van Buren Street
Moscow, ID 83843

BOND

Date:

(Not earlier than Construction Contract Date)

Amount: \$

Modifications to this Bond:

SURETY:

(Name, legal status and principal place of business)

ADDITIONS AND DELETIONS:

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

Company: *(Corporate seal)*

Company: *(Corporate seal)*

CONTRACTOR AS PRINCIPAL
(Signature)

(Printed name and title)

SURETY *(Signature)*

(Printed name and title)

(Any additional signatures appear on the last page of this Payment Bond)

(FOR INFORMATION ONLY — Name, address and telephone)

AGENT or BROKER:

OWNER'S REPRESENTATIVE:

(Architect, Engineer or other party:)



§ 1 The Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors and assigns to the Owner to pay for labor, materials and equipment furnished for use in the performance of the Construction Contract, which is incorporated herein by reference, subject to the following terms.

§ 2 If the Contractor promptly makes payment of all sums due to Claimants, and defends, indemnifies and holds harmless the Owner from claims, demands, liens or suits by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract, then the Surety and the Contractor shall have no obligation under this Bond.

§ 3 If there is no Owner Default under the Construction Contract, the Surety's obligation to the Owner under this Bond shall arise after the Owner has promptly notified the Contractor and the Surety (at the address described in Section 13) of claims, demands, liens or suits against the Owner or the Owner's property by any person or entity seeking payment for labor, materials or equipment furnished for use in the performance of the Construction Contract and tendered defense of such claims, demands, liens or suits to the Contractor and the Surety.

§ 4 When the Owner has satisfied the conditions in Section 3, the Surety shall promptly and at the Surety's expense defend, indemnify and hold harmless the Owner against a duly tendered claim, demand, lien or suit.

§ 5 The Surety's obligations to a Claimant under this Bond shall arise after the following:

§ 5.1 Claimants, who do not have a direct contract with the Contractor,

- .1 have furnished a written notice of non-payment to the Contractor, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were, or equipment was, furnished or supplied or for whom the labor was done or performed, within ninety (90) days after having last performed labor or last furnished materials or equipment included in the Claim; and
- .2 have sent a Claim to the Surety (at the address described in Section 13).

§ 5.2 Claimants, who are employed by or have a direct contract with the Contractor, have sent a Claim to the Surety (at the address described in Section 13).

§ 6 If a notice of non-payment required by Section 5.1.1 is given by the Owner to the Contractor, that is sufficient to satisfy a Claimant's obligation to furnish a written notice of non-payment under Section 5.1.1.

§ 7 When a Claimant has satisfied the conditions of Sections 5.1 or 5.2, whichever is applicable, the Surety shall promptly and at the Surety's expense take the following actions:

§ 7.1 Send an answer to the Claimant, with a copy to the Owner, within sixty (60) days after receipt of the Claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed; and

§ 7.2 Pay or arrange for payment of any undisputed amounts.

§ 7.3 The Surety's failure to discharge its obligations under Section 7.1 or Section 7.2 shall not be deemed to constitute a waiver of defenses the Surety or Contractor may have or acquire as to a Claim, except as to undisputed amounts for which the Surety and Claimant have reached agreement. If, however, the Surety fails to discharge its obligations under Section 7.1 or Section 7.2, the Surety shall indemnify the Claimant for the reasonable attorney's fees the Claimant incurs thereafter to recover any sums found to be due and owing to the Claimant.

§ 8 The Surety's total obligation shall not exceed the amount of this Bond, plus the amount of reasonable attorney's fees provided under Section 7.3, and the amount of this Bond shall be credited for any payments made in good faith by the Surety.

§ 9 Amounts owed by the Owner to the Contractor under the Construction Contract shall be used for the performance of the Construction Contract and to satisfy claims, if any, under any construction performance bond. By the Contractor furnishing and the Owner accepting this Bond, they agree that all funds earned by the Contractor in the performance of the Construction Contract are dedicated to satisfy obligations of the Contractor and Surety under this Bond, subject to the Owner's priority to use the funds for the completion of the work.

§ 10 The Surety shall not be liable to the Owner, Claimants or others for obligations of the Contractor that are unrelated to the Construction Contract. The Owner shall not be liable for the payment of any costs or expenses of any Claimant under

this Bond, and shall have under this Bond no obligation to make payments to, or give notice on behalf of, Claimants or otherwise have any obligations to Claimants under this Bond.

§ 11 The Surety hereby waives notice of any change, including changes of time, to the Construction Contract or to related subcontracts, purchase orders and other obligations.

§ 12 No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the state in which the project that is the subject of the Construction Contract is located or after the expiration of one year from the date (1) on which the Claimant sent a Claim to the Surety pursuant to Section 5.1.2 or 5.2, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Construction Contract, whichever of (1) or (2) first occurs. If the provisions of this Paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

§ 13 Notice and Claims to the Surety, the Owner or the Contractor shall be mailed or delivered to the address shown on the page on which their signature appears. Actual receipt of notice or Claims, however accomplished, shall be sufficient compliance as of the date received.

§ 14 When this Bond has been furnished to comply with a statutory or other legal requirement in the location where the construction was to be performed, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

§ 15 Upon request by any person or entity appearing to be a potential beneficiary of this Bond, the Contractor and Owner shall promptly furnish a copy of this Bond or shall permit a copy to be made.

§ 16 Definitions

§ 16.1 Claim. A written statement by the Claimant including at a minimum:

- .1 the name of the Claimant;
- .2 the name of the person for whom the labor was done, or materials or equipment furnished;
- .3 a copy of the agreement or purchase order pursuant to which labor, materials or equipment was furnished for use in the performance of the Construction Contract;
- .4 a brief description of the labor, materials or equipment furnished;
- .5 the date on which the Claimant last performed labor or last furnished materials or equipment for use in the performance of the Construction Contract;
- .6 the total amount earned by the Claimant for labor, materials or equipment furnished as of the date of the Claim;
- .7 the total amount of previous payments received by the Claimant; and
- .8 the total amount due and unpaid to the Claimant for labor, materials or equipment furnished as of the date of the Claim.

§ 16.2 Claimant. An individual or entity having a direct contract with the Contractor or with a subcontractor of the Contractor to furnish labor, materials or equipment for use in the performance of the Construction Contract. The term Claimant also includes any individual or entity that has rightfully asserted a claim under an applicable mechanic's lien or similar statute against the real property upon which the Project is located. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental equipment used in the Construction Contract, architectural and engineering services required for performance of the work of the Contractor and the Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials or equipment were furnished.

§ 16.3 Construction Contract. The agreement between the Owner and Contractor identified on the cover page, including all Contract Documents and all changes made to the agreement and the Contract Documents.

§ 16.4 Owner Default. Failure of the Owner, which has not been remedied or waived, to pay the Contractor as required under the Construction Contract or to perform and complete or comply with the other material terms of the Construction Contract.

§ 16.5 Contract Documents. All the documents that comprise the agreement between the Owner and Contractor.

§ 17 If this Bond is issued for an agreement between a Contractor and subcontractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

§ 18 Modifications to this bond are as follows:

(Space is provided below for additional signatures of added parties, other than those appearing on the cover page.)

Bid Bond**CONTRACTOR:***(Name, legal status and address)***SURETY:***(Name, legal status and principal place of business)***OWNER:***(Name, legal status and address)*

Bill J. Belknap
City Administrator
City of Moscow
206 East Third Street
Moscow, ID 83843

BOND AMOUNT: \$**PROJECT:***(Name, location or address, and Project number, if any)*

Moscow City Shop Existing Shop TI
650 North Van Buren Street
Moscow, ID 83843

ADDITIONS AND DELETIONS:

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This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal

requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirement shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this day of ,

CONTRACTOR AS PRINCIPAL *(Signature)*

(Printed name and title)

(Witness)

SURETY *(Signature)*

(Printed name and title)

(Witness)

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work performed by Owner.
5. Owner's product purchase contracts.
6. Owner-furnished/Contractor-installed (OFCI) products.
7. Owner-furnished/Owner-installed (OFOI) products.
8. Contractor's use of site and premises.
9. Work restrictions.
10. Specification and Drawing conventions.
11. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2. Section 017300 "Execution" for coordination of Owner-installed products.

1.3 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

A. Project Identification: Moscow City Shop Existing Shop TI

1. Project Location: 650 N. Van Buren Street, Moscow, ID 83843.

B. Owner: City of Moscow .

1. Owner's Representative: Bill Belknap, 504 S. Washington Street, Moscow, ID 83843.

C. Architect: Matt Geserick - Lombard Conrad Architects.

1. Architect's Representative: Brenna Church – Lombard Conrad Architects.

- D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Structural Engineer : Rob Butterfield, LOCHSA Engineers
2. Mechanical Engineer: Todd Nelson, Musgrove Engineering, PA
3. Electrical Engineer: Geoff Johnson, Eidam and Associates

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Remodel of 3720 square feet of interior space in the existing shop building as shown in the Work indicated in the Contract Documents.

- B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 PHASED CONSTRUCTION

- A. Construct the Work in phases, with each phase substantially complete as indicated below.

- | | |
|------------------------------|------------|
| 1. Schedule of Work: | |
| Notice to Proceed | 3/1/2026 |
| Existing Shop Remodel Begins | XX/XX/2026 |
| Project Final Completion | XX/XX/2026 |

- B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule, showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

1.7 WORK PERFORMED BY OWNER

- A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.8 OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFICI) PRODUCTS

- A. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:

1. Provide to Contractor Owner-reviewed Product Data.
2. Provide for delivery of Owner-furnished products to Project site.
3. Upon delivery, inspect, with Contractor present, delivered items.

- a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.

4. Obtain manufacturer's inspections, service, and warranties.
5. Inform Contractor of earliest available delivery date for Owner-furnished products.

B. Contractor's Responsibilities: The Work includes the following, as applicable:

1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.
2. Review Owner-reviewed Product Data, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
3. Receive, unload, handle, store, protect, and install Owner-furnished products.
4. Make building services connections for Owner-furnished products.
5. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.
6. Repair or replace Owner-furnished products damaged following receipt.
7. Contractor will pay use tax for OFCI items, tax estimated at \$2,000, this amount will be adjusted by change order based on the actual value of what is supplied.

1.9 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.10 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: There are no work hour restrictions the contractor shall adhere to the City's noise ordinance, which can be found at:
<https://www.ci.moscow.id.us/DocumentCenter/View/1352/Chapter-11---Noise-Regulations-PDF>
- C. On-Site Work Day Restrictions: Shall adhere to the City's ordinance, which can be found at:
<https://www.ci.moscow.id.us/DocumentCenter/View/1352/Chapter-11---Noise-Regulations-PDF>
- D. Smoking and Controlled Substance Restrictions: Use of tobacco products , alcoholic beverages, and other controlled substances within the existing building] **[on Project site]** on Owner's property is not permitted.
- E. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
1. Maintain list of approved screened personnel with Owner's representative.

1.11 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011000

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Document 002600 "Procurement Substitution Procedures" for requirements for substitution requests prior to award of Contract.
 - 2. Section 012300 "Alternates" for products selected under an alternate.
 - 3. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use the attached form at the end of this section.
 - 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
 - b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.

- c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

- A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
- a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012500

SUBSTITUTION REQUEST
(During the Bidding/Negotiating Stage)

Project: _____ _____ To: _____ _____ Re: _____	Substitution Request Number: _____ From: _____ Date: _____ A/E Project Number: _____ Contract For: _____
--	---

Specification Title: _____	Description: _____
Section: _____ Page: _____	Article/Paragraph: _____

Proposed Substitution: _____

Manufacturer: _____	Address: _____	Phone: _____
Trade Name: _____		Model No.: _____

Attached data includes product description, specifications, drawings, photographs, and performance and test data adequate for evaluation of the request; applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents that the proposed substitution will require for its proper installation.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____

A/E' s REVIEW AND ACTION

- ☐ Substitution approved - Make submittals in accordance with Specification Substitution Procedures.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Substitution Procedures.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed by: _____	Date: _____
-------------------------	--------------------

Supporting Data Attached: ☐ Drawings ☐ Product Data ☐ Samples ☐ Tests ☐ Reports ☐ _____

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
 - 2. Section 013100 "Project Management and Coordination" for requirements for forms for contract modifications provided as part of web-based Project management software.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on form included in Project Manual.

1.4 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within time specified in Proposal Request after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

e. Quotation Form: Use forms acceptable to Architect.

B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.

1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.
5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.5 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Work Change Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on form included in Project Manual.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on form included in Project Manual. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.

1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.

1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with items required to be indicated as separate activities in Contractor's construction schedule.
 - 2. Submit the schedule of values to Architect at earliest possible date, but no later than days before the date scheduled for submittal of initial Applications for Payment.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
 - 1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Owner's name.
 - c. Owner's Project number.
 - d. Name of Architect.
 - e. Architect's Project number.
 - f. Contractor's name and address.

- g. Date of submittal.
- 2. Arrange the schedule of values in tabular form, with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent. Round dollar amounts to whole dollars, with total equal to Contract Sum.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
- 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
- 4. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site.
- 5. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
- 6. Overhead Costs, Proportional Distribution: Include total cost and proportionate share of general overhead and profit for each line item.
- 7. Overhead Costs, Separate Line Items: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
- 8. Temporary Facilities: Show cost of temporary facilities and other major cost items that are not direct cost of actual work-in-place as separate line items.
- 9. Closeout Costs. Include separate line items under Contractor and principal subcontracts for Project closeout requirements in an amount totaling five percent of the Contract Sum and subcontract amount.
- 10. Schedule of Values Revisions: Revise the schedule of values when Change Orders or Construction Change Directives result in a change in the Contract Sum. Include at least one separate line item for each Change Order and Construction Change Directive.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments, as certified by Architect and paid for by Owner.
- B. Payment Application Times: The date for each progress payment is indicated in the Owner/Contractor Agreement. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.

- C. Payment Application Times: Submit Application for Payment to Architect by the **25th day** of the month. The period covered by each Application for Payment is one month, ending on the last day of the month.
1. Submit draft copy of Application for Payment seven days prior to due date for review by Architect.
- D. Application for Payment Forms: Use AIA Document G702 and AIA Document G703 as form for Applications for Payment.
- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- F. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- G. Transmittal: Submit Insert number-one signed and notarized original copyies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required. Electronic copy is acceptable.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- H. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's lien from entities lawfully entitled to file a mechanic's lien arising out of the Contract and related to the Work covered by the payment.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. Waiver Forms: Submit executed waivers of lien on forms acceptable to Owner.
- I. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Products list (preliminary if not final).
 5. Schedule of unit prices.
 6. Submittal schedule (preliminary if not final).
 7. List of Contractor's staff assignments.
 8. List of Contractor's principal consultants.
 9. Copies of building permits.
 10. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 11. Initial progress report.
 12. Report of preconstruction conference.
 13. Certificates of insurance and insurance policies.
 14. Performance and payment bonds.
 15. Data needed to acquire Owner's insurance.
- J. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 - a. Complete administrative actions, submittals, and Work preceding this application, as described in Section 017700 "Closeout Procedures."
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- K. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Certification of completion of final punch list items.
 3. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 4. Updated final statement, accounting for final changes to the Contract Sum.
 5. AIA Document G706.
 6. AIA Document G706A.
 7. AIA Document G707.
 8. Evidence that claims have been settled.

9. Final meter readings for utilities, a measured record of stored fuel, and similar data as of date of Substantial Completion or when Owner took possession of and assumed responsibility for corresponding elements of the Work.
10. Final liquidated damages settlement statement.
11. Proof that taxes, fees, and similar obligations are paid.
12. Waivers and releases.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project, including, but not limited to, the following:
 - 1. General coordination procedures.
 - 2. Coordination drawings.
 - 3. RFIs.
 - 4. Digital project management procedures.
 - 5. Web-based Project management software package.
 - 6. Project meetings.
- B. Each contractor shall participate in coordination requirements. Certain areas of responsibility are assigned to a specific contractor.
- C. Related Requirements:
 - 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.
 - 4. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

1.3 DEFINITIONS

- A. BIM: Building Information Modeling.
- B. RFI: Request for Information. Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 - 1. Name, address, telephone number, and email address of entity performing subcontract or supplying products.

2. Number and title of related Specification Section(s) covered by subcontract.
3. Drawing number and detail references, as appropriate, covered by subcontract.

- B. Key Personnel Names: Within 15 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.5 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations included in different Sections that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results, where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.

1.6 COORDINATION DRAWINGS

- A. Coordination Drawings, General: Prepare coordination drawings according to requirements in individual Sections, and additionally where installation is not completely indicated on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.

1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
 - a. Use applicable Drawings as a basis for preparation of coordination drawings. Prepare sections, elevations, and details as needed to describe relationship of various systems and components.
 - b. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
 - c. Indicate space requirements for routine maintenance and for anticipated replacement of components during the life of the installation.
 - d. Show location and size of access doors required for access to concealed dampers, valves, and other controls.
 - e. Indicate required installation sequences.
 - f. Indicate dimensions shown on Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternative sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

B. Coordination Drawing Organization: Organize coordination drawings as follows:

1. Floor Plans and Reflected Ceiling Plans: Show architectural and structural elements, and mechanical, plumbing, fire-protection, fire-alarm, and electrical Work. Show locations of visible ceiling-mounted devices relative to acoustical ceiling grid. Supplement plan drawings with section drawings where required to adequately represent the Work.
2. Plenum Space: Indicate subframing for support of ceiling, raised access floor, and wall systems, mechanical and electrical equipment, and related Work. Locate components within plenums to accommodate layout of light fixtures and other components indicated on Drawings. Indicate areas of conflict between light fixtures and other components.
3. Mechanical Rooms: Provide coordination drawings for mechanical rooms, showing plans and elevations of mechanical, plumbing, fire-protection, fire-alarm, and electrical equipment.
4. Structural Penetrations: Indicate penetrations and openings required for all disciplines.
5. Slab Edge and Embedded Items: Indicate slab edge locations and sizes and locations of embedded items for metal fabrications, sleeves, anchor bolts, bearing plates, angles, door floor closers, slab depressions for floor finishes, curbs and housekeeping pads, and similar items.
6. Mechanical and Plumbing Work: Show the following:
 - a. Sizes and bottom elevations of ductwork, piping, and conduit runs, including insulation, bracing, flanges, and support systems.
 - b. Dimensions of major components, such as dampers, valves, diffusers, access doors, cleanouts and electrical distribution equipment.
 - c. Fire-rated enclosures around ductwork.
7. Electrical Work: Show the following:
 - a. Runs of vertical and horizontal conduit 1-1/4 inches in diameter and larger.
 - b. Light fixture, exit light, emergency battery pack, smoke detector, and other fire-alarm locations.
 - c. Panel board, switchboard, switchgear, transformer, busway, generator, and motor-control center locations.
 - d. Location of pull boxes and junction boxes, dimensioned from column center lines.
8. Fire-Protection System: Show the following:

- a. Locations of standpipes, mains piping, branch lines, pipe drops, and sprinkler heads.
 9. Review: Architect will review coordination drawings to confirm that, in general, the Work is being coordinated, but not for the details of the coordination, which are Contractor's responsibility. If Architect determines that coordination drawings are not being prepared in sufficient scope or detail, or are otherwise deficient, Architect will so inform Contractor, who shall make suitable modifications and resubmit.
 10. Coordination Drawing Prints: Prepare coordination drawing prints according to requirements in Section 013300 "Submittal Procedures."
- C. Coordination Drawing Process: Prepare coordination drawings in the following manner:
1. Schedule submittal and review of Fire Sprinkler, Plumbing, HVAC, and Electrical Shop Drawings to make required changes prior to preparation of coordination drawings.
 2. Commence routing of coordination drawing files with HVAC Installer, who will provide drawing plan files denoting approved ductwork. HVAC Installer will locate ductwork and piping on a single layer, using orange color. Forward drawings to Plumbing Installer.
 3. Plumbing Installer will locate plumbing and equipment on a single layer, using blue color.
 4. Fire Sprinkler Installer will locate piping and equipment, using red color. Fire Sprinkler Installer shall forward drawing files to Electrical Installer.
 5. Electrical Installer will indicate service and feeder conduit runs and equipment in green color. Electrical Installer shall forward drawing files to Communications and Electronic Safety and Security Installer.
 6. Communications and Electronic Safety and Security Installer will indicate cable trays and cabling runs and equipment in purple color. Communications and Electronic Safety and Security Installer shall forward completed drawing files to Contractor.
 7. Contractor shall perform the final coordination review. As each coordination drawing is completed, Contractor will meet with Architect to review and resolve conflicts on the coordination drawings.
- D. Coordination Digital Data Files: Prepare coordination digital data files according to the following requirements:
1. File Preparation Format: Same digital data software program, version, and operating system as original Drawings.
 2. File Submittal Format: Submit or post coordination drawing files using PDF format.

1.7 REQUEST FOR INFORMATION (RFI)

- A. General: Immediately on discovery of the need for additional information, clarification, or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 2. Coordinate and submit RFIs in a prompt manner to avoid delays in Contractor's work or work of subcontractors.
- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Owner name.

3. Owner's Project number.
 4. Name of Architect.
 5. Architect's Project number.
 6. Date.
 7. Name of Contractor.
 8. RFI number, numbered sequentially.
 9. RFI subject.
 10. Specification Section number and title and related paragraphs, as appropriate.
 11. Drawing number and detail references, as appropriate.
 12. Field dimensions and conditions, as appropriate.
 13. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 14. Contractor's signature.
 15. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.
1. Attachments shall be electronic files in PDF format.
- D. Architect's Action: Architect and Construction Manager will review each RFI, determine action required, and respond. Allow seven days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt by Architect of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 5 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log monthly Insert time. Use software log that is part of web-based Project management software.

1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number, including RFIs that were returned without action or withdrawn.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.
9. Identification of related Field Order, Work Change Directive, and Proposal Request, as appropriate.

1.8 DIGITAL PROJECT MANAGEMENT PROCEDURES

- A. Architect's Data Files Not Available: Architect will not provide Architect's BIM model CAD drawing digital data files for Contractor's use during construction.
- B. Web-Based Project Management Software Package: Contractor to provide Procore web-based Project management software package for purposes of hosting and managing Project communication and documentation until Final Completion.
 1. Web-based Project management software includes, at a minimum, the following features:
 - a. Compilation of Project data, including Contractor, subcontractors, Architect, Architect's consultants, Owner, and other entities involved in Project. Include names of individuals and contact information.
 - b. Access control for each entity for each workflow process, to determine entity's digital rights to create, modify, view, and print documents.
 - c. Document workflow planning, allowing customization of workflow between project entities.
 - d. Creation, logging, tracking, and notification for Project communications required in other Specification Sections, including, but not limited to, RFIs, submittals, Minor Changes in the Work, Construction Change Directives, and Change Orders.
 - e. Track status of each Project communication in real time, and log time and date when responses are provided.
 - f. Procedures for handling PDFs or similar file formats, allowing markups by each entity. Provide security features to lock markups against changes once submitted.
 - g. Processing and tracking of payment applications.
 - h. Processing and tracking of contract modifications.
 - i. Creating and distributing meeting minutes.
 - j. Document management for Drawings, Specifications, and coordination drawings, including revision control.
 - k. Management of construction progress photographs.
 - l. Mobile device compatibility, including smartphones and tablets.
 - m. Contractor to provide web-based Project Management Software: Procore.
 2. At completion of Project, provide digital archive in format that is readable by common desktop software applications in format acceptable to Architect. Provide data in locked format to prevent further changes.
- C. PDF Document Preparation: Where PDFs are required to be submitted to Architect, prepare as follows:

1. Assemble complete submittal package into a single indexed file, incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
2. Name file with submittal number or other unique identifier, including revision identifier.
3. Certifications: Where digitally submitted certificates and certifications are required, provide a digital signature with digital certificate on where indicated.

1.9 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times a minimum of seven days prior to meeting.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Responsibilities and personnel assignments.
 - b. Tentative construction schedule.
 - c. Phasing.
 - d. Critical work sequencing and long lead items.
 - e. Designation of key personnel and their duties.
 - f. Lines of communications.
 - g. Use of web-based Project software.
 - h. Procedures for processing field decisions and Change Orders.
 - i. Procedures for RFIs.
 - j. Procedures for testing and inspecting.
 - k. Procedures for processing Applications for Payment.
 - l. Distribution of the Contract Documents.
 - m. Submittal procedures.
 - n. Sustainable design requirements.
 - o. Preparation of Record Documents.
 - p. Use of the premises.
 - q. Work restrictions.
 - r. Working hours.
 - s. Owner's occupancy requirements.
 - t. Responsibility for temporary facilities and controls.
 - u. Procedures for moisture and mold control.
 - v. Procedures for disruptions and shutdowns.
 - w. Construction waste management and recycling.
 - x. Parking availability.

- y. Office, work, and storage areas.
 - z. Equipment deliveries and priorities.
 - aa. First aid.
 - bb. Security.
 - cc. Progress cleaning.
3. Minutes: Entity responsible for conducting meeting will record and distribute meeting minutes.
- C. Preinstallation Conferences: Conduct a preinstallation conference at Project site before each construction activity when required by other Sections and when required for coordination with other construction.
- 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect, and Owner's Commissioning Authority of scheduled meeting dates.
 - 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related RFIs.
 - d. Related Change Orders.
 - e. Purchases.
 - f. Deliveries.
 - g. Submittals.
 - h. Sustainable design requirements.
 - i. Review of mockups.
 - j. Possible conflicts.
 - k. Compatibility requirements.
 - l. Time schedules.
 - m. Weather limitations.
 - n. Manufacturer's written instructions.
 - o. Warranty requirements.
 - p. Compatibility of materials.
 - q. Acceptability of substrates.
 - r. Temporary facilities and controls.
 - s. Space and access limitations.
 - t. Regulations of authorities having jurisdiction.
 - u. Testing and inspecting requirements.
 - v. Installation procedures.
 - w. Coordination with other work.
 - x. Required performance results.
 - y. Protection of adjacent work.
 - z. Protection of construction and personnel.
 - 3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
 - 4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
 - 5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

- D. Project Closeout Conference: Schedule and conduct a project closeout conference, at a time convenient to Owner and Architect, but no later than days prior to the scheduled date of Substantial Completion.
1. Conduct the conference to review requirements and responsibilities related to Project closeout.
 2. Attendees: Authorized representatives of Owner, Owner's Commissioning Authority, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the meeting. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:
 - a. Preparation of Record Documents.
 - b. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
 - c. Procedures for completing and archiving web-based Project software site data files.
 - d. Submittal of written warranties.
 - e. Requirements for completing sustainable design documentation.
 - f. Requirements for preparing operations and maintenance data.
 - g. Requirements for delivery of material samples, attic stock, and spare parts.
 - h. Requirements for demonstration and training.
 - i. Preparation of Contractor's punch list.
 - j. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 - k. Submittal procedures.
 - l. Coordination of separate contracts.
 - m. Owner's partial occupancy requirements.
 - n. Installation of Owner's furniture, fixtures, and equipment.
 - o. Responsibility for removing temporary facilities and controls.
 4. Minutes: Entity conducting meeting will record and distribute meeting minutes.
- E. Progress Meetings: Conduct progress meetings at biweekly intervals.
1. Coordinate dates of meetings with preparation of payment requests.
 2. Attendees: In addition to representatives of Owner, Owner's Commissioning Authority and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 - a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 - 1) Review schedule for next period.

b. Review present and future needs of each entity present, including the following:

- 1) Interface requirements.
- 2) Sequence of operations.
- 3) Resolution of BIM component conflicts.
- 4) Status of submittals.
- 5) Status of sustainable design documentation.
- 6) Deliveries.
- 7) Off-site fabrication.
- 8) Access.
- 9) Site use.
- 10) Temporary facilities and controls.
- 11) Progress cleaning.
- 12) Quality and work standards.
- 13) Status of correction of deficient items.
- 14) Field observations.
- 15) Status of RFIs.
- 16) Status of Proposal Requests.
- 17) Pending changes.
- 18) Status of Change Orders.
- 19) Pending claims and disputes.
- 20) Documentation of information for payment requests.

4. Minutes: Entity responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.

- a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting, where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Startup construction schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Construction schedule updating reports.
 - 4. Daily construction reports.
 - 5. Material location reports.
 - 6. Site condition reports.
 - 7. Unusual event reports.
- B. Related Requirements:
 - 1. Section 014000 "Quality Requirements" for schedule of tests and inspections.
 - 2. Section 012900 "Payment Procedures" for schedule of values and requirements for use of cost-loaded schedule for Applications for Payment.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction Project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. Cost Loading: The allocation of the schedule of values for completing an activity as scheduled. The sum of costs for all activities must equal the total Contract Sum.
- C. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine the critical path of Project and when activities can be performed.
- D. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- E. Event: The starting or ending point of an activity.

- F. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- G. Resource Loading: The allocation of manpower and equipment necessary for completing an activity as scheduled.

1.4 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file.
 - 2. PDF file.
- B. Startup construction schedule.
 - 1. Submittal of cost-loaded startup construction schedule will not constitute approval of schedule of values for cost-loaded activities.
- C. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- D. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
- E. CPM Reports: Concurrent with CPM schedule, submit each of the following reports. Format for each activity in reports shall contain activity number, activity description, cost and resource loading, original duration, remaining duration, early start date, early finish date, late start date, late finish date, and total float in calendar days.
 - 1. Activity Report: List of activities sorted by activity number and then early start date, or actual start date if known.
 - 2. Logic Report: List of preceding and succeeding activities for each activity, sorted in ascending order by activity number and then by early start date, or actual start date if known.
- F. Construction Schedule Updating Reports: Submit with Applications for Payment.
- G. Daily Construction Reports: Submit at weekly intervals.
- H. Site Condition Reports: Submit at time of discovery of differing conditions.
- I. Unusual Event Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

1.6 COORDINATION

- A. Coordinate Contractor's Construction Schedule with the schedule of values, list of subcontracts, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities, and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of Final Completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each floor or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 - 2. Temporary Facilities: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Construction of mock-ups, prototypes and samples.
 - d. Owner interfaces and furnishing of items.
 - e. Interfaces with Separate Contracts.
 - f. Regulatory agency approvals.
 - g. Punch list.
 - 3. Procurement Activities: Include procurement process activities for the following long lead-time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 4. Submittal Review Time: Include review and resubmittal times indicated in Section 013300 "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with submittal schedule.
 - 5. Startup and Testing Time: Include no fewer than 15 days for startup and testing.
 - 6. Commissioning Time: Include no fewer than 15 days for commissioning.

7. Substantial Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 8. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and Final Completion.
- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 3. Owner-Furnished Products: Include a separate activity for each product. Include delivery date indicated in Section 011000 "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 4. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use-of-premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 5. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Subcontract awards.
 - b. Submittals.
 - c. Purchases.
 - d. Mockups.
 - e. Fabrication.
 - f. Sample testing.
 - g. Deliveries.
 - h. Installation.
 - i. Tests and inspections.
 - j. Adjusting.
 - k. Curing.
 - l. Building flush-out.
 - m. Startup and placement into final use and operation.
 - n. Commissioning.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and Final Completion
1. .
- F. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:
1. Unresolved issues.
 2. Unanswered Requests for Information.

3. Rejected or unreturned submittals.
 4. Notations on returned submittals.
 5. Pending modifications affecting the Work and the Contract Time.
- G. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Final Completion percentage for each activity.
- H. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, equipment required to achieve compliance, and date by which recovery will be accomplished.
- I. Distribution: Distribute copies of approved schedule to Architect, Construction Manager, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
1. List of subcontractors at Project site.
 2. List of separate contractors at Project site.
 3. Approximate count of personnel at Project site.
 4. Equipment at Project site.
 5. Material deliveries.
 6. High and low temperatures and general weather conditions, including presence of rain or snow.
 7. Testing and inspection.
 8. Accidents.
 9. Meetings and significant decisions.
 10. Unusual events.
 11. Stoppages, delays, shortages, and losses.
 12. Meter readings and similar recordings.
 13. Emergency procedures.
 14. Orders and requests of authorities having jurisdiction.
 15. Change Orders received and implemented.
 16. Construction Change Directives received and implemented.
 17. Services connected and disconnected.

18. Equipment or system tests and startups.
 19. Partial completions and occupancies.
 20. Substantial Completions authorized.
- B. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- C. Unusual Event Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable.
1. Submit unusual event reports directly to Owner within one day(s) of an occurrence. Distribute copies of report to parties affected by the occurrence.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Submittal schedule requirements.
 - 2. Administrative and procedural requirements for submittals.

- B. Related Requirements:

- 1. Section 012900 "Payment Procedures" for submitting Applications for Payment and the schedule of values.
 - 2. Section 013100 "Project Management and Coordination" for submitting coordination drawings and subcontract list and for requirements for web-based Project software.
 - 3. Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
 - 4. Section 014000 "Quality Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
 - 5. Section 017700 "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
 - 6. Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
 - 7. Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.
 - 8. Section 017900 "Demonstration and Training" for submitting video recordings of demonstration of equipment and training of Owner's personnel.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."

1.4 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit, as an action submittal, a list of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.
1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal Schedule: Submit concurrently with startup construction schedule. Include submittals required during the first 60 days of construction. List those submittals required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 3. Final Submittal Schedule: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule as required to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Submittal Category: Action; informational.
 - d. Name of subcontractor.
 - e. Description of the Work covered.
 - f. Scheduled date for Architect's final release or approval.
 - g. Scheduled dates for purchasing.
 - h. Scheduled date of fabrication.
 - i. Scheduled dates for installation.
 - j. Activity or event number.

1.5 SUBMITTAL FORMATS

- A. Submittal Information: Include the following information in each submittal:
1. Project name.
 2. Date.
 3. Name of Architect.
 4. Name of Construction Manager.
 5. Name of Contractor.
 6. Name of firm or entity that prepared submittal.
 7. Names of subcontractor, manufacturer, and supplier.
 8. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
 9. Category and type of submittal.
 10. Submittal purpose and description.
 11. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 12. Drawing number and detail references, as appropriate.
 13. Indication of full or partial submittal.
 14. Location(s) where product is to be installed, as appropriate.
 15. Other necessary identification.

16. Remarks.
17. Signature of transmitter.

- B. Options: Identify options requiring selection by Architect.
- C. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- D. Paper Submittals:
1. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
 2. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 3. Action Submittals: Submit three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
 4. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.
 5. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using transmittal form.
- E. Electronic Submittals: Prepare submittals as PDF package, incorporating complete information into each PDF file. Name PDF file with submittal number.
- F. Submittals Utilizing Web-Based Project Software: Prepare submittals as PDF files or other format indicated by Project management software.

1.6 SUBMITTAL PROCEDURES

- A. Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
1. Email: Prepare submittals as PDF package and transmit to Architect by sending via email. Include PDF transmittal form. Include information in email subject line as requested by Architect.
 - a. Architect will return annotated file. Annotate and retain one copy of file as a digital Project Record Document file.
 2. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project management software website. Enter required data in web-based software site to fully identify submittal.
 3. Paper: Prepare submittals in paper form and deliver to Architect.
- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of submittals for related parts of the Work specified in different Sections, so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 15 days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 15 days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect
- D. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block, and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- E. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- F. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's] action stamp.
- 1.7 SUBMITTAL REQUIREMENTS
- A. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are unsuitable for use, submit as Shop Drawings, not as Product Data.

2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams that show factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before Shop Drawings, and before or concurrently with Samples.
- B. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data unless submittal based on Architect's digital data drawing files is otherwise permitted.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 2. Paper Sheet Size: Except for templates, patterns, and similar full-size Drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
- C. Samples: Submit Samples for review of type, color, pattern, and texture for a check of these characteristics with other materials.
1. Transmit Samples that contain multiple, related components, such as accessories together in one submittal package.
 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.

3. Email Transmittal: Provide PDF transmittal. Include digital image file illustrating Sample characteristics and identification information for record.
 4. Web-Based Project Management Software: Prepare submittals in PDF form, and upload to web-based Project software website. Enter required data in web-based software site to fully identify submittal.
 5. Paper Transmittal: Include paper transmittal, including complete submittal information indicated.
 6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 7. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units, showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 8. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain one Sample sets; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.
- D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.

- E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.
- G. Certificates:
1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
 2. Installer Certificates: Submit written statements on manufacturer's letterhead, certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
 3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead, certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
 4. Material Certificates: Submit written statements on manufacturer's letterhead, certifying that material complies with requirements in the Contract Documents.
 5. Product Certificates: Submit written statements on manufacturer's letterhead, certifying that product complies with requirements in the Contract Documents.
 6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of AWS B2.1/B2.1M on AWS forms. Include names of firms and personnel certified.
- H. Test and Research Reports:
1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for substrate preparation and primers required.
 2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
 3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
 4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
 5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
 6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.

- d. Product and manufacturers' names.
- e. Description of product.
- f. Test procedures and results.
- g. Limitations of use.

1.8 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
 - 1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.
- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file paper copies of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.9 CONTRACTOR'S REVIEW

- A. Action Submittals and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.

1.10 ARCHITECT'S REVIEW

- A. Action Submittals: Architect will review each submittal, indicate corrections or revisions required, and return.
 - 1. PDF Submittals: Architect will indicate, via markup on each submittal, the appropriate action.
 - 2. Paper Submittals: Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action.
 - 3. Submittals by Web-Based Project Management Software: Architect will indicate, on Project management software website, the appropriate action.
- B. Informational Submittals: Architect will review each submittal and will not return it, or will return it if it does not comply with requirements. Architect will forward each submittal to appropriate party.

- C. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- D. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- E. Architect will discard submittals received from sources other than Contractor.
- F. Submittals not required by the Contract Documents will be returned by Architect without action.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.

1.3 DEFINITIONS

- A. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- B. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria. Unless otherwise indicated, copies of reports of tests or inspections performed for other than the Project do not meet this definition.
- D. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

- E. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source (e.g., plant, mill, factory, or shop).
- F. Testing Agency: An entity engaged to perform specific tests, inspections, or both. The term "testing laboratory" shall have the same meaning as the term "testing agency."
- G. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work, to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- H. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work, to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect

1.4 CONFLICTING REQUIREMENTS

- A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements is specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, inform the Architect regarding the conflict and obtain clarification prior to proceeding with the Work. Refer conflicting requirements that are different, but apparently equal, to Architect for clarification before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.
- B. Qualification Data: For Contractor's quality-control personnel.
- C. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility submitted to authorities having jurisdiction before starting work on the following systems:
 - 1. Seismic-force-resisting system, designated seismic system, or component listed in the Statement of Special Inspections.
 - 2. Primary wind-force-resisting system or a wind-resisting component listed in the Statement of Special Inspections.
- D. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.
- E. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Specification Section number and title.

2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.
5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

F. Reports: Prepare and submit certified written reports and documents as specified.

G. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.6 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample-taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement of whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement of whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.

1.7 QUALITY ASSURANCE

- A. Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that is similar in material, design, and extent to those indicated for this Project.
- F. Specialists: Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged in the activities indicated.
1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. Testing and Inspecting Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented in accordance with ASTM E329, and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
- H. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

- I. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect, demonstrate, repair, and perform service on installations of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- J. **Preconstruction Testing:** Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following Contractor's responsibilities, including the following:
 - 1. Provide test specimens representative of proposed products and construction.
 - 2. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - 3. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - 4. Build site-assembled test assemblies and mockups, using installers who will perform same tasks for Project.
 - 5. Build laboratory mockups at testing facility, using personnel, products, and methods of construction indicated for the completed Work.
 - 6. When testing is complete, remove test specimens and test assemblies, and mockups[, do not reuse products on Project.
 - 7. **Testing Agency Responsibilities:** Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect and Commissioning Authority, with copy to Contractor. Interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

1.8 QUALITY CONTROL

- A. **Owner Responsibilities:** Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
 - 2. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor.
- B. **Contractor Responsibilities:** Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.
 - 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 - 2. Engage a qualified testing agency to perform quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 - 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
 - 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect, Commissioning Authority and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect, Commissioning Authority, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
 3. Conduct and interpret tests and inspections, and state in each report whether tested and inspected Work complies with or deviates from requirements.
 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.
- G. Contractor's Associated Requirements and Services: Cooperate with agencies and representatives performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 1. Access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Adequate quantities of representative samples of materials that require testing and inspection. Assist agency in obtaining samples.
 4. Facilities for storage and field curing of test samples.
 5. Delivery of samples to testing agencies.
 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 7. Security and protection for samples and for testing and inspection equipment at Project site.
- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.
 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

- I. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents-Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.
 1. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor- and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
 2. Distribution: Distribute schedule to Owner, Architect, Commissioning Authority, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of and as follows:
 1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
 2. Notifying Architect, Commissioning Authority, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect and Commissioning Authority with copy to Contractor and to authorities having jurisdiction.
 4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 5. Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.
 6. Retesting and reinspecting corrected Work.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 1. Date test or inspection was conducted.
 2. Description of the Work tested or inspected.
 3. Date test or inspection results were transmitted to Architect.
 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's, Commissioning Authority's, and authorities' having jurisdiction reference during normal working hours.
 1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspection, sample-taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for work restrictions and limitations on utility interruptions.

1.3 USE CHARGES

- A. Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities engaged in the Project to use temporary services and facilities without cost, including, but not limited to, Architect, testing agencies, and authorities having jurisdiction.
- B. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use with metering. Provide connections and extensions of services and metering as required for construction operations.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use with metering. Provide connections and extensions of services and metering as required for construction operations.

1.4 INFORMATIONAL SUBMITTALS

- A. Site Utilization Plan: Show temporary facilities, temporary utility lines and connections, staging areas, construction site entrances, vehicle circulation, and parking areas for construction personnel.
- B. Implementation and Termination Schedule: Within 15 days of date established for commencement of the Work, submit schedule indicating implementation and termination dates of each temporary utility.
- C. Project Identification and Temporary Signs: Show fabrication and installation details, including plans, elevations, details, layouts, typestyles, graphic elements, and message content.
- D. Fire-Safety Program: Show compliance with requirements of NFPA 241 and authorities having jurisdiction. Indicate Contractor personnel responsible for management of fire-prevention program.

- E. Moisture- and Mold-Protection Plan: Describe procedures and controls for protecting materials and construction from water absorption and damage and mold. Describe delivery, handling, storage, installation, and protection provisions for materials subject to water absorption or water damage.
 - 1. Indicate procedures for discarding water-damaged materials, protocols for mitigating water intrusion into completed Work, and requirements for replacing water-damaged Work.
 - 2. Indicate sequencing of work that requires water, such as sprayed fire-resistive materials, plastering, and terrazzo grinding, and describe plans for dealing with water from these operations. Show procedures for verifying that wet construction has dried sufficiently to permit installation of finish materials.
 - 3. Indicate methods to be used to avoid trapping water in finished work.
- F. Dust- and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust- and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Include the following:
 - 1. Locations of dust-control partitions at each phase of work.
 - 2. HVAC system isolation schematic drawing.
 - 3. Location of proposed air-filtration system discharge.
 - 4. Waste-handling procedures.
 - 5. Other dust-control measures.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top rails.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch- thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts; minimum 2-3/8-inch- OD line posts and 2-7/8-inch- OD corner and pull posts, with 1-5/8-inch- OD top and bottom rails. Provide galvanized-steel bases for supporting posts.

- C. Fencing Windscreen Privacy Screen: Polyester fabric scrim with grommets for attachment to chain-link fence, sized to height of fence, in color selected by Architect from manufacturer's standard colors.
- D. Insulation: Unfaced mineral-fiber blanket, manufactured from glass, slag wool, or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

2.2 TEMPORARY FACILITIES

- A. Field Offices: Prefabricated or mobile units with serviceable finishes, temperature controls, and foundations adequate for normal loading.
- B. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from building.

2.3 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Install temporary service or connect to existing service.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
- B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
 - 1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.
- C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.
- D. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- E. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of

authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

- F. Temporary Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.
- G. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.
- H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions.
 - 1. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

- A. Comply with the following:
 - 1. Provide construction for temporary field offices, shops, and sheds located within construction area or within 30 feet of building lines that is noncombustible in accordance with ASTM E136. Comply with NFPA 241.
 - 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.
- B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain, including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- C. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Identification Signs: Provide Project identification signs as indicated on Drawings.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - 3. Maintain and touch up signs, so they are legible at all times.
- D. Waste Disposal Facilities: Comply with requirements specified in Section 017419 "Construction Waste Management and Disposal."
- E. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Comply with requirements of authorities having jurisdiction. Comply with progress cleaning requirements in Section 017300 "Execution."
- F. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

- G. Temporary Stairs: Until permanent stairs are available, provide temporary stairs where ladders are not adequate.
- H. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
 - 1. Where access to adjacent properties is required in order to affect protection of existing facilities, obtain written permission from adjacent property owner to access property for that purpose.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Section 011000 "Summary."
- C. Temporary Erosion and Sedimentation Control: Comply with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent and requirements specified in Section 311000 "Site Clearing."
- D. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree- or plant-protection zones.
 - 2. Inspect, repair, and maintain erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- E. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- F. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- G. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of rodents, roaches, and other pests and to perform extermination and control procedures at regular intervals, so Project will be free of pests and their residues at Substantial Completion. Perform control operations lawfully, using materials approved by authorities having jurisdiction.

- H. Site Enclosure Fence: Prior to commencing earthwork, furnish and install site enclosure fence in a manner that will prevent people from easily entering site except by entrance gates.
 - 1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
 - 2. Maintain security by limiting number of keys and restricting distribution to authorized personnel. Furnish one set of keys to Owner.
- I. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each workday.
- J. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- K. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 - 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- L. The Contractor will be responsible to provide site fencing and screening in order to maintain a secure site during construction in order to maintain the safety of the general public.

3.5 MOISTURE AND MOLD CONTROL

- A. Exposed Construction Period: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 - 1. Protect porous materials from water damage.
 - 2. Protect stored and installed material from flowing or standing water.
 - 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 - 4. Remove standing water from decks.
 - 5. Keep deck openings covered or dammed.
- B. Partially Enclosed Construction Period: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:
 - 1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
 - 2. Keep interior spaces reasonably clean and protected from water damage.
 - 3. Periodically collect and remove waste containing cellulose or other organic matter.
 - 4. Discard or replace water-damaged material.
 - 5. Do not install material that is wet.
 - 6. Discard and replace stored or installed material that begins to grow mold.
 - 7. Perform work in a sequence that allows wet materials adequate time to dry before enclosing the material in gypsum board or other interior finishes.
- C. Controlled Construction Period: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
 - 1. Control moisture and humidity inside building by maintaining effective dry-in conditions.

2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove and replace materials that cannot be completely restored to their manufactured moisture level within 48 hours.

END OF SECTION 015000

SECTION 015400 - SECURITY

PART 1 - GENERAL

1.1 REQUIREMENTS INCLUDE

- A. Personnel Identification.

PART 2 - PRODUCTS (NOT APPLICABLE)

PART 3 - EXECUTION

3.1 PERSONNEL IDENTIFICATION

- A. Background Checks

- 1. Background Checks:
 - 2. Contractor shall have City of Moscow conduct background checks on all employees, that will have regular and full access to the sites. Forms will be provided.
 - 3. Personnel shall have a valid government issued ID.

- B. Security Photo identification/access cards:

- 1. Only personnel that have passed the specified background check shall be present at the work site.
 - 2. NOTE: Any issued card that is not used within 6 months will be automatically deactivated.

- C. Security

- 1. Contractor will be responsible for compliance with all City security requirements. Under no circumstances shall Contractor's employees be let into building or onto site or bring in any persons not authorized by the City. Each Contracted employee will be required to have an active City issued identification/access card.
 - 2. No later than seven (7) day after notification of Intent to Award, the Contractor shall provide the City with a list of the contractor's personnel that will be providing service in the building(s) by location, including personnel assigned to perform tasks that occur on a less frequent basis.

- D. The Contractor shall also provide the City with prior notification of any changes to the Contractor's personnel listing, including removal and addition of personnel.

- E. The City reserves the right to approve or disapprove appointment of any of the Contractor's personnel to provide services required by the contract. The City also reserves the right to request replacement of any person assigned to provide services.

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for Contractor requirements related to Owner-furnished products.
 - 2. Section 012500 "Substitution Procedures" for requests for substitutions.
 - 3. Section 014200 "References" for applicable industry standards for products specified.
 - 4. Section 01770 "Closeout Procedures" for submitting warranties.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Salvaged items or items reused from other projects are not considered new products. Items that are manufactured or fabricated to include recycled content materials are considered new products, unless indicated otherwise.
 - 3. Comparable Product: Product by named manufacturer that is demonstrated and approved through the comparable product submittal process described in Part 2 "Comparable Products" Article, to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.
- B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. Published attributes and characteristics of basis-of-design product establish salient characteristics of products.
- C. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:

1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.
- D. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Section 013300 "Submittal Procedures."
- E. Substitution: Refer to Section 012500 "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.5 COORDINATION

- A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products, using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and that products are undamaged and properly protected.
- C. Storage:
1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
 2. Store products to allow for inspection and measurement of quantity or counting of units.
 3. Store materials in a manner that will not endanger Project structure.
 4. Store products that are subject to damage by the elements under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.

5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.
8. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written standard warranty form furnished by individual manufacturer for a particular product and issued in the name of the Owner or endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included in the Project Manual, prepare a written document, using indicated form properly executed.
 3. See other Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Section 017700 "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
 4. Where products are accompanied by the term "as selected," Architect will make selection.
 5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

6. Or Equal: For products specified by name and accompanied by the term "or equal," "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.
 - a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Unless otherwise indicated, evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:

1. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."
2. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed or an unnamed product that complies with requirements.
 - a. Non-limited list of products is indicated by the phrase "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following."
 - b. Provision of an unnamed product is not considered a substitution, if the product complies with requirements.
3. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
 - a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."
4. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
 - b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications may additionally indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

- a. For approval of products by unnamed manufacturers, comply with requirements in Section 012500 "Substitution Procedures" for substitutions for convenience.
- C. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:
 - 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. List of similar installations for completed projects, with project names and addresses and names and addresses of architects and owners, if requested.
 - 5. Samples, if requested.
- B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 013300 "Submittal Procedures."
 - 1. Form of Approval of Submittal: As specified in Section 013300 "Submittal Procedures."
 - 2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.
- D. Submittal Requirements, Single-Step Process: When acceptable to Architect, incorporate specified submittal requirements of individual Specification Section in combined submittal for comparable products. Approval by the Architect of Contractor's request for use of comparable product and of individual submittal requirements will also satisfy other submittal requirements.

PART 3 - EXECUTION (NOT USED)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting and patching.
 - 5. Coordination of Owner's portion of the Work.
 - 6. Coordination of Owner-installed products.
 - 7. Progress cleaning.
 - 8. Starting and adjusting.
 - 9. Protection of installed construction.
- B. Related Requirements:
 - 1. Section 011000 "Summary" for coordination of Owner-furnished products, and limits on use of Project site.
 - 2. Section 013300 "Submittal Procedures" for submitting surveys.
 - 3. Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, replacing defective work, and final cleaning.
 - 4. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 QUALITY ASSURANCE

Land Surveyor Qualifications: A professional land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.
- B. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.

1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect in accordance with requirements in Section 013100 "Project Management and Coordination."

3.3 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb, and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and in unoccupied spaces, unless otherwise indicated on Drawings.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.
- F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.
- J. Repair or remove and replace damaged, defective, or nonconforming Work.
 - 1. Comply with Section 017700 "Closeout Procedures" for repairing or removing and replacing defective Work.

3.4 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of Work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
 - 1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 - 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 - 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 - 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 - 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 - 6. Proceed with patching after construction operations requiring cutting are complete.
- F. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.
 - 1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 - 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 - 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall

coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

- a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 COORDINATION OF OWNER'S PORTION OF THE WORK

- A. Site Access: Provide access to Project site for Owner's construction personnel and Owner's separate contractors.
 1. Provide temporary facilities required for Owner-furnished, Contractor-installed and Owner-furnished, Owner-installed products.
 2. Refer to Section 011000 "Summary" for other requirements for Owner-furnished, Contractor-installed and Owner-furnished, Owner-installed products
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel and Owner's separate contractors.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.

3.6 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.

- C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Section 019113 "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.8 PROTECTION AND REPAIR OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- D. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final completion procedures.
 - 3. Warranties.
 - 4. Final cleaning.
- B. Related Requirements:
 - 1. Section 012900 "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
 - 2. Section 017823 "Operation and Maintenance Data" for additional operation and maintenance manual requirements.
 - 3. Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
 - 4. Section 017900 "Demonstration and Training" for requirements to train the Owner's maintenance personnel to adjust, operate, and maintain products, equipment, and systems.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of cleaning agent.
- B. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- C. Certified List of Incomplete Items: Final submittal at Final Completion.

1.4 CLOSEOUT SUBMITTALS

- A. Certificates of Release: From authorities having jurisdiction.
- B. Certificate of Insurance: For continuing coverage.
- C. Field Report: For pest-control inspection.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Schedule of Maintenance Material Items: For maintenance material submittal items required by other Sections.

1.6 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's "punch list"), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction, permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including Project Record Documents, operation and maintenance manuals, damage or settlement surveys, property surveys, and similar final record information.
 - 3. Submit closeout submittals specified in individual Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance material submittals specified in individual Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number.
 - a. Schedule of Maintenance Material Items: Prepare and submit schedule of maintenance material submittal items, including name and quantity of each item and name and number of related Specification Section. Obtain Architect's signature for receipt of submittals.
 - 5. Submit testing, adjusting, and balancing records.
 - 6. Submit sustainable design submittals not previously submitted.
 - 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Section 017900 "Demonstration and Training."
 - 6. Advise Owner of changeover in utility services.
 - 7. Participate with Owner in conducting inspection and walkthrough with local emergency responders.

8. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 9. Complete final cleaning requirements.
 10. Touch up paint and otherwise repair and restore marred exposed finishes to eliminate visual defects.
- D. Inspection: Submit a written request for inspection to determine Substantial Completion a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. Results of completed inspection will form the basis of requirements for Final Completion.

1.7 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
 2. Certified List of Incomplete Items: Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. Certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.8 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor, listed by room or space number.
 2. Organize items applying to each space by major element, including categories for ceilings, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.

- b. Date.
- c. Name of Architect .
- d. Name of Contractor.
- e. Page number.

1.9 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where warranties are indicated to commence on dates other than date of Substantial Completion, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Partial Occupancy: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.
- C. Organize warranty documents into an orderly sequence based on the table of contents of Project Manual.
- D. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
 - 1. Submit by uploading to web-based project software site.
- E. Warranties in Paper Form:
 - 1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
 - 2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.
- F. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.
- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
 - 1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are not planted, mulched, or paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited-access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
 - i. Vacuum and mop concrete.
 - j. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - k. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - l. Remove labels that are not permanent.
 - m. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - p. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - q. Clean luminaires, lamps, globes, and reflectors to function with full efficiency.
 - r. Clean strainers.
 - s. Leave Project clean and ready for occupancy.
- C. Construction Waste Disposal: Comply with waste-disposal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
 - 1. Operation and maintenance documentation directory manuals.
 - 2. Emergency manuals.
 - 3. Systems and equipment operation manuals.
 - 4. Systems and equipment maintenance manuals.
 - 5. Product maintenance manuals.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting copies of submittals for operation and maintenance manuals.
 - 2. Section 019113 "General Commissioning Requirements" for verification and compilation of data into operation and maintenance manuals.

1.3 DEFINITIONS

- A. System: An organized collection of parts, equipment, or subsystems united by regular interaction.
- B. Subsystem: A portion of a system with characteristics similar to a system.

1.4 CLOSEOUT SUBMITTALS

- A. Submit operation and maintenance manuals indicated. Provide content for each manual as specified in individual Specification Sections, and as reviewed and approved at the time of Section submittals. Submit reviewed manual content formatted and organized as required by this Section.
 - 1. Architect and Commissioning Authority will comment on whether content of operation and maintenance submittals is acceptable.
 - 2. Where applicable, clarify and update reviewed manual content to correspond to revisions and field conditions.
- B. Format: Submit operation and maintenance manuals in the following format:

1. Submit by uploading to web-based project software site. Enable reviewer comments on draft submittals.
 2. Submit three paper copies. Architect return two copies.
- C. Comply with Section 017700 "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

1.5 FORMAT OF OPERATION AND MAINTENANCE MANUALS

- A. Manuals, Electronic Files: Submit manuals in the form of a multiple file composite electronic PDF file for each manual type required.
1. Electronic Files: Use electronic files prepared by manufacturer where available. Where scanning of paper documents is required, configure scanned file for minimum readable file size.
 2. File Names and Bookmarks: Bookmark individual documents based on file names. Name document files to correspond to system, subsystem, and equipment names used in manual directory and table of contents. Group documents for each system and subsystem into individual composite bookmarked files, then create composite manual, so that resulting bookmarks reflect the system, subsystem, and equipment names in a readily navigated file tree. Configure electronic manual to display bookmark panel on opening file.
- B. Manuals, Paper Copy: Submit manuals in the form of hard-copy, bound and labeled volumes.
1. Binders: Heavy-duty, three-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, sized to hold 8-1/2-by-11-inch paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
 - a. If two or more binders are necessary to accommodate data of a system, organize data in each binder into groupings by subsystem and related components. Cross-reference other binders if necessary, to provide essential information for proper operation or maintenance of equipment or system.
 - b. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, and subject matter of contents, and indicate Specification Section number on bottom of spine. Indicate volume number for multiple-volume sets.
 2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
 3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment. Enclose title pages and directories in clear plastic sleeves.
 4. Supplementary Text: Prepared on 8-1/2-by-11-inch white bond paper.
 5. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
 - a. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
 - b. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in

manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

1.6 REQUIREMENTS FOR EMERGENCY, OPERATION, AND MAINTENANCE MANUALS

- A. Organization of Manuals: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
1. Title page.
 2. Table of contents.
 3. Manual contents.
- B. Title Page: Include the following information:
1. Subject matter included in manual.
 2. Name and address of Project.
 3. Name and address of Owner.
 4. Date of submittal.
 5. Name and contact information for Contractor.
 6. Name and contact information for Construction Manager.
 7. Name and contact information for Architect.
 8. Name and contact information for Commissioning Authority.
 9. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
 10. Cross-reference to related systems in other operation and maintenance manuals.
- C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.
1. If operation or maintenance documentation requires more than one volume to accommodate data, include comprehensive table of contents for all volumes in each volume of the set.
- D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.
- E. Identification: In the documentation directory and in each operation and maintenance manual, identify each system, subsystem, and piece of equipment with same designation used in the Contract Documents. If no designation exists, assign a designation according to ASHRAE Guideline 4, "Preparation of Operating and Maintenance Documentation for Building Systems."

1.7 OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY MANUAL

- A. Operation and Maintenance Documentation Directory: Prepare a separate manual that provides an organized reference to emergency, operation, and maintenance manuals. List items and their location to facilitate ready access to desired information. Include the following:
1. List of Systems and Subsystems: List systems alphabetically. Include references to operation and maintenance manuals that contain information about each system.

2. List of Equipment: List equipment for each system, organized alphabetically by system. For pieces of equipment not part of system, list alphabetically in separate list.
3. Tables of Contents: Include a table of contents for each emergency, operation, and maintenance manual.

1.8 EMERGENCY MANUALS

- A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.
- B. Content: Organize manual into a separate section for each of the following:
 1. Type of emergency.
 2. Emergency instructions.
 3. Emergency procedures.
- C. Type of Emergency: Where applicable for each type of emergency indicated below, include instructions and procedures for each system, subsystem, piece of equipment, and component:
 1. Fire.
 2. Flood.
 3. Gas leak.
 4. Water leak.
 5. Power failure.
 6. Water outage.
 7. System, subsystem, or equipment failure.
 8. Chemical release or spill.
- D. Emergency Instructions: Describe and explain warnings, trouble indications, error messages, and similar codes and signals. Include responsibilities of Owner's operating personnel for notification of Installer, supplier, and manufacturer to maintain warranties.
- E. Emergency Procedures: Include the following, as applicable:
 1. Instructions on stopping.
 2. Shutdown instructions for each type of emergency.
 3. Operating instructions for conditions outside normal operating limits.
 4. Required sequences for electric or electronic systems.
 5. Special operating instructions and procedures.

1.9 SYSTEMS AND EQUIPMENT OPERATION MANUALS

- A. Systems and Equipment Operation Manual: Assemble a complete set of data indicating operation of each system, subsystem, and piece of equipment not part of a system. Include information required for daily operation and management, operating standards, and routine and special operating procedures.
 1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.

- B. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
 2. Performance and design criteria if Contractor has delegated design responsibility.
 3. Operating standards.
 4. Operating procedures.
 5. Operating logs.
 6. Wiring diagrams.
 7. Control diagrams.
 8. Piped system diagrams.
 9. Precautions against improper use.
 10. License requirements including inspection and renewal dates.
- C. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
 2. Manufacturer's name.
 3. Equipment identification with serial number of each component.
 4. Equipment function.
 5. Operating characteristics.
 6. Limiting conditions.
 7. Performance curves.
 8. Engineering data and tests.
 9. Complete nomenclature and number of replacement parts.
- D. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
 2. Equipment or system break-in procedures.
 3. Routine and normal operating instructions.
 4. Regulation and control procedures.
 5. Instructions on stopping.
 6. Normal shutdown instructions.
 7. Seasonal and weekend operating instructions.
 8. Required sequences for electric or electronic systems.
 9. Special operating instructions and procedures.
- E. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.
- F. Piped Systems: Diagram piping as installed and identify color coding where required for identification.

1.10 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

- A. Systems and Equipment Maintenance Manuals: Assemble a complete set of data indicating maintenance of each system, subsystem, and piece of equipment not part of a system. Include manufacturers' maintenance documentation, preventive maintenance procedures and frequency, repair procedures, wiring and systems diagrams, lists of spare parts, and warranty information.

1. Engage a factory-authorized service representative to assemble and prepare information for each system, subsystem, and piece of equipment not part of a system.
 2. Prepare a separate manual for each system and subsystem, in the form of an instructional manual for use by Owner's operating personnel.
- B. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranties and bonds as described below.
- C. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Manufacturers' Maintenance Documentation: Include the following information for each component part or piece of equipment:
1. Standard maintenance instructions and bulletins; include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.
 - a. Prepare supplementary text if manufacturers' standard printed data are not available and where the information is necessary for proper operation and maintenance of equipment or systems.
 2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
 3. Identification and nomenclature of parts and components.
 4. List of items recommended to be stocked as spare parts.
- E. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
 2. Troubleshooting guide.
 3. Precautions against improper maintenance.
 4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 5. Aligning, adjusting, and checking instructions.
 6. Demonstration and training video recording, if available.
- F. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.
1. Scheduled Maintenance and Service: Tabulate actions for daily, weekly, monthly, quarterly, semiannual, and annual frequencies.
 2. Maintenance and Service Record: Include manufacturers' forms for recording maintenance.

- G. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.
- H. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.
- I. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.
 - 1. Include procedures to follow and required notifications for warranty claims.
- J. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.
 - 1. Do not use original project record documents as part of maintenance manuals.

1.11 PRODUCT MAINTENANCE MANUALS

- A. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.
- B. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.
- C. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual and drawing or schedule designation or identifier where applicable.
- D. Product Information: Include the following, as applicable:
 - 1. Product name and model number.
 - 2. Manufacturer's name.
 - 3. Color, pattern, and texture.
 - 4. Material and chemical composition.
 - 5. Reordering information for specially manufactured products.
- E. Maintenance Procedures: Include manufacturer's written recommendations and the following:
 - 1. Inspection procedures.
 - 2. Types of cleaning agents to be used and methods of cleaning.
 - 3. List of cleaning agents and methods of cleaning detrimental to product.
 - 4. Schedule for routine cleaning and maintenance.
 - 5. Repair instructions.
- F. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

- G. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

1. Include procedures to follow and required notifications for warranty claims.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. Record Drawings.
 - 2. Record specifications.
 - 3. Record Product Data.
 - 4. Miscellaneous record submittals.
- B. Related Requirements:
 - 1. Section 017300 "Execution" for final property survey.
 - 2. Section 017700 "Closeout Procedures" for general closeout procedures.
 - 3. Section 017823 "Operation and Maintenance Data" for operation and maintenance manual requirements.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
 - 2. Number of Copies: Submit copies of Record Drawings as follows:
 - a. Final Submittal:
 - 1) Submit one paper-copy set(s) of marked-up record prints.
 - 2) Submit Record Digital Data Files and one set(s) of Record Digital Data File plots.
 - 3) Plot each drawing file, whether or not changes and additional information were recorded.
- B. Record Specifications: Submit annotated PDF electronic files of Project's Specifications, including addenda and Contract modifications.
- C. Reports: Submit written report weekly indicating items incorporated into Project Record Documents concurrent with progress of the Work, including revisions, concealed conditions, field changes, product selections, and other notations incorporated.

1.4 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
1. Preparation: Mark record prints to show the actual installation, where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding photographic documentation.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated PDF electronic file
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Architect for resolution.
 4. Architect will furnish Contractor with one set of digital data files of the Contract Drawings for use in recording information.

- a. See Section 013100 "Project Management and Coordination" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.
- C. Format: Identify and date each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Format: Annotated PDF electronic file.
 - 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 - 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Architect
 - e. Name of Contractor.

1.5 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation, where installation varies from that indicated in Specifications, addenda, and Contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders, Record Product Data, and Record Drawings where applicable.
- B. Format: Submit record specifications as annotated PDF electronic file.

1.6 MAINTENANCE OF RECORD DOCUMENTS

- A. Maintenance of Record Documents: Store Record Documents in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 017839

DRAFT

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for instructing Owner's personnel, including the following:
 - 1. Instruction in operation and maintenance of systems, subsystems, and equipment.
 - 2. Demonstration and training video recordings.

1.3 INFORMATIONAL SUBMITTALS

- A. Instruction Program: Submit outline of instructional program for demonstration and training, including a list of training modules and a schedule of proposed dates, times, length of instruction time, and instructors' names for each training module. Include learning objective and outline for each training module.
 - 1. Indicate proposed training modules using manufacturer-produced demonstration and training video recordings for systems, equipment, and products in lieu of video recording of live instructional module.
- B. Attendance Record: For each training module, submit list of participants and length of instruction time.
- C. Evaluations: For each participant and for each training module, submit results and documentation of performance-based test.

1.4 CLOSEOUT SUBMITTALS

- A. Demonstration and Training Video Recordings: Submit two copies within days of end of each training module.
 - 1. Identification: On each copy, provide an applied label with the following information:
 - a. Name of Project.
 - b. Name and address of videographer.
 - c. Name of Architect.
 - d. Name of Construction Manager.
 - e. Name of Contractor.
 - f. Date of video recording.

2. Transcript: Prepared and bound in format matching operation and maintenance manuals. Mark appropriate identification on front and spine of each binder. Include a cover sheet with same label information as the corresponding video recording. Include name of Project and date of video recording on each page.
3. Transcript: Prepared in PDF electronic format. Include a cover sheet with same label information as the corresponding video recording and a table of contents with links to corresponding training components. Include name of Project and date of video recording on each page.
4. At completion of training, submit complete training manual(s) for Owner's use prepared in same PDF file format required for operation and maintenance manuals specified in Section 017823 "Operation and Maintenance Data."

1.5 QUALITY ASSURANCE

- A. Facilitator Qualifications: A firm or individual experienced in training or educating maintenance personnel in a training program similar in content and extent to that indicated for this Project, and whose work has resulted in training or education with a record of successful learning performance.
- B. Instructor Qualifications: A factory-authorized service representative, complying with requirements in Section 014000 "Quality Requirements," experienced in operation and maintenance procedures and training.
- C. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.
- D. Preinstruction Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to demonstration and training including, but not limited to, the following:
 1. Inspect and discuss locations and other facilities required for instruction.
 2. Review and finalize instruction schedule and verify availability of educational materials, instructors' personnel, audiovisual equipment, and facilities needed to avoid delays.
 3. Review required content of instruction.
 4. For instruction that must occur outside, review weather and forecasted weather conditions and procedures to follow if conditions are unfavorable.

1.6 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data have been reviewed and approved by Architect.

1.7 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.
- B. Training Modules: Develop a learning objective and teaching outline for each module. Include a description of specific skills and knowledge that participant is expected to master. For each module, include instruction for the following as applicable to the system, equipment, or component:
 - 1. Basis of System Design, Operational Requirements, and Criteria: Include the following:
 - a. System, subsystem, and equipment descriptions.
 - b. Performance and design criteria if Contractor is delegated design responsibility.
 - c. Operating standards.
 - d. Regulatory requirements.
 - e. Equipment function.
 - f. Operating characteristics.
 - g. Limiting conditions.
 - h. Performance curves.
 - 2. Documentation: Review the following items in detail:
 - a. Emergency manuals.
 - b. Systems and equipment operation manuals.
 - c. Systems and equipment maintenance manuals.
 - d. Product maintenance manuals.
 - e. Project Record Documents.
 - f. Identification systems.
 - g. Warranties and bonds.
 - h. Maintenance service agreements and similar continuing commitments.
 - 3. Emergencies: Include the following, as applicable:
 - a. Instructions on meaning of warnings, trouble indications, and error messages.
 - b. Instructions on stopping.
 - c. Shutdown instructions for each type of emergency.
 - d. Operating instructions for conditions outside of normal operating limits.
 - e. Sequences for electric or electronic systems.
 - f. Special operating instructions and procedures.
 - 4. Operations: Include the following, as applicable:
 - a. Startup procedures.
 - b. Equipment or system break-in procedures.
 - c. Routine and normal operating instructions.
 - d. Regulation and control procedures.
 - e. Control sequences.
 - f. Safety procedures.
 - g. Instructions on stopping.
 - h. Normal shutdown instructions.
 - i. Operating procedures for emergencies.
 - j. Operating procedures for system, subsystem, or equipment failure.
 - k. Seasonal and weekend operating instructions.

- I. Required sequences for electric or electronic systems.
 - m. Special operating instructions and procedures.
- 5. Adjustments: Include the following:
 - a. Alignments.
 - b. Checking adjustments.
 - c. Noise and vibration adjustments.
 - d. Economy and efficiency adjustments.
- 6. Troubleshooting: Include the following:
 - a. Diagnostic instructions.
 - b. Test and inspection procedures.
- 7. Maintenance: Include the following:
 - a. Inspection procedures.
 - b. Types of cleaning agents to be used and methods of cleaning.
 - c. List of cleaning agents and methods of cleaning detrimental to product.
 - d. Procedures for routine cleaning.
 - e. Procedures for preventive maintenance.
 - f. Procedures for routine maintenance.
 - g. Instruction on use of special tools.
- 8. Repairs: Include the following:
 - a. Diagnosis instructions.
 - b. Repair instructions.
 - c. Disassembly; component removal, repair, and replacement; and reassembly instructions.
 - d. Instructions for identifying parts and components.
 - e. Review of spare parts needed for operation and maintenance.

1.8 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."
- B. Set up instructional equipment at instruction location.

1.9 INSTRUCTION

- A. Facilitator: Engage a qualified facilitator to prepare instruction program and training modules, to coordinate instructors, and to coordinate between Contractor and Owner for number of participants, instruction times, and location.
- B. Engage qualified instructors to instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Architect will furnish an instructor to describe basis of system design, operational requirements, criteria, and regulatory requirements.

2. Owner will furnish an instructor to describe Owner's operational philosophy.
 3. Owner will furnish Contractor with names and positions of participants.
- C. Scheduling: Provide instruction at mutually agreed-on times. For equipment that requires seasonal operation, provide similar instruction at start of each season.
1. Schedule training with Owner, through Architect, with at least seven days' advance notice.
- D. Training Location and Reference Material: Conduct training on-site in the completed and fully operational facility using the actual equipment in-place. Conduct training using final operation and maintenance data submittals.
- E. Evaluation: At conclusion of each training module, assess and document each participant's mastery of module by use of an oral performance-based test.
- F. Cleanup: Collect used and leftover educational materials and remove from Project site. Remove instructional equipment. Restore systems and equipment to condition existing before initial training use.

1.10 DEMONSTRATION AND TRAINING VIDEO RECORDINGS

- A. General: Engage a qualified commercial videographer to record demonstration and training video recordings. Record each training module separately. Include classroom instructions and demonstrations, board diagrams, and other visual aids, but not student practice.
1. At beginning of each training module, record each chart containing learning objective and lesson outline.
- B. Digital Video Recordings: Provide high-resolution, digital video in MPEG format, produced by a digital camera with minimum sensor resolution of 12 megapixels and capable of recording in full HD mode with vibration reduction technology.
1. Submit video recordings on CD-ROM or thumb drive and [by uploading to web-based Project software site.
 2. File Hierarchy: Organize folder structure and file locations according to Project Manual table of contents. Provide complete screen-based menu.
 3. File Names: Utilize file names based on name of equipment generally described in video segment, as identified in Project specifications.
 4. Contractor and Installer Contact File: Using appropriate software, create a file for inclusion on the equipment demonstration and training recording that describes the following for each Contractor involved on the Project, arranged according to Project Manual table of contents:
 - a. Name of Contractor/Installer.
 - b. Business address.
 - c. Business phone number.
 - d. Point of contact.
 - e. Email address.
- C. Recording: Mount camera on tripod before starting recording, unless otherwise necessary to adequately cover area of demonstration and training. Display continuous running time.
1. Film training session(s) in segments not to exceed 15 minutes.

- a. Produce segments to present a single significant piece of equipment per segment.
 - b. Organize segments with multiple pieces of equipment to follow order of Project Manual table of contents.
 - c. Where a training session on a particular piece of equipment exceeds 15 minutes, stop filming and pause training session. Begin training session again upon commencement of new filming segment.
- D. Light Levels: Verify light levels are adequate to properly light equipment. Verify equipment markings are clearly visible prior to recording.
- 1. Furnish additional portable lighting as required.
- E. Narration: Describe scenes on video recording by audio narration by microphone while video recording is recorded. Include description of items being viewed.
- F. Transcript: Provide a transcript of the narration. Display images and running time captured from videotape opposite the corresponding narration segment.
- G. Preproduced Video Recordings: Provide video recordings used as a component of training modules in same format as recordings of live training.

PART 2 - PRODUCTS

PART 3 - EXECUTION

END OF SECTION 017900

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Salvage of existing items to be reused or recycled.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.

1.2 DEFINITIONS

- A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and store.
- C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.
- D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.3 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.4 PREINSTALLATION MEETINGS

- A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
4. Review areas where existing construction is to remain and requires protection.

1.5 INFORMATIONAL SUBMITTALS

- A. Schedule of Selective Demolition Activities: Indicate the following:
1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's building manager's on-site operations are uninterrupted.
 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- B. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by salvage and demolition operations.
- C. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.6 CLOSEOUT SUBMITTALS

- A. Inventory: Submit a list of items that have been removed and salvaged.

1.7 FIELD CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.
- D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.
1. Hazardous materials will be removed by Owner before start of the Work.
 2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.
- E. Storage or sale of removed items or materials on-site is not permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding. Existing warranties include the following:
- B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.9 COORDINATION

- A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ANSI/ASSP A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.
- C. Perform an engineering survey of condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective building demolition operations.
 - 1. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
 2. Arrange to shut off utilities with utility companies.
 3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
 4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 3. Cover and protect furniture, furnishings, and equipment that have not been removed.
 4. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Section 015000 "Temporary Facilities and Controls."
- B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 7. Dispose of demolished items and materials promptly.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
- C. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.
- B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

- A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.

3.7 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 032000 - CONCRETE REINFORCING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Steel reinforcement bars.
2. Welded-wire reinforcement.

B. Related Requirements:

1. Section 033816 "Unbonded Post-Tensioned Concrete" for reinforcing related to post-tensioned concrete.
2. Section 034100 "Precast Structural Concrete" for reinforcing used in precast structural concrete.
3. Section 034500 "Precast Architectural Concrete" for reinforcing used in precast architectural concrete.
4. Section 321313 "Concrete Paving" for reinforcing related to concrete pavement and walks.
5. Section 321316 "Decorative Concrete Paving" for reinforcing related to decorative concrete pavement and walks.

1.2 ACTION SUBMITTALS

A. Product Data: For the following:

1. Each type of steel reinforcement.
2. Bar supports.
3. Mechanical splice couplers.

B. Shop Drawings: Comply with ACI SP-066:

1. Include placing drawings that detail fabrication, bending, and placement.
2. Include bar sizes, lengths, materials, grades, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, location of splices, lengths of lap splices, details of mechanical splice couplers, details of welding splices, tie spacing, hoop spacing, and supports for concrete reinforcement.
3. For structural thermal break insulated connection system, indicate general configuration, insulation dimensions, tension bars, compression pads, shear bars, and dimensions.

C. Construction Joint Layout: Indicate proposed construction joints required to build the structure.

1. Location of construction joints is subject to approval of Architect.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Statements: For testing and inspection agency.

B. Material Test Reports: For the following, from a qualified testing agency:

1. Steel Reinforcement:

- a. For reinforcement to be welded, mill test analysis for chemical composition and carbon equivalent of the steel in accordance with ASTM A706/A706M.

2. Mechanical splice couplers.

C. Field quality-control reports.

1.4 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.

- B. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.4/D 1.4M.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage.

1. Store reinforcement to avoid contact with earth.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A615/A615M, Grade 60, deformed.
- B. Low-Alloy Steel Reinforcing Bars: ASTM A706/A706M, deformed.
- C. Headed-Steel Reinforcing Bars: ASTM A970/A970M.

2.2 REINFORCEMENT ACCESSORIES

- A. Joint Dowel Bars: ASTM A615/A615M, **Grade 60**, plain-steel bars, cut true to length with ends square and free of burrs.
- B. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded-wire reinforcement in place.
1. Manufacture bar supports from steel wire, plastic, or precast concrete in accordance with CRSI's "Manual of Standard Practice," of greater compressive strength than concrete and as follows:

- a. For concrete surfaces exposed to view, where legs of wire bar supports contact forms, use CRSI Class 1 plastic-protected steel wire, all-plastic bar supports, or CRSI Class 2 stainless steel bar supports.
- C. Mechanical Splice Couplers: **ACI 318**, same material of reinforcing bar being spliced; Type as indicated on drawings.
- D. Steel Tie Wire: ASTM A1064/A1064M, annealed steel, not less than **0.0508 inch** in diameter.
 - 1. Finish: Plain.

2.3 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protection of In-Place Conditions:
 - 1. Do not cut or puncture vapor retarder.
 - 2. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials that reduce bond to concrete.

3.2 INSTALLATION OF STEEL REINFORCEMENT

- A. Comply with CRSI's "Manual of Standard Practice" for placing and supporting reinforcement.
- B. Accurately position, support, and secure reinforcement against displacement.
 - 1. Locate and support reinforcement with bar supports to maintain minimum concrete cover.
 - 2. Do not tack weld crossing reinforcing bars.
- C. Preserve clearance between bars of not less than **1 inch**, not less than one bar diameter, or not less than 1-1/3 times size of large aggregate, whichever is greater.
- D. Provide concrete coverage in accordance with **ACI 318**.
- E. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- F. Splices: Lap splices as indicated on Drawings.
 - 1. Bars indicated to be continuous, and all vertical bars to be lapped not less than 36 bar diameters at splices, or **24 inches**, whichever is greater.
 - 2. Stagger splices in accordance with **ACI 318**.
 - 3. Mechanical Splice Couplers: Install in accordance with manufacturer's instructions.

4. Weld reinforcing bars in accordance with AWS D1.4/D 1.4M, where indicated on Drawings.

3.3 JOINTS

- A. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 1. Place joints perpendicular to main reinforcement.
 2. Continue reinforcement across construction joints unless otherwise indicated.
 3. Do not continue reinforcement through sides of strip placements of floors and slabs.
- B. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt coat one-half of dowel length, to prevent concrete bonding to one side of joint.

3.4 INSTALLATION TOLERANCES

- A. Comply with **ACI 117**.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified testing and inspecting agency to perform field tests and inspections and prepare test reports.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
- C. Inspections:
 1. Steel-reinforcement placement.
 2. Steel-reinforcement mechanical splice couplers.
 3. Steel-reinforcement welding.
- D. Manufacturer's Inspections: Engage manufacturer of structural thermal break insulated connection system to inspect completed installations prior to placement of concrete, and to provide written report that installation complies with manufacturer's written instructions.

END OF SECTION 032000

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section specifies cast-in place concrete, including formwork, reinforcement, concrete materials, mix design, placement procedures, vapor barriers and finishes.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash and other pozzolans.

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Indicate amounts of mix water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315, "Details and Detailing of Concrete Reinforcement." Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Material Test Reports: From a qualified testing agency indicating and interpreting test results for compliance of the following with requirements indicated, based on comprehensive testing of current materials:
 - 1. Cementitious materials and aggregates.
 - 2. Steel reinforcement and reinforcement accessories.
 - 3. Admixtures.
 - 4. Curing materials.
 - 5. Vapor retarders.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who has completed concrete Work similar in material, design, and extent to that indicated for this Project and whose work has resulted in

construction with a record of successful in-service performance. Installer must have minimum 5 years' experience in finishing concrete work where concrete is placed directly on vapor barrier, without sand bed.

- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products complying with ASTM C 94 requirements for production facilities and equipment.
 - 1. Manufacturer must be certified according to the National Ready Mixed Concrete Association's Certification of Ready Mixed Concrete Production Facilities.
- A. Testing Agency Qualifications: An independent testing agency, acceptable to authorities having jurisdiction, qualified according to ASTM C 1077 and ASTM E 329 to conduct the testing indicated, as documented according to ASTM E 548.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.
- B. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, each aggregate from one source, and each admixture from the same manufacturer.
- C. ACI Publications: Comply with the following, unless more stringent provisions are indicated:
 - 1. ACI 301, "Specification for Structural Concrete."
 - 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- D. Preinstallation Conference: Conduct conference at Project site to comply with requirements in Division 1 Section "Project Meetings."
 - 1. Before submitting design mixes, review concrete mix design and examine procedures for ensuring quality of concrete materials. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixes.
 - c. Ready-mix concrete producer.
 - d. Concrete subcontractor.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Steel Reinforcement: Deliver, store, and handle steel reinforcement to prevent bending and damage. Avoid damaging coatings on steel reinforcement.
- B. Deliver, store, and handle steel reinforcement to prevent bending and damage.

1.7 ADDING WATER TO CONCRETE

- A. Do not add water to concrete without the approval of the Architect.
- B. Account for all water added to the concrete mix.

PART 2 - PRODUCTS

2.1 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed.
- B. Plain-Steel Wire: ASTM A 82, as drawn.

2.2 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place.

2.3 CONCRETE MATERIALS

- A. Portland Cement: ASTM C 150, Type I.
 - 1. Fly Ash: ASTM C 618, Class Corf.
- B. Normal-Weight Aggregate: ASTM C 33, uniformly graded, and as follows:
 - 1. Nominal Maximum Aggregate Size: 1-1/2 inches, footings and foundation walls.
 - 2. Nominal Maximum Aggregate Size: 3/4 inch, slabs on grade.
- C. Water: Potable and complying with ASTM C 94.

2.4 ADMIXTURES

- A. General: Admixtures certified by manufacturer to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material and to be compatible with other admixtures and cementitious materials. Do not use admixtures containing calcium chloride.
- B. Water-Reducing Admixture: ASTM C 494, Type A.
- C. High-Range, Water-Reducing Admixture: ASTM C 494, Type F.
- D. Water-Reducing and Accelerating Admixture: ASTM C 494, Type E.
- E. Water-Reducing and Retarding Admixture: ASTM C 494, Type D.

2.5 VAPOR RETARDERS

- A. Vapor Retarder:
 - 1. Griffolyn: T-85
 - 2. Raven Industries: Vapor Block 15
 - 3. Fortifiber: Moiststop Ultra 'A'
 - 4. Stego Wrap: 15 mil
 - 5. Or pre-approved equal

- B. Fine-Graded Granular Material: Clean mixture of crushed stone, crushed gravel, and manufactured or natural sand; with 100 percent passing a 1-1/2 inch sieve and with less than 5% passing the 200 sieve, meeting deleterious substance limits of ASTM C 33 for fine aggregates.

2.6 CURING MATERIALS (NO FLOOD MOISTURE CURING)

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. dry.
- C. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- D. Water: Potable.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B.
- F. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, the following:

1. Evaporation Retarder:

- a. Cimfilm; Axim Concrete Technologies.
- b. Finishing Aid Concentrate; Burke Group, LLC (The).
- c. Spray-Film; ChemMasters.
- d. Aquafilm; Conspec Marketing & Manufacturing Co., Inc.
- e. Sure Film; Dayton Superior Corporation.
- f. Eucobar; Euclid Chemical Co.
- g. Vapor Aid; Kaufman Products, Inc.
- h. Lambco Skin; Lambert Corporation.
- i. E-Con; L&M Construction Chemicals, Inc.
- j. Confilm; Master Builders, Inc.
- k. Waterhold; Metalcrete Industries.
- l. Rich Film; Richmond Screw Anchor Co.
- m. SikaFilm; Sika Corporation.
- n. Finishing Aid; Symons Corporation.
- o. Certi-Vex EnvioAssist; Vexcon Chemicals, Inc.

2. Clear, Waterborne, Membrane-Forming Curing Compound:

- a. AH Clear Cure WB; Anti-Hydro International, Inc.
- b. Klear Kote WB II Regular; Burke Chemicals.
- c. Safe-Cure & Seal 20; ChemMasters.
- d. High Seal; Conspec Marketing & Manufacturing Co., Inc.
- e. Safe Cure and Seal; Dayton Superior Corporation.
- f. Aqua Cure VOX; Euclid Chemical Co.
- g. Cure & Seal 309 Emulsion; Kaufman Products Inc.
- h. Glazecote Sealer-20; Lambert Corporation.
- i. Dress & Seal WB; L&M Construction Chemicals, Inc.
- j. Vocomp-20; W. R. Meadows, Inc.
- k. Metcure; Metalcrete Industries.
- l. Cure & Seal 150E; Nox-Crete Products Group, Kinsman Corporation.

- m. Rich Seal 14 percent E; Richmond Screw Anchor Co.
- a. Kure-N-Seal WB; Sonneborn, Div. of ChemRex, Inc.
- b. Florseal W.B.; Sternson Group.
- c. Cure & Seal 14 percent E; Symons Corporation.
- d. Seal Cure WB 150; Tamms Industries Co., Div. of LaPorte Construction Chemicals of North America, Inc.
- e. Hydro Seal; Unitex.
- f. Starseal 309; Vexcon Chemicals, Inc.

2.7 RELATED MATERIALS

- A. Joint-Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber, or ASTM D 1752, cork or self-expanding cork.
- B. Bonding Agent: ASTM C 1059, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Reglets: Fabricate reglets of not less than 0.0217-inch- thick galvanized steel sheet. Temporarily fill or cover face opening of reglet to prevent intrusion of concrete or debris.

2.8 CONCRETE MIXES

- A. Prepare design mixes for each type and strength of concrete determined by either laboratory trial mix or field test data bases, as follows:
 - 1. Proportion normal-weight concrete according to ACI 211.1 and ACI 301.
- B. Use a qualified independent testing agency for preparing and reporting proposed mix designs for the laboratory trial mix basis.
- C. Footings and Foundation Walls: Proportion normal-weight concrete mix as follows:
 - 1. Compressive Strength (28 Days): As indicated on plan, w/c ratio = .48, maximum.
 - 2. Maximum Slump: As indicated on plan.
 - 3. Maximum Slump for Concrete Containing High-Range Water-Reducing Admixture: 8 inches after admixture is added to concrete with maximum slump as indicated on plan.
- D. Slab-on-Grade: Proportion normal-weight concrete mix as follows:
 - 1. Compressive Strength (28 Days): As indicated on plan, w/c ratio = .40, maximum
 - 2. Minimum Cementitious Materials Content: 560 lb/cu. yd..
 - 3. Maximum Slump: 3 inches prior to plasticizer.
 - 4. Water cement ratio will be monitored by testing agency. Addition of "job-site" water will not be allowed unless approved by the Testing Agency, but will not exceed 0.40 ratio. Testing Agency is to reject all non-conforming concrete.
- E. Cementitious Materials: For concrete exposed to deicers, limit percentage, by weight, of cementitious materials other than portland cement according to ACI 301 requirements.

- F. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash: 15 percent.
 - 2. Combined Fly Ash and Pozzolan: 15 percent.
- A. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- B. Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture or high-range water-reducing admixture (superplasticizer) in concrete, as required, for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.

2.9 FABRICATING REINFORCEMENT

- A. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."

2.10 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete according to ASTM C 94, and furnish batch ticket information.

PART 3 - EXECUTION

1.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until concrete structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Limit concrete surface irregularities, designated by ACI 347R as abrupt or gradual, as follows:
 - 1. Class D, 1/4 inch.
- D. Construct forms tight enough to prevent loss of concrete mortar.
- E. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical. Kerf wood inserts for forming keyways, reglets, recesses, and the like, for easy removal.
 - 1. Do not use rust-stained steel form-facing material.

- A. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- B. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- C. Chamfer exterior corners and edges of permanently exposed concrete.
- D. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- E. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.
- F. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- G. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

1.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use Setting Drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 1. Install anchor bolts, accurately located, to elevations required.

1.3 REMOVING AND REUSING FORMS

- A. General: Formwork, for sides of beams, walls, columns, and similar parts of the Work, that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for 24 hours after placing concrete provided concrete is hard enough to not be damaged by form-removal operations and provided curing and protection operations are maintained.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

1.4 VAPOR RETARDERS

- A. Granular Fill: Compact with mechanical equipment to elevation tolerances of plus 0 inch or minus 3/4 inch. A sand and gravel mixture complying with ASTM D 1241 Type I Gradation A aggregate. Not less than 100% of this aggregate shall pass the 1" screen and no more than 5%

of the aggregate shall pass the #4 screen. For a total granular fill of the following thickness:
6 inches.

- A. Vapor Retarder: Place vapor retarder on compacted granular fill, protect, and repair vapor-retarder sheets according to manufacturer's written instructions. Use only manufacturers supplied tape at all laps, plumbing and conduit penetrations. Turn up vapor retarders 4 inches at edges of all slabs.
- B. The vapor retarders' manufacturers' representative shall inspect the installation of the product and provide a written field report to the Architect. All defects shall be corrected prior to concrete pour.

1.5 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.
 - 1. Do not cut or puncture vapor retarder. Repair damage and reseal vapor retarder before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, and other foreign materials.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing reinforcing bars.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire fabric in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheet widths to prevent continuous laps in either direction. Lace overlaps with wire.

1.6 JOINTS

- A. General: Construct joints true to line with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Install so strength and appearance of concrete are not impaired, at locations indicated or as approved by Architect.
 - 1. Place joints perpendicular to main reinforcement. Continue reinforcement across construction joints, unless otherwise indicated. Do not continue reinforcement through sides of strip placements of floors and slabs.
 - 2. Form from preformed galvanized steel, plastic keyway-section forms, or bulkhead forms with keys, unless otherwise indicated. Embed keys at least 1-1/2 inches into concrete.
 - 3. Space vertical joints in walls as indicated. Locate joints beside piers integral with walls, near corners, and in concealed locations where possible.
 - 4. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Contraction Joints in Slabs-on-Grade: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of concrete thickness, as follows:

1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before concrete develops random contraction cracks.
 - D. Isolation Joints in Slabs-on-Grade: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface, unless otherwise indicated.
 2. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- 1.7 CONCRETE PLACEMENT
- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.
 1. The vapor retarders' manufacturers' representative shall inspect the installation of the product and provide a written field report to the Architect. All defects shall be corrected prior to concrete pour.
 2. The Architect/Owner must inspect the installation of the vapor barrier prior to concrete placement.
 - B. Do not add water to concrete during delivery, at Project site, or during placement.
 1. Do not add water to concrete after adding high-range water-reducing admixtures to mix.
 - C. Deposit concrete continuously or in layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as specified. Deposit concrete to avoid segregation.
 - D. Deposit concrete in forms in horizontal layers no deeper than 24 inches and in a manner to avoid inclined construction joints. Place each layer while preceding layer is still plastic, to avoid cold joints.
 1. Consolidate placed concrete with mechanical vibrating equipment. Use equipment and procedures for consolidating concrete recommended by ACI 309R.
 2. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations no farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mix constituents to segregate.
 - E. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 1. Consolidate concrete during placement operations so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 2. Maintain reinforcement in position on chairs during concrete placement.

- A. Screed slab surfaces with a straightedge and strike off to correct elevations.
- B. Slope surfaces uniformly to drains where required.
- C. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, free of humps or hollows, before excess moisture or bleedwater appears on the surface. Do not further disturb slab surfaces before starting finishing operations.
- F. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators, unless otherwise specified and approved in mix designs.
- G. Hot-Weather Placement: Place concrete according to recommendations in ACI 305R and as follows, when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

1.8 FINISHING FORMED SURFACES

- A. Smooth-Formed Finish: As-cast concrete texture imparted by form-facing material, arranged in an orderly and symmetrical manner with a minimum of seams. Repair and patch tie holes and defective areas. Remove fins and other projections exceeding 1/8 inch in height.
 - 1. Apply to concrete surfaces exposed to public view or to be covered with a coating or covering material applied directly to concrete, such as waterproofing, dampproofing, veneer plaster, or painting.
- B. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise indicated.

1.9 BLOCKOUTS FOR PIPE AND CONDUIT

- A. Where pipe or conduit passes into or through concrete walls, floors, or roof slabs, the Contractor may, to facilitate proper alignment, leave holes through the concrete and pour the concrete opening after the pipe or conduit is in place. The size of such openings shall be two inches (2") larger than the outside diameter of the bell, flange or coupling and shall conform to the special details for pipe openings shown on the Plans. When the piping or conduit is entirely placed and securely anchored, the concrete openings through the walls will be poured in accordance with the requirements for bonding new concrete to old as set forth herein. Concrete used to pour these openings shall consist of one part cement, one part fine aggregate, one part non-shrinking aggregate and one and one-half parts coarse aggregate of maximum size of one-half inch ($\frac{1}{2}$ ") when the concrete is part of a basin which must hold liquids. Otherwise, the non-shrinking aggregate in these proportions shall be replaced by fine aggregate. Concrete poured in these openings shall be thoroughly vibrated or rodded to insure a watertight joint between the new and old concrete and the new concrete and the pipe or conduit. The form for the closure shall be constructed with a pouring funnel. A plug of concrete shall be left in the pouring funnel. After the concrete has taken its initial set, the plug shall be removed and the exposed, broken face ground smooth. Pouring of blockout holes shall be done from the pressure side whenever possible. Such joints shall be thoroughly cured by keeping them constantly wet for not less than seven days.
- B. Where approved by the Engineer, blockout holes may be dry packed using non-shrink grout for basins which must hold liquid, and normal grout in other places. Only sufficient water shall be added to make a dry, crumbling mass. When the mixture is pressed tightly together into a ball with the hands, there should not be sufficient water in the mixture to stain the hands, and when such a ball is broken, it should crumble. This mixture shall be tamped or rodded solidly into the space, preferably from the pressure side. A backing board or stop shall be provided at the back side of this space against which the mixture can be tamped. Curing shall be as specified above.

1.1 FINISHING FLOORS AND SLABS

- A. General: Comply with recommendations in ACI 302.1R for screeding, restraighening and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Float Finish: Consolidate surface with power-driven floats or by hand floating if area is small or inaccessible to power driven floats. Restraighten, cut down high spots, and fill low spots. Repeat float passes and restraighening until surface is left with a uniform, smooth, granular texture.
1. Apply float finish to surfaces indicated, to surfaces to receive trowel finish, and to floor and slab surfaces to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- C. Trowel Finish: After applying float finish, apply first trowel finish and consolidate concrete by hand or power-driven trowel. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
1. Apply a trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system

2. Finish and measure surface so gap at any point between concrete surface and an unlevelled freestanding 10-foot-long straightedge, resting on two high spots and placed anywhere on the surface, does not exceed the following:

- a. 1/8 inch for floors to receive sheet goods or VCT or rubber flooring 1/4 inch for floors to receive carpet.

- A. Trowel and Fine-Broom Finish: Apply a partial trowel finish, stopping after second troweling, to surfaces indicated and to surfaces where ceramic or quarry tile is to be installed by either thickset or thin-set method. Immediately after second troweling, and when concrete is still plastic, slightly scarify surface with a fine broom.
- B. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, and ramps, and elsewhere as indicated.
 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route. Coordinate required final finish with Architect before application.

1.2 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures, unless otherwise indicated, after work of other trades is in place. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.
- C. Equipment Bases and Foundations: Provide machine and equipment bases and foundations as shown on Drawings. Set anchor bolts for machines and equipment at correct elevations, complying with diagrams or templates of manufacturer furnishing machines and equipment.

1.3 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and with recommendations in ACI 305R for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to unformed concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete, but before float finishing.
- C. Formed Surfaces: Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces. If forms remain during curing period, moist cure after loosening forms. If removing forms before end of curing period, continue curing by one or a combination of the methods identified in Article 2.7 and Item D below.
- D. Unformed Surfaces: Begin curing immediately after finishing concrete. Cure unformed surfaces, including floors and slabs, concrete floor toppings, and other surfaces, by one or a combination of the following methods:

1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Cure for not less than seven days. Immediately repair any holes or tears during curing period using cover material and waterproof tape.
 - a. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive floor coverings.
 - b. Moisture cure or use moisture-retaining covers to cure concrete surfaces to receive penetrating liquid floor treatments.
 - c. Cure concrete surfaces to receive floor coverings with either a moisture-retaining cover or a curing compound that the manufacturer recommends for use with floor coverings.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating and repair damage during curing period.

1.4 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing. Do not use gypsum based products.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension in solid concrete but not less than 1 inch in depth. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.

- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least 3/4 inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mix as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.
 7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- A. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- B. Repair materials and installation not specified above may be used, subject to Architect's approval.

1.5 FIELD QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified independent testing and inspecting agency to sample materials, perform tests, and submit test reports during concrete placement according to requirements specified in this Article.
- B. Testing Services: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mix placed each day.

- a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mix, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
1. Slump: ASTM C 143; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mix. Perform additional tests when concrete consistency appears to change.
2. Air Content: ASTM C 231, pressure method, for normal-weight concrete; ASTM C 173, volumetric method, for structural lightweight concrete; one test for each composite sample, but not less than one test for each day's pour of each concrete mix.
3. Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 deg F and below and when 80 deg F and above, and one test for each composite sample.
4. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of four standard cylinder specimens for each composite sample.
 - a. Cast and field cure one set of four standard cylinder specimens for each composite sample.
5. Compressive-Strength Tests: ASTM C 39; test two laboratory-cured specimens at 7 days and two at 28 days.
 - a. Test two field-cured specimens at 7 days and two at 28 days.
 - b. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at age indicated.
- A. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- B. Strength of each concrete mix will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- C. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength, and type of break for both 7-and 28-day tests.
- D. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- E. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C 42 or by other methods as directed by Architect.

END OF SECTION 033000

SECTION 033543 - POLISHED CONCRETE FINISHING

1.1 QUALITY ASSURANCE

- A. Polished Concrete Standards: Comply with ACI 310.1.
- B. Mockups.

1.2 LIQUID FLOOR TREATMENTS

- A. Penetrating liquid floor treatments for polished concrete finish.
 - 1. Liquid concrete repair material.
 - a. Filler for micro-cracks, pinholes, and other flaws.
 - 2. Pre-densifier concrete cleaner.
 - 3. PFAS-free penetrating liquid densifier/hardener.
 - 4. General purpose premium sealer top coat.

1.3 POLISHED CONCRETE SURFACE FINISH REQUIREMENTS

- A. Aggregate Exposure Class: Class B Fine Aggregate 85 to 95 percent fine aggregate; 5 to 15 percent blend of fines and coarse aggregate.
- B. Polish Concrete Appearance Levels: Level 2: Satin (Honed) up to 200- to 400-grit polish; DOI 10 to 39; Haze Reading less than 10; Reflective Sheen: Low to medium.
- C. Slip resistance.

1.4 ACCESSORIES

- A. Repair materials.

1.5 APPLICATION

- A. Repair and fill pinholes, micro-cracks, and other flaws.
- B. Apply pre-densifier concrete cleaner.
- C. Apply penetrating liquid densifier.
- D. Machine grind floor surfaces.
- E. Scoring.
- F. Apply penetrating stain densifier treatment.
- G. Apply sealers.

1.6 FIELD QUALITY CONTROL

- A. Testing Agency: Contractor engaged.
- B. Measure polish specular gloss level, DOI, and haze as specified; repolish if required to achieve Project requirements.

END OF SECTION 033543

SECTION 051200 - STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Structural-steel.
 - 2. Shrinkage-resistant grout.
 - 3. Shear stud connectors.
- B. Related Requirements:
 - 1. for painting requirements.

1.2 DEFINITIONS

- A. Structural Steel: Elements of the structural frame indicated on Drawings and as described in ANSI/AISC 303.
- B. Seismic-Load-Resisting System: Elements of structural-steel frame designated as "SLRS" or along grid lines designated as "SLRS" on Drawings, including columns, beams, and braces and their connections.
- C. Heavy Sections: Rolled and built-up sections as follows:
 - 1. Shapes included in ASTM A6/A6M with flanges thicker than **1-1/2 inches**.
 - 2. Welded built-up members with plates thicker than **2 inches**.
 - 3. Column base plates thicker than **2 inches**.
- D. Protected Zone: Structural members or portions of structural members indicated as "protected zone" on Drawings. Connections of structural and nonstructural elements to protected zones are limited.
- E. Demand-Critical Welds: Those welds, the failure of which would result in significant degradation of the strength and stiffness of the seismic-load-resisting system and which are indicated as "demand critical" or "seismic critical" on Drawings.

1.3 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.
- B. Coordinate installation of anchorage items to be embedded in or attached to other construction without delaying the Work. Provide setting diagrams, sheet metal templates, instructions, and directions for installation.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

- A. Product Data:

1. Structural-steel materials.
2. High-strength, bolt-nut-washer assemblies.
3. Shear stud connectors.
4. Anchor rods.
5. Threaded rods.
6. Forged-steel hardware.
7. Slide bearings.
8. Shop primer.
9. Galvanized-steel primer.
10. Etching cleaner.
11. Galvanized repair paint.
12. Shrinkage-resistant grout.

- B. Shop Drawings: Show fabrication of structural-steel components.

1. Include details of cuts, connections, splices, camber, holes, and other pertinent data.
2. Include embedment Drawings.
3. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld. Show backing bars that are to be removed and supplemental fillet welds where backing bars are to remain.
4. Indicate type, size, and length of bolts, distinguishing between shop and field bolts. Identify pretensioned and slip-critical, high-strength bolted connections.
5. Identify members and connections of the seismic-load-resisting system.
6. Indicate locations and dimensions of protected zones.
7. Identify demand-critical welds.
8. Identify members not to be shop primed.

- C. Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs): Provide in accordance with AWS D1.1/D1.1M for each welded joint whether prequalified or qualified by testing, including the following:

1. Power source (constant current or constant voltage).
2. Electrode manufacturer and trade name, for demand-critical welds.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Welding certificates.
- C. Paint Compatibility Certificates: From manufacturers of topcoats applied over shop primers, certifying that shop primers are compatible with topcoats.
- D. Mill test reports for structural-steel materials, including chemical and physical properties.

E. Product Test Reports: For the following:

1. Bolts, nuts, and washers, including mechanical properties and chemical analysis.
2. Direct-tension indicators.
3. Tension-control, high-strength, bolt-nut-washer assemblies.
4. Shear stud connectors.

F. Survey of existing conditions.

G. Source quality-control reports.

H. Field quality-control reports.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: A qualified fabricator that participates in the AISC Quality Certification Program and is designated an AISC-Certified Plant, Category BU or is accredited by the IAS Fabricator Inspection Program for Structural Steel (Acceptance Criteria 172).

B. Welding Qualifications: Qualify procedures and personnel in accordance with AWS D1.1/D1.1M.

1. Welders and welding operators performing work on bottom-flange, demand-critical welds are to pass the supplemental welder qualification testing, as required by AWS D1.8/D1.8M. FCAW-S and FCAW-G are to be considered separate processes for welding personnel qualification.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Store materials to permit easy access for inspection and identification. Keep steel members off ground and spaced by using pallets, dunnage, or other supports and spacers. Protect steel members and packaged materials from corrosion and deterioration.

1. Do not store materials on structure in a manner that might cause distortion, damage, or overload to members or supporting structures. Repair or replace damaged materials or structures as directed.

B. Store fasteners in a protected place in sealed containers with manufacturer's labels intact.

1. Fasteners may be repackaged provided Owner's testing and inspecting agency observes repackaging and seals containers.
2. Clean and relubricate bolts and nuts that become dry or rusty before use.
3. Comply with manufacturers' written recommendations for cleaning and lubricating ASTM F3125/F3125M, Grade F1852 bolt assemblies and for retesting bolt assemblies after lubrication.

PART 2 - PRODUCTS

2.1 STRUCTURAL-STEEL MATERIALS

A. W-Shapes: As indicated.

- B. Channels, Angles, M-Shapes: As indicated.
- C. Plate and Bar: As indicated.
- D. Cold-Formed Hollow Structural Sections: structural tubing as indicated.
- E. Steel Pipe: ASTM A53/A53M, Type E or Type S, Grade B.
 - 1. Weight Class: As indicated.
 - 2. Finish: Black.
- F. Steel Castings: ASTM A216/A216M, Grade WCB, with supplementary requirement S11.
- G. Steel Forgings: ASTM A668/A668M.
- H. Welding Electrodes: Comply with AWS requirements.

2.2 BOLTS AND CONNECTORS

- A. High-Strength A325 Bolts, Nuts, and Washers: As indicated.
 - 1. Direct-Tension Indicators: As indicated.
- B. High-Strength A490 Bolts, Nuts, and Washers: As indicated.
 - 1. Direct-Tension Indicators: As indicated.
- C. Zinc-Coated High-Strength A325 Bolts, Nuts, and Washers: As indicated.
 - 1. Finish: As indicated.
 - 2. Direct-Tension Indicators: As indicated.
- D. Tension-Control, High-Strength Bolt-Nut-Washer Assemblies: As indicated.
 - 1. Finish: Plain.
- E. Shear Stud Connectors: ASTM A108, AISI C-1015 through C-1020, headed-stud type, cold-finished carbon steel; AWS D1.1/D1.1M, Type B.

2.3 RODS

- A. As indicated on drawings.

2.4 PRIMER

- A. Steel Primer:
 - 1. Comply with Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."
- B. Galvanized-Steel Primer: MPI#26.
 - 1. Etching Cleaner: MPI#25, for galvanized steel.

2. Galvanizing Repair Paint: [MPI#18, MPI#19, or SSPC-Paint 20][ASTM A780/A780M].

2.5 SHRINKAGE-RESISTANT GROUT

- A. Metallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, metallic aggregate grout, mixed with water to consistency suitable for application and a 30-minute working time.
- B. Nonmetallic, Shrinkage-Resistant Grout: ASTM C1107/C1107M, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

2.6 FABRICATION

- A. Structural Steel: Fabricate and assemble in shop to greatest extent possible. Fabricate in accordance with ANSI/AISC 303 and to ANSI/AISC 360.
1. Camber structural-steel members where indicated.
 2. Fabricate beams with rolling camber up.
 3. Identify high-strength structural steel in accordance with ASTM A6/A6M and maintain markings until structural-steel framing has been erected.
 4. Mark and match-mark materials for field assembly.
 5. Complete structural-steel assemblies, including welding of units, before starting shop-priming operations.
- B. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
1. Plane thermally cut edges to be welded to comply with requirements in AWS D1.1/D1.1M.
- C. Bolt Holes: Cut, drill, mechanically thermal cut, or punch standard bolt holes perpendicular to metal surfaces.
- D. Finishing: Accurately finish ends of columns and other members transmitting bearing loads.
- E. Cleaning: Clean and prepare steel surfaces that are to remain unpainted in accordance with SSPC-SP 1.
- F. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using automatic end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.
- G. Steel Wall-Opening Framing: Select true and straight members for fabricating steel wall-opening framing to be attached to structural-steel frame. Straighten as required to provide uniform, square, and true members in completed wall framing. Build up welded framing, weld exposed joints continuously, and grind smooth.
- H. Welded-Steel Door Frames: Build up welded-steel doorframes attached to structural-steel frame. Weld exposed joints continuously and grind smooth. Plug-weld fixed steel bar stops to frames. Secure removable stops to frames with countersunk machine screws, uniformly spaced not more than **10 inches** o.c. unless otherwise indicated on Drawings.

- I. Holes: Provide holes required for securing other work to structural steel and for other work to pass through steel members.
 1. Cut, drill, or punch holes perpendicular to steel surfaces. Do not thermally cut bolt holes or enlarge holes by burning.
 2. Baseplate Holes: Cut, drill, mechanically thermal cut, or punch holes perpendicular to steel surfaces.
 3. Weld threaded nuts to framing and other specialty items indicated to receive other work.

2.7 SHOP CONNECTIONS

- A. High-Strength Bolts: Shop install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for type of bolt and type of joint specified.
 1. Joint Type: As indicated.
- B. Weld Connections: Comply with AWS D1.1/D1.1M and AWS D1.8/D1.8M for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 1. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.

2.8 SHOP PRIMING

- A. Shop prime steel surfaces, except the following:
 1. Surfaces embedded in concrete or mortar. Extend priming of partially embedded members to a depth of **2 inches**.
 2. Surfaces to be field welded.
 3. Surfaces of high-strength bolted, slip-critical connections.
 4. Surfaces to receive sprayed fire-resistive materials (applied fireproofing).
 5. Galvanized surfaces unless indicated to be painted.
 6. Corrosion-resisting (weathering) steel surfaces.
 7. Surfaces enclosed in interior construction.
- B. Priming: Immediately after surface preparation, apply primer in accordance with manufacturer's written instructions and at rate recommended by SSPC to provide a minimum dry film thickness of **1.5 mils**. Use priming methods that result in full coverage of joints, corners, edges, and exposed surfaces.
 1. Stripe paint corners, crevices, bolts, welds, and sharp edges.
 2. Apply two coats of shop paint to surfaces that are inaccessible after assembly or erection. Change color of second coat to distinguish it from first.

2.9 SOURCE QUALITY CONTROL

- A. Testing Agency: Owner will engage a qualified testing agency to perform shop tests and inspections.
 1. Allow testing agency access to places where structural-steel work is being fabricated or produced to perform tests and inspections.

2. Bolted Connections: Inspect and test shop-bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
3. Welded Connections: Visually inspect shop-welded connections in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - a. Liquid Penetrant Inspection: ASTM E165/E165M.
 - b. Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
 - c. Ultrasonic Inspection: ASTM E164.
 - d. Radiographic Inspection: ASTM E94/E94M.
4. In addition to visual inspection, test and inspect shop-welded shear stud connectors in accordance with requirements in AWS D1.1/D1.1M for stud welding and as follows:
 - a. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear stud connector.
 - b. Conduct tests in accordance with requirements in AWS D1.1/D1.1M on additional shear stud connectors if weld fracture occurs on shear stud connectors already tested.
5. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify, with certified steel erector present, elevations of concrete- and masonry-bearing surfaces and locations of anchor rods, bearing plates, and other embedments for compliance with requirements.
 1. Prepare a certified survey of existing conditions. Include bearing surfaces, anchor rods, bearing plates, and other embedments showing dimensions, locations, angles, and elevations.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Provide temporary shores, guys, braces, and other supports during erection to keep structural steel secure, plumb, and in alignment against temporary construction loads and loads equal in intensity to design loads. Remove temporary supports when permanent structural steel, connections, and bracing are in place unless otherwise indicated on Drawings.
 1. Do not remove temporary shoring supporting composite deck construction and structural-steel framing until cast-in-place concrete has attained its design compressive strength.

3.3 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and in accordance with ANSI/AISC 303 and ANSI/AISC 360.

- B. Baseplates, Bearing Plates, and Leveling Plates: Clean concrete- and masonry-bearing surfaces of bond-reducing materials, and roughen surfaces prior to setting plates. Clean bottom surface of plates.
 - 1. Set plates for structural members on wedges, shims, or setting nuts as required.
 - 2. Weld plate washers to top of baseplate.
 - 3. Snug-tighten anchor rods after supported members have been positioned and plumbed. Do not remove wedges or shims but, if protruding, cut off flush with edge of plate before packing with grout.
 - 4. Promptly pack shrinkage-resistant grout solidly between bearing surfaces and plates, so no voids remain. Neatly finish exposed surfaces; protect grout and allow to cure. Comply with manufacturer's written installation instructions for grouting.
- C. Maintain erection tolerances of structural steel within ANSI/AISC 303.
- D. Align and adjust various members that form part of complete frame or structure before permanently fastening. Before assembly, clean bearing surfaces and other surfaces that are in permanent contact with members. Perform necessary adjustments to compensate for discrepancies in elevations and alignment.
 - 1. Level and plumb individual members of structure. Slope roof framing members to slopes indicated on Drawings.
 - 2. Make allowances for difference between temperature at time of erection and mean temperature when structure is completed and in service.
- E. Splice members only where indicated.
- F. Do not use thermal cutting during erection unless approved by Architect. Finish thermally cut sections within smoothness limits in AWS D1.1/D1.1M.
- G. Do not enlarge unfair holes in members by burning or using drift pins. Ream holes that must be enlarged to admit bolts.

3.4 FIELD CONNECTIONS

- A. High-Strength Bolts: Install high-strength bolts in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts" for bolt and joint type specified.
 - 1. Joint Type: As indicated.
- B. Weld Connections: Comply with AWS D1.1/D1.1M[**and AWS D1.8/D1.8M**] for tolerances, appearances, welding procedure specifications, weld quality, and methods used in correcting welding work.
 - 1. Comply with ANSI/AISC 303 and ANSI/AISC 360 for bearing, alignment, adequacy of temporary connections, and removal of paint on surfaces adjacent to field welds.
 - 2. Remove backing bars or runoff tabs where indicated, back gouge, and grind steel smooth.
 - 3. Assemble and weld built-up sections by methods that maintain true alignment of axes without exceeding tolerances in ANSI/AISC 303 for mill material.
- C. Shear Stud Connectors: Prepare steel surfaces as recommended by manufacturer of shear connectors. Weld using end welding of headed-stud shear connectors in accordance with AWS D1.1/D1.1M and manufacturer's written instructions.

3.5 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform the following special inspections:
1. Verify structural-steel materials and inspect steel frame joint details.
 2. Verify weld materials and inspect welds.
 3. Verify connection materials and inspect high-strength bolted connections.
- B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.
1. Bolted Connections: Inspect and test bolted connections in accordance with RCSC's "Specification for Structural Joints Using High-Strength Bolts."
 2. Welded Connections: Visually inspect field welds in accordance with AWS D1.1/D1.1M.
 - a. In addition to visual inspection, test and inspect field welds in accordance with AWS D1.1/D1.1M and the following inspection procedures, at testing agency's option:
 - 1) Liquid Penetrant Inspection: ASTM E165/E165M.
 - 2) Magnetic Particle Inspection: ASTM E709; performed on root pass and on finished weld. Cracks or zones of incomplete fusion or penetration are not accepted.
 - 3) Ultrasonic Inspection: ASTM E164.
 - 4) Radiographic Inspection: ASTM E94/E94M.
 3. Shear Stud Connectors: In addition to visual inspection, test and inspect field-welded shear connectors according to requirements in AWS D1.1/D1.1M for stud welding and as follows:
 - a. Perform bend tests if visual inspections reveal either a less-than-continuous 360-degree flash or welding repairs to any shear connector.
 - b. Conduct tests according to requirements in AWS D1.1/D1.1M on additional shear connectors if weld fracture occurs on shear connectors already tested.

END OF SECTION 051200

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Wood blocking and nailers.
4. Plywood backing panels.

B. Related Requirements:

1. Section 061600 "Sheathing" for sheathing, subflooring, and underlayment.
2. Section 061753 "Shop-Fabricated Wood Trusses" for wood trusses made from dimension lumber.
3. Section 061800 "Glue-Laminated Construction" for glue-laminated beams.

1.3 DEFINITIONS

- A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.
- B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.
- C. Exposed Framing: Framing not concealed by other construction.
- D. OSB: Oriented strand board.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

- A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.
 - 1. Factory mark each piece of lumber with grade stamp of grading agency.
 - 2. For exposed lumber indicated to receive a stained or natural finish, omit grade stamp and provide certificates of grade compliance issued by grading agency.
 - 3. Dress lumber, S4S, unless otherwise indicated.
- B. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.
- C. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.
 - 1. Allowable design stresses, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

- A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.
 - 1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium.
- B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.
- C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.
- D. Application: Treat items indicated on Drawings.

2.3 DIMENSION LUMBER FRAMING

- A. Non-structural Interior Partitions: Construction or No. 2 grade.
 - 1. Application: Interior partitions not indicated as structural.
 - 2. Species:
 - a. Douglas fir-larch; WCLIB or WWPA.
- B. Structural Partitions: No. 2 grade.

1. Application: Exterior walls and interior load-bearing partitions.
2. Species:
 - a. Douglas fir-larch; WCLIB or WWP.

C. Joists, Rafters, and Other Framing Not Listed Above: No. 2 grade.

1. Species:
 - a. Douglas fir-larch; WCLIB or WWP.

2.4 ENGINEERED WOOD PRODUCTS

- A. Source Limitations: Obtain each type of engineered wood product from single source from a single manufacturer.
- B. Laminated-Veneer Lumber: Structural composite lumber made from wood veneers with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D5456 and manufactured with an exterior-type adhesive complying with ASTM D2559.
 1. Products: Subject to compliance with requirements, provide the following:
 - a. Weyerhaeuser Company; Trus Joist Microllam LVL.
 2. Extreme Fiber Stress in Bending, Edgewise: 2600 psi for 12-inch nominal- depth members.
 3. Modulus of Elasticity, Edgewise: 2,000,000 psi .

2.5 MISCELLANEOUS LUMBER

- A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:
 1. Blocking.
 2. Nailers.
- B. Dimension Lumber Items: Construction or No. 2 grade lumber of the following species:
 1. Douglas fir-larch; WCLIB or WWP.
- C. Concealed Boards: 19 percent maximum moisture content and the following species and grades:
 1. Douglas -fir-larch; Construction or No. 2 Common grade; WCLIB or WWP.
- D. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.6 PLYWOOD BACKING PANELS

- A. Equipment Backing Panels: Plywood, DOC PS 1, Exterior, C-C Plugged, in thickness indicated or, if not indicated, not less than 1/2-inch nominal thickness.

2.7 FASTENERS

- A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.
 - 1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A153/A153M.
- B. Nails, Brads, and Staples: ASTM F1667.
- C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.
- D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01 as appropriate for the substrate.

2.8 METAL FRAMING ANCHORS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:
 - 1. Simpson Strong-Tie Co., Inc.
- B. Allowable design loads, as published by manufacturer, shall meet or exceed those of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.
- C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A653/A653M, G60 coating designation.
 - 1. Use for interior locations unless otherwise indicated.
- D. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A653/A653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.
 - 1. Use for wood-preservative-treated lumber and where indicated.

2.9 MISCELLANEOUS MATERIALS

- A. Sill-Sealer Gaskets: Closed-cell neoprene foam or polyethylene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.
- B. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chlorpyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.
- B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.
- C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate nailers, blocking, and similar supports to comply with requirements for attaching other construction.
- D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels.
- E. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.
- F. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.
- G. Do not splice structural members between supports unless otherwise indicated.
- H. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.
 - 1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.
- I. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:
 - 1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
 - 2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
 - 3. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.
- J. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.
- K. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.
 - 1. Use inorganic boron for items that are continuously protected from liquid water.
 - 2. Use copper naphthenate for items not continuously protected from liquid water.

- L. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:
 - 1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
 - 2. ICC-ES evaluation report for fastener.
- M. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.
- N. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.
 - 1. Comply with indicated fastener patterns where applicable.
 - 2. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 INSTALLATION OF WOOD BLOCKING AND NAILERS

- A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.
- B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

3.3 INSTALLATION OF WALL AND PARTITION FRAMING

- A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.
 - 1. For exterior walls, provide 2-by-6-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 2. For interior partitions and walls, provide 2-by-6-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
 - 3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.
- B. Construct corners and intersections with three or more studs.
- C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.
- D. Refer to Structural Drawings for structural wood wall schedule, typical framing requirements and fastening requirements.

3.4 PROTECTION

- A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.
- B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet enough that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 064100 - ARCHITECTURAL WOOD CASEWORK

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plastic-laminate-clad casework.
2. Wood materials.
3. Casework hardware.
4. Accessories.

B. Related Requirements:

1. Section 092216 "Non-Structural Metal Framing" for standard, interior non-load-bearing, metal-stud-framing required for anchoring cabinets.
2. Section 123623.13 "Plastic-Laminate-Clad Countertops."

1.2 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include panel material description and finish.
2. Include accessories.
3. Include hardware.

B. Shop Drawings:

1. Plans, elevations, sections, and attachment details.
 - a. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
 - b. Show locations and sizes of cutouts and holes for items installed in architectural cabinets.

C. Samples for Verification: Provide samples showing the full range of color and/or grain to be expected in the finished work, for the following.

1. Plastic Laminates: Manufacturer's standard sample size, for each type, color, pattern, and surface finish required.
2. Edge Banding: Provide manufacturer's standard sample size for each type, color, pattern, and surface finish required.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.
- B. Installer Qualifications: Manufacturer of products.

1.5 DELIVERY, STORAGE, AND HANDLING

1.6 FIELD CONDITIONS

- A. Environmental Limitations without Humidity Control: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
 - 1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.
- C. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-CLAD CASEWORK (PL2)

- A. Architectural Woodwork Institute (AWI) Standard:
 - 1. Structural Performance Duty Level: **3**.
 - 2. Aesthetic Performance Grade: Custom.
 - 3. Composite Wood Products: Verify formaldehyde emission rates are not greater than the following when tested in accordance with ASTM D6007 or ASTM E1333:
 - a. Hardwood Plywood: 0.05 ppm.
 - b. Particleboard: 0.09 ppm.
 - c. MDF More Than 5/16 Inch (8 mm) Thick: 0.11 ppm.
 - d. MDF 5/16 Inch (8 mm) or Less in Thickness: 0.13 ppm.
 - 4. Verify adhesives have a VOC content of 30 g/L or less.
- B. Casework Construction Type: Frameless.
- C. Door and Drawer-Front:

1. Design: Flush panel.
 2. Style: Flush overlay.
- D. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. PL2: Nevamar Dragonfly WZ0062
- E. Exposed Interior Surfaces: Thermally fused laminate (TFL) the same color and pattern as exterior surfaces.
1. Edgebanding: PVC, 3.0 mm thick.
- F. Semiexposed Surfaces:
1. Surfaces Other Than Drawer Bodies: Thermally fused laminate (TFL) panels.
 2. Drawer Sides and Backs: Thermally fused laminate (TFL) panels with PVC or polyester edgebanding.
 3. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate (HDPL), ISO 4583-3, grade to match exposed surface.
 4. Drawer Bottoms: Thermally fused laminate (TFL) panels.
 5. Shelves: Adjustable.
 6. Edgebanding: PVC, 3.0 mm thick.

2.2 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Wood Moisture Content:
 - a. Climate-Controlled Environments: 4 to 9 percent.
- B. Composite Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Medium-Density Fiberboard (MDF): ANSI A208.2, Grade 130.
 2. Particleboard (Medium Density): ANSI A208.1, Grade M-2-Exterior Glue.
 3. Softwood Plywood: DOC PS 1, medium-density overlay.
 4. Thermally Fused Laminate (TFL) Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of AWI 300.

2.3 CASEWORK HARDWARE

- A. Hinges:
1. Frameless Concealed Hinges (European Type): ANSI/BHMA A156.9, B01602, 95-110 degrees of opening.

B. Pulls and Knobs:

1. Wire Pulls: Back mounted, solid metal, 4 inches long, 5/16 inch in diameter.

C. Catches and Latches:

1. Magnetic Catches: ANSI/BHMA A156.9, B03141.

D. Shelf Rests and Standards:

1. Shelf Rests: ANSI/BHMA A156.9, B04013; metal.

E. Drawer Slides: ANSI/BHMA A156.9.

1. Heavy-Duty (Grade 1HD-100 and Grade 1HD-200): Side mount.
 - a. Type: Full extension.
 - b. Material: Zinc-plated ball-bearing slides.
 - c. Motion Feature: self-closing mechanism.

F. Hardware Finish:

1. Exposed Hardware: Provide finish that complies with ANSI/BHMA A156.18 for ANSI/BHMA finish number indicated.
 - a. Satin Stainless Steel: ANSI/BHMA 630.
2. Concealed Hardware: Manufacturer's standard finish that complies with product class requirements in ANSI/BHMA A156.9.

2.4 ACCESSORIES

2.5 FABRICATION

- A. Fabricate architectural cabinets to dimensions, profiles, and details indicated. Ease sharp edges and corners.
- B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas, with Installer present, for compliance with requirements for installation tolerances, location of reinforcements, and other conditions affecting performance of the Work.
 - 1. Confirm location and adequacy of blocking and supports required for installation.
 - 2. Verify size and locations of cutouts for appliances, special equipment, sinks, plumbing, and other items to be mounted in or adjacent to casework.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.3 INSTALLATION OF CASEWORK

- A. Install casework to comply with requirements of the structural and aesthetic performance specified.
- B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.
- C. Install cabinets level, plumb, and true in line to a tolerance of **1/8 inch in 96 inches** using concealed shims.
 - 1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
 - 2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
- D. Anchor cabinets in accordance with AWI requirements or tested method to anchors or blocking built in or directly attached to framing or substrates.

3.4 ADJUSTING AND CLEANING

- A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where impossible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.
- B. Clean, lubricate, and adjust hardware and other moving parts to function smoothly.
- C. Clean cabinets on exposed and semiexposed surfaces. Touch up finishes to restore damaged or soiled areas.

END OF SECTION 064100

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SECTION 066400 - PLASTIC PANELING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Plastic sheet paneling.
- B. Related Requirements:
 - 1. Section 102600 "Wall and Door Protection" for corner guards installed over plastic paneling.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples: For plastic paneling and trim accessories, in manufacturer's standard sizes.

1.4 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install plastic paneling until spaces are enclosed and weathertight and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain plastic paneling and trim accessories from single manufacturer.

2.2 PLASTIC SHEET PANELING

- A. Glass-Fiber-Reinforced Plastic Paneling: Gelcoat-finished, glass-fiber-reinforced plastic panels complying with ASTM D5319.
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

- a. Crane Composites, Inc.
 - b. Marlite.
 - c. Nudo Products, Inc.
 - d. Panolam Surface Systems.
2. Surface-Burning Characteristics: As follows when tested by a qualified testing agency according to ASTM E84. Identify products with appropriate markings of applicable testing agency.
 - a. Flame-Spread Index: 25 or less.
 - b. Smoke-Developed Index: 450 or less.
3. Nominal Thickness: Not less than 0.09 inch.
4. Surface Finish: Molded pebble texture.
5. Color: White.

2.3 ACCESSORIES

- A. Trim Accessories: Manufacturer's standard one-piece vinyl extrusions designed to retain and cover edges of panels. Provide division bars, inside corners, and caps as needed to conceal edges.
 1. Color: Match panels.
- B. Adhesive: As recommended by plastic paneling manufacturer.
- C. Sealant: Mildew-resistant, single-component, neutral-curing silicone sealant recommended by plastic paneling manufacturer and complying with requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrate by sanding high spots and filling low spots as needed to provide flat, even surface for panel installation.
- B. Clean substrates of substances that could impair adhesive bond, including oil, grease, dirt, and dust.
- C. Condition panels by unpacking and placing in installation space before installation according to manufacturer's written recommendations.

- D. Lay out paneling before installing. Locate panel joints where indicated and to provide equal panels at ends of walls not less than half the width of full panels.
 - 1. Mark plumb lines on substrate at trim accessory locations for accurate installation.
 - 2. Locate trim accessories to allow clearance at panel edges according to manufacturer's written instructions.

3.3 INSTALLATION

- A. Install plastic paneling according to manufacturer's written instructions.
- B. Install panels in a full spread of adhesive.
- C. Install trim accessories with adhesive.
- D. Fill grooves in trim accessories with sealant before installing panels, and bed inside corner trim in a bead of sealant.
- E. Maintain uniform space between panels and wall fixtures. Fill space with sealant.
- F. Remove excess sealant and smears as paneling is installed. Clean with solvent recommended by sealant manufacturer and then wipe with clean dry cloths until no residue remains.

END OF SECTION 066400

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Urethane joint sealants.
2. Mildew-resistant joint sealants.
3. Latex joint sealants.

B. Related Requirements:

1. Section 321373 "Concrete Paving Joint Sealants" for sealing joints in paved roads, parking lots, walkways, and curbing.

1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product.
- B. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.
- C. Joint-Sealant Schedule: Include the following information:
 1. Joint-sealant application, joint location, and designation.
 2. Joint-sealant manufacturer and product name.
 3. Joint-sealant formulation.
 4. Joint-sealant color.

1.4 FIELD CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 2. When joint substrates are wet.
 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 NONSTAINING SILICONE JOINT SEALANTS

2.3 URETHANE JOINT SEALANTS

- A. Urethane, S, P, 25, T, NT: Single-component, pourable, plus 25 percent and minus 25 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C920, Type S, Grade P, Class 25, Uses T and NT.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
- a. BASF Corporation.
 - b. Pecora Corporation.
 - c. Sherwin-Williams Company (The).
 - d. Sika Corporation.

2.4 MILDEW-RESISTANT JOINT SEALANTS

- A. Mildew-Resistant Joint Sealants: Formulated for prolonged exposure to humidity with fungicide to prevent mold and mildew growth.
- B. Silicone, Mildew Resistant, Acid Curing, S, NS, 25, NT: Mildew-resistant, single-component, nonsag, plus 25 percent and minus 25 percent movement capability, nontraffic-use, acid-curing silicone joint sealant; ASTM C920, Type S, Grade NS, Class 25, Use NT.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
- a. Pecora Corporation.
 - b. The Dow Chemical Company.
 - c. Tremco Incorporated.

2.5 LATEX JOINT SEALANTS

- A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C834, Type OP, Grade NF.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

- a. Pecora Corporation.
- b. Sherwin-Williams Company (The).
- c. Tremco Incorporated.

2.6 JOINT-SEALANT BACKING

- A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.
- C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.7 MISCELLANEOUS MATERIALS

- A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.
- B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Masonry.
 - c. Unglazed surfaces of ceramic tile.
 - d. Exterior insulation and finish systems.
 3. Remove laitance and form-release agents from concrete.
 4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.
- C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 1. Do not leave gaps between ends of sealant backings.
 2. Do not stretch, twist, puncture, or tear sealant backings.
 3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.
- D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.
- E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
 1. Place sealants so they directly contact and fully wet joint substrates.

2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C1193 unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in horizontal traffic surfaces, JS-3.

1. Joint Locations:
 - a. Isolation joints in cast-in-place concrete slabs.
 - b. Other joints as indicated on Drawings.
2. Joint Sealant: Urethane, S, P, 25, T, NT.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

B. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement, JS-5.

1. Joint Locations:
 - a. Control joints on exposed interior surfaces of exterior walls.
 - b. Perimeter joints between interior wall surfaces and frames of interior doors, windows and elevator entrances.
 - c. Other joints as indicated on Drawings.
2. Joint Sealant: Acrylic latex.
3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

- C. Joint-Sealant Application: Mildew-resistant interior joints in vertical surfaces and horizontal nontraffic surfaces, JS-6.
1. Joint Locations:
 - a. Joints between plumbing fixtures and adjoining walls, floors, and counters.
 - b. Tile control and expansion joints where indicated.
 - c. Other joints as indicated on Drawings.
 2. Joint Sealant: Silicone, mildew resistant, acid curing, S, NS, 25, NT.
 3. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior standard steel doors and frames.

B. Related Requirements:

1. Section 081416 "Flush Wood Doors" for wood doors in hollow metal frames.
2. Section 087100 "Door Hardware" for door hardware for hollow-metal doors.
3. Section 099123 "Interior Painting" for finishes for interior hollow metal doors and frames.
3. Section 081416 "Flush Wood Doors" for wood doors in hollow metal frames.

1.2 DEFINITIONS

- A. Minimum Thickness: Minimum thickness of base metal without coatings in accordance with NAAMM-HMMA 803 or ANSI/SDI A250.8.

1.3 COORDINATION

- A. Coordinate anchorage installation for hollow-metal frames. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors. Deliver such items to Project site in time for installation.
- B. Coordinate requirements for installation of door hardware, electrified door hardware, and access control and security systems.

1.4 ACTION SUBMITTALS

A. Product Data Submittals: For each product.

1. Include construction details, material descriptions, core descriptions, and finishes.

B. Shop Drawings: Include the following:

1. Elevations of each door type.
2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
4. Locations of reinforcement and preparations for hardware.
5. Details of each different wall opening condition.
6. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
7. Details of anchorages, joints, field splices, and connections.
8. Details of accessories.
9. Details of moldings, removable stops, and glazing.

- C. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.

1.5 CLOSEOUT SUBMITTALS

- A. Record Documents: For fire-rated doors, list of door numbers and applicable room name and number to which door accesses.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver hollow-metal doors and frames palletized, packaged, or crated to provide protection during transit and Project-site storage. Do not use nonvented plastic.
- B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.
- C. Store hollow-metal doors and frames vertically under cover at Project site with head up. Place on minimum 4-inch- high wood blocking. Provide minimum 1/4-inch space between each stacked door to permit air circulation.

PART 2 - PRODUCTS

2.1 HOLLOW METAL DOORS AND FRAMES

- A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include the following:
 - 1. Ceco Door; ASSA ABLOY.
 - 2. Curries Company; ASSA ABLOY.
 - 3. Deansteel Manufacturing Company, Inc.
 - 4. Mesker Door Inc.
 - 5. Pioneer Industries.
 - 6. Republic Doors and Frames.
 - 7. Steelcraft; an Allegion brand.

2.2 INTERIOR STANDARD STEEL DOORS AND FRAMES

- A. Construct hollow-metal doors and frames to comply with standards indicated for materials, fabrication, hardware locations, hardware reinforcement, tolerances, and clearances, and as specified.
- B. Heavy-Duty Doors and Frames: ANSI/SDI A250.8, Level 2; ANSI/SDI A250.4, Level B..
 - 1. Doors:
 - a. Type: As indicated in the Door and Frame Schedule on Drawings.
 - b. Thickness: 1-3/4 inches.
 - c. Face: Uncoated steel sheet, minimum thickness of 0.042 inch.
 - d. Edge Construction: Model 2, Seamless.

- e. Edge Bevel: Provide manufacturer's standard beveled or square edges.
 - f. Core: Manufacturer's standard.
 - 2. Frames:
 - a. Materials: Uncoated steel sheet, minimum thickness of 0.053 inch.
 - b. Construction: Full profile welded.
 - 3. Exposed Finish: Prime.
- 2.3 HOLLOW-METAL PANELS
- A. Provide hollow-metal panels of same materials, construction, and finish as adjacent door assemblies.
- 2.4 FRAME ANCHORS
- A. Jamb Anchors:
 - 1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
 - 2. Quantity: Minimum of three anchors per jamb, with one additional anchor for frames with no floor anchor. Provide one additional anchor for each 24 inches of frame height above 7 feet.
 - 3. Postinstalled Expansion Anchor: Minimum 3/8-inch- diameter bolts with expansion shields or inserts, with manufacturer's standard pipe spacer.
 - B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.
 - C. Material: ASTM A879/A879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.
 - 1. For anchors built into exterior walls, steel sheet complying with ASTM A1008/A1008M or ASTM A1011/A1011M; hot-dip galvanized in accordance with ASTM A153/A153M, Class B.
- 2.5 MATERIALS
- A. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
 - B. Hot-Rolled Steel Sheet: ASTM A1011/A1011M, Commercial Steel (CS), Type B; free of scale, pitting, or surface defects; pickled and oiled.
 - C. Metallic-Coated Steel Sheet: ASTM A653/A653M, Commercial Steel (CS), Type B.
 - D. Inserts, Bolts, and Fasteners: Hot-dip galvanized in accordance with ASTM A153/A153M.
 - E. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

- F. Mineral-Fiber Insulation: ASTM C665, Type I (blankets without membrane facing); consisting of fibers manufactured from slag or rock wool; with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively; passing ASTM E136 for combustion characteristics.
- G. Glazing: Comply with requirements in Section 088000 "Glazing."

2.6 FABRICATION

- A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.
 - 1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by welding[, or by rigid mechanical anchors].
 - 2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
 - 3. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.
 - a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
- B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping in accordance with ANSI/SDI A250.6, the Door Hardware Schedule on Drawings, and templates.
 - 1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
 - 2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

2.7 STEEL FINISHES

- A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.
 - 1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with ANSI/SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.
- B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.2 INSTALLATION

- A. Install hollow-metal doors and frames plumb, rigid, properly aligned, and securely fastened in place. Comply with approved Shop Drawings and with manufacturer's written instructions.
- B. Hollow-Metal Frames: Comply with ANSI/SDI A250.11.
 - 1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.
 - a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
 - b. Install frames with removable stops located on secure side of opening.
 - 2. Floor Anchors: Secure with postinstalled expansion anchors.
 - a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.
 - 3. Solidly pack mineral-fiber insulation inside frames.
 - 4. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:
 - a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
 - b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
 - c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
 - d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.
- C. Hollow-Metal Doors: Fit and adjust hollow-metal doors accurately in frames, within clearances specified below.
 - 1. Non-Fire-Rated Steel Doors: Comply with ANSI/SDI A250.8.
- D. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with hollow-metal manufacturer's written instructions.

3.3 REPAIR

- A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.
- B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint in accordance with manufacturer's written instructions.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Solid-core flush wood doors with plastic-laminate-faces.
2. Factory fitting flush wood doors to frames and factory machining for hardware.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product, including the following:

1. Door core materials and construction.
2. Door edge construction
3. Door face type and characteristics.
4. Door trim for openings.
5. Factory-machining criteria.
6. Factory- finishing specifications.

- B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door and frame location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite cutouts, and glazing thicknesses.
3. Details of frame for each frame type, including dimensions and profile.
4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
5. Dimensions and locations of blocking for hardware attachment.
6. Dimensions and locations of mortises and holes for hardware.
7. Clearances and undercuts.
8. Requirements for veneer matching.
9. Doors to be factory finished and application requirements.

- C. Samples for Verification:

1. Plastic laminate, 6 inches square, for each color, texture, and pattern selected.
2. Frames for light openings, 6 inches long, for each material, type, and finish required.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of referenced standard and manufacturer's written instructions.
- B. Package doors individually in plastic bags or cardboard cartons.
- C. Mark each door on bottom rail with opening number used on Shop Drawings.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Do not deliver or install doors until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and HVAC system is operating and maintaining temperature and relative humidity at levels designed for building occupants for the remainder of construction period.

1.6 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Warping (bow, cup, or twist) more than 1/4 inch in a 42-by-84-inch section.
 - b. Telegraphing of core construction in face veneers exceeding 0.01 inch in a 3-inch span.
 - 2. Warranty shall also include installation and finishing that may be required due to repair or replacement of defective doors.
 - 3. Warranty Period for Solid-Core Interior Doors: Life of installation.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS, GENERAL

- A. Quality Standard: In addition to requirements specified, comply with ANSI/WDMA I.S. 1A.
 - 1. Provide labels from AWI or WI certification program indicating that doors comply with requirements of grades specified.

2.2 SOLID-CORE FLUSH WOOD DOORS WITH PLASTIC-LAMINATE FACES

- A. Interior Doors:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Masonite Architectural.
 - b. Oshkosh Door Company.
 - c. VT Industries Inc.

2. Performance Grade: ANSI/WDMA I.S. 1A Extra Heavy Duty.
3. ANSI/WDMA I.S. 1A Grade: Custom.
4. Plastic-Laminate Faces: High-pressure decorative laminates complying with NEMA LD 3, Grade HGS.
5. Colors, Patterns, and Finishes: PL2:Nevamar WZ0062, ARP(T-) finish.
6. Exposed Vertical Edges: Plastic laminate that matches faces, applied before faces.
7. Core for Non-Fire-Rated Doors:
 - a. ANSI A208.1, Grade LD-1 or Grade LD-2 particleboard.
 - 1) Blocking: Provide wood blocking in particleboard-core doors as needed to eliminate through-bolting hardware.
 - 2) Provide doors with glued-wood-stave or WDMA I.S. 10 structural-composite-lumber cores instead of particleboard cores for doors scheduled to receive exit devices in Section 087100 "Door Hardware."
8. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before faces and crossbands are applied.

2.3 FABRICATION

- A. Factory fit doors to suit frame-opening sizes indicated.
 1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.
 2. Comply with NFPA 80 requirements for fire-rated doors.
- B. Factory machine doors for hardware that is not surface applied.
 1. Locate hardware to comply with DHI-WDHS-3.
 2. Comply with final hardware schedules, door frame Shop Drawings, ANSI/BHMA-156.115-W, and hardware templates.
 3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
 4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.
- C. Openings: Factory cut and trim openings through doors.
 1. Light Openings: Trim openings with moldings of material and profile indicated.
 2. Glazing: Factory install glazing in doors indicated to be factory finished. Comply with applicable requirements in Section 088000 "Glazing."

2.4 FACTORY FINISHING

- A. Comply with referenced quality standard for factory finishing.
 1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
 2. Finish faces, all four edges, edges of cutouts, and mortises.
- B. Factory finish doors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine doors and installed door frames, with Installer present, before hanging doors.
 - 1. Verify that installed frames comply with indicated requirements for type, size, location, and swing characteristics and have been installed with level heads and plumb jambs.
 - 2. Reject doors with defects.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Hardware: For installation, see Section 087100 "Door Hardware."
- B. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.
- C. Factory-Fitted Doors: Align in frames for uniform clearance at each edge.
- D. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.3 ADJUSTING

- A. Operation: Rehang or replace doors that do not swing or operate freely.
- B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.2 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature

4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.3 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.

- a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
- a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:
- a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
- C. Informational Submittals:
- 1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
 - 2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Final approved hardware schedule edited to reflect conditions as installed.
 - d. Final keying schedule
 - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
 - a. Fire door assemblies, in compliance with NFPA 80.
 - b. Required egress door assemblies, in compliance with NFPA 101.

1.4 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:

- a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
 2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
 3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
 1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.
 2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
 3. Electrified Hardware Coordination Conference:

- a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.6 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.7 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

- a. Mechanical Warranty

- 1) Locks
 - a) Schlage ND Series: 10 years
 - b) Schlage ALX Series: 10 years
- 2) Exit Devices
 - a) Von Duprin: 10 years
- 3) Closers
 - a) LCN 4050 Series: 25 years

1.8 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 012500.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

- A. Fabrication
 1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.

2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.
- C. Cable and Connectors:
1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.3 HINGES

- A. Manufacturers and Products:
1. Scheduled Manufacturer and Product:
 - a. Ives 5PB series
 2. Acceptable Manufacturers and Products:
 - a. Match existing
- B. Requirements:
1. Provide hinges conforming to ANSI/BHMA A156.1.
 2. Provide five knuckle, plain bearing hinges.
 3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
 4. Doors over 1-3/4 inch (44 mm) thick or over 36 inches (914 mm) wide:
 - a. Exterior: Bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Steel, 5 inches (127 mm) high
 5. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
 6. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
 7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

- a. Steel Hinges: Steel pins
- b. Non-Ferrous Hinges: Stainless steel pins
- c. Out-Swinging Exterior Doors: Non-removable pins
- d. Out-Swinging Interior Lockable Doors: Non-removable pins
- e. Interior Non-lockable Doors: Non-rising pins

2.4 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:

- a. Ives 5BB series

2. Acceptable Manufacturers and Products:

- a. Match existing

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.5 SPRING HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 3SP series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide 3 knuckle, steel based, spring full mortise hinges.
3. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
4. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Do not use spring hinges of door 96 inches and greater in height.

2.6 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage ND series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
 - a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
 - b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
 - c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
 - d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.
 - e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.
3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.

6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
 - a. Lever Design: Schlage Rhodes.

2.7 CYLINDRICAL LOCKS – GRADE 2

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage ALX series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 2, and UL Listed for 3-hour fire doors with a minimum cycle life of 1 million.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide 3/4" latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide a minimum of 5 points of lever engagement between the cassette spindle and lever shank to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Plug-n-Play – Provide modular lockset allowing lock functions to be created for 7 typical functions by inserting/installing parts into the exterior of a fully assembled chassis
9. Reconfigurable Chassis - Provide modular lockset that allows the function to be reconfigured by removing external components from the chassis
10. Lever Trim: Solid cast levers and wrought roses on both sides.
 - a. Lever Design: Schlage Rhodes.

2.8 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin 78 series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware with manufacturer's approved strikes.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements. No plastic inserts are allowed in touchpads.
4. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect. Touchpad must extend a minimum of one half of door width.
5. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
6. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
7. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
8. Provide electrified options as scheduled.
9. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
10. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.9 CYLINDERS**A. Manufacturers and Products:**

1. Scheduled Manufacturer and Product:
 - a. Schlage Everest 29 R
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. Patented Restricted Small Format: cylinder with small format interchangeable cores (SFIC) with restricted, patented keyway.
3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
4. Nickel silver bottom pins.

2.10 KEYING**A. Scheduled System:**

1. Existing factory registered system:

- a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:

a. Replaceable Construction Cores.

- 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - a) 3 construction control keys
 - b) 12 construction change (day) keys.
- 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:

- a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
- b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
 - 1) Permanent Control Keys: 3.
 - 2) Master Keys: 6.

- 3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
- 4) Key Blanks: Quantity as determined in the keying meeting.

2.11 KEY MANAGEMENT SOFTWARE

A. Requirements

1. Provide training and onboarding, including:
 - a. Connecting Overtur to the factory master key software, enabling real time visibility of key system data.

2.12 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Per Owner's request

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.13 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4050A series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with cast aluminum cylinder.
3. Closer Body: 1-1/2-inch (38 mm) diameter with 11/16-inch (17 mm) diameter heat-treated pinion journal and full complement bearings.

4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and all weather requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and back check.
7. Pressure Relief Valve (PRV) Technology: Not permitted.
8. Provide stick on templates, special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.15 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.16 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button or thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other and overhead stop cannot be used.

2.17 SILENCERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Requirements:

1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.

2.18 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

B. Scheduled Manufacturer:

1. Zero International

C. Acceptable Manufacturers:

1. Match existing

- D. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.
1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.
 - a. Provide non-corrosive fasteners for all exterior applications.
 - b. Provide security fasteners where indicated.
 2. Provide neoprene, EPDM, silicone, or nylon brush inserts as specified in hardware sets. Provide non brush inserts of solid or sponge cell, as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.
- E. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.
- F. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.
1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.
- G. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.
- H. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.
- I. Door Sweeps or Shoes: Apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.
1. Provide solid neoprene, EPDM, silicone, or nylon brush type of seal as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.
- J. Automatic Door Bottoms:
1. Provide closed cell sponge, bulb neoprene, or EPDM type of seal as specified in hardware sets.
 2. Door bottom to be mortised, semi mortised, or surface mount as with a minimum thickness as specified in hardware sets.
- K. Rain Drips:
1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.
 2. Door sweeps or shoes with integral rain drip must meet ADA requirements

- L. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.

- 1. Threshold extrusion to be a minimum thickness as specified in hardware sets.

2.19 COAT HOOKS

- A. Manufacturers:

- 1. Scheduled Manufacturer:
 - a. Ives
 - 2. Acceptable Manufacturers:
 - a. Match existing

- B. Provide coat hooks as specified.

2.20 FINISHES

- A. FINISH: BHMA 626/652 (US26D); EXCEPT:

- 1. Hinges at Exterior Doors: BHMA 630 (US32D)
 - 2. Hinges at shower or toilet room doors: BHMA 630 (US32D)
 - 3. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
 - 4. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
 - 5. Protection Plates: BHMA 630 (US32D)
 - 6. Overhead Stops and Holders: BHMA 630 (US32D)
 - 7. Door Closers: Powder Coat to Match
 - 8. Wall Stops: BHMA 630 (US32D)
 - 9. Latch Protectors: BHMA 630 (US32D)
 - 10. Weatherstripping: Clear Anodized Aluminum
 - 11. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 - 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
 - 1. Install construction cores to secure building and areas during construction period.
 - 2. Replace construction cores with permanent cores as indicated in keying section.
 - 3. Furnish permanent cores to Owner for installation.
- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
 - 1. Conduit, junction boxes and wire pulls.
 - 2. Connections to and from power supplies to electrified hardware.
 - 3. Connections to fire/smoke alarm system and smoke evacuation system.
 - 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 - 5. Connections to panel interface modules, controllers, and gateways.
 - 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.

- M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- N. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.
- O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- P. Thresholds:
 - 1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
 - 2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
 - 3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.
- Q. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- R. Perimeter Gasketing:
 - 1. Apply to head and jamb, forming seal between door and frame.
 - 2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.
- S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.3 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.4 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.5 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

148489 OPT0474473 Version 1

Legend:

-  Link to catalog cut sheet
-  Electrified Opening

Hardware Group No. 03

For use on Door #(s):

102

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ALX80B RHO		626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04

For use on Door #(s):

104 116 117

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	ALX80B RHO		626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 05

For use on Door #(s):

101 112 113

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	ALX53B RHO		626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER

Hardware Group No. 05A

For use on Door #(s):

114 115

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	ALX53B RHO		626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER

Hardware Group No. 05B

For use on Door #(s):

111B

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	ALX53B RHO		626	SCH
1	EA	SFIC EVEREST CORE	80-037 EV29 R		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER
1	EA	DOOR SWEEP	39A (AS REQ'D)		A	ZER
1	EA	THRESHOLD	PER DETAILS		TBD	TBD

Hardware Group No. 06

For use on Door #(s):

106

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PANIC HARDWARE	78-L-BE-06		626	VON
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

PANIC DEVICE IS SPECIFIED. VERIFY HARDWARE FOR EXTEIROR DOOR. PROVIDE PANIC DEVICE OR PASSAGE LOCK MATCHING EXTERIOR.

Hardware Group No. 07

For use on Door #(s):

109

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		630	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-LOC		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER

Hardware Group No. 08

For use on Door #(s):

103 111A

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PASSAGE SET	ALX10 RHO		626	SCH
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 09

For use on Door #(s):

107A 107B 107C

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5PB1 4.5 X 4		630	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-LOC		626	SCH
1	EA	WALL STOP	WS65		673	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER
1	EA	COAT AND HAT HOOK	507		626	IVE

Hardware Group No. 09A

For use on Door #(s):

107D

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	SPRING HINGE	3SP1 4.5 X 4		630	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	ND40S RHO OS-LOC		626	SCH
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER
1	EA	COAT AND HAT HOOK	507		626	IVE

Hardware Group No. 10

For use on Door #(s):

110

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PUSH PLATE	8200 6" X 16"		630	IVE
1	EA	PULL PLATE	8305 8" 4" X 16"		630	IVE
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

END OF SECTION

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Non-load-bearing steel framing systems for interior partitions and soffits.
 - 2. Grid suspension systems for interior gypsum board ceilings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.4 QUALITY ASSURANCE

- A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Horizontal Deflection: For composite wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft. .

2.2 FRAMING SYSTEMS

- A. Framing Members, General: Comply with ASTM C754 for conditions indicated.
 - 1. Steel Sheet Components: Comply with ASTM C645 requirements for steel unless otherwise indicated.
 - 2. Protective Coating: ASTM A653/A653M, G40, hot-dip galvanized unless otherwise indicated.
- B. Studs and Tracks: ASTM C645. Use either conventional steel studs and tracks or embossed, high-strength steel studs and tracks.
 - 1. Steel Studs and Tracks:

- a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich
 - 3) MRI Steel Framing, LLC.
 - 4) SCAFCO Steel Stud Company
 - b. Minimum Base-Steel Thickness: 0.0329 inch.
 - c. Depth: As indicated on Drawings.
- C. Slip-Type Head Joints: Where indicated, provide one of the following:
 - 1. Double-Track System: ASTM C645 top outer tracks, inside track with 2-inch- deep flanges in thickness not less than indicated for studs and fastened to studs, and outer track sized to friction-fit over inner track.
 - 2. Deflection Track: Steel sheet top track manufactured to prevent cracking of finishes applied to interior partition framing resulting from deflection of structure above; in thickness not less than indicated for studs and in width to accommodate depth of studs.
 - a. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - 1) CEMCO; California Expanded Metal Products Co.
 - 2) ClarkDietrich
 - 3) MRI Steel Framing, LLC.
 - 4) SCAFCO Steel Stud Company
 - b. Minimum Base-Steel Thickness: 0.0329 inch.
 - c. Depth: As indicated on Drawings.
- D. Flat Strap and Backing Plate: Steel sheet for blocking and bracing in length and width indicated.
 - 1. Minimum Base-Steel Thickness: 0.0269 inch.
- E. Cold-Rolled Channel Bridging: Steel, 0.0538-inch minimum base-steel thickness, with minimum 1/2-inch- wide flanges.
 - 1. Depth: 1-1/2 inches.
 - 2. Clip Angle: Not less than 1-1/2 by 1-1/2 inches, 0.068-inch- thick, galvanized steel.

2.3 SUSPENSION SYSTEMS

- A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.
- B. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.
- C. Grid Suspension System for Gypsum Board Ceilings: ASTM C645, direct-hung system composed of main beams and cross-tee members that interlock.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Armstrong World Industries, Inc.

- b. Rockfon North America.
- c. USG Corporation.

2.4 AUXILIARY MATERIALS

- A. General: Provide auxiliary materials that comply with referenced installation standards.
 - 1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.
 - 2. Pony Wall Support: Clark Dietrich Model # LGPW24 or equal.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

3.3 INSTALLATION, GENERAL

- A. Installation Standard: ASTM C754.
 - 1. Gypsum Board Assemblies: Also comply with requirements in ASTM C840 that apply to framing installation.
- B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.
- C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.
- D. Install bracing at terminations in assemblies.
- E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING FRAMED ASSEMBLIES

- A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Single-Layer Application: 24 inches o.c. unless otherwise indicated.
 - 2. Multilayer Application: 24 inches o.c. unless otherwise indicated.
 - 3. Tile Backing Panels: 16 inches o.c. unless otherwise indicated.
- B. Where studs are installed directly against exterior walls, install isolation strip between studs and exterior wall.
- C. Install studs so flanges within framing system point in same direction.
- D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.
 - 1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
 - 2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.
 - a. Install two studs at each jamb unless otherwise indicated.
 - b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
 - c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.
 - 3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
- E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 INSTALLING CEILING SUSPENSION SYSTEMS

- A. Install interior gypsum ceiling suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.
 - 1. Hangers: 48 inches o.c.
 - 2. Main Beams: 48 inches o.c.
 - 3. Cross Tees: 24 inches o.c.
- B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.
- C. Suspend hangers from building structure as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

- a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
- 2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
 - a. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced installation standards.
- 3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
- 4. Do not connect or suspend steel framing from ducts, pipes, or conduit.
- D. Seismic Bracing: Sway-brace suspension systems with hangers used for support.
- E. Grid Suspension Systems: Attach perimeter wall track or angle where grid suspension systems meet vertical surfaces. Mechanically join main beam and cross-furring members to each other and butt-cut to fit into wall track.
- F. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Interior gypsum board.
- 2. Trim.

- B. Related Requirements:

- 1. Section 092216 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

- A. Product Data: For the following:

- 1. Gypsum board, Type X.
- 2. Gypsum ceiling board.
- 3. Mold-resistant gypsum board.
- 4. Glass-mat, water-resistant backing board.
- 5. Interior trim.
- 6. Joint treatment materials.
- 7. Sound-attenuation blankets.

1.4 DELIVERY, STORAGE AND HANDLING

- A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

- A. Environmental Limitations: Comply with ASTM C840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.
- B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.
- C. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 GYPSUM BOARD, GENERAL

- A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.2 INTERIOR GYPSUM BOARD

- A. Gypsum Board, Type X: ASTM C1396/C1396M.
 1. Thickness: 5/8 inch.
 2. Long Edges: Tapered.
- B. Gypsum Ceiling Board, Type X: ASTM C1396/C1396M.
 1. Thickness: 5/8 inch.
 2. Long Edges: Tapered.
- C. Mold-Resistant Gypsum Board: ASTM C1396/C1396M. With moisture- and mold-resistant core and paper surfaces.
 1. Core: 5/8 inch, Type X.
 2. Long Edges: Tapered.
 3. Mold Resistance: ASTM D3273, score of 10 as rated according to ASTM D3274.

2.3 TRIM ACCESSORIES

- A. Interior Trim: ASTM C1047.
 1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
 2. Shapes:
 - a. Cornerbead.
 - b. LC-Bead: J-shaped; exposed long flange receives joint compound.
 - c. U-Bead: J-shaped; exposed short flange does not receive joint compound.
 - d. Expansion (control) joint.

2.4 JOINT TREATMENT MATERIALS

- A. General: Comply with ASTM C475/C475M.
- B. Joint Tape:
 1. Interior Gypsum Board: Paper.

2. Tile Backing Panels: As recommended by panel manufacturer.
- C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.
 1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
 2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use drying-type, all-purpose compound.
 - a. Use setting-type compound for installing paper-faced metal trim accessories.
 3. Fill Coat: For second coat, use drying-type, all-purpose compound.
 4. Finish Coat: For third coat, use drying-type, all-purpose compound.
 5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound or high-build interior coating product designed for application by airless sprayer and to be used instead of skim coat to produce Level 5 finish.
- D. Joint Compound for Tile Backing Panels:
 1. Glass-Mat, Water-Resistant Backing Panel: As recommended by backing panel manufacturer.

2.5 AUXILIARY MATERIALS

- A. Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.
- B. Steel Drill Screws: ASTM C1002 unless otherwise indicated.
 1. Use screws complying with ASTM C954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
- C. Sound-Attenuation Blankets: ASTM C665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.
- B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION AND FINISHING OF PANELS, GENERAL

- A. Comply with ASTM C840.
- B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.
- C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.
- D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.
- E. Form control and expansion joints with space between edges of adjoining gypsum panels.
- F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.
 - 1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
 - 2. Fit gypsum panels around ducts, pipes, and conduits.
 - 3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.
- G. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch- wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.
- H. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.
- I. Wood Framing: Install gypsum panels over wood framing, with floating internal corner construction. Do not attach gypsum panels across the flat grain of wide-dimension lumber, including floor joists and headers. Float gypsum panels over these members or provide control joints to counteract wood shrinkage.
- J. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 INSTALLATION OF INTERIOR GYPSUM BOARD

- A. Single-Layer Application:
 - 1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
 - 2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated or required by fire-resistance-rated assembly, and minimize end joints.

- a. Stagger abutting end joints not less than one framing member in alternate courses of panels.
 - b. At high walls, install panels horizontally unless otherwise indicated or required by fire-resistance-rated assembly.
3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

3.4 INSTALLATION OF TRIM ACCESSORIES

- A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.
- B. Control Joints: Install control joints at locations indicated on Drawings and according to ASTM C840 and in specific locations approved by Architect for visual effect.
- C. Interior Trim: Install in the following locations:
 1. Cornerbead: Use at inside and outside corners unless otherwise indicated.
 2. LC-Bead: Use at exposed panel edges.
 3. U-Bead: Use at exposed panel edges where indicated.

3.5 FINISHING GYPSUM BOARD

- A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.
- B. Prefill open joints and damaged surface areas.
- C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.
- D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C840:
 1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
 2. Level 4: Where exposed to view.
 - a. Primer and its application to surfaces are specified in Section 099123 "Interior Painting."

3.6 PROTECTION

- A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.
- B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.
- C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Acoustical panels.
2. Metal suspension system.
3. Metal edge moldings and trim.

B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.2 ACTION SUBMITTALS

A. Product Data:

1. Acoustical panels.
2. Metal suspension system.
3. Metal edge moldings and trim.

B. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:

1. Acoustical Panels: Set of 6-inch- square Samples of each type, color, pattern, and texture.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Acoustical Ceiling Units: Full-size panels equal to 5 percent of quantity installed.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

- B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.6 FIELD CONDITIONS

- A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Source Limitations for Ceiling System: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Suspended ceilings to withstand the effects of earthquake motions determined in accordance with ASCE/SEI 7.
- B. Surface-Burning Characteristics: Comply with ASTM E84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Flame-Spread Index: Class A in accordance with ASTM E1264.
 - 2. Smoke-Developed Index: 50 or less.
- C. Fire-Resistance Ratings: Comply with ASTM E119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 - 1. Indicate design designations from UL or from the listings of another qualified testing agency.

2.3 ACOUSTICAL PANELS **ACP1**

- A. (ACP) Basis-of-Design Product: Armstrong Ceiling and Wall Solutions Cirrus Angled Tegalr 584HRC
- B. Acoustical Panel Standard: Provide manufacturer's standard panels in accordance with ASTM E1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.
- C. Classification: Provide panels as follows:
 - 1. Type and Form, Type III: Mineral base with painted finish; Form 1, nodular.
 - 2. Pattern: E (lightly textured).
- D. Color: White.

- E. Light Reflectance (LR): Not less than 0.84.
- F. Ceiling Attenuation Class (CAC): Not less than 35.
- G. Noise Reduction Coefficient (NRC): Not less than 0.75.
- H. Articulation Class (AC): Not less than 170.
- I. Edge/Joint Detail: Angled Tegral.
- J. Thickness:
 - 1. 7/8 inch.
- K. Modular Size: 24 by 24 inches.

2.4 METAL SUSPENSION SYSTEM

- A. Basis-of-Design Product: Armstrong Ceiling & Wall Solutions, Prelude 15/16" Suspension System.
- B. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories in accordance with ASTM C635/C635M and designated by type, structural classification, and finish indicated.
- C. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch- wide metal caps on flanges.
 - 1. Fire Rating: Class A.
 - 2. Structural Classification: Heavy-duty system.
 - 3. End Condition of Cross Runners: Override (stepped) type.
 - 4. Face Design: Flat, flush.
 - 5. Cap Material: Cold-rolled steel.
 - 6. Cap Finish: Painted white.

2.5 ACCESSORIES

- A. Attachment Devices: Size for five times the design load indicated in ASTM C635/C635M, Table 1, "Direct Hung," unless otherwise indicated. Comply with seismic design requirements.
- B. Wire Hangers, Braces, and Ties: Provide wires as follows:
 - 1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
 - 2. Stainless Steel Wire: ASTM A580/A580M, Type 304, nonmagnetic.
 - 3. Nickel-Copper-Alloy Wire: ASTM B164, nickel-copper-alloy UNS No. N04400.
 - 4. Size: Wire diameter sufficient for its stress at three times hanger design load (ASTM C635/C635M, Table 1, "Direct Hung") will be less than yield stress of wire, but not less than 0.106-inch- diameter wire.
- C. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.
- D. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.
- B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.
- B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION OF ACOUSTICAL PANEL CEILINGS

- A. Install acoustical panel ceilings in accordance with ASTM C636/C636M, seismic design requirements, and manufacturer's written instructions.
 - 1. Fire-Rated Assembly: Install fire-rated ceiling systems in accordance with tested fire-rated design.
- B. Suspend ceiling hangers from building's structural members and as follows:
 - 1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
 - 2. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
 - 3. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
 - 4. Do not attach hangers to steel deck tabs.
 - 5. Do not attach hangers to steel roof deck. Attach hangers to structural members.
 - 6. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
 - 7. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.
- C. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

- D. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.
1. Arrange directionally patterned acoustical panels as follows:
 - a. As indicated on reflected ceiling plans.
 2. For reveal-edged panels on suspension-system runners, install panels with bottom of reveal in firm contact with top surface of runner flanges.
 3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 CLEANING

- A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.
- B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Thermoset-rubber base.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each type of product indicated and for each color, texture, and pattern required in manufacturer's standard-size Samples.
- C. Product Schedule: For resilient base and accessory products. Use same designations indicated on Drawings.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F.

1.6 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than or more than, in spaces to receive resilient products during the following periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.

- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than or more than 85 deg F.
- C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 THERMOSET-RUBBER BASE **RB**

A. **(RB1)** Basis of Design: Roppe Corporation

- 1. Product Standard: ASTM F1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
 - a. Style and Location:
 - 1) Style B, Cove, standard toe: Where indicated on drawings.
- 2. Thickness: 0.125 inch.
- 3. Height: 4 inches.
- 4. Lengths: Coils in manufacturer's standard length.
- 5. Outside Corners: Job formed.
- 6. Inside Corners: Job formed.
- 7. Colors: 114 Lunar Dust.

B. **(RB2)** Basis of Design: Roppe Corporation

- 1. Product Standard: ASTM F1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).
 - a. Style and Location:
 - 1) Style B, Cove, standard toe: Where indicated on drawings.
- 2. Thickness: 0.125 inch.
- 3. Height: 6 inches.
- 4. Lengths: Coils in manufacturer's standard length.
- 5. Outside Corners: Job formed.
- 6. Inside Corners: Job formed.
- 7. Colors: 114 Lunar Dust.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
 1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.
- B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- C. Do not install resilient products until materials are the same temperature as space where they are to be installed.
 1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.
- D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

- A. Comply with manufacturer's written instructions for installing resilient base.
- B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.
- C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.
- D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.
- E. Do not stretch resilient base during installation.
- F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.
- G. Job-Formed Corners:
 1. Outside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.
 - a. Form without producing discoloration (whitening) at bends.
 2. Inside Corners: Use straight pieces of maximum lengths possible and form with returns not less than 3 inches in length.

- a. Miter or cope corners to minimize open joints.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.
- B. Perform the following operations immediately after completing resilient-product installation:
 - 1. Remove adhesive and other blemishes from surfaces.
- C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096516 - RESILIENT SHEET FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Resilient sheet flooring.
- B. Related Requirements:
 - 1. Section 096513 "Resilient Base and Accessories" for resilient wall base.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each type of resilient flooring, in manufacturer's standard size sections of each different color and pattern required.
 - 1. Heat-Welding Bead: Include manufacturer's standard-size Samples, but not less than 4 inches long, of each color required.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of resilient flooring to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Sheet Flooring: Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, in roll form and in full roll width for each type, color, and pattern of sheet flooring installed.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for flooring installation and seaming methods indicated.
 - 1. Engage an installer who employs workers for this Project who are trained or certified by flooring manufacturer for installation techniques required.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Store flooring and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 65 deg F or more than 90 deg F.
 - 1. Sheet Flooring: Store rolls upright, labels up and ensure that the color, roll and batch numbers can be easily read

1.9 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F (18.3 deg C) or more than 85 deg F, in spaces to receive flooring during the following periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F (18.3 deg C) or more than 85 deg F (29.4 deg C).
- C. Close spaces to traffic during flooring installation.
- D. Close spaces to traffic for 72 hours after flooring installation.
- E. Install flooring after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Fire-Test-Response Characteristics: For resilient flooring, as determined by testing identical products according to ASTM E648 or NFPA 253 by a qualified testing agency.
 - 1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

2.2 RESILIENT SHEET FLOORING (**RSF**)

- A. Products: Subject to compliance with requirements, provide the following:

1. Tarkett Acczent Resilient Sheet (Heterogeneous Vinyl)
- B. Resilient Sheet Flooring.
 1. Roll Size: In manufacturer's standard length, but not less than 2m wide.
- C. Thickness: 0.080 inch.
- D. Welding Bead: For seamless installation, solid-strand/multi-color-strand product of resilient flooring manufacturer.
 1. Colors: Match resilient flooring.
- E. Integral-Flash-Cove-Base Accessories:
 1. Cove Strip: 1-inch radius, provided or approved by manufacturer.
 2. Cove-Base Cap Strip: [Square metal, vinyl, or rubber cap] provided or approved by manufacturer.
- F. Style, Patterns and Colors:
 - a. Color: 021 Dark Grey WG Concrete

2.3 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by resilient flooring manufacturer for applications indicated.
 1. Float and slope subfloor 2'-0" to 3'-0" minimum where carpet tile/entry mat join ceramic tile for a flush transition, refer to drawings.
 2. Basis of Design Product: Subject to compliance with requirements, provide:
 - a. Ardex America: Ardex SD-P Rapid or equal.
 - b. Mapei: Mapecem Quickpatch or equal.
- B. Adhesives: Water-resistant type recommended by flooring and adhesive manufacturers to suit products and substrate conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of flooring.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to resilient flooring manufacturer's written instructions to ensure adhesion of flooring.
- B. Concrete Substrates: Prepare according to ASTM F710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with flooring adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by resilient flooring manufacturer. Do not use solvents.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by resilient flooring manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing.
 - 4. Moisture Testing: Perform tests so that each test area does not exceed manufacturers written requirements, and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum percent relative humidity level measurement to comply with manufacturers written instructions.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install flooring until materials are the same temperature as space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move flooring and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by flooring.
- F. Metal Edge/Transition Strips: Extruded aluminum with a Clear anodized aluminum finish of profile and width shown, of height required to protect exposed edge of resilient sheet, and of maximum lengths to minimize running joints.
 - 1. Basis of Design Product: Subject to compliance with requirements, provide:
 - a. Manufacturer: Gradus; (Distributor: Optimum Technologies, Inc.; Angela Blair; 770-386-3470 ext. 2006; angela@otitech.com; 570 Joe Frank Harris Pkwy., P.O. Box 1537, Cartersville, GA 30120.)
 - 1) Profile: "ETR301UFO" or equal at carpet tile to resilient sheet flooring transitions, refer to drawings.

3.3 INSTALLATION, GENERAL

- A. Comply with manufacturer's written instructions for installing flooring.
- B. Scribe and cut flooring to butt neatly and tightly to vertical surfaces and permanent fixtures, including built-in furniture, cabinets, pipes, outlets, edgings, thresholds, door frames, and nosings.

- C. Extend flooring into toe spaces, door reveals, closets, and similar openings.
- D. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on flooring as marked on substrates. Use chalk or other nonpermanent marking device.
- E. Install flooring on covers for telephone and electrical ducts and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of flooring installed on covers and adjoining flooring. Tightly adhere flooring edges to substrates that abut covers and to cover perimeters.
- F. Adhere flooring to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.
- G. Heat-Welded Seams: For seamless installation, comply with ASTM F1516. Rout joints and heat weld with welding bead to fuse sections permanently into a seamless flooring installation. Prepare, weld, and finish seams to produce surfaces flush with adjoining flooring surfaces.

3.4 RESILIENT SHEET FLOORING INSTALLATION

- A. Unroll sheet flooring and allow it to stabilize before cutting and fitting.
- B. Lay out sheet flooring as follows:
 - 1. Maintain uniformity of flooring direction.
 - 2. Minimize number of seams; place seams in inconspicuous and low-traffic areas, at least 6 inches away from parallel joints in flooring substrates.
 - 3. Match edges of flooring for color shading at seams.
 - 4. Avoid cross seams.
 - 5. Eliminate deformations that result from hanging method used during drying process (stove bar marks).

3.5 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting resilient flooring.
- B. Perform the following operations immediately after completing resilient flooring installation:
 - 1. Remove adhesive and other blemishes from surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect resilient flooring from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover resilient flooring until Substantial Completion.

END OF SECTION 096516

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Solid vinyl floor tile.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: Full-size units of each color and pattern of floor tile required.
- C. Product Schedule: For floor tile. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of floor tile to include in maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Floor Tile: Furnish one box for every 50 boxes or fraction thereof, of each type, color, and pattern of floor tile installed.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store floor tile and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F. Store floor tiles on flat surfaces.

1.8 FIELD CONDITIONS

- A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F, in spaces to receive floor tile during the following periods:
 - 1. 48 hours before installation.
 - 2. During installation.
 - 3. 48 hours after installation.
- B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 65 deg F or more than 85 deg F.
- C. Close spaces to traffic during floor tile installation.
- D. Close spaces to traffic for 48 hours after floor tile installation.
- E. Install floor tile after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 SOLID VINYL FLOOR TILE

- A. Manufacturer: Tarkett North America
- B. Tile Standard: ASTM F1700.
 - 1. Class: Class III, Printed Film Vinyl Tile.
 - 2. Type:.
- C. Thickness: 0.120 inch.
- D. Size: 18 by 18 inches.
- E. Colors and Patterns: Tarkett Contour Series Abstract, Color Play Collection, Color Weave PCWE, color: ANGORA C169.
- F. Finish: 32 mil wear layer, quarry embossed matte finish

2.2 INSTALLATION MATERIALS

- A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.
- B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated. Obtain adhesives from same manufacturer as resilient tile flooring.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
 - 1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of floor tile.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.
- B. Concrete Substrates: Prepare according to ASTM F710.
 - 1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
 - 2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
 - 3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing.
 - 4. Moisture Testing: Perform tests so that each test area does not exceed 200 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Relative Humidity Test: Using in-situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 90 percent relative humidity level measurement.
- C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.
- D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.
 - 1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.
- E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.3 FLOOR TILE INSTALLATION

- A. Comply with manufacturer's written instructions for installing floor tile.

- B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.
 - 1. Lay tiles square with room axis.
- C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.
 - 1. Lay tiles in vertical ashlar pattern.
- D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.
- E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.
- F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.
- G. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

3.4 CLEANING AND PROTECTION

- A. Comply with manufacturer's written instructions for cleaning and protecting floor tile.
- B. Perform the following operations immediately after completing floor tile installation:
 - 1. Remove adhesive and other blemishes from surfaces.
 - 2. Sweep and vacuum surfaces thoroughly.
 - 3. Damp-mop surfaces to remove marks and soil.
- C. Protect floor tile from marks, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.
- D. Cover floor tile until Substantial Completion.

END OF SECTION 096519

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Entry Mat walk off tile.
- B. Related Requirements:
 - 1. Section 096513 "Resilient Base and Accessories" for resilient wall base and accessories installed with carpet tile.
 - 2. Section 096516 "Resilient Sheet Flooring,"

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include manufacturer's written data on physical characteristics, durability, and fade resistance.
 - 2. Include manufacturer's written installation recommendations for each type of substrate.
- B. Samples for Verification: For each of the following products and for each color and texture required. Label each Sample with manufacturer's name, material description, color, pattern, and designation indicated on Drawings and in schedules.
 - 1. Carpet Tile: Full-size Sample.
 - 2. Exposed Edge, Transition, and Other Accessory Stripping: 12-inch- long Samples.

- C. Product Schedule: For carpet tile. Use same designations indicated on Drawings.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Sample Warranty: For special warranty.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For carpet tiles to include in maintenance manuals. Include the following:

1. Methods for maintaining carpet tile, including cleaning and stain-removal products and procedures and manufacturer's recommended maintenance schedule.
2. Precautions for cleaning materials and methods that could be detrimental to carpet tile.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 1. Carpet Tile: Full-size units equal to 3 percent of amount installed for each type indicated, but not less than 10 sq. yd..

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer with not less than 2 years of experience in installation of carpeting similar to that required for this Project.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with the Carpet and Rug Institute's CRI 104.

1.9 FIELD CONDITIONS

- A. Comply with the Carpet and Rug Institute's CRI 104 for temperature, humidity, and ventilation limitations.
- B. Environmental Limitations: Do not deliver or install carpet tiles until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at levels planned for building occupants during the remainder of the construction period.
- C. Do not install carpet tiles over concrete slabs until slabs have cured and are sufficiently dry to bond with adhesive and concrete slabs have pH range recommended by carpet tile manufacturer.
- D. Where demountable partitions or other items are indicated for installation on top of carpet tiles, install carpet tiles before installing these items.

1.10 WARRANTY

- A. Special Warranty for Carpet Tiles: Manufacturer agrees to repair or replace components of carpet tile installation that fail in materials or workmanship within specified warranty period.
 1. Warranty does not include deterioration or failure of carpet tile due to unusual traffic, failure of substrate, vandalism, or abuse.
 2. Failures include, but are not limited to, the following:
 - a. More than 10 percent edge raveling, snags, and runs.
 - b. Dimensional instability.
 - c. Excess static discharge.

- d. Loss of tuft-bind strength.
- e. Loss of face fiber.
- f. Delamination.

3. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 ENTRY MAT WALK OFF TILE (EM)

A. Manufacturer (Design Basis): Miliken Obex.

- 1. Color: Miliken OBEX CutX Fizz Grey.
- 2. Layout Pattern: Ashlar.

B. Yarn Type: Miliken-Certified WearOn Nylon and Monofilament

C. Pile Characteristic: Tufted, Cut Pile

D. Primary Backing/Backcoating: Polyurethane foam backing.

- 1. Size: 50 cm x 50 cm.

2.2 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

1. Basis of Design Product: Subject to compliance with requirements, provide:

- a. Ardex America: Ardex SD-P Rapid or equal.
- b. Mapei: Mapecem Quickpatch or equal.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for maximum moisture content, alkalinity range, installation tolerances, and other conditions affecting carpet tile performance.

B. Examine carpet tile for type, color, pattern, and potential defects.

- C. Concrete Slabs: Verify that finishes comply with requirements specified in Section 033000 "Cast-in-Place Concrete" and that surfaces are free of cracks, ridges, depressions, scale, and foreign deposits.
 - 1. Moisture Testing: Perform tests so that each test area does not exceed 1000 sq. ft., and perform no fewer than three tests in each installation area and with test areas evenly spaced in installation areas.
 - a. Relative Humidity Test: Using in situ probes, ASTM F2170. Proceed with installation only after substrates have a maximum 75 percent relative humidity level measurement.
 - b. Perform additional moisture tests recommended in writing by adhesive and carpet tile manufacturers. Proceed with installation only after substrates pass testing.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. General: Comply with the Carpet and Rug Institute's CRI 104 and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.
- B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch wide or wider, and protrusions more than 1/32 inch unless more stringent requirements are required by manufacturer's written instructions.
- C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.
- D. Metal Substrates: Clean grease, oil, soil and rust, and prime if recommended in writing by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.
- E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.3 INSTALLATION

- A. General: Comply with the Carpet and Rug Institute's CRI 104, Section 10, "Carpet Tile," and with carpet tile manufacturer's written installation instructions.
- B. Installation Method: Glue down; install every tile with full-spread, releasable, pressure-sensitive adhesive.
- C. Maintain dye-lot integrity. Do not mix dye lots in same area.
- D. Maintain pile-direction patterns recommended in writing by carpet tile manufacturer.
- E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

- F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.
- G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.
- H. Install pattern parallel to walls and borders.

3.4 CLEANING AND PROTECTION

- A. Perform the following operations immediately after installing carpet tile:
 - 1. Remove excess adhesive and other surface blemishes using cleaner recommended by carpet tile manufacturer.
 - 2. Remove yarns that protrude from carpet tile surface.
 - 3. Vacuum carpet tile using commercial machine with face-beater element.
- B. Protect installed carpet tile to comply with the Carpet and Rug Institute's CRI 104, Section 13.7.
- C. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes surface preparation and the application of paint systems on the following interior substrates:
 - 1. Steel and iron.
 - 2. Galvanized metal.
 - 3. Gypsum board.
- B. Related Requirements:
 - 1. Section 051200 "Structural Steel Framing" for shop priming structural steel.
 - 2. Section 055000 "Metal Fabrications" for shop priming metal fabrications.
 - 3. Section 064116 "Plastic-Laminate-Clad Architectural Cabinets" for plastic laminate finishes.
 - 4. Section 099113 "Exterior Painting" for surfaces preparation and the application of paint systems on exterior substrates.

1.3 DEFINITIONS

- A. MPI Gloss Level 1: Not more than five units at 60 degrees and 10 units at 85 degrees, according to ASTM D523.
- B. MPI Gloss Level 2: Not more than 10 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- C. MPI Gloss Level 3: 10 to 25 units at 60 degrees and 10 to 35 units at 85 degrees, according to ASTM D523.
- D. MPI Gloss Level 4: 20 to 35 units at 60 degrees and not less than 35 units at 85 degrees, according to ASTM D523.
- E. MPI Gloss Level 5: 35 to 70 units at 60 degrees, according to ASTM D523.
- F. MPI Gloss Level 6: 70 to 85 units at 60 degrees, according to ASTM D523.
- G. MPI Gloss Level 7: More than 85 units at 60 degrees, according to ASTM D523.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include preparation requirements and application instructions.
 - 1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
 - 2. Indicate VOC content.
- B. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Label each Sample for location and application area.
- C. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 - 1. Maintain containers in clean condition, free of foreign materials and residue.
 - 2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

- A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.
- B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.8 WARRANTY

- A. Warranty Period: Two years from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Sherwin-Williams Company (The).
- B. Products: Subject to compliance with requirements, provide product listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

- A. MPI Standards: Products shall comply with MPI standards indicated and shall be listed in its "MPI Approved Products Lists."
- B. Material Compatibility:
 - 1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 - 2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.
- C. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 1. Flat Paints and Coatings: 50 g/L.
 - 2. Nonflat Paints and Coatings: 150 g/L.
 - 3. Dry-Fog Coatings: 400 g/L.
 - 4. Primers, Sealers, and Undercoaters: 200 g/L.
 - 5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
 - 6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
 - 7. Pretreatment Wash Primers: 420 g/L.
 - 8. Floor Coatings: 100 g/L.
 - 9. Shellacs, Clear: 730 g/L.
- D. Colors
 - 1. **P1**
 - a. Color: SW7011 Natural Choice 254-C6
 - b. Sheen: Eggshell (typical)
 - c. Location: General, as shown on drawings
 - 2. **P2**
 - a. Color: SW0049 Silver Gray
 - b. Sheen: Eggshell (typical)
 - c. Location: Accents, as shown on drawings

3. **P4**

- a. Color: SW7069 Iron Ore
- b. Sheen: Semigloss
- c. Location: Hollow Metal Door Frames, as shown on drawings

4. EP1

- a. Color: SW7011 Natural Choice 254-C6
- b. Epoxy paint
- c. Sheen: Eggshell
- d. Location: General, wet areas, as shown on drawings

E. As indicated in a color schedule

- 1. Five percent of surface area will be painted with deep tones.

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

- 1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
- 2. Testing agency will perform tests for compliance with product requirements.
- 3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.
- B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - 1. Concrete: 12 percent.
 - 2. Gypsum Board: 12 percent.
- C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.
- D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.
- E. Proceed with coating application only after unsatisfactory conditions have been corrected.
 - 1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.
- B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.
 - 1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.
- C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.
 - 1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.
- D. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer.
- E. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and areas where shop paint is abraded. Paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.
- F. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

3.3 APPLICATION

- A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."
 - 1. Use applicators and techniques suited for paint and substrate indicated.
 - 2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
 - 3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - 4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
 - 5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.
- B. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.
- C. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.
- D. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in equipment rooms:
 - a. Uninsulated metal piping.
 - b. Pipe hangers and supports.
 - c. Metal conduit.
2. Paint the following work where exposed in occupied spaces:
 - a. Equipment, including panelboards.
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - h. Other items as directed by Architect.
3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

- A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.
 1. Contractor shall touch up and restore painted surfaces damaged by testing.
 2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

- A. Steel Substrates:
 1. Water-Based Light Industrial Coating System MPI INT 5.1B:

- a. Prime Coat: Primer, rust-inhibitive, water based MPI #107.
 - 1) S-W Pro Industrial Pro-Cryl Universal Primer, B66W1310.
- b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
- c. Topcoat: Light industrial coating, interior, water based, semi-gloss (MPI Gloss Level 5), MPI #153.
 - 1) S-W Pro Industrial Acrylic Semi-gloss, B66-650 Series.

B. Gypsum Board Substrates:

- 1. Latex over Latex Sealer System MPI INT 9.2A:
 - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
 - 1) S-W ProMar 200 Zero VOC Primer, B28W2600.
 - b. Prime Coat: Latex, interior, matching topcoat.
 - c. Intermediate Coat: Latex, interior, matching topcoat.
 - d. Topcoat: Latex, interior (MPI Gloss Level 3)[, **MPI #52**].
 - 1) S-W ProMar 200 Zero VOC Eg-Shel, B20-12650 Series.
- 2. Pre-Catalyzed Waterbased Epoxy System:
 - a. Prime Coat: Primer sealer, latex, interior, MPI #50.
 - 1) S-W ProMar 200 Zero VOC Primer, B28W2600.
 - b. Intermediate Coat: Light industrial coating, interior, water based, matching topcoat.
 - c. Topcoat: Epoxy-modified latex, single component, interior, eggshell (MPI Gloss Level 3), MPI #151.
 - 1) S-W Pro Industrial Pre-Catalyzed Waterbased Epoxy Eggshell, K45-1150 Series.

END OF SECTION 099123

SECTION 101423 - PANEL SIGNAGE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Panel signs.
 - 2. Room-identification signs.

1.3 DEFINITIONS

- A. Accessible: In accordance with the accessibility standard.

1.4 COORDINATION

- A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.
- B. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For signs to include in maintenance manuals.

PART 2 - PRODUCTS

2.1 SIGNS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Best Sign Manufacturing HC300 ADA System or product indicated or comparable product by one of the following:
 - 1. Allen Industries, Inc.

2. Allen Markings International.
3. APCO Graphics, Inc.
4. ASI Sign Systems, Inc.
5. Best Sign Systems Inc.
6. InPro Corporation.
7. Mohawk Sign Systems.
 - a. Edge Conditions: Square Cut.
 - b. Corner Conditions: Square
 - c. Color: To be selected by Architect from manufacturers full range of colors.
8. Mounting: Manufacturer's standard method for substrates indicated with.
9. Text and Typeface: Finish raised characters to contrast with background color, and finish Braille to match background color.

2.2 PANEL-SIGN MATERIALS

- A. Paints and Coatings for Sheet Materials: Inks, dyes, and paints that are recommended by manufacturer for optimum adherence to surface and are UV and water resistant for colors and exposure indicated.

2.3 ACCESSORIES

- A. Fasteners and Anchors: Manufacturer's standard as required for secure anchorage of signage, noncorrosive and compatible with each material joined, and complying with the following:
 1. Use concealed fasteners and anchors unless indicated to be exposed.
 2. For exterior exposure, furnish hot-dip galvanized devices unless otherwise indicated.
 3. Exposed Metal-Fastener Components, General:
 - a. Fabricated from same basic metal and finish of fastened metal unless otherwise indicated.

2.4 FABRICATION

- A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.
 1. Preassemble signs and assemblies in the shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
 2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
 3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
 4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
 5. Internally brace signs for stability and for securing fasteners.

6. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

2.5 GENERAL FINISH REQUIREMENTS

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.
- B. Verify that anchor inserts are correctly sized and located to accommodate signs.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install signs using mounting methods indicated and according to manufacturer's written instructions.
 1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
 2. Install signs so they do not protrude or obstruct according to the accessibility standard.
 3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
- B. Room-Identification Signs: Install in locations on walls as indicated and according to accessibility standard Insert requirement.
- C. Mounting Methods:
 1. Adhesive: Clean bond-breaking materials from substrate surface and remove loose debris. Apply linear beads or spots of adhesive symmetrically to back of sign and of suitable quantity to support weight of sign after cure without slippage. Keep adhesive away from edges to prevent adhesive extrusion as sign is applied and to prevent visibility of cured adhesive at sign edges. Place sign in position and push to engage adhesive. Temporarily support sign in position until adhesive fully sets.
 2. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position and push to engage tape adhesive.
 3. Hook-and-Loop Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply sign component of two-part tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage; push to engage tape

adhesive. Keep tape strips 0.250 inch away from edges to prevent visibility at sign edges when sign is initially installed or reinstalled. Apply substrate component of tape to substrate in locations aligning with tape on back of sign; push and rub well to fully engage tape adhesive to substrate.

4. Magnetic Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position.

3.3 ADJUSTING AND CLEANING

- A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.
- B. Remove temporary protective coverings and strippable films as signs are installed.
- C. On completion of installation, clean exposed surfaces of signs according to manufacturer's written instructions and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

3.4 PANEL SIGN TYPES

- A. Information Signs: Best HC300 ADA System Type 'E'.

1. Material: Cast-acrylic sheet.
2. Perimeter: Unframed.
3. Copy: Tactile and braille surface.
4. Character Style: Helvetica.
5. Text: "MECHANICAL / ELECTRICAL ROOM".
6. Message: Fixed.
7. Sizes:
 - a. Sign: 14-1/4" x 4-3/4".
 - b. Character: Minimum 1 1/2"-inch-high characters.
8. Location: Install at Door 108.

- B. Information Signs: Vinyl-Character Exterior Signage.

1. Material: Vinyl-Character Sheet
2. Perimeter: Unframed.
3. Character Style: Helvetica.
4. Text: "ELECTRICAL ROOM".
5. Message: Fixed.
6. Sizes:
 - a. Character: Minimum 4 inches.
7. Location: Install at exterior door of ELEC 105.

- C. Information Signs: Best HC300 ADA System Type 'E'.

1. Material: Cast-acrylic sheet.
2. Perimeter: Unframed.
3. Copy: Tactile and braille surface.
4. Character Style: Helvetica.
5. Text: "STORAGE ROOM".
6. Message: Fixed.
7. Sizes:
 - a. Sign: 14-1/4" x 4-3/4".
 - b. Character: Minimum 1-inch-high characters.
8. Location: Install at Door 102, 104, 116, 117.

D. Information Signs: Best HC300 ADA System Type 'E'.

1. Material: Cast-acrylic sheet.
2. Perimeter: Unframed.
3. Copy: Tactile and braille surface.
4. Character Style: Helvetica.
5. Text: "LOCKER ROOM".
6. Message: Fixed.
7. Sizes:
 - a. Sign: 14-1/4" x 4-3/4".
 - b. Character: Minimum 1-inch-high characters.
8. Location: Install at Door 110.

E. Toilet Room Signs: Best HC300 ADA System Type 'D'.

1. Material: Cast-acrylic sheet.
2. Perimeter: Framed.
3. Copy: Raised.
4. Character Style: Helvetica.
5. Text: According to requirements in ADA or of authorities having jurisdiction, whichever are more stringent, "RESTROOM".
6. Message: Fixed.
7. Sizes:
 - a. Sign: 8" x 8".
 - b. Character: Minimum 1-inch high characters.
8. Location: Install at entry of Restrooms 107 and Door 107D.

END OF SECTION 101423

SECTION 102600 - WALL AND DOOR PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Corner guards.
 - 2. Abuse-resistant wall coverings.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: For each type of wall and door protection showing locations and extent.
- C. Samples for Verification: For each type of exposed finish on the following products, prepared on Samples of size indicated below:
 - 1. Corner Guards: 12 inches long.
 - 2. Abuse-Resistant Wall Covering: 6 by 6 inches square.

1.4 INFORMATIONAL SUBMITTALS

- A. Material Certificates: For each type of exposed plastic material.

1.5 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For each type of wall and door protection product to include in maintenance manuals.
 - 1. Include recommended methods and frequency of maintenance for maintaining best condition of plastic covers under anticipated traffic and use conditions. Include precautions against using cleaning materials and methods that may be detrimental to finishes and performance.

1.6 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Corner Guards: Full size plastic corner guards of maximum length equal to 5 percent of each type installed, but no fewer than two units.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store wall and door protection in original undamaged packages and containers inside well-ventilated area protected from weather, moisture, soiling, extreme temperatures, and humidity.
 1. Maintain room temperature within storage area at not less than 70 deg F during the period plastic materials are stored.
 2. Keep plastic materials out of direct sunlight.
 3. Store plastic wall- and door-protection components for a minimum of 72 hours, or until plastic material attains a minimum room temperature of 70 deg F.
 - a. Store corner-guards in a vertical position.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain wall- and door-protection products of each type from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Surface Burning Characteristics: Comply with ASTM E84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.
 1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 450 or less.

2.3 CORNER GUARDS

- A. Surface-Mounted, Opaque-Plastic Corner Guards **(C)**: Fabricated as one piece from PVC plastic; with formed edges; fabricated with 90- or 135-degree turn to match wall condition.
 1. Basis of Design: Koroseal Korogard G800 Series Vinyl Corner Guard.
 2. Wing Size: Nominal 1-1/2 by 1-1/2 inches.
 3. Mounting: Adhesive.
 4. Color and Texture: Korogard Seashell (OZ).

2.4 ABUSE-RESISTANT WALL COVERINGS

- A. Abuse-Resistant Sheet Wall Covering (WP): Fabricated from semirigid, plastic sheet wall-covering material.
 1. Koroseal Korogard Protective WallCovering
 2. Size: 48 by 96 inches for sheet.
 3. Sheet Thickness: 0.022 inch.
 4. Color and Texture: As selected by Architect from manufacturer's full range.

5. Height: Full wall.
6. Trim and Joint Moldings: Extruded rigid plastic that matches wall-covering color.
7. Mounting: Adhesive.

2.5 MATERIALS

- A. Plastic Materials: Chemical- and stain-resistant, high-impact-resistant plastic with integral color throughout; extruded and sheet material as required, thickness as indicated.
- B. Adhesive: As recommended by protection product manufacturer.

2.6 FABRICATION

- A. Fabricate wall and door protection according to requirements indicated for design, performance, dimensions, and member sizes, including thicknesses of components.

2.7 FINISHES

- A. Protect finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and wall areas, with Installer present, for compliance with requirements for installation tolerances, fire rating, and other conditions affecting performance of the Work.
- B. Examine walls to which wall and door protection will be attached for blocking, grounds, and other solid backing that have been installed in the locations required for secure attachment of support fasteners.
 1. For wall and door protection attached with adhesive, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Complete finishing operations, including painting, before installing wall and door protection.
- B. Before installation, clean substrate to remove dust, debris, and loose particles.

3.3 INSTALLATION

- A. Installation Quality: Install wall and door protection according to manufacturer's written instructions, level, plumb, and true to line without distortions. Do not use materials with chips, cracks, voids, stains, or other defects that might be visible in the finished Work.
- B. Mounting Heights: Install wall and door protection in locations and at mounting heights indicated on Drawings.

3.4 CLEANING

- A. Immediately after completion of installation, clean plastic covers and accessories using a standard ammonia-based household cleaning agent.
- B. Remove excess adhesive using methods and materials recommended in writing by manufacturer.

END OF SECTION 102600

SECTION 102800 - TOILET, BATH, AND LAUNDRY ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Public-use washroom accessories.
 - 2. Private-use bathroom accessories.
 - 3. Custodial accessories.
 - 4. Mirrors

1.3 COORDINATION

- A. Coordinate accessory locations with other work to prevent interference with clearances required for access by people with disabilities, and for proper installation, adjustment, operation, cleaning, and servicing of accessories.
- B. Deliver inserts and anchoring devices set into concrete or masonry as required to prevent delaying the Work.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 2. Include anchoring and mounting requirements, including requirements for cutouts in other work and substrate preparation.
 - 3. Include electrical characteristics.
- B. Samples: For each exposed product and for each finish specified, full size.
 - 1. Approved full-size Samples will be returned and may be used in the Work.
- C. Product Schedule: Indicating types, quantities, sizes, and installation locations by room of each accessory required.
 - 1. Identify locations using room designations indicated.
 - 2. Identify accessories using designations indicated.

1.5 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For manufacturer's special warranties.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For accessories to include in maintenance manuals.

1.7 WARRANTY

- A. Manufacturer's Special Warranty for Mirrors: Manufacturer agrees to repair or replace mirrors that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, visible silver spoilage defects.
 - 2. Warranty Period: 10 years from date of Substantial Completion.
- B. Manufacturer's Special Warranty for Hand Dryers: Manufacturer agrees to repair or replace hand dryers that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 OWNER-FURNISHED MATERIALS

- A. Owner-Furnished Materials: Soap Dispensers, Paper towel dispensers, Toilet tissue dispensers, Sanitary napkin receptacles, trash bins

2.2 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Structural Performance: Design accessories and fasteners to comply with the following requirements:
 - 1. Grab Bars: Installed units are able to resist 250 lbf concentrated load applied in any direction and at any point.
 - 2. Shower Seats: Installed units are able to resist 360 lbf applied in any direction and at any point.

2.3 PUBLIC-USE WASHROOM ACCESSORIES

- A. Source Limitations: Obtain public-use washroom accessories from single source from single manufacturer.
- B. Toilet Tissue (Roll) Dispenser
 - 1. Manufacturers: Owner furnished, Contractor installed.

C. Paper Towel Dispenser:

1. Manufacturer: Owner furnished, Contractor installed.

D. Soap Dispenser:

1. Manufacturer: Owner furnished, Contractor installed.

E. Grab Bar:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Mounting: Flanges with concealed fasteners.
3. Material: Stainless steel, 0.05 inch thick.
 - a. Finish: Smooth, ASTM A480/A480M No. 4 finish (satin) Retain first option in "Outside Diameter" Subparagraph below for medium-duty applications; second, for heavy duty.
4. Outside Diameter: 1-1/2 inches.
5. Configuration and Length: As indicated on Drawings.

F. Sanitary-Napkin Disposal Unit

- a. Manufacturers: Owner furnished, Contractor installed.

G. Frameless Mirrors

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Size: 24 inches by 36 inches unless noted otherwise.
3. Hangers: Manufacturer's standard rigid, tamper and theft resistant.

H. Hook

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
2. Description: Double-prong unit.
3. Mounting: Exposed.
4. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).

2.4 CUSTODIAL ACCESSORIES

- A. Source Limitations: Obtain custodial accessories from single source from single manufacturer.
- B. Custodial Mop and Broom Holder
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. American Specialties, Inc.
 - b. Bobrick Washroom Equipment, Inc.
 - c. Bradley Corporation.
 - 2. Description: Unit with shelf, hooks, holders, and rod suspended beneath shelf.
 - 3. Length: 36 inches.
 - 4. Hooks: Four.
 - 5. Mop/Broom Holders: Three, spring-loaded, rubber hat, cam type.
 - 6. Material and Finish: Stainless steel, ASTM A480/A480M No. 4 finish (satin).
 - a. Shelf: Not less than nominal 0.05-inch- thick stainless steel.
 - b. Rod: Approximately 1/4-inch- diameter stainless steel.

2.5 MATERIALS

- A. Stainless Steel: ASTM A240/A240M or ASTM A666, Type 304, 0.031-inch- minimum nominal thickness unless otherwise indicated.
- B. Brass: ASTM B19, flat products; ASTM B16/B16M, rods, shapes, forgings, and flat products with finished edges; or ASTM B30, castings.
- C. Steel Sheet: ASTM A1008/A1008M, Designation CS (cold rolled, commercial steel), 0.036-inch- minimum nominal thickness.
- D. Galvanized-Steel Sheet: ASTM A653/A653M, with G60 hot-dip zinc coating.
- E. Galvanized-Steel Mounting Devices: ASTM A153/A153M, hot-dip galvanized after fabrication.
- F. Fasteners: Screws, bolts, and other devices of same material as accessory unit, unless otherwise recommended by manufacturer or specified in this Section, and tamper and theft resistant where exposed, and of stainless or galvanized steel where concealed.
- G. Chrome Plating: ASTM B456, Service Condition Number SC 2 (moderate service).
- H. Mirrors: ASTM C1503, Mirror Glazing Quality, clear-glass mirrors, nominal 6.0 mm thick.

2.6 FABRICATION

- A. General: Fabricate units with tight seams and joints, and exposed edges rolled. Hang doors and access panels with full-length, continuous hinges. Equip units for concealed anchorage and with corrosion-resistant backing plates.
- B. Keys: Provide universal keys for internal access to accessories for servicing and resupplying. Provide minimum of six keys to Owner's representative.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install accessories according to manufacturers' written instructions, using fasteners appropriate to substrate indicated and recommended by unit manufacturer. Install units level, plumb, and firmly anchored in locations and at heights indicated.
 - 1. Remove temporary labels and protective coatings.
- B. Grab Bars: Install to comply with specified structural-performance requirements.

3.2 ADJUSTING AND CLEANING

- A. Adjust accessories for unencumbered, smooth operation. Replace damaged or defective items.
- B. Clean and polish exposed surfaces according to manufacturer's written instructions.

END OF SECTION 102800

SECTION 104400 - FIRE-PROTECTION SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:

- 1. Knox box.

1.3 SUBMITTALS

- A. Product Data: Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.
 - 1. Knox Box: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.
- B. Maintenance Data: For knox box to include in maintenance manuals.

PART 2 - PRODUCTS

2.1 HIGH SECURITY EMERGENCY KEY BOX

- A. Provide recess-mounted emergency key box as approved by the local fire jurisdiction. Key box to be master-keyed as dictated by local fire jurisdiction.
 - 1. Product: Submit to compliance with requirements, provide the following:
 - a. Knox, Inc; 3200 Series x RMK. Purchase from Knox Box (www.knoxbox.com).
 - 1) Mounting: Recessed.
 - 2) Door: Hinged.
 - 3) Finish: Aluminum.
 - 4) Fire Department: Moscow (Idaho) Fire Department.
 - 5) Quantity: One (1).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where knox box will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for Knox box as required by type and size of unit and trim style.

3.3 INSTALLATION

- A. General: Install knox box in location and at mounting height required by local fire department or at height acceptable to authorities having jurisdiction.
- B. Fully recess into wall construction and provide trim at surrounding siding.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection specialties are installed, unless otherwise indicated in manufacturer's written installation instructions.
- B. On completion of knox box installation, clean interior and exterior surfaces as recommended by manufacturer.
- C. Touch up marred finishes or replace Knox box units that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by knox box manufacturer.
- D. Replace knox box units that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104400

SECTION 104413 - FIRE PROTECTION CABINETS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Fire-protection cabinets for the following:

a. Portable fire extinguisher.

B. Related Requirements:

1. Section 104416 "Fire Extinguishers" for portable, hand-carried fire extinguishers accommodated by fire-protection cabinets.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Show door hardware, cabinet type, trim style, and panel style. Include roughing-in dimensions and details showing recessed-, semirecessed-, or surface-mounting method and relationships of box and trim to surrounding construction.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance Data: For fire-protection cabinets to include in maintenance manuals.

1.4 COORDINATION

A. Coordinate size of fire-protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

B. Coordinate sizes and locations of fire-protection cabinets with wall depths.

PART 2 - PRODUCTS

2.1 FIRE-PROTECTION CABINET (FEC)

A. Fire-Protection Cabinet Type: Suitable for fire extinguisher.

B. Cabinet Construction: Nonrated.

C. Cabinet Material: Cold-rolled steel sheet.

- D. Semirecessed Cabinet: Where indicated on drawings. One-piece combination trim and perimeter door frame overlapping surrounding wall surface, with exposed trim face and wall return at outer edge (backend).
1. Square-Edge Trim: 1-1/4- to 1-1/2-inch backend depth.
 2. Rolled-Edge Trim: 2-1/2-inch backend depth.
- E. Surface-Mounted Cabinet: Where indicated on drawings. Cabinet box fully exposed and mounted directly on wall with no trim.
- F. Cabinet Trim Material: Steel sheet.
- G. Door Material: Steel sheet.
- H. Door Style: Fully glazed panel with frame.
- I. Door Glazing: Tempered float glass (clear).
- J. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
1. Provide projecting door pull and friction latch.
 2. Provide continuous hinge, of same material and finish as trim,, permitting door to open 180 degrees.
- K. Accessories:
1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire-protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 2. Door Lock: Cam lock that allows door to be opened during emergency by pulling sharply on door handle.
 3. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated.
 - a. Identify fire extinguisher in fire-protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet glazing.
 - 2) Application Process: Decals.
 - 3) Lettering Color: Red.
 - 4) Orientation: Vertical.
- L. Materials:
1. Cold-Rolled Steel: ASTM A1008/A1008M, Commercial Steel (CS), Type B.
 - a. Finish: Baked enamel, TGIC polyester powder coat, HAA polyester powder coat, epoxy powder coat, or polyester/epoxy hybrid powder coat, complying with AAMA 2603.
 - b. Prepare, pretreat, and apply coating to exposed metal surfaces to comply with coating and resin manufacturers' written instructions.
 - c. Color: White.

2. Tempered Float Glass: ASTM C1048, Kind FT, Condition A, Type I, Quality q3, 3 mm thick, Class 1 (clear).

2.2 FABRICATION

- A. Fire-Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 1. Weld joints and grind smooth.
 2. Provide factory-drilled mounting holes.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles.
 1. Fabricate door frames with tubular stiles and rails and hollow-metal design, minimum 1/2 inch thick.
 2. Miter and weld perimeter door frames and grind smooth.
- C. Cabinet Trim: Fabricate cabinet trim in one piece with corners mitered, welded, and ground smooth.

2.3 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's AMP 500, "Metal Finishes Manual for Architectural and Metal Products," for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire-protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire-protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and partitions for suitable framing depth and blocking where semirecessed cabinets will be installed.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Prepare recesses for semirecessed fire-protection cabinets as required by type and size of cabinet and trim style.

3.3 INSTALLATION OF FIRE-PROTECTION CABINETS

- A. General: Install fire-protection cabinets in locations and at mounting heights indicated.
 - 1. Fire-Protection Cabinet Mounting Height: 42 inches above finished floor to top of fire extinguisher.
- B. Fire-Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Fasten mounting brackets to inside surface of fire-protection cabinets, square and plumb.
- C. Identification:
 - 1. Apply decals at locations indicated.

3.4 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire-protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire-protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire-protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.
- D. Touch up marred finishes, or replace fire-protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire-protection cabinet and mounting bracket manufacturers.
- E. Replace fire-protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104413

SECTION 104416 - FIRE EXTINGUISHERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes portable, hand-carried fire extinguishers and mounting brackets for fire extinguishers.
- B. Related Requirements:
 - 1. Section 104413 "Fire Protection Cabinets."

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.5 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire-protection cabinets to ensure fit and function.

1.6 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace fire extinguishers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Failure of hydrostatic test according to NFPA 10 when testing interval required by NFPA 10 is within the warranty period.
 - b. Faulty operation of valves or release levers.
 - 2. Warranty Period: Six years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers."
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FM Global.

2.2 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each indicated.
 - 1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
 - a. Activar Construction Products Group, Inc. - JL Industries.
 - b. Babcock-Davis.
 - c. Larsens Manufacturing Company.
 - d. Nystrom.
 - e. Potter Roemer LLC; a Division of Morris Group International.
 - 2. Source Limitations: Obtain fire extinguishers, fire-protection cabinets, and accessories, from single source from single manufacturer.
 - 3. Valves: Manufacturer's standard.
 - 4. Handles and Levers: Manufacturer's standard.
 - 5. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.
- B. Multipurpose Dry-Chemical Type in Steel Container: UL-rated 4-A:80-B:C, 10-lb nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416

SECTION 105113 - METAL LOCKERS

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Welded athletic lockers.
 - 2. Locker benches.

1.2 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type of metal locker and bench.
- B. Shop Drawings: For metal lockers.
 - 1. Include plans, elevations, sections, and attachment details.
 - 2. Show locker trim and accessories.
 - 3. Include locker identification system and numbering sequence.
- C. Samples: For each color specified, in manufacturer's standard size.
- D. Samples for Initial Selection: Manufacturer's color charts showing the full range of colors available.
- E. Samples for Verification: For the following products, in manufacturer's standard size:
 - 1. Lockers and equipment.
 - 2. Locker benches.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample Warranty: For special warranty.

1.4 CLOSEOUT SUBMITTALS

- A. Maintenance Data: For adjusting, repairing, and replacing locker doors and latching mechanisms to include in maintenance manuals.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not deliver metal lockers until spaces to receive them are clean, dry, and ready for their installation.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify actual dimensions of recessed openings by field measurements before fabrication.

1.7 COORDINATION

- A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of work specified in other Sections to ensure that metal lockers can be supported and installed as indicated.

1.8 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace components of metal lockers that fail in materials or workmanship, excluding finish, within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Structural failures.
 - b. Faulty operation of latches and other door hardware.
 - 2. Damage from deliberate destruction and vandalism is excluded.
 - 3. Warranty Period for Knocked-Down Metal Lockers: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain metal lockers, locker benches, and accessories from single source from single locker manufacturer.
 - 1. Obtain locks from single lock manufacturer.

2.2 PERFORMANCE REQUIREMENTS

- A. Accessibility Standard: For lockers and locker benches indicated to be accessible, comply with applicable provisions in the USDOJ's "2010 ADA Standards for Accessible Design" and ICC A117.1.

2.3 WELDED ATHLETIC LOCKERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Art Metal Products.
 - 2. Hadrian Manufacturing Inc.
 - 3. Lyon Workspace Products, LLC.
 - 4. Penco Products, Inc.

5. Republic Storage Systems, LLC.
- B. Expanded-Metal Doors: Fabricated from 0.090-inch nominal-thickness expanded metal; welded to 0.105-inch nominal-thickness steel angle frame; with 0.090-inch nominal-thickness, steel sheet lock panel backed by 0.060-inch nominal-thickness, steel sheet retainer welded to door frame.
- C. Body: Assembled by welding body components together. Fabricate from unperforated steel sheet with thicknesses as follows:
1. Tops and Bottoms: 0.060-inch nominal thickness, with single bend at edges.
 2. Backs: 0.048-inch nominal thickness.
 3. Shelves: 0.060-inch nominal thickness, with double bend at front and single bend at sides and back.
- D. Unperforated Sides: Fabricated from 0.048-inch nominal-thickness steel sheet.
- E. Frames: Channel formed; fabricated from 0.060-inch nominal-thickness steel sheet or 0.097-inch nominal-thickness steel angles; lapped and factory welded at corners; with top and bottom main frames factory welded into vertical main frames. Form continuous, integral, full-height door strikes on vertical main frames.
- F. Reinforced Bottoms: Structural channels, formed from 0.060-inch nominal-thickness steel sheet; welded to front and rear of side-panel frames.
- G. Hinges: Welded to door and attached to door frame with no fewer than two factory-installed rivets per hinge that are completely concealed and tamper resistant when door is closed; fabricated to swing 180 degrees.
1. Knuckle Hinges: Steel, full loop, five or seven knuckles, tight pin; minimum 2 inches high. Provide no fewer than three hinges for each door more than 42 inches high.
 2. Hinges: Manufacturer's standard, steel, continuous or knuckle type.
- H. Recessed Door Handle and Latch: Stainless steel cup with integral door pull, recessed so locking device does not protrude beyond door face; pry and vandal resistant.
1. Multipoint Latching: Finger-lift latch control designed for use with built-in combination locks, built-in cylinder locks, or padlocks; positive automatic latching and prelocking.
 - a. Latch Hooks: Equip doors 48 inches and higher with three latch hooks and doors less than 48 inches high with two latch hooks; fabricated from 0.120-inch nominal-thickness steel sheet; welded to full-height door strikes; with resilient silencer on each latch hook.
 - b. Latching Mechanism: Manufacturer's standard, rattle-free latching mechanism and moving components isolated to prevent metal-to-metal contact, and incorporating a prelocking device that allows locker door to be locked while door is open and then closed without unlocking or damaging lock or latching mechanism.
- I. Locks: Combination padlocks.
- J. Identification Plates: Manufacturer's standard, etched, embossed, or stamped aluminum plates, with numbers and letters at least 3/8 inch high.
- K. Hooks: Manufacturer's standard ball-pointed, aluminum or steel; zinc plated.

- L. Coat Rods: Manufacturer's standard.
- M. Continuous Zee Base: 4 inches high; fabricated from 0.075-inch nominal-thickness steel sheet.
- N. Continuous Sloping Tops: Fabricated from 0.048-inch nominal-thickness steel sheet, with a pitch of approximately 20 degrees.
 - 1. Closures: Vertical-end type.
- O. Recess Trim: Fabricated from 0.048-inch nominal-thickness steel sheet.
- P. Filler Panels: Fabricated from 0.048-inch nominal-thickness steel sheet.
- Q. Boxed End Panels: Fabricated from 0.060-inch nominal-thickness steel sheet.
- R. Materials:
 - 1. Cold-Rolled Steel Sheet: ASTM A1008/A1008M, Commercial Steel (CS), Type B, suitable for exposed applications.
 - 2.
- S. Size: 18" x 18" x 72" as shown in drawings.
- T. Finish: Baked enamel or powder coat.
 - 1. Color: As selected by Architect from manufacturer's full range.

2.4 LOCKS

- A. Combination Padlock: Provided by Owner.

2.5 LOCKER BENCHES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Art Metal Products.
 - 2. Lyon Workspace Products, LLC.
 - 3. Penco Products, Inc.
 - 4. Republic Storage Systems, LLC.
- B. Provide bench units with overall assembly height of 17-1/2 inches.
- C. Bench Tops: Manufacturer's standard one-piece units, with rounded corners and edges.
 - 1. Size: Minimum 9-1/2 inches wide by 1-1/4 inches thick except provide 20 inch- wide tops where accessible benches are indicated.
 - 2. Laminated clear hardwood with one coat of clear sealer on all surfaces and one coat of clear lacquer on top and sides.
 - 3. Extruded aluminum with clear anodic finish.

- D. Fixed-Bench Pedestals: Manufacturer's standard supports, with predrilled fastener holes for attaching bench top and anchoring to floor, complete with fasteners and anchors, and as follows:

1. Tubular Steel:

- a. 1-1/2-inch- diameter steel tubing: threaded on both ends, with standard pipe flange at top and bell-shaped cast-iron base; with baked-enamel or powder-coat finish; anchored with exposed fasteners.

1) Color: As selected by Architect from manufacturer's full range.

- b. 1-1/4-inch- diameter steel tubing: with 0.1265-inch- thick steel flanges welded at top and base; with baked-enamel finish; anchored with exposed fasteners.

1) Color: As selected by Architect from manufacturer's full range.

E. Materials:

1. Steel Tube: ASTM A500/A500M, cold rolled.

2.6 FABRICATION

- A. Fabricate metal lockers square, rigid, without warp, and with metal faces flat and free of dents or distortion. Make exposed metal edges safe to touch and free of sharp edges and burrs.

1. Form body panels, doors, shelves, and accessories from one-piece steel sheet unless otherwise indicated.
2. Provide fasteners, filler plates, supports, clips, and closures as required for complete installation.

- B. Fabricate each metal locker with an individual door and frame; individual top, bottom, and back; and common intermediate uprights separating compartments.

- C. Equipment: Provide each locker with an identification plate and the following equipment:

1. Single-Tier Units: Shelf, one double-prong ceiling hook, and two single-prong wall hooks.
2. Coat Rods: For each compartment of each locker.

- D. Welded Construction: Factory preassemble metal lockers by welding all joints, seams, and connections; with no bolts, nuts, screws, or rivets used in assembly of main locker groups. Factory weld main locker groups into one-piece structures. Grind exposed welds smooth and flush.

- E. Accessible Lockers: Fabricate as follows:

1. Locate bottom shelf no lower than 15 inches above the floor.
2. Where hooks, coat rods, or additional shelves are provided, locate no higher than 48 inches above the floor.

- F. Continuous Zee Base: Fabricated in lengths as long as practical to enclose base and base ends; finished to match lockers.

- G. Continuous Sloping Tops: Fabricated in lengths as long as practical, without visible fasteners at splice locations; finished to match lockers.
 - 1. Sloping-top corner fillers, mitered.
- H. Filler Panels: Fabricated in an unequal leg angle shape; finished to match lockers. Provide slip-joint filler angle formed to receive filler panel.
- I. Boxed End Panels: Fabricated with 1-inch- wide edge dimension, and designed for concealing fasteners and holes at exposed ends of nonrecessed metal lockers; finished to match lockers.

2.7 ACCESSORIES

- A. Fasteners: Zinc- or nickel-plated steel, slotless-type, exposed bolt heads; with self-locking nuts or lock washers for nuts on moving parts.
- B. Anchors: Material, type, and size required for secure anchorage to each substrate.
 - 1. Provide nonferrous-metal or hot-dip galvanized anchors and inserts on inside face of exterior walls for corrosion resistance.
 - 2. Provide toothed-steel or lead expansion sleeves for drilled-in-place anchors.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine walls and floors or support bases, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
- B. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install lockers level, plumb, and true; shim as required, using concealed shims.
 - 1. Anchor locker runs at ends and at intervals recommended by manufacturer, but not more than 36 inches o.c. Using concealed fasteners, install anchors through backup reinforcing plates, channels, or blocking as required to prevent metal distortion.
 - 2. Anchor single rows of metal lockers to walls near top and bottom of lockers.
 - 3. Anchor back-to-back metal lockers to floor.
- B. Welded Lockers: Connect groups together with manufacturer's standard fasteners, with no exposed fasteners on face frames.
- C. Equipment:
 - 1. Attach hooks with at least two fasteners.
 - 2. Attach door locks on doors using security-type fasteners.

3. Identification Plates: Identify metal lockers with identification indicated on Drawings.
 - a. Attach plates to each locker door, near top, centered, with at least two aluminum rivets.
 - b. Attach plates to upper shelf of each open-front metal locker, centered, with a least two aluminum rivets.
- D. Trim: Fit exposed connections of trim, fillers, and closures accurately together to form tight, hairline joints, with concealed fasteners and splice plates.
 1. Attach recess trim to recessed metal lockers with concealed clips.
 2. Attach filler panels with concealed fasteners. Locate filler panels where indicated on Drawings.
 3. Attach sloping-top units to metal lockers, with closures at exposed ends.
 4. Attach boxed end panels using concealed fasteners to conceal exposed ends of nonrecessed metal lockers.
- E. Fixed Benches: Provide no fewer than two pedestals for each bench, uniformly spaced not more than 72 inches apart. Securely fasten tops of pedestals to undersides of bench tops, and anchor bases to floor.

3.3 ADJUSTING

- A. Clean, lubricate, and adjust hardware. Adjust doors and latches to operate easily without binding. Verify that integral locking devices operate properly.

3.4 PROTECTION

- A. Protect metal lockers from damage, abuse, dust, dirt, stain, or paint. Do not permit use during construction.
- B. Touch up marred finishes, or replace metal lockers that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by locker manufacturer.

END OF SECTION 105113

SECTION 113013 - RESIDENTIAL APPLIANCES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Cooking appliances.
 - 2. Refrigeration appliances.

1.2 ACTION SUBMITTALS

- A. Product Data:
 - 1. Cooking appliances.
 - 2. Refrigeration appliances.
- B. Product Data Submittals: For each product.
 - 1. Include installation details, material descriptions, dimensions of individual components, and finishes for each appliance.
 - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished accessories.

1.3 INFORMATIONAL SUBMITTALS

- A. Sample Warranties: For manufacturers' special warranties.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each residential appliance to include in operation and maintenance manuals.

1.5 WARRANTY

- A. Special Warranties: Manufacturer agrees to repair or replace residential appliances or components that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Two years from date of Substantial Completion.
- B. Electric Cooktop and Range: Full warranty, including parts and labor, for on-site service on surface-burner elements.
 - 1. Warranty Period: one year from date of Substantial Completion.
- C. Microwave Oven: Full warranty, including parts and labor, for on-site service on the magnetron tube.

1. Warranty Period: Five years from date of Substantial Completion.
- D. Refrigerator/Freezer, Freezer, and Ice maker, Sealed System: Full warranty, including parts and labor, for on-site service on the product.
 1. Warranty Period for : One year from date of Substantial Completion.
- E. Dishwasher: Full warranty, including parts and labor, for on-site service on the product.
 1. Warranty Period : One year from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 COOKING APPLIANCES

- A. Electric Range: Freestanding range with one oven(s) and complying with AHAM ER-1.
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haier Group (GE Appliances); GE Profile, Model PB900YVFS or a comparable product by one of the following:
 - a. LG Electronics
 - b. Panasonic.
 2. Width: 30 inches.
 3. Electric Burner Elements: 4.
 - a. Radiant Type: Two 1500 W and two 3000 W.
 4. Oven Features:
 - a. Capacity: 3.3 cu. ft..
 - b. Operation: convection.
 - c. Broiler: Located in oven.
 - d. Oven Door(s): Counterbalanced, removable, with observation window handle.
 - e. Electric Power Rating:
 - 1) Oven(s): Manufacturer's standard.
 - 2) Broiler: Manufacturer's standard.
 - f. Controls: Digital panel controls and timer display, located on splash panel at rear of rangetop.
 5. Anti-Tip Device: Manufacturer's standard.
 6. Electric Power Supply: As indicated on Drawings.
 7. Material: Stainless steel with ceramic-glass cooktop.
- B. Microwave Oven:
 1. Basis-of-Design Product: Subject to compliance with requirements, provide Haier Group (GE Appliances); GE Profile, Model PES7227SLSS or a comparable product by one of the following:

- a. LG Electronics
 - b. Panasonic.
2. Mounting: Countertop.
3. Type: Conventional.
4. Dimensions:
 - a. Width: 24 inches.
 - b. Depth: 19-1/2 inches.
 - c. Height: 14 inches.
5. Capacity: 2.0 cu. ft..
6. Oven Door: Door with observation window and pushbutton latch release.
7. Microwave Power Rating: Manufacturer's standard.
8. Controls: Digital panel controls and timer display.
9. Material: Stainless steel.

2.2 REFRIGERATION APPLIANCES

- A. Refrigerator/Freezer: Two-door refrigerator/freezer with freezer on bottom and complying with AHAM HRF-1.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Haier Group (GE Appliances); GE GFE26JYMFS or a comparable product by one of the following:
 - a. Amana; a division of Whirlpool Corporation.
 - b. LG Electronics.
2. Type: Freestanding.
3. Dimensions:
 - a. Width: 36 inches.
 - b. Depth: 33-1/4 inches.
 - c. Height: 70 inches.
4. Storage Capacity:
 - a. Refrigeration Compartment Volume: 17.0 cu. ft.
 - b. Freezer Volume: 9.0 cu. ft.
 - c. Shelf Area: Four adjustable glass shelves.
5. General Features:
 - a. Door Configuration: Overlay.
 - b. Dispenser in door for ice and cold water.
 - c. Built-in water-filtration system.
6. Refrigerator Features:
 - a. Interior light in refrigeration compartment.
 - b. Compartment Storage: vegetable crisper and meat compartment.
 - c. Door Storage: Modular compartments.
 - d. Temperature-controlled meat/deli bin.

7. Freezer Features: One freezer compartment(s) configured as pull-out drawer(s).
 - a. Automatic defrost.
 - b. Interior light in freezer compartment.
 - c. Automatic icemaker and storage bin.
8. Energy Star: Provide appliances that qualify for the EPA/DOE Energy Star product-labeling program.
9. Front Panel(s): Stainless steel.
10. Appliance Color/Finish: Stainless steel.

2.3 GENERAL FINISH REQUIREMENTS

- A. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.
- B. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, power connections, and other conditions affecting installation and performance of residential appliances.
- B. Examine roughing-in for piping systems to verify actual locations of piping connections before appliance installation.
- C. Examine walls, ceilings, and roofs for suitable conditions where overhead exhaust hoods will be installed.
- D. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the Work.
- E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install appliances according to manufacturer's written instructions.
- B. Built-in Equipment: Securely anchor units to supporting cabinets or countertops with concealed fasteners. Verify that clearances are adequate for proper functioning and that rough openings are completely concealed.
- C. Freestanding Equipment: Place units in final locations after finishes have been completed in each area. Verify that clearances are adequate to properly operate equipment.
- D. Range Anti-Tip Device: Install at each range according to manufacturer's written instructions.

END OF SECTION 113013

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SECTION 122413 - ROLLER WINDOW SHADES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Manually operated, single-roller shades.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood blocking and grounds for mounting roller shades and accessories.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, features, finishes, and operating instructions for roller shades.

B. Samples for Verification: For each type of roller shade.

1. Roller Shade: Full-size operating unit, not less than 16 inches wide by 36 inches long for each type of roller shade indicated.

C. Product Schedule: For roller shades.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Certificates: For each type of shadeband material.

- C. Product Compliance: For each type of manual roller shade system, provide documentation to indicate that product complies with ANSI/WCMA A100.1-2022 safety standard tension lock (tensioned hold-down device, permanently manufactured attachment to the bead chain and partially disables product when not installed correctly).

1.4 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For roller shades to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Fabricator of products.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver roller shades in factory packages, marked with manufacturer, product name, and location of installation using same designations indicated on Drawings.

1.7 FIELD CONDITIONS

- A. Environmental Limitations: Do not install roller shades until construction and finish work in spaces, including painting, is complete and dry and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Where roller shades are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Allow clearances for operating hardware of operable glazed units through entire operating range. Notify Architect of installation conditions that vary from Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- A. Obtain roller shades from single source from single manufacturer.

2.2 MANUALLY OPERATED, SINGLE-ROLLER SHADES

Basis of Design Product: Subject to compliance with requirements, provide Hunter Douglas Architectural RB 500+ manual roller shades or comparable product by one of the following:

- 1. SWF Contract
- 2. Mechoshade Systems Inc.
- 3. Draper Inc.
- B. Chain-and-Clutch Operating Mechanisms: With continuous-loop bead chain and clutch that stops shade movement when bead chain is released; permanently adjusted and lubricated.
 - 1. Bead Chains: Manufacturer's standard.
 - a. Loop Length: Full length of roller shade.
 - b. Limit Stops: Provide upper and lower ball stops.
 - c. Chain-Retainer Type: Chain tensioner, jamb mounted complying with ANSI/WCMA A100.1-2022 safety standard.
 - 2. Spring Lift-Assist Mechanisms: Manufacturer's standard for balancing roller shade weight and for lifting heavy roller shades.
 - a. Provide for shadebands that weigh more than 10 lb or for shades as recommended by manufacturer, whichever criterion is more stringent.
- C. Rollers: Corrosion-resistant steel or extruded-aluminum tubes of diameters and wall thicknesses required to accommodate operating mechanisms and weights and widths of shadebands

indicated without deflection. Provide with permanently lubricated drive-end assemblies and idle-end assemblies designed to facilitate removal of shadebands for service.

1. Roller Drive-End Location: As indicated on Drawings.
 2. Direction of Shadeband Roll: Regular, from back (exterior face) of roller.
 3. Shadeband-to-Roller Attachment: Manufacturer's standard method.
- D. Mounting Hardware: Brackets or endcaps, corrosion resistant and compatible with roller assembly, operating mechanism, installation accessories, and mounting location and conditions indicated.
- E. Roller-Coupling Assemblies: Coordinated with operating mechanism and designed to join up to three inline rollers into a multiband shade that is operated by one roller drive-end assembly.
- F. Shadebands:
1. Shadeband Material: Light-filtering fabric.
 2. Shadeband Bottom (Hem) Bar: Steel or extruded aluminum.
 - a. Type: Enclosed in sealed pocket of shadeband material.
 - b. Color and Finish: Pfifer Sheerweave Infinity2 Stone PG4.
 - c. Openness: 1%
- G. Installation Accessories:
1. Front Fascia: Aluminum extrusion that conceals front and underside of roller and operating mechanism and attaches to roller endcaps without exposed fasteners.
 - a. Shape: L-shaped.
 - b. Height: Manufacturer's standard height required to conceal roller and shadeband assembly when shade is fully open, but not less than 3 inches.
 2. Endcap Covers: To cover exposed endcaps.
 3. Installation Accessories Color and Finish: Clear anodized aluminum.

2.3 ROLLER SHADE FABRICATION

- A. Product Safety Standard: Fabricate roller shades to comply with WCMA A 100.1, including requirements for flexible, chain-loop devices; lead content of components; and warning labels.
- B. Unit Sizes: Fabricate units in sizes to fill window and other openings as follows, measured at 74 deg F:
1. Between (Inside) Jamb Installation: Width equal to jamb-to-jamb dimension of opening in which shade is installed less 1/4 inch per side or 1/2-inch total, plus or minus 1/8 inch. Length equal to head-to-sill or -floor dimension of opening in which shade is installed less 1/4 inch, plus or minus 1/8 inch.
- C. Shadeband Fabrication: Fabricate shadebands without battens or seams to extent possible, except as follows:
1. Vertical Shades: Where width-to-length ratio of shadeband is equal to or greater than [1:4] <Insert ratio>, provide battens and seams at uniform spacings along shadeband

- length to ensure shadeband tracking and alignment through its full range of movement without distortion of the material.
2. Railroaded Materials: Railroad material where material roll width is less than the required width of shadeband and where indicated. Provide battens and seams as required by railroaded material to produce shadebands with full roll-width panel(s) plus, if required, one partial roll-width panel located at top of shadeband.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 ROLLER SHADE INSTALLATION

- A. Install roller shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions.
 1. Opaque Shadebands: Located so shadeband is not closer than 2 inches to interior face of glass. Allow clearances for window operation hardware.
- B. Roller Shade Locations: At exterior windows As indicated on Drawings.

3.3 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING AND PROTECTION

- A. Clean roller shade surfaces, after installation, according to manufacturer's written instructions.
- B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that roller shades are without damage or deterioration at time of Substantial Completion.
- C. Replace damaged roller shades that cannot be repaired, in a manner approved by Architect, before time of Substantial Completion.

END OF SECTION 122413

SECTION 123623.13 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Plastic-laminate-clad countertops.
2. Accessories.

B. Related Requirements:

1. Section 224100 "Residential Plumbing Fixtures" for non-integral sinks and plumbing fittings.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings:

1. Plans, sections, details, edge and backsplash profiles, and attachments to other work.
2. Locations and details of joints.
3. Locations and sizes of cutouts and holes for items installed in countertop.
4. Apply AWI's Quality Certification Program label to Shop Drawings.

C. Samples for Verification:

1. Plastic Laminates: For each type, color, pattern, and surface finish required, 8 by 10 inches in size.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Indicate locations and sizes of cutouts and holes for items installed in countertop and backsplashes.

B. Product Certificates: For the following:

1. Composite wood products.
2. High-pressure decorative laminate.

C. Quality Standard Compliance Certificates: AWI's Quality Certification Program.

1.4 QUALITY ASSURANCE

- A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1. Shop Certification: AWI's Quality Certification Program accredited participant.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver countertops only after casework and supports on which they will be installed have been completed in installation areas.
- B. Store countertops in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.
- C. Keep surfaces of countertops covered with protective covering during handling and installation.

1.6 FIELD CONDITIONS

- A. Environmental Limitations without Humidity Control: Do not deliver or install countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.
- B. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-CLAD COUNTERTOPS (PL1)

- A. Plastic-Laminate-Clad Countertop Type **PL1**:
- B. Quality Standard: Unless otherwise indicated, comply with for grades of plastic-laminate-clad countertops indicated for construction, finishes, installation, and other requirements.
1. Provide inspections of fabrication and installation together with labels and certificates from AWI certification program indicating that countertops comply with requirements of grade specified.
- C. Grade: Custom.
- D. High-Pressure Decorative Laminate: ISO 4586-3, Grade HGF.
- E. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. **(PL1) Wilsonart Black Alicante 4926K-07, textured gloss finish.**

- F. Edge Treatment: PVC edging, Charter Industries 1-5/16 inches wide 3mm edge band, color W4926.
- G. Core Material: As selected by fabricator to comply with quality standard.
- H. Core Material at Sinks: veneer-core plywood made with Type II adhesive.
- I. Core Thickness: 3/4 inch.
 - 1. Build up countertop thickness to 1-1/4 inches at front, back, and ends with additional layers of core material laminated to top.
- J. Paper Backing: Provide paper backing on underside of countertop substrate.

2.2 ACCESSORIES

- A. Grommets at **(PL1)** Countertops:
 - 1. Wire-Management Grommets: Circular, grommets and matching caps with slot for wire passage.
 - a. Finish: Molded plastic.
 - b. Outside Diameter: 2 inches.
 - c. Color: Black.

2.3 WOOD MATERIALS

- A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.
- B. Composite Panel Products: Provide materials that comply with requirements of referenced quality standard for each type of countertop and quality grade specified unless otherwise indicated.
 - 1. Medium-Density Fiberboard (MDF): ANSI A208.2 , MR 50.
 - a. Grade 130 or better; complying with performance requirements specified.
 - 2. Particleboard: ANSI A208.1 , MR 50.
 - a. Grade M-2 or better; complying with performance requirements specified.
 - 3. Veneer-Core Hardwood Plywood: ANSI/HPVA HP-1.

2.4 MISCELLANEOUS MATERIALS

- A. Adhesive for Bonding Plastic Laminate: Type I, waterproof type as selected by fabricator to comply with requirements.
 - 1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

- B. Installation Adhesive: Manufacturer's standard product that is recommended for application indicated.

2.5 FABRICATION

- A. Sand fire-retardant-treated wood lightly to remove raised grain on exposed surfaces before fabrication.
- B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.
- C. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately, and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.
- B. Examine shop-fabricated work for completion and complete work as required, including removal of packing.

3.3 INSTALLATION

- A. Grade: Install countertops to comply with same grade as item to be installed.
- B. Assemble countertops and complete fabrication at Project site to extent that it was not completed in the shop.
 - 1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately, and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
- C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined

in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where indicated on Shop Drawings.

1. Secure field joints in countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten in accordance with manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

D. Countertop Installation:

1. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
2. Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.
3. Anchor wall cleating necessary for proper setting for countertops not supported by casework.
4. Install countertops level and true in line. Use concealed shims as required to maintain not more than 1/8-inch-in-96-inch variation from a straight, level plane.
5. Secure backsplashes to tops with concealed metal brackets at 16 inches o.c. and to walls with adhesive.
6. Seal joints between countertop and backsplash, if any, and joints where countertop and backsplash abut walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.4 ADJUSTING AND CLEANING

- A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects. Where impossible to repair, replace countertops. Adjust joinery for uniform appearance.
- B. Clean countertops on exposed and semiexposed surfaces.
- C. Protection: Provide kraft paper or other suitable covering over countertop surfaces, taped to underside of countertop at a minimum of 48 inches o.c. Remove protection at Substantial Completion.

END OF SECTION 123623.13

SECTION 123661- SOLID SURFACING COUNTERTOPS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid surface material countertops.
2. Solid surface material backsplashes.
3. Solid surface material end splashes.
4. Solid surface material apron fronts.
5. Solid surface material sinks.

B. Related Requirements:

1. Section 224100 "Residential Plumbing Fixtures" for plumbing fittings.

1.2 ACTION SUBMITTALS

A. Product Data: For countertop materials and sinks.

B. Shop Drawings: For countertops. Show materials, finishes, edge and backsplash profiles, methods of joining, and cutouts for plumbing fixtures.

1. Show locations and details of joints.
2. Show direction of directional pattern, if any.

C. Samples for Verification: For the following products:

1. Countertop material, 6 inches square.

1.3 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance Data: For solid surface material countertops to include in maintenance manuals. Include Product Data for care products used or recommended by Installer and names, addresses, and telephone numbers of local sources for products.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom-fabricate countertops similar to that required for this Project, and whose products have a record of successful in-service performance.

- B. Installer Qualifications: Fabricator of countertops.

1.6 FIELD CONDITIONS

- A. Field Measurements: Verify dimensions of countertops by field measurements before countertop fabrication is complete.

1.7 COORDINATION

- A. Coordinate locations of utilities that will penetrate countertops or backsplashes.

PART 2 - PRODUCTS

2.1 SOLID SURFACE COUNTERTOP MATERIALS

- A. Solid Surface Material: Homogeneous-filled plastic resin complying with ISFA 2-01.
 - 1. Basis-of-Design product: Subject to project requirements, provide Wilsonart Solid Surface.
 - 2. Type: Provide Standard type unless Special Purpose type is indicated.
 - 3. Integral Sink Bowls: Wilsonart Oval Vanity Bowl AV1613, sink color: Designer White
 - a. Comply with CSA B45.5/IAPMO Z124.
 - 4. Colors and Patterns: Wilsonart Kimberlite 9215CE.
- B. Particleboard: ANSI A208.1, Grade M-2-Exterior Glue.

2.2 FABRICATION

- A. Fabricate countertops according to solid surface material manufacturer's written instructions and to the AWI/AWMAC/WI's "Architectural Woodwork Standards."
 - 1. Grade: Custom.
- B. Countertops:
 - 1. 1/2-inch- thick, solid surface material with front edge built up with same material.
- C. Backsplashes and Endsplashes: 1/2-inch- thick, solid surface material.
- D. Fabricate tops with shop-applied edges unless otherwise indicated. Comply with solid surface material manufacturer's written instructions for adhesives, sealers, fabrication, and finishing.
 - 1. Fabricate with loose backsplashes for field assembly.
 - 2. Install integral sink bowls in countertops in the shop.
- E. Joints:
 - 1. Fabricate countertops without joints.

F. Cutouts and Holes:

1. Undercounter Plumbing Fixtures: Make cutouts for fixtures using template or pattern furnished by fixture manufacturer. Form cutouts to smooth, even curves.
 - a. Provide vertical edges, slightly eased at juncture of cutout edges with top and bottom surfaces of countertop and projecting 3/16 inch into fixture opening.
2. Fittings: Drill countertops in shop for plumbing fittings, undercounter soap dispensers, and similar items.

2.3 INSTALLATION MATERIALS

- A. Adhesive: Product recommended by solid surface material manufacturer.
- B. Sealant for Countertops: Comply with applicable requirements in Section 079200 "Joint Sealants."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates to receive solid surface material countertops and conditions under which countertops will be installed, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of countertops.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install countertops level to a tolerance of 1/8 inch in 8 feet, 1/4 inch maximum. Do not exceed 1/64-inch difference between planes of adjacent units.
- B. Bond joints with adhesive and draw tight as countertops are set. Mask areas of countertops adjacent to joints to prevent adhesive smears.
 1. Clamp units to temporary bracing, supports, or each other to ensure that countertops are properly aligned and joints are of specified width.
- C. Install backsplashes and end splashes by adhering to wall and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears.
- D. Install aprons to backing and countertops with adhesive. Mask areas of countertops and splashes adjacent to joints to prevent adhesive smears. Fasten by screwing through backing. Predrill holes for screws as recommended by manufacturer.
- E. Complete cutouts not finished in shop. Mask areas of countertops adjacent to cutouts to prevent damage while cutting. Make cutouts to accurately fit items to be installed, and at right angles to finished surfaces unless beveling is required for clearance. Ease edges slightly to prevent snipping.

1. Seal edges of cutouts in particleboard subtops by saturating with varnish.

F. Apply sealant to gaps at walls; comply with Section 079200 "Joint Sealants."

END OF SECTION 123661.16

DRAFT

DIVISION 22 – PLUMBING

SECTION 220000 – PLUMBING GENERAL REQUIREMENTS

PART 1 - GENERAL

1.1. SCOPE:

A. General:

1. The Bidding Requirements, Contract Requirements, and the General Requirements (Division 01) of these specifications shall govern all parts of the work.

B. Work Included:

1. Install work in accordance with these specifications and the accompanying plans. Furnish all labor, material, and equipment together with all incidental items not specifically shown or specified which are required by good practice to provide the complete plumbing systems as described.

C. Coordination and Site Visits:

1. This section of the work requires examination of and reference to all architectural, structural, utility, and electrical drawings for construction conditions that may affect the work. Inspect the building site and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, which prevents following good practices or the intent of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.

1.2. CODES, PERMITS, FEES:

- A. Install all work in accordance with applicable codes and standards. Obtain all required permits; pay all required fees including utility connections or extensions, in connection with this portion of the construction. Obtain all required certificates of inspection for the work.

PART 2 - PRODUCTS

2.1. MATERIALS AND WORKMANSHIP:

A. Materials:

1. All materials and equipment shall be of first quality, new, full size and weight, standard in every respect, and suitable for the space required. Use the same manufacturer for products of similar class or service, such as valves and pumps. Protect all materials against loss, theft, or damage before and after installation.
2. Furnish and install all necessary foundations, supports, pads, bases, and piers required for all materials and equipment furnished under this contract.
3. Provide all required firestopping at piping penetrations of fire rated walls, floors, ceilings, and roofs. Firestopping shall be 3M Fire Barrier Sealant CP 25WB+ or 3M Fire Barrier Rated Foam FIP 1-Step, or approved equal.

4. Provide a heat-expanding fire collar for all non-metallic piping up to 6" size at penetrations of fire rated walls, floors, and ceilings per ASTM E 814.

B. Workmanship:

1. All materials and equipment shall be installed in a neat and workmanlike manner by competent specialists for each subtrade. Work shall be installed to the satisfaction of the Architect/Engineer with unsatisfactory work removed and reinstalled to his satisfaction at no extra cost to the Owner.
2. Provide all cutting and patching necessary to install the work specified in this section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the Architect/Engineer. Provide all sleeves and inserts required before the floors and walls are built.
3. Locate all equipment that must be serviced in fully accessible positions. Provide clearance for removal of replacement parts and components, and with necessary couplings or flanges to remove the component for maintenance.

2.2. SUBMITTALS AND SUBSTITUTIONS:

A. Prebid Approval:

1. Manufacturer's trade names and catalog numbers stated herein are intended to indicate the quality of equipment or materials desired. All manufacturers not specifically listed require prior approval. Submit catalog data, including specifications, of the proposed equipment to the Architect/Engineer for his approval at least 10 calendar days prior to bid opening. Notice of such approvals will be published in an addendum. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.

B. Submittals:

1. Within thirty days after award of this contract, provide an electronic copy of a complete list of all materials and equipment proposed for this project. List shall contain make, type, manufacturer's name, and trade designation of all materials and equipment. Submittal shall also include manufacturer's complete specification for each item, including ratings, and dimensions as required to check space requirements. The scheduled equipment is the basis of design for physical size, etc. Alternate manufacturers shall not exceed the weight or physical size. Any changes to the Architectural, Structural and Mechanical systems due to alternate manufactures shall be the responsibility of the Contractor and Supplier. Submittals for fixtures, trim, and other plumbing related items, requiring submittals, shall be submitted in a single complete package. Individual items will not be reviewed independently unless approved by the Engineer.
2. Approval of submittals shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect's /Engineer's attention to deviations at the time of submission, and obtained his written approval. Approval of submittals does not relieve the contractor from responsibility for errors in shop drawings or literature.

C. Equipment Requiring Submittals:

1. Plumbing Fixtures & Trim
2. Valves
3. Cast Iron Soil Piping
4. Pipe Stands

PART 3 - EXECUTION

3.1. ACCESSIBILITY & SAFETY:

A. Accessibility:

1. All equipment which must be serviced or operated shall be located in fully accessible position. Minor changes from the drawings may be made to allow for better accessibility. All changes shall be approved prior to actual installation.
2. Access panels shall be provided if required for accessibility. Access panels to be steel, flanged, hinged doors by Cendrex, model AHD, or equal. Size as required for installation. Subcontractor shall furnish the required panels to the General Contractor and the required location for all access panels, unless otherwise specified in the Architectural specifications. Panels shall be installed by the General Contractor.

B. Safety:

1. No water piping shall run immediately over or within a 3-foot plan view clearance of any electrical panel or motor starter. Where piping must be located within these zones, install piping inside a conduit to prevent water access to electrical equipment.

3.2. COORDINATION:

- A. Coordinate all work with the various trades involved to provide a complete and satisfactory installation. The exact details of piping and equipment are not shown. No additional compensation will be made for offsets or relocation required in coordination with other trades.
- B. Alterations required due to improper supervision by the subcontractor shall be made at no extra cost, to the satisfaction of the Architect/Engineer.

3.3. EXCAVATION & BACKFILL:

- A. Excavate trenches required for underground piping to proper elevation and grade. Provide trenches with solid bottoms to allow support of piping along entire length with excavation at bells as required for jointing and inspection. Provide repairing of finished surfaces, and all required shoring, bracing, pumping, and protection for safety of persons and property. Observe all Local or State Safety Codes. Verify that elevations of existing utilities will allow for proper grading of piping connecting to existing utilities.
- B. Excavation and Backfill shall be in accordance with the requirements of Division 31, of these specifications.

3.4. IDENTIFICATION AND CODING:

A. General:

1. The Contractor shall use ASME 13 standards for all piping identifications, color coding, and compliance.

B. Painting:

1. All painting of equipment, accessories, and piping shall be furnished and applied under the Architectural section of these specifications. All painting shall be completed before any identification markings are applied.

C. Piping:

1. Piping shall be labeled with the fluid conveyed and the direction of flow:

- a. On both sides of wall or floor penetrations.
- b. Once on every straight run of pipe.
- c. No more than 20-foot intervals.
- d. No more than 10-foot intervals in congested areas.
- e. Within 3 feet of each piece of equipment, valve, or control device.

A. Label Color and Size Requirements:

All Piping shall be All pipes, and equipment shall be labeled according to ANSI standard A13.1. See table below for examples.

Label Color Schedule Per ANSI A13.1	
Water (Heating, chilled, potable, boiler feed, etc.)	Green Background with White Letters
Compressed Air	Blue Background with White Letters
Natural Gas / Refrigerant / Steam	Yellow Background with Black Letters
Fire Suppression	Red Background with White Letters
Equipment Labels*	Black Background with White Letters

*Label all equipment that is on generator power with a Red Background and White Letters

Text Height Requirements			
Equipment Labels	Main Designation Supplemental Info Large Equipment w/viewing distances beyond 10 feet		3/4" high text minimum 1/2" high text minimum 3" high text main label
Piping	O.D. of 3/4" to 1-1/4" O.D. of 1-1/2" to 2-3/8" O.D. of 2-1/2" to 7-1/8" O.D. of 8" to 10" O.D. over 10"	Letter Size: 1/2" high Letter Size: 3/4" high Letter Size: 1-1/4" high Letter Size: 2-1/2" high Letter Size: 3-1/2" high	Marker Size: 8" wide Marker Size: 8" wide Marker Size: 12" wide Marker Size: 24" wide Marker Size: 32" wide
Ceiling Labels	Letter height: 1/2" Minimum		

D. Valves:

1. Regardless of size, all valves shall be tagged with a numbered brass tag, 1-1/2 inches by 3 inches minimum in size and 0.051 inch thick. A valve chart indicating valve tag number, location, service, and normal position shall be mounted in a suitable framed and glassed cover in the main mechanical room or as directed. Valve chart shall be duplicated in the Maintenance and Operations Manual.

E. Backflow Prevention Devices:

1. Regardless of size, all backflow prevention devices shall be tagged with a numbered brass tag, 1-1/2 inches by 3 inches minimum in size and 0.051 inch thick. A backflow prevention device chart indicating backflow prevention device tag number, location, and service shall be mounted in a suitable framed and glassed cover in the main mechanical room or as directed. A backflow prevention device chart shall be duplicated in the Maintenance and

Operations Manual.

3.5. TESTING:

A. Piping:

1. All plumbing piping (drainage, water, gas) shall be tested in accordance with the requirements of local adopted plumbing code, latest edition. Other piping systems shall be tested hydrostatically to 1.5 times the operating pressure but not less than 100 psi, for a minimum period of two hours. If the test pressure falls more than 5 percent during the test period, the leak shall be located, repaired, and the test repeated.
2. Piping shall be tested before insulation has been installed. Delicate control mechanisms shall be removed during tests to prevent shock damage. The use of chemicals or compounds to stop leaks shall not be permitted.
3. A test report shall be submitted for each piping system test. Test report forms are part of Specifications Section 220100, or are available from the Engineer.

B. Systems:

1. All plumbing systems shall be tested at the completion of the building to establish that the systems operate as specified and required.

3.6. CLEANING AND ADJUSTING:

- A. Thoroughly clean all parts of the system at the completion of the work. Flush all water circulating systems with fresh water and then drain. Clean all strainers and refill system. Adjust all devices for proper operation and lubricate all equipment as required. Repaint any painted surface that has been damaged.

- B. All potable water systems shall be flushed and disinfected after tests are completed. Disinfection shall be in accordance with local municipal and State Plumbing Inspector's criteria. In lieu of such criteria, the following procedure shall be followed for disinfection:

1. Completely flush system. Add alkali or acid (hydrochloric) to bring water ph level to between 7.4 and 7.6.
2. Inject chlorine (liquid, powder, tablet, or gas) throughout the system to obtain 50 to 80 mg/L residual.
3. Bleed water from outlets to ensure distribution, and test for residual at a minimum of 15 percent of the outlets.
4. Maintain disinfection in system for 24 hours.
5. If final disinfectant residual tests less than 25 mg/L, repeat treatment.
6. Flush disinfectant from system until residual is equal to that of incoming water, or 1.0 mg/L.
7. Take samples no sooner than 24 hours after flushing, from 10 percent of the outlets and the incoming water.

3.7. PROJECT CLOSEOUT:

A. Operations & Maintenance Manual:

The Contractor shall provide an operations and maintenance manual at least thirty days prior to completion of work. The manual shall be of the three ring binder type, entitled "Operations and Maintenance Manual", with the job name and year

of completion also included. O & M manuals shall be submitted in a single package. Individual items will not be accepted independently unless approved by the Engineer. The manual shall include, as a minimum:

1. Maintenance instructions for all equipment, including lubrication requirements.
2. Fixture suppliers names, addresses, and telephone numbers.
3. Fixture catalog cuts, ratings tables, model numbers, serial numbers, and accessories.
4. Parts numbers for all replaceable parts.
5. Valve tagging chart as hereinbefore specified.
6. Guarantee letter as specified below.
7. Any additional information required to enable the Owner to properly maintain the building plumbing system.
8. After approval of the Operations and Maintenance Manual by the Architect/Engineer, the Contractor shall furnish two copies of the manual to the Owner.

B. As-Built-Drawings:

1. Provide two sets of red-line mechanical drawings showing the work as it was actually installed. The drawings shall indicate all departures from the contract drawings and shall locate all underground utility lines with dimensions from established building lines. Make all notations neat and legible, with red indelible pencil. At the completion of the work, these as-built drawings shall be signed and dated by the Plumbing Contractor and returned to the Architect/Engineer.

C. Guarantee:

1. All work furnished under this section shall be guaranteed in writing to be free from defective work or materials for a period of one year after acceptance of the contract. All repairs or replacements because of defective materials or workmanship or noncompliance with code shall be provided without additional cost to the Owner. Contractor shall furnish a letter indicating above guarantee with space for date of acceptance and expiration of guarantee. Letter shall be included in O & M Manual.

END OF SECTION 220000

SECTION 220100 - PLUMBING

PART 1 - GENERAL

1.1. SCOPE:

- A. This section covers the work necessary for the plumbing system, complete. The Plumbing General Requirements, Section 220000, are to be included as a part of this section of the specifications.

1.2. CODES:

- A. The plumbing system shall be installed in accordance with the requirements of local adopted plumbing code, latest edition, International Fuel Gas Code, latest edition; and all local and State Codes.

1.3. FIXTURES & EQUIPMENT:

A. General:

1. Plumbing fixtures and equipment shall be as listed on the drawings. In addition to those specifically listed, the following manufacturers are approved for bidding only. All other manufacturers require prior approval. Final approval for installation is based on submittal data furnished:
 - a. Tank Type Water Closets: American Standard, Kohler, Mansfield, Sloan, Toto, & Zurn.
 - b. Flush Valve Water Closets: American Standard, Briggs, Kohler, Mansfield, Sloan & Zurn.
 - c. Urinals: American Standard, Briggs, Gerber, Kohler, Mansfield, Sloan, Toto & Zurn.
 - d. Vitreous China Sinks: American Standard, Crane, Kohler, Mansfield, Sloan, Toto, & Zurn.
 - e. Stainless Steel Sinks: Elkay, Just.
 - f. Faucets: American Standard, AMTC, Aquaspec, CHG Encore Saniguard, Chicago Faucets, Delta, Elkay, Gerber, Geberit, Kohler, Moen, T&S Brass, Symmons, Speakman, Sloan & Zurn.
 - g. Sensor Faucets: Chicago Faucets, Elkay, Mac Faucets, Symmons, Speakman, Sloan, & T & S Brass.
 - h. Valves and Trim: Brasscraft, Dearborn Brass, ProFlo, Sloan & T&S Brass.
 - i. Flush Valves: American Standard Selectronic, AMTC, Delta, Kohler, Moen (sensor-operated only) Sloan, & Zurn.
 - j. Carriers and Drainage Products: Jay R. Smith, Josam, MIFAB, Neenah Foundry, NDS, Profo, Sun Drainage, Wade, Watts, Sioux Chief, & Zurn.
 - k. Toilet Seats: American Standard, Beneke, Church, Kohler, Plumb Tech & Zurn.
 - l. Mixing Valves: Acorn Controls, Lawler, Leonard, Powers, Stingray, Symmons, Watts, & Wilkins.
 - m. Fiberglass/ Acrylic Fixtures: Aquatic, Aquaglass, Best Bath, Fiat, Intersan, MAXX, Mustee Praxis-Comfort Designs, & Swan.
 - n. Drinking Fountains/ Electric Water Coolers: Elkay, Halsey Taylor, Haws, Murdock Stern Williams, & Sunroc.
 - o. Safety Fixtures & Safety Mixing Valves: Acorn, Bradley, Chicago Faucets, Encon, Guardian, Haws, Lawler, Speakman, Speakman, Stingray.
 - p. Security Fixtures: Acorn, Bradley, Willoughby.
 - q. Wash Fountains: Acorn, Bradley, Intersan, Sloan, & Willoughby.
 - r. Service Sinks: Acorn, Fiat, Mustee, Proflo, Stern Williams, & Zurn.
 - s. Water Heaters (Tank): American, A.O. Smith, Bock, Bradford-White, Heat Transfer-Phoenix, Lochinvar Shield, PVI, & Rheem.
 - t. Water Heaters (Instantaneous - Gas): A.O. Smith, Bradford-White, Lochinvar, Rheem, & Rinnai.
 - u. Water Heaters (Instantaneous - Electric): Bradford-White, EeMax, Chronomite, & Rheem.
 - v. System Valves: Apollo, Nebco & Red-White Valve Corp.

- w. Backflow Preventers: Conbraco/Apollo, Watts, & Wilkins.
 - x. Hose Bibbs: Josam, J.R. Smith, Prier, MiFAB, Woodford, & Zurn.
 - y. Trench Drains: ABT, ACO, Dura Trench, J.R. Smith, NDS, Strongwell Polycast, Rapid, Wade, & Zurn.
 - z. Utility Sinks: Fiat, Mustee, & Proflo.
2. Plumbing Fixture Standards:
- All plumbing fixtures shall meet or exceed the following standards:
- a. ANSI A112.6.1 - Supports for Off-the Floor Plumbing Fixtures for Public Use.
 - b. ANSI A112.18.1 - Finished and Rough Brass Plumbing Fixture Fittings.
 - c. ANSI A112.19.1 - Enameled Cast Iron Plumbing Fixtures.
 - d. ANSI A112.19.2 - Vitreous China Plumbing Fixtures.
 - e. ANSI A112.19.3 - Stainless Steel Plumbing Fixtures (Designed for Residential Use).
 - f. ANSI A112.19.4 - Porcelain Enameled Formed Steel Plumbing Fixtures.
 - g. ANSI A112.19.5 - Trim for Water-Closet Bowls, Tanks, and Urinals.
 - h. ANSI Z124.1 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Bathtub Units.
 - i. ANSI Z124.2 - Gel-Coated Glass-Fiber Reinforced Polyester Resin Shower Receptor and Shower Stall Units.
 - j. ANSI Z358.1 - Emergency Eye Wash and Shower Equipment.
 - k. ARI 1010 - Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Water Coolers.
 - l. AWSI/ASSE 1001 - Atmospheric Vacuum Breaker
 - m. ANSI/ASSE 1012 - Backflow Preventers with Immediate Atmospheric Vent.
 - n. ANSI/ASSE 1011 - Hose Connection Vacuum Breakers.
 - o. ANSI/ASSE 1013 - Backflow Preventers, Reduced Pressure Principle.
 - p. ANSI/ASSE 1015 - Backflow Preventers, Double Check Principle
 - q. ANSI/ASSE 1019 - Wall Hydrants, Frost Proof Automatic Draining Anti-Backflow Types.
 - r. AWSI/ASSE 1020 - Pressure Vacuum Breaker
 - s. AWSI/ASSE - 1-52 - Hose Connection, Double Check
 - t. ANSI A112.21.1 - Floor Drains.
 - u. ANSI A112.21.2 - Roof Drains.
 - v. ANSI A112.26.1 - Water Hammer Arresters.
 - w. PDI WH-201 - Water Hammer Arresters.
 - x. ANSI/AWWA C606 - Grooved and Shouldered Joints
 - y. NSF/ANSI Standard 61 - Drinking Water System Components - Health Effects

PART 2 - PRODUCTS

2.1. PLUMBING FIXTURES & TRIM:

- A. All plumbing fixtures shall be provided complete with all required trim for a complete and operational system. All piping penetrations through finished walls shall be provided with chrome escutcheons. All plumbing fixtures shall be caulked and sealed to surrounding surfaces. All sink traps shall be provided with a cleanout plug in the bottom of the trap. All interior exposed pipe, valves, and fixture trim shall be chrome plated, including kitchen compartment sinks. Braided stainless steel pipe risers are approved for concealed locations only, such as behind casework doors or lav shields. Each fixture shall be provided with stop valves and the stop valves shall be quarter-turn brass ball type. All fixtures and trim must be lead free. All floor drains and floor sinks shall be provided with trap primers (PPP, Zurn or Wade as needed for appropriate use. Provide ball valve type shut-off valve upstream of all trap primer valves).

2.2. PIPING AND FITTINGS:

A. General:

- 1. Underground sanitary sewer and storm drain lines shall be installed at 1/4" per foot slope, unless otherwise

indicated. If such slope is not possible due to existing inverts, approval shall be obtained from the Architect/Engineer and the authority having jurisdiction before any piping is installed at a lesser slope.

2. Connections between piping of dissimilar materials shall be made with dielectric waterway fittings or unions.
3. Provide standard manufactured water hammer arresters at all flush valves. Size and locate per manufacturers recommendations. Provide access panels for access to all water hammer arresters.

B. Domestic & Non-Potable Hot and Cold Water:

1. Piping inside building above slab or above grade in crawl space shall be ASTM B88, Type "L", hard drawn copper. Fittings shall be ANSI/ASME B16.22 cast brass, or ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free.
 - a. Cold Water Only Option- ANSI/ASME B16.18 cast bronze, or ANSI/ASME B16.22 wrought copper. Joints shall be copper-tube dimensioned grooved joint couplings, and Flush Seal style gasket. (Gasket shall be UL classified in accordance with ANSI/NSF-61 for potable water service.) Victaulic Style 606, Grunlok style 6400, Grinnell Universal Tongue and Groove 672, Shurjoint C305, or equal.
 - b. Piping Option – Mechanically Formed Extruded Outlets:
 - 1) Mechanically formed extruded outlets shall be perpendicular to the axis of the run tube (header). They shall be formed by drilling a pilot hole and drawing out the tube surface to form a collar having a height of not less than three times the thickness of the branch wall and shall conform to ASME B31.9 and NFPA 99. T-Drill or approved equal.
 - 2) Branch tubes shall not restrict the flow in the run tube. To ensure this by conforming the branch tube to the shape of the inner curve of the run tube, a dimple / depth stop shall be formed in the branch tube to ensure that penetration into the collar is of the correct depth. For inspection purposes, a second dimple shall be placed 0.25 inch above the first dimple. Dimples shall be aligned with the tube run.
 - 3) Branches can be formed up to the run tube size as shown in ASTM F 2014. Forming procedures shall be in accordance with the tool manufacturer's recommendations.
 - 4) Joints shall be made with the use of approved brazing alloys BCup2 thru BCup5 (0-15% silver content). Braze with a filler that has a melting point above 540 deg. Centigrade (1000 deg. F). **Soft soldered joints are not allowed.**
 - 5) K and L copper types allowed.
 - 6) Soft and Hard copper allowed.
 - 7) Each model used for making branch connections shall be permanently marked with manufacturer's name and appropriate model number.
 - 8) Mechanically formed extruded outlets can (but not limited to) be used on commercial and residential buildings.
 - 9) Fitter / Plumber shall be trained and certified to operate the equipment.
2. Piping underground within 5 feet of the building line, smaller than 4 inches, shall be ASTM B88, Type "K", hard drawn copper. Piping below floor slab, smaller than 4 inches, shall be type "K", soft annealed copper. Fittings shall be ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASTM B32 solder, Grade 95-5, lead free. No joints shall be installed beneath concrete floor slabs, unless approved by the Engineer. Underground or underslab copper piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.
 - a. Underground (below slab) Piping Option- ½" to 4", High Density Polyethylene (HDPE) pressure pipe. ASTM D3350, ASTM D3035 & ASTM F714. AWWA C901 & AWWAC906, NSF. Fittings shall be HDPE, solvent weld. Piping shall be rated for not less than 150 psig.
 - b. Trap Primer Piping (below floor or concealed only)
 - 1) ½" Wirsbo Aquapex Tubing or equal.
3. Piping underground beyond 5 feet from building line shall be Schedule 40 PVC, ASTM D1785 or D2241. Fittings shall be PVC, ANSI/ASTM D2466. Joints shall be solvent weld, ASTM D2855, or gasketed, ASTM F477. Piping shall be rated for not less than 150 psig pressure.

C. Sanitary Sewer and Vent:

1. Piping shall be cast iron CISPI 301, ASTM A888 hubless, with cast iron fittings in exposed areas. Standard Couplings shall be neoprene gaskets and stainless steel clamp-and-shield assemblies and shall conform to CISPI 310, ASTM C 1277, FM 1680, & IGC-237, and be listed NSF International. Heavy Duty Couplings shall conform to ASTM C 1540. Pipe and fittings shall be manufactured by AB&I, Charlotte, Tyler, or receive prior approval.
2. Piping and fittings shall be Schedule 40 PVC-DWV (cellular core), per ASTM F1488 and ASTM F891, solvent welded per solvent manufacturer's instructions, or ABS Schedule 40 piping and fittings per either ASTM D2661 or ASTM F628 with solvent cement conforming to ASTM D2235. All sewer risers (2 story or more) shall be service weight cast iron, no-hub or single-hub, ASTM A74. All piping penetrations through fire rated walls, floors, or ceilings, and all piping located above ceilings used as return air plenums shall also be cast iron or galvanized steel, ASTM A53. Underground PVC-DWV piping shall be installed per ASTM D-2321.
3. All sanitary waste and grease piping for commercial type kitchens shall be Schedule 40 PVC-DWV (cellular core), per ASTM F1488 and ASTM F891, solvent welded per solvent manufacturer's instructions, or ABS Schedule 40 piping and fittings per either ASTM D2661 or ASTM F628 with solvent cement conforming to ASTM D2235. Cast iron piping shall extend downstream minimum 20 feet from the steam kettle.
4. Piping and fittings beyond 5 feet from the building line shall be PVC, ASTM D3033 or D3034, SDR 35. Joints shall be ASTM F477 with elastomeric gaskets. Underground piping shall be installed per ASTM D-2321.
5. All 90 degree waste line elbows shall be formed per the latest issue of the adopted plumbing code, latest edition.
6. All exposed vent piping located in occupied areas or rooms, is to be cast iron with cast iron fittings.
7. All flush valve fixtures that are installed back to back shall have offset waste outlet fittings.
8. Cleanouts shall be provided at each horizontal drainage pipe, at its upper terminal, and each run of piping which is more than 100 feet and shall be provided for each 100 feet developed length, or fraction thereof of such piping. An additional cleanout shall be provided for each aggregate horizontal change of direction exceeding one hundred and thirty-five degrees, per applicable plumbing code. This shall be provided regardless of what is shown on the drawings.
9. All floor drains, floor sinks, and hub drains shall be installed with a trap primer.
 - a. Flush Valve Primer: Trap primer shall be Precision plumbing products model FVP-1VB with vacuum breaker.
 - b. Pressure Activated Primer: Trap primer shall be Precision Plumbing products Model CPO-500 with DU distribution unit if required.
 - c. Tail Piece Primer: Trap primer shall be Precision Plumbing Products Model LTP-1500 with 1/2" clear poly flexible priming make up water line and chrome plated escutcheons plates.
10. All vent's through roof (VTR'S) shall be extended at least 1 foot above the roof surface, or to the top of the closest adjacent parapet wall, whichever is greater.
11. All piping exposed to exterior conditions with heat trace shall be insulated. Contractor to coordinate all instances with electrical.

D. Storm Drains:

1. Piping shall be cast iron CISPI 301, ASTM A888 hubless with cast iron fittings in exposed areas. Joints shall be neoprene gaskets and stainless steel clamp-and-shield assemblies, and shall conform to CISPI 310, ASTM C 1277, FM 1680, & IGC-237. Heavy duty couplings shall conform to ASTM C 1540. Pipe and fittings shall be manufactured by AB&I, Charlotte, Tyler, or receive prior approval.

2. Piping and fittings shall be Schedule 40 PVC-DWV (cellular core), per ASTM F1488 and ASTM F891, solvent welded per manufacturer's instructions, or ABS Schedule 40 piping and fittings per either ASTM D2661 or ASTM F628 with solvent cement conforming to ASTM D2235. All piping located above ceilings used as return air plenums, and all piping penetrations through fire rated walls, floors, or ceilings shall be service weight cast iron, ASTM888 no-hub or single hub, ASTM A74. Underground piping shall be installed per ASTM D-2321.
 3. Piping underground beyond 5 feet from the building line shall be PVC, ASTM D3033 or D3034, SDR 35, with PVC fittings. Joints shall be ASTM F477 with elastomeric gaskets. Underground piping shall be installed per ASTM D-2321.
 4. Cleanouts shall be provided at each horizontal drainage pipe, at its upper terminal, and each run of piping 2" size which is more than 50 feet and shall be provided for each 50 feet developed length. 4" size or larger which is more than 100 feet developed length, or fraction thereof of such piping. Contractor shall coordinate with architect as to exact location of all storm water cleanouts as they exit the building, as cleanouts may need to be positioned within certain block elevations. An additional cleanout shall be provided for each aggregate horizontal change of direction exceeding one hundred and thirty-five degrees, per applicable plumbing code. This shall be provided regardless of what is shown on the drawings. Final determination of cleanout spacing shall be per local jurisdiction and code requirements and shall be installed accordingly.
- E. Compressed Air:
1. Piping shall be Schedule 40 black steel pipe, ASTM A53, with black banded 200 pound malleable iron fittings and couplings.
 2. Piping 2" and below may be ASTM A-312, Type 304/304L, Schedule 5S stainless steel in lieu of soldered copper.
 - a. Fittings shall be precision, cold drawn austenitic stainless steel with elastomer O-ring seals. (O-ring shall be grade "E" EPDM for oil free compressed air, or grade "T" Nitrile for air with oil vapors) Vic-Press 304 or equal.
 3. Alternate material - Piping inside building above slab or above grade shall be ASTM B88, Type "L", hard drawn copper. Fittings shall be ANSI/ASME B16.23 cast brass or ANSI/ASME B16.29 wrought copper. Joints shall be ANSI/ASME B32 solder, Grade 95-5, lead free.
- F. Natural Gas:
1. Piping shall be Schedule 40 black steel pipe, ASTM A53. Exposed fittings 2 inches and smaller shall be ANSI/ASME B16.3, screwed, black malleable iron.
 2. Fittings larger than 2 inches and all underground fittings shall be Schedule 40 steel butt-welded type. Underground piping shall be provided with a polyethylene jacket, ANSI/AWWA C105, or shall be wrapped with double layer, half-lapped, 10 mil polyethylene tape.
 - a. Contractors Option for Underground Pipe:
 - 1) Gastite Type PE flexible corrugated gas piping. NFPA-54 & 56. ASTM D2513 Category 1. ASME D-B31.8-1995.
 - 2) Piping and fittings underground and outside the building line may be JM Eagle UAC 2000 MDPE, medium-density polyethylene yellow gas pipe or an approved equal. Piping shall be installed in accordance with JM Eagle Publication JME-12B, "Polyethylene Yellow Gas Distribution Installation Guide." JM Eagle's UAC 2000 system can be joined by butt heat fusion, socket fusion, or saddle fusion. Installing contractor shall be licensed for fusion pipe installation of polyethylene pipe. ASTM D2513.
 3. All exterior piping exposed to the weather shall be coated with a rust inhibitor - Rustoleum Professional DTM High Performance Protective Enamel or approved equal. The color shall be grey for exterior piping along walls and grey or yellow on the roof, submit for approval.

G. Condensate Drain Piping:

1. Exterior to building (connected to roof mounted equipment): Piping shall be Schedule 40 PVC. A union shall be installed directly at the roof top equipment for ease of replacement in the future.
2. Interior: Piping shall be Type L hard drawn copper, ASTM B88, with solder joints, grade 95TA, or may be Schedule 40 PVC. Copper piping shall not be used on 90% condensing type equipment. Provide a neoprene or rubber gasket at all copper piping support hangers to inhibit corrosion.
 - a. Inside Mechanical Rooms: Piping shall be Type L hard drawn copper, ASTM B88, with solder joints, grade 95TA, for durability reasons.

H. Hanger and Supports:

1. Pipe hangers shall be provided to adequately support all piping systems. Hangers shall be vertically adjustable to provide for proper pitch and drainage. Hangers shall allow for expansion and contraction of the piping system. Reference "General Regulations" of the latest edition of the adopted plumbing code, latest edition.
2. Hangers for pipe sizes 1/2 to 6 inches shall be adjustable clevis type, or unistrut saddles with all-thread hanger rod.
3. Hangers for hot pipe, sizes 6 inches and over shall be adjustable steel yoke, cast iron roll, double hanger type.
4. Vertical pipes shall be supported with steel riser clamps. Spacing interval requirements per "General Regulations" of the latest edition of the adopted plumbing code, latest edition.
5. All insulated piping shall be provided with minimum 18 gauge galvanized insulation shields, 12 inches long, and oversized hangers. Pipe sizes 2 inches and over shall also be provided with 12 inch long calcium silicate insulating blocks between the piping and the galvanized insulation shield.
 - a. Alternate: Insulated pipe support inserts may be provided at hanger, support, and guide locations on piping requiring insulation. The insert should consist of either Hydrous Calcium Silicate or Polyisocyanurate Foam insulation (Urethane) encircling the entire circumference of the pipe with a 360 deg. PVC (1.524 mm thick) or galvanized steel jacket and installed during the installation of the piping system. These insulated pipe support inserts shall be provided by the Mechanical Contractor and installed by the same during pipe support installation.
6. Hanger rod sizing and spacing for pipe shall be as follows:

Pipe Size	Minimum Rod Diameter	Maximum Spacing
To 1-1/4 inches	3/8 inch	6.5 feet
To 2 inches	3/8 inch	10 feet
To 3 inches	1/2 inch	10 feet
To 6 inches	5/8 inch	10 feet
8 to 12 inches	7/8 inch	12 feet
PVC & ABS (all sizes)	3/8 inch	4 feet
Cast Iron No-Hub	5/8 inch	5 feet and at joints

7. Provide hangers within 12 inches of each horizontal elbow.
8. Provide hangers with minimum 1-1/2 inches vertical adjustment.

2.3. INSULATION:

A. General:

1. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.
2. Fire-Test-Response Characteristics: Insulation and related materials NFPA 255, UL Classified per UL 723 or meeting ASTM E 84, by a testing and inspecting agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement containers, with appropriate markings of applicable testing and inspecting agency.
 - a. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
 - b. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

B. Piping Insulation:

1. All domestic, potable & non-potable, hot and cold water lines, exposed waste and vent, and rain drains shall be insulated with preformed insulation.
 - a. Fiberglass insulation with a vapor barrier jacket. Insulation shall have a conductivity not exceeding 0.28 Btu-inch/hour-sq. ft.-degrees F. Laps and butt joints shall be sealed with pressure sensitive joint sealing tape of the same finish as the insulation jacket to provide a continuous vapor seal. Fittings and valves shall be insulated with PVC fitting covers and fiberglass insulation inserts, or with hydraulic setting insulating cement and four ounce canvass jacket with vapor barrier adhesive.
 - b. Alternate material for Cross-Linked Polyethylene Tubing (PEX): One piece preformed flexible elastomeric closed cell foam with built-in vapor barrier. Seal laps and butt joints with moisture resistant adhesive to provide a continuous vapor seal. Insulation shall have a conductivity rating not exceeding 0.27 Btu-inch/hour-sq. ft.-°F.

Insulation thicknesses shall be as follows:

<u>System</u>	<u>Pipe Sizes 1/2" and above</u>
Domestic Cold Water (pot. & non-pot.)	1/2"
Domestic Hot Water & Recirc. (pot. & non-pot.)	1"
Roof Drain Piping	1/2"
Overflow Drain Piping	1/2"
Waste and Vent Piping (Exposed to exterior conditions)	1/2"

2. Roof and overflow drain sumps shall be insulated with 1/2" thick fiberglass with a vapor barrier, extending 2" onto adjacent insulation.
3. Insulation shall be installed in strict accordance with manufacturer's instructions.
4. Insulation shall be continuous through penetrations.
5. All insulation shall be installed in a neat and workmanlike manner.

Fiberglass insulation with a vapor barrier jacket. Insulation shall have a conductivity not exceeding 0.28 Btu-inch/hour-sq. ft.-degrees F. Laps and butt joints shall be sealed with pressure sensitive joint sealing tape of the same finish

2.4. VALVE & STRAINERS:

A. Globe Valves:

1. Valves 2-inches and smaller shall be cast bronze body, ASTM B-62, renewable composition disc, 200 psi WOG, ASTM B-62, rising stem and hand wheel. Stems shall be of dezincification-resistant silicon bronze, ASTM B-371, or low-zinc alloy, ASTM B-99, NSF/ANSI 61-8 Annex F&G, NSF 372 Lead Free. Valves over 2-inches shall be iron body, bronze trim, rising stem and hand wheel, plug type disc, flanged ends. Valves shall comply with MSS SP-85. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain, wheel and guides. Basis of design: Apollo #120T-LF/120S-LF Lead Free Bronze, Apollo #711F-LF Lead Free Cast Iron, or equal.
- B. Ball Valves:
1. Valves 2-inches and smaller shall be lead free cast bronze body, chrome-plated brass ball, teflon seats, and lever handle, 600 psi CWP. Valves shall comply with MSS SP-110, NSF/ANSI 61, NSF/ANSI 372 Lead Free. Valves over 2-inches shall be cast steel body, chrome plated steel ball, teflon seats, and lever handle. Victaulic, Anvil Gruzlok, Grinnell, or Shurjoint ball valves are acceptable if grooved piping is used. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain, wheel, and guides. Basis of design: Apollo #77CLF-A Series or equal.
- C. Butterfly Valve:
1. Valves 12-inches and smaller shall be ductile iron lug body, ASTM A-536, 316 stainless steel disc, EPDM Liner, 316 stainless steel stem, and safety twist-lock multi-position lever handle with open-closed lockout capabilities. Valve shall be rated at 175 psig WOG. Valves mounted higher than 7'-0" A.F.F. shall be provided with chain wheel and guides. Valves shall comply with MSS SP-67. Victaulic, Anvil Gruzlok, Grinnell, or Shurjoint butterfly valves are acceptable if grooved piping is used.
- D. Check Valves:
1. Valves 2-inches and smaller shall be bronze body Y-pattern, ASTM B-62, swing check, bronze disc, 200 psi WOG. Valves shall comply with MSS SP-80, NSF/ANSI 61-8 F&G, NSF/ANSI 372 Lead Free. Valves, over 2-inches shall be iron body, ASTM A-126, bronze trim, swing check, renewable disc and seat. Valves shall comply with MSS SP-71. Victaulic, Anvil Gruzlok, Grinnell, or Shurlock check valves are acceptable if grooved piping is used. Basis of design: Apollo # 161T-LF/161S-LF Lead Free Bronze, Apollo # 920F-LF Lead Free Cast Iron, or equal.
 2. Swing check valves with outside lever and spring (not center guided) is to be used on sewage ejector or storm-water sump pumps. Basis of design: Apollo # 910FLW-LF Lead Free Cast Iron or equal.
- E. Pressure Reducing Valves:
1. Valves 2-inches and smaller shall be bronze body, stainless steel and thermoplastic internal parts, fabric reinforced diaphragm, strainer, and single union end. Basis of design: Apollo # 36ELF Series Lead Free Bronze or equal.
- F. Balance Valve:
1. Valve shall have a twin tube 316 S.S. design with blowout proof attachment to station body. Ports shall include 3/4" port for thermometer, 1/4" port for pressure gauge, air vent, and 1/2" drain port.
 2. The instrument station shall be 120/150-flanged construction.
 3. The butterfly valve shall be lug pattern with a rating of 200 WP, 250 deg. F. The valve shall have an infinite. Position operator with memory stop (6" and smaller), worm gear with memory stop (8" and larger).
- G. Y-Pattern Strainers:
1. Body: ASTM A 126, Class B, cast iron with bolted cover and bottom drain connection.
 2. End Connections: Threaded ends for NPS 2 (DN 50) and smaller; flanged ends for NPS 2-1/2 (DN 65) and larger.

3. Strainer Screen: 40-mesh startup strainer and perforated stainless-steel basket with 50 percent free area.
 4. CWP Rating: 125 psig (862 kPa).
- H. Install strainers on inlet side of each control valve, pressure-reducing valve, solenoid valve, inline pump, and elsewhere as indicated. Install NPS $\frac{3}{4}$ (DN 20) nipple and ball valve in blowdown connection of strainers NPS 2 (DN 50) and larger. Match size of strainer blow-off connection for strainers smaller than NPS (DN50).

PART 3 - EXECUTION

3.1. WORKMANSHIP:

A. General:

1. Install all piping, fixtures, equipment, and accessories as shown, and in strict accordance with the plumbing laws, rules, and regulations of the State and/or City. All work shall be done in a neat and orderly fashion and left in a condition satisfactory to the Architect/Engineer.

B. Piping:

1. All piping shall be run parallel or perpendicular to established building lines. Install piping so as to allow for expansion. Waste and vent piping occurring above floor slab shall be installed true and plumb. Extend vents at least 1 foot above roof, or to the top of the closest adjacent parapet wall, whichever is greater, and provide watertight flashing sleeves. Excavation and backfill shall be in accordance with Section 220000 of these specifications.

C. Fixtures:

1. Install fixtures true and plumb with building walls. Caulk all plumbing fixtures at joints along walls, countertops, and other intersecting surfaces. Locate fixtures as shown and per manufacturer's instructions. Furnish all required trim for fixtures to provide a complete and workable installation.

3.2. TESTS:

A. General:

1. All piping, fixtures, and equipment shall be inspected and approved before concealing or covering. All work shall be tested as required by Section 220000 of these specifications and shall be leak proof before inspection is requested. All tests shall be repeated if required by those making the inspection.
2. All potable water systems shall be flushed and disinfected in accordance with Section 220000 of these specifications. Following disinfection, system shall be flushed and water sampled to show compliance with requirements of public health authority having jurisdiction. If tested water does not meet requirements, disinfecting shall be repeated until water quality meets requirements.
3. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Gasket shall be molded and produced by Victaulic Company, Gruvlok, or Grinnell Mechanical Products, or equal. Verify gasket grade is suitable for the intended service. The grooved coupling manufacturer's factory trained representative shall provide on-site training for contractor's field personnel the use of grooving tools, application of groove, and installation of grooved end products.
 - a. All grooved joint couplings, fittings, valves and specialties shall be the products of Victaulic Company, Gruvlok, Grinnell Mechanical Products, or equal.

4. Install the grooved piping in accordance with the latest recommendations as published by the manufacturer. Pipe shall be square cut, $\pm 0.30"$, properly deburred and cleaned. Mark pipe ends at the required location using a gauge supplied by the manufacturer to ensure full insertion into the coupling or fitting during assembly. Use a manufacturer's tool with the proper sized jaw for pressing.

B. Fixtures and Equipment:

1. Fill all plumbing fixtures with water and check for leaks or retarded flow. Repair as required. Adjust each piece of plumbing equipment as required to ensure proper functioning. Leave all fixtures and equipment in first class operating condition.
2. The Plumbing Contractor is responsible for all backflow devices to be inspected by a certified backflow technician before use of the building potable water system.

C. Smoke Test:

1. A smoke test shall be performed on the entire waste and vent system before building occupancy. After all fixtures are permanently connected and traps are filled with water, fill entire drainage systems with smoke under pressure of 1.3 pKa (1 inch of water) with a smoke machine. If leaks are detected, they shall be repaired and the smoke test shall be performed again until no leaks are found.

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PIPING SYSTEM TEST REPORT

STRUCTURE/BUILDING: _____

TEST NUMBER: _____

LOCATION: _____

CONTRACT NO. _____

DESCRIPTION OF SYSTEM/PIPING BEING TESTED: _____

Description of Test Performed	Test Pressure	Test Duration	Pass/Fail
Hydrostatic: _____	P.S.I.	_____	_____
Inert Gas: _____	P.S.I.	_____	_____
Compressed Air: _____	P.S.I.	_____	_____
Waste & Vent Smoke Test: _____	1" Water Column	_____	_____

NAME AND TITLE OF PERSON IN CHARGE OF PERFORMING TEST'S FOR CONTRACTOR:

Name: _____ Title: _____

Signature: _____

I hereby certify that the above described system has been tested as indicated above and found to be entirely satisfactory as required in the contract specifications.

Signature of Inspector: _____ Date: _____

REMARKS: _____

END OF SECTION 220100

DIVISION 23 – HEATING VENTILATING AND AIR CONDITIONING

SECTION 230000 - HVAC GENERAL REQUIREMENTS

PART 1 – GENERAL

1.1 SCOPE:

A. General:

1. The Bidding Requirements, Contract Requirements, and the General Requirements (Division 1) of these specifications shall govern all parts of the work.

B. Work Included:

1. Install work in accordance with these specifications and the accompanying plans. Furnish all labor, material, and equipment together with all incidental items not specifically shown or specified which are required by good practice to provide the complete mechanical systems as described.
2. The HVAC Contractor(s) and all Sub-tier Contractors shall provide installed equipment cut sheets and purchase orders required for utility rebates.

C. Coordination and Site Visits:

1. This section of the work requires examination of and reference to all architectural, structural, utility, and electrical drawings for construction conditions that may affect the work. Inspect the building site and existing facilities for verification of existing conditions. Base all measurements from established benchmarks. Any discrepancy between actual measurements and those indicated, which prevents following good practices or the intent of the drawings and specifications, shall be reported to the Architect/Engineer, and work halted until instructions are received from the Architect/Engineer.

1.2 CODES, PERMITS, FEES:

- A. Install all work in accordance with applicable codes and standards. Obtain all required permits; pay all required fees including utility connections or extensions, in connection with this portion of the construction. Obtain all required certificates of inspection for the work.

PART 2 - PRODUCTS

2.1 MATERIALS AND WORKMANSHIP:

A. Materials:

1. All materials and equipment shall be of first quality, new, full size and weight, standard in every respect, and suitable for the space required. Use the same manufacturer for products of similar class or service, such as valves, pumps, controls, and air handlers. Protect all materials against loss, theft, or damage before and after installation.
2. Furnish equipment that will operate under all conditions of load without any sound or vibration that is objectionable in the opinion of the Architect/Engineer. Vibration or noise considered objectionable will be corrected by the

Subcontractor at his expense.

3. Furnish and install all necessary foundations, supports, pads, bases, and piers required for all materials and equipment furnished under this contract.
4. Provide all required firestopping at duct and piping penetrations of fire rated walls, floors, ceilings, and roofs. Firestopping shall be 3M Fire Barrier Sealant CP 25WB+ or 3M Fire Barrier Rated Foam FIP 1-Step, or approved equal.
5. Piping penetrations through walls, finished floors, and ceilings shall include one-piece stamped-steel escutcheons or one-piece floor plates.

B. Workmanship:

1. All materials and equipment shall be installed in a neat and workmanlike manner by competent specialists for each subtrade. Work shall be installed to the satisfaction of the Architect/Engineer with unsatisfactory work removed and reinstalled to his satisfaction at no extra cost to the Owner.
2. Provide all cutting and patching necessary to install the work specified in this section. Patching shall match adjacent surfaces. No structural members shall be cut without the approval of the Architect/Engineer. Provide sleeves at all piping penetrations of exterior walls and floors on grade. Provide all sleeves and inserts required before new floors and walls are built.
3. Locate all equipment that must be serviced in fully accessible positions. Provide clearance for removal of replacement parts and components, and with necessary couplings or flanges to remove the component for maintenance.

C. Protection of Equipment During Construction:

1. At the end of each shift, all duct openings and open ends shall be covered with a plastic poly sheeting film to protect against dust and construction contamination from entering the ductwork.

2.2 SUBMITTALS AND SUBSTITUTIONS:

A. Prebid Approval:

1. Manufacturer's trade names and catalog numbers stated herein are intended to indicate the quality of equipment or materials desired. All manufacturers not specifically listed require prior approval. Submit catalog data, including specifications, of the proposed equipment to the Architect/Engineer for his approval at least 10 calendar days prior to bid opening. Notice of such approvals will be published in an addendum. Approval of listed alternate equipment manufacturers is for bidding only. Final approval is to be based on requirements of the plans and specifications.

B. Submittals:

1. Within thirty days after award of this contract, provide an electronic copy of a complete list of all materials and equipment proposed for this project. List shall contain make, type, manufacturer's name, and trade designation of all materials and equipment. Submittal shall also include manufacturer's complete specification for each item, including capacities, ratings, etc., and dimensions as required to check space requirements. The scheduled equipment is the basis of design for capacity, weights, physical size, etc. Alternate manufacturers shall not exceed the weight or physical size. Any changes to the Architectural, Structural, Mechanical, Electrical, and Control systems due to alternate manufactures shall be the responsibility of the Contractor and Supplier. Submittals for each major trade (i.e., dryside HVAC, wet side HVAC, or Plumbing) shall be submitted in a single complete package. Individual items will not be reviewed independently unless approved by the Engineer.

2. Approval of submittals shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has, in writing, called the Architect's /Engineer's attention to deviations at the time of submission, and obtained his written approval. Approval of submittals does not relieve the contractor from responsibility for errors in shop drawings or literature.

C. Equipment Requiring Submittals:

1. Louvers
2. Penthouses
3. Split system air Conditioning (95% gas)
4. Exhaust Fans
5. Ceiling Fans
6. Electric heater
7. Vehicle Exhaust Gas Detection
8. Gas Fired Unit heaters
9. Grilles / Diffusers
10. Pipe Stands
11. Flex Duct

PART 3 - EXECUTION

3.1 ACCESSIBILITY & SAFETY:

A. Accessibility:

1. All equipment which must be serviced or operated shall be located in fully accessible position. Minor changes from the drawings may be made to allow for better accessibility. All changes shall be approved prior to actual installation.
2. Access panels shall be provided if required for accessibility. Access panels to be steel, flanged, hinged doors by Cendrex, or equal. Sized as required for installation. Subcontractor shall furnish the required panels to the General Contractor and the required location for all access panels, unless otherwise specified in the Architectural specifications. Panels shall be installed by the General Contractor.

B. Safety:

1. Subcontractor shall provide guards for all belt drives and rotating machinery.

3.2 COORDINATION:

- A. Coordinate all work with the various trades involved to provide a complete and satisfactory installation. The exact details of ductwork and equipment are not shown. No additional compensation will be made for offsets or relocation required in coordination with other trades.
- B. Alterations required due to improper supervision by the subcontractor shall be made at no extra cost, to the satisfaction of the Architect/Engineer.

3.3 ELECTRICAL:

- A. Electric motors required for equipment specified in this section shall be provided and installed by this Subcontractor. Motor starters, disconnects, relays, pilot lights, etc., are in general, to be furnished and installed by the Electrical Contractor. Starters, relays, controls, etc., which are factory assembled into packaged equipment shall be furnished by the Mechanical Contractor under this section of the specifications.
- B. All motors shall be provided with adequate starting and protective equipment as specified or required. Motor capacity shall be sufficient to operate driven device under all conditions of operation and load without overload. Minimum horsepower shall be as specified.

3.4 IDENTIFICATION AND CODING:

A. Painting:

- 1. All painting of mechanical equipment, accessories and ductwork shall be furnished and applied under the Architectural section of these specifications. All painting shall be completed before any identification markings are applied.

B. Pipe Labeling:

- 1. Piping shall be labeled with the fluid conveyed and the direction of flow:
 - a. On both sides of wall or floor penetrations.
 - b. Once on every straight run of pipe.
 - c. No more than 20-foot intervals.
 - d. No more than 10-foot intervals in congested areas.
 - e. Within 3 feet of each piece of equipment, valve, or control device.

C. Equipment Labeling:

- 2. Equipment tags shall be color coded and attached in visible location. Labels shall include:
 - a. Component identification designation (coordinated with construction drawings).
 - b. Area served (including areas or equipment of critical impact if equipment is shut-off).
 - c. Filter Size (when applicable).
 - d. Power Source (coordinated with electrical).

D. Label Color and Size Requirements

All Piping shall be All pipes, and equipment shall be labeled according to ANSI standard A13.1. See table below for examples.

Label Color Schedule Per ANSI A13.1	
Water (Heating, chilled, potable, boiler feed, etc.)	Green Background with White Letters
Compressed Air	Blue Background with White Letters
Natural Gas / Refrigerant / Steam	Yellow Background with Black Letters
Fire Suppression	Red Background with White Letters
Equipment Labels*	Black Background with White Letters
Supply Duct	Green Background with White Letters
Exhaust Air Duct	Yellow Background with Black Letters
Return / Relief Duct	Blue Background with White Letters
Outside Air Duct	Blue Background with White Letters

*Label all equipment that is on generator power with a Red Background and White Letters

Text Height Requirements			
Equipment Labels	Main Designation Supplemental Info Large Equipment w/viewing distances beyond 10 feet		$\frac{3}{4}$ " high text minimum $\frac{1}{2}$ " high text minimum 3" high text main label
Piping	O.D. of $\frac{3}{4}$ " to 1- $\frac{1}{4}$ " O.D. of 1- $\frac{1}{2}$ " to 2- $\frac{3}{8}$ " O.D. of 2- $\frac{1}{2}$ " to 7- $\frac{7}{8}$ " O.D. of 8" to 10" O.D. over 10"	Letter Size: $\frac{1}{2}$ " high Letter Size: $\frac{3}{4}$ " high Letter Size: 1- $\frac{1}{4}$ " high Letter Size: 2- $\frac{1}{2}$ " high Letter Size: 3- $\frac{1}{2}$ " high	Marker Size: 8" wide Marker Size: 8" wide Marker Size: 12" wide Marker Size: 24" wide Marker Size: 32" wide
Ducts	All Duct Sizes	Letter Height: 3.5"	
Ceiling Labels	Letter height: $\frac{1}{2}$ " Minimum		

3.5 TESTING:

A. Systems:

1. All systems, including heating, ventilating and air conditioning, shall be tested at the completion of the building to establish that the systems operate as specified and required. Testing shall be performed after air balancing is completed.
2. All controls shall be calibrated accurately and all equipment shall be adjusted for satisfactory operation. Excessive vibration or noise from any system shall be corrected.
3. The air conditioning system shall be tested for satisfactory operation when the outside air temperature reaches 60 degrees F. or warmer. All other systems shall be tested at building completion. All tests shall be performed in the presence of the Architect/Engineer or his representative.

3.6 BALANCING:

A. Scope:

1. Prior to final acceptance by the Owners, all air systems shall be balanced to deliver the quantities as specified or directed. The air balance shall be performed by an independent agency specializing in balancing and is certified by the National Environmental Balancing Bureau.
2. Balance contractor's main office shall be located within 100 miles from the project site.
3. The Mechanical Contractor shall provide assistance to the Balancing Contractor by identifying all installed mechanical systems and assisting access to all installed mechanical systems. All mechanical systems shall be completely operational and functional prior to the Balancing Contractor performing their specified work.

B. Air balancing:

1. Balancing of the air system shall consist of:
 - a. Adjust all air volumes to the quantities shown, with allowable variation of plus 10, minus 10 percent.
 - b. Record all system, zone, diffuser, grille, and register C.F.M. Use volume control devices to regulate air quantities only to the extent that adjustments do not create objectionable air motion or sound levels. Balancing Engineer shall work with the Contractor to set minimum & maximum CFM quantities for zone dampers, or zone dampers/heaters.
 - c. Test and record all system static pressures, inlet and discharge, on all packaged units, fans, and terminal units. Vary total system air quantities by adjustment of fan speeds. Provide drive changes as necessary. Vary branch air quantities by damper regulation.
 - d. Test and record motor full load amps and nameplate amps.
 - e. Test and record entering and leaving temperatures at all coils.
 - f. Adjust all automatically operated dampers, in cooperation with the Control Contractor, to the required settings. Adjust outside air automatic dampers, outside air, return air, and exhaust dampers for design conditions within specified tolerances. Where modulating dampers or economizers are provided, take measurements at full return air, minimum outside air, and 100 percent outside air mode of operation.
 - g. Adjust diffusers and grilles for proper deflection, throw, and coverage. Eliminate drafts and excessive noise where possible.
 - h. Mark final positions of all balance dampers with a red felt pen.
 - i. Air systems shall be balanced in accordance with standard procedures and recognized practices of the Associated Air Balance Council, and the Testing Adjusting, and Balancing Bureau.

C. Quality Assurance:

1. The Balancing Contractor shall demonstrate to the Engineer of record, flow verification for at least 10% of the balanced devices as selected by the Engineer. If more than 25% of the tested devices do not meet the designed or balance report, then the entire system balance must be rebalanced.

D. Balance Reports:

1. Submit four copies of the air system balance report to the Architect/Engineer for evaluation and approval. Reports shall be on TABB/SMACNA forms that indicate information addressing each of the testing methods, readings, and adjustments.

3.7 CLEANING AND ADJUSTING:

- A. Thoroughly clean all air conditioning units, air handling units, and all associated parts of the system at the completion of the work. Install new, clean air filters in all systems. Adjust all devices for proper operation and lubricate all equipment as required. Repaint any painted surface that has been damaged.

3.8 PROJECT CLOSEOUT:

A. Operations & Maintenance Manual:

The Contractor shall provide an operations and maintenance manual at least thirty days prior to completion of work. The manual shall be of the three-ring binder type, entitled "Operations and Maintenance Manual", with the job name and year of completion also included. O & M manuals shall be submitted in a single package. In addition, the contractor shall provide two consolidated electronic versions on two separate thumb drives with sections digitally bookmarked. Individual items will not be accepted independently unless approved by the Engineer. The manual shall include, as a minimum:

1. Maintenance instructions for all equipment, including lubrication requirements.
2. Equipment suppliers' names, addresses, and telephone numbers.
3. Equipment catalog cuts, ratings tables, model numbers, serial numbers, and accessories.
4. Parts numbers for all replaceable parts.
5. Air and/or water systems balance report as hereinbefore specified.
6. Control diagram or drawing and operation sequence.
7. Valve tagging chart as hereinbefore specified.
8. Filter chart listing unit callout, size of filters, and quantity of filters.
9. Guarantee letter as specified below.
10. Any additional information required to enable the Owner to properly maintain the building mechanical system.
11. Mechanical Equipment Start-up forms, which are included in this specification, if they are required.
12. After approval of the Operations and Maintenance Manual by the Architect/Engineer, the Contractor shall furnish two copies of the manual to the Owner.

B. Mechanical System Training Period:

1. After the mechanical system is completely installed and operational, the mechanical contractor shall provide a minimum of 8 hours training and instruction time for the building Owner or his representative. During this period, the contractor shall instruct the Owner in the operation and maintenance of all parts of the mechanical system, using the O & M manual where applicable. The contractor shall provide a copy of the Project Owner Mechanical Systems Training Form (attached to this specification), with proper signatures, to the Engineer prior to substantial completion and ensure that a copy is inserted into the project O & M manuals.
2. Video Taping – The mechanical contractor is to perform videotaping of the Owner training and instruction. Provide two (2) thumb drive USB to Owner and one (1) copy to be inserted into the O & M Manuals.

C. As-Built-Drawings:

1. Provide two sets of red-line mechanical drawings showing the work as it was actually installed. The drawings shall indicate all departures from the contract drawings. Make all notations neat and legible, with red indelible pencil. At the completion of the work, these as-built drawings shall be signed and dated by the Mechanical Contractor, and returned to the Architect/Engineer.

D. Guarantee:

1. All work furnished under this section shall be guaranteed in writing to be free from defective work or materials for a period of one year after acceptance of the contract. All repairs or replacements because of defective materials

or workmanship or noncompliance with code shall be provided without additional cost to the Owner. Contractor shall furnish a letter indicating above guarantee with space for date of acceptance and expiration of guarantee. Letter shall be included in O & M Manual.

END OF SECTION 230000

DRAFT

NAME OF PROJECT: _____
_____**OWNER MECHANICAL SYSTEM TRAINING FORM**

Upon completion of the equipment and systems installation and connections, the contractor shall assemble all required equipment factory representative and subcontractors together for system Owner training.

These people shall assist in Owner training their system(s) and remain at the site until the total system operations is acceptable and understood by the Owner's representative(s), maintenance and/or operation personnel, on operation and maintenance of their equipment. To prove acceptance of operation and instruction by the Owner's representative(s), the contractor shall provide a copy of this form, with proper signatures, to the Engineer prior to substantial completion, and ensure that a copy is inserted into the project Operation and Maintenance manuals.

"I, the Contractor, associated factory representative and subcontractors, have started each system and the total system(s); and have proven their normal operation to the Owner's representative(s) and maintenance/operation personnel and have instructed him/them _____, hours in the operation and maintenance thereof."

Owner's Representative_____
Contractor_____
Signature_____
Signature_____
Date_____
Date

SECTION 230100 - HEATING, VENTILATING, AND AIR CONDITIONING

PART 1 - GENERAL

1.1 SCOPE

- A. This section covers the work necessary for the heating, ventilating, and air conditioning system, complete. The HVAC General Requirements, Section 230000, is to be included as a part of this section of the specifications.

1.2 CODES & STANDARDS

- A. The heating, ventilating, and air conditioning system shall be installed in accordance with the latest edition of the following codes and standards:
1. International Mechanical Code (IMC)
 2. International Building Code (IBC)
 3. American Society of Heating, Refrigeration, and Air Conditioning Engineers (ASHRAE)
 4. National Fire Protection Association (NFPA)
 5. Sheet Metal and Air Conditioning Contractors National Association, Inc. (SMACNA)

PART 2 - PRODUCTS

2.1 AIR DISTRIBUTION

- A. Ductwork:
1. Low pressure ductwork shall be fabricated from galvanized sheet metal, unless otherwise indicated. Construction requirements shall be in accordance with SMACNA - HVAC Duct Construction Standards, metal and flexible, latest edition. All sheet metal ductwork shall be sealed with McGill United Sheet Duct Sealer or equal, in accordance with the International Energy Compliance Code, latest edition. Adjustable (twist) elbows are not allowed. Low pressure ductwork shall be constructed to the following SMACNA static pressure standards:
 - a. Supply air ductwork = 2" W.G.
 - b. Return, Exhaust, Outside Air Intake ductwork = 1" W.G.
 2. Low pressure ductwork located exposed in exposed ceiling areas, shall be standard galvanized sheet metal, paint-lock spiral ductwork is not acceptable. All ductwork which is to be installed in exposed ceiling areas shall be stored inside from the time of manufacturing to installation; no outside storage shall be acceptable. Sheet metal shall have a clean, uniform color. Joints shall be sealed evenly and in a professional manner with silver silicon. Discolored or damaged ductwork unacceptable to the Engineer shall be replaced at the Contractors expenses.
 - a. Joints: 0" to 20" diameter, interior slip coupling beaded at center, fastened to duct with screws and with sealing compound applied continuously around joint before assembling and after fastening. Sealing compound shall be applied in an evenly and professional manner.
 - b. Joints 22" – 72" diameter, use 3-piece, gasketed, flanged joints consisting of 2 internal flanges (with integral mastic sealant) split to accommodate minor differences in duct diameter, and one external closure

band designed to compress gasketing between internal flanges. The manufacturer shall be Ductmate Spiralmate or equal.

- c. All takeoff or branch entrances shall be by means of factory-fabricated fittings. Field taps shall not be allowed.
3. Low pressure ductwork which is exposed or located in mechanical rooms shall be fabricated from galvanized sheet metal. Construction requirements shall be in accordance with SMACNA HVAC Duct Construction Standards, metal and flexible, latest edition.
4. Low or medium pressure, double wall acoustically insulated ductwork shall have a minimum 1" insulation, & perforated metal lining, & shall be McGill Acousti-k27, Metaltec, or equal.
5. Vehicle exhaust ductwork sealant shall be rated for minimum of 250 deg. F.
6. Type – 1 Kitchen Hood exhaust ductwork shall be fabricated from minimum 16 gauge welded steel and shall be constructed in strict accordance with the latest edition of the International Mechanical Code.

Type – 2 Kitchen Hood exhaust ductwork shall be fabricated from aluminum sheet metal, in accordance with SMACNA Standards
7. Ductwork penetrating protective elements of fire-rated corridor walls, with no openings into corridor, shall be constructed of minimum 26-gauge galvanized steel.
8. Ductwork where humidifier grid is located shall be constructed of a minimum 304 stainless steel ductwork 18" prior to the grid and 24" after the grid. No interior liner shall be installed at the locations noted. The exterior of the duct shall be wrapped per the specifications as noted to meet energy code.
9. Exterior exposed ductwork shall be fabricated from galvanized sheets. All joints and seams shall be standing-seam type with sealing mastic to provide watertight construction. All ductwork shall be internally insulated as hereinafter specified. All exposed surfaces shall be primed and painted two coats of exterior enamel paint, color as selected by the Architect.
10. Shower and locker room exhaust ductwork shall be constructed of galvanized sheet metal, in accordance with SMACNA standards.
11. Flexible ducts shall be listed per UL-181 standard as Class 1 flexible, acoustical insulated air duct and complying with NFPA Standards 90A and 90B. Ducts shall be insulated with a minimum R-6 value and shall have a maximum vapor transmission value of .05 perms. Ducts shall be factory made with and composed of: a PE liner duct permanently bonded to a coated spring steel wire helix. Duct shall be chlorine free and carry a ten-year warranty for the labor to replace the duct should there be a factory defect. Low permeability outer vapor barrier of fiberglass bidirectional reinforced metalized laminate shall complete the composite. Pressure rating shall be 6" w.g. and maximum length shall be 6 feet. Attach to duct take-off, diffuser, register, or grille only, with nylon or stainless-steel duct clamp or tie. Flexmaster 1-M, or approved equal.

B. Duct Accessories:

1. Turning vanes shall be installed in all rectangular or square elbows. Vanes shall be installed in vane side rails. Vanes shall be single wall vanes and be fabricated and installed per SMACNA standards.
2. Volume dampers shall be fabricated from galvanized steel in accordance with SMACNA standards. Dampers shall have a continuous galvanized steel shaft on ducts 13" diameter or larger, with damper regulators and end bearings. Dampers located above inaccessible ceilings (hard ceilings) shall be furnished with concealed ceiling damper regulators. Dampers shall be pressure rated equal to the design duct pressure rating. Dampers shall be provided at all diffuser and supply/exhaust grille takeoffs, regardless if indicated on the plans. Dampers are not

required on the return air takeoffs unless specifically indicated.

3. Flexible connections shall be provided at all rotating fan equipment. Connectors shall be of fire, water, and weather resistant material.
 4. Fire dampers shall be UL-labeled with frame, locking assembly, accordion style folded blades, and fusible link. Dampers shall be Style B with blades stored outside of the air stream. Provide duct inspection door at each fire damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasketing around periphery, and a hinged panel. Dampers located in moisture laden air conditions shall have all metal parts made of stainless steel.
 5. Combination smoke and fire dampers are to be fusible link type with factory sleeve and electric operator located exterior to duct 120 V. operator to be spring return, fail closed with 212 degrees F link and UL label. Provide duct inspection door at each damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasketing around periphery, and a hinged panel. Dampers located in moisture laden air conditions shall have all metal parts made of stainless steel. Belimo operators/actuators only.
 6. Smoke dampers are to be ultra-low leakage (less than 4CFM/ft²) type with factory sleeve and electric operator located exterior to duct 120 V. operator to be spring return, fail closed and UL label. Provide duct inspection door at each damper. Minimum size shall be 8" x 8". Inspection door shall be provided with a steel frame with gasketing around periphery, and a hinged panel. Dampers located in moisture laden air conditions shall have all metal parts made of stainless steel. Belimo operators/actuators only.
 7. A plastic flex elbow support by Flexible Technologies Inc., Titus FlexRight, or approved equal, is required at all flex duct elbows supplying ceiling diffusers & return grilles. Elbow support shall be fully adjustable, or be of universal design, to support flexible diameters 6" – 16", sized to fit flex duct. Elbow supports shall be UL rated for use in return air plenum spaces. At the Contractor's option, a hard elbow may be used in lieu of a flexible elbow.
- C. Diffusers, Registers, Louvers, Grilles, Weathercaps:
1. See Drawings for requirement.
- D. Duct Cleanliness:
1. Ductwork Delivery to Site
 - a. During ductwork being delivered from the premises of the manufacturer, care must be taken to prevent damage during transportation and off-loading.
 2. Temporary Storage
 - a. Job site duct material storage areas should be clean, dry, and located away from high dust generating processes such as masonry or tile cutters, cutoff saws, drywall sanding, mortar and plaster mixers, roof pitch kettles, portable electric generators, and main walkways that will be constantly broom swept. The general contractor should designate a suitable area for temporary storage.
 - b. To prevent ductwork material damage from standing water, storage locations should include pallets or blocking to keep fabricated metal ductwork above the floor surface. If there is a risk of water runoff from above or dusty areas cannot be avoided, coverage should be used to protect stored materials.
 3. Installation
 - a. Before the installation of individual duct sections, they are to be inspected to ensure that they are free from all debris.
 - b. All ductwork risers must be covered to prevent the entry of debris into the duct.
 - c. Access covers shall be firmly fitted in position on completion of each section of the work. Open ends on completed ductwork and overnight work-in-progress shall be sealed.
 - d. The working area should be clean and dry and protected from the elements.

- e. The internal surfaces of the uninsulated ductwork shall be wiped to remove excess dust immediately prior to installation.

2.2 INSULATION

A. General:

- 1. All insulation shall have composite fire and smoke hazard ratings, as tested by ASTM E-84, NFPA 255, and UL 723, not exceeding:

Flame Spread	25
Smoke Developed	50

B. Ductwork - External Insulation:

- 1. Insulation shall be fiberglass insulation with aluminum foil scrim kraft facing. All joints shall be taped with UL listed tape to provide a continuous vapor barrier. The following ducts shall be externally insulated:
 - a. Supply ducts in unconditioned spaces (unless internally insulated)
 - b. Return ducts in unconditioned spaces (unless internally insulated)
 - c. Combustion air ducts
 - d. Outside air intake ducts
 - e. Exposed ductwork located within conditioned spaces shall not be externally insulated
- 2. Insulation thickness & "R" values shall be as follows:
 - a. R-6 – ducts located in unconditioned spaces (such as above ceiling, but below roof insulation) and outside air intake ducts.
 - b. R-12 – ducts located outside of the building's insulation envelope (such as above the attic insulation).

C. Ductwork - Internal Insulation:

- 1. Insulation shall be flexible fiberglass duct liner. Liner shall be attached with 100% coverage of manufacturers recommended adhesive and welded or mechanically fastened galvanized steel pins. All exposed edges of liner shall be coated with adhesive. Duct dimensions shown are net air side face-to-face of duct liner. The following ducts shall be internally insulated:
 - a. Supply and Return ducts within 15'-0" of air handler
 - b. Supply and Return ducts in mechanical rooms
 - c. 15'-0" downstream of VAV terminal units.
 - d. 15'-0" downstream of fan coil units.
 - e. Exterior ducts (located outdoors)
 - f. Buried ductwork below concrete slab
 - g. Ducts as indicated on plans
- 2. Insulation thickness & "R" values shall be as follows:
 - a. R-6 – ducts located in unconditioned spaces (such as above ceiling, but below roof insulation, or buried ductwork) and outside air ducts located outside of the building envelope.
 - b. R-12 – ducts located outside of the building's insulation envelope (such as above the roof).

E. Piping Insulation - Refrigerant Piping:

- 1. Insulation on refrigerant suction piping shall be one-piece preformed flexible formed tubing with built-in closed cell vapor barrier. Seal laps and butt joints with moisture resistant adhesive to provide a continuous vapor seal. Cover all insulated suction lines exposed on the exterior of the building with E-Flex Guard by Airex Manufacturing, Inc. At exterior wall penetration provide Titan outlet by Airex Manufacturing, Inc. or equal with an Insulation thickness

as follows:

Refrigerant line set type	Nominal Pipe Diameter		
	1" and less	1" to < 1½"	1½" and above
Located with-in the conditioned spaces			
Suction	½"	1"	1"
Liquid	not required		
Discharge (hi/low pressure)	1"	1"	1"
Located outside the conditioned spaces			
Suction	½"	1"	1"
Liquid	not required		
Discharge (hi/low pressure)	1½"	1½"	2"

F. Piping Insulation - Exterior (Outdoor) Piping:

1. Piping located outdoors shall be insulated as specified above. In-addition piping shall be covered with a weather-proof aluminum alloy 3003 or 3105 jacket meeting ASTM standard B209, minimum 0.016" thick, installed per the manufacturer's installation requirements. At a minimum the following installation shall occur. The jacketing overlap shall be a minimum of 2". Horizontal piping shall have the jacket seams located at the 3 o'clock or 9 o'clock position with the seam joint openings point downward to shed moisture. Vertical piping shall have the upper jacket seams overlap the lower seam to shed moisture. Valve handles and gauges shall be positioned on the bottom to help prevent water penetration. Banding shall be used to secure the jacketing; screws, rivets, and all other fasteners capable of penetrating the underlying vapor retarder shall be prohibited. Jacketing sealant shall be applied to all longitudinal and circumferential joints and the sealant shall be located between the aluminum jacket, not at the outer lip.

G. Equipment Insulation:

1. Equipment shall be insulated with 2" thick fiberglass, minimum 6 pounds/cubic foot density. Insulation shall be finished with hydraulic setting insulating cement (1½" thick), 6-ounce canvas, and one layer of Arabol over entire surface. Equipment to be insulated includes the following:
 - a. Hot water expansion tank
 - b. Air separator
 - c. Domestic hot water storage tank

2.3 VIBRATION ISOLATION

A. General:

1. All rotating equipment and appurtenances connected to rotating equipment shall be vibration isolated from the supporting structure. No metal-to-metal contact will be permitted between fixed and floating parts. All metal isolators exposed to weather shall be hot dipped galvanized after fabrication. Piping connected to rotating equipment shall be hung with spring hangers for the first 50 pipe diameters.

B. Floor Mounted Spring Isolators:

1. Isolators shall be free standing, laterally stable, and include acoustical friction pads and leveling bolts. Isolators shall have a minimum ratio of spring diameter to operating spring height of 1.0 and an additional travel to solid equal to 50% of rated deflection.

C. Floor Mounted Neoprene Pads:

1. Isolators shall be neoprene waffle or combination neoprene and cork sandwich. Pads shall be sized and selected as per manufacturers loading requirements.

D. Spring Hangers:

1. Vibration hanger shall contain a spring and double deflection neoprene element in series. Spring shall have a diameter not less than 0.8 of compressed operating spring height. Spring shall have a minimum additional spring travel of 50 percent between design height and solid height. Spring shall permit a 15-degree angular misalignment without rubbing on hanger box.

2.4 SEISMIC SUPPORTS

- A. All equipment, ductwork, and piping shall be seismically supported as required by the International Building Code, latest edition. Support details shall be as indicated on the Drawings.

2.5 CONTROL SYSTEM

A. General:

1. The Mechanical Contractor shall be responsible for a complete and operable control system, including equipment, installation, and accessories required to perform the required control functions. All control conduit and wiring shall be furnished by the Electrical Contractor. Thermostats, sub-base switches, remote control devices, etc., shall be supplied by the Mechanical Contractor and installed and connected by the Mechanical Contractor. The Mechanical Contractor shall furnish the Electrical Contractor with wiring diagrams for all mechanical equipment and controls.
2. The Mechanical Contractor shall be responsible for installing all control valves, water flow switches, temperature wells, control dampers, and related equipment which is furnished by the Control Contractor.
4. The control system shall be basically electric, with supplementary electronic devices as required.
5. The Control Contractor shall be a contractor who is regularly engaged in control system work and can furnish a verified list of satisfactory installations of this type and size, for a period of 5 years or more.

B. Control Equipment and Accessories:

1. Control Dampers:

- a. All control dampers are to be furnished under this section, except those specified to be furnished with the air handling units. Damper blades shall be fabricated of 22-gauge galvanized sheet steel and frames shall be not less than 16-gauge galvanized steel. Blades shall be maximum 10 inches wide, 50 inches long, and shall be provided with neoprene gasketed edges and oilite bronze or nylon bearings. Dampers shall be ultra-low leakage, opposed blade type for proportional action and parallel blade type for two-position action. Leakage performance shall be a maximum of 3 cfm per sq. ft. @ a pressure differential of 1" w.g. Provide damper operators for all motorized dampers and louvers. Belimo or approved equal. Submittals shall include leakage and pressure drop data for all control dampers. All outside air dampers shall fail closed.

2. Control Valves:

- a. Control valves 2-1/2" and smaller shall be screwed, 3" and larger shall be grooved or flanged. Screwed valves shall be bronze or cast brass, grooved valves shall be ductile iron, and flanged valves shall be cast iron or cast steel. Three-way valves shall have contoured plugs for linear flow characteristics and constant total flow throughout the stem travel. Straight-thru valves shall be single seated and have equal percentage

characteristics for water service. Flat discs shall be used for on-off control only. All valves shall be stainless steel stems, replaceable seats, and self-adjusting Teflon or rubber packing. All heating control valves shall fail open. Belimo or approved equal.

3. Air Duct Smoke Detector:
 - a. Smoke detectors shall be products of combustion detector and shall be UL listed. The unit shall be designed for detection of combustion gases, fire, and smoke in air ducts in compliance with NFPA Pamphlet 90A. The sheet metal contractor shall provide a minimum 18"x18" hinged access door, in inaccessible ceilings, for each detector that is furnished. The sheet metal contractor is also responsible for providing all necessary transitions in the ductwork for mounting of the duct detector.
4. Thermostats:
 - a. Thermostats shall be 7-day programmable type, with automatic changeover from heating to cooling, be provided with auxiliary contacts.
 - b. Thermostats shall be provided with lockable covers.
 - c. Thermostats installed on exterior walls shall be mounted on an insulating block, or on foam insulation filled J-box.
 - d. All thermostats shall have a mounting height of 46 inches, to the centerline of the device, unless otherwise noted on electrical drawings.
5. Equipment Control Schematics:
 - a. See Drawings for schematics and sequence of operations.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. General:

1. Install all materials and equipment as shown and in strict accordance with the applicable codes for the State and/or city. Plans do not attempt to show exact details of all piping and ductwork, and no extra payment will be allowed for offsets required due to obstructions by other trades. All work shall be done in a neat and orderly fashion and left in a condition satisfactory to the Architect/Engineer.
2. All piping shall be run parallel or perpendicular to established building lines. Install piping to allow for expansion. Install all valves with stems horizontal or above. Install air vents at all high points. Provide all piping which passes through walls, floors, or ceilings with standard weight pipe sleeves.
3. Grooved ends shall be clean and free from indentations, projections, and roll marks in the area from pipe end to groove. Gasket shall be molded and produced by the grooved coupling manufacturer. Verify gasket grade is suitable for the intended service. The grooved coupling manufacturer's factory trained representative shall provide on-site training for the contractor's field personnel in the use of grooving tools, application of groove, and installation of groove end products.
4. Install the grooved piping and fittings in accordance with the latest recommendations as published by the manufacturer. Pipe shall be square cut, $\pm 0.030"$, properly deburred and cleaned. Mark pipe ends at the required location using a gauge supplied by the Manufacturer to ensure full insertion into the coupling or fitting during assembly. Use a manufacturer's tool with proper sized jaw for pressing.

B. Insulation:

1. All piping insulation shall be applied over clean, dry surfaces after the system has been pressure tested and any

leaks corrected. The finished appearance of all insulation shall be smooth and continuous. Provide coat of insulating cement where needed to obtain this result.

2. Flexible duct insulation shall be secured to duct surface with 4-inch-wide bands of adhesive applied on maximum 18-inch centers. Additional galvanized tie-wire support shall be furnished as required and recommended by the insulation manufacturer.

C. Diffusers, Registers and Grilles:

1. All diffusers, grilles, and registers shall be installed tight on their respective mounting surfaces and shall be accurately centered on ceiling tile, recesses, windows, or doors.

D. Ductwork:

1. All sheet metal work shall be done by qualified, experienced mechanics in accordance with the requirements of ASHRAE and the latest edition of the applicable SMACNA Manual. All ductwork shall be installed in a neat and orderly manner, and shall be adequately supported to prevent vibration or sagging. All sheet metal ductwork shall be sealed with United-Sheet Metal Duct Sealer or equal.

E. Air Conditioning Units:

1. Units shall be installed approximately where shown on the plans to provide access space for filter changing, motor, drive and bearing servicing, and fan shaft and coil removal. Pipe drain pan connection through a running trap to floor drain. Unit shall not be operated until filters are installed. Isolate sheet metal ducts from all fans with flexible connectors.

F. Condensing Units/ Heat Pumps:

1. Units located at grade shall be positioned such that they are beyond the roof drip line. Units shall be installed on a 6" concrete pad.
2. Units located on flat rooftops shall be provided with Miro Industries Model HD, or equal, heavy duty galvanized roof support with adjustable legs, sized 6 inches larger, in each direction, than equipment footprint.

END OF SECTION 230100

SECTION 260100 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements for electrical installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 01:
 - 1. Definitions.
 - 2. Code compliance.
 - 3. Drawings and specifications.
 - 4. Submittals.
 - 5. Guarantee of installation.
 - 6. Record documents.
 - 7. Maintenance manuals.
 - 8. Delivery, storage and handling.
 - 9. Temporary Electrical services.
 - 10. Instruction of Owners personnel.
 - 11. Rough-ins.
 - 12. Fees and permits.
 - 13. Electrical installations.
 - 14. Cutting and patching.
 - 15. Excavation and backfilling.
- B. Furnish and install all materials and equipment and provide all labor required and necessary to complete the work shown on the drawings and/or specified in all Sections of Division 26 and all other work and miscellaneous items, not specifically mentioned, but reasonably inferred for a complete installation including all accessories and appurtenances required for testing the system. It is the intent of the drawings and specifications that all systems be complete, and ready for operation. All specified products shall be installed in accordance with all manufacturers' instructions and requirements.

1.3 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical and electrical equipment rooms, furred spaces, chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspace, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and electrical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient temperatures and weather conditions. Examples include rooftop locations.

- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.4 CODE COMPLIANCE

- A. All work and materials shall comply with the latest rules, codes and regulations, including, but not limited to the following:
 - 1. Occupational Safety and Health Act Standards (OSHA).
 - 2. ANSI/IEEE C-2 - National Electrical Safety Code.
 - 3. ADAAG (ADA) Standards - Americans with Disabilities Act.
 - 4. CABO-ANSI A117.1.
 - 5. IEEE Standards.
 - 6. Underwriter's Laboratory – U.L. All products shall be U.L. Listed.
 - 7. NFPA – National Fire Protection Association Codes and Standards of Installation.
 - a. NFPA 70 – National Electric Code
 - b. NFPA 72 – National Fire Alarm Code
 - c. NFPA 101 – Life Safety Code
 - d. NFPA 110 – Standard for Emergency and Standby Power Systems
 - 8. NECA - Standard of Installation.
 - 9. NEMA – Standard of Installation
 - 10. International Building Code
 - 11. International Fire Code
 - 12. International Energy Conservation Code.
- B. Work to be executed and inspected in accordance with local codes and ordinances. Permits, fees or charges for inspection or other services shall be paid for by this Contractor. Local codes and ordinances are to be considered as minimum requirements and must be properly executed without expense to the Owner; but do not relieve the Contractor from work shown that exceeds minimum requirements.

1.5 DRAWINGS AND SPECIFICATIONS

- A. All drawings and all Divisions of these specifications shall be considered as a whole and work of this Division shown anywhere therein shall be furnished under this Division.
- B. Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduits and wiring is not assured. Exact requirements shall be governed by architectural, structural and mechanical conditions of the job. Consult all other drawings in preparation of the bid. Extra lengths of wiring or addition of pull or junction boxes, etc., necessitated by such conditions shall be included in the bid. Check all information and report any apparent discrepancies before submitting bid.

1.6 SUBMITTALS

- A. General: Follow the procedures specified in Division 01 Section "SUBMITTALS".
- B. Substitutions and Material Submittals: By specific designation and description, standards are established for specialties and equipment.

- C. Other makes of specialties and equipment of equal quality will be considered, provided such proposed substitutions are submitted to the Architect for approval at least seven (7) calendar days prior to bid opening. A schedule showing make, type, manufacturer's name and trade designation of all materials and equipment proposed as a substitution shall be submitted together with a single copy of the manufacturer's complete specifications. A list of approved substitutions will be published as an Addendum.
- D. Within thirty (30) days after award of contract, the Contractor shall submit in six (6) copies a schedule showing make, type, manufacturer's name and trade designation of all materials and equipment proposed for use and implementation. This schedule shall be accompanied by the manufacturer's complete specification, in six (6) copies, for each equipment item or materials used, give complete information as to capacities, ratings, kind of material used, finish guarantee, etc., and such dimensions as are necessary to check space requirements. When approved, such schedule and drawing shall be in addition to these specifications and shall be in equal force in that no variation shall be permitted. The Architect is to be the sole judge as to the quality of any material offered as an equal. See General Conditions and Supplementary Conditions to the Contract.
- E. Design is based on equipment as listed in schedules on drawings and included in these specifications. All changes in foundations, bases, supports, connections, controls, space, openings, walls and ceilings and sound and vibration isolation, seismic support, and electrical and mechanical characteristics required by alternate equipment specified, submitted and approved shall be made at no additional cost to the Owner.
- F. Approval rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are approved, said approval does not mean that drawings have been checked in detail; said approval does not in any way relieve the contractor from his responsibility or necessity of furnishing material or performing work as required by the contract drawings and specifications.
- G. Increase, by the quantity listed below, the number of electrical related shop drawings, product data and samples submitted to allow for required distribution plus two (2) copies of each submittal required, which will be retained by the Electrical Consulting Engineer.
1. Shop Drawings – Initial Submittal: one (1) additional print(s).
 2. Shop Drawings – Final Submittal: one (1) additional print(s).
 3. Product Data: one (1) additional copy of each item(s).
- H. Additional copies may be required by individual sections of these Specifications.

1.7 ELECTRONIC SUBMITTAL PROCEDURES

A. Summary:

1. Shop drawings and product data submittals shall be transmitted to Architect in electronic (PDF) format using a website service designed specifically for transmitting submittals between construction team members.
2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.

B. Procedures:

1. Create submittal log by inserting required submittals listed in individual specification section.

2. Submittal Preparation – Contractor may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the website.
 - b. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via email.
 - c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
 3. Printed Submittals: Provide two printed sets of submittals for shop drawings for structural framing in addition to electronic submittals.
 4. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
 5. Contractor shall transmit each submittal to Architect using the website.
 6. Architect / Engineer review comments will receive email notice of completed review.
 7. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
 8. Submit paper copies of any reviewed submittals not submitted electronically at project closeout for record purposes in accordance with Section 017700 – CLOSEOUT PROCEDURES.
- C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable. Include the following information, as applicable.
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specification.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 3. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printing performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 4. Submit Product Data before or concurrent with Samples.
 5. Submit Product Data in the following format.
 - a. Electronic (PDF) format.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the contract Documents or standard data.
1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.

- b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
- 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets a least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm)
- 3. Submit Shop Drawings in the following format:
 - a. Electronic (PDF) format.
- E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number title of application Specification Section.
 - 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Sample not incorporated with Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
- F. Coordination Drawings: Comply with requirements specified in Division 01 Section "PROJECT MANAGEMENT AND COORDINATION."
- G. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects names and addresses, contact information of architects and owners, and other information specified.
- H. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- I. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- J. Manufacturer Certificates: Submit written statements on manufacture's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- K. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- L. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- M. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indication and interpreting test results of material for compliance with requirements in the Contract Documents
- N. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency
- O. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "QUALITY REQUIREMENTS."
- P. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- Q. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- R. Field Test Reports: Submit reports indicating and interpreting results of field test performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- S. Maintenance Data: Comply with requirements specified in Division 01 Section "OPERATION AND MAINTENANCE DATA."
- T. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page number.

1.8 GUARANTEE OF INSTALLATION

- A. All work under this section shall be guaranteed in writing to be free of defective work, materials, or parts for a period of one (1) year from the date of Substantial Completion.
- A. Manufacturer's specific warranties and those specified in this Section shall be included in the Contractor's Guarantee of Installation.
- B. Repair, revision or replacement of any and all defects, failure or inoperativeness shall be done by this section at no cost to the Owner.

1.9 RECORD DOCUMENTS

- A. Prepare record documents in accordance with the requirements in Division 01 Section "PROJECT CLOSEOUT." In addition to the requirements specified in Division 01, indicate the following installed conditions:
1. Conduit racks, size, location, and routing, for interior locations. Show all wiring device locations and connections (including routing), control locations, disconnect switch locations, and final equipment locations including actual dimensions.
 2. Luminaire locations and wiring connections and raceway routings.
 3. Update luminaire schedule to reflect actual manufacturer's components used complete with updated part numbers and lists.
 4. Underground ductbank locations, routings, and quantity of conduits utilized.
 5. All approved substitutions, Contract Modifications and actual equipment and materials installed.
 6. Contract Modifications, actual equipment and materials installed.

1.10 MAINTENANCE MANUALS

- A. Prepare maintenance manuals in accordance with Division 01 Section "PROJECT CLOSEOUT." In addition to the requirements specified in Division 01, include the following information for equipment and systems:
1. Description of function, normal operating characteristics and limitations, performance and engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
 2. Manufacturer's printed operating procedures to include start-up, break-in and routine and normal operating instructions, regulation, control, stopping shutdown and emergency instructions.
 3. Maintenance procedures for routine preventative maintenance and troubleshooting, disassembly, repair and reassembly, aligning and adjusting instructions.
 4. Servicing instructions and schedules.
 5. Complete inventory list of ALL spare and loose parts delivered to Owner at completion of work. Inventory list shall include the applicable specification section, description of parts, manufacturer make/model, quantity and current list pricing.

1.11 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle materials in a manner to prevent damage or interference with traffic conditions.
- B. Protect equipment from weather and dampness.
- C. All material stored on site shall be protected to Owner's standards. Owner may reject any or all material documented to have been improperly stored. Replacement of improperly stored material shall be solely at the contractor's expense.

1.12 TEMPORARY ELECTRICAL SERVICES

- A. Temporary wiring for construction light and power for the general contractor or other subcontractors shall not be included as a part of this section of the work. Refer to Division 01 regarding payment for the electrical energy used for construction light and power and testing of the new installation.

1.13 INSTRUCTION OF OWNER'S PERSONNEL

- A. The Contractor shall conduct an on-site instructional tour of the entire project. The personnel designated by the Owner shall be instructed in: operation of all electrical systems, elementary trouble-shooting procedures, preventive maintenance procedures, uses of Operation and Maintenance Manuals, relamping and cleaning of lighting fixtures and operation of all communication systems. Refer to Division 1 for additional requirements.

1.14 PRODUCT SOURCE LIMITATIONS

- A. Products specified in Division 26 Section "SWITCHBOARDS", "PANELBOARDS" and "ENCLOSED SWITCHES AND CIRCUIT BREAKERS" shall be obtained through one source through a single manufacturer. Source limitations in these individual sections shall not be construed to allow sourcing within these individual sections on an independent basis.

1.15 INCENTIVES AND REBATES

- A. All incentives and rebates offered by outside agencies relating to Energy Efficiency or Tax Incentives offered by Governmental agencies shall be considered property of the Owner and shall not be granted to any contractor performing work on the project.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 FEES AND PERMITS

- A. Arrange and pay for any fees, permits, connections charges, hook-up fees, etc. required with local governing bodies, utilities, etc.

3.2 UTILITY SERVICES

- A. Arrange with Utility Company for permanent electrical services to the facility.
- B. Install electrical service entrance in accordance with Utility Company's rules and regulations.
- C. Make arrangements with Utility Company to obtain permanent electric services to the project.
- D. Coordinate meter and metering conductors provided and installed by Utility Company.

3.3 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications in all other Divisions of work for rough-in requirements.

3.4 ELECTRICAL INSTALLATIONS

- A. General: Sequence, coordinate and integrate the various elements of electrical systems, materials and equipment. Comply with the following requirements:
1. Coordinate electrical systems, equipment and materials installation with other building components. Inform Contractors of other trades of the required access to and clearances around electrical equipment to maintain serviceability and code compliance.
 2. Verify all dimensions by field measurements.
 3. Arrange for chases, slots and openings in other building components during progress of construction to allow for electrical installations.
 4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
 5. Sequence, coordinate and integrate installations of electrical materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing in the Building.
 6. Where mounting heights are not detailed or dimensioned, install systems, materials and equipment to provide the maximum headroom possible.
 7. Install systems, materials and equipment to conform with approved submittal data, including coordination drawings, to the greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirement, refer conflict to the Architect.
 8. Install systems, materials and equipment level and plumb, parallel and perpendicular to other building systems and components where installed exposed in finished spaces.
 9. Install electrical equipment to facilitate servicing, maintenance and repair or replacement of equipment components and as required by Code. As much as practical, connect equipment for ease of disconnecting with minimum of interference with other installations.
 - a. All electrical items, equipment, etc. requiring access and maintenance to be provided with access panels by electrical contractor when located behind hard inaccessible finished surfaces. See Architectural ceiling plans for ceiling and wall finish types.
 10. Install access panel or doors where equipment is concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "ACCESS DOORS".
 11. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
 12. Only quality workmanship will be accepted. Haphazard or poor installation practice will be cause for rejection of work.
 13. Provide foreman in charge of this work at all times.
 14. Where the specifications call for an installation to be made in accordance with Manufacturer's recommendations, a copy of such recommendations shall at all times be kept in the job superintendent's office and shall be available to the Owner's representative.

3.5 QUALITY ASSURANCE

- A. Provide a meaningful Quality Assurance program. To assist the Contractor in this program, the specifications contained herein are set forth as the minimum acceptable requirements. This does not relieve the Contractor from executing other Quality Assurance measures to obtain a complete operating facility within the scope of this project.
- B. The Contractor shall insure that all workmanship, all materials employed, all required equipment and the manner and method of installation conforms to accepted construction and engineering practices, and that each piece of equipment is in satisfactory working condition to satisfactorily perform its functional operation.

- C. Provide quality assurance tests and operational check on all components of the electrical distribution system, all lighting fixtures, and communication systems.

3.6 SECURITY HARDWARE

- A. All visible hardware in detention areas shall be detention-grade, torx-type heads with center-pin reject configuration.
- B. Detention areas shall include all holding areas, and holding movement areas.

3.7 CUTTING AND PATCHING

- A. General: Perform cutting and patching in accordance with Division 01 Section "CUTTING AND PATCHING." In addition to the requirements specified in Division 01, the following requirements apply:
 - 1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.
 - 2. No joists, beams, girders, structural columns, or other structural assemblies/components shall be cut by any contractor without obtaining written permission from the Architect.
- B. Perform cutting, fitting and patching of electrical equipment and materials required to:
 - 1. Uncover work to provide for installation of ill-timed work.
 - 2. Remove and replace defective work.
 - 3. Remove and replace work not conforming to requirements of the Contract Documents.
 - 4. Upon written instructions from the Architect, uncover and restore work to provide for Architect/Engineer observation of concealed work.
- C. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.
 - 1. Patch finished surfaces and building components using new materials specified for the original installation and experienced Installers. Installer's qualifications refer to the materials and methods required for the surface and building components being patched.
 - a. Refer to Division 01 Section "REFERENCES" for definition of "Experienced Installer."

3.8 EXCAVATION AND BACKFILL

- A. General: Perform excavation and backfilling in accordance with Civil Documents. In addition to the requirements specified, the following requirements apply:
 - 1. Protection of Installed Work: During excavating and backfilling operations, protect adjacent installations.
- B. Perform excavating and backfilling for electrical equipment and materials required to:
 - 1. Uncover work to provide for installation of ill-timed work.
 - 2. Remove and replace defective work.
 - 3. Remove and replace work not conforming to requirements of the Contract Documents.
 - 4. Upon written instructions from the Architect, uncover and restore work to provide for Architect/Engineer observation of concealed work.
- C. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

END OF SECTION 260100

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Copper building wire rated 600 V or less.
2. Metal-clad cable, Type MC, rated 600 V or less.
3. Connectors, splices, and terminations rated 600 V and less.

B. Related Requirements:

1. DIVISION 26 Section "SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS, CABLING" for installation requirements for sleeves, sleeve seals, non-rated penetration, and fire rated penetrations.
2. DIVISION 26 Section "CONTROL-VOLTAGE ELECTRICAL POWER CABLES" for control systems communications cables and Classes 1, 2, and 3 control cables.
3. DIVISION 27 Section "COMMUNICATIONS HORIZONTAL CABLING" for twisted pair cabling used for data circuits.

1.3 DEFINITIONS

- A. RoHS: Restriction of Hazardous Substances.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Product Schedule: Indicate type, use, location, and termination locations.

1.5 CLOSEOUT SUBMITTALS

- A. Field quality-control test and reports.

1.6 COORDINATION

- A. Set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- B. Comply with NFPA 70.

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Alcan Products Corporation; Alcan Cable Division.
 - 2. American Insulated Wire Corp.; a Leviton Company.
 - 3. General Cable Corporation.
 - 4. Senator Wire & Cable Company.
 - 5. Southwire Company.
 - 6. Republic Wire Company.

2.3 COPPER BUILDING WIRE

- A. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
- B. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
 - 2. RoHS compliant.
 - 3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- C. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- D. Conductor Insulation. Comply with NEMA WC70 for the following types:
 - 1. Type THHN and Type THWN-2: Comply with UL 83.

2.4 METAL-CLAD CABLE, TYPE MC

- A. Description: A factory assembly of one or more current-carrying insulated conductors in an overall metallic sheath.
- B. Standards:
 - 1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.

2. Comply with UL 1569.
 3. RoHS compliant.
 4. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."
- C. Circuits:
1. Single circuit.
- D. Conductors: Copper, complying with ASTM B 3 for bare annealed copper and with ASTM B 8 for stranded conductors.
- E. Ground Conductor: Insulated.
- F. Conductor Insulation. Comply with NEMA WC70 for the following:
1. Type TFN/THHN/THWN-2: Comply with UL 83.
- G. Armor: Steel, interlocked.

2.5 CONNECTORS AND SPLICES

- A. Description: Factory-fabricated connectors, splices, and lugs of size, ampacity rating, material, type, and class for application and service indicated; listed and labeled as defined in NFPA 70, and marked for intended location and use.
- B. Available Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems, Inc.
 2. Hubbell Power Systems, Inc.
 3. O-Z/Gedney; EGS Electrical Group LLC.
 4. 3M; Electrical Products Division.
 5. Tyco Electronics Corp.
- C. Jacketed Cable Connectors: For steel jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.
- D. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.
1. Material: Copper.
 2. Type: Two hole with long barrels.
 3. Termination: Compression.

2.6 IDENTIFICATION

- A. Identify and color-code conductors and cables according to DIVISION 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
- B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

- A. Feeders: Stranded Copper.
- B. Branch Circuits: Stranded Copper.

3.2 CONDUCTOR INSULATION, APPLICATIONS AND WIRING METHODS

- A. Service Entrance: Type THHN/THWN-2, single conductors in raceway.
- B. Exposed Feeders: Type THHN/THWN-2, single conductors in raceway.
- C. Feeders Concealed in Ceilings, Walls, Partitions, and Crawlspace: Type THHN/THWN-2, single conductors in raceway.
- D. Feeders Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.
- E. Exposed Branch Circuits, Including in Crawlspace, Ceiling Spaces and Service Areas: Type THHN-THWN-2, single conductors in raceway.
- F. Branch Circuits Concealed in Concrete, below Slabs-on-Grade, and Underground: Type THHN/THWN-2, single conductors in raceway.
- G. Branch Circuits Concealed in Ceilings: Type THHN-THWN-2, single conductors in raceway.
- H. Cord Drops and Portable Appliance Connections: Type SO, hard service cord with stainless-steel, wire-mesh, strain relief device at terminations to suit application.

3.3 MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

- A. Branch circuit wiring connections between wiring devices within office-area framed interior partition walls: Type MC.
- B. Branch circuit wiring connections between wiring devices within office-area millwork: Type MC.
- C. Branch circuit wiring connections to devices installed in office-area storefront glazing assemblies: Type MC.
- D. Luminaire flexible cable assemblies not greater than 72 inches (1.83m) in length and without dimming connections: Type MC.
- E. Devices, Systems, equipment connections, and areas of the building where MC cable is prohibited:
 - 1. Where prohibited by NFPA 70.
 - 2. Server Room, IDF Rooms.
 - 3. Mechanical Rooms.
 - 4. Electrical rooms.
 - 5. Maintenance Bay(s).

6. Exterior walls.
7. Roof areas, attic areas, or within roof cavities.
8. Dedicated equipment branch circuit connections.
9. Mechanical, HVAC, and plumbing equipment circuit connections.
10. Signage equipment circuit connections.
11. Lighting control circuit connections.

3.4 INSTALLATION OF CONDUCTORS AND CABLES

- A. Conceal raceways with conductors and cables in finished walls, ceilings, and floors unless otherwise indicated.
- B. Complete raceway installation between conductor and cable termination points according to Division 26 Section "RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS" prior to pulling conductors and cables.
- C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips that will not damage cables or raceway.
- E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.
- F. Support cables according to Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS."

3.5 INSTALLATION OF MULTICONDUCTOR CABLES

- A. Conceal cables in finished walls or constructed components where cables are permitted unless otherwise indicated.
- B. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.
- C. Support cables according to Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS."

3.6 CONNECTIONS

- A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.
- C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

3.7 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- A. Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Division 26 Section "SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING."

3.8 FIRESTOPPING

- A. Apply firestopping to electrical penetrations of fire-rated floor and wall assemblies to restore original fire-resistance rating of assembly according to Division 07 Section "PENETRATION FIRESTOPPING."

END OF SECTION 260519

SECTION 260523 - CONTROL-VOLTAGE ELECTRICAL POWER CABLES**PART 1 - GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. UTP cabling.
 - 2. RS-232 cabling.
 - 3. RS-485 cabling.
 - 4. Low-voltage control cabling.
 - 5. Control-circuit conductors.
 - 6. Identification products.

1.3 RELATED SECTIONS

- A. Division 26 Section "LIGHTING CONTROL DEVICES" for installation requirements for low-voltage lighting control devices.
- B. Division 26 Section "LED INTERIOR LIGHTING" for installation requirements for low-voltage dimming drivers.
- C. Division 26 Section "LED EXTERIOR LIGHTING" for installation requirements for low-voltage dimming drivers.

1.4 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. IDC: Insulation displacement connector.
- C. Low Voltage: As defined in NFPA 70 for circuits and equipment operating at less than 50 V or for remote-control and signaling power-limited circuits.
- D. Open Cabling: Passing telecommunications cabling through open space (e.g., between the studs of a wall cavity).
- E. UTP: Unshielded twisted pair.

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated.

- B. Maintenance Data: For wire and cable to include in maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Test cables upon receipt at Project site.
 - 1. Test each pair of UTP cable for open and short circuits.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install UTP and other cables and connecting materials until wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

PART 2 - PRODUCTS

2.1 PATHWAYS

- A. Support of Open Cabling: NRTL labeled for support of Category 6 cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
 - 1. Support brackets with cable tie slots for fastening cable ties to brackets.
 - 2. Lacing bars, spools, J-hooks, and D-rings.
 - 3. Straps and other devices.
- B. Conduit and Boxes: Comply with requirements in Division 26 Section "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS."
 - 1. Outlet boxes shall be no smaller than 4 inches square by 2 ½ inches deep.

2.2 UTP CABLE

- A. Comply with requirements of Division 27 Section "COMMUNICATIONS HORIZONTAL CABLING."

2.3 UTP CABLE HARDWARE

- A. Comply with requirements of Division 27 Section "COMMUNICATIONS HORIZONTAL CABLING."

2.4 RS-232 CABLE

A. Plenum-Rated Cable: NFPA 70, Type CMP.

1. Paired, two pairs, No. 22 AWG, stranded (7x30) tinned-copper conductors.
2. Plastic insulation.
3. Individual aluminum foil-polyester tape shielded pairs with 100 percent shield coverage.
4. Plastic jacket.
5. Pairs are cabled on common axis with No. 24 AWG, stranded (7x32) tinned-copper drain wire.
6. Flame Resistance: Comply with NFPA 262.

2.5 RS-485 CABLE

A. Plenum-Rated Cable: NFPA 70, Type CMP.

1. Paired, two pairs, No. 22 AWG, stranded (7x30) tinned-copper conductors.
2. Fluorinated ethylene propylene insulation.
3. Unshielded.
4. Fluorinated ethylene propylene jacket.
5. Flame Resistance: NFPA 262, Flame Test.

2.6 LOW-VOLTAGE CONTROL CABLE

A. Plenum-Rated, Paired Cable: NFPA 70, Type CMP.

1. One pair, twisted, No. 16 AWG (minimum size), stranded tinned-copper conductors.
2. PVC insulation.
3. Shielded or Unshielded (based on application or manufactures requirements).
4. PVC jacket.
5. Flame Resistance: Comply with NFPA 262.

B. 0-10V Dimming Paired Cable: NFPA 70, Type CMP, Class 1 Control.

1. One pair (purple, gray), twisted, No. 16 AWG, stranded (19x29) tinned-copper conductors.
2. Fluorinated ethylene propylene insulation.
3. Unshielded.
4. Plastic jacket.
5. Flame resistance: NFPA 262, flame test.

2.7 CONTROL-CIRCUIT CONDUCTORS

A. Class 1 Control Circuits: Stranded copper, Type THHN-THWN, in raceway.

B. Class 2 Control Circuits: Stranded copper, Type THHN-THWN, in raceway.

C. Class 3 Remote-Control and Signal Circuits: Stranded copper, Type TW or Type TF, complying with UL 83.

2.8 IDENTIFICATION PRODUCTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Brady Corporation.
 - 2. HellermannTyton.
 - 3. Kroy LLC.
 - 4. Panduit Corp.
- B. Comply with UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.
- C. Comply with requirements in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

2.9 SOURCE QUALITY CONTROL

- A. Factory test UTP cables on reels according to TIA/EIA-568-B.1.
- B. Factory test UTP cables according to TIA/EIA-568-B.2.
- C. Cable will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.

PART 3 - EXECUTION

3.1 INSTALLATION OF PATHWAYS

- A. Comply with TIA/EIA-569-A for pull-box sizing and length of conduit and number of bends between pull points.
- B. Comply with requirements in Division 26 Section "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS" for installation of conduits and wireways.
- C. Install manufactured conduit sweeps and long-radius elbows if possible.
- D. Pathway Installation in Equipment Rooms:
 - 1. Position conduit ends adjacent to a corner on backboard if a single piece of plywood is installed or in the corner of room if multiple sheets of plywood are installed around perimeter walls of room.
 - 2. Install cable trays to route cables if conduits cannot be located in these positions.
 - 3. Secure conduits to backboard if entering room from overhead.
 - 4. Extend conduits 3 inches (75 mm) above finished floor.
 - 5. Install metal conduits with grounding bushings and connect with grounding conductor to grounding system.

3.2 INSTALLATION OF CONDUCTORS AND CABLES

- A. Install Plenum Rated cables in all areas classified as plenum spaces.
- B. Comply with NECA 1.
- C. Comply with installation requirements of referenced and related sections of work.
- D. General Requirements for Cabling:
 - 1. Comply with TIA/EIA-568-B.1.
 - 2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
 - 3. Terminate all conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, and cross-connect and patch panels.
 - 4. Cables may not be spliced. Secure and support cables at intervals not exceeding 30 inches (760 mm) and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
 - 5. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
 - 6. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
 - 7. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
 - 8. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions.
- E. UTP Cable Installation:
 - 1. Comply with TIA/EIA-568-B.2.
 - 2. Install 110-style IDC termination hardware unless otherwise indicated.
 - 3. Do not untwist UTP cables more than 1/2 inch (12 mm) from the point of termination to maintain cable geometry.
- F. Installation of Control-Circuit Conductors:
 - 1. Install wiring in raceways. Comply with requirements specified in Division 26 Section "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS."
- G. Open-Cable Installation:
 - 1. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
 - 2. Suspend copper cable not in a wireway or pathway a minimum of 8 inches (200 mm) above ceilings by cable supports not more than 60 inches (1525 mm) apart.
 - 3. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.
- H. Separation from EMI Sources:
 - 1. Comply with BICSI TDMM and TIA/EIA-569-A recommendations for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.

2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches (127 mm).
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches (305 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches (600 mm).
3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches (64 mm).
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches (150 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches (305 mm).
4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches (75 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches (150 mm).
5. Separation between Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches (1200 mm).
6. Separation between Cables and Fluorescent Fixtures: A minimum of 5 inches (127 mm).

3.3 REMOVAL OF CONDUCTORS AND CABLES

- A. Remove abandoned conductors and cables.

3.4 CONTROL-CIRCUIT CONDUCTORS

- A. Minimum Conductor Sizes:
 1. Class 1 remote-control and signal circuits, No 14 AWG.
 2. Class 2 low-energy, remote-control, and signal circuits, No. 16 AWG.
 3. Class 3 low-energy, remote-control, alarm, and signal circuits, No 12 AWG.

3.5 FIRESTOPPING

- A. Comply with requirements in Division 07 Section "PENETRATION FIRESTOPPING."
- B. Comply with TIA/EIA-569-A, Annex A, "Firestopping."
- C. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.6 GROUNDING

- A. For data communication wiring, comply with ANSI-J-STD-607-A and with BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. For low-voltage wiring and cabling, comply with requirements in Division 26 Section "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS."

3.7 IDENTIFICATION

- A. Identify system components, wiring, and cabling according to TIA/EIA-606-A. Comply with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

3.8 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Tests and Inspections:
 - 1. Visually inspect UTP and cable jacket materials for UL or third-party certification markings. Inspect cabling terminations to confirm color-coding for pin assignments, and inspect cabling connections to confirm compliance with TIA/EIA-568-B.1.
 - 2. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
 - 3. Test UTP cabling for DC loop resistance, shorts, opens, intermittent faults, and polarity between conductors. Test operation of shorting bars in connection blocks. Test cables after termination but not after cross connection.
 - a. Test instruments shall meet or exceed applicable requirements in TIA/EIA-568-B.2. Perform tests with a tester that complies with performance requirements in "Test Instruments (Normative)" Annex, complying with measurement accuracy specified in "Measurement Accuracy (Informative)" Annex. Use only test cords and adapters that are qualified by test equipment manufacturer for channel or link test configuration.
- C. Document data for each measurement. Print data for submittals in a summary report that is formatted using Table 10.1 in BICSI TDMM as a guide, or transfer the data from the instrument to the computer, save as text files, print, and submit.
- D. End-to-end cabling will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports.

END OF SECTION 260523

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes grounding systems and equipment, plus the following special applications:
 - 1. Underground distribution grounding.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Field quality-control reports.
- C. Operation and Maintenance Data: For grounding to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "OPERATION AND MAINTENANCE DATA," include the following:
 - 1. Instructions for periodic testing and inspection of grounding features at grounding connections for separately derived systems based on NFPA 70B.
 - a. Tests shall determine if ground-resistance or impedance values remain within specified maximums, and instructions shall recommend corrective action if values do not.
 - b. Include recommended testing intervals.

1.4 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with UL 467 for grounding and bonding materials and equipment.

PART 2 - PRODUCTS

2.1 CONDUCTORS

- A. Insulated Conductors: Copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.
- B. Bare Copper Conductors:

1. Solid Conductors: ASTM B 3.
 2. Stranded Conductors: ASTM B 8.
 3. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
 4. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
 5. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
- C. Grounding Bus: Predrilled rectangular bars of annealed copper, 1/4 by 12 inches (6.3 by 305 mm) minimum dimensions in cross section, with 9/32-inch (7.14-mm) holes spaced 1-1/8 inches (28 mm) apart. Stand-off insulators for mounting shall comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.

2.2 CONNECTORS

- A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.
- B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.
- C. Bus-Bar Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
- D. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.
- E. Cable-to-Cable Connectors: Compression type, copper or copper alloy.
- F. Conduit Hubs: Mechanical type, terminal with threaded hub.
- G. Ground Rod Clamps: Mechanical type, copper or copper alloy, terminal with socket set screw.
- H. Lay-in Lug Connector: Mechanical type, copper rated for direct burial terminal with set screw.
- I. Straps: Solid copper, copper lugs. Rated for 600 A.
- J. U-Bolt Clamps: Mechanical type, copper or copper alloy, terminal listed for direct burial.
- K. Water Pipe Clamps:
1. Mechanical type, two pieces with stainless-steel bolts.
 - a. Material: Die-cast zinc alloy.
 - b. Listed for direct burial.
 2. U-bolt type with malleable-iron clamp and copper ground connector.

2.3 GROUNDING ELECTRODES

- A. Ground Rods: Copper-clad steel; 3/4 inch by 10 feet (19 mm by 3 m) in diameter.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Conductors: Stranded Copper unless otherwise indicated.
- B. Grounding Bus: Install in electrical and telephone equipment rooms, in rooms housing service equipment, and elsewhere as indicated.
 - 1. Install bus on insulated spacers 2 inches (50 mm) minimum from wall, 6 inches (150 mm) above finished floor unless otherwise indicated.
- C. Conductor Terminations and Connections:
 - 1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.
 - 2. Underground Connections: Welded connectors.
 - 3. Connections to Ground Rods: Bolted connectors.
 - 4. Connections to Structural Steel: Welded connectors.

3.2 GROUNDING AT THE SERVICE

- A. Equipment grounding conductors and grounding electrode conductors shall be connected to the ground bus. Install a main bonding jumper between the neutral and ground buses.

3.3 GROUNDING SEPARATELY DERIVED SYSTEMS

- A. Generator: Install grounding electrode(s) at the generator location. The electrode shall be connected to the equipment grounding conductor and to the frame of the generator.

3.4 GROUNDING UNDERGROUND DISTRIBUTION SYSTEM COMPONENTS

- A. Comply with IEEE C2 grounding requirements.
- B. Grounding Handholes: Install a driven ground rod through manhole or handhole floor, close to wall, and set rod depth so 4 inches (100 mm) will extend above finished floor. If necessary, install ground rod before manhole is placed and provide No. 1/0 AWG bare, copper conductor from ground rod into manhole through a waterproof sleeve in manhole wall. Protect ground rods passing through concrete floor with a double wrapping of pressure-sensitive insulating tape or heat-shrunk insulating sleeve from 2 inches (50 mm) above to 6 inches (150 mm) below concrete. Seal floor opening with waterproof, nonshrink grout.
- C. Pad-Mounted Transformers and Switches: Install two ground rods and ground ring around the pad. Ground pad-mounted equipment and noncurrent-carrying metal items associated with substations by connecting them to underground cable and grounding electrodes. Install copper conductor not less than No. 2 AWG for ground ring and for taps to equipment grounding terminals. Bury ground ring not less than 6 inches (150 mm) from the foundation.

3.5 EQUIPMENT GROUNDING

- A. Install insulated equipment grounding conductors with all feeder and branch circuits.

- B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.
- C. Water Heater, Heat-Tracing, and Antifrost Heating Cables: Install a separate insulated equipment grounding conductor to each electric water heater and heat-tracing cable. Bond conductor to heater units, piping, connected equipment, and components.
- D. Signal and Communication Equipment: In addition to grounding and bonding required by NFPA 70, provide a separate grounding system complying with requirements in TIA/ATIS J-STD-607-A.
 - 1. For telephone, alarm, voice and data, and other communication equipment, provide No. 4 AWG minimum insulated grounding conductor in raceway from grounding electrode system to each service location, terminal cabinet, wiring closet, and central equipment location.
 - 2. Service and Central Equipment Locations and Wiring Closets: Terminate grounding conductor on a 1/4-by-4-by-12-inch (6.3-by-100-by-300-mm) grounding bus.
 - 3. Terminal Cabinets: Terminate grounding conductor on cabinet grounding terminal.
- E. Metal Poles Supporting Outdoor Lighting Fixtures: Install grounding electrode and a separate insulated equipment grounding conductor in addition to grounding conductor installed with branch-circuit conductors.

3.6 INSTALLATION

- A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.
- B. Ground Rods: Drive rods until tops are 2 inches (50 mm) below finished floor or final grade unless otherwise indicated.
 - 1. Interconnect ground rods with grounding electrode conductor below grade and as otherwise indicated. Make connections without exposing steel or damaging coating if any.
 - 2. For grounding electrode system, install at least three rods spaced at least one-rod length from each other and located at least the same distance from other grounding electrodes, and connect to the service grounding electrode conductor.
- C. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.
 - 1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
 - 2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.
 - 3. Use exothermic-welded connectors for outdoor locations; if a disconnect-type connection is required, use a bolted clamp.
- D. Grounding and Bonding for Piping:

1. Metal Water Service Pipe: Install insulated copper grounding conductors, in conduit, from building's main service equipment, or grounding bus, to main metal water service entrances to building. Connect grounding conductors to main metal water service pipes; use a bolted clamp connector or bolt a lug-type connector to a pipe flange by using one of the lug bolts of the flange. Where a dielectric main water fitting is installed, connect grounding conductor on street side of fitting. Bond metal grounding conductor conduit or sleeve to conductor at each end. Water services include both domestic and fire sprinkler water services.
 2. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
- E. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install bonding jumper to bond across flexible duct connections to achieve continuity.
- F. Grounding for Steel Building Structure: Welded visible connection to structural steel. Bond multiple connections together where steel structure is not continuously connected.
- G. Ufer Ground (Concrete-Encased Grounding Electrode): Fabricate according to NFPA 70; use a minimum of 20 feet (6 m) of bare copper conductor not smaller than No. 4 AWG or size shown on drawings.
1. Bond grounding conductor to reinforcing steel in at least four locations and to anchor bolts. Extend grounding conductor below grade and connect to building's grounding grid or to grounding electrode external to concrete.
- H. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.
1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
 2. Make connections with clean, bare metal at points of contact.
 3. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.7 LABELING

- A. Comply with requirements in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS" Article for instruction signs. The label or its text shall be green.

3.8 FIELD QUALITY CONTROL

- A. Engage a qualified testing agency to perform tests and inspections.
- B. Tests and Inspections:
1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
 2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.

3. Test completed grounding system at each location where a maximum ground-resistance level is specified, at service disconnect enclosure grounding terminal, and at individual ground rods. Make tests at ground rods before any conductors are connected.
 - a. Measure ground resistance no fewer than two full days after last trace of precipitation and without soil being moistened by any means other than natural drainage or seepage and without chemical treatment or other artificial means of reducing natural ground resistance.
 - b. Perform tests by fall-of-potential method according to IEEE 81.
- C. Grounding system will be considered defective if it does not pass tests and inspections.
- D. Prepare test and inspection reports.
- E. Report measured ground resistances that exceed the following values:
 1. Power and Lighting Equipment or System with Capacity More Than 1000 kVA: 3 ohms.
 2. Substations and Pad-Mounted Equipment: 5 ohms.
 3. Manhole Grounds: 10 ohms.
- F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Hangers and supports for electrical equipment and systems.
 - 2. Construction requirements for concrete bases.
- B. Related Sections include the following:
 - 1. Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS" for products and installation requirements necessary for compliance with seismic criteria.

1.3 DEFINITIONS

- A. EMT: Electrical metallic tubing.
- B. IMC: Intermediate metal conduit.
- C. RMC: Rigid metal conduit.

1.4 PERFORMANCE REQUIREMENTS

- A. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.
- B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.
- C. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 QUALITY ASSURANCE

- A. Comply with NFPA 70.

1.6 COORDINATION

- A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Coordinate installation of roof curbs, equipment supports, and roof penetrations. These items are specified in Division 07 Section "ROOF ACCESSORIES."

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

- A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.
 - 1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - a. Allied Tube & Conduit.
 - b. Cooper B-Line, Inc.; a division of Cooper Industries.
 - c. ERICO International Corporation.
 - d. GS Metals Corp.
 - e. Thomas & Betts Corporation.
 - f. Unistrut; Tyco International, Ltd.
 - g. Wesanco, Inc.
 - 2. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
 - 3. Channel Dimensions: Selected for applicable load criteria.
- B. Raceway and Cable Supports: As described in NECA 1 and NECA 101.
- C. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.
- D. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:
 - 1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Hilti Inc.
 - 2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 3) MKT Fastening, LLC.
 - 4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.
 - a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
 - 1) Cooper B-Line, Inc.; a division of Cooper Industries.
 - 2) Empire Tool and Manufacturing Co., Inc.
 - 3) Hilti Inc.
 - 4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
 - 5) MKT Fastening, LLC.
3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

PART 3 - EXECUTION

3.1 APPLICATION

- A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.
- B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.
- C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.
 1. Secure raceways and cables to these supports with single-bolt conduit clamps.
- D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.
- B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

- C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).
- D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:
1. To Wood: Fasten with lag screws or through bolts.
 2. To New Concrete: Bolt to concrete inserts.
 3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
 4. To Existing Concrete: Expansion anchor fasteners.
 5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.
 6. To Steel: Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
 7. To Light Steel: Sheet metal screws.
 8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.
- E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 CONCRETE BASES

- A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.
- B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete or as shown on drawings. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "CAST-IN-PLACE CONCRETE."
- C. Anchor equipment to concrete base.
1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor bolts to elevations required for proper attachment to supported equipment.
 3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.4 PAINTING

- A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).
- B. Touchup: Comply with requirements in Division 09 painting Sections for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.
- C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Metal wireways and auxiliary gutters.
4. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Division 07 Section "PENETRATION FIRESTOPPING" for installation requirements for requirements for fire-rated penetrations.
2. Division 26 Section "UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS" for exterior ductbanks, manholes, handholes, and underground utility construction.
3. Division 26 Section "SLEEVES AND SLEEVE SEALS FOR ELECTRICAL SYSTEMS" for installation requirements for sleeves, sleeve seals, and non-rated penetrations.

1.3 DEFINITIONS

- A. GRC: Galvanized rigid steel conduit.
- B. IMC: Intermediate metal conduit.
- C. EMT: Electrical metallic tubing.
- D. EPDM: Ethylene-propylene-diene terpolymer rubber.
- E. FMC: Flexible metal conduit.
- F. LFMC: Liquidtight flexible metal conduit.
- G. NBR: Acrylonitrile-butadiene rubber.
- H. RNC: Rigid nonmetallic conduit.

1.4 ACTION SUBMITTALS

- A. Product Data: For raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
- B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems, Inc.
 - 2. Alflec Inc.
 - 3. Allied Tube & Conduit; a Tyco International Ltd. Co.
 - 4. Anamet Electrical, Inc.; Anaconda Metal Hose.
 - 5. Electri-Flex Co.
 - 6. Manhattan/CDT/Cole-Flex.
 - 7. Maverick Tube Corporation.
 - 8. O-Z Gedney; a unit of General Signal.
 - 9. Republic Conduit.
 - 10. Wheatland Tube Company.
- B. Metal Conduit:
 - 1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 - 2. Raceway Finishes:
 - a. Factory pigmented/colored raceways shall be utilized for sub-parts of the electrical system scheduled on Drawings and in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
 - b. Factory pigmented/colored raceways shall be available in at least eight (8) unique colors and in Trade Sizes $\frac{1}{2}$ " – 4".
 - c. Factory pigmentation/color shall be organic, corrosion resistant coating.
 - 3. GRC: Comply with ANSI C80.1 and UL 6.
 - 4. IMC: Comply with ANSI C80.6 and UL 1242.
 - 5. PVC-Coated Steel Conduit: PVC-coated rigid steel conduit.
 - a. Comply with NEMA RN 1.
 - b. Coating Thickness: 0.040 inch (1 mm), minimum.
 - 6. EMT: Comply with ANSI C80.3 and UL 797.
 - 7. FMC: Comply with UL 1; zinc-coated steel or aluminum.
 - 8. LFMC: Flexible steel conduit with PVC jacket and complying with UL 360.
- C. Metal Fittings:
 - 1. Comply with NEMA FB 1 and UL 514B.
 - 2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

3. Fittings, General: Listed and labeled for type of conduit, location, and use.
 4. Conduit Fittings for Hazardous (Classified) Locations: Comply with UL 1203 and NFPA 70.
 5. Fittings for EMT:
 - a. Material: Steel or die cast.
 - b. Type: Setscrew or compression.
 6. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.
 7. Coating for Fittings for PVC-Coated Conduit: Minimum thickness of 0.040 inch (1 mm), with overlapping sleeves protecting threaded joints.
 8. Bushings for Steel Connector Fittings:
 - a. For fittings 1" and smaller: Integral insulated throat bushings.
 - b. For fittings 1 1/4" and Larger: Threaded plastic bushings.
- D. Joint Compound for IMC, GRC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems, Inc.
 2. Anamet Electrical, Inc.; Anaconda Metal Hose.
 3. Arnco Corporation.
 4. CANTEX Inc.
 5. CertainTeed Corp.; Pipe & Plastics Group.
 6. Condux International, Inc.
 7. ElecSYS, Inc.
 8. Electri-Flex Co.
 9. Lamson & Sessions; Carlon Electrical Products.
 10. Manhattan/CDT/Cole-Flex.
 11. RACO; a Hubbell Company.
 12. Thomas & Betts Corporation.
- B. Nonmetallic Conduit:
1. Listing and Labeling: Nonmetallic conduit shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 2. RNC: Type EPC-40-PVC or Type EPC-80-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
- C. Nonmetallic Fittings:
1. Fittings, General: Listed and labeled for type of conduit, location, and use.
 2. Fittings for ENT and RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.
 3. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 METAL WIREWAYS AND AUXILIARY GUTTERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper B-Line, Inc.
 - 2. Hoffman.
 - 3. Square D; Schneider Electric.
- B. Description: Sheet metal, complying with UL 870 and NEMA 250, Type 1 or Type 3R unless otherwise indicated, and sized according to NFPA 70.
 - 1. Metal wireways installed outdoors shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
- D. Wireway Covers: Hinged type unless otherwise indicated.
- E. Finish: Manufacturer's standard enamel finish.

2.4 BOXES, ENCLOSURES, AND CABINETS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Cooper Crouse-Hinds; Div. of Cooper Industries, Inc.
 - 2. EGS/Appleton Electric.
 - 3. Erickson Electrical Equipment Company.
 - 4. Hoffman.
 - 5. Hubbell Incorporated; Killark Electric Manufacturing Co. Division.
 - 6. O-Z/Gedney; a unit of General Signal.
 - 7. RACO; a Hubbell Company.
 - 8. Robroy Industries, Inc.; Enclosure Division.
 - 9. Scott Fetzer Co.; Adalet Division.
 - 10. Spring City Electrical Manufacturing Company.
 - 11. Thomas & Betts Corporation.
 - 12. Walker Systems, Inc.; Wiremold Company (The).
 - 13. Woodhead, Daniel Company; Woodhead Industries, Inc. Subsidiary.
- B. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.
- C. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.
- D. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, aluminum, Type FD, with gasketed cover.
- E. Metal Floor Boxes:
 - 1. Material: Sheet metal.
 - 2. Type: Semi-adjustable.
 - 3. Shape: Rectangular.

4. Listing and Labeling: Metal floor boxes shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- F. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb (23 kg). Outlet boxes designed for attachment of luminaires weighing more than 50 lb (23 kg) shall be listed and marked for the maximum allowable weight.
- G. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.
- H. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, cast aluminum with gasketed cover.
- I. Box extensions used to accommodate new building finishes shall be of same material as recessed box.
- J. Device Box Dimensions: 4 inches square by 2-1/2 inches deep. Minimum size for all electrical systems operating at greater than 120V nominal to ground, and for fire alarm systems.
- K. Device Box Dimensions: 4 11/16 inches square by 2 1/2 inches deep minimum size for all communications systems, audio/visual systems, security system components, elsewhere as described in other sections, or where required by code or manufacturers' specific requirements.
- L. Gangable boxes are allowed. Do not use sectional boxes. Provide barriers to separate wiring of different voltage systems.
- M. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 or Type 3R with continuous-hinge cover with flush latch unless otherwise indicated.
 1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
- N. Cabinets:
 1. NEMA 250, Type 1 or Type 3R galvanized-steel box with removable interior panel and removable front, finished inside and out with manufacturer's standard enamel.
 2. Hinged door in front cover with flush latch and concealed hinge.
 3. Key latch to match panelboards.
 4. Metal barriers to separate wiring of different systems and voltage.
 5. Accessory feet where required for freestanding equipment.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

- A. Outdoors: Apply raceway products as specified below unless otherwise indicated:
 1. Exposed Conduit: EMT with compression fittings.
 2. Concealed Conduit, Aboveground: EMT.
 3. Underground Conduit: RNC, Type EPC-40-PVC or Type EPC-80-PVC, direct buried or concrete encased.
 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC.
 5. Boxes and Enclosures, Aboveground: NEMA 250, Type 3R.

- B. Indoors: Apply raceway products as specified below unless otherwise indicated:
1. Exposed at least 48" above floor levels, and Not Subject to Physical Damage: EMT, with compression fittings.
 2. Exposed and Subject to Severe Physical Damage or additional protection required: GRC. Raceway locations include the following:
 - a. Maintenance Bays with 48" of the floor.
 3. Concealed in Ceilings and Interior Walls and Partitions: EMT.
 4. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): FMC, except use LFMC in damp or wet locations.
 5. Damp or Wet Locations: GRC.
 6. Boxes and Enclosures: NEMA 250, Type 1, except use NEMA 250, Type 4 stainless steel in institutional and commercial kitchens and damp or wet locations.
- C. Minimum Raceway Size: 3/4-inch trade size, 1-inch trade size for communications, security, and audio/visual systems.
- D. Raceway Fittings: Compatible with raceways and suitable for use and location.
1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.
 2. PVC Externally Coated, Rigid Steel Conduits: Use only fittings listed for use with this type of conduit. Patch and seal all joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Use sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
 3. EMT: Use setscrew or compression, steel fittings. Comply with NEMA FB 2.10.
 4. Flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

3.2 INSTALLATION

- A. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
- B. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
- C. Complete raceway installation before starting conductor installation.
- D. Comply with requirements in Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" for hangers and supports.
- E. Arrange stub-ups so curved portions of bends are not visible above finished slab.
- F. Install no more than the equivalent of three 90-degree bends in any conduit run except for control, communications, security, and audio/visual wiring conduits, for which no more than the equivalent of two 90-degree bends are allowed. Support within 12 inches (300 mm) of changes in direction.
- G. Conceal conduit and within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
- H. Support conduit within 12 inches (300 mm) of enclosures to which attached.

- I. Install conduit under concrete floor slabs on grade.
 - 1. Change from RNC, Type EPC-40-PVC, to PVC coated GRC conduit, before rising above the floor. Elbows shall be PVC-Coated GRC.
- J. Stub-ups to Above Recessed Ceilings:
 - 1. Use EMT, IMC, or RMC for raceways.
 - 2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.
- K. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.
- L. Coat field-cut threads on PVC-coated raceway with a corrosion-preventing conductive compound prior to assembly.
- M. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.
- N. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
- O. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.
- P. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.
- Q. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.
- R. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.
- S. Install raceway sealing fittings at accessible locations according to NFPA 70 and fill them with listed sealing compound. For concealed raceways, install each fitting in a flush steel box with a blank cover plate having a finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings according to NFPA 70.
- T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:
 - 1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - 2. Where an underground service raceway enters a building or structure.
 - 3. Where otherwise required by NFPA 70.
- U. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

- V. Flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches (1830 mm) of flexible conduit for recessed and semirecessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.
 - 1. Use LFMC in damp or wet locations subject to severe physical damage.
 - 2. Use LFMC in damp or wet locations not subject to severe physical damage.
- W. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- X. Recessed Boxes in Masonry Walls: Locate to require cutting of masonry unit edge only. Saw-cut opening for box, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.
- Y. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.
- Z. Locate boxes so that cover or plate will not span different building finishes.
- AA. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.
- BB. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.
- CC. Set metal floor boxes level and flush with finished floor surface.
- DD. Provide electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and code compliance.
- EE. Electrical box locations shown on Contract Drawings are approximate unless dimensioned. Verify location of floor boxes and outlets in offices and work areas prior to rough-in.
- FF. Locate and install boxes to allow access.
- GG. Locate and install boxes to maintain headroom and to present a neat appearance.
- HH. Provide knockout closures for unused openings.
- II. Use multiple-gang boxes where more than one device are mounted together. Install boxes in walls without damaging wall insulation.
- JJ. Coordinate mounting heights and locations of outlets mounted above counters, benches, and backsplashes.
- KK. Position outlets to locate luminaires as shown on reflected ceiling plans.
- LL. In inaccessible ceiling areas, position outlets and junction boxes within six inches of recessed luminaire, to be accessible through luminaire ceiling opening.
- MM. Provide recessed outlet boxes in finished areas; secure boxes to interior wall and partition studs, accurately positioning to allow for surface finish thickness. Use stamped steel stud

bridges for flush outlets in hollow stud wall, and adjustable steel channel fasteners for flush ceiling outlet boxes.

- NN. Align wall-mounted outlet boxes for switches, thermostats, and similar devices.
- OO. For boxes installed in metal construction, use rigid support metal bar hangers or metal bar fastened to two studs or with metal screws to metal studs.

3.3 INSTALLATION OF UNDERGROUND CONDUIT

A. Direct-Buried Conduit:

1. Comply with Division 26 Section "UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS".
2. Excavate trench bottom to provide firm and uniform support for conduit. Prepare trench bottom as specified in Division 31 Section "EARTH MOVING" for pipe less than 6 inches (150 mm) in nominal diameter.
3. Install backfill as specified in Division 31 Section "EARTH MOVING".
4. After installing conduit, backfill and compact. Start at tie-in point, and work toward end of conduit run, leaving conduit at end of run free to move with expansion and contraction as temperature changes during this process. Firmly hand tamp backfill around conduit to provide maximum supporting strength. After placing controlled backfill to within 12 inches (300 mm) of finished grade, make final conduit connection at end of run and complete backfilling with normal compaction as specified in Division 31 Section "EARTH MOVING."
5. Install manufactured duct elbows for stub-ups at poles and equipment and at building entrances through floor unless otherwise indicated. Encase elbows for stub-up ducts throughout length of elbow.
6. Install manufactured rigid steel conduit elbows for stub-ups at poles and equipment and at building entrances through floor.
 - a. Couple steel conduits to ducts with adapters designed for this purpose, and encase coupling with 3 inches (75 mm) of concrete for a minimum of 12 inches (300 mm) on each side of the coupling.
 - b. For stub-ups at equipment mounted on outdoor concrete bases and where conduits penetrate building foundations, extend steel conduit horizontally a minimum of 60 inches (1500 mm) from edge of foundation or equipment base. Install insulated grounding bushings on terminations at equipment.
7. Warning Planks: Bury warning planks approximately 12 inches (300 mm) above direct-buried conduits but a minimum of 6 inches (150 mm) below grade. Align planks along centerline of conduit.
8. Underground Warning Tape: Comply with requirements in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

3.4 SLEEVE AND SLEEVE-SEAL INSTALLATION FOR ELECTRICAL PENETRATIONS

- #### A.
- Install sleeves and sleeve seals at penetrations of exterior floor and wall assemblies. Comply with requirements in Division 26 Section "SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING."

3.5 FIRESTOPPING

- A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Division 07 Section "PENETRATION FIRESTOPPING."

3.6 PROTECTION

- A. Protect coatings, finishes, and cabinets from damage and deterioration.
 - 1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
 - 2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260543 - UNDERGROUND DUCTS AND RACEWAYS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes for the following components:
 - 1. Metal conduits and fittings, including GRC and PVC-coated steel conduit.
 - 2. Rigid nonmetallic duct.
 - 3. Duct accessories.

1.3 DEFINITIONS

- A. Direct Buried: Duct or a duct bank that is buried in the ground, without any additional casing materials such as concrete.
- B. Duct: A single duct or multiple ducts. Duct may be either installed singly or as component of a duct bank.
- C. Duct Bank:
 - 1. Two or more ducts installed in parallel, with or without additional casing materials.
 - 2. Multiple duct banks.
- D. GRC: Galvanized rigid (steel) conduit.
- E. Trafficways: Locations where vehicular or pedestrian traffic is a normal course of events.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include duct-bank materials, including spacers and miscellaneous components.
 - 2. Include duct, conduits, and their accessories, including elbows, end bells, bends, fittings, and solvent cement.
 - 3. Include underground-line warning tape.

1.5 FIELD CONDITIONS

- A. Interruption of Existing Electrical Service: Do not interrupt electrical service to facilities occupied by Owner or others unless permitted under the following conditions, and then only after arranging to provide temporary electrical service according to requirements indicated:

1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of electrical service.
 2. Do not proceed with interruption of electrical service without Construction Manager's written permission.
- B. Ground Water: Assume ground-water level is at grade level unless a lower water table is noted on Drawings.

PART 2 - PRODUCTS

2.1 METAL CONDUIT AND FITTINGS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems, Inc.
 2. Alflec Inc.
 3. Allied Tube & Conduit; a Tyco International Ltd. Co.
 4. Anamet Electrical, Inc.; Anaconda Metal Hose.
 5. Electri-Flex Co.
 6. Manhattan/CDT/Cole-Flex.
 7. Maverick Tube Corporation.
 8. O-Z Gedney; a unit of General Signal.
 9. Republic Conduit.
 10. Wheatland Tube Company.
- B. GRC: Comply with ANSI C80.1 and UL 6.
- C. Coated Steel Conduit: PVC-coated GRC.
1. Comply with NEMA RN 1.
 2. Coating Thickness: 0.040 inch (1 mm), minimum.
- D. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.

2.2 RIGID NONMETALLIC DUCT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AFC Cable Systems.
 2. ARNCO Corporation.
 3. Beck Manufacturing.
 4. Cantex, Inc.
 5. CertainTeed Corp.
 6. Condux International, Inc.
 7. DCX-CHOL Enterprises, Inc.; ELECSYS Division.
 8. Electri-Flex Company.
 9. IPEX Inc.
 10. Lamson & Sessions; Carlon Electrical Products.
 11. Manhattan Wire Products; a Belden company.

- B. Underground Plastic Utilities Duct: Type EPC-40-PVC or Type EPC-80-PVC RNC, complying with NEMA TC 2 and UL 651, with matching fittings complying with NEMA TC 3 by same manufacturer as duct.
- C. Listed and labeled as defined in NFPA 70, by a nationally recognized testing laboratory, and marked for intended location and application.
- D. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 DUCT ACCESSORIES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. AFC Cable Systems.
 - 2. ARNCO Corporation.
 - 3. Beck Manufacturing.
 - 4. Cantex, Inc.
 - 5. CertainTeed Corp.
 - 6. Condux International, Inc.
 - 7. DCX-CHOL Enterprises, Inc.; ELECSYS Division.
 - 8. Electri-Flex Company.
 - 9. IPEX Inc.
 - 10. Lamson & Sessions; Carlon Electrical Products.
 - 11. Manhattan Wire Products; a Belden company.
- B. Duct Spacers: Factory-fabricated, rigid, PVC interlocking spacers; sized for type and size of duct with which used, and selected to provide minimum duct spacing indicated while supporting duct during concreting or backfilling.
- C. Underground-Line Warning Tape: Comply with requirements for underground-line warning tape specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

PART 3 - EXECUTION

3.1 PREPARATION

- A. Coordinate layout and installation of ducts and, duct banks, with final arrangement of other utilities, site grading, and surface features as determined in the field. Notify Architect if there is a conflict between areas of excavation and existing structures or archaeological sites to remain.
- B. Coordinate elevations of ducts and duct-banks entrances into building slabs with final locations and profiles of duct and duct banks, as determined by coordination with other utilities, underground obstructions, and surface features. Revise locations and elevations as required to suit field conditions and to ensure that duct and duct bank will drain away from building and as approved by Architect.
- C. Clear and grub vegetation to be removed, and protect vegetation to remain according to Division 31 Section "SITE CLEARING." Remove and stockpile topsoil for reapplication according to Division 31 Section "SITE CLEARING."

3.2 UNDERGROUND DUCT APPLICATION

- A. Duct for Electrical Feeders 600 V and Less: Type EPC-80-PVC RNC, direct-buried unless otherwise indicated.
- B. Duct for Electrical Branch Circuits: Type EPC-40-PVC RNC, direct-buried unless otherwise indicated.
- C. Stub-ups: PVC-coated GRC.

3.3 EARTHWORK

- A. Excavation and Backfill: Comply with Division 31 Section "EARTH MOVING," but do not use heavy-duty, hydraulic-operated, compaction equipment.
- B. Restoration: Replace area immediately after backfilling is completed or after construction vehicle traffic in immediate area is complete.
- C. Restore surface features at areas disturbed by excavation, and re-establish original grades unless otherwise indicated. Replace removed sod immediately after backfilling is completed.

3.4 DUCT AND DUCT-BANK INSTALLATION

- A. Where indicated on Drawings, install duct, spacers, and accessories into the duct-bank configuration shown. Duct installation requirements in this Section also apply to duct bank.
- B. Install duct according to NEMA TCB 2.
- C. Slope: Pitch duct a minimum slope of 1:300 down and away from buildings and equipment.
- D. Curves and Bends: Use 5-degree angle couplings for small changes in direction. Use manufactured long sweep bends with a minimum radius of 48 inches (1200 mm), both horizontally and vertically, at other locations unless otherwise indicated.
 - 1. Duct shall have maximum of two 90 degree bends or the total of all bends shall be no more 180 degrees between pull points.
- E. Joints: Use solvent-cemented joints in duct and fittings and make watertight according to manufacturer's written instructions. Stagger couplings so those of adjacent duct do not lie in same plane.
- F. Sealing: Provide temporary closure at terminations of duct. Seal duct at terminations. Use sealing compound and plugs to withstand at least 15-psig (1.03-MPa) hydrostatic pressure.
- G. Pulling Cord: Install 200-lbf- (1000-N-) test nylon cord in empty ducts.
- H. Direct-Buried Duct and Duct Bank:
 - 1. Excavate trench bottom to provide firm and uniform support for duct. Comply with requirements in Division 31 Section "EARTH MOVING" for preparation of trench bottoms for pipes less than 6 inches (150 mm) in nominal diameter.
 - 2. Width: Excavate trench 3 inches (75 mm) wider than duct on each side.

3. Depth: Refer to schedules on drawings.
4. Set elevation of bottom of duct bank below frost line.
5. Support ducts on duct spacers coordinated with duct size, duct spacing, and outdoor temperature.
6. Spacer Installation: Place spacers close enough to prevent sagging and deforming of duct, with not less than five spacers per 20 feet (6 m) of duct. Place spacers within 24 inches (600 mm) of duct ends. Stagger spacers approximately 6 inches (150 mm) between tiers. Secure spacers to earth and to ducts to prevent floating during concreting. Tie entire assembly together using fabric straps; do not use tie wires or reinforcing steel that may form conductive or magnetic loops around ducts or duct groups.
7. Install duct with a minimum of 3 inches (75 mm) between ducts for like services and 6 inches (150 mm) between power and communications duct.
8. Elbows: Install manufactured duct elbows for stub-ups, at building entrances, and at changes of direction in duct direction unless otherwise indicated.
9. Install manufactured GRC elbows for stub-ups, at building entrances, and at changes of direction in duct.
 - a. Couple RNC duct to GRC with adapters designed for this purpose.
 - b. Stub-ups shall be minimum 12 inches (300 mm) above finished floor and minimum 3 inches (75 mm) from conduit side to edge of slab.
10. After installing first tier of duct, backfill and compact. Start at tie-in point and work toward end of duct run, leaving ducts at end of run free to move with expansion and contraction as temperature changes during this process. Repeat procedure after placing each tier. After placing last tier, hand place backfill to 4 inches (100 mm) over duct and hand tamp. Firmly tamp backfill around ducts to provide maximum supporting strength. Use hand tamper only. After placing controlled backfill over final tier, make final duct connections at end of run and complete backfilling with normal compaction. Comply with requirements in Division 31 Section "EARTH MOVING" for installation of backfill materials.
 - a. Place minimum 3 inches (75 mm) of sand as a bed for duct. Place sand to a minimum of 6 inches (150 mm) above top level of duct.
- I. Underground-Line Warning Tape: Bury conducting underground line specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS" no less than 12 inches (300 mm) above all duct banks and approximately 12 inches (300 mm) below grade. Align tape parallel to and within 3 inches (75 mm) of centerline of duct bank. Provide an additional warning tape for each 12-inch (300-mm) increment of duct-bank width over a nominal 18 inches (450 mm). Space additional tapes 12 inches (300 mm) apart, horizontally.

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 1. Demonstrate capability and compliance with requirements on completion of installation of underground ducts and duct banks.
 2. Pull solid aluminum or wood test mandrel through duct to prove joint integrity and adequate bend radii, and test for out-of-round duct. Provide a minimum 12-inch- (300-mm-) long mandrel equal to duct size minus 1/4 inch (6 mm). If obstructions are indicated, remove obstructions and retest.

- B. Correct deficiencies and retest as specified above to demonstrate compliance.

3.6 CLEANING

- A. Pull leather-washer-type duct cleaner, with graduated washer sizes, through full length of duct until duct cleaner indicates that duct is clear of dirt and debris. Follow with rubber duct swab for final cleaning and to assist in spreading lubricant throughout ducts.

END OF SECTION 260543

SECTION 260544 - SLEEVES AND SLEEVE SEALS FOR ELECTRICAL RACEWAYS AND CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Sleeves for raceway and cable penetration of non-fire-rated construction walls and floors.
- 2. Grout.
- 3. Silicone sealants.

B. Related Requirements:

- 1. Division 07 Section "PENETRATION FIRESTOPPING" for penetration firestopping installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers, with and without penetrating items.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.

PART 2 - PRODUCTS

2.1 SLEEVES

A. Wall Sleeves:

- 1. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, zinc coated, plain ends.
- 2. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop unless otherwise indicated.

- B. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies: Galvanized-steel sheet; 0.0239-inch (0.6-mm) minimum thickness; round tube closed with welded longitudinal joint, with tabs for screw-fastening the sleeve to the board.

C. Sleeves for Rectangular Openings:

- 1. Material: Galvanized sheet steel.
- 2. Minimum Metal Thickness:
 - a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and with no side larger than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).

- b. For sleeve cross-section rectangle perimeter 50 inches (1270 mm) or more and one or more sides larger than 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

2.2 GROUT

- A. Description: Nonshrink; recommended for interior and exterior sealing openings in non-fire-rated walls or floors.
- B. Standard: ASTM C 1107/C 1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
- C. Design Mix: 5000-psi (34.5-MPa), 28-day compressive strength.
- D. Packaging: Premixed and factory packaged.

2.3 SILICONE SEALANTS

- A. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants of grade indicated below.
 - 1. Grade: Pourable (self-leveling) formulation for openings in floors and other horizontal surfaces that are not fire rated.
 - 2. Sealant shall have VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
 - 3. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- B. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

PART 3 - EXECUTION

3.1 SLEEVE INSTALLATION FOR NON-FIRE-RATED ELECTRICAL PENETRATIONS

- A. Comply with NECA 1.
- B. Sleeves for Conduits Penetrating Above-Grade Non-Fire-Rated Concrete and Masonry-Unit Floors and Walls:
 - 1. Interior Penetrations of Non-Fire-Rated Walls and Floors:
 - a. Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "JOINT SEALANTS."
 - b. Seal space outside of sleeves with mortar or grout. Pack sealing material solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect material while curing.

2. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.
3. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable unless sleeve seal is to be installed or unless seismic criteria require different clearance.
4. Install sleeves for wall penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of walls. Cut sleeves to length for mounting flush with both surfaces of walls. Deburr after cutting.
5. Install sleeves for floor penetrations. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level. Install sleeves during erection of floors.

C. Sleeves for Conduits Penetrating Non-Fire-Rated Gypsum Board Assemblies:

1. Use circular metal sleeves unless penetration arrangement requires rectangular sleeved opening.
2. Seal space outside of sleeves with approved joint compound for gypsum board assemblies.

D. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

E. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

F. Underground, Exterior-Wall and Floor Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway or cable and sleeve for installing sleeve-seal system.

3.2 SLEEVE INSTALLATION FOR FIRE-RATED ELECTRICAL PENETRATIONS

A. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "PENETRATION FIRESTOPPING."

B. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "PENETRATION FIRESTOPPING."

END OF SECTION 260544

SECTION 260548 - VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Channel support systems.
 - 2. Restraint cables.
 - 3. Hanger rod stiffeners.
 - 4. Anchorage bushings and washers.
- B. Related Sections include the following:
 - 1. Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" for commonly used electrical supports and installation requirements.

1.3 DEFINITIONS

- A. The IBC: International Building Code.
- B. ICC-ES: ICC-Evaluation Service.

1.4 PERFORMANCE REQUIREMENTS

- A. Seismic-Restraint Loading:
 - 1. Site Class as Defined in the IBC: See Structural Documents.
 - 2. Assigned Seismic Use Group or Building Category as Defined in the IBC: See Structural Documents.
 - a. Component Importance Factor: See Structural Documents.
 - b. Component Response Modification Factor: See Structural Documents.
 - c. Component Amplification Factor: See Structural Documents.
 - 3. Design Spectral Response Acceleration at Short Periods (0.2 Second): See Structural Documents
 - 4. Design Spectral Response Acceleration at 1.0-Second Period: See Structural Documents.

1.5 SUBMITTALS

A. Product Data: For the following:

1. Include rated load, rated deflection, and overload capacity for each vibration isolation device.
2. Illustrate and indicate style, material, strength, fastening provision, and finish for each type and size of seismic-restraint component used.
 - a. Tabulate types and sizes of seismic restraints, complete with report numbers and rated strength in tension and shear as evaluated by an evaluation service member of ICC-ES.
 - b. Annotate to indicate application of each product submitted and compliance with requirements.
3. Restrained-Isolation Devices: Include ratings for horizontal, vertical, and combined loads.

B. Delegated-Design Submittal: For vibration isolation and seismic-restraint details indicated to comply with performance requirements and design criteria, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1. Design Calculations: Calculate static and dynamic loading due to equipment weight and operation, seismic forces required to select vibration isolators and seismic restraints.
 - a. Coordinate design calculations with wind-load calculations required for equipment mounted outdoors. Comply with requirements in other Division 26 Sections for equipment mounted outdoors.
2. Indicate materials and dimensions and identify hardware, including attachment and anchorage devices.
3. Field-fabricated supports.
4. Seismic-Restraint Details:
 - a. Design Analysis: To support selection and arrangement of seismic restraints. Include calculations of combined tensile and shear loads.
 - b. Details: Indicate fabrication and arrangement. Detail attachments of restraints to the restrained items and to the structure. Show attachment locations, methods, and spacings. Identify components, list their strengths, and indicate directions and values of forces transmitted to the structure during seismic events. Indicate association with vibration isolation devices.
 - c. Preapproval and Evaluation Documentation: By an evaluation service member of ICC-ES, showing maximum ratings of restraint items and the basis for approval (tests or calculations).

C. Coordination Drawings: Show coordination of seismic bracing for electrical components with other systems and equipment in the vicinity, including other supports and seismic restraints.

D. Qualification Data: For professional engineer and testing agency.

E. Field quality-control test reports.

1.6 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent agency, with the experience and capability to conduct the testing indicated, that is a nationally recognized testing laboratory (NRTL) as defined by OSHA in 29 CFR 1910.7, and that is acceptable to authorities having jurisdiction.
- B. Comply with seismic-restraint requirements in the IBC unless requirements in this Section are more stringent.
- C. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."
- D. Seismic-restraint devices shall have horizontal and vertical load testing and analysis and shall bear anchorage preapproval by ICC-ES, or preapproval by another agency acceptable to authorities having jurisdiction, showing maximum seismic-restraint ratings. Ratings based on independent testing are preferred to ratings based on calculations. If preapproved ratings are not available, submittals based on independent testing are preferred. Calculations (including combining shear and tensile loads) to support seismic-restraint designs must be signed and sealed by a qualified professional engineer.
- E. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 SEISMIC-RESTRAINT DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Amber/Booth Company, Inc.
 - 2. California Dynamics Corporation.
 - 3. Cooper B-Line, Inc.; a division of Cooper Industries.
 - 4. Hilti Inc.
 - 5. Loos & Co.; Seismic Earthquake Division.
 - 6. Mason Industries.
 - 7. TOLCO Incorporated; a brand of NIBCO INC.
 - 8. Unistrut; Tyco International, Ltd.
- B. General Requirements for Restraint Components: Rated strengths, features, and application requirements shall be as defined in reports by an evaluation service member of ICC-ES.
 - 1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.
- C. Channel Support System: MFMA-3, shop- or field-fabricated support assembly made of slotted steel channels with accessories for attachment to braced component at one end and to building structure at the other end and other matching components and with corrosion-resistant coating; and rated in tension, compression, and torsion forces.
- D. Restraint Cables: ASTM A 603 galvanized-steel cables with end connections made of steel assemblies with thimbles, brackets, swivels, and bolts designed for restraining cable service; and with a minimum of two clamping bolts for cable engagement.

- E. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections or Reinforcing steel angle clamped to hanger rod. Do not weld stiffeners to rods.
- F. Bushings for Floor-Mounted Equipment Anchor: Neoprene bushings designed for rigid equipment mountings, and matched to type and size of anchors and studs.
- G. Bushing Assemblies for Wall-Mounted Equipment Anchorage: Assemblies of neoprene elements and steel sleeves designed for rigid equipment mountings, and matched to type and size of attachment devices.
- H. Resilient Isolation Washers and Bushings: One-piece, molded, oil- and water-resistant neoprene, with a flat washer face.
- I. Mechanical Anchor: Drilled-in and stud-wedge or female-wedge type in zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchors with strength required for anchor and as tested according to ASTM E 488. Minimum length of eight times diameter.
- J. Adhesive Anchor: Drilled-in and capsule anchor system containing polyvinyl or urethane methacrylate-based resin and accelerator, or injected polymer or hybrid mortar adhesive. Provide anchor bolts and hardware with zinc-coated steel for interior applications and stainless steel for exterior applications. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

2.2 FACTORY FINISHES

- A. Finish: Manufacturer's standard paint applied to factory-assembled and -tested equipment before shipping.
 - 1. Powder coating on springs and housings.
 - 2. All hardware shall be galvanized. Hot-dip galvanize metal components for exterior use.
 - 3. Baked enamel or powder coat for metal components on isolators for interior use.
 - 4. Color-code or otherwise mark vibration isolation and seismic-control devices to indicate capacity range.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas and equipment to receive vibration isolation and seismic-control devices for compliance with requirements for installation tolerances and other conditions affecting performance.
- B. Examine roughing-in of reinforcement and cast-in-place anchors to verify actual locations before installation.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLICATIONS

- A. Multiple Raceways or Cables: Secure raceways and cables to trapeze member with clamps approved for application by an evaluation service member of ICC-ES.
- B. Hanger Rod Stiffeners: Install hanger rod stiffeners where required to receive them and where required to prevent buckling of hanger rods due to seismic forces.
- C. Strength of Support and Seismic-Restraint Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static and seismic loads within specified loading limits.

3.3 SEISMIC-RESTRAINT DEVICE INSTALLATION

- A. Equipment and Hanger Restraints:
 - 1. Install resilient, bolt-isolation washers on equipment anchor bolts where clearance between anchor and adjacent surface exceeds 0.125 inch (3.2 mm).
 - 2. Install seismic-restraint devices using methods approved by an evaluation service member of ICC-ES providing required submittals for component.
- B. Install bushing assemblies for mounting bolts for wall-mounted equipment, arranged to provide resilient media where equipment or equipment-mounting channels are attached to wall.
- C. Attachment to Structure: If specific attachment is not indicated, anchor bracing to structure at flanges of beams, at upper truss chords of bar joists, or at concrete members.
- D. Drilled-in Anchors:
 - 1. Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Do not damage existing reinforcing or embedded items during coring or drilling. Notify the structural engineer if reinforcing steel or other embedded items are encountered during drilling. Locate and avoid prestressed tendons, electrical and telecommunications conduit, and gas lines.
 - 2. Do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.
 - 3. Wedge Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in the structural element to which anchor is to be fastened.
 - 4. Adhesive Anchors: Clean holes to remove loose material and drilling dust prior to installation of adhesive. Place adhesive in holes proceeding from the bottom of the hole and progressing toward the surface in such a manner as to avoid introduction of air pockets in the adhesive.
 - 5. Set anchors to manufacturer's recommended torque, using a torque wrench.
 - 6. Install zinc-coated steel anchors for interior and stainless-steel anchors for exterior applications.

3.4 ACCOMMODATION OF DIFFERENTIAL SEISMIC MOTION

- A. Install flexible connections in runs of raceways, cables, wireways, cable trays, and busways where they cross seismic joints, where adjacent sections or branches are supported by different structural elements, and where they terminate with connection to equipment that is anchored to a different structural element from the one supporting them as they approach equipment.

3.5 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections and prepare test reports.
- B. Perform tests and inspections.
- C. Tests and Inspections:
 - 1. Provide evidence of recent calibration of test equipment by a testing agency acceptable to authorities having jurisdiction.
 - 2. Schedule test with Owner, through Architect, before connecting anchorage device to restrained component (unless postconnection testing has been approved), and with at least seven days' advance notice.
 - 3. Obtain Architect's approval before transmitting test loads to structure. Provide temporary load-spreading members.
 - 4. Test at least four of each type and size of installed anchors and fasteners selected by Architect.
 - 5. Test to 90 percent of rated proof load of device.
 - 6. Measure isolator restraint clearance.
 - 7. Measure isolator deflection.
 - 8. Verify snubber minimum clearances.
 - 9. If a device fails test, modify all installations of same type and retest until satisfactory results are achieved.
- D. Remove and replace malfunctioning units and retest as specified above.
- E. Prepare test and inspection reports.

3.6 ADJUSTING

- A. Adjust isolators after isolated equipment is at operating weight.
- B. Adjust limit stops on restrained spring isolators to mount equipment at normal operating height. After equipment installation is complete, adjust limit stops so they are out of contact during normal operation.
- C. Adjust active height of spring isolators.
- D. Adjust restraints to permit free movement of equipment within normal mode of operation.

3.7 ELECTRICAL VIBRATION-CONTROL AND SEISMIC-RESTRAINT DEVICE SCHEDULE

- A. Supported or Suspended Equipment:
 - 1. Grouped Raceway Systems
- B. Free-Standing Equipment
 - 1. Switchboards

END OF SECTION 260548

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Color and legend requirements for raceways, conductors, and warning labels and signs.
2. Labels.
3. Bands and tubes.
4. Tapes and stencils.
5. Tags.
6. Signs.
7. Cable ties.
8. Paint for identification.
9. Fasteners for labels and signs.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.
- B. Samples: For each type of label and sign to illustrate composition, size, colors, lettering style, mounting provisions, and graphic features of identification products.
- C. Identification Schedule: For each piece of electrical equipment and electrical system components to be an index of nomenclature for electrical equipment and system components used in identification signs and labels. Use same designations indicated on Drawings.
- D. Delegated-Design Submittal: For arc-flash hazard study.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with ASME A13.1 and IEEE C2.
- B. Comply with NFPA 70.
- C. Comply with 29 CFR 1910.144 and 29 CFR 1910.145.
- D. Comply with ANSI Z535.4 for safety signs and labels.

- E. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

2.2 COLOR AND LEGEND REQUIREMENTS

- A. Raceways and Cables Carrying Circuits at 600 V or Less:
 - 1. Factory pigmented/colored raceways shall be used for all associated connections related to the following systems. See Division 26 Section "RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS."
 - a. Fire Alarm: Red
- B. Color-Coding for Phase- and Voltage-Level Identification, 600 V or Less: Use colors listed below for ungrounded service feeder and branch-circuit conductors.
 - 1. Color shall be factory applied.
 - 2. Colors for 208/120-V Circuits:
 - a. Phase A: Black.
 - b. Phase B: Red.
 - c. Phase C: Blue.
 - 3. Color for Neutral: White.
 - 4. Color for Equipment Grounds: Bare copper, Green or Green with a yellow stripe.
- C. Warning labels and signs shall include, but are not limited to, the following legends:
 - 1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
 - 2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR FOR 36 INCHES (915 MM)."
 - 3. All warning information required by NFPA 70 and NFPA 70E
- D. Equipment Identification Labels:
 - 1. Black letters on a white field unless otherwise noted.
 - 2. Refer to typical details shown on Drawings for labeling layout and information required.

2.3 LABELS

- A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.
- B. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- (0.08-mm-) thick, polyester flexible label with acrylic pressure-sensitive adhesive.
 - 1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
 - 2. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.

- C. Self-Adhesive Labels: Polyester, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.

1. Minimum Nominal Size:

- a. 1-1/2 by 6 inches (37 by 150 mm) for raceway and conductors.
- b. 3-1/2 by 5 inches (76 by 127 mm) for equipment.
- c. As required by authorities having jurisdiction.

2.4 TAPES AND STENCILS

- A. Marker Tapes: Vinyl or vinyl-cloth, self-adhesive wraparound type, with circuit identification legend machine printed by thermal transfer or equivalent process.
- B. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide; compounded for outdoor use.
- C. Floor Marking Tape: 2-inch- (50-mm-) wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.
- D. Underground-Line Warning Tape:
1. Tape:
 - a. Recommended by manufacturer for the method of installation and suitable to identify and locate underground electrical and communications utility lines.
 - b. Printing on tape shall be permanent and shall not be damaged by burial operations.
 - c. Tape material and ink shall be chemically inert and not subject to degradation when exposed to acids, alkalis, and other destructive substances commonly found in soils.
 2. Color and Printing:
 - a. Comply with ANSI Z535.1, ANSI Z535.2, ANSI Z535.3, ANSI Z535.4, and ANSI Z535.5.
 - b. Inscriptions for Red-Colored Tapes: "ELECTRIC LINE, HIGH VOLTAGE".
 - c. Inscriptions for Orange-Colored Tapes: "TELEPHONE CABLE, CATV CABLE, COMMUNICATIONS CABLE, OPTICAL FIBER CABLE".
 - d. Detectable three-layer laminate, consisting of a printed pigmented polyolefin film, a solid aluminum-foil core, and a clear protective film that allows inspection of the continuity of the conductive core; bright colored, compounded for direct-burial service.
 - e. Width: 3 inches (75 mm).
 - f. Overall Thickness: 5 mils (0.125 mm).
 - g. Foil Core Thickness: 0.35 mil (0.00889 mm).
 - h. Weight: 28 lb/1000 sq. ft. (13.7 kg/100 sq. m).
 - i. Tensile according to ASTM D 882: 70 lbf (311.3 N) and 4600 psi (31.7 MPa).

2.5 TAGS

- A. Write-on Tags:

1. Polyester Tags: 0.015 inch (0.38 mm) thick, with corrosion-resistant grommet and cable tie for attachment.
2. Marker for Tags: Permanent, waterproof, black ink marker recommended by tag manufacturer.
3. Marker for Tags: Machine-printed, permanent, waterproof, black ink marker recommended by printer manufacturer.

2.6 SIGNS

A. Laminated Acrylic or Melamine Plastic Signs:

1. Engraved legend.
2. Thickness:
 - a. For signs up to 20 sq. in. (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
 - b. For signs larger than 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick.
- c. Engraved legend with finishes noted on Drawings.
- d. Punched or drilled for mechanical fasteners with 1/4-inch (6.4-mm) grommets in corners for mounting or Self-adhesive.
- e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.7 CABLE TIES

A. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D 638: 7000 psi (48.2 MPa).
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
5. Color: Black.

2.8 MISCELLANEOUS IDENTIFICATION PRODUCTS

- A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).
- B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

- A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.
- B. Install identifying devices before installing acoustical ceilings and similar concealment.
- C. Verify identity of each item before installing identification products.
- D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.
- E. Apply identification devices to surfaces that require finish after completing finish work.
- F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.
- G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.
 - 1. Secure tight to surface of conductor, cable, or raceway.
- H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.
- I. Emergency Operating Instruction Signs: Install instruction signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.
- J. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.
- K. Vinyl Wraparound Labels:
 - 1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
 - 2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.
- L. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.
- M. Self-Adhesive Labels:
 - 1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.
- N. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.

- O. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
 - 1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.
- P. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.
- Q. Underground Line Warning Tape:
 - 1. During backfilling of trenches, install continuous underground-line warning tape directly above cable or raceway at 6 to 8 inches (150 to 200 mm) below finished grade. Use multiple tapes where width of multiple lines installed in a common trench or concrete envelope exceeds 16 inches (400 mm) overall.
 - 2. Limit use of underground-line warning tape to direct-buried cables.
 - 3. Install underground-line warning tape for direct-buried cables and cables in raceways.
- R. Write-on Tags:
 - 1. Place in a location with high visibility and accessibility.
 - 2. Secure using plenum-rated cable ties.
- S. Laminated Acrylic or Melamine Plastic Signs:
 - 1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
 - 2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use labels 2 inches (50 mm) high.
- T. Cable Ties: General purpose, for attaching tags, except as listed below:
 - 1. Outdoors: UV-stabilized nylon.
 - 2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

- A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.
- B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.
- C. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. Field-paint junction box covers according to raceway color schedule. System legends shall be as follows:
 - 1. "POWER." (Normal, standby)
 - 2. "LIGHTING." (Normal, standby)
 - 3. Fire Alarm (Red)
 - 4. Network Systems (Blue)

- D. Power-Circuit Conductor Identification, 600 V or Less: For conductors in vaults, pull and junction boxes, manholes, and handholes, use self-adhesive wraparound labels and self-adhesive vinyl tape to identify the phase.
 - 1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.
- E. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive labels with the conductor or cable designation, origin, and destination.
- F. Control-Circuit Conductor Termination Identification: For identification at terminations, provide self-adhesive labels with the conductor designation.
- G. Conductors to Be Extended in the Future: Attach marker tape to conductors and list source.
- H. Auxiliary Electrical Systems Conductor Identification: Marker tape that is uniform and consistent with system used by manufacturer for factory-installed connections.
 - 1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
- I. Locations of Underground Lines: Underground-line warning tape for power, lighting, communication, and control wiring and optical-fiber cable.
- J. Workspace Indication: Apply floor marking tape to finished surfaces. Show working clearances in the direction of access to live parts. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.
- K. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.
- L. Warning Labels for Indoor Cabinets, Boxes, and Enclosures for Power and Lighting: Self-adhesive labels.
 - 1. Apply to exterior of door, cover, or other access.
 - 2. For equipment with multiple power or control sources, apply to door or cover of equipment, including, but not limited to, the following:
 - a. Power-transfer switches.
 - b. Controls with external control power connections.
- M. Arc Flash Warning Labeling: Self-adhesive labels.
- N. Operating Instruction Signs: Laminated acrylic or melamine plastic signs.
- O. Emergency Operating Instruction Signs: Laminated acrylic or melamine plastic signs with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.
- P. Equipment Identification Labels:
 - 1. Indoor Equipment: Laminated acrylic or melamine plastic sign.

2. Outdoor Equipment: Laminated acrylic or melamine sign.
3. Equipment to Be Labeled:
 - a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a self-adhesive, engraved, laminated acrylic or melamine label.
 - b. Enclosures and electrical cabinets.
 - c. Access doors and panels for concealed electrical items.
 - d. Switchboards.
 - e. Enclosed switches.
 - f. Push-button stations.
 - g. Power-transfer equipment.
 - h. Remote-controlled switches, dimmer modules, and control devices.
 - i. Power-generating units.
 - j. Monitoring and control equipment.

END OF SECTION 260553

SECTION 260923 - LIGHTING CONTROL DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Indoor occupancy and vacancy sensors.
- B. Related Requirements:
 - 1. Division 26 Section "WIRING DEVICES" for wall-box dimmers, non-networkable wall-switch occupancy sensors, and manual light switches.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Show installation details for the following:
 - a. Occupancy sensors.
 - b. Vacancy sensors.
 - 2. Interconnection diagrams showing field-installed wiring.
 - 3. Include diagrams for power, signal, and control wiring.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each type of lighting control device to include in operation and maintenance manuals.

1.5 WARRANTY

- A. Manufacturer's Warranty: Manufacturer and Installer agree to repair or replace lighting control devices that fail(s) in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Faulty operation of lighting control software.
 - b. Faulty operation of lighting control devices.
 - 2. Warranty Period: Two year(s) from date of Substantial Completion.

1.6 QUALITY ASSURANCE

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

1.7 COORDINATION

- A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression system, and partition assemblies.

PART 2 - PRODUCTS

2.1 INDOOR OCCUPANCY AND VACANCY SENSORS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Hubbell Lighting.
 - 2. Leviton Mfg. Company Inc.
 - 3. Lithonia Lighting; Acuity Lighting Group, Inc.
 - 4. Watt Stopper (The).
 - 5. Lutron
- B. General Requirements for Sensors:
 - 1. Wall or Ceiling-mounted, solid-state indoor occupancy and vacancy sensors.
 - 2. Dual technology.
 - 3. Separate power pack.
 - 4. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
 - 5. Operation:
 - a. Occupancy Sensor: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 - b. Vacancy Sensor: Unless otherwise indicated, lights are manually turned on and sensor turns lights off when the room is unoccupied; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 - c. Combination Sensor: Unless otherwise indicated, sensor shall be programmed to turn lights on when coverage area is occupied and turn them off when unoccupied, or to turn off lights that have been manually turned on; with a time delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
 - 6. Sensor Output: Sensor is powered from the power pack.
 - 7. Power: Line voltage.
 - 8. Power Pack: Dry contacts rated for 20-A LED load at 120- and 277-V ac, for 13-A tungsten at 120-V ac, and for 1 hp at 120-V ac. Sensor has 24-V dc, 150-mA, Class 2 power source, as defined by NFPA 70.
 - 9. Mounting:

- a. Sensor: Suitable for mounting in any position on a standard outlet box.
 - b. Relay: Externally mounted through a 1/2-inch (13-mm) knockout in a standard electrical enclosure.
 - c. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.
- 10. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
 - 11. Bypass Switch: Override the "on" function in case of sensor failure.
 - 12. Automatic Light-Level Sensor: Adjustable from 2 to 200 fc (21.5 to 2152 lux); turn lights off when selected lighting level is present.
- C. Dual-Technology Type: Wall or Ceiling mounted; detect occupants in coverage area using PIR and ultrasonic detection methods. The particular technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.
- 1. Sensitivity Adjustment: Separate for each sensing technology.
 - 2. Detector Sensitivity: Detect occurrences of 6-inch- (150-mm-) minimum movement of any portion of a human body that presents a target of not less than 36 sq. in. (232 sq. cm), and detect a person of average size and weight moving not less than 12 inches (305 mm) in either a horizontal or a vertical manner at an approximate speed of 12 inches/s (305 mm/s).
 - 3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. (93 sq. m) when mounted on a 96-inch- (2440-mm-) high ceiling.

2.2 CONDUCTORS AND CABLES

- A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Division 26 Section "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."
- B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 18 AWG. Comply with requirements in Division 26 Section "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."
- C. Class 1 Control Cable: Multiconductor cable with stranded-copper conductors not smaller than No. 14 AWG. Comply with requirements in Division 26 Section "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine lighting control devices before installation. Reject lighting control devices that are wet, moisture damaged, or mold damaged.
- B. Examine walls and ceilings for suitable conditions where lighting control devices will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 SENSOR INSTALLATION

- A. Comply with NECA 1.
- B. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies.
- C. Install and aim sensors in locations to achieve not less than 90-percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.

3.3 CONTACTOR INSTALLATION

- A. Comply with NECA 1.
- B. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration unless contactors are installed in an enclosure with factory-installed vibration isolators.

3.4 WIRING INSTALLATION

- A. Comply with NECA 1.
- B. Wiring Method: Comply with Division 26 Section "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES." Minimum conduit size is 3/4 inch (19 mm).
- C. Wiring within Enclosures: Comply with NECA 1. Separate power-limited and nonpower-limited conductors according to conductor manufacturer's written instructions.
- D. Size conductors according to lighting control device manufacturer's written instructions unless otherwise indicated.
- E. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, and outlet boxes; terminal cabinets; and equipment enclosures.

3.5 IDENTIFICATION

- A. Identify components and power and control wiring according to Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
 - 1. Identify controlled circuits in lighting contactors.
 - 2. Identify circuits or luminaires controlled by photoelectric and occupancy sensors at each sensor.
- B. Label time switches and contactors with a unique designation.

3.6 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:

1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
 2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Lighting control devices will be considered defective if they do not pass tests and inspections.
- C. Prepare test and inspection reports.

END OF SECTION 260923

SECTION 262213 - LOW-VOLTAGE DISTRIBUTION TRANSFORMERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes distribution, dry-type transformers with a nominal primary and secondary rating of 600 V and less, with capacities up to 1500 kVA.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for each type and size of transformer.
 - 2. Include rated nameplate data, capacities, weights, dimensions, minimum clearances, installed devices and features, and performance for each type and size of transformer.
- B. Shop Drawings:
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Vibration Isolation Base Details: Detail fabrication including anchorages and attachments to structure and to supported equipment.
 - 3. Include diagrams for power, signal, and control wiring.
 - 4. Include efficiency ratings and certifications.

1.4 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Data: Certificates, for transformers, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
 - 4. Certification: Indicate that equipment meets equipment seismic requirements.
- B. Source quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For transformers to include in emergency, operation, and maintenance manuals.
- B. Field quality-control test and reports.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain each transformer type through one source from a single manufacturer.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with IEEE C57.12.91, "Test Code for Dry-Type Distribution and Power Transformers."

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Inspection: On receipt, inspect for and note any shipping damage to packaging and transformer.
 - 1. If manufacturer packaging is removed for inspection, and transformer will be stored after inspection, re-package transformer using original or new packaging materials that provide protection equivalent to manufacturer's packaging.
- B. Storage: Store in a warm, dry, and temperature-stable location in original shipping packaging.
- C. Temporary Heating: Apply temporary heat according to manufacturer's written instructions within the enclosure of each ventilated-type unit, throughout periods during which equipment is not energized and when transformer is not in a space that is continuously under normal control of temperature and humidity.
- D. Handling: Follow manufacturer's instructions for lifting and transporting transformers.

1.8 COORDINATION

- A. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Coordinate installation of wall-mounting and structure-hanging supports with actual transformer provided.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Transformers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term “withstand” means “the transformer will remain in place without separation of any parts when subjected to the seismic forces specified.”

2.2 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton Electrical Inc.; Cutler-Hammer Products.
 2. General Electric Company.
 3. Siemens Energy & Automation, Inc.
 4. Square D; Schneider Electric.
- B. Source Limitations: Obtain each transformer type from single source from single manufacturer.

2.3 GENERAL TRANSFORMER REQUIREMENTS

- A. Description: Factory-assembled and -tested, air-cooled units for 60-Hz service.
- B. Comply with NFPA 70.
 1. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
- C. Transformers Rated 15 kVA and Larger:
 1. Comply with 10 CFR 431 (DOE 2016) efficiency levels.
 2. Marked as compliant with DOE 2016 efficiency levels by an NRTL.
 3. Marked as compliant with NEMA TP-1, Class 1 efficiency levels.
- D. Shipping Restraints: Paint or otherwise color-code bolts, wedges, blocks, and other restraints that are to be removed after installation and before energizing. Use fluorescent colors that are easily identifiable inside the transformer enclosure.

2.4 DISTRIBUTION TRANSFORMERS

- A. Comply with the following:
 1. NFPA 70, and list and label as complying with UL 1561
 2. NEMA ST20
 3. UL 1561
- B. Provide transformers that are constructed to withstand seismic forces specified in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
- C. Cores: Electrical grade, non-aging silicon steel with high permeability and low hysteresis losses.
 1. One leg per phase.
 2. Core volume shall allow efficient transformer operation at 10 percent above the nominal tap voltage.
 3. Grounded to enclosure.
- D. Coils: Continuous windings without splices except for taps.

1. Coil Material: Copper.
 2. Internal Coil Connections: Brazed or pressure type.
 3. Terminal Connections: Bolted.
- E. Encapsulation: Transformers smaller than 30 kVA shall have core and coils completely resin encapsulated.
- F. Enclosure: Ventilated.
1. NEMA 250, Type 2: Core and coil shall be encapsulated within resin compound using a vacuum-pressure impregnation process to seal out moisture and air.
 2. KVA Ratings: Based on convection cooling only and not relying on auxiliary fans.
 3. Wiring Compartment: Sized for conduit entry and wiring installation.
 4. Finish: Comply with NEMA 250.
 - a. Finish Color: Gray weather-resistant enamel.
- G. Taps for Transformers 25 kVA and Larger: Two 2.5 percent taps above and four 2.5 percent taps below normal full capacity.
- H. Insulation Class, 30 kVA and Larger: 220 deg C, UL-component-recognized insulation system with a maximum of 150 deg C rise above 40 deg C ambient temperature.
- I. Grounding: Provide ground-bar kit or a ground bar installed on the inside of the transformer enclosure.
- J. K-Factor Rating: Transformers indicated to be K-factor rated shall comply with UL 1561 requirements for nonsinusoidal load current-handling capability to the degree defined by designated K-factor.
1. Unit shall not overheat when carrying full-load current with harmonic distortion corresponding to designated K-factor, without exceeding the indicated insulation class in a 40 deg C maximum ambient and a 24-hour average ambient of 30 deg C.
 2. Indicate value of K-factor on transformer nameplate.
 3. Unit shall comply with requirements of DOE 2016 efficiency levels when tested according to NEMA TP 2 with a K-factor equal to one.
- K. Low-Sound-Level Requirements: Maximum sound levels when factory tested according to IEEE C57.12.91, as follows:
1. 30.01 to 50.00 kVA: 45 dBA for K-factors of 1, 4, and 9.
 2. 150.01 to 300.00 kVA: 55 dBA for K-factors of 1, 4, and 9.

2.5 IDENTIFICATION

- A. Nameplates: Engraved, laminated-acrylic or melamine plastic signs for each distribution transformer, mounted with corrosion-resistant screws. Nameplates and label products are specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

2.6 SOURCE QUALITY CONTROL

- A. Test and inspect transformers according to IEEE C57.12.01 and IEEE C57.12.91.

1. Resistance measurements of all windings at rated voltage connections and at all tap connections.
 2. Ratio tests at rated voltage connections and at all tap connections.
 3. Phase relation and polarity tests at rated voltage connections.
 4. No load losses, and excitation current and rated voltage at rated voltage connections.
 5. Impedance and load losses at rated current and rated frequency at rated voltage connections.
 6. Applied and induced tensile tests.
 7. Regulation and efficiency at rated load and voltage.
 8. Insulation-Resistance Tests:
 - a. High-voltage to ground.
 - b. Low-voltage to ground.
 - c. High-voltage to low-voltage.
 9. Temperature tests.
- B. Factory Sound-Level Tests: Conduct prototype sound-level tests on production-line products.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine conditions for compliance with enclosure- and ambient-temperature requirements for each transformer.
- B. Verify that field measurements are as needed to maintain working clearances required by NFPA 70 and manufacturer's written instructions.
- C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed.
- D. Verify that ground connections are in place and requirements in Division 26 Section "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS" have been met. Maximum ground resistance shall be 5 ohms at location of transformer.
- E. Environment: Enclosures shall be rated for the environment in which they are located. Covers for NEMA 250, Type 4X enclosures shall not cause accessibility problems.
- F. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install transformers level and plumb on a concrete base with vibration-dampening supports. Locate transformers away from corners and not parallel to adjacent wall surface.
- B. Construct concrete bases according to DIVISION 03 SECTION "CAST-IN-PLACE CONCRETE" and anchor floor-mounted transformers according to manufacturer's written instructions, seismic codes applicable to Project, and requirements in Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS."

1. Coordinate size and location of concrete bases with actual transformer provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.
- C. Secure transformer to concrete base according to manufacturer's written instructions.
- D. Secure covers to enclosure and tighten all bolts to manufacturer-recommended torques to reduce noise generation.
- E. Remove shipping bolts, blocking, and wedges.

3.3 CONNECTIONS

- A. Ground equipment according to Division 26 Section "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS."
- B. Connect wiring according to Division 26 Section "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES."
- C. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.
- D. Provide flexible connections at all conduit and conductor terminations and supports to eliminate sound and vibration transmission to the building structure.

3.4 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Perform tests and inspections and prepare test reports.
- C. Small (Up to 167-kVA Single-Phase or 500-kVA Three-Phase) Dry-Type Transformer Field Tests:
 1. Visual and Mechanical Inspection.
 - a. Inspect physical and mechanical condition.
 - b. Inspect anchorage, alignment, and grounding.
 - c. Verify that resilient mounts are free and that any shipping brackets have been removed.
 - d. Verify the unit is clean.
 - e. Perform specific inspections and mechanical tests recommended by manufacturer.
 - f. Verify that as-left tap connections are as specified.
 - g. Verify the presence of surge arresters and that their ratings are as specified.
 2. Electrical Tests:
 - a. Measure resistance at each winding, tap, and bolted connection.
 - b. Perform insulation-resistance tests winding-to-winding and each winding-to-ground. Apply voltage according to manufacturer's published data. In the absence of manufacturer's published data, comply with NETA ATS, Table 100.5. Calculate polarization index: the value of the index shall not be less than 1.0.

- c. Perform turns-ratio tests at all tap positions. Test results shall not deviate by more than one-half percent from either the adjacent coils or the calculated ratio. If test fails, replace the transformer.
 - d. Verify correct secondary voltage, phase-to-phase and phase-to-neutral, after energization and prior to loading.
- D. Remove and replace units that do not pass tests or inspections and retest as specified above.
- E. Infrared Scanning: Two months after Substantial Completion, perform an infrared scan of transformer connections.
 - 1. Use an infrared-scanning device designed to measure temperature or detect significant deviations from normal values. Provide documentation of device calibration.
 - 2. Perform two follow-up infrared scans of transformers, one at four months and the other at 11 months after Substantial Completion.
 - 3. Prepare a certified report identifying transformer checked and describing results of scanning. Include notation of deficiencies detected, remedial action taken, and scanning observations after remedial action.
- F. Test Labeling: On completion of satisfactory testing of each unit, attach a dated and signed "Satisfactory Test" label to tested component.

3.5 ADJUSTING

- A. Record transformer secondary voltage at each unit for at least 48 hours of typical occupancy period. Adjust transformer taps to provide optimum voltage conditions at secondary terminals. Optimum is defined as not exceeding nameplate voltage plus 5 percent and not being lower than nameplate voltage minus 3 percent at maximum load conditions. Submit recording and tap settings as test results.
- B. Output Settings Report: Prepare a written report recording output voltages and tap settings.

3.6 CLEANING

- A. Vacuum dirt and debris; do not use compressed air to assist in cleaning.

END OF SECTION 262213

SECTION 262413 - SWITCHBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Service and distribution switchboards rated 600 V and less.
2. Surge protection devices.
3. Disconnecting and overcurrent protective devices.
4. Accessory components and features.
5. Identification.

1.3 ACTION SUBMITTALS

- A. Product Data: For each switchboard, overcurrent protective device, surge protection device, ground-fault protector, accessory, and component.

1. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.

- B. Shop Drawings: For each switchboard and related equipment.

1. Include dimensioned plans, elevations, sections, and details, including required clearances and service space around equipment. Show tabulations of installed devices, equipment features, and ratings.
2. Detail enclosure types for types other than NEMA 250, Type 1.
3. Detail bus configuration, current, and voltage ratings.
4. Detail short-circuit current rating of switchboards and overcurrent protective devices.
5. Include descriptive documentation of optional barriers specified for electrical insulation and isolation.
6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
7. Include time-current coordination curves for each type and rating of overcurrent protective device included in switchboards. Include selectable ranges for each type of overcurrent protective device.
8. Include diagram and details of proposed mimic bus.
9. Include schematic and wiring diagrams for power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

- A. Seismic Qualification Data: Certificates, for switchboards, overcurrent protective devices, accessories, and components, from manufacturer.

1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

B. Field Quality-Control Reports:

1. Test procedures used.
2. Test results that comply with requirements.
3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For switchboards and components to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Division 01 Section "OPERATION AND MAINTENANCE DATA," include the following:
 - a. Routine maintenance requirements for switchboards and all installed components.
 - b. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
2. Operation and maintenance data.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers qualified as defined in NEMA PB 2.1 and trained in electrical safety as required by NFPA 70E.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Deliver switchboards in sections or lengths that can be moved past obstructions in delivery path.
- B. Remove loose packing and flammable materials from inside switchboards and install temporary electric heating (250 W per section) to prevent condensation.
- C. Handle and prepare switchboards for installation according to NEMA PB 2.1.

1.8 FIELD CONDITIONS

- A. Installation Pathway: Remove and replace access fencing, doors, lift-out panels, and structures to provide pathway for moving switchboards into place.

B. Environmental Limitations:

1. Do not deliver or install switchboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above switchboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding 104 deg F (40 deg C).
 - b. Altitude: Not exceeding 6600 feet (2000 m).
 - c. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 - 1) Notify Construction Manager no fewer than seven days in advance of proposed interruption of electric service.
 - 2) Indicated method of providing temporary electric service.
 - 3) Do not proceed with interruption of electric service without Construction Manager's written permission.
 - 4) Comply with NFPA 70E.
 - d. Coordinate layout and installation of switchboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
 - e. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

C. Unusual Service Conditions: NEMA PB 2, as follows:

1. Ambient temperatures within limits specified.
2. Altitude not exceeding 6600 feet (2000 m).

1.9 COORDINATION

- A. Coordinate layout and installation of switchboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified with concrete.

1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to repair or replace switchboard enclosures, buswork, overcurrent protective devices, accessories, and factory installed interconnection wiring that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Three years from date of Substantial Completion.
- B. Manufacturer's Warranty: Manufacturer's agrees to repair or replace surge protection devices that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Switchboards shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation. Shake-table testing shall comply with ICC-ES AC156.
 - 2. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

2.2 MANUFACTURED UNITS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial – Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric
- B. Source Limitations: Obtain switchboards, overcurrent protective devices, components, and accessories from single source from single manufacturer.

2.3 SWITCHBOARDS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Comply with NEMA PB 2.
- C. Comply with NFPA 70.
- D. Comply with UL 891.

- E. Front-Connected, Front-Accessible Switchboards:
1. Main Devices: Fixed, individually mounted.
 2. Branch Devices: Panel mounted.
 3. Sections front and rear aligned.
- F. Nominal System Voltage: 208Y/120V
- G. Main-Bus Continuous: 1,200A
- H. Seismic Requirements: Fabricate and test switchboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation. Shake-table testing shall comply with ICC-ES AC156.
 - a. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."
- I. Outdoor Enclosures: Steel, NEMA 250, Type 3R.
- J. Enclosure Finish for outdoor Units: Factory-applied finish in manufacturer's standard gray finish over a rust-inhibiting primer on treated metal surface.
- K. Barriers: Between adjacent switchboard sections.
- L. Insulation and isolation for main bus of main section and main and vertical buses of feeder sections.
- M. Service Entrance Rating: Switchboards intended for use as service entrance equipment shall contain from one to six service disconnecting means with overcurrent protection, a neutral bus with disconnecting link, a grounding electrode conductor terminal, and a main bonding jumper.
- N. Bus Transition and Incoming Pull Sections: Matched and aligned with basic switchboard.
- O. Removable, Hinged Rear Doors and Compartment Covers: Secured by standard bolts, for access to rear interior of switchboard.
- P. Hinged Front Panels: Allow access to circuit breaker, metering, accessory, and blank compartments.
- Q. Buses and Connections: Three phase, four wire unless otherwise indicated.
1. Provide phase bus arrangement A, B, C from front to back, top to bottom, and left to right when viewed from the front of the switchboard.
 2. Phase- and Neutral-Bus Material: Hard-drawn copper of 98 percent conductivity, silver-plated.
 3. Copper feeder circuit-breaker line connections.

4. Load Terminals: Insulated, rigidly braced, runback bus extensions, of same material as through buses, equipped with compression connectors for outgoing circuit conductors. Provide load terminals for future circuit-breaker positions at full-ampere rating of circuit-breaker position.
 5. Ground Bus: Minimum-size required by UL 891, hard-drawn copper of 98 percent conductivity, equipped with compression connectors for feeder and branch-circuit ground conductors.
 6. Main-Phase Buses and Equipment-Ground Buses: Uniform capacity for entire length of switchboard's main and distribution sections. Provide for future extensions from both ends.
 7. Disconnect Links:
 - a. Isolate neutral bus from incoming neutral conductors.
 - b. Bond neutral bus to equipment-ground bus for switchboards utilized as service equipment or separately derived systems.
 8. Neutral Buses: 100 percent of the ampacity of phase buses unless otherwise indicated, equipped with compression connectors for outgoing circuit neutral cables.
 9. Isolation Barrier Access Provisions: Permit checking of bus-bolt tightness.
- R. Future Devices: Equip compartments with mounting brackets, supports, bus connections, and appurtenances at full rating of circuit-breaker compartment.

2.4 SURGE PROTECTION DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial – Electrical Distribution.
 3. Siemens Energy & Automation, Inc.
 4. Square D; a brand of Schneider Electric.
- B. SPDs: Comply with UL 1449, Type 2.
- C. Features and Accessories:
1. Integral disconnect switch.
 2. Internal thermal protection that disconnects the SPD before damaging internal suppressor components.
 3. Indicator light display for protection status.
 4. Form-C contacts rated at 2 A and 24-V ac, one normally open and one normally closed, for remote monitoring of protection status. Contacts shall reverse on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.
 5. Surge counter.
- D. Peak Surge Current Rating: The minimum single-pulse surge current withstand rating per phase shall not be less than 320 kA per phase. The peak surge current rating shall be the arithmetic sum of the ratings of the individual MOVs in a given mode.

- E. Protection modes and UL 1449 VPR for grounded wye circuits with 208Y/120 V, three-phase, four-wire circuits shall not exceed the following:
 - 1. Line to Neutral: 700 V for 208Y/120 V.
 - 2. Line to Ground: 1200 V for 208Y/120 V.
 - 3. Line to Line: 1000 V for 208Y/120 V.
- F. SCCR: Equal or exceed 100 kA.
- G. Nominal Rating: 20 kA.

2.5 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
 - 1. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replaceable electronic trip; and the following field-adjustable settings:
 - a. Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long and short time adjustments.
 - d. Ground-fault pickup level, time delay, and I^2t response.
 - 2. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
 - 3. MCCB Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Lugs: Compression style, suitable for number, size, trip ratings, and conductor material.
 - c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
 - d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
 - e. Zone-Selective Interlocking: Integral with electronic trip unit; for interlocking ground-fault protection function.
 - f. Shunt Trip: 120-V trip coil energized from separate circuit, set to trip at 75 percent of rated voltage.
 - g. Undervoltage Trip: Set to operate at 35 to 75 percent of rated voltage without intentional time delay.
 - h. Key Interlock Kit: Externally mounted to prohibit circuit-breaker operation; key shall be removable only when circuit breaker is in off position.
 - i. Single-phase protection relays: integrally mounted relay and sensing coils to trip main upon loss of at least one phase.

2.6 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

- B. Mounting Accessories: For anchors, mounting channels, bolts, washers, and other mounting accessories, comply with requirements in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS" or manufacturer's instructions.

2.7 IDENTIFICATION

- A. Service Equipment Label: NRTL labeled for use as service equipment for switchboards with one or more service disconnecting and overcurrent protective devices.

PART 3 - EXECUTION

3.1 DELIVERY, STORAGE, AND HANDLING

- A. Deliver switchboards in sections or lengths that can be moved past obstructions in delivery path.
- B. Remove loose packing and flammable materials from inside switchboards and install temporary electric heating (250 W per section) to prevent condensation.
- C. Handle and prepare switchboards for installation according to NEMA PB 2.1.

3.2 EXAMINATION

- A. Receive, inspect, handle, and store switchboards according to NEMA PB 2.1.
 - 1. Lift or move switchboards with spreader bars and manufacturer-supplied lifting straps following manufacturer's instructions.
 - 2. Use rollers, slings, or other manufacturer-approved methods if lifting straps are not furnished.
 - 3. Protect from moisture, dust, dirt, and debris during storage and installation.
 - 4. Install temporary heating during storage per manufacturer's instructions.
- B. Examine switchboards before installation. Reject switchboards that are moisture damaged or physically damaged.
- C. Examine elements and surfaces to receive switchboards for compliance with installation tolerances and other conditions affecting performance of the Work or that affect the performance of the equipment.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION

- A. Install switchboards and accessories according to NEMA PB 2.1.
- B. Equipment Mounting: Install switchboards on concrete base, 4-inch (100-mm) nominal thickness. Comply with requirements for concrete base specified in Division 03 Section "CAST-IN-PLACE CONCRETE."

1. Install conduits entering underneath the switchboard, entering under the vertical section where the conductors will terminate. Install with couplings flush with the concrete base. Extend 2 inches (50-mm) above concrete base after switchboard is anchored in place.
 2. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around the full perimeter of concrete base.
 3. For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
 4. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 5. Install anchor bolts to elevations required for proper attachment to switchboards.
 6. Anchor switchboard to building structure at the top of the switchboard if required or recommended by the manufacturer.
- C. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, straps and brackets, and temporary blocking of moving parts from switchboard units and components.
- D. Comply with mounting and anchoring requirements specified in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
- E. Operating Instructions: Frame and mount the printed basic operating instructions for switchboards, including control and key interlocking sequences and emergency procedures. Fabricate frame of finished metal and cover instructions with clear acrylic plastic. Mount on front of switchboards.
- F. Install filler plates in unused spaces of panel-mounted sections.
- G. Install overcurrent protective devices and surge protection devices.
1. Set field-adjustable switches and circuit-breaker trip ranges.
- H. Comply with NECA 1.

3.4 CONNECTIONS

- A. Bond conduits entering underneath the switchboard to the equipment ground bus with a bonding conductor sized per NFPA 70.
- B. Support and secure conductors within the switchboard according to NFPA 70.
- C. Extend insulated equipment grounding cable to busway ground connection and support cable at intervals in vertical run.

3.5 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
- B. Switchboard Nameplates: Label each switchboard compartment with a nameplate complying with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

- C. Device Nameplates: Label each disconnecting and overcurrent protective device and each meter and control device mounted in compartment doors with a nameplate complying with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect, test, and adjust components, assemblies, and equipment installations, including connections.
- C. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Acceptance Testing:
 - a. Test insulation resistance for each switchboard bus, component, connecting supply, feeder, and control circuit. Open control and metering circuits within the switchboard, and remove neutral connection to surge protection and other electronic devices prior to insulation test. Reconnect after test.
 - b. Test continuity of each circuit.
 - 2. Test ground-fault protection of equipment for service equipment per NFPA 70.
 - 3. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 - 4. Correct malfunctioning units on-site where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
 - 5. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Switchboard will be considered defective if it does not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies switchboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.7 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges.

3.8 PROTECTION

- A. Temporary Heating: Apply temporary heat, to maintain temperature according to manufacturer's written instructions, until switchboard is ready to be energized and placed into service.

3.9 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, and maintain switchboards, overcurrent protective devices, instrumentation, and accessories, and to use and reprogram microprocessor-based trip, monitoring, and communication units.

END OF SECTION 262413

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Distribution panelboards.
 - 2. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

- A. SVR: Suppressed voltage rating.
- B. SPD: Surge Protection Device.

1.4 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Panelboards shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified and the unit will be fully operational after the seismic event."

1.5 SUBMITTALS

- A. Product Data: For each type of panelboard, switching and overcurrent protective device, transient voltage suppression device, accessory, and component indicated. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.
- B. Shop Drawings: For each panelboard and related equipment.
 - 1. Include dimensioned plans, elevations, sections, and details. Show tabulations of installed devices, equipment features, and ratings.
 - 2. Detail enclosure types and details for types other than NEMA 250, Type 1.
 - 3. Detail bus configuration, current, and voltage ratings.
 - 4. Short-circuit current rating of panelboards and overcurrent protective devices.
 - 5. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
 - 6. Include wiring diagrams for power, signal, and control wiring.

7. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. include selectable ranges for each type of overcurrent protective device.
- C. Seismic Qualification Certificates: Submit certification that panelboards, overcurrent protective devices, accessories, and components will withstand seismic forces defined in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS." Include the following:
 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Field Quality-Control Reports:
 1. Test procedures used.
 2. Test results that comply with requirements.
 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- E. Panelboard Schedules: For installation in panelboards.
- F. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "OPERATION AND MAINTENANCE DATA," include the following:
 1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
 2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain panelboards, overcurrent protective devices, components, and accessories from single source from single manufacturer, except for fusible branch circuit panelboards.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Comply with NEMA PB 1.
- E. Comply with NFPA 70.
- F. Testing Agency Qualifications: Member company of NETA or NRTL.
 1. Testing Agency's Field Supervisor: Certified by NETA to supervise on-site testing.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Remove loose packing and flammable materials from inside panelboards; install temporary electric heating (250 W per panelboard) to prevent condensation.
- B. Handle and prepare panelboards for installation according to NEMA PB 1.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations:
 - 1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
 - 2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Not exceeding minus 22 deg F (minus 30 deg C) to plus 104 deg F (plus 40 deg C).
 - b. Altitude: Not exceeding 6600 feet (2000 m).
- B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:
 - 1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of electric service.
 - 2. Do not proceed with interruption of electric service without Construction Manager's written permission.
 - 3. Comply with NFPA 70E.

1.9 COORDINATION

- A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.
- B. Coordinate sizes and locations of concrete bases with actual equipment provided. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

1.10 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace surge protection devices that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Five years from date of Substantial Completion.

1.11 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Extra materials specified are in addition to spares noted on drawings.
 - 1. Keys: Two spares for each type of panelboard cabinet lock. All locks shall be keyed alike.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PANELBOARDS

- A. Fabricate and test panelboards according to IEEE 344 to withstand seismic forces defined in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
- B. Enclosures: Surface-mounted cabinets.
 - 1. Rated for environmental conditions at installed location.
 - a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
 - b. Outdoor Locations: NEMA 250, Type 3R.
 - 2. Front: For surface-mounted fronts, match box dimensions; for flush-mounted fronts, overlap box.
 - 3. Hinged Front Cover: Entire front trim hinged to box and with standard door within hinged trim cover; door in door type with (2) full length piano hinged connections.
 - 4. Finishes:
 - a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
 - b. Back Boxes: Galvanized steel.
 - 5. Directory Card: Inside panelboard door, mounted in transparent card holder.
- C. Incoming Mains Location: Top or Bottom. Coordinate lug locations with field conditions.
- D. Phase, Neutral, and Ground Buses:
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.
- E. Conductor Connectors: Suitable for use with conductor material and sizes.
 - 1. Material: Hard-drawn copper, 98 percent conductivity.
 - 2. Main and Neutral Lugs: Mechanical type.
 - 3. Ground Lugs and Bus-Configured Terminators: Mechanical type.

4. Feed-Through Lugs: Mechanical type, suitable for use with conductor material. Locate at opposite end of bus from incoming lugs or main device.
5. Subfeed (Double) Lugs: Mechanical type suitable for use with conductor material. Locate at same end of bus as incoming lugs or main device.
- F. Service Equipment Label: NRTL labeled for use as service equipment for panelboards or load centers with one or more main service disconnecting and overcurrent protective devices.
- G. Future Devices: Mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
- H. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals.

2.2 DISTRIBUTION PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 3. Siemens Energy & Automation, Inc.
 4. Square D; a brand of Schneider Electric.
- B. Panelboards: NEMA PB 1, power and feeder distribution type.
- C. Doors: Secured with vault-type latch with tumbler lock; keyed alike.
 1. For doors more than 36 inches (914 mm) high, provide two latches, keyed alike.
- D. Mains: Circuit breaker or Lugs only as indicated.
- E. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes 125 A and Smaller: Bolt-on circuit breakers.
- F. Branch Overcurrent Protective Devices for Circuit-Breaker Frame Sizes Larger Than 125 A: Bolt-on circuit breakers; plug-in circuit breakers where individual positive-locking device requires mechanical release for removal.

2.3 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 3. Siemens Energy & Automation, Inc.
 4. Square D; a brand of Schneider Electric.
- B. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

- C. Mains: Circuit breaker or lugs only as indicated.
- D. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.
- E. Doors: Concealed hinges; secured with flush latch with tumbler lock; keyed alike.

2.4 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Molded-Case Circuit Breaker (MCCB): Comply with UL 489, with interrupting capacity to meet available fault currents.
 - 1. Thermal-Magnetic Circuit Breakers: Inverse time-current element for low-level overloads, and instantaneous magnetic trip element for short circuits. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
 - 2. Adjustable Instantaneous-Trip Circuit Breakers: Magnetic trip element with front-mounted, field-adjustable trip setting.
 - 3. Electronic trip circuit breakers with rms sensing; field-replaceable rating plug or field-replicable electronic trip; and the following field-adjustable settings:
 - a. Instantaneous trip.
 - b. Long- and short-time pickup levels.
 - c. Long- and short-time time adjustments.
 - d. Ground-fault pickup level, time delay, and I^2t response.
 - 4. Current-Limiting Circuit Breakers: Frame sizes 400 A and smaller; let-through ratings less than NEMA FU 1, RK-5.
 - 5. GFCI Circuit Breakers: Single- and two-pole configurations with Class A ground-fault protection (6-mA trip).
 - 6. Ground-Fault Equipment Protection (GFEP) Circuit Breakers: Class B ground-fault protection (30-mA trip).
 - 7. Molded-Case Circuit-Breaker (MCCB) Features and Accessories:
 - a. Standard frame sizes, trip ratings, and number of poles.
 - b. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
 - c. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and high-intensity discharge (HID) lighting circuits.
 - d. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
 - e. Shunt-trip: 120V coil energized from separate circuit, set to trip at 75 percent of rated voltage.

- f. Multipole units enclosed in a single housing or factory assembled to operate as a single unit.
- g. Handle Padlocking Device: Fixed attachment, for locking circuit-breaker handle in on or off position.
- h. Handle Clamp: Loose attachment, for holding circuit-breaker handle in on position.

2.5 PANELBOARD SURGE PROTECTION

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
 - 2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
 - 3. Siemens Energy & Automation, Inc.
 - 4. Square D; a brand of Schneider Electric.
- B. Surge Protection Device: IEEE C62.41-compliant, integrally mounted, bolt-on, solid-state, parallel-connected, modular (with field-replaceable modules) type, with sine-wave tracking suppression and filtering modules, UL 1449, third edition, short-circuit current rating matching or exceeding the panelboard short-circuit rating, and with the following features and accessories:
 - 1. Accessories:
 - a. Fuses rated at 200-kA interrupting capacity.
 - b. Fabrication using bolted compression lugs for internal wiring.
 - c. Integral disconnect switch.
 - d. Redundant suppression circuits.
 - e. Redundant replaceable modules.
 - f. Arrangement with wire connections to phase buses, neutral bus, and ground bus.
 - g. LED indicator lights for power and protection status.
 - h. Audible alarm, with silencing switch, to indicate when protection has failed.
 - i. Form-C contacts rated at 5 A and 250-V ac, one normally open and one normally closed, for remote monitoring of system operation. Contacts shall reverse position on failure of any surge diversion module or on opening of any current-limiting device. Coordinate with building power monitoring and control system.
 - j. Six-digit, transient-event counter set to totalize transient surges.
 - 2. Peak Single-Impulse Surge Current Rating: 80 kA per mode/160 kA per phase.
 - 3. Minimum single-impulse current ratings, using 8-by-20-mic.sec. waveform described in IEEE C62.41.2.
 - a. Line to Neutral: 70,000 A.
 - b. Line to Ground: 70,000 A.
 - c. Neutral to Ground: 50,000 A.
 - 4. Withstand Capabilities: 12,000 IEEE C62.41, Category C3 (10 kA), 8-by-20-mic.sec. surges with less than 5 percent change in clamping voltage.
 - 5. Protection modes and UL 1449 SVR for grounded wye circuits with 208Y/120-V, three-phase, four-wire circuits shall be as follows:
 - a. Line to Neutral: 400 V for 208Y/120.
 - b. Line to Ground: 400 V for 208Y/120.

- c. Neutral to Ground: 400 V for 208Y/120.

2.6 ACCESSORY COMPONENTS AND FEATURES

- A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.
- B. Examine panelboards before installation. Reject panelboards that are damaged or rusted or have been subjected to water saturation.
- C. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install panelboards and accessories according to NEMA PB 1.1.
- B. Equipment Mounting: Install distribution panelboards on concrete bases, 4-inch (100-mm) nominal thickness. Comply with requirements for concrete base specified in Division 03 Section "CAST-IN-PLACE CONCRETE."
 - 1. Install dowel rods to connect concrete base to concrete floor. Unless otherwise indicated, install dowel rods on 18-inch (450-mm) centers around full perimeter of base.
 - 2. For panelboards, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor.
 - 3. Place and secure anchorage devices. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 - 4. Install anchor bolts to elevations required for proper attachment to panelboards.
 - 5. Attach panelboard to the vertical finished or structural surface behind the panelboard.
- C. Install Lighting & Appliance Branch Circuit Panelboards, and secured to wall with minimum four (4) anchors.
- D. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from panelboards.
- E. Comply with mounting and anchoring requirements specified in Division 26 Section "VIBRATION AND SEISMIC CONTROLS FOR ELECTRICAL SYSTEMS."
- F. Mount top of trim 90 inches (2286 mm) above finished floor unless otherwise indicated.
- G. Mount panelboard cabinet plumb and rigid without distortion of box. Mount recessed panelboards with fronts uniformly flush with wall finish and mating with back box.

- H. Install overcurrent protective devices and controllers not already factory installed.
 - 1. Set field-adjustable, circuit-breaker trip ranges.
- I. Install filler plates in unused spaces.
- J. Stub four 1-inch (27-GRC) empty conduits from each panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch (27-GRC) empty conduits into raised floor space or below slabs not on grade.
- K. Arrange conductors in gutters into groups and bundle and wrap with wire ties after completing load balancing.
- L. Comply with NECA 1.

3.3 IDENTIFICATION

- A. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs complying with Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
- B. Create a directory to indicate installed circuit loads after balancing panelboard loads; incorporate Owner's final room designations. Directory shall accurately, uniquely, and specifically identify electrical loads, and rooms served for each circuit. General language such as "Lighting", "Receps", etc. will not be allowed. Obtain approval before installing. Use a computer or typewriter to create directory; handwritten directories are not acceptable.
- C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
- D. Device Nameplates: Label each branch circuit device in distribution panelboards with a nameplate complying with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

3.4 FIELD QUALITY CONTROL

- A. Engage a qualified testing agency to perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters. Disconnect any/all Surge Protection Devices during acceptance testing that involves continuous test voltages that exceed SPD manufacturers' continuous voltage tolerances.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

- D. Panelboards will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

- A. Adjust moving parts and operable component to function smoothly, and lubricate as recommended by manufacturer.
- B. Set field-adjustable circuit-breaker trip ranges.
- C. Load Balancing: After Substantial Completion, but not more than 60 days after Final Acceptance, measure load balancing and make circuit changes.
 - 1. Measure as directed during period of normal system loading.
 - 2. Perform load-balancing circuit changes outside normal occupancy/working schedule of the facility and at time directed. Avoid disrupting critical 24-hour services such as fax machines and on-line data processing, computing, transmitting, and receiving equipment.
 - 3. After circuit changes, recheck loads during normal load period. Record all load readings before and after changes and submit test records.
 - 4. Tolerance: Difference exceeding 20 percent between phase loads, within a panelboard, is not acceptable. Rebalance and recheck as necessary to meet this minimum requirement.

3.6 PROTECTION

- A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 262416

SECTION 262726 - WIRING DEVICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Receptacles, receptacles with integral GFCI, and associated device plates.
 - 2. Receptacles with integral USB charger.
 - 3. Twist-locking receptacles.
 - 4. Receptacles with integral surge protection units.
 - 5. Snap switches.
 - 6. Pendant cord-connector devices.
 - 7. Cord and plug sets.
 - 8.

1.3 DEFINITIONS

- A. EMI: Electromagnetic interference.
- B. GFCI: Ground-fault circuit interrupter.
- C. Pigtail: Short lead used to connect a device to a branch-circuit conductor.
- D. RFI: Radio-frequency interference.
- E. SPD: Surge Protective Device.
- F. UTP: Unshielded twisted pair.

1.4 ADMINISTRATIVE REQUIREMENTS

- A. Coordination:
 - 1. Receptacles for Owner-Furnished Equipment: Match plug configurations.
 - 2. Cord and Plug Sets: Match equipment requirements.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings: List of legends and description of materials and process used for premarking wall plates.

1.6 INFORMATIONAL SUBMITTALS

- A. Field quality-control reports.

1.7 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For wiring devices to include in all manufacturers' packing-label warnings and instruction manuals that include labeling conditions.

1.8 QUALITY ASSURANCE

- A. Source Limitations: Obtain each type of wiring device and associated wall plate through one source from a single manufacturer. Insofar as they are available, obtain all wiring devices and associated wall plates from a single manufacturer and one source.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- C. Comply with NFPA 70.

1.9 EXTRA MATERIALS

- A. Furnish extra materials described in subparagraphs below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - 1. SPD Receptacles: One for every 10 of each type installed, but no fewer than two of each type.
 - 2. Straight Blade Receptacles: One for every 10 but no fewer than ten.
 - 3. Receptacle Coverplates: One for every 10 but no fewer than ten for Duplex and Double Duplex type.
 - 4. Straight Blade GFCI: One for every 10 but no fewer than ten.
 - 5. GFCI Coverplates: One for every 10 but no fewer than ten for Duplex and Double Duplex type.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers' Names: Shortened versions (shown in parentheses) of the following manufacturers' names are used in other Part 2 articles:
 - 1. Cooper Wiring Devices; a division of Cooper Industries, Inc. (Cooper).
 - 2. Hubbell Incorporated; Wiring Device-Kellems (Hubbell).
 - 3. Leviton Mfg. Company Inc. (Leviton).
 - 4. Pass & Seymour/Legrand; Wiring Devices & Accessories (Pass & Seymour).

2.2 GENERAL WIRING-DEVICE REQUIREMENTS

- A. All wiring devices shall be listed as "Specification" Grade, no exceptions.
- B. Wiring Devices, Components, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Comply with NFPA 70.
- D. Devices that are manufactured for use with modular plug-in connectors may be substituted under the following conditions:
 - 1. Connectors shall comply with UL 2459 and shall be made with stranded building wire.
 - 2. Devices shall comply with the requirements in this Section.

2.3 STRAIGHT BLADE RECEPTACLES

- A. Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, and FS W-C-596.
- B. USB Charging Convenience Receptacles, 125 V, 20 A: Comply with NEMA WD 1, NEMA WD 6 Configuration 5-20R, UL 498, UL 1310, and FS W-C-596. Compatible with USB 1.1/2.0/3/0 devices, including Apple products.

2.4 GFCI RECEPTACLES

- A. General Description:
 - 1. Straight blade, non-feed-through type.
 - 2. Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 943 Class A, and FS W-C-596.
 - 3. Include indicator light that shows when the GFCI has malfunctioned and no longer provides proper GFCI protection.
 - 4. Include internal "self-test" capabilities that automatically monitor GFCI functionality with integral visual and audible indication in accordance with UL 943.
- B. Duplex GFCI Convenience Receptacles, 125 V, 20 A:

2.5 SPD RECEPTACLES

- A. General Description: Comply with NEMA WD 1, NEMA WD 6, UL 498, UL 1449, and FS W-C-596, with integral SPD in line to ground, line to neutral, and neutral to ground.
 - 1. SPD Components: Multiple metal-oxide varistors; with a nominal clamp-level rating of 400 V and minimum single transient pulse energy dissipation of 240 J, according to IEEE C62.41.2 and IEEE C62.45.
 - 2. Active SPD Indication: Visual and audible, with light visible in face of device to indicate device is "active" or "no longer in service."
- B. Duplex SPD Convenience Receptacles:
 - 1. Description: Straight blade, 125 V, 20 A; NEMA WD 6 Configuration 5-20R.

2.6 TWIST-LOCKING RECEPTACLES

- A. Single Convenience Receptacles: Comply with NEMA WD 1, NEMA WD 6, and UL 498. Configurations as scheduled on Drawings.

2.7 PENDANT CORD-CONNECTOR DEVICES

- A. Description:

1. Matching, locking-type plug and receptacle body connector.
2. NEMA WD 6, heavy-duty grade, and FS W-C-596.
3. Body: Nylon, with screw-open, cable-gripping jaws and provision for attaching external cable grip.
4. External Cable Grip: Woven wire-mesh type made of high-strength, galvanized-steel wire strand, matched to cable diameter, and with attachment provision designed for corresponding connector.
5. Configurations as scheduled on drawings.

2.8 CORD AND PLUG SETS

- A. Description:

1. Match voltage and current ratings and number of conductors to requirements of equipment being connected.
2. Cord: Rubber-insulated, stranded-copper conductors, with Type SOW-A jacket; with green-insulated grounding conductor and ampacity of at least 130 percent of the equipment rating.
3. Plug: Nylon body and integral cable-clamping jaws. Match cord and receptacle type for connection.

2.9 TOGGLE SWITCHES

- A. Comply with NEMA WD 1, UL 20, and FS W-S-896.
- B. Switches, 120/277 V, 20A, Single Pole, Double Pole, 3-Way, and 4-Way Configurations.
- C. Pilot-Light Switches, 20 A:
1. Description: Single pole, with neon-lighted handle, illuminated when switch is "off."
- D. Key-Operated Switches, 120/277 V, 20 A:
1. Description: Single pole, with factory-supplied key in lieu of switch handle.

2.10 WALL PLATES

- A. Single and combination types to match corresponding wiring devices.
1. Plate-Securing Screws: Metal with head color to match plate finish.
 2. Material for Finished Spaces: 0.035-inch- (1-mm-) thick, satin-finished stainless steel,.
 3. Material for Unfinished Spaces: Galvanized steel.
 4. Material for Damp Locations: Cast aluminum with spring-loaded lift cover, and listed and labeled for use in "wet locations."

- B. Wet-Location, Weatherproof Cover Plates: NEMA 250, complying with type 3R weather-resistant, die-cast aluminum with lockable cover; "EXTRA-DUTY" Rated.

2.11 FINISHES

- A. Color: Wiring device catalog numbers in Section Text do not designate device color.
 - 1. Wiring Devices Connected to Normal Power System: Gray, unless otherwise indicated or required by NFPA 70 or device listing.
 - 2. SPD Devices: Blue.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Comply with NECA 1, including the mounting heights listed in that standard, unless otherwise noted.
- B. Coordination with Other Trades:
 - 1. Take steps to insure that devices and their boxes are protected. Do not place wall finish materials over device boxes and do not cut holes for boxes with routers that are guided by riding against outside of the boxes.
 - 2. Keep outlet boxes free of plaster, drywall joint compound, mortar, cement, concrete, dust, paint, and other material that may contaminate the raceway system, conductors, and cables.
 - 3. Install device boxes in brick or block walls so that the cover plate does not cross a joint unless the joint is troweled flush with the face of the wall.
 - 4. Install wiring devices after all wall preparation, including painting, is complete.
- C. Conductors:
 - 1. Do not strip insulation from conductors until just before they are spliced or terminated on devices.
 - 2. Strip insulation evenly around the conductor using tools designed for the purpose. Avoid scoring or nicking of solid wire or cutting strands from stranded wire.
 - 3. The length of free conductors at outlets for devices shall meet provisions of NFPA 70, Article 300, without pigtails.
 - 4. Existing Conductors:
 - a. Cut back and pigtail, or replace all damaged conductors.
 - b. Straighten conductors that remain and remove corrosion and foreign matter.
 - c. Pigtail existing conductors is permitted provided the outlet box is large enough.
- D. Device Installation:
 - 1. Replace all devices that have been in temporary use during construction or that show signs that they were installed before building finishing operations were complete.
 - 2. Keep each wiring device in its package or otherwise protected until it is time to connect conductors.
 - 3. Do not remove surface protection, such as plastic film and smudge covers, until the last possible moment.

4. Connect devices to branch circuits using pigtails that are not less than 6 inches (152 mm) in length.
5. When there is a choice, use side wiring with binding-head screw terminals. Wrap solid conductor tightly clockwise, 2/3 to 3/4 of the way around terminal screw.
6. Use a torque screwdriver when a torque is recommended or required by the manufacturer.
7. When conductors larger than No. 12 AWG are installed on 15- or 20-A circuits, splice No. 12 AWG pigtails for device connections.
8. Tighten unused terminal screws on the device.
9. When mounting into metal boxes, remove the fiber or plastic washers used to hold device mounting screws in yokes, allowing metal-to-metal contact.

E. Receptacle Orientation:

1. Install ground pin of vertically mounted receptacles up, and on horizontally mounted receptacles to the right.

F. Device Plates: Do not use oversized or extra-deep plates. Repair wall finishes and remount outlet boxes when standard device plates do not fit flush or do not cover rough wall opening.

G. Arrangement of Devices: Unless otherwise indicated, mount flush, with long dimension vertical and with grounding terminal of receptacles on top. Group adjacent switches under single, multigang wall plates.

3.2 IDENTIFICATION

A. Comply with Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

1. Receptacles: Identify panelboard and circuit number from which served. Use hot, stamped or engraved machine printing with black-filled lettering on box-side face of coverplate.

3.3 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepare test reports.

1. Test Instruments: Use instruments that comply with UL 1436.
2. Test Instrument for Convenience Receptacles: Digital wiring analyzer with digital readout or illuminated LED indicators of measurement.

B. Tests for Convenience Receptacles:

1. Line Voltage: Acceptable range is 105 to 132 V.
2. Percent Voltage Drop under 15-A Load: A value of 6 percent or higher is not acceptable.
3. Ground Impedance: Values of up to 2 ohms are acceptable.
4. GFCI Trip: Test for tripping values specified in UL 1436 and UL 943.
5. Using the test plug, verify that the device and its outlet box are securely mounted.
6. The tests shall be diagnostic, indicating damaged conductors, high resistance at the circuit breaker, poor connections, inadequate fault current path, defective devices, or similar problems. Correct circuit conditions, remove malfunctioning units and replace with new ones, and retest as specified above.

C. Wiring device will be considered defective if it does not pass tests and inspections.

- D. Prepare test and inspection reports.

END OF SECTION 262726

DRAFT

SECTION 262816 - ENCLOSED SWITCHES AND CIRCUIT BREAKERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Nonfusible switches.
 - 2. Enclosures.

1.3 DEFINITIONS

- A. NC: Normally closed.
- B. NO: Normally open.
- C. SPDT: Single pole, double throw.

1.4 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Enclosed switches and circuit breakers shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.5 SUBMITTALS

- A. Product Data: For each type of enclosed switch, circuit breaker, accessory, and component indicated. Include dimensioned elevations, sections, weights, and manufacturers' technical data on features, performance, electrical characteristics, ratings, accessories, and finishes.
 - 1. Enclosure types and details for types other than NEMA 250, Type 1.
 - 2. Current and voltage ratings.
 - 3. Short-circuit current ratings (interrupting and withstand, as appropriate).
 - 4. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices, accessories, and auxiliary components.
 - 5. Include time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device.

- B. Shop Drawings: For enclosed switches and circuit breakers. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Wiring Diagrams: For power, signal, and control wiring.
- C. Seismic Qualification Certificates: For enclosed switches and circuit breakers, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Field quality-control reports.
 - 1. Test procedures used.
 - 2. Test results that comply with requirements.
 - 3. Results of failed tests and corrective action taken to achieve test results that comply with requirements.
- E. Operation and Maintenance Data: For enclosed switches and circuit breakers to include in emergency, operation, and maintenance manuals. In addition to items specified in Division 01 Section "OPERATION AND MAINTENANCE DATA," include the following:
 - 1. Manufacturer's written instructions for testing and adjusting enclosed switches and circuit breakers.
 - 2. Time-current coordination curves (average melt) for each type and rating of overcurrent protective device; include selectable ranges for each type of overcurrent protective device.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain enclosed switches and circuit breakers, overcurrent protective devices, components, and accessories, within same product category, from single source from single manufacturer.
- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for enclosed switches and circuit breakers, including clearances between enclosures, and adjacent surfaces and other items. Comply with indicated maximum dimensions.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- D. Comply with NFPA 70.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:

1. Ambient Temperature: Not less than minus 22 deg F (minus 30 deg C) and not exceeding 104 deg F (40 deg C).
2. Altitude: Not exceeding 6600 feet (2010 m).

B. Interruption of Existing Electric Service: Do not interrupt electric service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary electric service according to requirements indicated:

1. Notify Construction Manager no fewer than seven days in advance of proposed interruption of electric service.
2. Indicate method of providing temporary electric service.
3. Do not proceed with interruption of electric service without Construction Manager's written permission.
4. Comply with NFPA 70E.

1.8 COORDINATION

A. Coordinate layout and installation of switches, circuit breakers, and components with equipment served and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

PART 2 - PRODUCTS

2.1 NONFUSIBLE SWITCHES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Eaton Electrical Inc.; Cutler-Hammer Business Unit.
2. General Electric Company; GE Consumer & Industrial - Electrical Distribution.
3. Siemens Energy & Automation, Inc.
4. Square D; a brand of Schneider Electric.

B. Type HD, Heavy Duty, Single Throw, 600-V ac, 1200 A and Smaller: UL 98 and NEMA KS 1, horsepower rated, lockable handle with capability to accept three padlocks, and interlocked with cover in closed position.

C. Accessories:

1. Equipment Ground Kit: Internally mounted and labeled for copper ground conductors.
2. Neutral Kit: Internally mounted; insulated, capable of being grounded and bonded; labeled for copper neutral conductors.
3. Lugs: Mechanical type, suitable for number, size, and conductor material.

2.2 ENCLOSURES

A. Enclosed Switches and Circuit Breakers: NEMA AB 1, NEMA KS 1, NEMA 250, and UL 50, to comply with environmental conditions at installed location.

1. Indoor, Dry and Clean Locations: NEMA 250, Type 1.
2. Outdoor Locations: NEMA 250, Type 3R.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine elements and surfaces to receive enclosed switches and circuit breakers for compliance with installation tolerances and other conditions affecting performance of the Work.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install individual wall-mounted switches and circuit breakers with tops at uniform height unless otherwise indicated.
- B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and temporary blocking of moving parts from enclosures and components.
- C. Comply with NECA 1.

3.3 IDENTIFICATION

- A. Comply with requirements in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."
 - 1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
 - 2. Label each enclosure with engraved metal or laminated-plastic nameplate.

3.4 FIELD QUALITY CONTROL

- A. Perform tests and inspections.
- B. Acceptance Testing Preparation:
 - 1. Test insulation resistance for each enclosed switch and circuit breaker, component, connecting supply, feeder, and control circuit.
 - 2. Test continuity of each circuit.
- C. Tests and Inspections:
 - 1. Perform each visual and mechanical inspection and electrical test stated in NETA Acceptance Testing Specification. Certify compliance with test parameters. Disconnect any/all Surge Protection Devices during acceptance testing that involves continuous test voltages that exceed SPD manufacturers' continuous voltage tolerances.
 - 2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
 - 3. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.

- D. Enclosed switches and circuit breakers will be considered defective if they do not pass tests and inspections.
- E. Prepare test and inspection reports. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

- A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

END OF SECTION 262816

SECTION 265119 - LED INTERIOR LIGHTING

PART 1 - PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes LED luminaires as scheduled on Drawings.
- B. Related Requirements:
 - 1. Division 26 Section "LIGHTING CONTROL DEVICES" for automatic control of lighting, including time switches, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.
 - 2. Division 26 Section "NETWORK LIGHTING CONTROLS" for manual or programmable control systems with low-voltage control wiring or data communication circuits.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Fixture: See "Luminaire."
- D. IP: International Protection or Ingress Protection Rating.
- E. LED: Light-emitting diode.
- F. Lumen: Measured output of lamp and luminaire, or both.
- G. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Arrange in order of luminaire designation.
 - 2. Include data on features, accessories, and finishes.
 - 3. Include physical description and dimensions of luminaires.
 - 4. Include emergency lighting units, including batteries and chargers.
 - 5. Include life, output (lumens, CCT, and CRI), and energy efficiency data.
 - 6. Photometric data and adjustment factors based on laboratory tests, complying with IES Lighting Measurements Testing and Calculation Guides, of each luminaire type. The adjustment factors shall be for lamps and accessories identical to those indicated for the luminaire as applied in this Project IES LM-80.

- a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Shop Drawings: For nonstandard or custom luminaires.
 - 1. Include plans, elevations, sections, and mounting and attachment details.
 - 2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Include diagrams for power, signal, and control wiring.
- C. Sustainable Design Submittals:
 - 1. Product Data: Indicating luminaire is certified by ENERGY STAR and Design lights Consortium (DLC).
 - 2. Include Samples of luminaires and accessories involving color and finish selection.
 - 3. Include Samples of luminaires and accessories to verify finish selection.
- D. Product Schedule: For luminaires and lamps. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
 - 1. Luminaires.
 - 2. Suspended ceiling components.
 - 3. Partitions and millwork that penetrate the ceiling or extend to within 12 inches (300 mm) of the plane of the luminaires.
 - 4. Structural members to which equipment and or luminaires will be attached.
 - 5. Initial access modules for acoustical tile, including size and locations.
 - 6. Items penetrating finished ceiling, including the following:
 - a. Other luminaires.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Sprinklers.
 - e. Access panels.
 - f. Ceiling-mounted projectors.
 - 7. Moldings.
- B. Seismic Qualification Certificates: For luminaires, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.

- C. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
- D. Product Certificates: For each type of luminaire.
- E. Sample warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
- B. Provide luminaires from a single manufacturer for each luminaire type.
- C. Each luminaire type shall be binned within a three-step MacAdam Ellipse to ensure color consistency among luminaires.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.9 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
- B. Warranty Period: Minimum of Five year(s) from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE 7.
- B. Seismic Performance: Luminaires and lamps shall be labeled vibration and shock resistant.
 - 1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified."

2.2 LUMINAIRE REQUIREMENTS

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. Standards:
 - 1. ENERGY STAR certified.
 - 2. Design Lighting Consortium (DLC) Certified.
 - 3. UL Listing: All products shall be U.L. Listed.
 - 4. Recessed luminaires shall comply with NEMA LE 4.
- C. CRI: 80 minimum.
- D. CCT of 3500 K (interior) and 4000k (exterior) or as scheduled in Luminaire Schedule.
- E. Rated lamp life minimum: 50,000 hours to L70.
- F. Light Engines shall be dimmable from 100 percent to 0 percent of maximum light output.

2.3 LED DRIVERS

- A. Internal to Luminaire unless otherwise noted.
- B. Input Voltage: As scheduled in Luminaire Schedule. Multi-Tap types shall be utilized unless strict manufacture requirements indicate specific voltage connections.
- C. Dimming: 0-10V, unless otherwise specified; dimming from 100% to 0%.

2.4 EMERGENCY LED POWER UNIT (DRIVER)

- A. Description: Internal Type: Self-contained, modular, battery-inverter unit, factory mounted within luminaire body and compatible with driver. Comply with UL 924.
 - 1. Emergency Connection: Operate one LED lamp(s) continuously at a minimum output of 1400 lumens each. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire driver.
 - 2. Nightlight Connection: Operate one LED lamp continuously.
 - 3. Test Push Button and Indicator Light: Visible and accessible without opening luminaire or entering ceiling space.
 - a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 - b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
 - 4. Battery: Sealed, maintenance-free, nickel-cadmium type.
 - 5. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
 - 6. Remote Test: Switch in hand-held remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.

7. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.
- B. External Type: Self-contained, modular, battery-inverter unit, suitable for powering one or more LED lamps, remote mounted from luminaire. Comply with UL 924.
1. Emergency Connection: Operate one LED lamp continuously. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire driver.
 2. Nightlight Connection: Operate one LED lamp in a remote luminaire continuously.
 3. Battery: Sealed, maintenance-free, nickel-cadmium type.
 4. Charger: Fully automatic, solid-state, constant-current type.
 5. Housing: NEMA 250, Type 1 enclosure.
 6. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 7. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
 8. Remote Test: Switch in hand-held remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
 9. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

2.5 MATERIALS

- A. Metal Parts:
1. Free of burrs and sharp corners and edges.
 2. Sheet metal components shall be steel unless otherwise indicated.
 3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit relamping without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.
- C. Diffusers and Globes:
1. Acrylic Diffusers: One hundred percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation.
 2. Glass: Annealed crystal glass unless otherwise indicated.
 3. Lens Thickness: At least 0.125 inch (3.175 mm) minimum unless otherwise indicated.
- D. Housings:
1. Extruded-aluminum housing and heat sink.

2. Powder-coat painted finish as scheduled.

E. Factory-Applied Labels: Comply with UL 1598. Include recommended lamps. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

1. Label shall include the following luminaire characteristics:

- a. "USE ONLY" and include specific mounting allowances.
- b. CCT and CRI for all luminaires.

2.6 METAL FINISHES

A. Variations in finishes are unacceptable in the same piece. Variations in finishes of adjoining components are acceptable if they are within the range of approved Samples and if they can be and are assembled or installed to minimize contrast.

2.7 LUMINAIRE SUPPORT

A. Comply with requirements in Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch (13-mm) steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A 641/A 641 M, Class 3, soft temper, zinc-coated steel, 12 gage (2.68 mm).

D. Rod Hangers: 3/16-inch (5-mm) minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 TEMPORARY LIGHTING

A. If approved by the Architect, use selected permanent luminaires for temporary lighting. When construction is sufficiently complete, clean luminaires used for temporary lighting and install new lamps.

3.3 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Supports:
 - 1. Sized and rated for luminaire weight.
 - 2. Able to maintain luminaire position after cleaning and relamping.
 - 3. Provide support for luminaire without causing deflection of ceiling or wall.
 - 4. Luminaire mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and vertical force of 400 percent of luminaire weight.
- D. Flush-Mounted Luminaire Support:
 - 1. Secured to outlet box.
 - 2. Attached to ceiling structural members at four points equally spaced around circumference of luminaire.
 - 3. Trim ring flush with finished surface.
- E. Wall-Mounted Luminaire Support:
 - 1. Attached to structural members in walls.
 - 2. Do not attach luminaires directly to gypsum board.
- F. Ceiling-Mounted Luminaire Support:
 - 1. Ceiling mount with two 5/32-inch- (4-mm-) diameter aircraft cable supports adjustable to.
- G. Suspended Luminaire Support:
 - 1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
 - 3. Continuous Rows of Luminaires: Use tubing or stem for wiring at one point and wire support for suspension for each unit length of luminaire chassis, including one at each end.
 - 4. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.
- H. Ceiling-Grid-Mounted Luminaires:
 - 1. Secure to any required outlet box.
 - 2. Secure luminaire to the luminaire opening using approved fasteners in a minimum of four locations, spaced near corners of luminaire.
 - 3. Use approved devices and support components to connect luminaire to ceiling grid and building structure in a minimum of four locations, spaced near corners of luminaire.
- I. Comply with requirements in Division 26 Section "LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" for wiring connections.

- J. Comply with requirements in Division 26 Section "CONTROL-VOLTAGE ELECTRICAL POWER CABLES" for control wiring connections.

3.4 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

3.5 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
 - 1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
 - 2. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Luminaire will be considered defective if it does not pass operation tests and inspections.
- C. Prepare test and inspection reports.

3.6 STARTUP SERVICE

- A. Comply with requirements for startup specified in Division 26 Section "NETWORK LIGHTING CONTROLS."

END OF SECTION 265119

SECTION 265219 - EMERGENCY AND EXIT LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Emergency lighting units.
 - 2. Exit signs.
 - 3. Luminaire supports.

1.3 DEFINITIONS

- A. CCT: Correlated color temperature.
- B. CRI: Color Rendering Index.
- C. Emergency Lighting Unit: A lighting unit with internal or external emergency battery powered supply and the means for controlling and charging the battery and unit operation.
- D. Fixture: See "Luminaire" Paragraph.
- E. Lumen: Measured output of lamp and luminaire, or both.
- F. Luminaire: Complete lighting unit, including lamp, reflector, and housing.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of emergency lighting unit, exit sign, and emergency lighting support.
 - 1. Include data on features, accessories, and finishes.
 - 2. Include physical description of the unit and dimensions.
 - 3. Battery and charger for light units.
 - 4. Include life, output of luminaire (lumens, CCT, and CRI), and energy-efficiency data.
 - 5. Include photometric data and adjustment factors based on laboratory tests, complying with IES LM-45, for each luminaire type.
 - a. Manufacturers' Certified Data: Photometric data certified by manufacturer's laboratory with a current accreditation under the National Voluntary Laboratory Accreditation Program for Energy Efficient Lighting Products.
- B. Product Schedule:

1. For emergency lighting units. Use same designations indicated on Drawings.
2. For exit signs. Use same designations indicated on Drawings.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:
1. Luminaires.
 2. Suspended ceiling components.
 3. Partitions and millwork that penetrate the ceiling or extend to within 12 inches (300 mm) of the plane of the luminaires.
 4. Structural members to which equipment will be attached.
 5. Size and location of initial access modules for acoustical tile.
 6. Items penetrating finished ceiling including the following:
 - a. Other luminaires.
 - b. Air outlets and inlets.
 - c. Speakers.
 - d. Ceiling-mounted projectors.
 - e. Sprinklers.
 - f. Access panels.
 7. Moldings.
- B. Product Certificates: For each type of luminaire.
- C. Seismic Qualification Data: For luminaires, accessories, and components, from manufacturer.
1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions.
 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.
 4. Provide seismic qualification certificate for each piece of equipment.
- D. Sample Warranty: For manufacturer's special warranty.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For luminaires and lighting systems to include in emergency, operation, and maintenance manuals.
1. Provide a list of all lamp types used on Project; use ANSI and manufacturers' codes.

1.7 QUALITY ASSURANCE

- A. Luminaire Photometric Data Testing Laboratory Qualifications: Luminaire manufacturer's laboratory that is accredited under the National Volunteer Laboratory Accreditation Program for Energy Efficient Lighting Products.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.9 WARRANTY

- A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Two year(s) from date of Substantial Completion.
- B. Special Warranty for Emergency Lighting Batteries: Manufacturer's standard form in which manufacturer of battery-powered emergency lighting unit agrees to repair or replace components of rechargeable batteries that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period for Emergency Power Unit Batteries: Five years from date of Substantial Completion. Full warranty shall apply for the entire warranty period.
 - 2. Warranty Period for Self-Powered Exit Sign Batteries: Two years from date of Substantial Completion. Full warranty shall apply for the entire warranty period.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Luminaires shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.
 - 1. The term "withstand" means "the luminaire will remain in place without separation of any parts when subjected to the seismic forces specified."

2.2 GENERAL REQUIREMENTS FOR EMERGENCY LIGHTING

- A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- B. NRTL Compliance: Fabricate and label emergency lighting units, exit signs, and batteries to comply with UL 924.
- C. Comply with NFPA 70 and NFPA 101.
- D. Comply with NEMA LE 4 for recessed luminaires.
- E. Internal Type Emergency Power Unit: Self-contained, modular, battery-inverter unit, factory mounted within luminaire body and compatible with driver.
 - 1. Emergency Connection: Operate one lamp(s) continuously at an output of 1400 lumens each upon loss of normal power. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire ballast.
 - 2. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay

- disconnects lamps from battery, and battery is automatically recharged and floated on charger.
3. Environmental Limitations: Rate equipment for continuous operation under the following conditions unless otherwise indicated:
 - a. Ambient Temperature: Less than 0 deg F (minus 18 deg C) or exceeding 104 deg F (40 deg C), with an average value exceeding 95 deg F (35 deg C) over a 24-hour period.
 - b. Ambient Storage Temperature: Not less than minus 4 deg F (minus 20 deg C) and not exceeding 140 deg F (60 deg C).
 - c. Humidity: More than 95 percent (condensing).
 - d. Altitude: Exceeding 3300 feet (1000 m).
 4. Test Push-Button and Indicator Light: Visible and accessible without opening luminaire or entering ceiling space.
 - a. Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
 - b. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
 5. Battery: Sealed, maintenance-free, nickel-cadmium type.
 6. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
 7. Remote Test: Switch in handheld remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
 8. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.
- F. External Type: Self-contained, modular, battery-inverter unit, suitable for powering one or more lamps, remote mounted from luminaire.
1. Emergency Connection: Operate one LED lamp continuously. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire driver.
 2. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
 3. Nightlight Connection: Operate lamp in a remote luminaire continuously.
 4. Battery: Sealed, maintenance-free, nickel-cadmium type.
 5. Charger: Fully automatic, solid-state, constant-current type.
 6. Housing: NEMA 250, Type 1 enclosure listed for installation inside, on top of, or remote from luminaire. Remote assembly shall be located no less than half the distance recommended by the emergency power unit manufacturer, whichever is less.
 7. Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.

8. LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
9. Remote Test: Switch in handheld remote device aimed in direction of tested unit initiates coded infrared signal. Signal reception by factory-installed infrared receiver in tested unit triggers simulation of loss of its normal power supply, providing visual confirmation of either proper or failed emergency response.
10. Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and a flashing red LED.

2.3 EMERGENCY LIGHTING

- A. General Requirements for Emergency Lighting Units: Self-contained units.

2.4 EXIT SIGNS

- A. General Requirements for Exit Signs: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.
- B. Internally Lighted Signs:
 1. Input Voltage: As scheduled in Luminaire Schedule Multi-Tap inputs shall be utilized where offered by manufacturer.
 2. Lamps for AC Operation: LEDs; 50,000 hours minimum rated lamp life.
 3. Self-Powered Exit Signs (Battery Type): Internal emergency power unit.

2.5 MATERIALS

- A. Metal Parts:
 1. Free of burrs and sharp corners and edges.
 2. Sheet metal components shall be steel unless otherwise indicated.
 3. Form and support to prevent warping and sagging.
- B. Doors, Frames, and Other Internal Access:
 1. Smooth operating, free of light leakage under operating conditions.
 2. Designed to permit relamping without use of tools.
 3. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during relamping and when secured in operating position.

2.6 METAL FINISHES

- A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

2.7 LUMINAIRE SUPPORT COMPONENTS

- A. Comply with requirements in Division 26 Section "HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS" for channel and angle iron supports and nonmetallic channel and angle supports.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for conditions affecting performance of luminaires.
- B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.
- C. Examine walls, floors, roofs, and ceilings for suitable conditions where emergency lighting luminaires will be installed.
- D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Comply with NECA 1.
- B. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.
- C. Install lamps in each luminaire.
- D. Supports:
 - 1. Sized and rated for luminaire and emergency power unit weight.
 - 2. Able to maintain luminaire position when testing emergency power unit.
 - 3. Provide support for luminaire and emergency power unit without causing deflection of ceiling or wall.
 - 4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire and emergency power unit weight and vertical force of 400 percent of luminaire weight.
- E. Wall-Mounted Luminaire Support:
 - 1. Attached to structural members in walls.
 - 2. Do not attach luminaires directly to gypsum board.
- F. Suspended Luminaire Support:
 - 1. Pendants and Rods: Where longer than 48 inches (1200 mm), brace to limit swinging.
 - 2. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.

3. Continuous Rows of Luminaires: Use tubing or stem for wiring at one point and wire support for suspension for each unit length of luminaire chassis, including one at each end.
4. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

G. Ceiling Grid Mounted Luminaires:

1. Secure to any required outlet box.
2. Secure emergency power unit using approved fasteners in a minimum of four locations, spaced near corners of emergency power unit.
3. Use approved devices and support components to connect luminaire to building structure in a minimum of four locations, spaced near corners of luminaire.

3.3 IDENTIFICATION

- A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS."

3.4 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections:
1. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
- B. Luminaire will be considered defective if it does not pass operation tests and inspections.
- C. Prepare test and inspection reports.

3.5 STARTUP SERVICE

- A. Perform startup service:
1. Charge emergency power units and batteries minimum of one hour and depress switch to conduct short-duration test.

END OF SECTION 265219

SECTION 268000 – ELECTRICAL DEMOLITION AND REPAIR

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Removal of obsolete wiring and electrical apparatus.
 - 2. Relocation, reconnection, or replacement of existing wiring affected by demolition or new construction.
 - 3. Capping off concealed wiring abandoned due to demolition or new construction.

1.3 DRAWINGS AND EXISTING CONDITIONS

- A. All relocations, reconnections and removals are not necessarily indicated on the drawings. As such, the Contractor shall make adequate allowance in his proposal for this work as no “extra” charges will be allowed for these items.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. Refer to Division 26 Section “RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS” for raceways and boxes required by this scope of work.
- B. Refer to Division 26 Section “LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES” for conductor and cable installation required by this scope of work.

PART 3 - EXECUTION

3.1 TEMPORARY CONNECTIONS

- A. Where existing wiring must remain in service to supply occupied areas during construction, provide temporary wiring, connections and apparatus to maintain service to such areas. All shall be performed in a neat and safe manner to prevent injury to the building or its' occupants.

3.2 EXISTING WIRING TO BE ABANDONED

- A. Concealed wiring: cap flush with existing or new building surfaces. Indicate routing, size and former function of such raceways on as-built prints.

- B. Surface Run Raceways: remove; cap where emerging from building surfaces and record as above.

3.3 EXISTING WIRING TO REMAIN IN USE

- A. Where affected by demolition or new construction; relocate, replace, extend or repair raceways, conductors, outlets and apparatus to allow continued use of same. Use methods and materials as specified for new construction.

3.4 EXISTING INFRASTRUCTURE TO REMAIN

- A. Existing electrical wiring, apparatus, fixtures, equipment, etc. in close proximity to altered or new work shall be upgraded, modified, and brought to current adopted code standards in accordance with NEC and local ordinances. Close proximity shall be determined by the Authority Having Jurisdiction.

3.5 MATERIALS AND APPARATUS REMOVED

- A. All obsolete raceways, conductors, apparatus, and luminaires shall become the property of the Contractor and removed from site promptly unless otherwise noted.
- B. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "PENETRATION FIRESTOPPING."

3.5 POWER OUTAGES

- A. Power outages shall be held to a minimum and coordinated with the Owner. Contractor shall schedule same during normal off-duty hours, such as nights, weekends or holidays.

END OF SECTION 268000

SECTION 270100 – BASIC COMMUNICATIONS REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of Contract, including General and Supplementary Conditions and Division 01 Specification sections, apply to this and the other sections of Division 27.

1.2 SUMMARY

- A. This Section includes general administrative and procedural requirements for communications installations. The following administrative and procedural requirements are included in this Section to expand the requirements specified in Division 01:
 - 1. Scope of Work.
 - 2. Definitions.
 - 3. Code compliance.
 - 4. Approved Contractor.
 - 5. Drawings and specifications.
 - 6. Submittals.
 - 7. Coordination drawings.
 - 8. Guarantee of installation.
 - 9. Record documents.
 - 10. Maintenance manuals.
 - 11. Delivery, storage and handling.
 - 12. Temporary Communications services.
 - 13. Instruction of Owners personnel.
 - 14. Product Source Limitations.
- B. Furnish and install all materials and equipment and provide all labor required and necessary to complete the work shown on the drawings and/or specified in all Sections of Division 27 and all other work and miscellaneous items, not specifically mentioned, but reasonably inferred for a complete installation including all accessories and appurtenances required for testing the system. It is the intent of the drawings and specifications that all systems be complete, and ready for operation. All specified products shall be installed in accordance with all manufacturers' instructions and requirements.
- C. All network electronics, telephone and voice mail equipment, and the installation thereof shall be furnished by the Owner.
- D. All products furnished for this project shall be new and all components shall be manufactured for use within the same system. All specific components, such as jacks, cabling and patch cords, shall be of the same manufacturer and product line throughout the entire project. This insures interoperability, functionality and full performance from the installed system.

1.3 SCOPE OF WORK

- A. This division describes the products and execution requirements relating to furnishing and installing Telecommunications Systems at the new or remodeled buildings for Idaho Central Credit Union. Horizontal cabling comprised of copper cabling, and support systems are covered under this division.
- B. The Horizontal (workstation) Cabling System shall consist of a minimum of two (2) 4-pair Unshielded Twisted Pair (UTP) Copper Cables to each work area outlet unless otherwise noted for specific locations. The cables shall be installed from the Work Area Outlet to the Telecommunications Room (TR) located on the same floor, and routed to the appropriate rack serving that area and terminated as specified in this document.
- C. All cables and related terminations, support and grounding hardware shall be furnished, installed, wired, tested, labeled, and documented by the Telecommunications contractor as detailed in this document.
- D. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities of telecommunications outlets, typical installation details, cable routing and outlet types will be provided as an attachment to this document. If the bid documents are in conflict, this specification shall take precedence. The successful vendor shall meet or exceed all requirements for the cable system described in this document.
- E. The work included under this specification consists of furnishing all labor, equipment, materials, and supplies and performing all operations necessary to complete the installation of this structured cabling system in compliance with the specifications and drawings. The telecommunications contractor will provide and install all of the required material to form a complete system whether specifically addressed in the technical specifications or not. The telecommunications contractor will test 100% of the channels. Failures and marginal passes will be corrected and retested.
- F. The work shall include, but not be limited to the following:
 - 1. Furnish and install a complete telecommunications wiring infrastructure.
 - 2. Furnish, install, and terminate all UTP cable
 - 3. Furnish and install all wall plates, jacks, patch panels, and patch cords.
 - 4. Furnish and install all required cabinets and/or racks as required and as indicated.
 - 5. Furnish any other material required to form a complete system.
 - 6. Perform permanent link or channel testing (100% of horizontal and/or backbone links/channels) and certification of all components.
 - 7. Furnish documentation and test results of all cabling to the owner on CD and paper format, listed by each closet, then by workstation ID. (Testing documentation and As-built drawings)
 - 8. Adhere and comply with all requirements of the Ortronics Certification program.
 - 9. Register the project for warranty.
 - 10. Submit all final test results in original tester software to Ortronics.

1.4 DEFINITIONS

- A. Finished Spaces: Spaces other than mechanical, electrical, and communications equipment rooms, furred spaces, chases, unheated spaces immediately below roof, spaces above ceilings, unexcavated spaces, crawlspaces, and tunnels.
- B. Exposed, Interior Installations: Exposed to view indoors. Examples include finished occupied spaces and electrical equipment rooms.
- C. Exposed, Exterior Installations: Exposed to view outdoors or subject to outdoor ambient

temperatures and weather conditions. Examples include rooftop locations.

- D. Concealed, Interior Installations: Concealed from view and protected from physical contact by building occupants. Examples include above ceilings and in chases.
- E. Concealed, Exterior Installations: Concealed from view and protected from weather conditions and physical contact by building occupants but subject to outdoor ambient temperatures. Examples include installations within unheated shelters.

1.5 CODE COMPLIANCE

- A. All work and materials shall conform in every detail to the rules and requirements of the National Fire Protection Association, the local Electrical Code and present manufacturing standards.
- B. All materials shall be UL Listed and shall be marked as such. If UL has no published standards for a particular item, then other national independent testing standards shall apply and such items shall bear those labels. Where UL has an applicable system listing and label, the entire system shall be so labeled.
- C. All modular jacks, patch cords, consolidation point, and patch cords shall be ETL Verified (not just tested) to be augmented category 6 channel compliant.
- D. The cabling system described in this is derived from the recommendations made in recognized telecommunications industry standards. The following documents are incorporated by reference:
 - 1. Occupational Safety and Health Act Standards (OSHA).
 - 2. ANSI/IEEE C-2 - National Electrical Safety Code.
 - 3. ADAAG (ADA) Standards - Americans With Disabilities Act.
 - 4. CABO-ANSI A117.1.
 - 5. IEEE Standards.
 - 6. Underwriter's Laboratory – U.L. All products shall be U.L. Listed.
 - 7. NFPA – National Fire Protection Association Codes and Standards of Installation.
 - a. NFPA 70 – National Electric Code
 - b. NFPA 72 – National Fire Alarm Code
 - c. NFPA 101 – Life Safety Code
 - 8. NECA - Standard of Installation.
 - 9. NEMA – Standard of Installation
 - 10. International Building Code
 - 11. International Fire Code
 - 12. International Energy Conservation Code.
 - 13. BICSI TDM (Telecommunications Distribution Methods Manual), Current Edition.
 - 14. ANSI/TIA-568-C.0 -Generic Communications Cabling for Customer Premises.
 - 15. ANSI/TIA-568-C.1 –Commercial Building Telecommunications Cabling Standard
 - 16. ANSI/TIA- 568-C.2 –Balanced Twisted-Pair Telecommunications Cabling and Components Standard.
 - 17. ANSI/TIA- 568-C.3 -Optical Fiber Cabling Components Standards.
 - 18. ANSI/TIA–569-C -Commercial Building Standard for Telecommunications Pathways and Spaces.
 - 19. ANSI/TIA–606-B -Administration Standard for Commercial Telecommunications Infrastructure.
 - 20. ANSI/TIA–607-B -Generic Telecommunications Bounding and Grounding (Earthing) for Customer Premises.

21. TIA-758-B -Customer-Owned Outside Plant Telecommunications Infrastructure Standard.

- E. If this document and any of the documents listed above are in conflict, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.
- F. This document does not replace any code, either partially or wholly. The contractor must be aware of local codes that may impact this project.
- G. Work to be executed and inspected in accordance with local codes and ordinances. Permits, fees or charges for inspection or other services shall be paid for by this Contractor. Local codes and ordinances are to be considered as minimum requirements and must be properly executed without expense to the Owner; but do not relieve the Contractor from work shown that exceeds minimum requirements.

1.6 APPROVED CONTRACTOR

- 1. The Telecommunications contractor must be an approved Ortronics Certified Contractor at a CIP-ESP or CIP level. At least 30 percent of the installation and termination crew must be certified Ortronics on proper installation and testing of copper and fiber structured cabling systems. A letter from Ortronics stating that the Installer Company's certification is in good standing must be submitted with the quote in order for such quote to be valid. The Telecommunications contractor is responsible for workmanship and installation practices in accordance with the Ortronics CIP-ESP/CIP Program. The Telecommunications contractor must also register the project and submit test data for approval, per the requirements of the Ortronics certification program guidelines. Once approved, Ortronics will extend a nCompass Limited Lifetime Warranty to the end user.
- 2. The Contractor installing voice and data cabling shall be able to provide a list of similar projects with references that they have completed within the last five years.
- 3. The Contractor shall be thoroughly knowledgeable in TIA-568C.2 standards of Category 6A installations. The requirements of these standards shall be met whether a particular item is specified or not. The specifications assume that the contractor shall provide all miscellaneous components, hardware, etc. in a manner compliance with these standards.
- 4. The installation shall be made by a licensed and bonded contractor holding a valid Idaho State Contractor's License. All work covered by this specification is to be performed by a holder of a current State of Idaho specialty Electrician's license for limited energy systems.

1.7 ALTERNATE APPROVED CONTRACTOR

- A. Alternate approved contractor that is acceptable shall meet the following requirements:
 - 1. The Telecommunications contractor must be an approved Leviton Network Integrator in good standing. At least 30 percent of the installation and termination crew must be certified with Leviton on proper installation and testing of copper and fiber structured

cabling systems. A valid and current certificate showing that the Installer Company's certification is in good standing must be submitted with the quote in order for such quote to be valid. The Telecommunications contractor is responsible for workmanship and installation practices in accordance with the Leviton Network Integrator Program. The Telecommunications contractor must also register the project and submit test data for approval, per the requirements of the Leviton Network Integrator Program guidelines. Once approved, Leviton will extend a BLT Limited Lifetime Warranty to the end user.

2. The Contractor installing voice and data cabling shall be able to provide a list of similar projects with references that they have completed within the last five years.
 3. The Contractor shall be thoroughly knowledgeable in TIA-568C.2 standards of Category 6A installations. The requirements of these standards shall be met whether a particular item is specified or not. The specifications assume that the contractor shall provide all miscellaneous components, hardware, etc. in a manner compliance with these standards.
 4. The installation shall be made by a licensed and bonded contractor holding a valid Idaho State Contractor's License. All work covered by this specification is to be performed by a holder of a current State of Idaho specialty Electrician's license for limited energy systems.
- B. Equivalent products from approved contractor shall meet or exceed the requirements of these specifications and be compatible with warranty requirements listed.

1.8 DRAWINGS AND SPECIFICATIONS

- A. All drawings and all Divisions of these specifications shall be considered as a whole and work of this Division shown anywhere therein shall be furnished under this Division.
- B. Drawings are diagrammatic and indicate the general arrangement of equipment and wiring. Most direct routing of conduits and wiring is not assured. Exact requirements shall be governed by architectural, structural and mechanical conditions of the job. Consult all other drawings in preparation of the bid. Extra lengths of wiring or addition of pull or junction boxes, or any work necessary to comply with the intent of Plans and Specifications necessitated by such conditions shall be included in the bid. Check all information and report any apparent discrepancies before submitting bid.
- C. Contractor shall verify all dimensions at the site and be responsible for their accuracy.

1.9 SUBMITTALS

- A. General: Follow the procedures specified in Division 01 Section "SUBMITTALS".
- B. Substitutions and Material Submittals: By specific designation and description, standards are established for specialties and equipment.
- C. Other makes of specialties and equipment of equal quality will be considered, provided such proposed substitutions are submitted to the Architect for approval at least seven (7) calendar days prior to bid opening. A schedule showing make, type, manufacturer's name and trade designation of all materials and equipment proposed as a substitution shall be submitted together with a single copy

of the manufacturer's complete specifications. A list of approved substitutions will be published as an Addendum. No substituted materials shall be installed except by written approval.

- D. Within thirty (30) days after award of contract, the Contractor shall submit in six (6) copies a schedule showing make, type, manufacturer's name and trade designation of all materials and equipment proposed for use and implementation. This schedule shall be accompanied by the manufacturer's complete specification, in six (6) copies, for each equipment item or materials used, give complete information as to capacities, ratings, kind of material used, finish guarantee, etc., and such dimensions as are necessary to check space requirements. When approved, such schedule and drawing shall be in addition to these specifications and shall be in equal force in that no variation shall be permitted. The Architect is to be the sole judge as to the quality of any material offered as an equal. See General Conditions and Supplementary Conditions to the Contract.
- E. Design is based on equipment as listed in schedules on drawings and included in these specifications. All changes in foundations, bases, supports, connections, controls, space, openings, walls and ceilings and sound and vibration isolation, seismic support, and electrical and mechanical characteristics required by alternate equipment specified, submitted and approved shall be made at no additional cost to the Owner.
- F. Approval rendered on shop drawings shall not be considered as a guarantee of measurements or building conditions. Where drawings are approved, said approval does not mean that drawings have been checked in detail; said approval does not in any way relieve the contractor from his responsibility or necessity of furnishing material or performing work as required by the contract drawings and specifications.
- G. Increase, by the quantity listed below, the number of communications related shop drawings, product data and samples submitted to allow for required distribution plus two (2) copies of each submittal required, which will be retained by the Electrical Consulting Engineer.
 - 1. Shop Drawings – Initial Submittal: one (1) additional print(s).
 - 2. Shop Drawings – Final Submittal: one (1) additional print(s).
 - 3. Product Data: one (1) additional copy of each item(s).
- H. Additional copies may be required by individual sections of these Specifications.
- I. Coordination Drawings: Comply with requirements specified in Division 01 Section "PROJECT MANAGEMENT AND COORDINATION."
- J. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects names and addresses, contact information of architects and owners, and other information specified.
- K. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on American Welding Society (AWS) forms. Include names of firms and personnel certified.
- L. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.

- M. Manufacturer Certificates: Submit written statements on manufacture's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- N. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- O. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- P. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indication and interpreting test results of material for compliance with requirements in the Contract Documents
- Q. Product Test Reports: Submit written reports indicating current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency
- R. Schedule of Tests and Inspections: Comply with requirements specified in Division 01 Section "QUALITY REQUIREMENTS."
- S. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- T. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- U. Field Test Reports: Submit reports indicating and interpreting results of field test performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- V. Maintenance Data: Comply with requirements specified in Division 01 Section "OPERATION AND MAINTENANCE DATA."
- W. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page number.

1.10 ELECTRONIC SUBMITTAL PROCEDURE

A. Summary:

1. Shop drawings and product data submittals shall be transmitted to Architect in electronic (PDF) format using a website service designed specifically for transmitting submittals between construction team members.

2. The intent of electronic submittals is to expedite the construction process by reducing paperwork, improving information flow, and decreasing turnaround time.
3. The electronic submittal process is not intended for color samples, color charts, or physical material samples.

B. Procedures:

1. Create submittal log in software by inserting required submittals listed in individual specification section.
2. Submittal Preparation – Contractor may use any or all of the following options:
 - a. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via the website.
 - b. Subcontractors and Suppliers provide electronic (PDF) submittals to Contractor via email.
 - c. Subcontractors and Suppliers provide paper submittals to Scanning Service which electronically scans and converts to PDF format.
3. Printed Submittals: Provide two printed sets of submittals for shop drawings for structural framing in addition to electronic submittals.
4. Contractor shall review and apply electronic stamp certifying that the submittal complies with the requirements of the Contract Documents including verification of manufacturer / product, dimensions and coordination of information with other parts of the work.
5. Contractor shall transmit each submittal to Architect using the software website.
6. Architect / Engineer review comments will receive email notice of completed review.
7. Distribution of reviewed submittals to subcontractors and suppliers is the responsibility of the Contractor.
8. Submit paper copies of any reviewed submittals not submitted electronically at project closeout for record purposes in accordance with Section 017700 – CLOSEOUT PROCEDURES.

C. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.

1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable. Include the following information, as applicable.
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specification.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
3. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printing performance curves.
 - c. Operational range diagrams.

- d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
- 4. Submit Product Data before or concurrent with Samples.
- D. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the contract Documents or standard data.
 - 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the Following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets a least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 42 inches (750 by 1067 mm)
- E. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
 - 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number title of application Specification Section.
 - 3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Sample not incorporated with Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit three full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.

1.11 COORDINATION DRAWINGS

- A. Prepare coordination drawings in accordance with Division 01 Section "PROJECT COORDINATION" and other Sections included herein to a scale of 1/8"=1'-0" or larger detailing

communications room and floor plans showing major elements, components and systems of communications equipment and materials in relationship with other systems, installations and building components. Indicated locations where space is limited for installation and access and where sequencing and coordination of installations are of importance to the efficient flow of the work including (but not limited to) the following:

1. Indicate the proposed locations of cable tray, conduit racks, equipment and materials. Include the following:
 - a. Clearances for installation of communications junction boxes.
 - b. Clearances for servicing and maintaining equipment including racks, wiring devices, patch panels, control equipment, etc.
 - c. Equipment connections and support details.
 - d. Exterior wall and foundation penetrations.
 - e. Fire rated wall and ceiling and floor assembly penetrations.
 - f. Size and locations of required concrete pads and bases.
2. Indicate scheduling, sequencing, movement and positioning of large equipment into the building during construction.
3. Prepare floor plans, elevations and details to indicate penetrations in floors, walls and ceilings and their relationship to other penetrations and installations.
4. Prepare reflected ceiling plans to coordinate and integrate installations, mechanical access to equipment, air outlets and inlets, luminaires, speakers, fire sprinklers and other ceiling mounted items.

1.12 GUARANTEE OF INSTALLATION

- A. All work under this section shall be guaranteed in writing to be free of defective work, materials, or parts for a period of one (1) year from the date of Substantial Completion.
- B. Manufacturer's specific warranties and those specified in this Section shall be included in the Contractor's Guarantee of Installation.
- C. Repair, revision or replacement of any and all defects, failure or inoperativeness shall be done by this section at no cost to the Owner.
- D. System Performance Warranty
 1. The nCompass Warranty combines a Limited Lifetime extended product and applications assurance warranty. Ortronics (Manufacturer) provides the warranty directly to the end-user.
 2. The nCompass warranty guarantees functionality of all components used in the system for a Limited Lifetime from the date of project completion. The warranty shall warrant the installed horizontal copper and the backbone optical fiber portions of the cabling system.
 3. The nCompass Warranty shall cover the failure of the structured cabling system to support 10Gb/s over UTP and fiber.
 4. The nCompass warranty requires using Ortronics patch cords to complete the channel.
 5. The contractor shall furnish an hourly rate with the proposal submittal, which shall be valid for a period of one year from the date of acceptance. This rate will be used when cabling support is required to affect moves, adds, and changes to the system (MACs). MACs shall be performed by an Ortronics CIP-ESP or CIP Contractor and shall be added to the

- nCompass warranty when registered with Ortronics. Hourly rates for warranty claims will be negotiated separately with the manufacturers at the time of the claim.
6. Upon successful completion of the installation, warranty registration with submission of test data, and final approval of Ortronics, the end user shall be provided with a numbered certificate, from Ortronics, registering the installation.
 7. Completion of the installation, in-progress and final inspections, receipt of the test and as-built documentation, receipt of the warranty certificate and successful performance of the cabling system for a two week period will constitute acceptance of the system.

1.13 RECORD DOCUMENTS

- A. Prepare record documents in accordance with the requirements in Division 01 Section "PROJECT CLOSEOUT." In addition to the requirements specified in Division 01, indicate the following installed conditions:
1. Conduit racks, size, location, and routing, for interior locations. Show all wiring device locations and connections, control locations, and final equipment locations including actual dimensions.
 2. Cable tray size, location, and routing.
 3. Underground ductbank locations, routings, and quantity of conduits utilized.
 4. Final Record Drawings: Provide As-Built network drawings and/or diagrams indicating the cabling distribution system from outlet faceplate to distribution frame (patch panel) for each and every drop. These drawings and/or diagrams are to be included in the As-Built drawings, or the O & M manuals and hub binders. They shall be draft quality. Markup, hand drawings, etc, will be rejected.
 5. Materials and components listing for each item. Manufacture, part number and distributor. Include in O & M manuals.
 6. Patching Map: Provide a drafted illustration of each patch panel which shows device and cable identification connected to each port position.
 7. Hub Reference Binders: For each hub, provide a three-ring binder which includes the test reports, patching map, network diagrams and/or reduced size drawings for the backbone and portion of the networking system served by that hub.
 8. All approved substitutions, Contract Modifications and actual equipment and materials installed.
 9. Contract Modifications, actual equipment and materials installed.
 10. The drawings are to include cable routes and outlet locations. Outlet locations shall be identified by their sequential number as defined elsewhere in this document. Numbering, icons, and drawing conventions used shall be consistent throughout all documentation provided. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD rel. 14) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.
 11. The Contractors shall annotate the base drawings and return a hard copy (same plot size as originals) and electronic (AutoCAD rel. 14) form.

1.14 MAINTENANCE MANUALS

- A. Prepare maintenance manuals in accordance with Division 01 Section "PROJECT CLOSEOUT." In addition to the requirements specified in Division 01, include the following information for equipment and systems:

1. Description of function, normal operating characteristics and limitations, performance and engineering data and tests, and complete nomenclature and commercial numbers of replacement parts.
2. Manufacturer's printed operating procedures to include start-up, break-in and routine and normal operating instructions, regulation, control, stopping shutdown and emergency instructions.
3. Maintenance procedures for routine preventative maintenance and troubleshooting, disassembly, repair and reassembly, aligning and adjusting instructions.
4. Servicing instructions and schedules.

1.15 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle materials in a manner to prevent damage or interference with traffic conditions.
- B. Protect equipment from weather and dampness.
- C. All material stored on site shall be protected to Owner's standards. Owner may reject any or all material documented to have been improperly stored. Replacement of improperly stored material shall be solely at the contractor's expense.
- D. Cable shall be stored according to manufacturer's recommendations as a minimum. In addition, cable must be stored in a location protected from vandalism and weather. If cable is stored outside, it must be covered with opaque plastic or canvas with provision for ventilation to prevent condensation and for protection from weather. If air temperature at cable storage location will be below 40 degrees F., the cable shall be moved to a heated (50 degrees F. minimum) location. If necessary, cable shall be stored off site at the contractor's expense.
- E. If the telecommunications contractor wishes to have a trailer on site for storage of materials, arrangements shall be made with the Construction Manager.

1.16 TEMPORARY COMMUNICATIONS SERVICES

- A. Temporary wiring for construction communications for the general contractor or other subcontractors shall not be included as a part of this section of the work. Refer to Division 01 regarding payment for the communications services used for construction and testing of the new installation.

1.17 INSTRUCTION OF OWNER'S PERSONNEL

- A. The Contractor shall conduct an on-site instructional tour of the entire project. The personnel designated by the Owner shall be instructed in: operation of all communications systems, elementary trouble-shooting procedures, preventive maintenance procedures, uses of Operation and Maintenance Manuals, and operation of all communication systems.

PART 2 - PRODUCTS

NOT APPLICABLE

PART 3 - EXECUTION

3.1 FEES AND PERMITS

- A. Arrange and pay for any fees, permits, connections charges, hook-up fees, etc. required with local governing bodies, utilities, etc.

3.2 UTILITY SERVICES

- A. Install communications service entrances in accordance with Utility Company's rules and regulations.
- B. Make arrangements with Utility Company to obtain permanent communications services to the project.

3.3 ROUGH-IN

- A. Verify final locations for rough-ins with field measurements and with the requirements of the actual equipment to be connected.
- B. Refer to equipment specifications in all other Divisions of work for rough-in requirements.

3.4 COMMUNICATIONS INSTALLATIONS

- A. General: Sequence, coordinate and integrate the various elements of communications systems, materials and equipment. Comply with the following requirements:
 - 1. Coordinate communications systems, equipment and materials installation with other building components. Inform Contractors of other trades of the required access to and clearances around communications equipment to maintain serviceability and code compliance.
 - 2. Verify all dimensions by field measurements.
 - 3. Arrange for chases, slots and openings in other building components during progress of construction to allow for communications installations.
 - 4. Coordinate the installation of required supporting devices and sleeves to be set in poured-in-place concrete and other structural components as they are constructed.
 - 5. Sequence, coordinate and integrate installations of communications materials and equipment for efficient flow of the work. Give particular attention to large equipment requiring positioning prior to closing in the Building.
 - 6. Where mounting heights are not detailed or dimensioned, install systems, materials and equipment to provide the maximum headroom possible.
 - 7. Coordinate connection of communications systems with exterior underground and overhead service companies and controlling agencies. Provide required connection for each service.
 - 8. Install systems, materials and equipment to conform with approved submittal data, including coordination drawings, to the greatest extent possible. Conform to arrangements indicated by the Contract Documents, recognizing that portions of the work are shown only in diagrammatic form. Where coordination requirements conflict with individual system requirement, refer conflict to the Architect.
 - 9. Install systems, materials and equipment level and plumb, parallel and perpendicular to other building systems and components where installed exposed in finished spaces.
 - 10. Install communications equipment to facilitate servicing, maintenance and repair or replacement of equipment components and as required by Code. As much as practical, connect equipment for ease of disconnecting with minimum of interference with other installations.

- a. All communications items, equipment, etc. requiring access and maintenance to be provided with access panels by communications contractor when located behind hard inaccessible finished surfaces. See Architectural ceiling plans for ceiling and wall finish types.
- 11. Install access panel or doors where equipment is concealed behind finished surfaces. Access panels and doors are specified in Division 8 Section "ACCESS DOORS".
- 12. Install systems, materials, and equipment giving right-of-way priority to systems required to be installed at a specified slope.
- 13. Only quality workmanship will be accepted. Haphazard or poor installation practice will be cause for rejection of work.
- 14. Provide foreman in charge of this work at all times.
- 15. Where the specifications call for an installation to be made in accordance with Manufacturer's recommendations, a copy of such recommendations shall at all times be kept in the job superintendent's office and shall be available to the Owner's representative.
- 16. Where air plenums are encountered, all cabling and conductors not in raceways shall be rated, listed, and suitable for use in plenum spaces.

3.5 QUALITY ASSURANCE

- A. Provide a meaningful Quality Assurance program. To assist the Contractor in this program, the specifications contained herein are set forth as the minimum acceptable requirements. This does not relieve the Contractor from executing other Quality Assurance measures to obtain a complete operating facility within the scope of this project.
- B. The Contractor shall insure that all workmanship, all materials employed, all required equipment and the manner and method of installation conforms to accepted construction and engineering practices, and that each piece of equipment is in satisfactory working condition to satisfactorily perform its functional operation.
- C. Provide quality assurance tests and operational check on all components of the communications distribution system.

3.6 CUTTING AND PATCHING

- A. General: Perform cutting and patching in accordance with Division 01 Section "CUTTING AND PATCHING." In addition to the requirements specified in Division 01, the following requirements apply:
 - 1. Protection of Installed Work: During cutting and patching operations, protect adjacent installations.
 - 2. No joists, beams, girders or structural columns shall be cut by any contractor without obtaining written permission from the Architect.
- B. Perform cutting, fitting and patching of communications equipment and materials required to:
 - 1. Uncover work to provide for installation of ill-timed work.
 - 2. Remove and replace defective work.
 - 3. Remove and replace work not conforming to requirements of the Contract Documents.
 - 4. Upon written instructions from the Architect, uncover and restore work to provide for Architect/Engineer observation of concealed work.
- C. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.
 - 1. Patch finished surfaces and building components using new materials specified for the original

installation and experienced Installers. Installer's qualifications refer to the materials and methods required for the surface and building components being patched.

- a. Refer to Division 01 Section "DEFINITIONS AND STANDARDS" for definition of "Experienced Installer."

3.7 EXCAVATION AND BACKFILL

- A. General: Perform excavation and backfilling in accordance with Division 31 Section "EARTH MOVING." In addition to the requirements specified in Division 31, the following requirements apply:
 1. Protection of Installed Work: During excavating and backfilling operations, protect adjacent installations.
- B. Perform excavating and backfilling for communications equipment and materials required to:
 1. Uncover work to provide for installation of ill-timed work.
 2. Remove and replace defective work.
 3. Remove and replace work not conforming to requirements of the Contract Documents.
 4. Upon written instructions from the Architect, uncover and restore work to provide for Architect/Engineer observation of concealed work.
- C. Provide and maintain temporary partitions or dust barriers adequate to prevent the spread of dust and dirt to adjacent areas.

END OF SECTION 270100

SECTION 271100 - COMMUNICATIONS EQUIPMENT ROOM FITTINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Telecommunications mounting elements.
2. Backboards.
3. Telecommunications equipment racks and cabinets.
4. Telecommunications service entrance pathways.
5. Grounding.

- B. Related Sections:

1. Division 27 Section "COMMUNICATIONS HORIZONTAL CABLING" for voice and data cabling associated with system panels and devices.
2. Division 26 Section "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS" for main grounding bus bars in equipment rooms.

1.3 DEFINITIONS

- A. BICSI: Building Industry Consulting Service International.
- B. LAN: Local area network.
- C. RCDD: Registered Communications Distribution Designer.

1.4 PERFORMANCE REQUIREMENTS

- A. Seismic Performance: Floor-mounted cabinets and cable pathways shall withstand the effects of earthquake motions determined according to SEI/ASCE 7.
 1. The term "withstand" means "the unit will remain in place without separation of any parts from the device when subjected to the seismic forces specified."

1.5 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for equipment racks and cabinets. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

- B. Shop Drawings: For communications equipment room fittings. Include plans, elevations, sections, details, and attachments to other work.
 - 1. Detail equipment assemblies and indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 2. Equipment Racks and Cabinets: Include workspace requirements and access for cable connections.
 - 3. Grounding: Indicate location of grounding bus bar and its mounting detail showing standoff insulators and wall mounting brackets.
 - 4. Cable tray layout, showing cable tray route to scale, with relationship between the tray and adjacent structural, electrical, and mechanical elements. Include the following:
 - a. Vertical and horizontal offsets and transitions.
 - b. Clearances for access above and to side of cable trays.
 - c. Vertical elevation of cable trays above the floor or bottom of ceiling structure.
 - d. Load calculations to show dead and live loads as not exceeding manufacturer's rating for tray and its support elements.
- C. Qualification Data: For qualified layout technician, installation supervisor, and field inspector.
- D. Seismic Qualification Certificates: For floor-mounted cabinets, accessories, and components, from manufacturer.
 - 1. Basis for Certification: Indicate whether withstand certification is based on actual test of assembled components or on calculation.
 - 2. Dimensioned Outline Drawings of Equipment Unit: Identify center of gravity and locate and describe mounting and anchorage provisions. Base certification on the maximum number of components capable of being mounted in each rack type. Identify components on which certification is based.
 - 3. Detailed description of equipment anchorage devices on which the certification is based and their installation requirements.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
 - 1. Layout Responsibility: Preparation of Shop Drawings shall be under the direct supervision of RCDD.
 - 2. Installation Supervision: Installation shall be under the direct supervision of Registered Technician, who shall be present at all times when Work of this Section is performed at Project site.
 - 3. Field Inspector: Currently registered by BICSI as RCDD to perform the on-site inspection.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Telecommunications Pathways and Spaces: Comply with ANSI/TIA-569-C.
- D. Grounding: Comply with ANSI/TIA-607-B.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install equipment frames and cable trays until spaces are enclosed and weathertight, wet work in spaces is complete and dry, and work above ceilings is complete.

1.8 COORDINATION

- A. Coordinate layout and installation of communications equipment with Owner's telecommunications and LAN equipment and service suppliers. Coordinate service entrance arrangement with local exchange carrier.
 - 1. Meet jointly with telecommunications and LAN equipment suppliers, local exchange carrier representatives, and Owner to exchange information and agree on details of equipment arrangements and installation interfaces.
 - 2. Record agreements reached in meetings and distribute them to other participants.
 - 3. Adjust arrangements and locations of distribution frames, cross-connects, and patch panels in equipment rooms to accommodate and optimize arrangement and space requirements of telephone switch and LAN equipment.
 - 4. Adjust arrangements and locations of equipment with distribution frames, cross-connects, and patch panels of cabling systems of other communications, electronic safety and security, and related systems that share space in the equipment room.
- B. Coordinate location of power raceways and receptacles with locations of communications equipment requiring electrical power to operate.

PART 2 - PRODUCTS

2.1 PATHWAYS

- A. General Requirements: Comply with ANSI/TIA-569-B.
- B. Cable Support: NRTL labeled. Cable support brackets shall be designed to prevent degradation of cable performance and pinch points that could damage cable. Cable tie slots fasten cable ties to brackets.
 - 1. Comply with NFPA 70 and UL 2043 for fire-resistant and low-smoke-producing characteristics.
 - 2. Support brackets with cable tie slots for fastening cable ties to brackets.
 - 3. Lacing bars, spools, J-hooks, and D-rings.
 - 4. Straps and other devices.
- C. Conduit and Boxes: Comply with requirements in Division 26 Section "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS." Flexible metal conduit shall not be used.

2.2 BACKBOARDS

- A. Backboards: Plywood, fire-retardant treated, 3/4 by 48 by 96 inches (19 by 1220 by 2440 mm). Comply with requirements for plywood backing panels specified in Division 06 Section "ROUGH CARPENTRY."

2.3 FREE STANDING RACKS

- A. Free standing rack shall be Chatsworth CPI series or equal in Middle Atlantic described and configured as follows:
1. Provide the necessary strain relief, bend radius and cable routing for proper installation of high performance cross connect products, meeting all specifications of ANSI/TIA-C.
 2. Have top cable trough with waterfall and built in patch/horizontal cable distribution separator.
 3. Have EIA hole pattern on front and rear.
 4. Be available with a 3 inch channel depth.
 5. Provide Horizontal Cable Organizer next to patch panel with Snap-On, hinged cover like CPI30530-719.
 6. Provide (2) single Vertical Cable Organizer on each vertical rail with Snap-on, hinged cover like CPI 12831-703. Arrange the Vertical Cable managers stacked.
 7. Assemble as 19" (483 mm) or 23" (584 mm) with no additional hardware.
 8. Provide floor and ceiling access for cable management and distribution.
 9. Provide pre-drilled base for floor attachment of rack.
 10. Be available in standard color of black.
 11. Be manufactured by an ISO 9001 registered company.
 12. Quantity of Vertical Cable Organizers: 4.
 13. Quantity of Horizontal Cable Organizers: per details.
 14. Horizontal Power Strips: IRU, (6) 5-15R receptacles, integral thermal circuit breaker, integral SPD, with detachable input cord, 15' Long, Chatsworth 12816-703 with mounting hardware.
 15. Be equipped with internal grounding studs. Rack shall be designed as a bonded assembly.
 16. Be provided with manufacturers Rack Grounding jumper Kit.
 17. Field install grounding bus bar at top of equipment rack.

2.4 COPPER CABLE PROTECTION UNITS

- A. All copper circuits shall be provided with protection between each building with an entrance cable protector panel. All building-to-building circuits shall be routed through this protector. The protector shall be connected with a #6 AWG copper bonding conductor between the protector ground lug and the TC ground point. Approved manufacturer of protection units is Porta Systems.

2.5 GROUNDING

- A. Comply with requirements in Division 26 Section "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS." for grounding conductors and connectors.
- B. Telecommunications Bus Bars:
1. Connectors: Mechanical type, cast silicon bronze, solderless compression-type wire terminals, and long-barrel, two-bolt connection to ground bus bar.
 2. Rack Mounted Ground Bus Bar: Copper, minimum 1/4 inch thick by 4 inches wide (6 mm thick by 100 mm wide) with 9/32-inch (7.14-mm) holes spaced 1-1/8 inches (28 mm) apart.
 3. Stand-Off Insulators: Comply with UL 891 for use in switchboards, 600 V. Lexan or PVC, impulse tested at 5000 V.
- C. Comply with ANSI/TIA-607-B.

2.6 LABELING

- A. Comply with ANSI/TIA-606-B and UL 969 for a system of labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

PART 3 - EXECUTION

3.1 ENTRANCE FACILITIES

- A. Contact telecommunications service provider and arrange for installation of demarcation point, protected entrance terminals, and a housing when so directed by service provider.
- B. Install underground pathways complying with recommendations in ANSI/TIA-569-C, "Entrance Facilities" Article.

3.2 INSTALLATION

- A. Comply with NECA 1
- B. Comply with BICSI TDMM for layout and installation of communications equipment rooms.
- C. Install underground entrance pathway complying with Division 26 Section "RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS."
- D. Bundle, lace, and train conductors and cables to terminal points without exceeding manufacturer's limitations on bending radii. Install lacing bars and distribution spools.
- E. Furnish and install telecommunications backboards where indicated on drawings. The bottom of the backboards shall be placed approximately six inch AFF, and must extend to a minimum height AFF of eight feet. Walls with less than two feet of free horizontal or vertical equipment mounting space need not be covered with backboards. Mount backboards with the smooth side facing away from the wall, and paint the backboard with two coats of fire resistant white paint prior to mounting. A minimum of six appropriate fasteners shall be used for every sixteen square feet of backboard.
- F. Racks shall be securely attached to the concrete floor using a minimum 3/8" hardware or as required by local codes.
- G. Racks shall be placed with a minimum of 36 inch clearance from the walls on all sides of the rack. When mounted in a row, maintain a minimum of 36 inches from the wall behind and in front of the row of racks and from the wall at each end of the row.
- H. All racks shall be grounded to the rack-mounted telecommunications ground bus bar. Utilize grounding kit components to connect rack to bus bar.
- I. Rack mount screws not used for installing patch panels and other hardware shall be bagged and left with the rack upon completion of the installation.
- J. Wall mounted termination block fields shall be mounted on Backboards.

- K. Wall mounted termination block fields shall be installed with the lowest edge of the mounting frame 18" from the finished floor.

3.3 FIRESTOPPING

- A. Comply with requirements in Division 07 Section "PENETRATION FIRESTOPPING." Comply with ANSI/TIA-569-C, Annex A, "Firestopping."
- B. Comply with BICSI TDMM, "Firestopping Systems" Article.

3.4 GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with ANSI/TIA-607-B.
- C. Locate equipment room grounding bus bar to minimize the length of bonding conductors. Fasten to wall allowing at least 2-inch (50-mm) clearance behind the grounding bus bar. Connect grounding bus bar with a minimum No. 4 AWG grounding electrode conductor from grounding bus bar to suitable electrical building ground, or as shown on plans.
- D. Locate rack grounding bus bar to bottom of ladder tray at the top of the equipment rack. Fasten to cable tray allowing at least 2-inch (50mm) clearance between tray and bar. Connect rack grounding kit components between bar and integral grounding studs within rack assembly. Connect rack grounding bus bar to equipment room grounding bus bar with grounding electrode conductor as scheduled on drawings.
- E. The facility shall be equipped with a Telecommunications Bonding Backbone (TBB). This backbone shall be used to ground all telecommunications cable shields, equipment, racks, cabinets, raceways, and other associated hardware that has the potential to act as a current carrying conductor. The TBB shall be installed independent of the building's electrical and building ground and shall be designed in accordance with the recommendations contained in the ANSI/TIA-607-B Telecommunications Bonding and Grounding Standard.
- F. The main entrance facility/equipment room shall be equipped with a telecommunications main grounding bus bar (TMGB). Telecommunications room shall be provided with a telecommunications ground bus bar (TGB). The TMGB shall be connected to the building electrical entrance grounding facility. The intent of this system is to provide a grounding system that is equal in potential to the building electrical ground system. Therefore, ground loop current potential is minimized between telecommunications equipment and the electrical system to which it is attached.
- G. All racks, metallic backboards, cable sheaths, metallic strength members, splice cases, cable trays, etc. entering or residing in the TR or ER shall be grounded to the respective TGB or TMGB using a minimum #6 AWG stranded copper bonding conductor and compression connectors.
- H. All wires used for telecommunications grounding purposes shall be identified with a green insulation. Non-insulated wires shall be identified at each termination point with a wrap of green tape. All cables and bus bars shall be identified and labeled in accordance with the System Documentation Section of this specification.

3.5 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A. Comply with requirements in Division 26 Section "IDENTIFICATION FOR ELECTRICAL SYSTEMS." Comply with requirements in Division 09 Section "INTERIOR PAINTING" for painting backboards. For fire-resistant plywood, do not paint over manufacturer's label.
- B. See Division 27 Section "COMMUNICATIONS HORIZONTAL CABLING" for additional identification requirements.

END OF SECTION 271100

SECTION 271500 - COMMUNICATIONS HORIZONTAL CABLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Pathways.
2. UTP cabling.
3. Cable connecting hardware, patch panels, and cross-connects.
4. Telecommunications outlet/connectors.
5. Cabling system identification products.

1.3 DEFINITIONS

- A. BICSI: Building Industry Consulting Service International.
- B. Cross-Connect: A facility enabling the termination of cable elements and their interconnection or cross-connection.
- C. EMI: Electromagnetic interference.
- D. IDC: Insulation displacement connector.
- E. LAN: Local area network.
- F. Outlet/Connectors: A connecting device in the work area on which horizontal cable or outlet cable terminates.
- G. RCDD: Registered Communications Distribution Designer.
- H. UTP: Unshielded twisted pair.

1.4 HORIZONTAL CABLING DESCRIPTION

- A. Horizontal cable and its connecting hardware provide the means of transporting signals between the telecommunications outlet/connector and the horizontal cross-connect located in the communications equipment room. This cabling and its connecting hardware are called "permanent link," a term that is used in the testing protocols.
 1. Horizontal cabling shall contain no more that one transition point or consolidation point between the horizontal cross-connect and the telecommunications outlet/connector.
 2. Bridged taps and splices shall not be installed in the horizontal cabling.

- B. The maximum allowable horizontal cable length is 295 feet (90 m). This maximum allowable length does not include an allowance for the length of 16 feet (4.9 m) to the workstation equipment. The maximum allowable length does not include an allowance for the length of 16 feet (4.9 m) in the horizontal cross-connect.

1.5 PERFORMANCE REQUIREMENTS

- A. General Performance: Horizontal cabling system shall comply with transmission standards in ANSI/TIA-568-C.0, when tested according to test procedures of this standard.

1.6 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Shop Drawings:
 - 1. System Labeling Schedules: Electronic copy of labeling schedules, in software and format selected by Owner.
 - 2. Wiring diagrams to show typical wiring schematics, including the following:
 - a. Cross-connects.
 - b. Patch panels.
 - c. Patch cords.
 - 3. Cross-connects and patch panels. Detail mounting assemblies, and show elevations and physical relationship between the installed components.
- C. Qualification Data: For Installer, qualified layout technician, installation supervisor, and field inspector.
- D. Source quality-control reports.
- E. Field quality-control reports.
- F. Maintenance Data: For splices and connectors to include in maintenance manuals.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: Cabling Installer must have personnel certified by BICSI on staff.
 - 1. Layout Responsibility: Preparation of Shop Drawings by an RCDD.
 - 2. Installation Supervision: Installation shall be under the direct supervision of Registered Technician, who shall be present at all times when Work of this Section is performed at Project site.
 - 3. Testing Supervisor: Currently certified by BICSI as an RCDD to supervise on-site testing.
- B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
- C. Telecommunications Pathways and Spaces: Comply with ANSI/TIA569-C.
- D. Grounding: Comply with ANSI/TIA-607-B.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Delivery and receipt of products shall be at the site described in Division 27 Section "BASIC COMMUNICATIONS REQUIREMENTS."
- B. Cable shall be stored according to manufacturer's recommendations as a minimum. In addition, cable must be stored in a location protected from vandalism and weather. If cable is stored outside, it must be covered with opaque plastic or canvas with provision for ventilation to prevent condensation and for protection from weather. If air temperature at cable storage location will be below 40 degrees F., the cable shall be moved to a heated (50 degrees F. minimum) location. If necessary, cable shall be stored off site at the contractor's expense.

1.9 PROJECT CONDITIONS

- A. Environmental Limitations: Do not deliver or install cables and connecting materials until wet work in spaces is complete and dry, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.

1.10 COORDINATION

- A. Coordinate layout and installation of telecommunications pathways and cabling with Owner's telecommunications and LAN equipment and service suppliers.

1.11 EXTRA MATERIALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents. Extra materials noted are in addition to 'spare' products shown on plans.
 - 1. Patch-Panel Units: One of each type, for each communications room.
 - 2. Connecting Blocks: One of each type, for each communications room.
 - 3. Device Plates: 10 percent of installed quantity, but not less than 10 of each type.
 - 4. Patch cords: 25 percent of total count required for system as additional. Provide equally across all specified lengths.

PART 2 - PRODUCTS

2.1 PATHWAYS

- A. General Requirements: Comply with ANSI/TIA-569-C.
- B. Cable Support: NRTL labeled for support of Category 6 cabling, designed to prevent degradation of cable performance and pinch points that could damage cable.
 - 1. Support brackets with cable tie slots for fastening cable ties to brackets.
 - 2. Lacing bars, spools, J-hooks, and D-rings.
 - 3. Straps and other devices.

2.2 HORIZONTAL DISTRIBUTION CABLE

COMMUNICATIONS HORIZONTAL CABLING

A. All horizontal data station cable and voice cable shall terminate on modular patch panels in their respective Telecommunications Room or Equipment Room as specified on the drawings.

B. 100 OHM CATEGORY 6 UNSHIELDED TWISTED PAIR (UTP) CABLE

1. Physical Characteristics:

- a) Shall consist of (4) 23 AWG twisted pairs.
- b) Shall be suitable for the environment in which they are to be installed.
- c) The overall diameter of the cable shall be no larger than 0.22 inches.
- d) Shall be tested to 550 MHz by the manufacturer with guaranteed performance to 250 MHz.

2. Design Make:

- a) Superior Essex DataGain, Cat 6+ UTP (CMR Riser)

System	Color	Part #
Communications	Blue	66-240-2A

- b) Superior Essex DataGain, Cat 6+ UTP (CMP Plenum)

System	Color	Part #
Communications	Blue	66-240-2B

2.3 MODULAR PATCH PANELS

A. Modular Patch Panels shall

1. meets ANSI/TIA -568-C.2, component compliance
2. use low emission IDC contacts
3. use dual reactance technology to enhance the signal-to-noise ratio
4. require standard termination practices using a 110 impact tool
5. use a single piece IDC housing
6. support both T568B and T568A wiring
7. include easy to follow wiring labels
8. include label fields
9. allow for the use of icons
10. include full length metal rear cable management
11. be available in standard or high density
12. be backward compatible to category 5e
13. be center tuned to category 6 test specifications
14. Furnished and installed to accommodate all required terminations for each respective system within the basis of design plus minimum of one (1) patch panel in each rack for future growth.
15. The modular patch panel shall be the following for a nCompass Solution:

B. Products

Part Number	Description
-------------	-------------

1. Ortronics # OR-PHD66U24	24 port Category 6 modular to 110 patch panel, T568A/B, High Density Clarity
2. Ortronics # OR-PHD66U48	48 port Category 6 modular to 110 patch panel, T568A/B, High Density Clarity

2.4 PATCH CORDS

- A. The contractor shall provide factory terminated and tested UTP patch cords and equipment cords for the complete cabling system. The UTP patch cables shall meet the requirements of ANSI/TIA-568-C, for patch cord testing.
- B. Copper (UTP) patch cords shall:
1. be an Ortronics Reduced Diameter Cat6 channel cord
 2. use 8 position connector with impedance matched contacts
 3. be 100% factory tested for performance
 4. be constructed of 100 ohm, 4 pair, 28 AWG, stranded conductor, unshielded twisted pair copper
 5. have a performance marking indelibly labeled on the jacket (by the manufacturer).
 6. have "snagless" protection for the locking tab to prevent snagging and to protect locking tab in tight locations and provide bend relief
 7. be available in 3 foot, 5 foot, 9 foot, 15 foot, and 25 foot standard lengths
 8. be backwards compatible to Category 5e
 9. be manufactured by an ISO 9001 registered company.
- C. Furnish in quantities and types as follows:
1. Data Systems
 - a) 36" Length, Blue finish: 1/3 of total count (OR-RDC603-06)
 - b) 60" Length, Blue finish: 1/3 of total count (OR-RDC605-06)
 - c) 108" Length, Blue finish: 1/3 of total count (OR-RDC609-06)

2.5 WORK AREA OUTLETS

- A. Horizontal cables shall each be terminated at their designated work area location in the connector types described in the subsections below. Included are modular telecommunication jacks. These connector assemblies shall snap into a faceplate.
- B. The Telecommunications Outlet Assembly shall accommodate:
1. A minimum of two (2) modular jacks
 2. Additional accommodations for specific locations as noted in the plans for additional copper cables as necessary
 3. A blank filler will be installed when extra ports are not used.
 4. A dust cap (stuffer cap) shall be provided on all modular jacks with the circuit number on the identifier strip.
 5. Multiple jacks that are identified in close proximity on the drawings (but not separated by a physical barrier) may be combined in a single assembly. The telecommunications contractor shall be responsible for determining the optimum compliant configuration based on the products proposed.
 6. The same orientation and positioning of jacks and connectors shall be utilized throughout the installation. Prior to installation, the telecommunications contractor shall submit the proposed configuration for each outlet assembly for review by the Owner or Engineer.
 7. The modular jack shall incorporate printed label strip on the dust cap module for identifying the outlet. Printed labels shall be permanent and compliant with ANSI/TIA -606-B standard specifications. Labels shall be printed. Hand printed labels shall not be accepted.

C. Faceplates: The faceplates shall:

1. be Ortronics TracJack style as appropriate to fit the modular jack used
2. be UL listed and CSA certified.
3. be constructed of 0.035 inch (1mm) thick, satin-finished stainless steel.
4. shall match the faceplate color used for other utilities in the building or match the color of the raceway if installed in surface raceway.
5. be compliant with the above requirements along with the following when incorporating optical fiber:
 - a) be a low profile assembly,
 - b) incorporate a mechanism for storage of cable and fiber slack needed for termination,
 - c) position the fiber optic couplings to face downward or at a downward angle to prevent contamination and,
 - d) incorporate a shroud that protects the optical couplings from impact damage.
6. be available as single-gang or dual-gang,
7. shall provide easy access for adds, moves, and changes by front removal of jack modules,
8. possess recessed designation windows to facilitate labeling and identification.
9. shall include a clear plastic cover to protect labels in the designation window.
10. have mounting screws located under recessed designation windows.
11. comply with ANSI/TIA-606-B work area labeling standard.
12. allow for the UTP modules to be inverted in place for termination purposes.
13. The TracJack modular face plates shall be of the following for an nCompass Solution:

<i>Part Number</i>	<i>Description</i>
a. Ortronics #OR-403STJ11	1-Port TracJack face plate (Single Gang)
b. Ortronics #OR-403STJ12	2-Port TracJack face plate (Single Gang)
c. Ortronics #OR-403STJ13	3-Port TracJack face plate (Single Gang)
d. Ortronics #OR-403STJ14	4-Port TracJack face plate (Single Gang)
e. Ortronics #OR-403STJ16	6-Port TracJack face plate (Single Gang)
f. Ortronics #OR-403STJ28	8-Port TracJack face plate (Double gang)

D. Voice / Data Jacks

1. Voice/Data jacks shall be 8-position modular jacks and shall meet ANSI/TIA -568-C requirements. All pair combinations must be considered, with the worst-case measurement being the basis for compliance.
2. The modular jack shall use Tactical Isolation Zones to minimize the effect of alien crosstalk.
3. The modular jack shall have low emission IDC contacts.
4. The modular jack shall have IDC towers designed to accept larger 10 Gig cable conductors.
5. The modular jack shall utilize synchronized reactance to minimize internal alien crosstalk.
6. The modular jack shall use standard termination practice using 110 impact tool
7. The modular jack shall be backwards compatible to Category 5e
8. The modular jack shall be center tuned to category 6 ANSI/TIA-568-C.2 test specifications.
9. The modular jack shall be one of the following for an nCompass Solution:

<i>Part Number</i>	<i>Description</i>
a. Ortronics #OR-TJ600	Category 6 T568A/B TracJack, Clarity 180° exit, Fog-white
b. Ortronics #OR-42100002	TracJack Blank fog white (pack of 10)

10. Dust cover (Stuffer Cap) shall be used on each termination.

2.6 GROUNDING

- A. Comply with requirements in Division 26 Section "GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS" for grounding conductors and connectors.
- B. Comply with ANSI/TIA-607-B.

2.7 IDENTIFICATION PRODUCTS

- A. Comply with ANSI/TIA-606-B and UL 969 for labeling materials, including label stocks, laminating adhesives, and inks used by label printers.

PART 3 - EXECUTION

3.1 ENTRANCE FACILITIES

- A. Coordinate backbone cabling with the protectors and demarcation point provided by communications service provider.

3.2 WIRING METHODS

- A. Wiring Method: Install cables in existing raceways and cable trays except within consoles, cabinets, desks, and counters and except in accessible ceiling spaces, in attics. Conceal raceway and cables except in unfinished spaces.
 - 1. Install plenum cable in environmental air spaces, including plenum ceilings.
- B. Wiring Method: Conceal conductors and cables in accessible ceilings, walls, and floors where possible.
- C. Wiring within Enclosures: Bundle, lace, and train cables to terminal points with no excess and without exceeding manufacturer's limitations on bending radii. Provide and use lacing bars and distribution spools.

3.3 INSTALLATION OF PATHWAYS

- A. Comply with ANSI/TIA-569-C.

3.4 INSTALLATION OF CABLES

A. Comply with NECA 1.

B. General Requirements for Cabling:

1. Comply with ANSI/TIA-568-C.1 and ANSI/TIA-568-C.2.
2. Comply with BICSI ITSIM, Ch. 6, "Cable Termination Practices."
3. Terminate conductors; no cable shall contain unterminated elements. Make terminations only at indicated outlets, terminals, cross-connects, and patch panels.
4. Cables may not be spliced. Secure and support cables at intervals not exceeding 10 feet and not more than 6 inches (150 mm) from cabinets, boxes, fittings, outlets, racks, frames, and terminals.
5. Install lacing bars to restrain cables, to prevent straining connections, and to prevent bending cables to smaller radii than minimums recommended by manufacturer.
6. Bundle, lace, and train conductors to terminal points without exceeding manufacturer's limitations on bending radii, but not less than radii specified in BICSI ITSIM, "Cabling Termination Practices" Chapter. Install lacing bars and distribution spools.
7. Do not install bruised, kinked, scored, deformed, or abraded cable. Do not splice cable between termination, tap, or junction points. Remove and discard cable if damaged during installation and replace it with new cable.
8. Cold-Weather Installation: Bring cable to room temperature before dereeling. Heat lamps shall not be used for heating.
9. In the communications equipment room, install a 20-foot- (6-m-) long service loop on each end of cable.
10. Pulling Cable: Comply with BICSI ITSIM, Ch. 4, "Pulling Cable." Monitor cable pull tensions. Do not install Category 6 cable with more than 110N (25 lbs) pull force, as specified in ANSI/TIA and BICSI TDDM practices. Utilize appropriate cable lubricant in sufficient quantity to reduce pulling friction to acceptable levels on long pulls inside conduit, pulls of multiple cables into a single small bore conduit, on conduit runs greater than 100 lineal feet with bends of opposing directions, and in conduit runs that exceed a total of 180 degrees of accumulated bends. Use of tensile rated cords (i.e. fishing line) should be used for difficult or questionable pulls - to judge to go/no-go condition of the conduit and pulling setup.
11. Cables shall be coiled in the ceiling above each outlet to house the cable coil without exceeding the manufacturer's bend radius. No more than 12" of UTP shall be stored in an in-wall box, modular furniture raceway, or insulated walls. Excess slack shall be loosely coiled and stored in the ceiling above each drop location when there is not enough space present in the outlet box to store slack cable.
12. Bend radius of the horizontal cable shall not be less than 4 times the outside diameter of the cable.
13. The cable jacket shall be maintained to within 25mm (one inch) of the termination point.
14. Do not untwist UTP cables more than 1/2 inch (12 mm) from the point of termination to maintain cable geometry.
15. Install cabling with horizontal and vertical cable guides in telecommunications spaces with terminating hardware and interconnection equipment.
16. Cable shall not be run through structural members or in contact with pipes, ducts, or other potentially damaging items.

C. Horizontal Cross Connect and Copper Termination Hardware Installation:

1. Cables shall be dressed and terminated in accordance with the recommendations made in the ANSI/TIA-568-C standard, manufacturer's recommendations and best industry practices.
2. Pair untwist at the termination shall not exceed 13 mm (0.5 inch).
3. Bend radius of the cable in the termination area shall not exceed 4 times the outside diameter of the cable.
4. Cables shall be neatly bundled and dressed to their respective panels or blocks. Each panel or block shall be fed by an individual bundle separated and dressed back to the point of cable entrance into the rack or frame.

5. The cable jacket shall be maintained as close as possible to the termination point.
6. Each cable shall be clearly labeled on the cable jacket behind the patch panel at a location that can be viewed without removing the bundle support ties. Cables labeled within the bundle, where the label is obscured from view shall not be acceptable.

D. Work Area Outlet Installation:

1. Data jacks, unless otherwise noted in drawings, shall be located in the bottom position(s) of each faceplate. Data jacks in horizontally oriented faceplates shall occupy the right-most position(s).
2. Voice jacks shall occupy the top position(s) on the faceplate. Voice jacks in horizontally oriented faceplates shall occupy the left-most position(s).
3. Coordinate plate terminations with Modular Furniture Vendor for outlets in Furniture Assemblies.

E. Group connecting hardware for cables into separate logical fields.

F. Separation from EMI Sources:

1. Comply with BICSI TDMM and ANSI/TIA-569-C for separating unshielded copper voice and data communication cable from potential EMI sources, including electrical power lines and equipment.
2. Separation between open communications cables or cables in nonmetallic raceways and unshielded power conductors and electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 5 inches (127 mm).
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 12 inches (300 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 24 inches (610 mm).
3. Separation between communications cables in grounded metallic raceways and unshielded power lines or electrical equipment shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: A minimum of 2-1/2 inches (64 mm).
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 6 inches (150 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 12 inches (300 mm).
4. Separation between communications cables in grounded metallic raceways and power lines and electrical equipment located in grounded metallic conduits or enclosures shall be as follows:
 - a. Electrical Equipment Rating Less Than 2 kVA: No requirement.
 - b. Electrical Equipment Rating between 2 and 5 kVA: A minimum of 3 inches (76 mm).
 - c. Electrical Equipment Rating More Than 5 kVA: A minimum of 6 inches (150 mm).
5. Separation between Communications Cables and Electrical Motors and Transformers, 5 kVA or HP and Larger: A minimum of 48 inches (1200 mm).
6. Separation between Communications Cables and Fluorescent Fixtures: A minimum of 5 inches (127 mm).

3.5 FIRESTOPPING

- A. Comply with ANSI/TIA-569-C, Annex A, "Firestopping."
- B. Comply with BICSI TDMM, "Firestopping Systems" Article.

- C. All firestop systems shall be installed in accordance with the manufacturer's recommendations and shall be completely installed and available for inspection by the local inspection authorities prior to cable system acceptance.

3.6 GROUNDING

- A. Install grounding according to BICSI TDMM, "Grounding, Bonding, and Electrical Protection" Chapter.
- B. Comply with ANSI/TIA607-B.

3.7 IDENTIFICATION

- A. Identify system components, wiring, and cabling complying with TIA/EIA-606-A.
- B. The contractor shall develop and submit for approval a labeling system for the cable installation. The Owner or Engineer will negotiate an appropriate labeling scheme with the successful contractor. At a minimum, the labeling system shall clearly identify all components of the system: racks, cables, panels and outlets. The labeling system shall designate the cables origin and destination and a unique identifier for the cable within the system. Racks and patch panels shall be labeled to identify the location within the cable system infrastructure. All labeling information shall be recorded on the as-built drawings and all test documents shall reflect the appropriate labeling scheme. Labeling shall follow the guidelines of ANSI/TIA -606-B.
- C. All label printing will be machine generated. Self-laminating labels will be used on cable jackets, appropriately sized to the OD of the cable, and placed within view at the termination point on each end. Outlet, patch panel and wiring block labels shall be installed on, or in, the space provided on the device.
- D. Cable Schedule: Post in prominent location in each equipment room and wiring closet. List incoming and outgoing cables and their designations, origins, and destinations. Protect with rigid frame and clear plastic cover. Furnish an electronic copy of final comprehensive schedules for Project.
- E. Cable and Wire Identification:
 - 1. Label each cable within 4 inches (100 mm) of each termination and tap, where it is accessible in a cabinet or junction or outlet box, and elsewhere as indicated.
 - 2. Label each terminal strip and screw terminal in each cabinet, rack, or panel.
 - a. Individually number wiring conductors connected to terminal strips, and identify each cable or wiring group being extended from a panel or cabinet to a building-mounted device shall be identified with name and number of particular device as shown.
 - b. Label each unit and field within distribution racks and frames.
 - 3. Identification within Connector Fields in Equipment Rooms and Wiring Closets: Label each connector and each discrete unit of cable-terminating and connecting hardware. Where similar jacks and plugs are used for both voice and data communication cabling, use a different color for jacks and plugs of each service.

3.8 FIELD QUALITY CONTROL

- A. Perform tests and inspections.

B. Tests and Inspections:

1. Visually inspect UTP cable jacket materials for NRTL certification markings. Inspect cabling terminations in communications equipment rooms for compliance with color-coding for pin assignments, and inspect cabling connections for compliance with TIA/EIA-568-B.1.
2. Visually confirm Category 6, marking of outlets, cover plates, outlet/connectors, and patch panels.
3. Visually inspect cable placement, cable termination, grounding and bonding, equipment and patch cords, and labeling of all components.
4. All cables and termination hardware shall be 100% tested for defects in installation and to verify cabling system performance under installed conditions according to the requirements of ANSI/TIA-568-C. All pairs of each installed cable shall be verified prior to system acceptance. Any defect in the cabling system installation including but not limited to cable, connectors, feed through couplers, patch panels, and connector blocks shall be repaired or replaced in order to ensure 100% useable conductors in all cables installed.
5. All cables shall be tested in accordance with this document, the ANSI/TIA standards, the Ortronics Certification Program and best industry practice. If any of these are in conflict, the Contractor shall bring any discrepancies to the attention of the project team for clarification and resolution.
6. All twisted-pair copper cable links shall be tested for continuity, pair reversals, shorts, opens and performance as indicated below. Additional testing is required to verify Category performance.
7. Horizontal cabling shall be tested using an Ortronics approved test unit for category 6 performance compliance. The following tests shall be tested to 250MHZ with the approved tester:

The basic tests required are:

- Wire Map
- Length
- Attenuation
- NEXT (Near end crosstalk)
- Return Loss
- ELFEXT Loss
- Propagation Delay
- Delay skew
- PSNEXT (Power sum near-end crosstalk loss)
- PSELFEXT (Power sum equal level far-end crosstalk loss)

(Note: Ortronics doesn't require alien crosstalk testing in the field for warranty certification.)

8. Final Verification Tests: Perform verification tests for UTP systems after the complete communications cabling and workstation outlet/connectors are installed.
 - a. Voice Tests: These tests assume that dial tone service has been installed. Connect to the network interface device at the demarcation point. Go off-hook and listen and receive a dial tone. If a test number is available, make and receive a local, long distance, and digital subscription line telephone call.
 - b. Data Tests: These tests assume the Information Technology Staff has a network installed and is available to assist with testing. Connect to the network interface device at the demarcation point. Log onto the network to ensure proper connection to the network.

- C. End-to-end cabling will be considered defective if it does not pass tests and inspections, and shall be replaced by the Contractor.

3.9 SYSTEM DOCUMENTATION

- A. Upon completion of the installation, the telecommunications contractor shall provide three (3) full documentation sets to the Engineer for approval. Documentation shall include the items detailed in the sub-sections below.
- B. Documentation shall be submitted within ten (10) working days of the completion of each testing phase (e.g. subsystem, cable type, area, floor, etc.). This is inclusive of all test result and draft as-built drawings. Draft drawings may include annotations done by hand. Machine generated (final) copies of all drawings shall be submitted within 30 working days of the completion of each testing phase. At the request of the Engineer, the telecommunications contractor shall provide copies of the original test results.
- C. The Engineer may request that a 10% random field re-test be conducted on the cable system, at no additional cost, to verify documented findings. Tests shall be a repeat of those defined above. If findings contradict the documentation submitted by the telecommunications contractor, additional testing can be requested to the extent determined necessary by the Engineer, including a 100% re-test. This re-test shall be at no additional cost to the Owner.

3.10 TEST RESULTS

- A. Test documentation shall be provided within three weeks after the completion of the project. The results shall include a record of test frequencies, cable type, conductor pair and cable (or outlet) I.D., measurement direction, reference setup, and crew member name(s). The test equipment name, manufacturer, model number, serial number, software version and last calibration date will also be provided at the end of the document. Unless the manufacturer specifies a more frequent calibration cycle, an annual calibration cycle is anticipated on all test equipment used for this installation. The test document shall detail the test method used and the specific settings of the equipment during the test as well as the software version being used in the field test equipment.
- B. Test results generated for each cable by the wire (or fiber) test instrument shall be submitted as part of the documentation package. The telecommunications contractor must furnish this information in electronic form (PDF).
- C. When repairs and re-tests are performed, the problem found and corrective action taken shall be noted, and both the failed and passed test data shall be documented

3.11 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel in cable-plant management operations, including changing signal pathways for different workstations, rerouting signals in failed cables, and keeping records of cabling assignments and revisions when extending wiring to establish new workstation outlets.

END OF SECTION 271500

SECTION 275133 – EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes the following work:
 - 1. Design and install an approved emergency responder radio coverage system throughout new building(s) in accordance with IFC Section 510.

1.3 DEFINITIONS

- A. Radio Signal Strength: The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95% of all areas of the building and 99% in elevators (measured at the primary recall floor), and stair shafts, meet the signal strength requirements in IFC Sections 510.4.1.1 and 510.4.1.2.
- B. Minimum Signal Strength into the Building: A minimum signal strength of -95dBm shall be receivable within the building.
- C. Minimum Signal Strength Out of the Building: A minimum signal strength of -95dBm shall be received by the agency's radio system when transmitted from within the building.

1.4 PERFORMANCE REQUIREMENTS

- A. System Design: The emergency responder radio coverage system shall be designed in accordance with IFC Sections 510.4.2.1 through 510.4.2.5.
- B. Frequency Range: The frequency range which must be supported shall be any frequencies or ranges as determined by the Regional Radio System operator in all areas of the building.
- C. Technical Requirements: Systems, components, and equipment required to provide emergency responder radio coverage system(s) shall comply with IFC Sections 510.4.1 through 510.4.2.5.

1.5 SUBMITTALS

- A. General Submittal Requirements:
 - 1. System design documents shall be submitted to the Authority Having Jurisdiction prior to submitting to the Architect.
 - 2. Product Data: For each type of product to be implemented.
 - 3. Shop Drawings: Show complete system riser diagram and connection requirements including all system components, power supplies, secondary power systems, etc. Include plans, elevations, sections, details, and attachments to other work.
 - 4. Qualification Data: For qualified testing personnel, system designer, and installation personnel.
 - 5. Field quality-control reports.
 - 6. Operation and Maintenance Data: For systems and components to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Designer and Testing Personnel Qualifications:

1. Personnel shall be currently certified and in possession of a current FCC General Radio Telephone Operator License and a certificate or certification issued by at least one of the following:

- a. Associated Public Safety Communications Officials International (APCO).
- b. National Association of Business and Education Radio (NABER).
- c. Personal Communications Industry Association (PCIA).
- d. Manufacturer of the equipment being installed.

B. Installer Qualifications:

1. Personnel shall be trained and certified by manufacturer of components implemented for installation of units required for this Project.

C. Source Limitations for Systems and Components: Obtain emergency responder radio coverage system components from single source from single manufacturer.

D. FCC Compliance: The emergency responder radio coverage system design, installation, and components shall comply with all applicable federal regulations including, but not limited to, FCC 47 DFR Part 90.219.

E. Approval Prior to Installation: No amplification system capable of operating on frequencies used shall be installed without prior coordination and approval of the radio system licensee.

PART 2 – PRODUCTS

2.1 AMPLIFICATION SYSTEMS ALLOWED

A. Buildings or structures which cannot support the required level of radio coverage shall be equipped with one of the following amplification system types:

1. Radiating Cable System.
2. Internal multiple antenna system with FCC certificated bi-directional amplifiers.
3. Other systems that may meet the technical requirements and be approved by the radio system manager and Authority Having Jurisdiction in order to achieve the required adequate radio coverage.

2.2 POWER SUPPLIES

A. Conform with NFPA 72, Section 10.5 Requirements.

2.3 SECONDARY POWER

A. All systems utilizing electrically powered component(s) shall be provided with an independent battery system and an emergency generator source derived from the emergency distribution system within the building capable of operating for a period of at least twenty-four (24) hours without external power input. Battery systems shall automatically charge in the presence of external power inputs. Secondary power systems shall include all interconnection

components to the emergency electrical system for a fully operational, code compliant installation.

2.4 SIGNAL BOOSTERS

A. Signal Boosters: Shall meet the following minimum requirements:

1. All signal booster components shall be contained in a NEMA 4 rated cabinet.
2. Battery systems shall be contained in a NEMA 4 rated cabinet.
3. The system shall include automate alarming of malfunctions of the signal booster and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 or, when approved by the Authority Having Jurisdiction, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC certification prior to installation.
5. Signal boosters must be equipped with filters that reject adjacent frequencies in addition to multi-band pass filters.

PART 3 – EXECUTION

3.1 CONSTRUCTION PERMIT REQUIRED

A. For the installation of approved emergency responder radio coverage systems, a construction permit for the installation and related equipment is required as specified in IFC Section 105.7.5.

3.2 INSTALLATION REQUIREMENTS

A. The installation of the emergency responder radio coverage system shall be in accordance with IFC Sections 510.5.1 through 510.5.5.

3.3 ACCEPTANCE TESTING

A. Upon completion of installation and prior to Occupancy, complete acceptance testing.

B. Test Procedures:

1. All areas of the building shall be divided into a grid of approximately forty (40) equal areas in size.
2. Utilize a two (2) watt, portable transceiver with speaker/microphone and flexible antenna (or any calibrated device which will produce signal levels useable by the prescribed portable radio). Field strength testing instruments must have been calibrated within one (1) year of the date of the acceptance test. Field strength testing instruments must be of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand-held transceivers. Authorities Having Jurisdiction may designate alternate methods of measuring the signal level, which satisfy appropriate levels of public safety coverage.

3. Test signal strength in each building area identified by grid created. Select a location within the center of each gridded area, key test radio to verify communication to and from the outside of the building through the Regional Radio System. Once a location within each gridded area is selected, prospecting for other spots within the gridded areas is not permitted.
4. Measure and record all gain values of all amplifiers implemented. Deliver recorded values to Owner for filing upon completion.
5. Utilize a calibrated spectrum analyzer or other suitable test equipment to ensure spurious oscillations are not present or being generated by signal boosters.
6. A maximum of two (2) nonadjacent areas will be allowed to fail the test.
7. If more than three (3) subdivided areas fail testing, the system shall be deemed to have failed and must be redesigned and reinstalled to comply with the performance requirements. Redesign and reinstallation costs shall be borne by the Contractor.

3.4 APPROVAL PRIOR TO OCCUPANCY

- A. A Certificate of Occupancy will not be issued to any structure if employed systems fail to meet the minimum signal strength requirements.

3.5 ADDITIONAL FREQUENCIES AND CHANGE OF FREQUENCES

- A. The system shall be capable of modification or expansion to frequencies and/or frequency ranges in the event frequency changes are required by the FCC.

3.6 IDENTIFICATION

- A. Provide permanent placard at or near the building's fire alarm control panel stating "THIS BUILDING IS EQUIPPED WITH AN EMERGENCY RESPONDER RADIO COVERAGE SYSTEM."

END OF SECTION

Attachment "B"

MOSCOW CITY
SHOP - EXISTING
SHOP TI

650 N VAN BUREN ST, MOSCOW, ID. 83843

PERMIT SET
JUNE 22, 2026

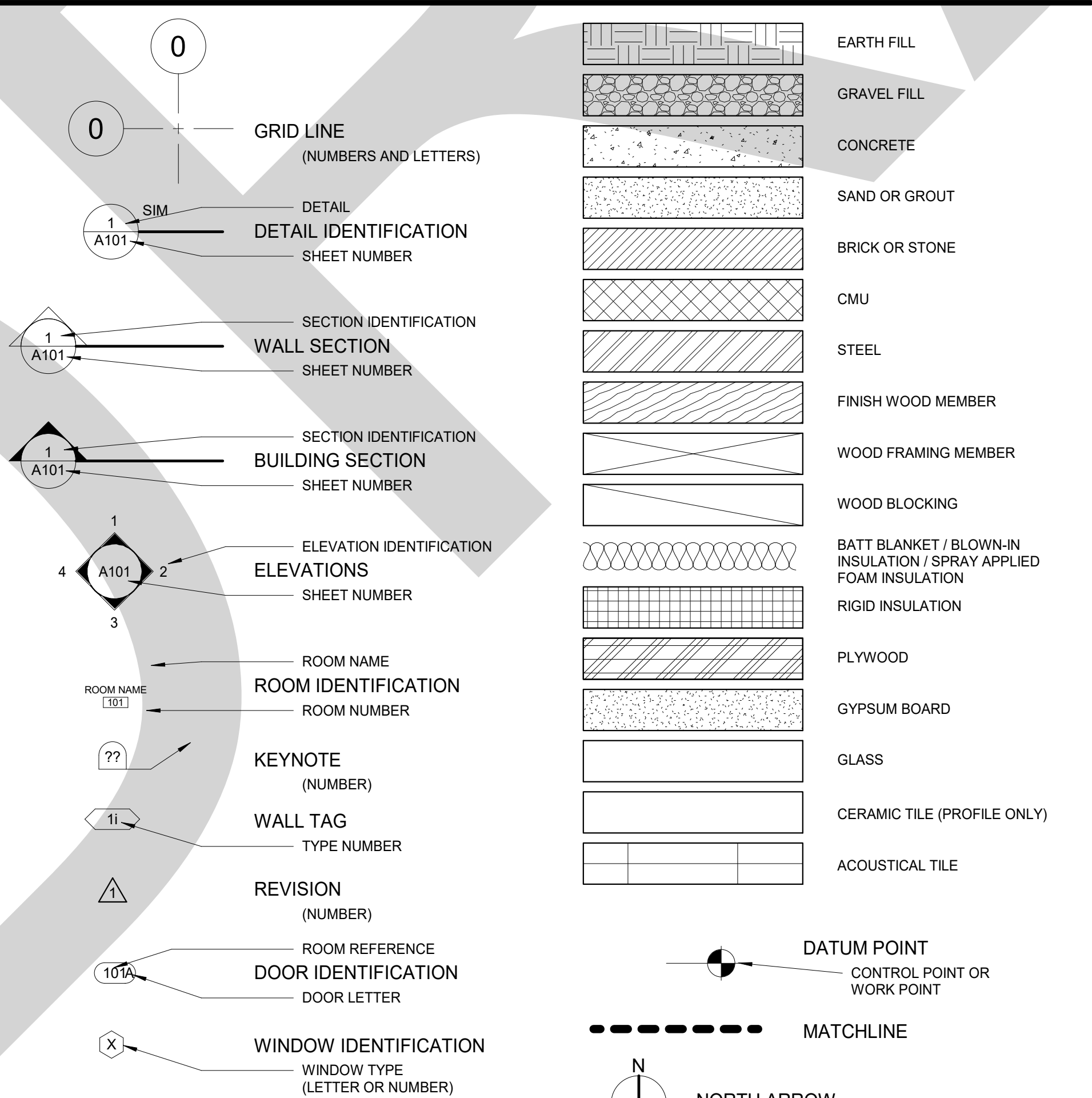
SHEET INDEX

GENERAL	
0.0	COVER SHEET
0.1	CODE INFORMATION
ARCHITECTURAL	
A1.0	DEMOLITION PLANS
A2.0	FLOOR PLANS
A2.1	FINISH PLAN & ROOM SCHEDULE
A2.2	FIRST FLOOR REFLECTED CEILING PLAN
A3.0	DOOR SCHEDULE & ASSEMBLY TYPES
A6.0	ENLARGED PLANS / INTERIOR ELEVATIONS
A8.0	INTERIOR DETAILS
A8.1	INTERIOR DETAILS
STRUCTURAL	
S0.01	STRUCTURAL COVER SHEET
S0.02	STRUCTURAL DESIGN NOTES
S0.03	SPECIAL INSPECTIONS TABLE (2018)
S1.00	OVERALL PLANS
S1.01	FOUNDATION PLANS
S1.02	MEZZANINE FRAMING PLANS
S4.01	SCHEDULES
S6.01	TYPICAL FRAMING DETAILS
S6.02	Unnamed
MECHANICAL	
M0.0	MECHANICAL COVER SHEET
M1.0	HVAC DEMO FLOOR PLANS
M2.0	HVAC NEW FLOOR PLANS
M3.0	HVAC DETAILS
M4.0	HVAC SCHEDULES
P1.0	PLUMBING DEMO FLOOR PLANS
P2.0	PLUMBING NEW FLOOR PLANS
P3.0	PLUMBING DETAILS
P4.0	PLUMBING SCHEDULES
ELECTRICAL	
E0.0	ELECTRICAL COVER SHEET
E0.1	LIGHTING COMPLIANCE CERTIFICATE
E1.0	OVERALL ELECTRICAL DEMOLITION PLANS
E2.0	OVERALL ELECTRICAL PLANS
E2.0D	ELECTRICAL DEMOLITION PLANS
E2.0L	LIGHTING PLANS
E2.0M	MECHANICAL POWER PLANS
E2.0P	POWER PLANS
E2.0S	SYSTEMS PLANS
E3.0	ONE LINE DIAGRAM
E3.1	PANEL SCHEDULES
E4.0	ELECTRICAL DETAILS

ABBREVIATIONS

A-E	F-M	N-R	S-Z
A.B. ANCHOR BOLT	F.A. FIRE ALARM	N.C. NON-COMBUSTIBLE	S.C. SOLID CORE
ADJ. ADJUSTABLE	F.D. FLOOR DRAIN	N.I.C. NOT IN CONTRACT	SECT. SECTION
A.F.F. ABOVE FINISH FLOOR	F.E. FIRE EXTINGUISHER	N.O. NUMBER	SHT'G. SHEATHING
AGGR. AGGREGATE	F.E.C. FIRE EXTINGUISHER CABINET	NOM. NOMINAL	SHT. SHEET
AL. ALUMINUM	FF. FACTORY FINISH	N.T.S. NOT TO SCALE	SIM. SIMILAR
APPROX. APPROXIMATE	F.H.C. FIRE HOSE CABINET	O.A. OVERALL	SQ. SQUARE
ARCH. ARCHITECTURAL	FIN. FINISH	O.C. ON CENTER	S.S. STAINLESS STEEL
BD. BOARD	FLR. FLOOR	O.D. OUTSIDE DIAMETER	STA. STATION
BITUM. BITUMINOUS	F.O.B. FACE OF BUILDING	O.F.C.I. OWNER FURNISHED/CONTRACTOR-INSTALLED	STD. STANDARD
BLDG. BUILDING	F.O.C. FACE OF CONCRETE	O.F.O.I. OWNER FURNISHED/OWNER INSTALLED	STL. STEEL
BLK. BLOCK	F.O.E. FACE OF EXISTING	OFF. OFFICE	STOR. STORAGE
BLKG. BLOCKING	F.O.F. FACE OF FINISH	OPNG. OPENING	STRL. STRUCTURAL
BOT. BOTTOM	F.O.S. FACE OF STUDS	OPP. OPPOSITE	SUSP. SUSPENDED
CAB. CABINET	FT. FEET/FOOT	PL. PLATE	T.C. TOP OF CURB
C.F.O.I. CONTRACTOR, FURNISHED/OWNER-INSTALLED	FTG. FOOTING	PLAS. PLASTIC LAMINATE	TEL. TELEPHONE
C.L. CENTERLINE	FURR. FURRING	PL. PLASTER	T.O. TOP OF
CLG. CEILING	GA. GALVE	PLY. PLYWOOD	T.O.B. TOP OF BLOCK
CLR. CLEAR	GND. GROUND	PR. PAIR	T.O.C. TOP OF CURB
C.M.U. CONCRETE MASONRY UNIT	GR. GRADE	PT. POINT	T.O.P. TOP OF PLATE
COL. COLUMN	GYP. GYPSUM BOARD	P.T. PAPER TOWEL	T.O.W. TOP OF WALL
CONC. CONCRETE	H.C. HOLLOW CORE	P.T.D. PAPER TOWEL DISPENSER	TRD. TREAD
CONN. CONNECTION	H.D. HARDWOOD	P.T.R. PAPER TOWEL RECEPTACLE	T.V. TELEVISION
CONT. CONTINUOUS	H.M. HOLLOW METAL	Q.T. QUARRY TILE	TYP. TYPICAL
CORR. CORRIDOR	HORIZ. HORIZONTAL	RAD. RADIUS	U.O.N. UNLESS OTHERWISE NOTED
CTSK. COUNTERSUNK	HGT. HEIGHT	R.D. ROOF DRAIN	UR. URINAL
CNTR. CENTER	I.D. INSIDE DIAMETER	REF. REFERENCE	VERT. VERTICAL
CTR. CENTER	INSUL. INSULATION	REFR. REFRIGERATOR	VEST. VESTIBULE
DBL. DOUBLE	JAN. JANITOR	REF. REFRIGERATOR	W. WITH
DEPT. DEPARTMENT	JT. JOINT	REF. REFRIGERATOR	W/O. WITHOUT
D.F. DETAIL	KIT. KITCHEN	REQ. REQUIRED	W.C. WATER CLOSET
DET. DETAIL	LAB. LABORATORY	RESIL. RESILIENT	WO. WOOD
DIA. DIAMETER	LAV. LAVATORY	R.M. ROOM	W.P. WATERPROOF
DIM. DIMENSION	LAV. LAVATORY	R.O. ROUGH OPENING	W.R. WATER RESISTANT
DISP. DISPENSER	LAV. LAVATORY	R.W.L. RAIN WATER LEADER	WT. WEIGHT
DN. DOWN	MAX. MAXIMUM		
EA. EACH	MECH. MECHANICAL		
E.I.F.S. EXTERIOR INSULATION AND FINISH SYSTEM	MTL. METAL		
ELEC. ELECTRICAL	MFR. MANUFACTURER		
ELEV. ELEVATION	MH. MANHOLE		
ENCL. ENCLOSURE	MIN. MINIMUM		
EQ. EQUIPMENT	MISC. MISCELLANEOUS		
EXP. EXPANSION	M.O. MASONRY OPENING		
EXST. EXISTING	MTD. MOUNTED		
EXT. EXTERIOR			

GRAPHIC AND MATERIAL SYMBOLS



ZONING INFORMATION

LAND USE ZONE = R3
PARCEL # = 650, 660, 851
CUP# = N/A
DR # = N/A

IBC CODE 2018
OCCUPANCY GROUPS: B, S-1
CONSTRUCTION TYPE: III-B
AREA OF BUILDING = 22,984 SF
FIRE SPRINKLERS: N/A
FIRE ALARM SYSTEM: NO

SEE SHEET A0.1 FOR ADDITIONAL INFORMATION.

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VICINITY MAP



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DATE:	06/22/2026	
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CHECKED BY:	MG	

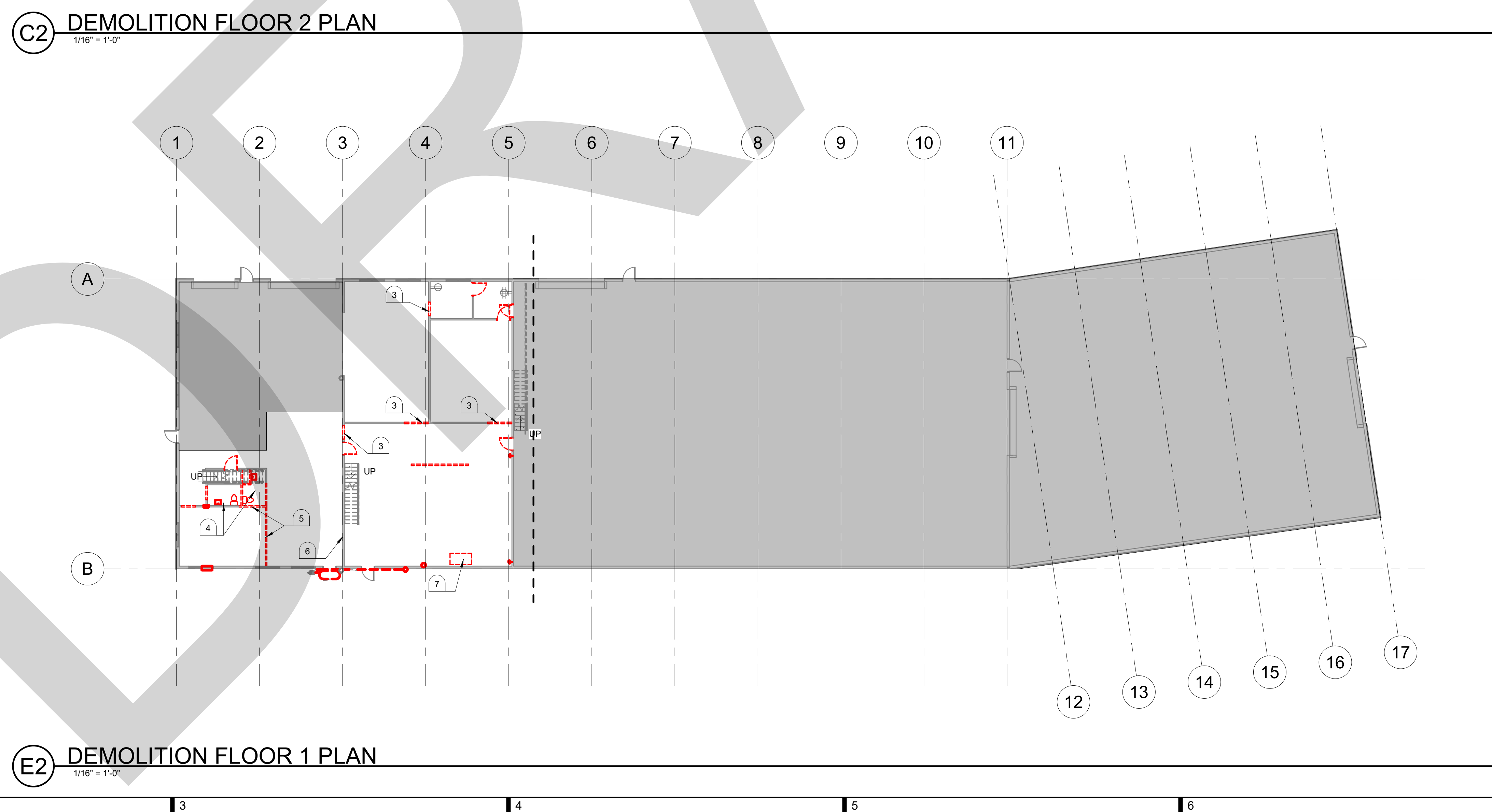
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COVER SHEET

SHEET NO.

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1. NOT USED.
2. NOT USED.
3. REMOVE PORTION OF WALL. PREP WALL FOR NEW DOOR FRAME.
4. REMOVE EXISTING PLUMBING FIXTURES. SEE MECHANICAL FOR MORE INFORMATION.
5. REMOVE EXISTING FRAMED WALL.
6. SEE ELECTRICAL FOR WORK IN THIS AREA.
7. DEMOLISH PORTION OF EXISTING SLAB TO RECESS SHOWER ENCLOSURE.

 EXISTING STRUCTURE TO REMAIN.
 PROTECT DURING CONSTRUCTION

 EXISTING ELEMENT TO BE DEMOLISHED.

 HATCHED AREA NOT INCLUDED IN
 ARCHITECTURAL SCOPE.

1. PROTECT EXISTING STRUCTURE DURING CONSTRUCTION.
2. OVERHEAD DOORS, DOORS, AND WINDOWS ARE EXISTING TO REMAIN. PROTECT DURING CONSTRUCTION AS INDICATED ON PLANS.
3. PRIOR TO START OF DEMOLITION, A SURVEY OF THE PROPOSED DEMOLITION AREA SHALL BE MADE BY CONTRACTOR TO DETERMINE THE CONNECTIONS, FRAMING METHODS, AND CONDITIONS OF THE AREA TO BE DISMANTLED.
4. COORDINATE DEMOLITION ACTIVITIES WITH OWNER.
5. ALL DEMOLISHED MATERIALS SHALL BE PROPERLY DISPOSED IN ACCORDANCE WITH ALL LAWS AND REGULATIONS. PAY ALL DUMPING FEES. ALL ITEMS THE OWNER DESIRES TO SALVAGE IN THE AREAS OF DEMOLITION SHALL BE IDENTIFIED PRIOR TO DEMOLITION/DISMANTLING. CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE TO OWNER THOSE ITEMS IDENTIFIED. PROVIDE TRASH HAUL OFF.

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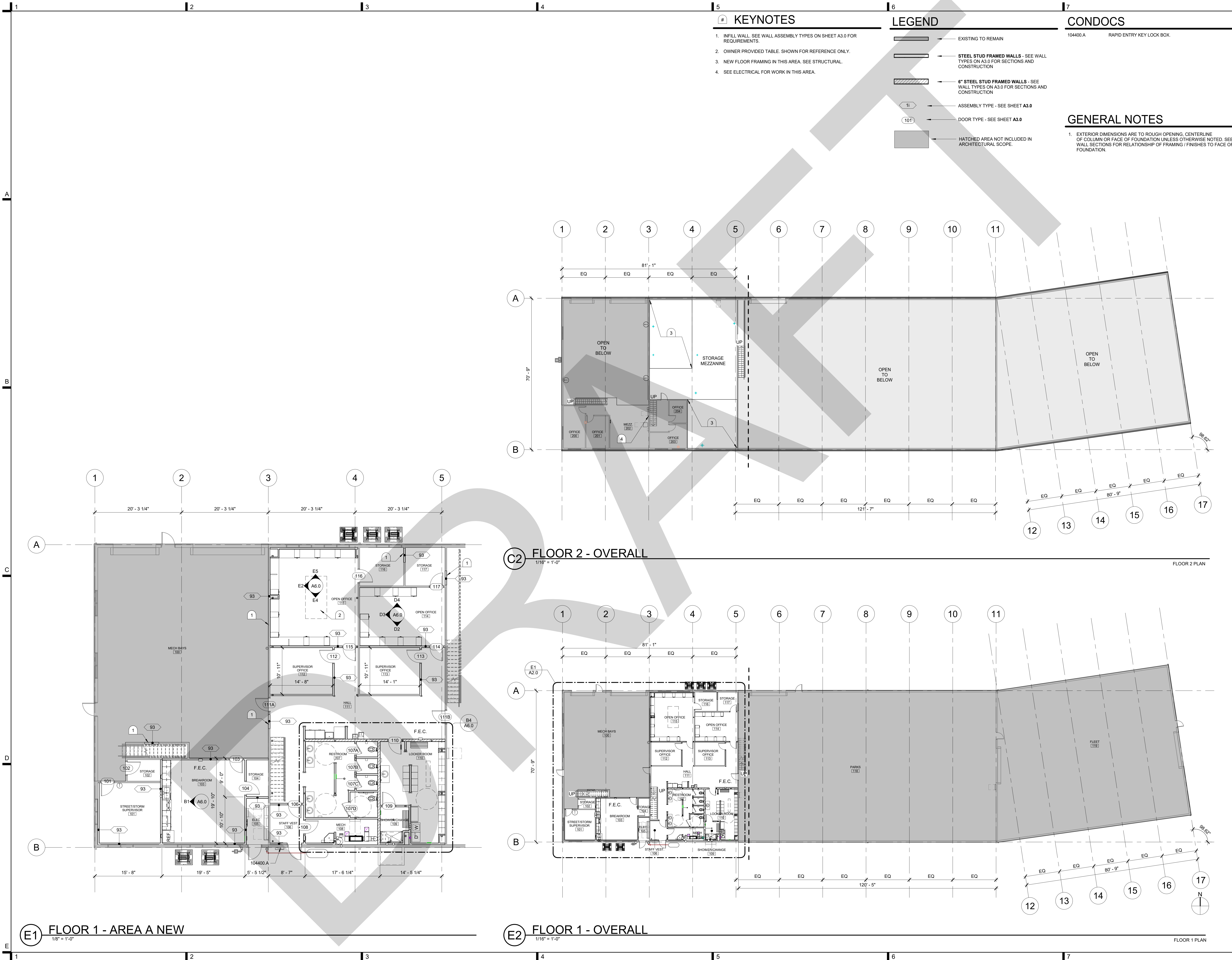
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(208) 342-7168

DESCRIPTION
DATE
MARK
JOB NO.: 24000.01
DATE: 06/22/2026
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CHECKED BY: MG
PHASE: PERMIT SET

FLOOR PLANS

SHEET NO.

A2.0

MATERIAL LEGEND

SYMBOL	DESCRIPTION
ACP	SUSPENDED ACOUSTICAL CEILING PANEL (095113)
C	CORNER GUARD (102600)
CONC-PC	PRECAST CONCRETE (034500)
CONC-S	CONCRETE - SEALED (033000)
CPT	CARPET TILE (096813)
CT/CTB	CERAMIC TILE / CERAMIC TILE BASE (093013)
EB	EDGE BANDING (123623.13)
EM	ENTRY MAT (096813)
EP	EPOXY PAINT (099123)
EX	EXISTING TO REMAIN
FRP	FIBERGLASS REINFORCED WALL PANEL (066400)
G	GROUT (093013)
GYP	GYPSUM BOARD (092900)
L	LOCKERS (105113)
M	MELAMINE
NF	NO FINISH
OTS	OPEN TO STRUCTURE
P	PAINT (099123)
PL	PLASTIC LAMINATE (123623.13)
RB	RUBBER BASE (096513)
RSF	RESILIENT SHEET FLOORING (096516)
RTF	RESILIENT TILE FLOORING (096519)
SSM	SIMULATED STONE MATERIAL (123661)
WP	WALL PROTECTION (102600)

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING		REMARKS
				N	E	S	W	MAT.	FIN.	
101	STREET/STORM SUPERVISOR	RTF	RB1	P1	P2	P1	P1	EX. GYP	P1	1, 2
102	STORAGE	CONC-S	RB2	P1	P1	P1	P1	EX. GYP	P1	
103	BREAKROOM	RTF	RB1	P1	P2	P1	P1	EX. GYP	P1	1, 2
104	STORAGE	RTF	RB1	P1	P1	P1	P1	GYP	P1	
105	ELEC	CONC-S	RB1	P1	P1	P1	P1	GYP	P1	
106	STAFF VEST.	EM	RB1	P2	P2	P2	P2	EX. GYP	P1	2
107	RESTROOM	RSF	RSF	EP1	EP1	EP1	WP	EX. GYP	EP1	2
107A	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP/GYP	EP1	2
107B	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP/GYP	EP1	2
107C	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP/GYP	EP1	2
107D	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP	EP1	2
108	MECH	CONC-S	RB2	EP1	EP1/FRP	EP1/FRP	EP1	GYP	EP1	
109	SHOWER/CHANGE	RSF	RSF	EP1	EP1	EP1	EP1	GYP	EP1	
110	LOCKER ROOM	RTF	RB2	EP1	EP1	EP1	EP1	GYP	P1	1, 2, 3
111	HALL	CONC-S	RB1	P1, P2	P1	P1, P2	P1	EX. GYP/ACP	P1	1
112	SUPERVISOR OFFICE	RTF	RB1	P2	P1	P1	P1	ACP	FF	1, 2
113	SUPERVISOR OFFICE	RTF	RB1	P2	P1	P1	P1	ACP	FF	1
114	OPEN OFFICE	CONC-S	RB1	P1	P2	P1	P2	ACP	FF	1
115	OPEN OFFICE	CONC-S	RB1	P1	P2	P1	P2	ACP	FF	1
116	STORAGE	CONC-S	RB1	P1	P1	P1	P1	ACP	FF	
117	STORAGE	CONC-S	RB1	P1	P1	P1	P1	ACP	FF	

ROOM FINISH REMARKS

- ACCENT PAINT THIS ROOM.
- EXISTING EXPOSED CONCRETE SLAB IN THIS ROOM. INSTALL FLOOR LEVELING COMPOUND AS NECESSARY TO PROVIDE NEW FLOORING INSTALLATION.
- SEE ELEVATIONS FOR EXTENTS OF WALL PROTECTION (WP).
- FRP (066400) AT MOP SINK. SEE DETAIL E5/A8.0 FOR EXTENTS.

KEYNOTES

- FURNITURE, OWNER PROVIDED AND INSTALLED. SHOWN FOR COORDINATION PURPOSES.
- WINDOW COVERING (WT), FULL EXTENT OF WINDOW. POSITION CHAIN ON SIDE INDICATED BY ARROW.

FINISH LEGEND

- CONC-S - CONCRETE (SEALED) (033000).
- CPT1 - CARPET TILE (096813)
- EM - ENTRY MAT (096813).
- RSF1 - RESILIENT SHEET FLOORING (096516)
- RTF1 - RESILIENT TILE FLOORING (096519)
- C CORNER GUARD (102600)
- PH ACCENT PAINT (099123)
- WP# WALL PROTECTION (102600)

GENERAL FINISH NOTES

- WHERE DISSIMILAR MATERIALS / COLORS JOIN, TERMINATE WITH CLEAN, CRISP, STRAIGHT LINE.
- FLOORING CONTRACTOR TO INSPECT SUBFLOOR CONDITIONS AND NOTIFY OWNERS AND PROJECT MANAGER OF ACCEPTANCE AND SUITABILITY FOR MATERIALS.
- ALL FLOORING AND RUBBER BASE TO CONTINUE UNDER OPEN MILLWORK, EXTEND INTO KNEE SPACE AND TOE KICK TO FACE OF WALL.
- THRESHOLDS TO OCCUR AT CENTERLINE OF DOOR UNLESS NOTED OTHERWISE.
- PATTERNS ARE SHOWN FOR MATERIAL DIFFERENTIATION ONLY. AND NOT LITERAL MATERIAL FOR STYLE AND SHAPE.
- EQUIPMENT AND FURNISHINGS SHOWN ARE FOR REFERENCE ONLY AND NOT IN CONTRACT.
- ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER INSTRUCTIONS USING MANUFACTURER'S APPROVED ADHESIVES. LOW VOC ADHESIVES ARE REQUIRED AT FLOORING, WALL BASE AND ANY NEW FINISH MATERIALS.
- MAINTAIN SIMILAR DYE LOTS AT ADJACENT SIMILAR MATERIALS.
- THRESHOLDS TO OCCUR AT CENTERLINE OF DOORS WHERE DISSIMILAR MATERIALS JOIN UNLESS NOTED OTHERWISE.
- SEE SHEET A8.0 FOR TYPICAL FLOOR TRANSITION DETAIL.
- SEE ELEVATIONS FOR MULTIPLE WALL FINISHES.
- PAINT ALL SURFACES OF H.M. FRAMES, H.M. DOORS, LOUVERS AND GRILLS U.N.O. COLORS AS SELECTED BY ARCHITECT.
- PROVIDE SEALANT AT ALL GYP. BOARD TO DISSIMILAR MATERIALS.
- ALL GYPSUM BOARD ON RESTROOM AND JANITOR ROOM WALLS SHALL BE MOISTURE RESISTANT.
- NUMBERS AFTER SYMBOLS REPRESENT DIFFERENT STYLES AND COLORS AS DEFINED IN SPECIFICATIONS.
- SEE DETAIL A1/A8.0 FOR TYPICAL WALL MOUNTED ACCESSORIES.
- SEE DETAIL A3/A8.0 FOR TYPICAL ADA SIGNAGE MOUNTING. SEE SPECIFICATION SECTION 101423.

E1 FLOOR 1 FINISH PLAN

1/8" = 1'-0"

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DESCRIPTION

DATE

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FINISH PLAN &
ROOM SCHEDULE

SHEET NO.

A2.1

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KEYNOTES

- REFINISH AND PAINT EXISTING GYP LID CEILING IN ROOM EXTENTS TO MATCH NEW GYP LID CONDITIONS.

CEILING LEGEND

- | | |
|--|--|
| | 2X2 LAY-IN ACOUSTICAL CEILING - 095113
SEE DETAILS A4/A5/A8.1 |
| | GYPSUM BOARD CEILING OR SOFFIT - PAINTED. SEE A2/A8.1 |
| | EXISTING GYPSUM BOARD CEILING |
| | WALL MOUNTED LIGHT FIXTURES |
| | GRID MOUNTED LIGHT FIXTURES |
| | SURFACE MOUNTED LIGHT FIXTURE |
| | HVAC MECHANICAL GRILLS |

GENERAL CEILING NOTES

- SEE ROOM FINISH SCHEDULE FOR ADDITIONAL FINISH INFORMATION.
- PAINT ALL DUCT WORK, CONDUIT, AND PIPING EXPOSED TO VIEW.
- SEE A4/A8.1 FOR TYPICAL CEILING LAYOUT.

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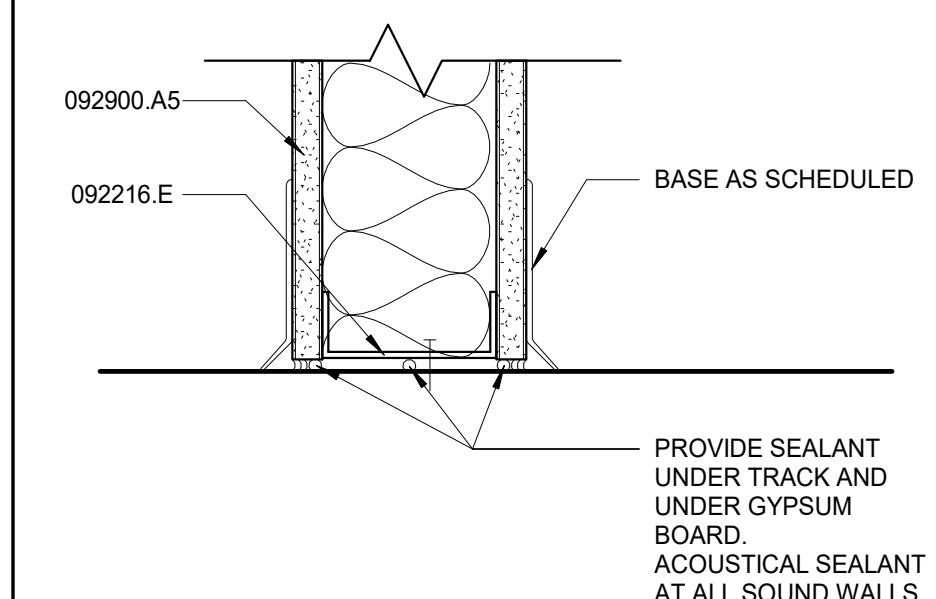
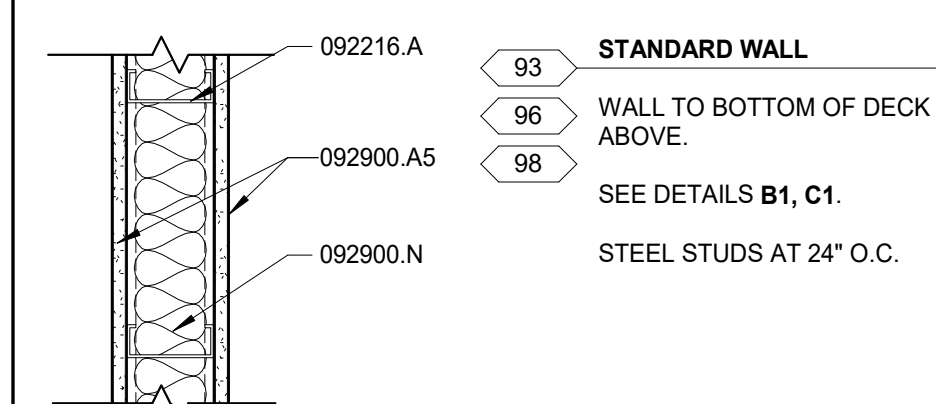
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**FIRST FLOOR
REFLECTED
CEILING PLAN**

SHEET NO.

A2.2

9 SERIES



B1 WALL BASE

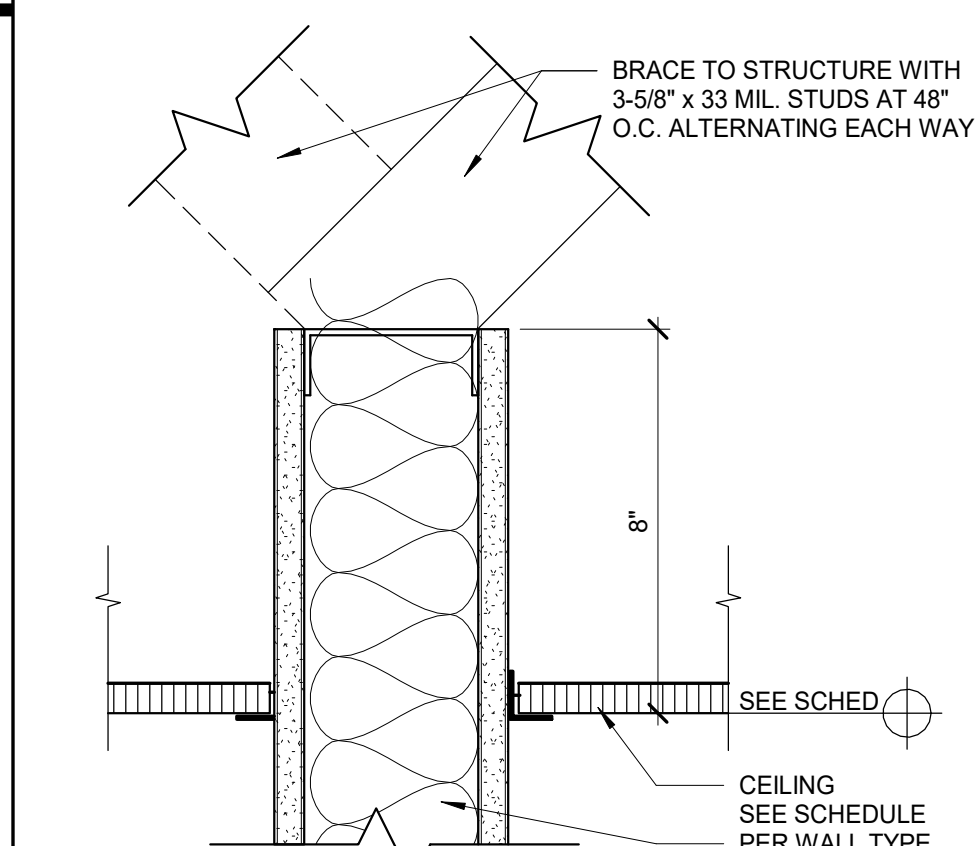
WALL BASE

PROVIDE MOVEMENT JOINTS AT ALL LOCATIONS WHERE FRAME WALLS MEET ROOF DECKS OR STRUCTURE

- PROVIDE DECK FILLER AT ALL WALLS WHERE OCCURS

C1 MOVEMENT JOINT

MOVEMENT JOINT



WALL BRACING

3" = 1'-0"

wall bracing

INTERIOR

9 - NON-LOAD BEARING METAL STUD - SPEC. SECTION 092216

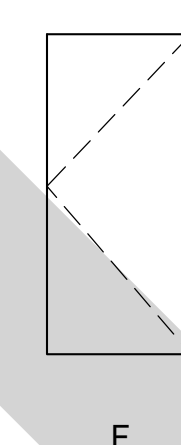
— NOMINAL WALL WIDTH:

0 = 7/8" FURRING	5 = 5"
1 = 1 5/8"	6 = 6"
2 = 2 1/2"	8 = 8"
3 = 3 5/8"	10 = 10"
	12 = 12"

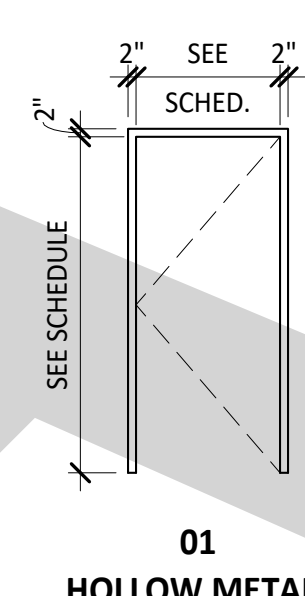
DOOR SCHEDULE

MARK	SEE DOOR LEGEND													REMARKS
	1. DOOR OPENING				DETAILS - SEE THIS SHEET U.O.N.									
	WIDTH	HEIGHT	2. DOOR TYPE	3. DOOR CONST.	4. FACING FINISH	5. GLASS	6. FREERATING	7. FRAME TYPE	8. FRAME CONST.	HEAD	JAMB	SILL		
101	3'-0"	7'-0"	F	HM	-	-	-	01	HM	D5	DM	D5	-	-
102	3'-0"	7'-0"	F	HM	P	-	-	01	HM	D5	DM	D5	-	-
103	3'-0"	7'-0"	F	HM	P	-	-	01	HM	D5	DM	D5	-	-
104	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
106	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
107A	2'-6"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
107B	2'-6"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
107C	2'-6"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
107D	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
108	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
109	3'-0"	6'-10"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
110	3'-0"	6'-10"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
111A	3'-0"	7'-0"	F	HM	P	-	-	01	HM	D5	DM	D5	-	-
111B	3'-0"	7'-0"	F	HM	P	-	-	01	HM	D5	DM	D5	-	-
112	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
113	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
114	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
115	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-
116	3'-0"	7'-0"	F	SC	PL	-	-	01	HM	D5	DM	D5	-	-

DOOR TYPES



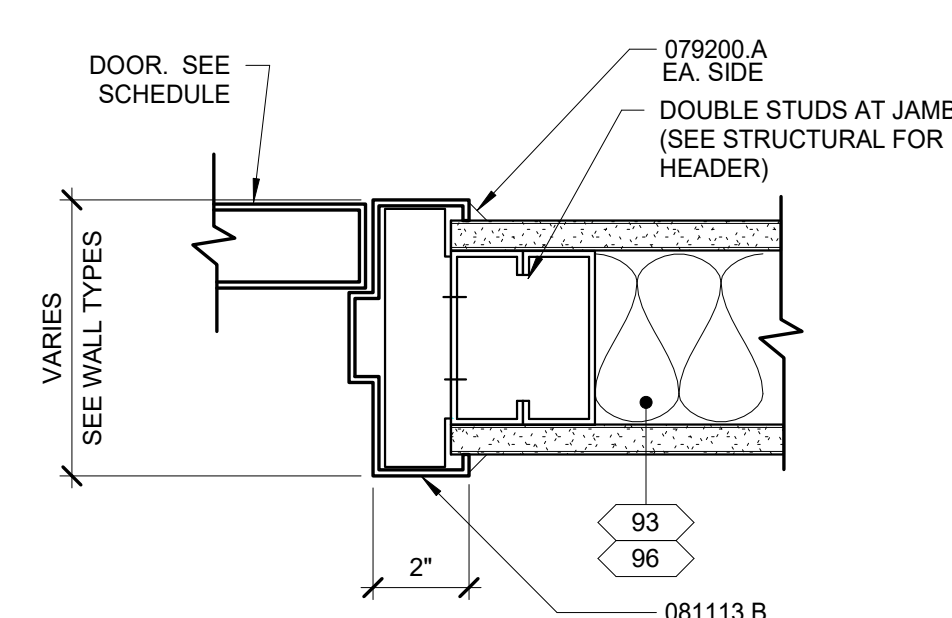
DOOR FRAME TYPES



DOOR JAMB DETAIL (HEAD SIM

$$3'' = 1'-0''$$

1000



CONDOC

079200.A	JOINT SEALANT.
081113.B	HOLLOW-METAL FRAME.
092216.A	STEEL STUD FRAMING.
092216.E	STEEL STUD TRACK / RUNNER.
092216.F1	DEFLECTION TRACK.
092900.A5	5/8" TYPE X GYPSUM BOARD.
092900.N	SOUND ATTENUATION BLANKETS

KEYNOTES

1

GENERAL DOOR NOTES

1. ALL DOORS AND WINDOWS SHALL BE CONSTRUCTED AS DETAILED TO ACTUAL OPENING DIMENSIONS, FIELD VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.
2. REFER TO SPEC SECTION **087100** FOR COMPLETE HARDWARE REQUIREMENTS AT EACH GROUP/OPENING.
3. REFER TO DETAIL **C5/A8.00** FOR DOOR SIGNAGE PARAMETERS

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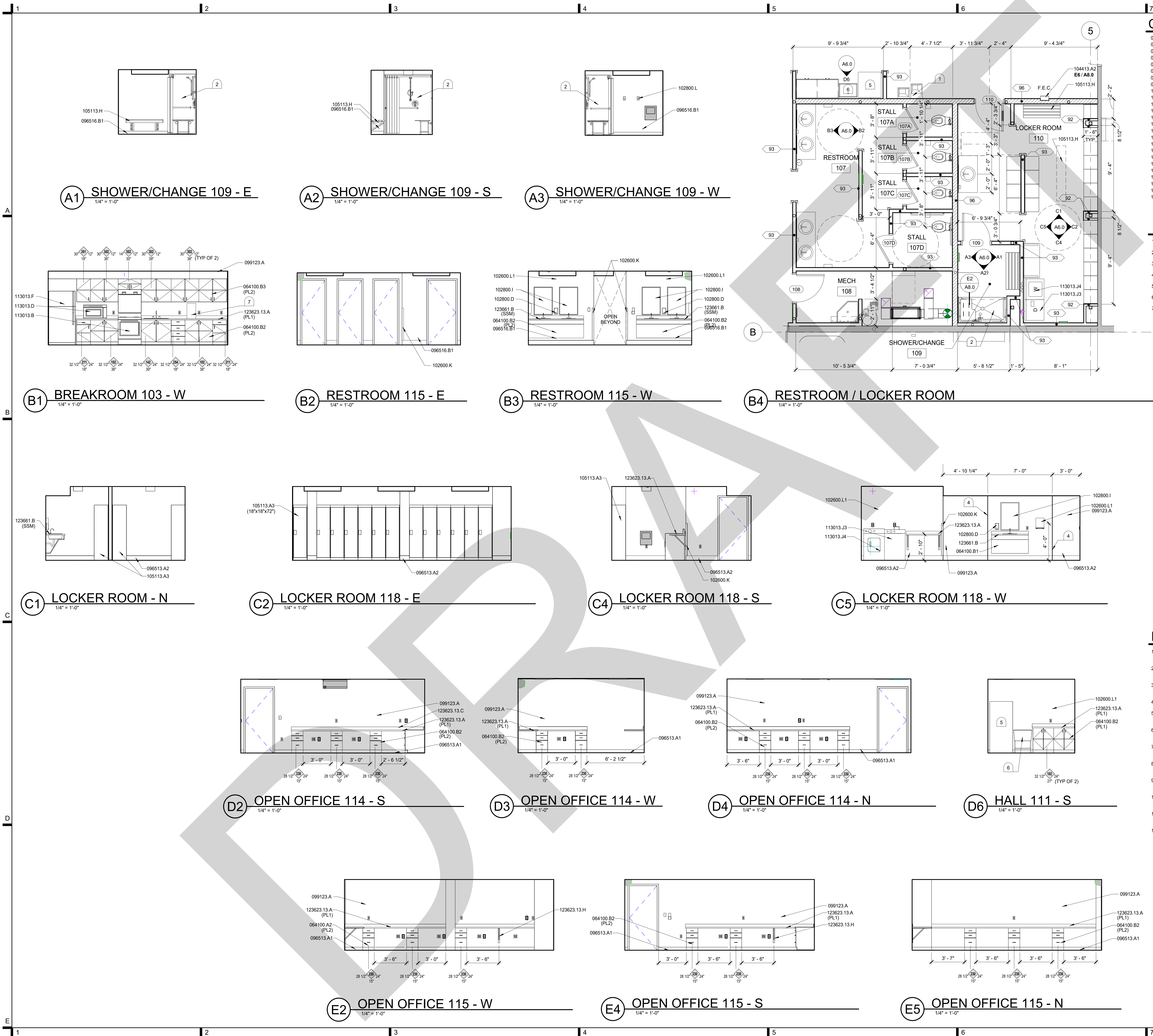
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DOOR SCHEDULE & ASSEMBLY TYPES

SHEET NO. _____

A3.0



CONDOC

064100.A2	WOOD-VENEER-FACED BASE CABINET.
064100.B1	PLASTIC-LAMINATE-FACED CABINET.
064100.B2	PLASTIC-LAMINATE-FACED BASE CABINET.
064100.B3	PLASTIC-LAMINATE-FACED UPPER CABINET.
096513.A1	4" RESILIENT BASE.
096513.A2	6" RESILIENT BASE.
096516.B1	6" INTEGRAL FLASH-COVE-BASE.
099123.A	INTERIOR PAINT.
102600.K	CORNER GUARDS.
102600.L1	RIGID SHEET WALL PROTECTION.
102600.D	SOAP DISPENSER.
102600.I	MIRROR.
102600.L	ROBE / COAT / TOWEL HOOK.
104413.A2	SEMI-RECESSED FIRE-PROTECTION CABINET.
105113.A3	LOCKER.
105113.H	LOCKER ROOM BENCH.
113013.B	RANGE.
113013.D	MICROWAVE OVEN.
113013.F	REFRIGERATOR.
113013.J3	CLOTHES WASHER (RESIDENTIAL).
113013.J4	CLOTHES DRYER (RESIDENTIAL).
123623.13.A	PLASTIC-LAMINATE COUNTERTOP.
123623.13.C	PLASTIC-LAMINATE BACKSPLASH.
123623.13.H	KNEE BRACE.
123661.B	SOLID SURFACE COUNTERTOP.

KEYNOTES

1. DRINKING FOUNTAIN. SEE DETAIL A5/A8.0.
2. SHOWER ENCLOSURE. SEE PLUMBING SCHEDULE.
3. JANITOR SINK. SEE DETAIL E5/A8.0.
4. PROVIDE TRIM AT TERMINATION OF WALL PROTECTION.
5. OWNER PROVIDED ICE MACHINE. SHOWN FOR REFERENCE ONLY.
6. UTILITY SINK. SEE PLUMBING SCHEDULE.
7. OWNER PROVIDED COFFEE MAKER. PROVIDE WATER LINE. SEE PLUMBING.

INTERIOR ELEVATION NOTES

1. REFER TO GENERAL NOTES ON FLOOR PLAN SHEETS FOR GENERAL FLOOR PLAN NOTES WHICH APPLY HERE.
2. REFERENCE ROOM FINISH SCHEDULE AND FINISH LEGEND FOR ADDITIONAL MATERIALS AND FINISH INFORMATION.
3. FOR ACCESSORY, DEVICE LOCATIONS, MOUNTING HEIGHTS, AND CLEARANCES SEE SHEET A8.0.
4. FOR SYMBOLS AND ABBREVIATIONS SEE COVER SHEET 0.00.
5. ALL WALLS NOT INDICATED BY A HATCH PATTERN ARE PAINTED GYPSUM WALL BOARD U.O.N.
6. PL-X = PLASTIC LAMINATE. REFER TO SPECIFICATIONS FOR TYPE AND COLOR.
7. P-X = PAINT. REFER TO SPECIFICATIONS FOR TYPES. SEE ROOM FINISH NOTES ON SHEET A2.1 FOR COLOR INFORMATION.
8. PROVIDE SOLID FILLERS AT TOPS OF ALL UPPER CABINET CORNERS AND END.
9. PROVIDE PLASTIC LAMINATE ON ALL EXPOSED SURFACES OF CABINETS.
10. VERIFY ALL DIMENSIONS AT MILLWORK INSTALLATION LOCATIONS PRIOR TO FABRICATION.
11. CONTINUE BACKSPLASH ALONG BACK OF COUNTERTOP AND ALL SIDES ADJACENT TO WALLS, TYPICAL.
12. PROVIDE CONTINUOUS BLOCKING AT TOP OF ALL UPPER CASEWORK AND BASE CABINETS.

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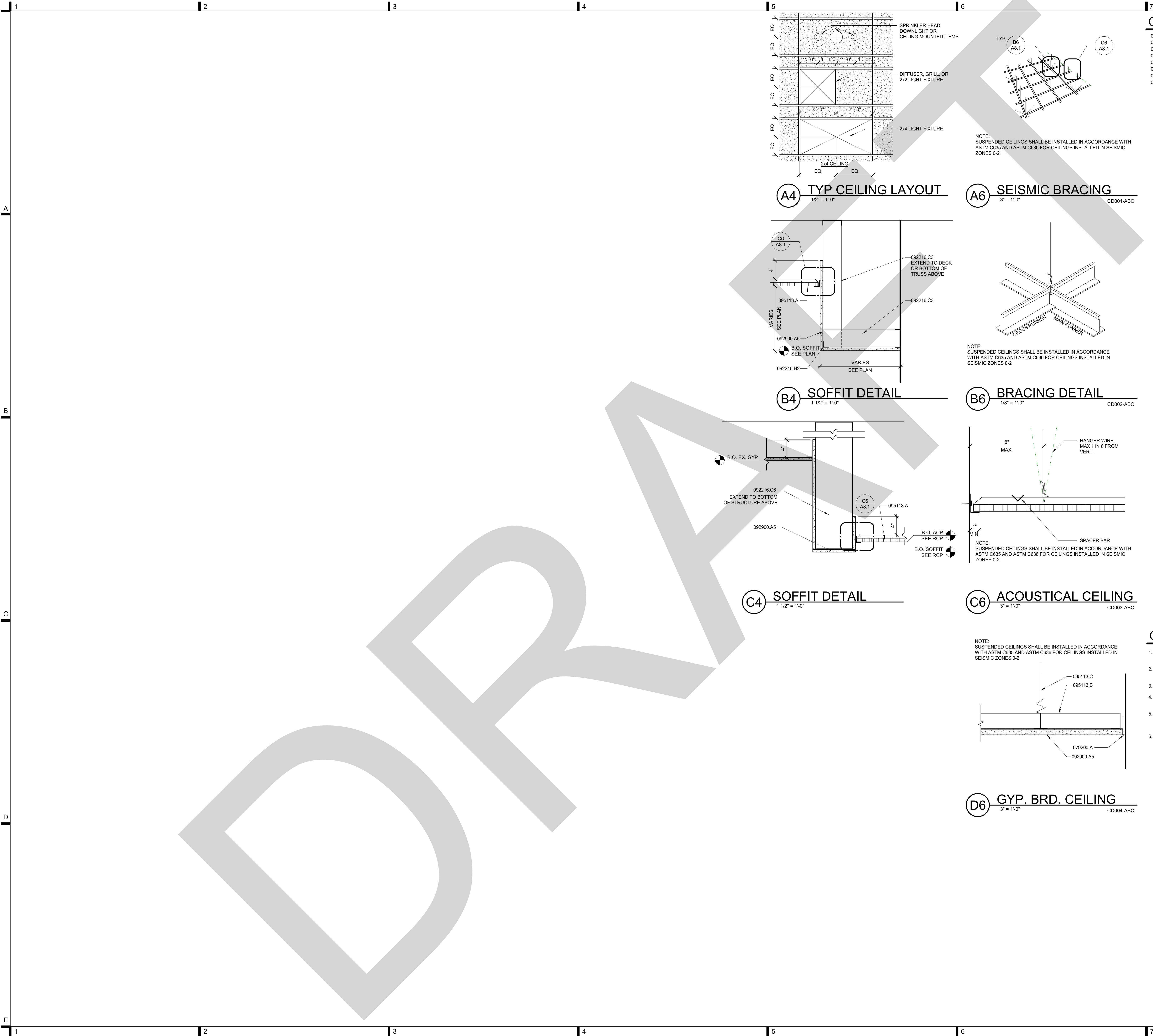
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ENLARGED PLANS
/ INTERIOR
ELEVATIONS

SHEET NO.

A6.0

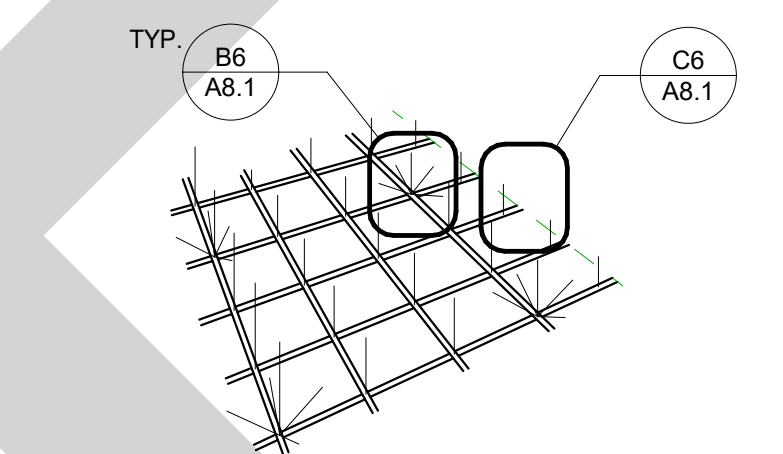
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CONDOC

079200.A
092216.C3
092216.C6
092216.H2
092900.A5
095113.A
095113.B
095113.C

JOINT SEALANT.
3-5/8" X 33-MIL STEEL STUDS AT 24" O.C.
8" X 33-MIL STUDS AT 24" O.C.
STEEL CLIP ANGLE.
5/8" TYPE X GYPSUM BOARD.
SUSPENDED ACOUSTICAL PANEL CEILING.
METAL SUSPENSION SYSTEM.
WIRE HANGER.



NOTE:
SUSPENDED CEILINGS SHALL BE INSTALLED IN ACCORDANCE WITH
ASTM C635 AND ASTM C636 FOR CEILINGS INSTALLED IN SEISMIC
ZONES 0-2

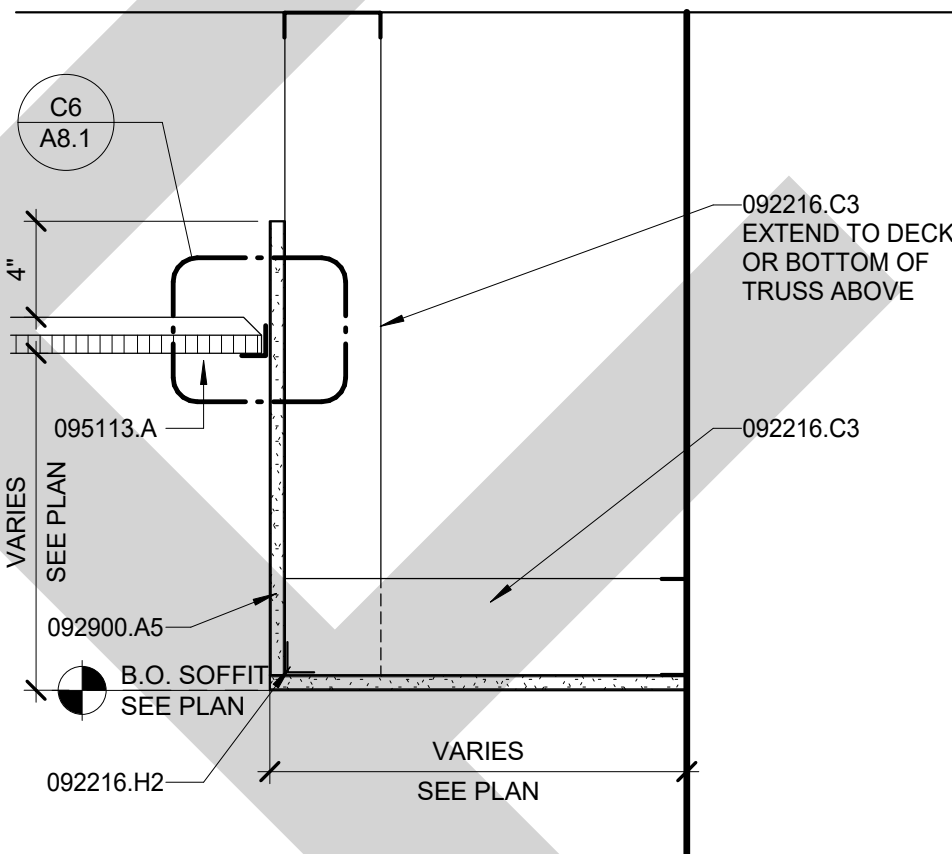
A4 TYP CEILING LAYOUT

1/2" = 1'-0"

A6 SEISMIC BRACING

3" = 1'-0"

CD001-ABC



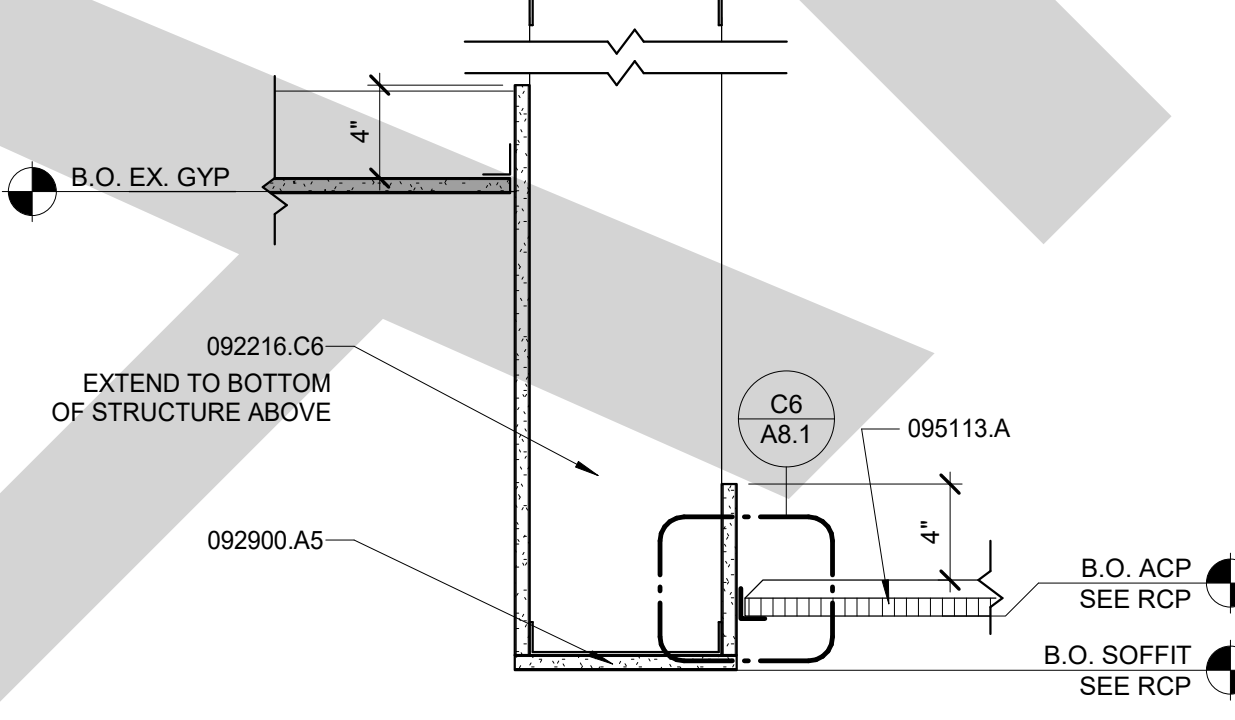
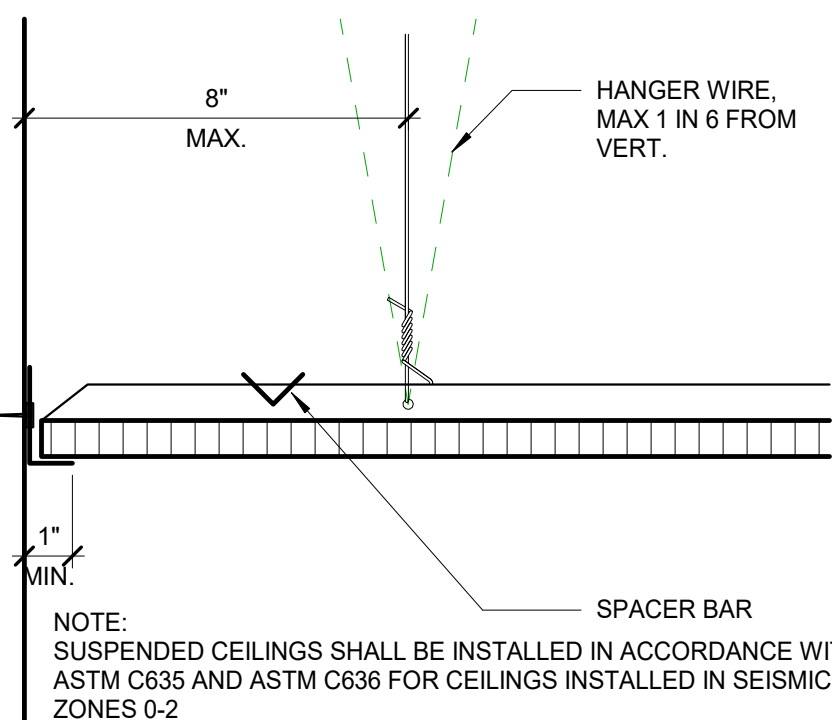
B4 SOFFIT DETAIL

1 1/2" = 1'-0"

B6 BRACING DETAIL

1/8" = 1'-0"

CD002-ABC



C4 SOFFIT DETAIL

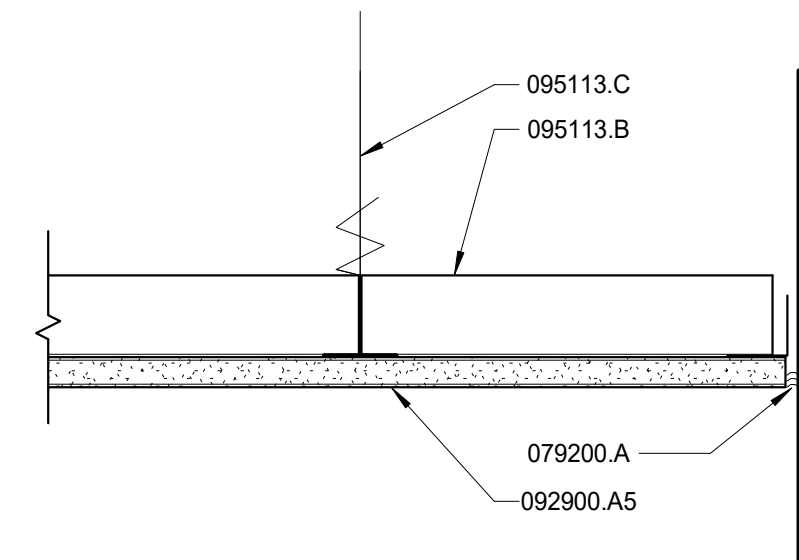
1 1/2" = 1'-0"

C6 ACOUSTICAL CEILING

3" = 1'-0"

CD003-ABC

NOTE:
SUSPENDED CEILINGS SHALL BE INSTALLED IN ACCORDANCE
WITH ASTM C635 AND ASTM C636 FOR CEILINGS INSTALLED IN
SEISMIC ZONES 0-2



D6 GYP. BRD. CEILING

3" = 1'-0"

CD004-ABC

GENERAL DETAIL NOTES

1. REFER TO **B1** ON SHEET **A8.0** FOR TYPICAL MOUNTING HEIGHTS AND CLEARANCES.
2. PROVIDE PLASTIC LAMINATE ON ALL EXPOSED SURFACES OF CABINETS.
3. VERIFY ALL DIMENSIONS ON CABINET WALLS PRIOR TO FABRICATION.
4. CONTINUE BACK SPLASH ALONG BACK OF COUNTERTOP AND ALL SIDES ADJACENT TO WALLS.
5. PROVIDE STIFFENERS, BRACING, BACK-UP PLATES, ETC. AS REQUIRED AT ALL STUD WALLS FOR SUPPORT OF TOILET ACCESSORIES, GRAB BARS, PARTITIONS, ETC. SEE DETAIL **E3/A8.0**.
6. PROVIDE WATER RESISTANT GYPSUM BOARD AT ALL WET-WALL LOCATIONS.

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INTERIOR DETAILS

SHEET NO.

A8.1

STRUCTURAL COVER SHEET

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MOSCOW, ID. 83843



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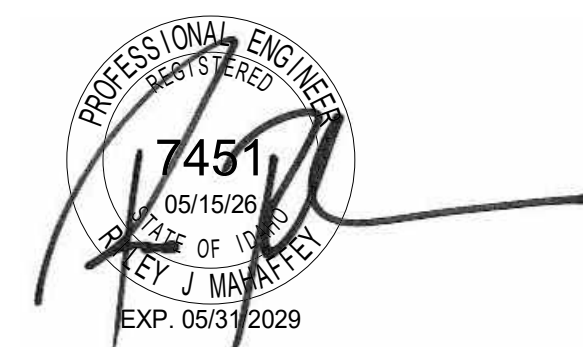
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ABBREVIATIONS

AB.	Anchor Bolt	MFR.	Manufacturer
ACI	American Concrete Institute	MATL.	Material
ACT.	Acoustic Ceiling Tile	MAX.	Maximum
ADD.	Addition	MB.	Machine Bolt
ADDL.	Additional	MECH.	Mechanical
AFF.	Above Finish Floor	MEZZ.	Mezzanine
AIA	American Institute of Architects	MIN.	Minimum
AISC	American Institute of Steel Construction	MISC.	Miscellaneous
ASI	American Iron and Steel Institute	MK	Mark
ALT.	Alternate	ML	MicroLam
AL	Aluminum		
ANSI	American National Standards Institute	NF	Near Face
AOR	Architect of Record	NO. or #	Number
APA	American Plywood Association	NOM.	Nominal
APPROX.	Approximate	NTS	Not to Scale
ARCH.	Architect or Architectural	NS.	Near Side
ASTM	American Society for Testing and Materials		
AWS	American Welding Society	OC.	On Center
		OD.	Outside Diameter
BOTT.	Bottom	OPP.	Opposite
BD.	Board	OSB	Oriented Strand Board
BLKG.	Blocking	OWSJ	Open Web Steel Joist
BOD.	Bottom of Deck		
BM	Bending Moment	PAF.	Powder Actuated Fastener
BPL	Base Plate	PAR.	Parallel
BRG.	Bearing	PCF.	Pounds Per Cubic Foot
		PEN.	Penetration
C	Channel	PERM.	Permanent
CF	Cubic Foot	PERP.	Perpendicular
COORD.	Coordinate	PL	Plate
CFS	Cold-formed Steel	PP.	Partial Pen.
CJ.	Control Joint	PSF.	Pounds Per Square Foot
CJP	Complete Joint Penetration	PSI	Pounds Per Square Inch
CL	Center Line	P-T	Post Tension, Post Tensioned
CLR.	Clear	P.T.	Pressure Treated
COL.	Column		
CONC.	Concrete	RAD. or R.	Radius
CONN.	Connection	REF.	Reference
CONST.	Construction	REINF.	Reinforce, Reinforced,
CONT.	Continuous		Reinforcement or Reinforcing
CMU	Concrete Masonry Units	REQD.	Required
CY	Cubic Yard	REV.	Revise or Revision
		RO.	Rough Opening
DBA.	Deformed Bar Anchor		
DIAG.	Diagonal	SCHED.	Schedule
DIA.	Diameter	SF.	Sq. Foot
DIM.	Dimensions	SHTG.	Sheathing
DFL.	Douglas Fir-Larch	SM.	Similar
DWG.	Drawing	SK.	Sketch
		SPECS.	Specifications
EA.	Each	SO.	Square
EB.	Expansion Bolt	SS.	Stainless Steel
EJ.	Expansion Joint	SSLT.	Short Slotted Holes Transverse
EL.	Elevation or Elevator		to Direction of Load
ENG.	Engineer	STD.	Standard
EOD.	Edge of Deck	STDR.	Structural
EOR.	Engineer of Record	SYM.	Symmetrical
EN.	Edge Nail (Nailing)		
EQ.	Equal	T&G	Tongue and Groove
EQUIP.	Equipment	T&B	Top and Bottom
EXIST. / (E)	Existing	THRU.	Through
EXT.	Exterior	TJI.	Trus Joist I-Joist
		TO.	Top Of
FAB.	Fabrication	TOC.	Top of Concrete
FD.	Floor Drain	TOP.	Top of Footing
FIN.	Finish	TOM.	Top of Masonry
FLR.	Floor	TOS.	Top of Steel
FND.	Foundation	TOW.	Top of Wall
FS.	Far Side	TRANSV.	Transverse
FT. or (')	Feet or Foot	TYP.	Typical
FTG.	Footing		
		UNO.	Unless Noted Otherwise
GALV.	Galvanize		
GC.	General Contractor	VERT.	Vertical
GEN.	General (Notes)	VIF.	Verify in the Field
GLB.	Glue Lam Beam		
GR. or GRD.	Grade	W	Wide Flange
GSM.	General Structural Notes	WP.	Work Point
GYP.	Gypsum	WT.	Weight
		XS	Extra Strong
HAS.	Headed Anchor Stud	YD.	Yard
HD.	Hold-down		
HORIZ.	Horizontal	2L	Double Angle
ID.	Inside Diameter		
IF.	Inside Face		
IN. or (")	Inches		
K	Kip (1,000 lbs.)		
LESK	LOCHSA ENGINEERING SKETCH		
LAM.	Laminated		
Lb. / lbs. / #	Pound / Pounds		
L	Angle		
LFRS	Lateral Force Resisting System		
LLBB.	Long Leg Back To Back		
LLH.	Long Leg Horizontal		
LLV.	Long Leg Vertical		
LOC.	Locations		
LONG.	Longitudinal		
LVL.	Laminated Veneer Lumber		
LW.	Light Weight		

DESIGN CODES 2018

- All design and construction shall conform to the 2018 International Building Code and local jurisdictional amendments per state, county, city, etc.
- References to ASTM and other standards shall refer to the latest edition designated by IBC Chapter 35. Refer to the specifications for information in addition to that covered by these structural notes and drawings. The following standards were used for design.

Building Code Requirements For Structural Concrete	ACI 318-14
Seismic Provisional For Structural Steel Buildings	AISC 341-16
Specifications For Structural Steel Buildings	AISC 360-16
Minimum Design Loads For Buildings And Other Structures	ASCE 7-16
National Design Specifications For Wood Construction	NDS-2018

All specifications and codes noted shall be the latest approved editions and revisions by the governmental agency having jurisdiction over this project.

STRUCTURAL LOADS

SNOW LOADS:	
Ground Snow Load	Pg = 64 psf
Importance Factor	Is = 1.0
Exposure Factor	Ce = 1.0
Fat Roof Snow Load	Pf = 45 psf
Thermal Factor	Ct = 1.0
Snow Drifts	As indicated on drawings.
WIND LOADS:	
Basic Wind Speed	Vult = 115 mph
Risk Category	II
Exposure	C
Internal Pressure Coefficient	GCPi ± 0.18
SEISMIC LOADS:	
Risk Category	II
Importance Factor	Is = 1.00
Soil Site Class	D
Mapped Spectral Response Acceleration	SS = 0.293 g
	S1 = 0.106 g
SOIL FACTOR COEFFICIENTS:	
Fa = 1.57	Fv = 2.39
SPECTRAL RESPONSE COEFFICIENT:	
SDS = 0.306 g	SD1 = 0.169 g
SEISMIC DESIGN CRITERIA:	
Seismic Response Coefficient	CS = 0.0437
Seismic Design Category	C
Analysis Procedure	Equivalent Lateral Force (ELF) Procedure
Structural System	Light-Frame Wood Walls Sheathed with Wood Structural Panels Rated for Shear Resistance
Response Modification Factor	7.00
Tabulated Overstrength Factor	2.00
ADDITIONAL ITEMS:	
Building Location	46.740607, -116.995694
Mean Building Height	20 feet
REDUNDANCY FACTORS:	
North/South Direction	rho = 1.0
East/West Direction	rho = 1.0
STORAGE LIVE LOADS:	
Light Storage	125 psf (non-reducible)
MISCELLANEOUS LIVE LOADS:	
Guardrails	50 pif or 200lbs.
Mechanical Equipment	Weights Furnished by Manufacturer

GENERAL

- The Contractor shall verify all dimensions prior to starting construction. The Architect shall be notified of any discrepancies or inconsistencies.
- Summary of Work: Project consists of new construction as shown on these Contract Documents used in coordination with the Architectural and other discipline's documents. See also note 7.
- Warranty: The EOR has used the degree of care and skill ordinarily exercised under similar circumstances by members of the profession in this locale and no other warranty, either expressed or implied, is made in connection with rendering professional services.
- Structure noted in the drawings as existing or by others, shall be field verified by the contractor and any discrepancies noted shall be reported to the Architect/Structural Engineer.
- Construction documents include but are not limited to: drawings, plan notes, typical details, general notes, custom details, specifications, etc. in addition to those prepared by other disciplines.
- Do not scale the drawings for dimensions not shown.
- Notes and details on the drawings shall take precedence over general notes, typical details, and the project specifications. Where discrepancies between specifications and drawings occur, use the more stringent requirement.
- Typical details and schedules indicated may not be specifically referenced on the drawings. The contractor is responsible to determine where each typical detail or schedule applies. If locations are found where no typical detail, typical schedule, or specific detail applies, notify the Architect/Structural Engineer. Drawings indicate general and typical details of construction. Typical details and general notes shall apply even if not specifically denoted on plans, etc. Where conditions are not specifically indicated, similar details of construction shall be used, subject to review and approval by the Architect and the Structural Engineer of Record.
- The contract Structural drawings and specifications represent the finished structure. They do not indicate the method of construction. Contractor to provide construction means, methods, techniques, sequences and procedures as required. Contractor to provide adequate excavation procedures, shoring, bracing and erection procedures complying with national, state and local safety ordinances. The Contractor shall provide all measures necessary to protect the structure during construction. Such measures shall include, but not be limited to: bracing and shoring for loads due to hydrostatic, earth, wind or seismic forces, construction equipment, temporary loading, etc.
- Observation visits (site visits) by representatives of Architect/Structural Engineer do not include inspection of construction means and methods. Site visits during construction are not continuous nor detailed inspection services which are to be performed by others. Observations are performed solely for the purpose of determining if the Contractor understands design intent shown in the contract drawings. Observations do not guarantee Contractor's performance and are not to be construed as supervision or verification of construction.
- Notify the Structural Engineer prior to constructing or fabricating, when drawings by others show openings, pockets, etc., not shown on the structural drawings, but which are located in the structural members.
- Products that require a report on code compliance shall have an ICC-ES or IAPMO report evaluated for the above listed governing building code. Where required by the governing jurisdiction, a submittal as an alternate material and method is required for all reports evaluated to an earlier edition of the IBC. Reports evaluated to codes other than the above listed code are not permitted, unless allowed by the governing jurisdiction.
- Contractor shall investigate the site during clearing and earth work operations for filled excavations or buried structures such as seeps, pipelines, foundations, utilities, etc. If any such structures are found, the Structural Engineer shall be notified immediately.
- Construction materials shall be spread out when placed on framed floors or roofs. The construction material load shall not exceed the design live load per square foot. Provide adequate shoring and/or bracing where structure has not attained design strength.
- See the architectural drawings for the following: Size and location of door and window openings, size and location of interior and exterior non-bearing partitions, size and location of concrete curbs, floor drains, slopes, depressed areas, changes in level, chamfers, grooves, inserts, size and location of floor and roof openings, floor and roof finishes, stair framing and details, dimensions not shown on the structural drawings, ceiling assemblies, exterior wall assemblies, etc.
- See mechanical, plumbing, and electrical drawings for the following: Pipes, sleeves, hangers, trenches, wall, floor, and/or roof openings, duct penetration, electrical conduit runs, boxes, outlets in walls and slabs, concrete inserts for electrical, mechanical or plumbing fixtures, size and location of machine or equipment bases, anchor bolts for mounts, etc., except as shown or noted. See also note 13.
- For mechanical and electrical equipment anchorage that is to be designed by others, see IBC section 1613 and ASCE 7 chapter 13. Use isolators, fasteners and bracing approved by ICC-ES or approved third party capable of transmitting code required lateral loads. Secure suspended equipment with lateral bracing.
- For piping and ductwork bracing to be designed by others, see the latest edition of "Guidelines for Seismic Restraints of Mechanical Systems" by the Sheet Metal and Air Conditioning Contractors National Association.

DEFERRED / DELEGATED STRUCTURAL COMPONENTS

- Components referred to as Deferred Structural Components shall comply with these notes. These elements have not been permitted under the base building application. The contractor will be required to submit the component system documents to the building official for approval. The documents shall be stamped and signed by a structural engineer licensed by the state where the project is located. The deferred structural components shall not be installed until the design and submittal documents have been approved by the building official.
- Prior to building department submittal, the deferred structural components submittals shall receive cursory review by Structural Engineer of Record for loads imposed on primary structure and general conformance with design concept of the project and general compliance with the information given in the Structural Contract Documents. Review of submittals does not constitute approval or acceptance of unauthorized deviation from Contract Documents.
- Submittals of contractor-designed components shall include the designing structural engineer's stamp and signature, as noted above. The submittal shall be approved by the component vendor prior to review by the Structural Engineer of Record.
- The designing professional is responsible for code conformance and all necessary connections not specifically called out on architectural or structural contract documents.
- Submittals shall include details of connections to primary structure that indicate magnitude and direction of all loads imposed at point of connection.
- Design criteria shall be provided with submittal and calculations shall be made available upon request.
- Refer to other discipline's contract documents for additional deferred components that may require structural design and details. Connections of these elements shall not induce torsion on structural members.
- Deferred Structural Components shall be manufactured, delivered, handled, stored, and field erected in conformance with instructions prepared by the component vendor.
- The following list includes the items that are defined as Deferred Structural Components. Additional items may be included in the project specifications.
- Deferred structural components:
 - Metals or pre-cast stairs and landings
 - Handrails, guards, grab bars, and wall mounted shower seats
 - Plywood web joists (if different than specified on drawings)
 - Metals Grating and/or stair treads

SHEET LIST

DWG #	DRAWING TITLE	REV. #
S0.01	STRUCTURAL COVER SHEET	
S0.02	STRUCTURAL DESIGN NOTES	
S0.03	SPECIAL INSPECTION TABLES (2018)	
S1.00	OVERALL PLANS	
S1.01	FOUNDATION PLANS	
S1.02	MEZZANINE FRAMING PLANS	
S4.01	SCHEDULES	
S6.01	TYPICAL FRAMING DETAILS	

APPROVAL AREA

SHEET NO.

S0.01

POST INSTALLED MECHANICAL ANCHORS

- Mechanical anchors shall not be installed without prior approval of engineer unless specifically detailed on the drawings.
- Over-drill as indicated by the Anchor Manufacturer, and to the depth indicated on the structural drawings.
- Clean hole per manufacture requirements.
- The following expansion type anchors are structurally acceptable for use in uncracked, cracked, and seismic concrete applications:
 - Simpson Strong-Bolt 2 Wedge Anchor – ICC ESR-3037
 - Hilti Kwik Bolt TZ – ICC ESR-4286
 - Dewalt Power-Stub SD3, SD4, SD6 – ICC ESR-2502
- The following expansion type anchors are structurally acceptable for use in fully grouted masonry:
 - Hilti Kwik Bolt 3 – ICC ESR-1385
 - Dewalt Power-Stud+ SD1 – ICC ESR-2866
- The following screw type anchors are structurally acceptable for use in uncracked, cracked, and seismic concrete applications:
 - Simpson Titen HD – ICC ESR-2713
 - Hilti KH-EZ – ICC ESR-3027
 - ITW RedHead Tapcon – ICC ESR-2202
 - Dewalt SCREW-BOLT+ – ICC ESR-3889
- The following drop in type anchors are structurally acceptable for use in uncracked, cracked, and seismic pt and hollow plank concrete applications:
 - Hilti HD-P TZ – ICC ESR-4236
 - Dewalt Mini-Undercut + – ICC ESR-3912
- The following screw type anchors are structurally acceptable for use in fully grouted masonry:
 - Simpson Titen HD – ICC ESR-1056
 - Hilti KW-EZ – ICC ESR-3056
 - DeWalt SCREW-BOLT+ – ICC ESR-4042
- Installation and inspection of post installed anchors shall be performed as required by ICC reports and manufacturer's instructions.

WOOD

- GENERAL FRAMING
 - All wood framing details not shown otherwise shall be constructed to the minimum standards of section 2303 of the IBC.
 - Coordinate the size and location of all openings with mechanical and architectural drawings.
 - Provide double joists under all parallel partitions that extend over more than half the joist length and around all openings in floors or roofs uno. Provide solid blocking at all bearing points.
 - All wood framing in direct contact with concrete or masonry, exposed to weather, or that rest on exterior foundation walls and are located within 8" of earth, shall be pressure-treated with an approved preservative, see IBC section 2303.1.9. Cut or drilled sections of treated material shall be treated with an approved preservative per IBC section 2303.1.9. See IBC section 2304.12 for additional requirements.
 - Treated Wood shall be selected to prevent corrosion of metal fasteners and hangers.
 - Allow for 1/2" of wood shrinkage/compression at each level (including foundation). Values are cumulative for the height of the building. Building systems such as mechanical, electrical, plumbing, fire sprinklers, etc. shall have flexible components that account for the potential wood shrinkage/compression. Architectural finishes shall also account for the potential wood shrinkage/compression.
 - All stud wall top plates shall be double members spliced with 48" minimum lap with minimum of (24) 16d nails each end of splice – 48 nails total, unless noted otherwise.
 - Do not notch joists, rafters or beams, except where shown in details. Obtain engineer's approval for any holes or notches not detailed. Holes through sills, plates, studs and double plates in interior, bearing and shear walls shall not exceed 1/3 the plate width. Use bored holes located in the center of the stud or plate.
 - Cross-bridging or solid blocking shall be spaced per the more stringent of the lumber manufacturer's recommendations or the following:
 - Rafters greater than 8 inches in depth = 10 ft. oc. maximum
 - Floor joists greater than 4 inches in depth = 8 ft. oc. maximum
 - Moisture content of wood products shall not exceed 19% by weight.
 - All lumber shall be protected from weather prior to installation. Do not store lumber in direct contact with ground.
 - FASTENERS AND HARDWARE
 - Minimum nailing, unless otherwise noted, shall conform to table 2304.10.1 of the 2018 IBC. All nails shall be common uno. Connections listed are minimum permissible. Details govern over schedule.
 - Bolts, anchor rods, and lag screws shall be centered in members, uno.
 - Nails shall meet the requirements of ASTM F1667. Where driving of nails would cause splitting, holes for the nails shall be pre-drilled, equal to 70% of the diameter of the nail. Where automatic nailing is used, nail heads shall not penetrate plywood sheathing.
 - When multiple members are grouped together, fasten with:
 - (3) rows of 16d nails at 12" oc. for depths 14" or greater.
 - (2) rows of 16d nails at 12" oc. Use (3) rows of 16d nails at 12" oc. for depths 14" or greater.
 - All bolts in wood shall conform to ASTM A307 bolts and shall be installed in holes bored with a bit 1/16 inch larger than the diameter of the bolt. Oversized or slotted holes are not allowed unless specifically noted on plans. Bolts and nuts seating on wood shall have cut steel washers under heads and nuts. Spot threads after installation to prevent loosening.
 - Lag screws shall meet the requirements of ANSI / ASME standard B18.2.1. Lead holes for the threaded portion of the shank shall have a diameter equal to 70% of the shank diameter with a depth equal to the screw length. Refer to 2018 NDS Section 12.1.4 for additional lag screw installation requirements.
 - Wood screws shall meet the requirements of ANSI / ASME standard B18.2.1. Lead holes for the threaded portion of the shank shall have a diameter equal to 70% of the shank diameter with a depth equal to the screw length. Refer to 2018 NDS Section 12.1.5 for additional wood screw installation requirements.
 - Specified hardware shall be Simpson Strong-Tie installed, see manufacturer's recommendations, uno.
 - Sill plate maximum anchor bolt spacing shall be 48 inches on center unless noted otherwise on plans and details. All anchor bolts (other than bolts for hold-downs) shall be 1/2" diameter with a minimum embedment of 8 inches into concrete uno. Anchor bolts for hold-downs shall not be considered as part of required anchor bolts for shear walls. All exterior walls shall be secured with minimum (3) anchor bolts. Interior walls may be driven shot pins according to alternate outlined herein, uno.
 - Anchor bolts shall have 3x3x1/4" thick slotted plate washers under each nut. Edge of plate washer to be within 1/2" of sheathing. At shear walls with sheathing on both faces alternate washer edges.
 - Corrosion resistance:
 - All nails, bolts, screws and hardware shall be hot-dipped galvanized or stainless where exposed to weather or soil.
 - All nails and screws fastened to pressure-preservative-treated wood (including wood sills) shall be hot-dipped galvanized per ASTM A153 or stainless steel Type 304 or 316.
 - Electrogalvanized fasteners shall not be substituted for hot-dipped galvanized.
 - Sheet metal connectors in contact with pressure-treated wood shall be stainless or galvanized coated per ASTM A553 class C165.
 - Stainless steel or hot-dipped galvanized connectors shall use all fasteners of the same material.
 - SOLID SAWN LUMBER
 - Solid sawn lumber shall comply with the latest edition of the grading rules of the Western Wood Products Association (WWPA) or the West Coast Lumber Inspection Bureau (WCLIB).
 - All solid sawn lumber shall be stamped with the grade mark of an approved grading agency. Solid sawn lumber shall have the following minimum grades:

2x4 Studs and Blocking	DF-L No. 2
2x6 Studs and Blocking	DF-L No. 2
Joist, Top Plates, and Blocking	DF-L No. 2
4x Beams and Posts	DF-L No. 2
6x Beams and Posts	DF-L No. 1
 - Interior nonbearing partitions may be DF-L Stud Grade.
 - All exposed architectural lumber to be KILN DRIED (KD) uno. Moisture content at time of manufacturing 19 percent or less.
 - All lumber to be supplied with proper grade stamp to project.
 - SHEATHING
 - Plywood for roofs and floors shall be C-C or C-D sheathing conforming to the current version of the Products Standard PS 1-09. Lay plywood with face grain perpendicular to supports. All nailing shall be with common nails and solid 2x blocking shall be placed at all ridges and valleys. All roof and floor sheathing shall be nailed with boundary nailing along the entire length of supporting members used as "Drag" members. A Drag member is a truss or beam designed to transmit a lateral force and/or a diaphragm chord force as indicated on the framing plans. Provide blocking at panel edges where indicated on plans. All plywood shall be of the following nominal thickness and span/index rating and shall be nailed as follows unless noted otherwise:

Level	Thickness	Span Rating	Edge Nailing	Field Nailing
FLOOR	1 1/8" T&G	40/20	10d AT 6" OC	10d AT 12" OC
 - Plywood for shear walls shall be Structural I C-C or C-D, Span Index 24/0 conforming to PS 1-09. Thickness shall be as called for on the plans and shear wall schedule. Provide blocking at all panel edges. All walls designated as shear walls shall be connected to roof and floor diaphragms with boundary nailing to provide proper shear transfer.
 - As an alternate to plywood, American Plywood Association (APA) performance rated sheathing may be used with prior approval of the owner and architect. Rated sheathing shall comply with ICC-ES Report ESR-2586, Exposure 1, and shall have a span rating equivalent to or better than the plywood it replaces. Attachment and thickness (within 1/32") shall be the same as the plywood it replaces. Install per manufacturer recommendations.
- Refer to the plans and shear wall schedule for required sheathing and nailing. All walls not called out on plans, provide 7/16" min. APA rated sheathing on exterior surfaces nailed at all panel edges (block unsupported edges), top and bottom plates with 8d common nails at 6" oc. and to all intermediate studs and blocking at 12" oc. Allow 1/8" gap at all APA sheathing panel edges and ends.

FOUNDATION

- The foundation system is designed based on recommendations of chapter 18 of the IBC and have been designed for the following:

Soil Bearing Capacity	1500 psf
Frost Depth	30"
- It is recommended that the contractor shall retain the services of a geotechnical engineer to perform necessary testing and inspections for quality control to ensure that the recommendations of chapter 18 of the IBC and prescriptive soil loads noted above are complied with and achievable. If the recommendations of chapter 18 of the IBC and the prescriptive soil loads noted above are not achievable, all work shall stop and the architect and structural engineer shall be notified immediately.
- The contractor shall provide for proper dewatering of excavations from surface water, ground water, seepage, etc.
- Drainage systems, including foundation, roof and surface drains, shall be installed as directed by the Geotechnical Report and IBC Section 1805.
- Vapor retarder placed below slab on grade shall conform to ASTM E 1643 and ASTM E 1745. Coordinate placement with Geotechnical Engineer and/or Architectural drawings.
- The Contractor shall provide for the installation and design of all cribbing, sheathing and shoring required to safely and adequately retain the earth banks and support any existing structures in accordance with all national, state and local safety ordinances.
- All abandoned utilities, footings, etc., that interfere with the new construction shall be removed. Notify the Structural Engineer should any foundations for existing structures be encountered that are not shown on the structural drawings.
- Footings shall be placed and estimated according to depths shown on the drawings. Excavations for footings shall be approved by the Geotechnical Engineer prior to placing the concrete and reinforcing. The Contractor shall notify the Geotechnical Engineer when the excavations are ready for inspection. The Geotechnical Engineer shall submit a letter of compliance to the Owner. Should soil encountered at these depths be not approved by the Geotechnical Engineer, **modified footing elevations or footing designs may be subject to additional engineering fees.**
- All excavations shall be properly backfilled. Footing backfill and utility trench backfill within the building perimeter shall be mechanically compacted in layers, to the approval of the Architect/Engineer. See Geotechnical report for requirements. Backfill by flooding will not be permitted.
- The Contractor shall not backfill behind retaining walls before the concrete or masonry walls have reached full design strength. The Contractor shall brace or protect all building and pit walls below grade from lateral loads until attaching forces are completely in place and have reached full design strength. The Contractor shall provide for the design, any required permits and the installation of such bracing and protection.
- Sub-base below, slabs on grade shall be supported on natural grade or structural fill as directed in the Geotechnical report or by a geotechnical engineer. Sub-grade will be compacted per the recommendations of the geotechnical engineer and no sub-grade rutting will be allowed at time of concrete placement under slabs on grade.
- Unless otherwise noted, footings shall be centered below columns or walls.
- EXISTING UTILITIES:
 - The contractor shall determine the location of all adjacent underground utilities prior to any excavation, shoring, pile driving, or pier drilling. Any utility information shown on the plans and details are approximate and not verified by the contractor. The contractor shall be responsible to provide protection of any utilities or underground structures during construction.
- NEW UTILITIES:
 - Contractor to determine the location of all new below grade utilities and coordinate placement with new footings per typical details for foundation at or adjacent to excavations and utilities.

STRUCTURAL STEEL

- Submit shop drawings to structural engineer indicating fabrication of structural steel components. Include details of cuts, connections, splices, camber, holes and other pertinent data. Include embedment drawings. Indicate welds by standard AWS symbols, distinguishing between shop and field welds and show size, length and type of each weld. Indicate type, size and length of bolts distinguish between shop and field bolts. Identify retensioned and slip-critical high strength bolted connections.
- Designing, detailing, fabrication, and erection of structural steel shall be in accordance with the American Institute of Steel Construction (latest edition and supplements). See general notes for additional information.
- Structural steel not exposed to weather shall be left unpainted unless noted otherwise in the architectural drawings and/or specifications.
- MATERIALS:
 - Structural Steel Shapes Shall Conform to the following: Structural steel "W" shapes shall comply to ASTM Standard A992.
 - Angles, plates "M" and "S" shapes, channels and bars shall comply to ASTM Standard A36, unless noted otherwise.
 - Steel pipe shall comply to ASTM Standard A53 grade B (Fy = 35 ksi).
 - Rectangular and square Hollow Structural Sections (HSS) shall comply to ASTM Standard A500 grade B (Fy = 46 ksi).
 - Round Hollow Structural Sections (HSS) shall comply to ASTM Standard A500 grade B (Fy = 42 ksi).
 - Raise - Pattern floor plates shall comply to ASTM A786.
- STEEL GRATING:
 - Steel grating by the manufacturer, supplier, or contractor designed for loads and deflections as required by the adopted code and as indicated, unless noted otherwise. As a minimum, grating is to be designed for a 300# point load, a uniform live load of 100 psf and a maximum deflection of L/360 or 1/4". Submit style and layout for approval.
- WELDING:
 - All welding shall comply to the American Welding Society Standard (AWS D1.1 and AWS D1.8). All welded joints shall be on plans as indicated by the prequalified joint details in the Structural Welding Code.
 - Weld lengths called for on plans are the net effective length required. Weld size shall be AISC minimum unless a larger size is noted. All welds shall use minimum E70XX electrodes.
 - Welding tests and inspections, see specifications.
 - Filler material covered in ANSI/AWS D1.1 TABLE 3.1.
- BOLTING:
 - Anchor bolts and rods shall conform to ASTM F1554, grade 36 unless noted otherwise.
 - Bolts shall conform to ASTM A325-N TYPE 1 less than 1 1/2" dia. uno., see also note "G" below.
 - Weather or Corrosion Resistance bolts are required to conform to A325-N Type 3.
 - Nuts shall conform to ASTM A563.
 - Washers shall conform to ASTM F436. Washers used in load transfer or subject to direct tension shall conform to ASTM F844.
 - Threaded rods shall conform to ASTM A36 uno.
 - Except as subsequently noted, high strength bolts need not be tightened beyond the snug-tight condition, as defined in section 8.1 of the specifications for structural joints using ASTM A325 or A490 Bolts. For connections subject to direct tension, connections for braced frames, and other connections shown or noted on the plans as SC (slip critical) or fully tensioned, bolts shall be tightened by one of the methods described in section 8.2 and to the minimum tension specified in section 8.2, Table 8.1.
 - Bolt holes in steel shall be 1/16" larger than nominal size of bolt used if the diameter of bolt is less than 1" and 1/8" larger than nominal size of bolt if the diameter bolt is greater than 1", except anchor bolt holes.
- ANCHOR STUDS, SHEAR STUDS, AND DEFORMED ANCHORS:
 - Shall be manufactured by Nelson Stud Welding Co. or equal.
 - Headed studs (shear and anchor) shall be made of material conforming to ASTM A108.
 - Deformed anchors shall be made of material conforming to ASTM A496.
 - Studs and anchors shall be welded according to manufacturer's recommendations. Manual arc (stick) welding of headed studs and/or deformed anchors is not allowed: Paragraphs 7.5.5 to 7.5.5.6 of AWS D1.1, are deleted.

CONCRETE

- All aspects of work pertaining to the concrete construction shall be in accordance with ACI 318-14, "Building Code Requirements for Structural Concrete" and the latest edition of "Specifications for Structural Concrete for Buildings," ACI 301, with modifications as noted on the project drawings and/or specifications.
- Concrete mix designs shall be submitted to the Structural Engineer for review. All mix designs shall be designed by a qualified testing laboratory and shall be wet stamped by a Civil Engineer licensed in the State of ID. Base design mix per compliance requirements of ACI 318-14 Section 26.4.
- Portland cement shall conform to ASTM C150 Type I or II concrete minimum, use Type V where the concrete is in contact with soil and to a height 12" min. above the soil. Concrete that will be exposed to sulfate - containing solutions shall comply with IBC Section 1904.3, Severe (S2) and Very Severe (S3) sulfate exposures as identified in the project geotechnical report, the water cement ratio shall not exceed 0.45 and shall not exceed 0.50 for Moderate (S1) sulfate exposure. Type II cement shall be used at all other locations in the structure.
- Fly ash may be used in concrete mixes. The fly ash shall conform to ASTM C618 Class F. The loss of ignition shall be limited to 2%. The addition rate for fly ash is limited to 15% of the cement weight. The contractor shall submit all certificates showing the fly ash is in accordance with the above criteria.
- Do not use concrete or grout containing chlorides.
- All concrete exposed to freeze - thaw cycles shall contain 6% +/- 1% of entrained air.
- Hard rock concrete - aggregate shall conform to all requirements and tests of ASTM C33 and project specifications. Exceptions may be used only with approval of the Structural Engineer. Provide concrete mix design with proven shrinkage characteristics of less than 0.0005 inches/inch. Lightweight concrete - aggregate shall be in accordance with ASTM C330 and project specifications. Lightweight concrete mix designs shall be tested prior to approval, for shrinkage in accordance with ASTM C157. Shrinkage shall not exceed 0.0005 inches / inch.
- Structural concrete 28-day strengths & types are as follows:

Location of Concrete	Strength, psi	Type	EXPOSURE CATEGORY/CLASS*
Lean Mix	3000	Hard Rock	F0 S0 W1 C1
Footings	4000	Hard Rock	F0 S0 W1 C1
Slab on Grade (interior)	4000	Hard Rock	F0 S0 W1 C1

*Table 19.3.1.1 - Exposure Categories and Classes

Category	Class	Condition	
Freezing and thawing (F)	F0	Concrete not exposed to freezing-and-thawing cycles	
	F1	Concrete exposed to freezing-and-thawing cycles with limited exposure to water	
	F2	Concrete exposed to freezing-and-thawing cycles with frequent exposure to water	
	F3	Concrete exposed to freezing-and-thawing cycles with frequent exposure to water and exposure to deicing chemicals	
Sulfate (S)	S0	Water-soluble sulfate (SO ₄ ²⁻) in soil, percent by mass (1)	Dissolved sulfate (SO ₄ ²⁻) in water, ppm(2)
	S1	0.10 ≤ SO ₄ ²⁻ < 0.20	150 ≤ SO ₄ ²⁻ < 1500 or seawater
	S2	0.20 ≤ SO ₄ ²⁻ ≤ 2.00	1500 ≤ SO ₄ ²⁻ ≤ 10000
In contact with water (W)	S3	SO ₄ ²⁻ > 2.00	SO ₄ ²⁻ > 10000
	W0	Concrete dry in service	Concrete in contact with water and low permeability is not required
	W1	Concrete in contact with water and low permeability is required	
Corrosion protection of reinforcement (C)	C0	Concrete dry or protected from moisture	
	C1	Concrete exposed to moisture but not to an external source of chlorides	
	C2	Concrete exposed to moisture and an external source of chlorides from deicing chemicals, salt, brackish water, seawater, or spray from these sources	

EPOXY INSTRUCTIONS FOR ANCHORING REBAR AND BOLTS

- Epoxy shall not be installed without prior approval of engineer** unless specifically detailed on the drawings.
- Bars must be deformed or threaded for the full embedment depth in epoxy.
- Over-drill bar diameter as indicated by the Epoxy Manufacturer, and to the depth indicated on the structural drawings.
- Clean hole per manufacture requirements.
- Any dirt, rust, and oil on the bars shall be removed.
- During the epoxy mixing and application process, install in strict accordance with ICC Report and the Epoxy Manufacturer's specifications exactly.
- Reinforcing dowels to be filled from the bottom are to use an epoxy gel. See also note 12.
- The following epoxy systems are acceptable for use in fully grouted masonry:
 - Hilti HIT-HY 270 – ICC ESR-4143
 - Simpson SET-3G – (ICC ESR PENDING)
 - Dewalt AC108+ GOLD – ICC ESR-3200
- NOTE: Hilti HIT-HY 270 or Simpson SET-3G may be used for hollow cell masonry assemblies pending engineer of record review and approval of each application and location.
- The following epoxy systems are acceptable for use in uncracked, cracked and seismic concrete applications:
 - Hilti HIT-HY 200 – ICC ESR-3187
 - Simpson SET-3G – ICC ESR-4057
 - Dewalt Pure 110+ – ICC ESR-3298
 - Simpson AT-3G – ICC ESR-5026
 - Hilti HIT-RE 500 V3 – ICC ESR-3814
 - Dewalt AC208+ – ICC ESR-4027
- Threaded anchor rods shall be ASTM F1554 Grade 55 unless noted otherwise.
- Use of any other epoxy in a seismic / cracked concrete location will only be considered with an approved third party evaluation report that includes recognition of earthquake resistance in accordance with the current IBC.
- Installation of adhesive anchors that are to be under sustained tension loading in horizontal to vertically overhead orientation shall be done by a certified adhesive anchor installer (AAI) as certified through ACI and in accordance with ACI 318-2014 (section 17.8.2.2). Proof of current certification shall be submitted to the engineer for approval prior to commencement of installation.
- Per ACI 318-2014 (Section 17.1.2) adhesive anchors shall be installed in concrete having a minimum age of 21 days at time of anchor installation. For installation sooner than 21 days consult adhesive manufacturer.
- If temperature of base material at time of adhesive installation is at 45 degrees (Fahrenheit) or less, an "acrylic" (cold weather) adhesive is required.

- The modulus of elasticity of concrete, shall be tested in accordance with ASTM C469 for framed concrete slabs and beams and shall be at least the value given by the equations in section 19.2.2.1 of ACI 318 for the specified concrete 28-day strength.
- All concrete shall be ready mix concrete and shall be mixed and delivered in accordance with ASTM C94 or ASTM C885.
- Dry pack or grout under baseplates, all plates, etc., see specifications. Strength requirements are as required for concrete. Minimum grout strength shall be $f_c' = 7,000$ psi.
- Concrete forms shall be laid out and constructed to provide the specified cambers indicated on the structural drawings.
- Submit shop drawings to Architect/Structural Engineer indicating locations of concrete joints for review prior to placing concrete. Place joints at locations to minimize effects of shrinkage as well as being placed at points of low stress.
- Concrete placement shall be in accordance with ACI standard 304 and project specifications. Provide keys in construction joints unless detailed otherwise. Thoroughly clean, remove laitance and thoroughly wet and remove standing water in construction joints before placing new concrete. At vertical joints, apply a thin coat of neat cement before placing new concrete.
- Roughen concrete surface to a full amplitude of 1/4 inch where masonry walls intersect concrete or where new concrete interfaces with existing concrete.
- If columns and walls are placed with a floor, two hours must elapse between end of column or wall placement and beginning of the floor placement.
- Clear coverage of concrete over reinforcing bars shall be as follows:

Location of Concrete	Minimum Concrete Cover
Concrete cast against and permanently exposed to earth	3"
Concrete exposed to earth or weather: #5 bar and smaller	1 1/2"
Slab on grade:	2" clear from top
- Prior to concrete placement, all reinforcing bars, anchor bolts and other concrete inserts shall be well secured in position.
- Mechanical pipes or electrical conduit shall not pass through concrete columns or beams unless specifically detailed.
- Unless otherwise indicated in the mechanical or electrical drawings or project specifications, mechanical pipes and electrical conduits which pass through slab on grade, concrete on steel deck, framed concrete floors and walls do not require sleeves. If sleeves are required, the sleeves shall be installed prior to placing concrete. Do not cut any reinforcing which may interfere with sleeve placement. Coring openings in concrete is not permitted. Notify the Structural Engineer in advance of conditions not shown on the structural drawings.
- With the exception of slabs on grade and concrete on steel deck, the outside diameter of mechanical pipes and/or embedded electrical conduits (other than those passing through) shall not exceed 1/3 of the slab thickness and shall be centered between the top and bottom reinforcing, unless specifically detailed otherwise. Concentrations of mechanical pipes and/or electrical conduits shall be avoided except where detailed openings are provided. Conduit and pipe shall be spaced at 3" or (3) diameters on center, whichever is larger.
- For slabs on grade and concrete on steel deck no pipes or conduits shall be placed within the indicated concrete slab thickness and shall be located below the slab unless specifically detailed otherwise.
- The projecting corners of columns, beams, and walls, etc., shall be formed with a 3/4 in. chamfer, unless otherwise noted on architectural drawings or specifications.
- Maintain concrete above 50 degrees Fahrenheit and in a moist condition for a minimum of 7 days after placement unless otherwise accepted by Architect/Structural Engineer.
- Any curing compounds used on concrete that is to receive a resilient tile finish shall be approved by the Finish Applicator before use.
- Shoring and re-shoring of elevated members shall be designed and submitted for approval of engineer.
- Contractor to coordinate floor flatness and levelness with architectural drawings and/or equipment manufacturer's requirements. The following table may be used as a minimum:

Composite flatness, FF	Composite levelness, FL	Typical applications
20	15	Noncritical: mechanical rooms, nonpublic areas, surfaces to have thick-set tile, parking structure slabs
25	20	Controlled areas of commercial office buildings or lightly-trafficked office/industrial buildings

REINFORCING STEEL (FOR CONCRETE)

- All reinforcing steel shall be detailed and placed in accordance with the "Building Code Requirements for Reinforced Concrete" (ACI 318) and the Manual of Standard Practice for Reinforced Concrete Construction by CRSI and WCRSI as modified by the project drawings and specifications.
- Deformed reinforcing bars shall conform to the requirements of ASTM A615 grade 60 and ASTM A706 grade 60 for deformed weldable bars.
- Welding of reinforcing is permitted only where shown on the drawings or when approved by the structural engineer. Welding of reinforcing bars shall be with low hydrogen electrodes in accordance with the "Recommended Practices for Welding Reinforcing Steel, Etc." American Welding Society, AWS D1.4 and IBC table 1705.3.2 all reinforcing to be welded shall conform to ASTM A706 grade 60 uno.
- All reinforcing bar bends shall be made cold.
- Lap splices made at locations other than those specifically indicated on the drawings shall require approval by engineer prior to any fabrication or construction activities.
- Reinforcing dowels between footings and walls or columns shall be the same number, size, spacing and grade as the specified vertical reinforcing, uno.
- All reinforcing bars shall be marked so their identification can be made when the final in-place inspection occurs.
- Welded wire fabric shall conform to ASTM A1064.
- Minimum lap of welded wire fabric shall be 6 inches or one full mesh and one half, whichever is greater.
- Submit shop drawings to structural engineer: Placing drawings that detail fabrications, bending, and placement, include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.

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**STRUCTURAL
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QUALITY ASSURANCE AND SPECIAL INSPECTION

1. Quality Assurance for General Construction
- A. Testing Laboratory: Retained by owner and satisfactory to Architect/Structural Engineer and governing code authority to perform required tests and inspections of this contract and applicable code.
- B. Material Certification: Submit laboratory test reports certifying materials are of identifiable tested stock to owner, testing laboratory, Architect/Structural Engineer and, upon request, to governing code authority. If laboratory test reports cannot be made available, testing laboratory will perform tests as directed by Architect/Structural Engineer. Contractor shall pay testing laboratory for costs related to tests and inspections of unidentifiable materials or materials furnished without laboratory test reports, materials found deficient after initial tests and inspections, or materials replacing deficient materials.
- C. Special inspection in accordance with the requirements of IBC section 1704 and 1705 shall be required for items indicated on special inspection tables on this sheet.

2018 IBC SPECIAL INSPECTION TABLES

IBC 2018 - Section	IBC 2018 - Task	IBC 2018 - Inspection Type	IBC 2018 - Description
INSPECTION DEFINITIONS:			
Perform	Perform these tasks for each weld, fastener, or bolted connection and noted verification		
Observe	Observe these items on a random basis during the course of each work day to insure that applicable requirements of the code are being met. Operations need not be delayed pending these inspections at contractor's risk		
Document	Document, with a report that the work has been performed in accordance with the contract documents. This is in addition to any other reports required in the Special Inspection guide specifications		
Continuous	The full-time observation of work requiring special inspection by an approved special inspector who is in the area where the work is being performed		
Periodic	The part-time or intermittent observations of work requiring special inspection by an approved special inspector who is present in the area where the work has been or is being performed and at the completion of the work		
STRUCTURAL - STEEL - WELDING SECTION			
STEEL INSPECTION PRIOR TO WELDING - Verify the following are in compliance with IBC 1705.2.1, AISC 360-16; Table C-N5.4-1			
1	Verify that the welding procedures specifications (WPS) is available	Perform	
2	Verify manufacturer certifications for welding consumables are available	Perform	
3	Verify material identification	Perform	Type and Grade
4	Welder identification system	Perform	
STEEL INSPECTION DURING WELDING - Verify the following are in compliance with IBC 1705.2.1, AISC 360-16; Table C-N5.4-2			
8	Use of qualified welders	Perform	Welding by welders, welding operators, and tack welders who are qualified in conformance with requirements
9	Control and handling of welding consumables	Observe	• Packaging • Electrode atmospheric exposure control
10	No welding over racked tack welds	Observe	
11	Environmental conditions	Observe	• Wind speed within limits • Precipitation and temperature
12	Welding procedures specification followed	Observe	• Settings on welding equipment • Travel speed • Selected welding materials • Shielding gas type / flow rate • Preheat applied • Interpass temperature maintained (min. / max.) • Proper position (F, V, H, OH) • Intermix of filler metals avoided
13	Welding techniques	Observe	• Interpass and final cleaning • Each pass within profile limitations • Each pass meets quality requirements
STEEL INSPECTION AFTER WELDING - Verify the following are in compliance with IBC 1705.2.1, AISC 360-16; Table C-N5.4-3			
14	Welds Cleaned	Observe	
15	Size, length, and location of all welds	Perform	Size, length, and location of all welds conform to the requirement of the detail drawings
16	Welds meet visual acceptance criteria	Perform and Document	• Crack prohibition • Weld / base-metal fusion • Crater cross section • Weld profiles • Weld size • Undercut
17	Arc strikes	Perform	
18	k-area	Perform	When welding of doubler plates, continuity plates, or stiffeners has been performed in the k-area visually inspect the web k-area for cracks
19	Backing removed, weld tabs removed and finished, and fillet welds added where required	Perform	
20	Repair activities	Perform and Document	
21	Document acceptance or rejection of welded joint or member	Perform	
STRUCTURAL - STEEL - BOLTING SECTION			
STEEL INSPECTION TASKS PRIOR TO BOLTING - Verify the following are in compliance with IBC 1705.2.2, AISC 360-16; Table C-N5.6-1			
1	Manufacturer's certifications available for faster materials	Perform	
2	Fasteners marked in accordance with ASTM requirements	Observe	
3	Proper fasteners selected for joint detail (grade, type, bolt length, if threads are to be excluded from shear plane)	Observe	
4	Proper bolting procedure selected for joint detail	Observe	
5	Connection elements, including appropriate faying surface condition and hole preparation, if specified, meet applicable requirements	Observe	
6	Proper storage provided for bolts, nuts, washers, and other fastener components	Observe	
STEEL INSPECTION TASKS DURING BOLTING - Verify the following are in compliance with IBC 1705.2.1, AISC 360-16; Table C-N5.6-2			
7	Fastener assemblies of suitable condition, placed in all holes and washers (if required) are positioned as required	Observe	
8	Joint brought to the snug-tight condition prior to pretensioning operation	Observe	
9	Fastener component not turned by the wrench prevented from rotating	Observe	
10	Bolts are pretensioned in accordance with RCSC Specification, progressing systematically from the most rigid point toward the free edges	Observe	
STEEL INSPECTION TASKS AFTER BOLTING - Verify the following are in compliance with IBC 1705.2.1, AISC 360-16; Table C-N5.6-3			
11	Document acceptance or rejection of all bolted connections	Document	
STRUCTURAL - STEEL - OTHER INSPECTIONS			
OTHER STEEL INSPECTIONS - Verify the following are in compliance with IBC 1705.2.1, AISC 341-16; Tables J8-1 and J10-1			
1	Anchor rods and other embedments supporting structural steel	Perform	Verify the diameter, grade, type, and length of the anchor rod or embedded item, and the extent or depth of embedment prior to placement of concrete
STRUCTURAL - CONCRETE CONSTRUCTION SECTION			
CONCRETE CONSTRUCTION, INCLUDING COMPOSITE DECK - Verify the following are in compliance with IBC Table 1705.3 (ACI 318 references noted in IBC Table)			
1	Inspect reinforcement, and verify placement	Periodic	Verify prior to placing concrete that reinforcing is of specified type, grade, and size; that it is free of oil, dirt, and unacceptable rust; that it is located and spaced properly; that hooks, bends, ties, stirrups, and supplemental reinforcement are placed correctly; that lap lengths, stagger and offsets are provided; and that all mechanical connections are installed per the manufacturer's instruction and / or evaluation report
2	Inspect anchors cast in concrete	Periodic	Verify prior to paving concrete that cast in place anchors and post installed drilled anchors have proper embedment, spacing, and edge distance
3	Inspect anchors post-installed in hardened concrete members	• Continuous and Document • Periodic	(a) Adhesive anchors installed in horizontally or upward inclined orientations to resist sustained tension loads. (b) Mechanical anchors and adhesive anchors not defined in 4a
4	Verify use of required mix design	Periodic	Verify that all mixes used comply with the approved construction documents
5	Prior to concrete placement, fabricate specimens for strength tests, perform slump and air content tests, and determine the temperature of the concrete	Continuous	At the time fresh concrete is sampled to fabricate specimens for strength test, verify these tests are performed by qualified technicians
6	Inspect concrete and shotcrete placement for proper application techniques	Continuous	Verify proper application techniques are used during concrete conveyance and depositing avoids segregation or contamination. Verify that concrete is properly consolidated
7	Verify maintenance of specified curing temperature and technique	Periodic	Inspect curing, cold weather protection, and hot weather protection procedures
8	Inspect formwork for shape, location, and dimensions of the concrete member being formed	Periodic	
GEOTECHNICAL - SOILS INSPECTION SECTION			
SOILS INSPECTION - Verify the following are in compliance with IBC Table 1705.6			
1	Materials below shallow foundations are adequate to achieve the design bearing capacity	Periodic	
2	Excavations are extended to proper depth and have reached proper material	Periodic	
3	perform classification and testing of compacted fill materials	Periodic	
4	Verify use of proper materials, densities and lift thicknesses during placement and compaction of compacted fill	Continuous	
5	Prior to placement of compacted fill, inspect subgrade and verify that site has been prepared properly	Periodic	During fill placement, the special inspector shall verify that proper materials and procedures are used in accordance with the provisions of the approved geotechnical report

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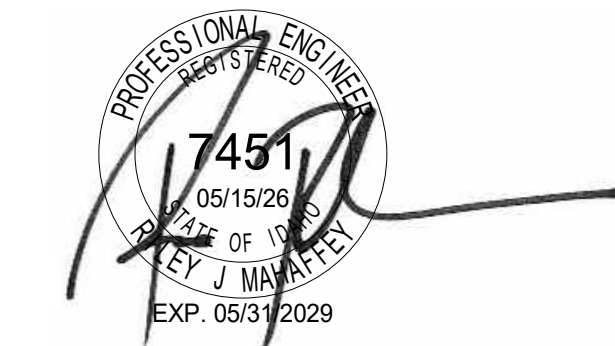
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**SPECIAL
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TABLES (2018)**

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OVERALL PLANS

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OVERALL PLAN NOTES

1. For structural design notes, see sheets starting at S0.01.
2. Architectural backgrounds are shown for reference only. The dimensions shown apply to structural elements only. For dimensions not shown, see architect of record submittal.
3. Contractor shall field verify existing structural conditions. If any discrepancies are found, contractor shall contact the Architect and Structural Engineer before performing alteration work.
4. For additional information not shown, see plans.

AREA-A

1 / S1.01

1 OVERALL FOUNDATION PLAN
1/16" = 1'-0"

$$1/16'' = 1'-0''$$

AREA-A

1 / S1.02

2 MEZZANINE FRAMING PLAN

$$1/16'' = 1'-0''$$

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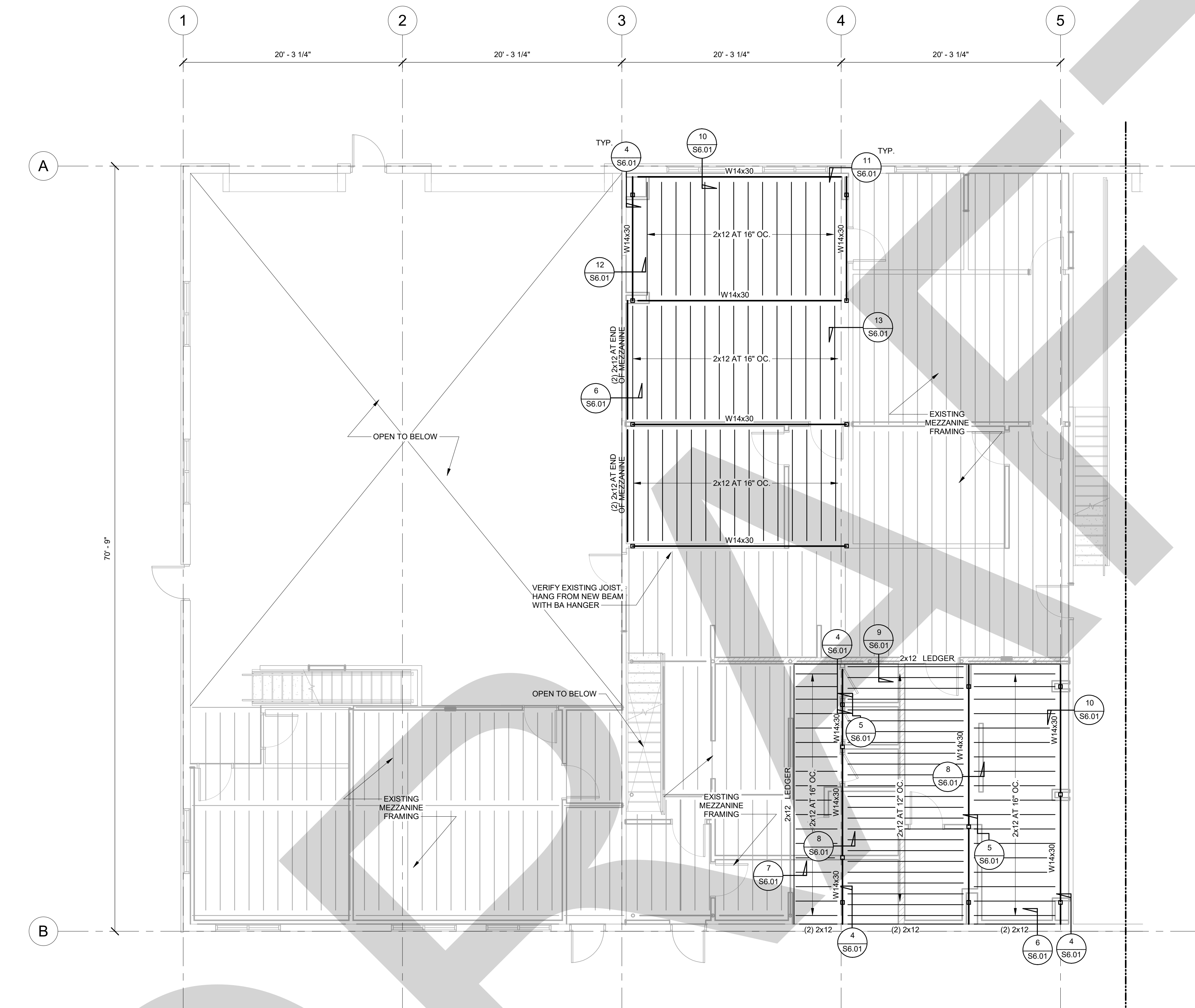


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1 MEZZANINE FRAMING PLAN
3/16" = 1'-0"

FLOOR FRAMING PLAN NOTES

- For structural design notes, see sheets starting at S0.01.
- Top of concrete floor reference elevation = 100'-0" typical unless noted.
- All structural walls shown on this plan are located below the floor framing.
- For general framing details, see sheets S5.11 thru S5.53.
- Denotes deck direction.
- Denotes header, see schedule on - / - - -
- Floor Deck
1 1/8" APA T&G sheathing 40/20 (sub-floor)
Nailing patterns
10d at 6" oc., all panel edges
10d at 12" oc., at intermediate supports stagger panel joints. For additional information, see - / - - -

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Phone (208) 342-7168
I.E. JOB #24LO04042

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CONSENT OF LOCHSA ENGINEERING.

APPROVAL AREA

DESCRIPTION

DATE

MRK

JOB NO.:

DATE:

DRAWN BY:

CHECKED BY:

PHASE:

100% CD

**MEZZANINE
FRAMING PLANS**

SHEET NO.

S1.02

MECHANICAL ABBREVIATIONS			
AC or AC	AIR CONDITIONING	KW	KILOWATT
AF	ABOVE FINISHED FLOOR	KWH	KILOWATT HOUR
AHU	AIR HANDLING UNIT	LAT	LEAVING AIR TEMPERATURE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION, AND AIR CONDITIONING ENGINEERS	LAV	LAVATORY
BTU	BRITISH THERMAL UNITS	LEED	LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN
BTUH	BTUS PER HOUR	LWT	LEAVING WATER TEMPERATURE
CA	COMBUSTION AIR	MAX	MAXIMUM
CC	COOLING COIL	MCA	MINIMUM CIRCUIT AMPS
CFM	AIR FLOW RATE (CUBIC FEET PER MINUTE)	MOCP	MAXIMUM OVERCURRENT PROTECTION
CHW	CHILLED WATER RETURN	MIN	MINIMUM
CHWS	CHILLED WATER SUPPLY	NC	NOISE CRITERIA
CLG	CEILING	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
CW	COLD WATER	NTS	NOT TO SCALE
DEG or °	DEGREE	OSA	OUTSIDE AIR
DIA or Ø	DIAMETER	PD	PRESSURE DROP
DB	DRY BULB	PH or Ø	PHASE
EA	EXHAUST AIR	PRV	PRESSURE REDUCING VALVE
EAT	ENTERING AIR TEMPERATURE	RA	RETURN AIR
EER	ENERGY EFFICIENCY RATIO	RFM	REVOLUTIONS PER MINUTE
ESP	EXTERNAL STATIC PRESSURE	RTU	ROOFTOP UNIT
EW	ENTERING WATER TEMPERATURE	SA	SUPPLY AIR
FCO	FLOOR CLEANOUT	SEER	SEASONAL ENERGY EFFICIENCY RATIO
FD	FIRE DAMPER	SFD	COMBINATION SMOKE/FIRE DAMPER
FLA	FULL LOAD AMPS	SP	STATIC PRESSURE
FLR	FLOOR	SYM	SYMBOL
FBM	FEET PER MINUTE	T & P	TEMPERATURE AND PRESSURE
FT	FEET	TEMP	TEMPERATURE
GA	GAUGE	TYP	TYPICAL
GCO	GRADE CLEANOUT	UMC	UNIFORM MECHANICAL CODE
GPM	WATER FLOW RATE (GALLONS PER MINUTE)	UPC	UNIFORM PLUMBING CODE
HC	HEATING COIL	URL	URINAL
HP	HORSE POWER	V	VOLTS
HVAC	HEATING, VENTILATING, AIR CONDITIONING	VTR	VENT THROUGH ROOF
HW	HOT WATER	W	WITH
HWR	HOT WATER RETURN	WBS	WET BULB
HWS	HOT WATER SUPPLY	WC	WATER CLOSET
IBC	INTERNATIONAL BUILDING CODE	WOD	WALL CLEANOUT
IECC	INTERNATIONAL ENERGY CONSERVATION CODE	WH	WATER HEATER
IFC	INTERNATIONAL FIRE CODE		
IMC	INTERNATIONAL MECHANICAL CODE		
IPC	INTERNATIONAL PLUMBING CODE		
NOTE: THIS IS A STANDARD LIST OF COMMONLY USED MECHANICAL ABBREVIATIONS. SOME OF THE ABBREVIATIONS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.			

MECHANICAL GENERAL NOTES	
1.	ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE (IMC) LATEST EDITION, AND ALL APPLICABLE LOCAL AND STATE CODES.
2.	ALL PLUMBING EQUIPMENT AND SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST ADOPTED PLUMBING CODE, AND ALL LOCAL AND STATE CODES.
3.	ALL MECHANICAL AND PLUMBING EQUIPMENT SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS.
4.	MECHANICAL CONTRACTORS SHALL RECEIVE PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER BEFORE MAKING CUTS THROUGH ANY STRUCTURAL MEMBER.
5.	MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH CONSTRUCTION SUPERVISOR AND WITH ALL OTHER TRADES TO AVOID CONFLICTS.
6.	THE MECHANICAL CONTRACTORS SHALL COORDINATE INSTALLATION WITH THE ELECTRICAL DRAWINGS PRIOR TO ORDERING MOTORIZED EQUIPMENT AND CONTROLS.
7.	SEE MECHANICAL SCHEDULE SHEET FOR SCHEDULED CAPACITIES OF ALL MECHANICAL EQUIPMENT AND MATERIALS SPECIFIED.
8.	DOMESTIC WATER SERVICE IS PROVIDED WITH AN APPROVED BACKFLOW PREVENTER ASSEMBLY.
9.	THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR ALL BACKFLOW DEVICES TO BE INSPECTED BY A CERTIFIED BACKFLOW TECHNICIAN BEFORE THE USE OF THE BUILDING POTABLE WATER SYSTEM.
10.	ALL MECHANICAL EQUIPMENT TO BE PROPOSED MUST BE ON THE APPROVED LIST PRIOR TO SUBMITTALS. ALL APPROVED MANUFACTURERS MUST BE CAPABLE OF MEETING THE REQUIREMENTS OF THE SPECIFIED EQUIPMENT.
11.	RUNOUT AND HOOKUP SIZES TO INDIVIDUAL PLUMBING FIXTURES CAN BE FOUND ON THE PLUMBING FIXTURE SCHEDULE.
12.	PROVIDE REMOTE CEILING ACCESS BALANCE DAMPERS WITH CONCEALED CHROME PLATE COVERS FOR BALANCE DAMPERS LOCATED ABOVE HARD CEILINGS.
13.	PAINT VTRS, FLUES, EXHAUST CAPS, AND OTHER MECHANICAL ITEMS ON THE ROOF TO MATCH THE ROOF COLOR.
14.	INSULATED FLEXIBLE DUCTWORK-IN LENGTHS OF 6'-0" OR LESS-MAY BE USED FOR RUNOUTS TO AIR TERMINALS.
15.	MAINTAIN MINIMUM 10'-0" DISTANCE BETWEEN ALL FRESH AIR INTAKES AND EXHAUST OR GAS FLUE DISCHARGES.
16.	LOCATE ACCESS HATCHES SO AS TO PROVIDE OPTIMUM SERVICEABILITY TO EQUIPMENT AND/OR VALVING. SEE ARCHITECTURAL SPECIFICATION FOR TYPE AND COLOR. COORDINATE LOCATION WITH ARCHITECTURAL, STRUCTURAL, AND LIGHTING.
17.	WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT PIPE OR DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO PIPE OR DUCT SIZES.
18.	THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR VERIFICATION OF EXISTING JOB CONDITIONS PRIOR TO BID. NO ADDITIONAL COST SHALL BE AWARDED TO THE SUCCESSFUL CONTRACTOR (OR THEIR SUBS) FACTORS AFTER BIDS HAVE BEEN SUBMITTED AND CONTRACTS AWARDED FOR FAILURE TO VERIFY EXISTING FIELD CONDITIONS. DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND CONTRACT DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER FOR ALTERNATIVE METHODS OF INSTALLATION PRIOR TO THE BIDDING OF THIS PROJECT.
19.	UNLESS OTHERWISE NOTED, ALL EXISTING MECHANICAL EQUIPMENT, PIPING, ETC, TO BE REMOVED SHALL BE DISPOSED OF BY THE CONTRACTOR UNDER THIS CONTRACT. THE OWNER SHALL RETAIN THE RIGHT TO KEEP ANY REMOVED ITEMS.
20.	ALL DOMESTIC HOT AND COLD WATER LINES IN THE AREA OF WORK WHICH ARE NO LONGER IN USE DUE TO THIS PROJECT SHALL BE REMOVED HOT AND COLD WATER LINES IN THE AREA OF WORK WHICH ARE NO LONGER IN USE DUE TO THIS PROJECT SHALL BE REMOVED OR ADDED DURING THIS PROJECT.
21.	Holes in existing walls or floors shall be patched to match existing where piping, ductwork, etc. were removed or added during this project.
22.	DAMAGE TO THE EXISTING FACILITY DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE REPAIRED OR REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER.

MUSGROVE ENGINEERING, PA 234 S. WHISPERWOOD WAY BOISE, IDAHO 83709													
Zone Summary													
PROJECT:	Moscow City Shop TI			Design Conditions	Winter	0	Summer	92.4					
COMPUTED BY:	JD			DATE:	15-May-26			CHK BY:	0				
Zone Reference	FLOOR SQ. FT.	Heating Load		Sensible Cooling Load	Total Cooling Load	NOMINAL TON (12000-BTU/HOUR)	SQ. FT PER NOMINAL TON	NUMBER OF PEOPLE	OSA	EXHAUST	TONS		Unit Selection Size
		BTUH	KW		BTUH								
1 Street/Storm Supervisor 101	200	6,408	1.9	4,813	5,094	0.4	471.2	1	21	0			
2 Breakroom	375	12,854	3.8	9,954	13,320	1.1	337.8	12	103	0			
3 Restroom/Hall	1060	16,179	4.8	6,278	0	0.6	2026.1	0	90	0			
4 Lockeroom	350	4,290	1.3	1,691	1,691	0.1	2483.7	0	0	88			
5 Supervisor 112	160	1,990	0.6	1,694	1,975	0.2	972.3	1	18	0			
6 Supervisor 113	150	1,941	0.6	1,668	1,949	0.2	954.4	1	18	0			
7 Open Office 114	275	5,892	1.7	6,626	8,309	0.7	397.2	6	58	0			
8 Open Office 115	485	11,416	3.3	11,054	13,578	1.1	411.0	9	91	0			
9 Garage Space	2915	153,096	44.6	50,557	50,557	4.2	691.9	0	1200	0			
Total Loads =		5985	215.085	62.4	94,336	102,751	8.6	696.5	30	1589	88		
Energy Compliance Calculations (Not Equipment Schedule)													
Equipment is selected based on next available size													
Load calculations based on ASHRAE CLTD/CLF - Cooling Load Temperature Difference/Cooling Load Factor Methods													

MECHANICAL AND PLUMBING DRAWINGS LEGEND			
	FLEXIBLE DUCTWORK		THREE WAY CONTROL VALVE
	DUCTWORK BREAK		TWO WAY CONTROL VALVE
	DUCTWORK OR PIPING RISE		PRESSURE REDUCING VALVE
	CONCENTRIC SQUARE TO ROUND TRANSITION		GATE VALVE
	MOTORIZED DAMPER		REDUCER
	MANUAL VOLUME DAMPER		GLOBE VALVE
	SPIN-IN FITTING W/ AIR EXTRACTOR AND HAND DAMPER		BALL VALVE
	AIRFLOW		BUTTERFLY VALVE
	AIRFLOW		BALANCE VALVE
	SWITCH		CHECK VALVE
	THERMOSTAT		FLOOR CLEANOUT
	HUMIDISTAT		WALL CLEANOUT
	TEMPERATURE SENSOR		GRADE CLEANOUT
	CARBON DIOXIDE SENSOR		WATER HAMMER ARRESTOR
	CARBON MONOXIDE SENSOR		FLOOR DRAIN
	NITROUS OXIDE SENSOR		FLOOR SINK
	DUCT SMOKE DETECTOR		GAS PRESSURE REGULATOR W/ GAS COCK
	COMBINATION SMOKE/FIRE DAMPER		PRESSURE RELIEF VALVE
	FIRE DAMPER		VENT-THROUGH-ROOF
	SMOKE DAMPER		VENT
	EQUIPMENT CALLOUT		SOIL, WASTE, OR SANITARY SEWER
	TURNING VANES		ACID WASTE LINE
	INTAKE OR EXHAUST		ACID VENT LINE
	DIRECTION OF AIRFLOW		STORM DRAIN
	SUPPLY DIFFUSER		ROOF DRAIN LINE
	RETURN GRILLE		OVERFLOW DRAIN LINE
	EXHAUST GRILLE		CONDENSATE DRAIN LINE
	FLOOR GRILLE		DOMESTIC COLD WATER (CW)
	CEILING EXHAUST FAN		DOMESTIC HOT WATER (HW)
	TEMPERATURE GAUGE		DOMESTIC HOT WATER RETURN (HWR)
	PRESSURE GAUGE (LIQUID FILLED W/ ISOLATION VALVE)		TEMPERED WATER (TW)
	TEMPERATURE SENSOR (DUCT OR PIPING)		MEDIUM PRESSURE NATURAL GAS
	FLOW SWITCH		LOW PRESSURE NATURAL GAS
	STAINLESS STEEL BRAIDED FLEX CONNECTION		FIRE SPRINKLER LINE
	ELASTOMERIC FLEX CONNECTOR		GEO THERMAL WATER SUPPLY
	SUCTION DIFFUSER		GEO THERMAL WATER RETURN
	Y TYPE STRAINER (1/12" OR LARGER PROVIDED W/ BLOW DOWN VALVE)		CHILLED WATER SUPPLY
	FLOW DIRECTION		CHILLED WATER RETURN
	DEMOLITION / EQUIPMENT TO BE REMOVED		CONDENSER WATER SUPPLY
	NEW TO EXISTING CONNECTION POINT		CONDENSER WATER RETURN
	EXISTING		HEATING WATER SUPPLY
	FUTURE		HEATING WATER RETURN
	NEW		LIQUID REFRIGERANT LINE
	REDUCED PRESSURE BACKFLOW PREVENTER		SUCTION REFRIGERANT LINE
	DOUBLE CHECK BACKFLOW PREVENTER		SLOPE PIPE IN DIRECTION OF ARROW
	UNION		PIPE ANCHOR
	AIR VENT		PIPE GUIDE
	TRIPLE DUTY VALVE		CAP
NOTE: THIS IS A LIST OF COMMONLY USED MECHANICAL AND PLUMBING SYMBOLS. SOME OF THE SYMBOLS SHOWN ABOVE MAY NOT BE USED IN THIS DRAWING PACKAGE.			

ENERGY CODE COMPLIANCE	
A.	COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL ENERGY CONSERVATION CODE IS REQUIRED FOR THIS PROJECT. THESE NOTES COVER MANDATORY REQUIREMENTS OF THE CODE. ADDITIONAL REQUIREMENTS ARE NOTED ON THE DRAWINGS AND IN THE SPECIFICATIONS.
B.	MINIMUM REQUIREMENTS FOR SUPPLY AND RETURN DUCTWORK INSULATION: R-6: DUCTS LOCATED IN DIRECTLY OR INDIRECTLY CONDITIONED SPACES INSIDE THE BUILDING THERMAL ENVELOPE (SUCH AS ABOVE A CEILING, IN A WALL, IN A SOFFIT, OR IN A CHASE/SHAFT). R-12: DUCTS LOCATED OUTSIDE THE BUILDING THERMAL ENVELOPE (SUCH AS IN A COLD ATTIC OR ON THE ROOF).
C.	CONTRACTOR SHALL VERIFY WITH THE MANUFACTURER, THE R-VALUES OF THE ACTUAL INSULATION USED. R-VALUES SHALL BE INSTALLED VALUES.
D.	WHERE DUCTS USED FOR COOLING ARE EXTERNALLY INSULATED, THE INSULATION SHALL BE COVERED WITH A VAPOR RETARDER HAVING A MAXIMUM PERMEANCE OF 0.05 PERM OR ALUMINUM FOIL HAVING A MINIMUM THICKNESS OF 2 MILS. INSULATION HAVING A PERMEANCE OF 0.05 PERMS OR LESS SHALL NOT BE REQUIRED TO BE COVERED. ALL JOINTS AND SEAMS SHALL BE SEALED TO MAINTAIN THE CONTINUITY OF THE VAPOR RETARDER.
E.	ALL DUCT JOINTS, SEAMS, AND CONNECTIONS SHALL BE FASTENED AND SEALED WITH WELDS, GASKETS, ADHESIVES, MASTIC, PLUS-EMBEDDED FABRIC SYSTEMS, OR TAPES. TAPES AND MASTICS SHALL BE LISTED AND LABELED PER UL 181A OR UL 181B. DUCT TAPE IS NOT PERMITTED AS A SEALANT ON ANY METAL DUCTS. DUCT CONNECTIONS TO FLANGES OR EQUIPMENT SHALL BE SEALED AND MECHANICALLY FASTENED.
F.	MINIMUM REQUIREMENTS (THICKNESS) FOR PIPING INSULATION: REFER TO PROJECT SPECIFICATIONS.
G.	DOMESTIC HOT WATER PIPING SYSTEMS SHALL BE INSULATED WITH 1" INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU-INCH/HOUR-FT ² -°F.
H.	DOMESTIC WATER HEATERS WHICH ARE NOT PROVIDED WITH INTEGRAL HEAT TRAPS AND SERVE NONCIRCULATING SYSTEMS SHALL BE PROVIDED WITH HEAT TRAPS ON THE SUPPLY AND DISCHARGE PIPING AT THE WATER HEATER.
I.	DOMESTIC HOT WATER SYSTEMS WITH RECIRCULATION PUMPS OR ELECTRIC HEAT TRACE SHALL BE CONTROLLED WITH 7-DAY TIME CLOCKS.
J.	AN OPERATING AND MAINTENANCE MANUAL SHALL BE PROVIDED PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY. THE O&M MANUAL SHALL CONTAIN THE FOLLOWING INFORMATION AS A MINIMUM: a. EQUIPMENT CAPACITY (INPUT & OUTPUT). b. EQUIPMENT OPERATING AND MAINTENANCE INSTRUCTIONS. c. CONTROL SYSTEM MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SEQUENCES. d. CONTROL SYSTEM SETPOINTS SHALL BE SHOWN ON CONTROL DRAWINGS, AT CONTROL DEVICES, OR IN PROGRAMMING COMMENT ON DDC SYSTEMS. e. A COMPLETE WRITTEN NARRATIVE ON HOW EACH MECHANICAL SYSTEM IS INTENDED TO OPERATE.



COMcheck Software Version 4.1.5.5 Mechanical Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Moscow City Shop TI
Location: Moscow, Idaho
Climate Zone: 5b
Project Type: New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Credits: 1.0 Required: 0.0 Proposed

Mechanical Systems List

Quantity System Type & Description

- 3 ton (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 33 kBtu/h
Proposed Efficiency = 9.50 HSPF, Required Efficiency = 8.20 HSPF
Cooling Mode: Capacity = 34 kBtu/h
Proposed Efficiency = 20.00 SEER, Required Efficiency = 14.00 SEER
Fan System: None
- 1.5 ton (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 18 kBtu/h
Proposed Efficiency = 10.00 HSPF, Required Efficiency = 8.20 HSPF
Cooling Mode: Capacity = 17 kBtu/h
Proposed Efficiency = 21.00 SEER, Required Efficiency = 14.00 SEER
Fan System: None
- 0.75 ton (Single Zone):
Split System Heat Pump
Heating Mode: Capacity = 11 kBtu/h
Proposed Efficiency = 10.00 HSPF, Required Efficiency = 8.20 HSPF
Cooling Mode: Capacity = 9 kBtu/h
Proposed Efficiency = 21.00 SEER, Required Efficiency = 14.00 SEER
Fan System: None
- 1 Water Heater 1:
Electric Storage Water Heater, Capacity: 60 gallons w/ Circulation Pump
Proposed Efficiency: 0.84 SL, %/h (E > 12 kW), Required Efficiency: 0.84 SL, %/h (E > 12 kW)

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Jake David

Name - Title

Signature

05/15/26
Date

Project Title: Moscow City Shop TI
Data filename: F:\Files\2025\25086\CALCS\Mech Com Check.cck

Report date: 05/15/26
Page 1 of 13

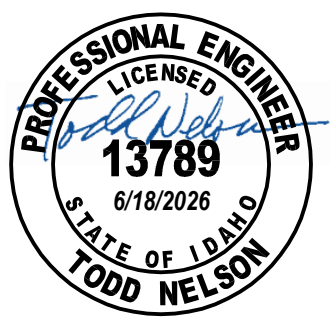
LOMBARD
CONRAD
ARCHITECTS

ARCHITECTURE | PLANNING
INTERIOR DESIGN

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STAMP:



MOSCOW CITY
SHOP - EXISTING
SHOP TI

CITY OF MOSCOW

CONSULTANTS:

ELECTRICAL ENGINEER

EIDAM AND ASSOCIATES

291 E SHORE DR., SUITE 210
EAGLE, IDAHO 83616
(208) 345-7127

MECHICAL ENGINEER

MUSGROVE ENGINEERING P.A.

234 S. WHISPERWOOD WAY
BOISE, IDAHO 83709
(208) 384-0565

STRUCTURAL ENGINEER

LOCHSA ENGINEERING

201 N. MAPLE GROVE RD., SUITE 100
BOISE, IDAHO 83704
(208) 342-7168

DESCRIPTION

DATE

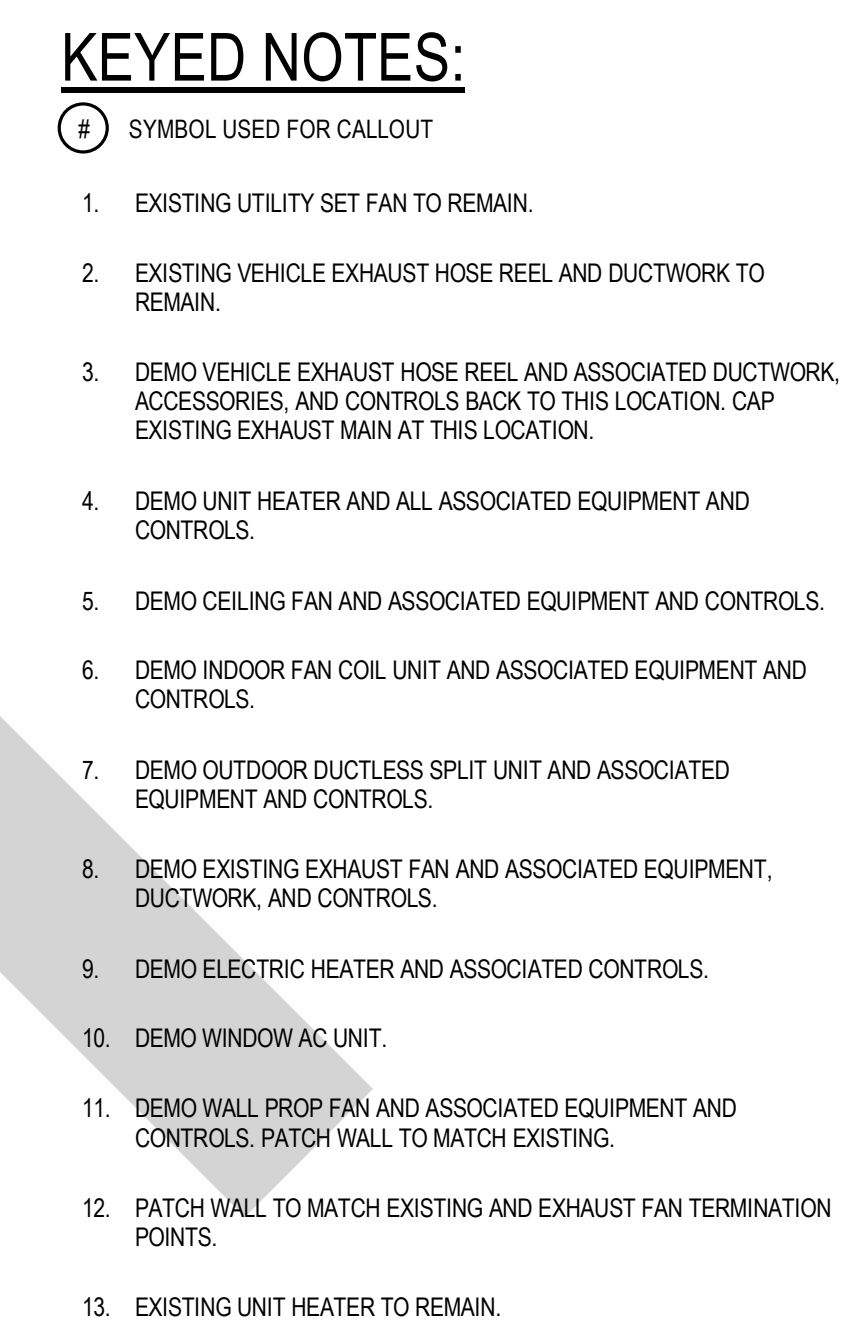
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PHASE: CONSTRUCTION DOCUMENTS

MECHANICAL
COVER SHEET

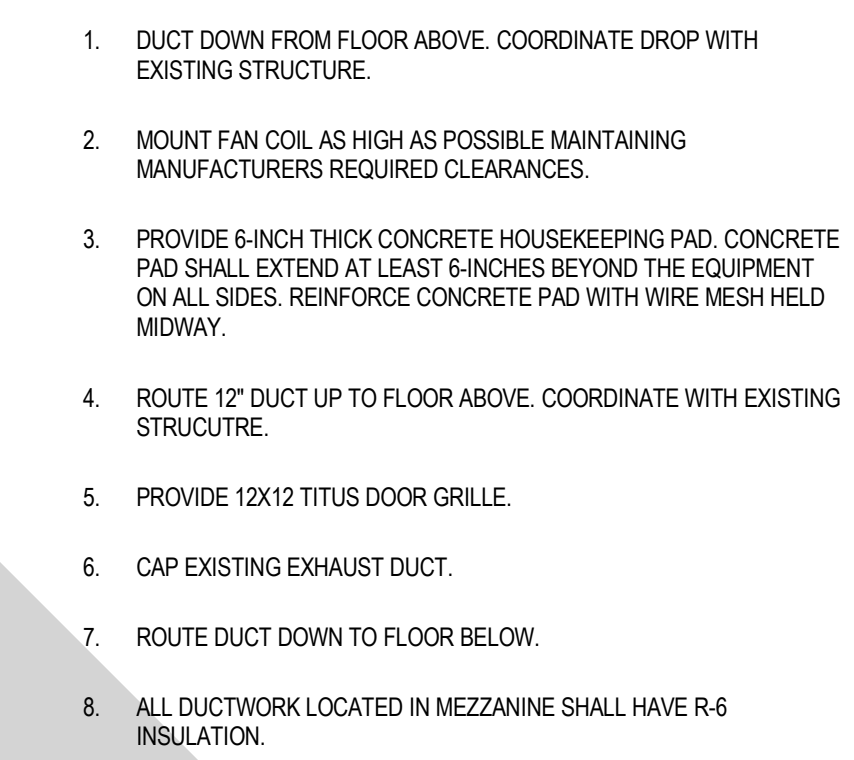
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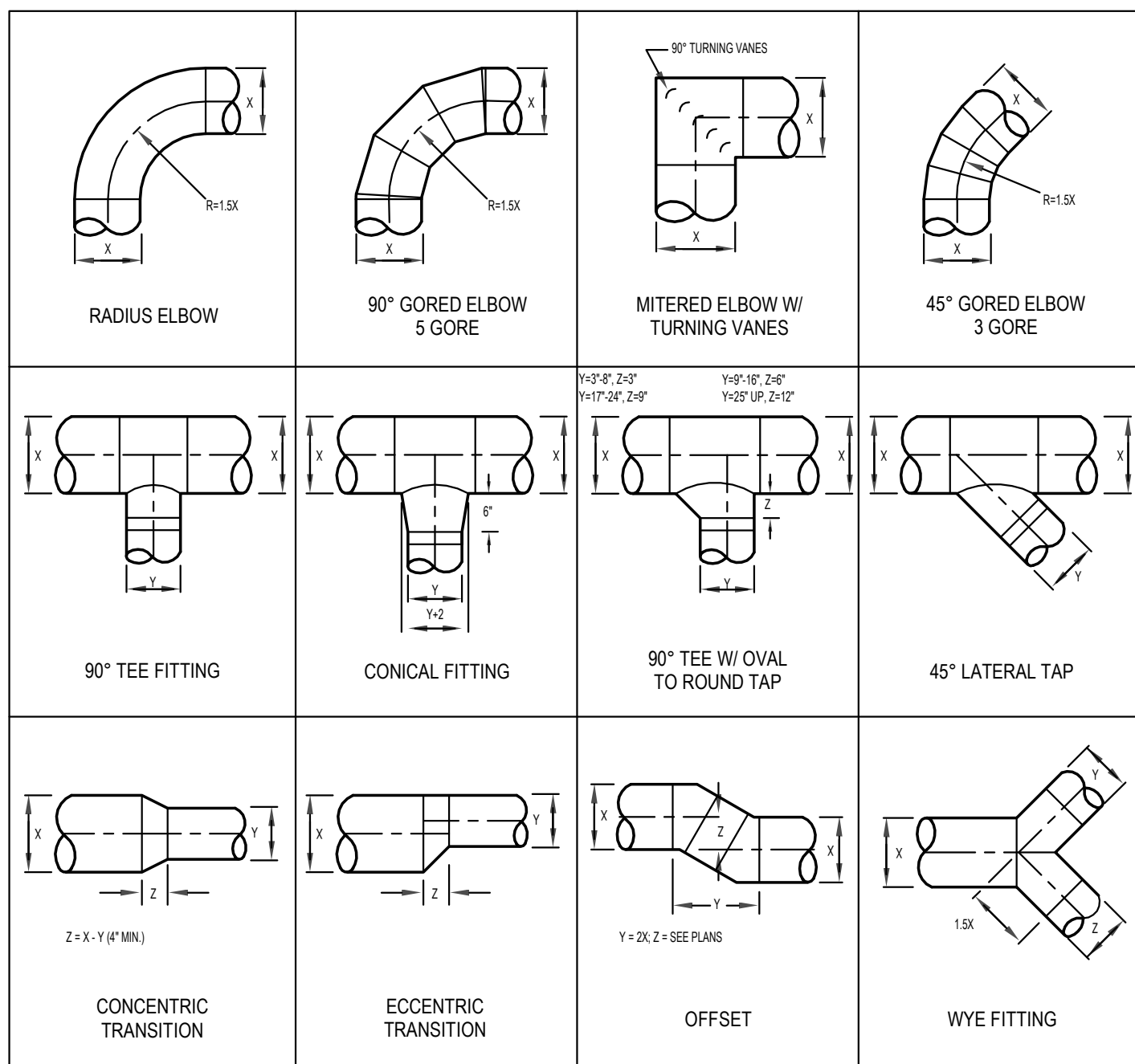
Technical drawing of a floor plan for a room, showing a large room with a staircase and a smaller room. The drawing includes a grid system with numbers 1-8 and letters A-B. Various components are labeled with circled numbers 1-13. A large, stylized 'R' is overlaid on the drawing.

(D1) HVAC DEMO FLOOR PLAN LEVEL 2
1/8" = 1'-0"



(D1) HVAC NEW FLOOR PLAN LEVEL 2
1/8" = 1'-0"

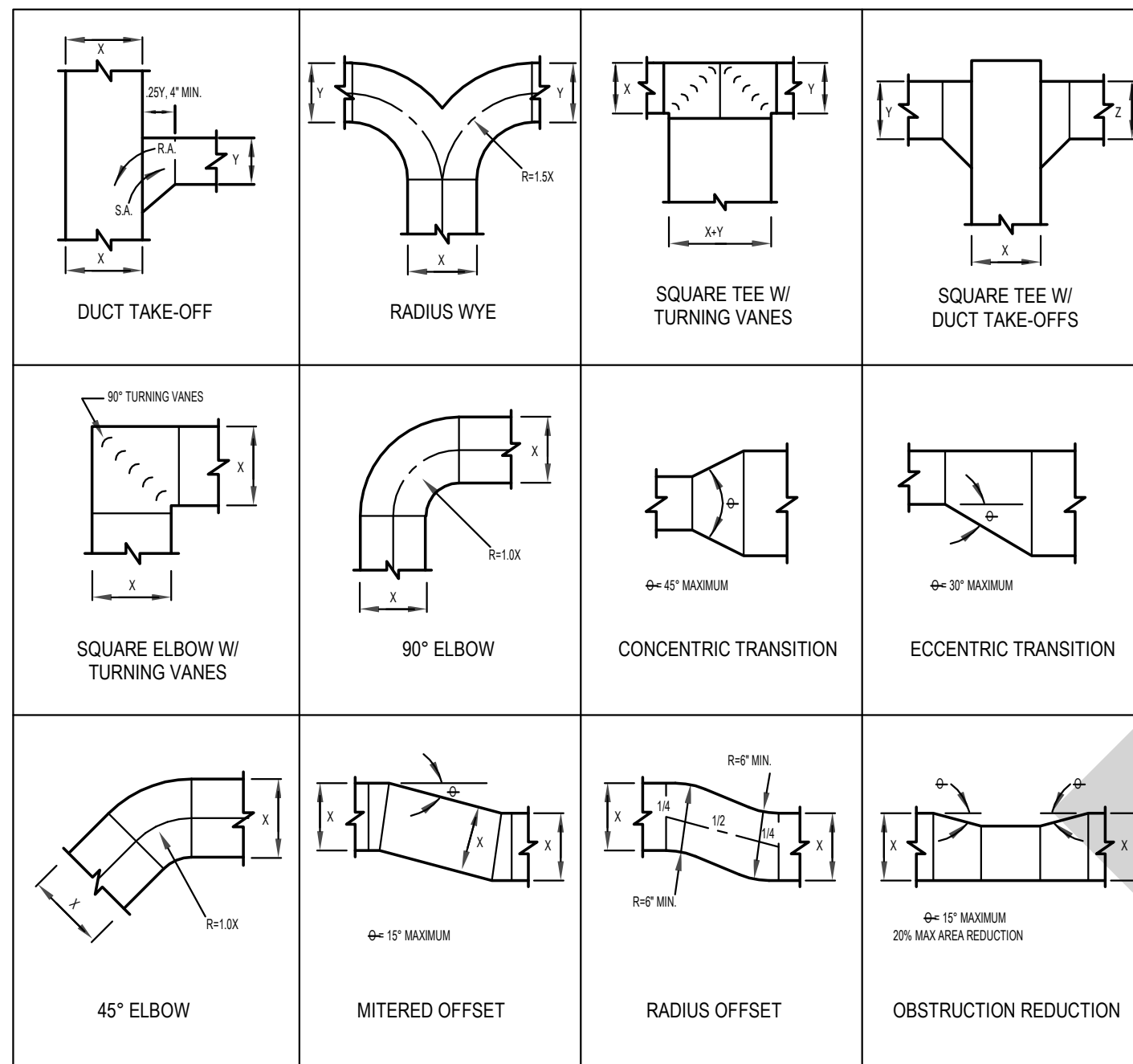
6/17/2026 4:03:44 PM Autodesk Docs\\Moscow City Shop - Existing Shop TI\\2606_Moscow City Shop TI_MP Model_2024.rvt



NOTES:
1. ALL DUCTWORK TRANSITIONS SHALL BE CONSTRUCTED AND INSTALLED TO SMACNA SPECIFICATIONS AND THE ABOVE NOTED STANDARDS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER.

B1 ROUND DUCT FITTING DETAILS

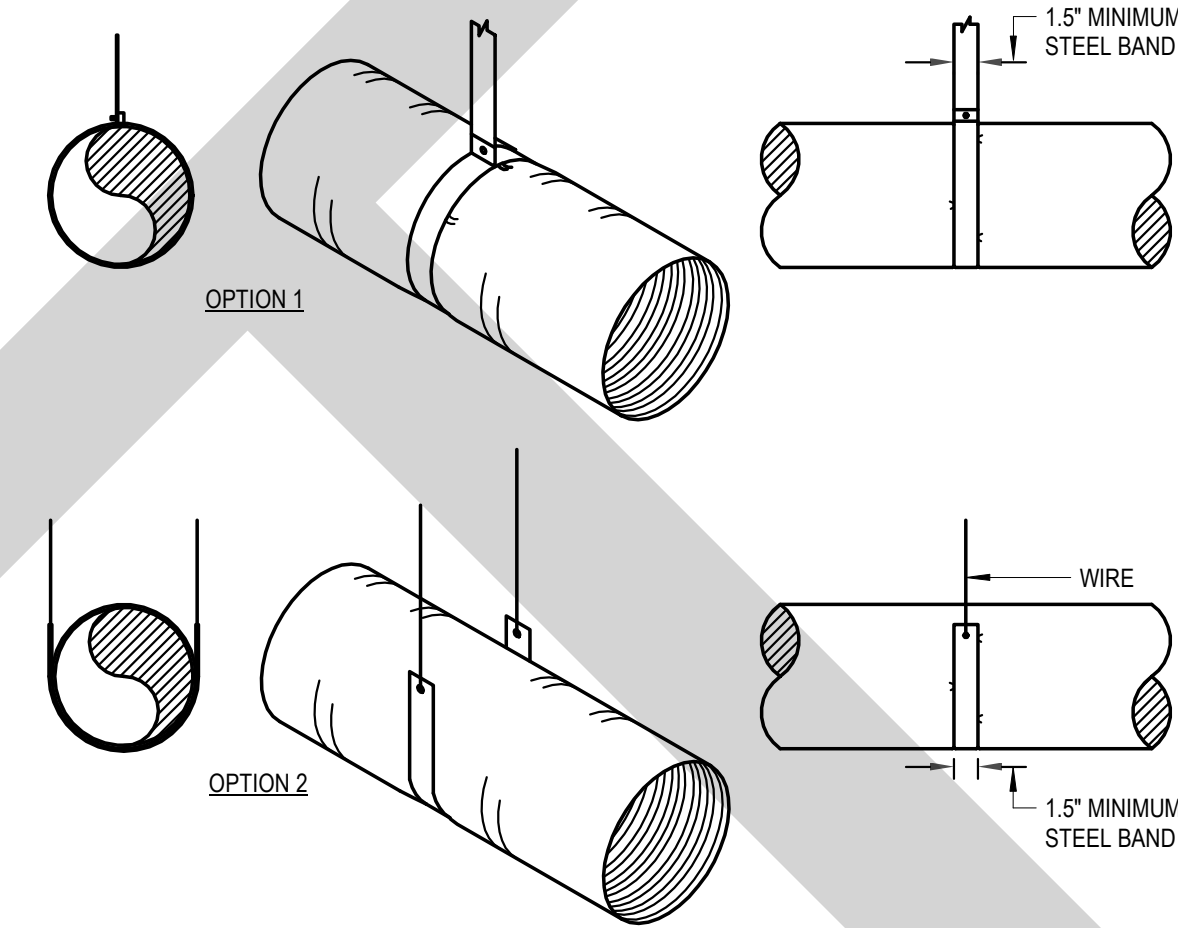
NTS



NOTES:
1. ALL DUCTWORK TRANSITIONS SHALL BE CONSTRUCTED AND INSTALLED TO SMACNA SPECIFICATIONS AND THE ABOVE NOTED STANDARDS. ANY DEVIATIONS SHALL BE COORDINATED WITH THE ENGINEER.

B3 RECTANGULAR DUCT FITTING DETAILS

NTS

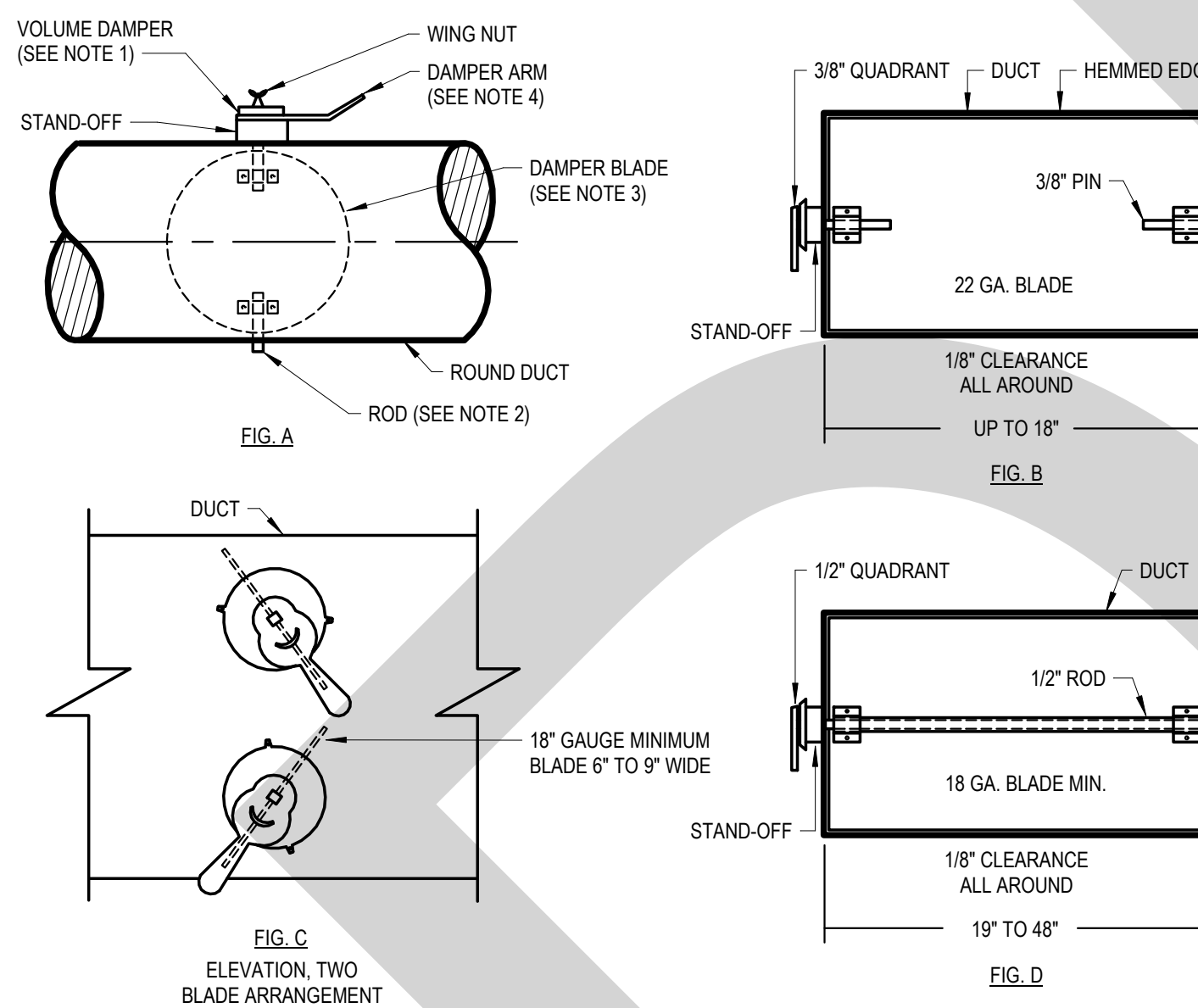


NOTES:
1. SUPPORT SYSTEM SHALL NOT DAMAGE, CRIMP, OR INHIBIT DUCT FREE AREA IN ANY WAY.
2. FLEXIBLE DUCT MUST NOT EXCEED 8'-0" FROM CONNECTION TO TERMINATION.
3. MAXIMUM LENGTH BETWEEN SUPPORTS MUST NOT EXCEED 3'-0" ON CENTER.
4. ATTACH BANDS OR WIRES TO SUPPORT STRUCTURE ABOVE.
5. SEE MECHANICAL SPECIFICATIONS FOR FLEXIBLE DUCTWORK REQUIREMENTS.
6. FLEXIBLE DUCTWORK IS FOR INDOOR USE ONLY. DO NOT INSTALL OR STORE PRODUCT WHERE EXPOSURE TO DIRECT SUNLIGHT CAN OCCUR. PROLONGED EXPOSURE TO SUNLIGHT MAY CAUSE DETERIORATION OF VAPOR BARRIER.
7. TERMINAL DEVICES SHALL BE SUPPORTED INDEPENDENTLY OF THE FLEXIBLE DUCTWORK.
8. REPAIR TURN OR DAMAGED VAPOR BARRIER/JACKET WITH DUCT TAPE LISTED AND LABELED TO UL 181B. IF INTERNAL CORE IS PENETRATED, REPLACE FLEXIBLE DUCTWORK.
9. AVOID BENDING DUCT ACROSS SHARP CORNERS OR INCIDENTAL CONTACT WITH METAL FIXTURES, PIPES, OR CONDUITS.
10. FLEXIBLE DUCTWORK SHALL NOT BE INSTALLED WITHIN 4 INCHES OF HOT EQUIPMENT (FURNACES, BOILERS, STEAM PIPES, ETC.) THAT IS ABOVE 200°F.
11. FLEXIBLE DUCTWORK SHALL NOT BE INSTALLED IN CONCRETE, BURIED BELOW GRADE, OR IN CONTACT WITH THE GROUND.
12. DO NOT INSTALL FLEXIBLE DUCTWORK IN EXPOSED CEILING AREA.

B5 FLEXIBLE DUCT SUPPORT DETAIL

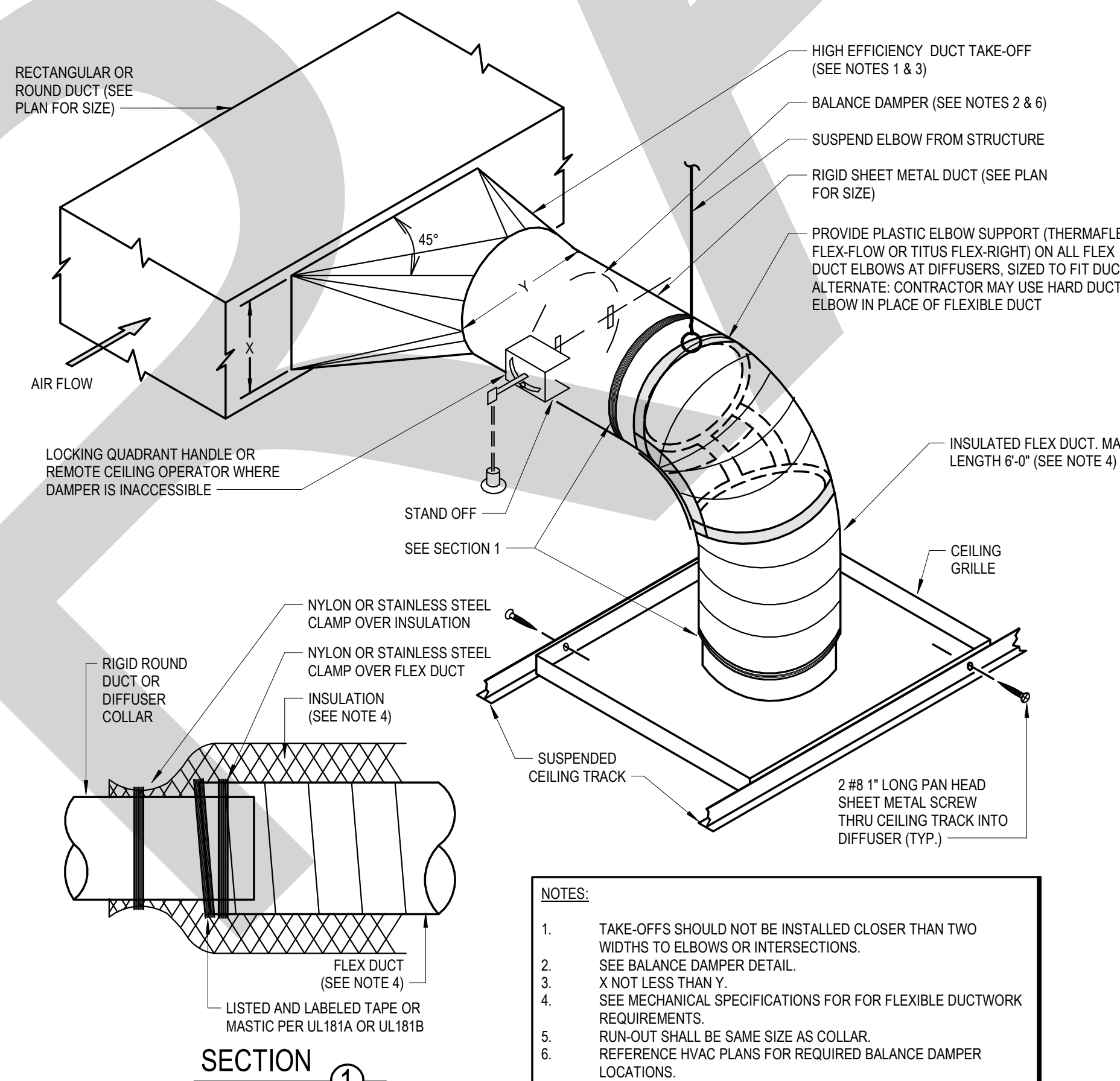
NTS

NOTES:
1. FOR TAKE-OFFS LARGER THAN 12" DIAMETER, USE A FACTORY MANUFACTURED DAMPER, LOUVERS & DAMPERS, INC. MODEL CD-600 WITH A LOCKING HAND QUADRANT OR EQUAL.
2. ROD CONTINUOUS ON 2" W.G. CLASS AND ON ALL DAMPERS OVER 12" DIAMETER.
3. BLADE 22 GAUGE MINIMUM, BUT NOT LESS THAN TWO GAGES MORE THAN THE DUCT GAUGE.
4. PROVIDE REMOTE CEILING OPERATOR WHERE DAMPERS IS INACCESSIBLE.
5. FOR DUCTS OVER 12" HIGH USE MULTIPLE BLADE DAMPERS (SEE FIG. C).
6. ALTERNATE MANUFACTURERS INCLUDE: AMERICAN WARMING, SAFE-AIRDOWNCO, J&J, LOUVERS & DAMPERS, RUSKIN, NAILOR, ARROW UNITED, POTTORFF, & GESCO.
7. PROVIDE STAND-OFF FOR DAMPER ARMS LOCATED W/EXTERNAL INSULATION.



E1 BALANCE DAMPER DETAIL

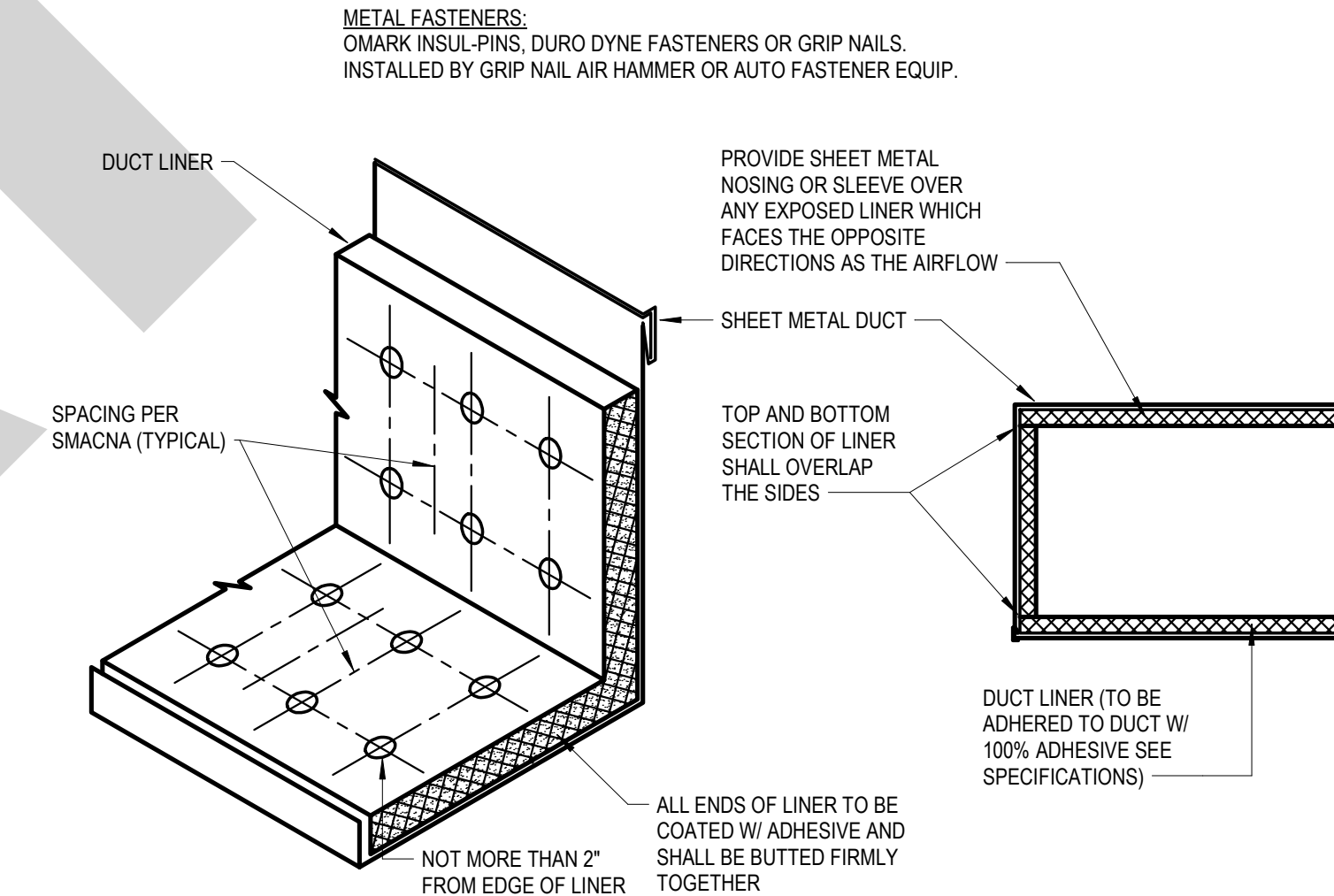
NTS



NOTES:
1. TAKE-OFFS SHOULD NOT BE INSTALLED CLOSER THAN TWO WIDTHS TO ELBOWS OR INTERSECTIONS.
2. SEE BALANCE DAMPER DETAIL.
3. X NOT LESS THAN Y.
4. SEE MECHANICAL SPECIFICATIONS FOR FLEXIBLE DUCTWORK REQUIREMENTS.
5. RUN-OUT SHALL BE SAME SIZE AS COLLAR.
6. REFERENCE HVAC PLANS FOR REQUIRED BALANCE DAMPER LOCATIONS.

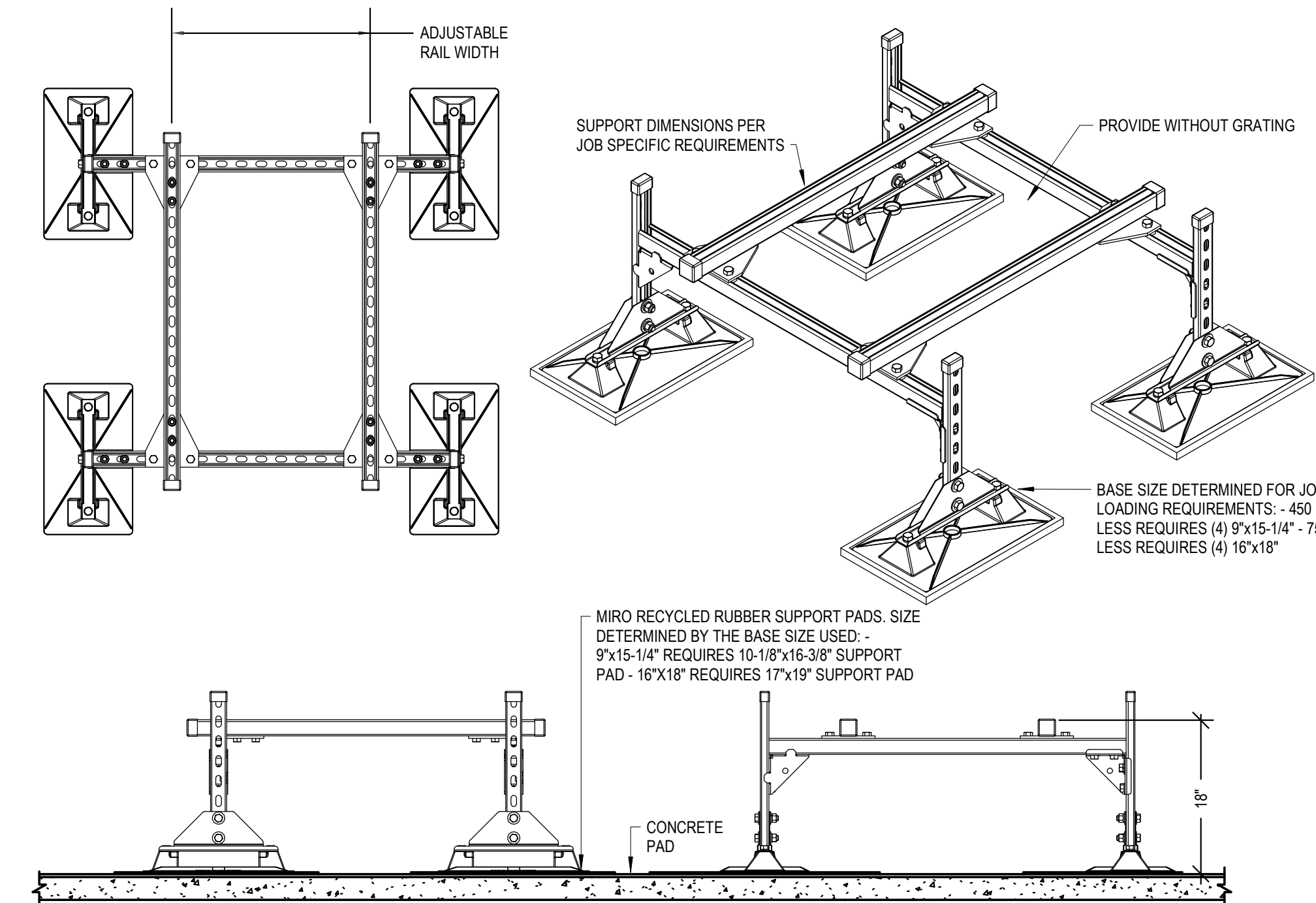
E3 DUCT TAKEOFF DETAIL - HIGH EFFICIENT

NTS



C5 DUCT LINER DETAIL

NTS



NOTES:
1. PROVIDE WITH MIRO INDUSTRIES MODEL HD, HEAVY DUTY MECHANICAL GALVANIZED ROOF SUPPORT WITH ADJUSTABLE SUPPORT LEGS AND RAIL WIDTH.
2. BOLT EQUIPMENT TO MECHANICAL SUPPORT, A MINIMUM OF (4) LOCATIONS.
3. APPROVED ALTERNATE MANUFACTURERS: UNISTRUT AND ROOF-PRO.

E5 HEAT PUMP PLATFORM DETAIL

NTS

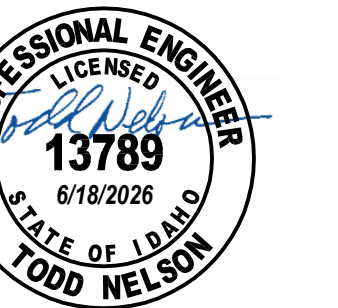
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NO.	DESCRIPTION	DATE
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JOB NO.: 24000.01
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HVAC DETAILS

SHEET NO.

M3.0

DIFFUSER SCHEDULE				
SYMBOL	NOMINAL SIZE	NECK/RUNOUT SIZE	CFM RANGE	REMARKS
D-1	8X6	8"Ø	0-90	1, 2, 3, 4, 5, 6, 7
D-2	9X9	8"Ø	90-200	1, 2, 3, 4, 5, 6, 7

- REMARKS
1. ALTERNATE MANUFACTURERS: GREENHECK, ANEMOSTAT, J&J REGISTER, NALOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, PRICE, AND UNITED ENERTECH.
 2. SIZES BASED ON TITUS MODEL TDCA SERIES WITH ADJUSTABLE THROW.
 3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
 4. ALL DIFFUSERS LOCATED IN LAY-IN CEILING AREAS SHALL BE BORDER TYPE 3 AND BE MOUNTED IN MANUFACTURER PROVIDED 24"x24" PANELS. ALL DIFFUSERS LOCATED IN HARD CEILING AREAS SHALL BE BORDER TYPE 6 (BEVELED) SURFACE MOUNTED. SEE ARCHITECTURAL PLANS FOR LOCATIONS OF VARIOUS CEILING TYPES.
 5. SEE HVAC FLOOR PLANS FOR DIRECTIONAL THROW REQUIREMENTS FOR EACH DIFFUSER.
 6. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUNOUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
 7. COLOR TO BE SELECTED BY ARCHITECT.

RETURN & EXHAUST GRILLE SCHEDULE				
SYMBOL	NOMINAL SIZE	NECK/RUNOUT SIZE	CFM RANGE	REMARKS
R-1	6X6	6X6	0-125	1, 2, 3, 4, 5
R-2	12X6	12X6	0-275	1, 2, 3, 4, 5, 6

- REMARKS
1. ALTERNATE MANUFACTURERS: GREENHECK, ANEMOSTAT, CARNES, PRICE, NALOR, METAL-AIRE, TUTTLE & BAILEY, KRUEGER, J&J REGISTER, AND UNITED ENERTECH.
 2. SIZES BASED ON TITUS MODEL S0F, ALUMINUM EGGRATE RETURN GRILLE, 1/2" x 1/2" x 1" SPACING (SINGLE CORE). PROVIDE SQUARE TO ROUND TRANSITION (WHERE ROUND RUN-OUT INDICATED).
 3. SIZES BASED ON A MAXIMUM NC LEVEL OF 25.
 4. WHENEVER THERE IS A DISCREPANCY BETWEEN THE RUN-OUT DUCT SIZE SHOWN ON THE PLANS AND THAT SHOWN IN THE SCHEDULE, ALWAYS USE THE LARGER OF THE TWO DUCT SIZES.
 5. COLOR TO BE SELECTED BY ARCHITECT.
 6. HIGH WALL GRILLE SIZES BASED ON TITUS MODEL 355 RL, STEEL BAR GRILLE, FIXED BLADES, 1/2" SPACING, 35° DEFLECTION, ADJUSTABLE OPPOSED BLADE DAMPER.

ELECTRIC HEATER SCHEDULE

UNIT SYMBOL	UNIT NUMBER	AREA SERVED	UNIT TYPE	FAN			KW	ELECTRICAL			AMPS	MANUFACTURER AND MODEL	REMARKS
				CFM	RPM	HP		STEPS	VØ				
EH	1	ELEC 105	RECESS WALL MOUNTED	245	1400	1/8	2.0	1	208/1		9.6	QMARK MODEL AWH	1, 2, 3
EH	2	VESTIBULE	RECESS WALL MOUNTED	245	1400	1/8	2.0	1	208/1		9.6	QMARK MODEL AWH	1, 2, 3
EH	3	MECH 108	RECESS WALL MOUNTED	245	1400	1/8	2.0	1	208/1		9.6	QMARK MODEL AWH	1, 2, 3
EH	4	LOCKER ROOM 110	RECESS WALL MOUNTED	245	1400	1/8	2.0	1	208/1		9.6	QMARK MODEL AWH	1, 2, 3
EH	5	LOCKER ROOM 110	RECESS WALL MOUNTED	245	1400	1/8	2.0	1	208/1		9.6	QMARK MODEL AWH	1, 2, 3
EH	6	VESTIBULE	RECESS WALL MOUNTED	245	1400	1/8	2.0	1	208/1		9.6	QMARK MODEL AWH	1, 2, 3

- REMARKS
1. APPROVED ALTERNATE MANUFACTURERS: BRASCH, MARKEL, INDEECO, OUELLET, AND CHROMALOX.
 2. PROVIDE UNIT WITH AN INTEGRAL THERMOSTAT. THERMOSTAT SHALL BE COVERED WITH A TAMPER-PROOF ACCESS COVER.
 3. MOUNT BOTTOM OF HEATER 18" ABOVE FINISHED FLOOR.

LOUVER SCHEDULE

UNIT SYMBOL	UNIT NUMBER	SERVICE	TYPE	NOMINAL SIZE	MINIMUM FREE AREA (SQ. FT.)	FINISH	MANUFACTURER AND MODEL	REMARKS
L	1	ERV INTAKE	FIXED DRAINABLE	18X18	0.97	AAMA 2604	RUSKIN ELF375DX	1, 2, 3
L	2	ERV EXHAUST	FIXED DRAINABLE	18X18	0.97	AAMA 2604	RUSKIN ELF375DX	1, 2, 3

- REMARKS
1. APPROVED ALTERNATE MANUFACTURERS: GREENHECK, AMERICAN WARMING, AIROLITE, SAFE-AIR/DOWCO, LOUVERS & DAMPERS, RUSKIN, ARROW UNITED, CESCO, NCA MANUFACTURING, NALOR, POTTORFF, AND UNITED ENERTECH.
 2. COLOR TO BE SELECTED BY ARCHITECT.
 3. EXHAUST AND O.S.A. PROVIDE WITH FLANGED FRAME AND BIRD SCREEN.

DUCTLESS SPLIT INDOOR UNIT SCHEDULE

UNIT SYMBOL	UNIT NUMBER	ASSOCIATED OUTDOOR UNIT	AREA SERVED	NOMINAL TONS	UNIT TYPE	CFM	dBa	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
FC	1.2	HP-1.0	BREAKROOM 103	1.0	HIGH WALL	166-392	45	20	DAIKIN MODEL FTXV12	1, 2, 3, 4, 5
FC	1.3	HP-1.0	LOCKERROOM 110	0.5	HIGH WALL	166-332	39	20	DAIKIN MODEL CTXV07	1, 2, 3, 4, 5
FC	2.1	HP-2.0	WALL 111	0.5	HIGH WALL	166-332	39	20	DAIKIN MODEL CTXV07	1, 2, 3, 4, 5
FC	2.2	HP-2.0	SUPERVISOR OFFICE 112	0.5	HIGH WALL	166-332	39	20	DAIKIN MODEL CTXV07	1, 2, 3, 4, 5
FC	2.3	HP-2.0	SUPERVISOR OFFICE 113	0.5	HIGH WALL	166-332	39	20	DAIKIN MODEL CTXV07	1, 2, 3, 4, 5
FC	3.1	HP-3.0	OPEN OFFICE 115	0.75	HIGH WALL	166-381	41	20	DAIKIN MODEL FTXV09	1, 2, 3, 4, 5
FC	3.2	HP-3.0	OPEN OFFICE 115	0.75	HIGH WALL	166-381	41	20	DAIKIN MODEL FTXV09	1, 2, 3, 4, 5
FC	4.1	HP-4.0	OPEN OFFICE 114	0.75	HIGH WALL	166-381	41	20	DAIKIN MODEL FTXV09	1, 2, 3, 4, 5
FC	1.1	HP-1.0	RESTROOM	0.5	HIGH WALL	166-332	39	20	DAIKIN MODEL CTXV07	1, 2, 3, 4, 5
FC	5.1	HP-5.0	OPEN OFFICE 114	0.75	HIGH WALL	166-381	41	20	DAIKIN MODEL FTXV09	1, 2, 3, 4, 5

- REMARKS
1. APPROVED ALTERNATE MANUFACTURERS: LENNOX, MITSUBISHI, SAMSUNG, LG, CARRIER.
 2. CONTROL WITH MANUFACTURER'S HARD-WIRED WALL MOUNTED 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTO CHANGE OVER.
 3. PROVIDE WITH ASPEN MINI WHITE CONDENSATE PUMP, 120/10, 19 WATTS.
 4. UNIT IS POWERED THROUGH OUTDOOR UNIT. SEE DUCTLESS SPLIT OUTDOOR UNIT SCHEDULE FOR POWER REQUIREMENTS.
 5. ELECTRICAL TO PROVIDE DISCONNECT.

DUCTLESS SPLIT OUTDOOR UNIT SCHEDULE

UNIT SYMBOL	UNIT NUMBER	NOMINAL TONS	UNIT TYPE	COOLING REQUIRED AT 80°F EDB, 67°F EWB (MBH)	HEATING REQUIRED AT 70°F OSA (MBH)	ELECTRICAL			SEER2HSPF2	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
				SUPPLY S	EXHAUST S	MCA	MOCP	VØ				
HP	1.0	3.0	HEAT PUMP	34.4	33.2	38.3	40	208/1	20.0/9.5	220	DAIKIN MODEL 4MXTH96	1, 2, 3, 4
HP	2.0	3.0	HEAT PUMP	34.4	33.2	38.3	40	208/1	20.0/9.5	220	DAIKIN MODEL 4MXTH96	1, 2, 3, 4
HP	3.0	2.0	HEAT PUMP	17.2	18.0	19.6	20	208/1	21.0/10.0	220	DAIKIN MODEL 2MXTH18	1, 2, 3, 4
HP	4.0	0.75	HEAT PUMP	9.0	10.9	11.6	15	208/1	21.0/10.2	75	DAIKIN MODEL R0XF09	1, 2, 3, 4
HP	5.0	0.75	HEAT PUMP	9.0	10.9	11.6	15	208/1	21.0/10.2	75	DAIKIN MODEL R0XF09	1, 2, 3, 4

- REMARKS
1. APPROVED ALTERNATE MANUFACTURERS: LENNOX, MITSUBISHI, SAMSUNG, LG, CARRIER.
 2. PROVIDE MANUFACTURER'S CRANKCASE HEATER, LOW AMBIENT CONTROLS (TO 0°F), WIND BAFFLES, REFRIGERATION LINE SET AND TEES, SIZED BY MANUFACTURER, AND TAMPER PROOF PORT CAPS.
 3. PROVIDE WITH MIRO INDUSTRIES HEAVY DUTY MECHANICAL GALVANIZED ROOF SUPPORT WITH ADJUSTABLE SUPPORT LEGS. SUPPORT SHALL EXTEND A MINIMUM OF 2" BEYOND EQUIPMENT IN EACH DIRECTION. BOLT EQUIPMENT TO MECHANICAL SUPPORT.
 4. ELECTRICAL TO PROVIDE DISCONNECT.

ENERGY RECOVERY UNIT SCHEDULE

UNIT SYMBOL	UNIT NUMBER	SUPPLY FAN		EXHAUST FAN		WINTER DESIGN						SUMMER DESIGN						ELECTRICAL			MIN EFF	WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS		
		CFM	ESP WATT S	CFM	ESP WATT S	SUPPLY	EXHAUST	EDB	EWB	LDB	SUPPLY	EXHAUST	EDB	EWB	LDB	MCA	MOCP	VØ								
ERV	1	600	0.75	395	550	0.38	275	0	-1	45	70	58	--	93	65	81	75	62	--	3.5	15	208/1	70	200	RENEWAIRE MODEL HE07	1, 2, 3

- REMARKS
1. APPROVED ALTERNATE MANUFACTURERS: COOK (MODEL ERV), AND CARNES (MODEL WP).
 2. PROVIDE WITH EXHAUST ONLY FROST PREVENTION CONTROLS, SINGLE POINT POWER CONNECTION, NEMA 3R DISCONNECT SWITCH, MOTOR STARTERS, 2" MERV 8 FILTERS IN EACH AIR STREAM, VIBRATION ISOLATORS ON EACH FAN, HINGED ACCESS PANELS, FIXED CORE POLYMER HEAT EXCHANGER W/ 5-YEAR WARRANTY, DOUBLE WALL CABINET CONSTRUCTION, AND BYPASS DAMPER WITH ECONOMIZER CYCLE. PROVIDE UNIT WITH UL APPROVAL LISTING.
 3. PROVIDE AND INSTALL 7-DAY PROGRAMMABLE TIMER SWITCH.

RESIDENTIAL FIRE HOOD WITH FIRE SUPPRESSION SCHEDULE

UNIT SYMBOL	UNIT NUMBER	AREA SERVED	UNIT TYPE	HOOD DIMENSIONS			EXHAUST AIR			CONNECTION	ELECTRICAL		MAXIMUM SONNES	MANUFACTURER AND MODEL	REMARKS
				LENGTH	HEIGHT	DEPTH	CFM	MAX S.P.			VØ	AMPS			
H	1	BREAKROOM	UNDER CABINET MOUNTED / DUCTED	30"	6"	18"	100	0.25	7"Ø		120/1	2.5	7.0	BROAN HOOD MODEL BXT130WW	1, 2, 3

- REMARKS
1. APPROVED ALTERNATES: BROAN, ACCUREX, AND DENLAR.
 2. UNIT TO BE PROVIDED WITH STANDARD LED LIGHTING, OPEN MESH FILTERS.
 3. PROVIDE WITH WALL MOUNTED 2-SPEED ROCKER STYLE CONTROLLER. MOUNT AT ADA COMPLIANT HEIGHT AND LOCATION.

ELECTRIC UNIT HEATER SCHEDULE

UNIT SYMBOL	UNIT NUMBER	AREA SERVED	UNIT TYPE	FAN			KW	ELECTRICAL			AMPS	OPERATING WEIGHT (LBS)	MANUFACTURER AND MODEL	REMARKS
				CFM	RPM	HP		STEPS	VØ					
EUH	1	SHOP	ELECTRIC	1200	--	0.07	15	2	208/3		42.6	85	REZNOR EUH	1, 2
EUH	2	SHOP	ELECTRIC	1200	--	0.07	15	2	208/3		42.6	85	REZNOR EUH	1, 2
EUH	3	SHOP	ELECTRIC	1200	--	0.07	15	2	208/3		42.6	85	REZNOR EUH	1, 2

- REMARKS
1. APPROVED ALTERNATE MANUFACTURERS: BRASCH, MODINE, QMARK, MARKEL.
 2. PROVIDE UNIT WITH MANUFACTURERS DIGITAL REMOTE 24 VOLT 2-STAGE THERMOSTAT WITH FAN SWITCH, AND 4-POINT SUSPENSION KIT. ALL LOW VOLTAGE WIRING TO BE PROVIDED AND INSTALLED BY MECHANICAL CONTRACTOR. COORDINATE WITH ELECTRICAL CONTRACTOR.

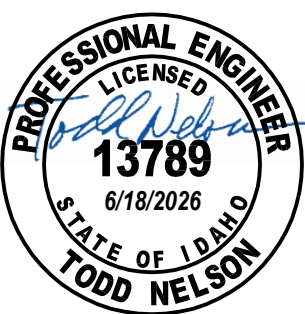
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DESCRIPTION

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09/15/26

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JD

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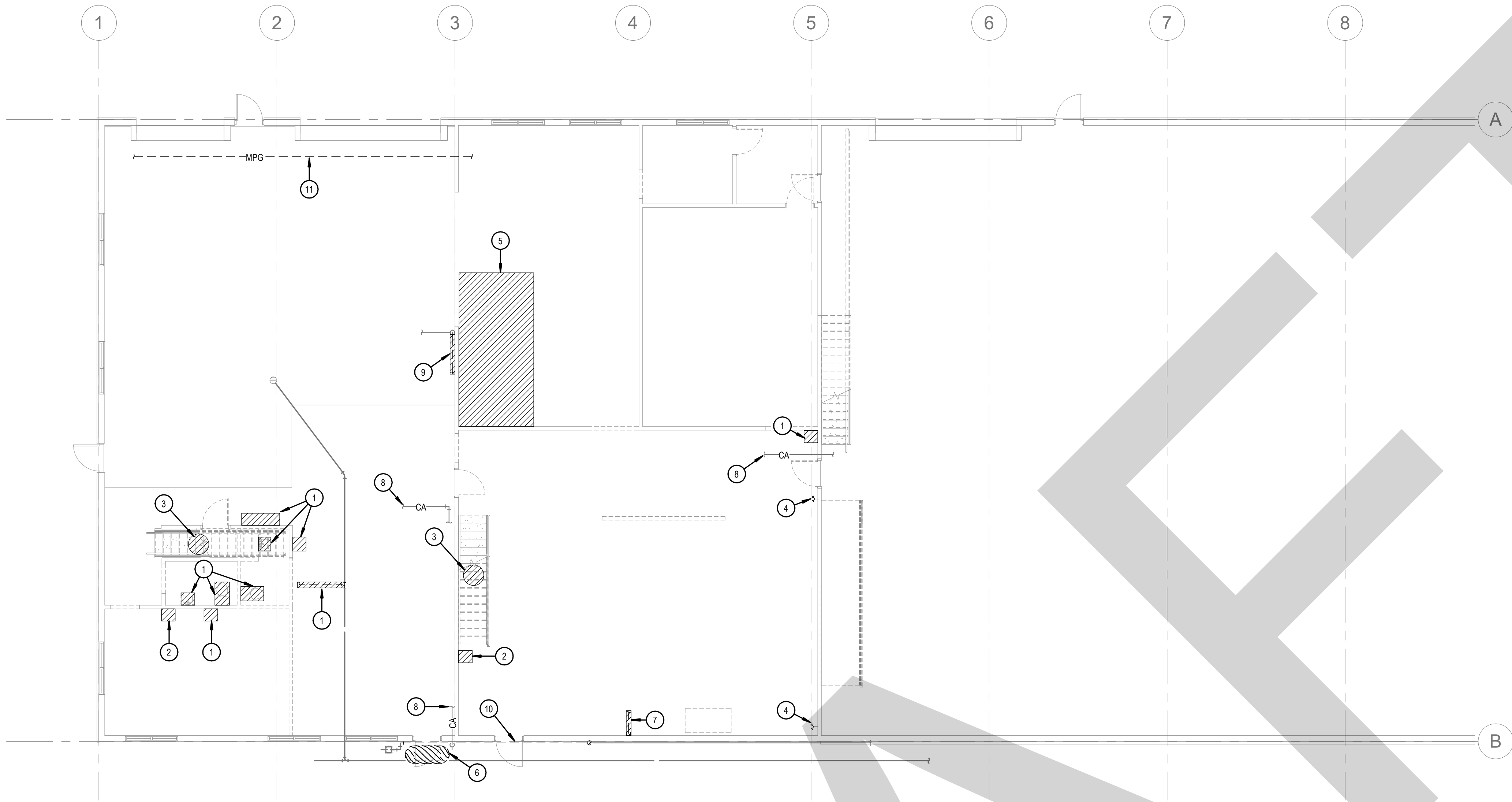
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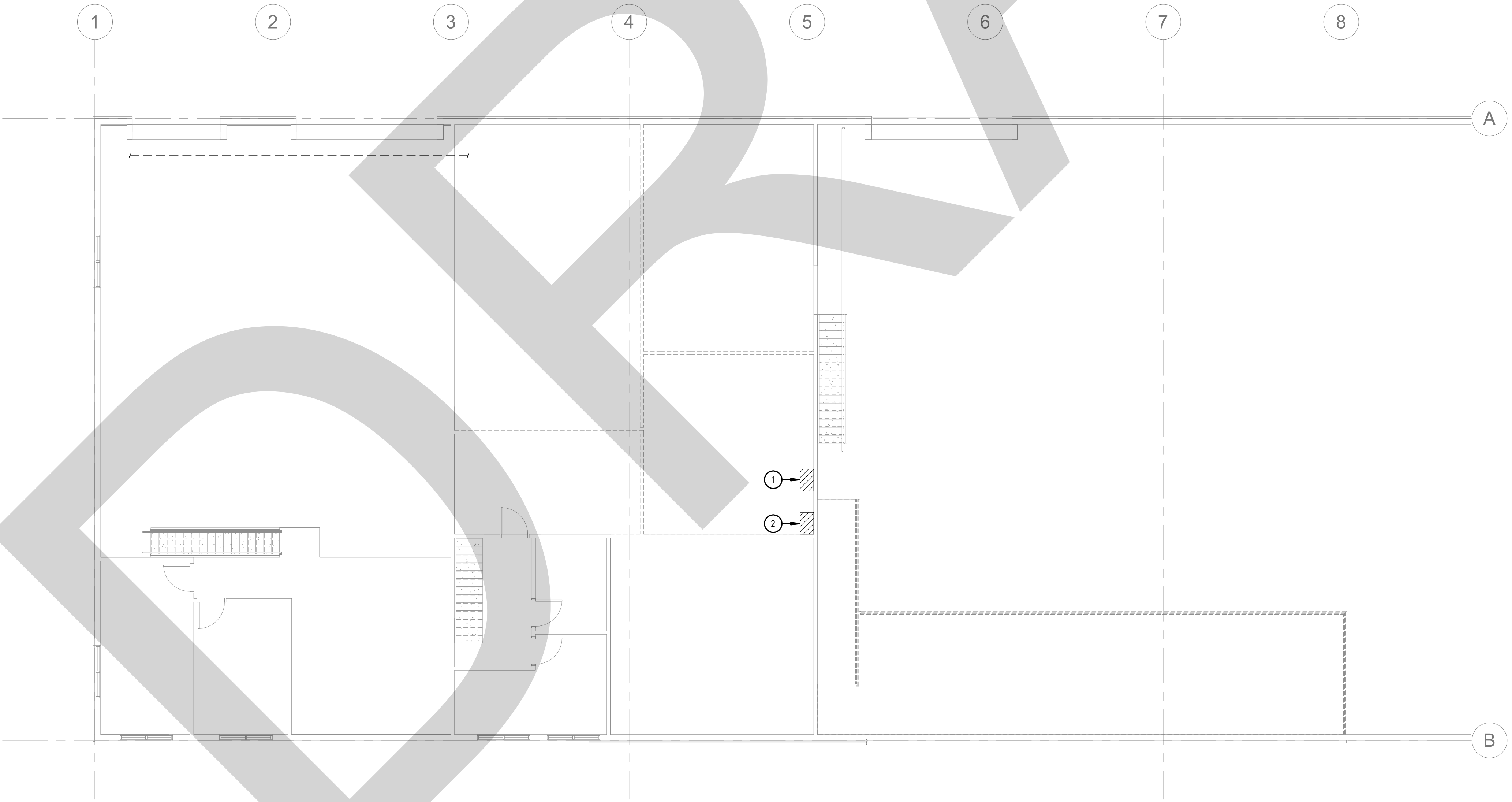
HVAC SCHEDULES

SHEET NO.

M4.0



C1 PLUMBING DEMO FLOOR PLAN LEVEL 1
1/8" = 1'-0"



D1 PLUMBING DEMO FLOOR PLAN LEVEL 2
1/8" = 1'-0"

KEYED NOTES:

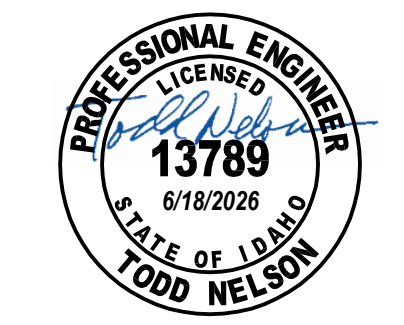
- 8 SYMBOL USED FOR CALLOUT
1. DEMO EXISTING PLUMBING FIXTURE. CUT AND CAP WATER LINES BACK TO MAIN. CAP WASTE LINE FLUSH WITH FLOOR. PATCH FLOOR TO MATCH EXISTING. CUT AND CAP VENT LINE BACK TO MAIN.
 2. DEMO EXISTING WALL BOX TO FRIDGE. DEMO WATER LINE BACK TO BUILDING MAIN.
 3. DEMO EXISTING WATER HEATER. DEMO ALL HOT WATER PIPING. DEMO COLD WATER LINE BACK TO BUILDING MAIN.
 4. DEMO EXISTING HOSE BIB. CUT WATER LINES BACK TO MAINS.
 5. CONTRACTOR SHALL SALVAGE EXISTING OIL DISPENSING SYSTEM BACK TO OWNER. DEMO ALL COMPRESSED AIR LINES BACK TO MAIN AND CAP.
 6. RELOCATE EXISTING AIR COMPRESSOR. SEE NEW PLAN FOR LOCATION.
 7. DEMO EXISTING COMPRESSED AIR DROP BACK TO MAIN.
 8. ANY COMPRESSED AIR LINES TO SHOP ARE TO BE MAINTAINED. CONTRACTOR TO FIELD VERIFY.
 9. DEMO COLD WATER MAIN BACK TO THIS POINT.
 10. DEMO EXISTING MEDIUM PRESSURE GAS LINE TO RISE POINT.
 11. DEMO EXISTING GAS LINE THAT SERVED GAS FIRED UNIT HEATERS BACK TO MAIN. CONTRACTOR TO FIELD VERIFY IF ANY ADDITIONAL GAS FIRE APPLIANCES ARE SERVED FROM THE GAS LINE. IF SO, GAS LINE TO REMAIN.

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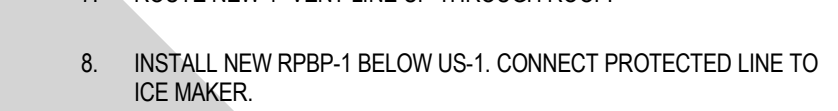
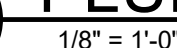
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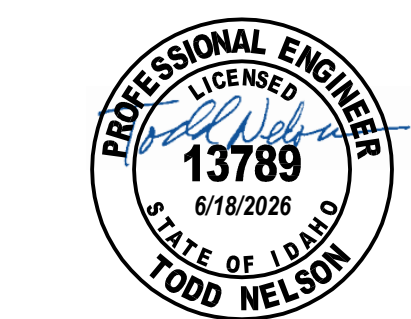
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**PLUMBING DEMO
FLOOR PLANS**

SHEET NO.

P1.0


$$1/8'' = 1'-0''$$




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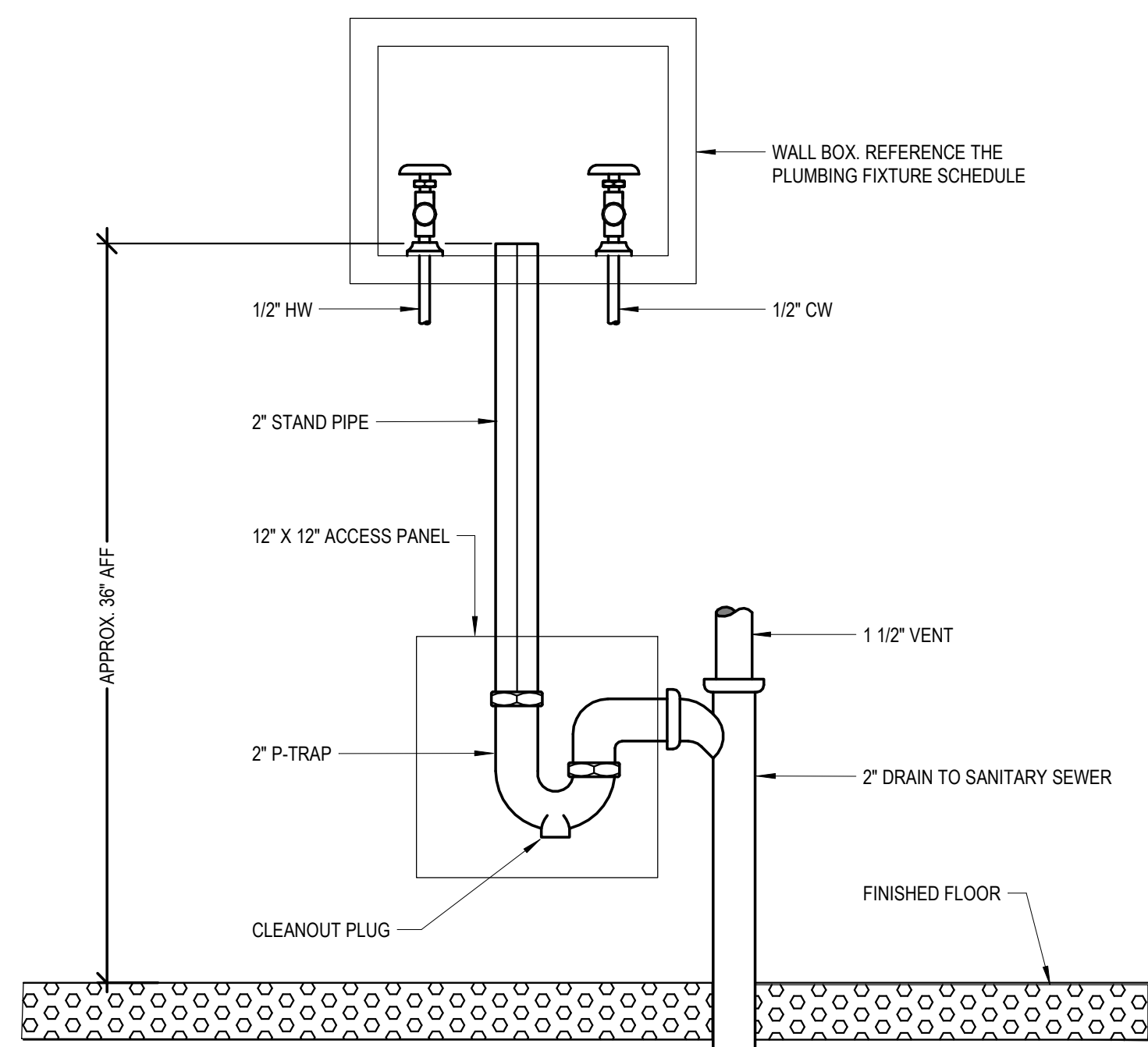
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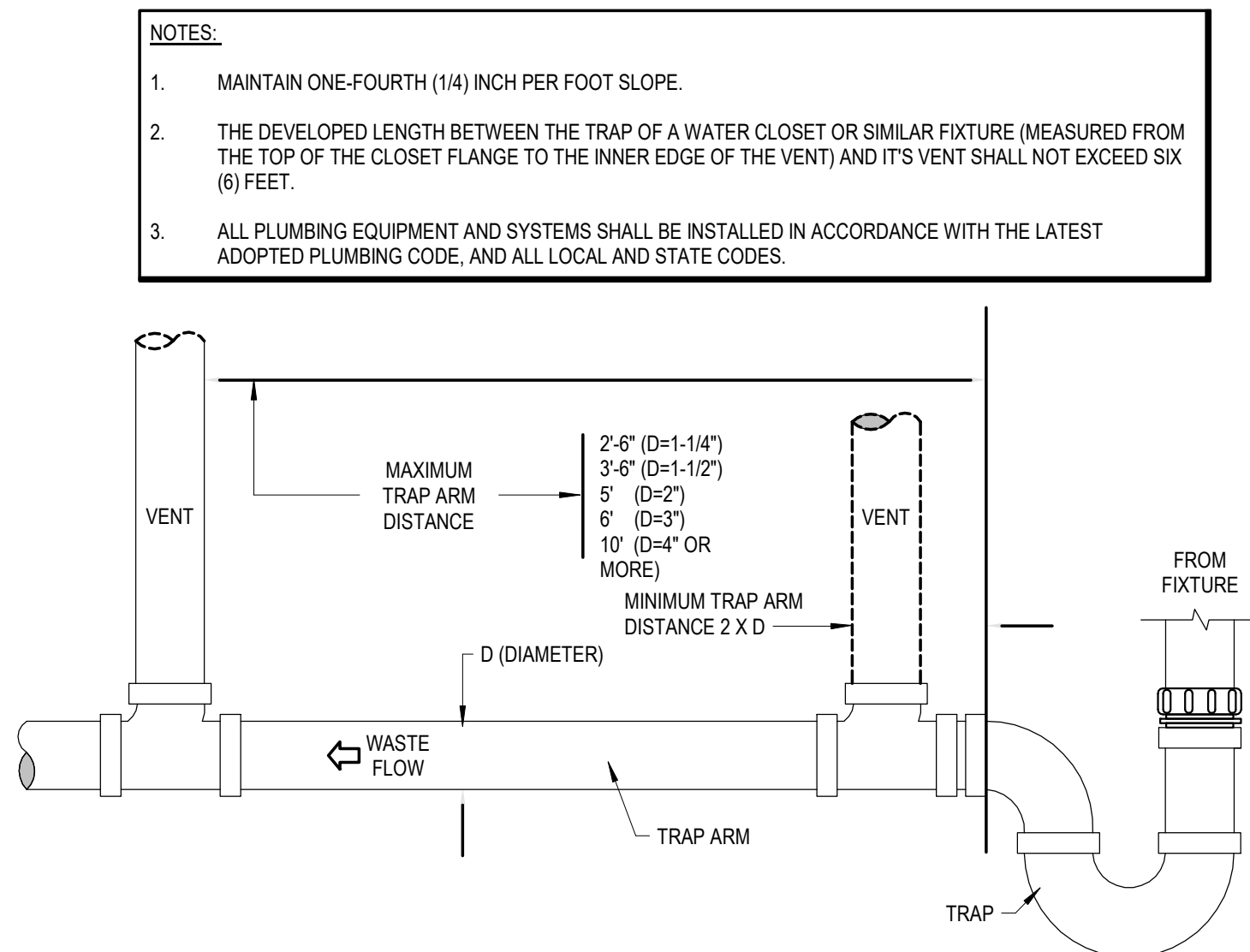
PLUMBING
DETAILS

SHEET NO.

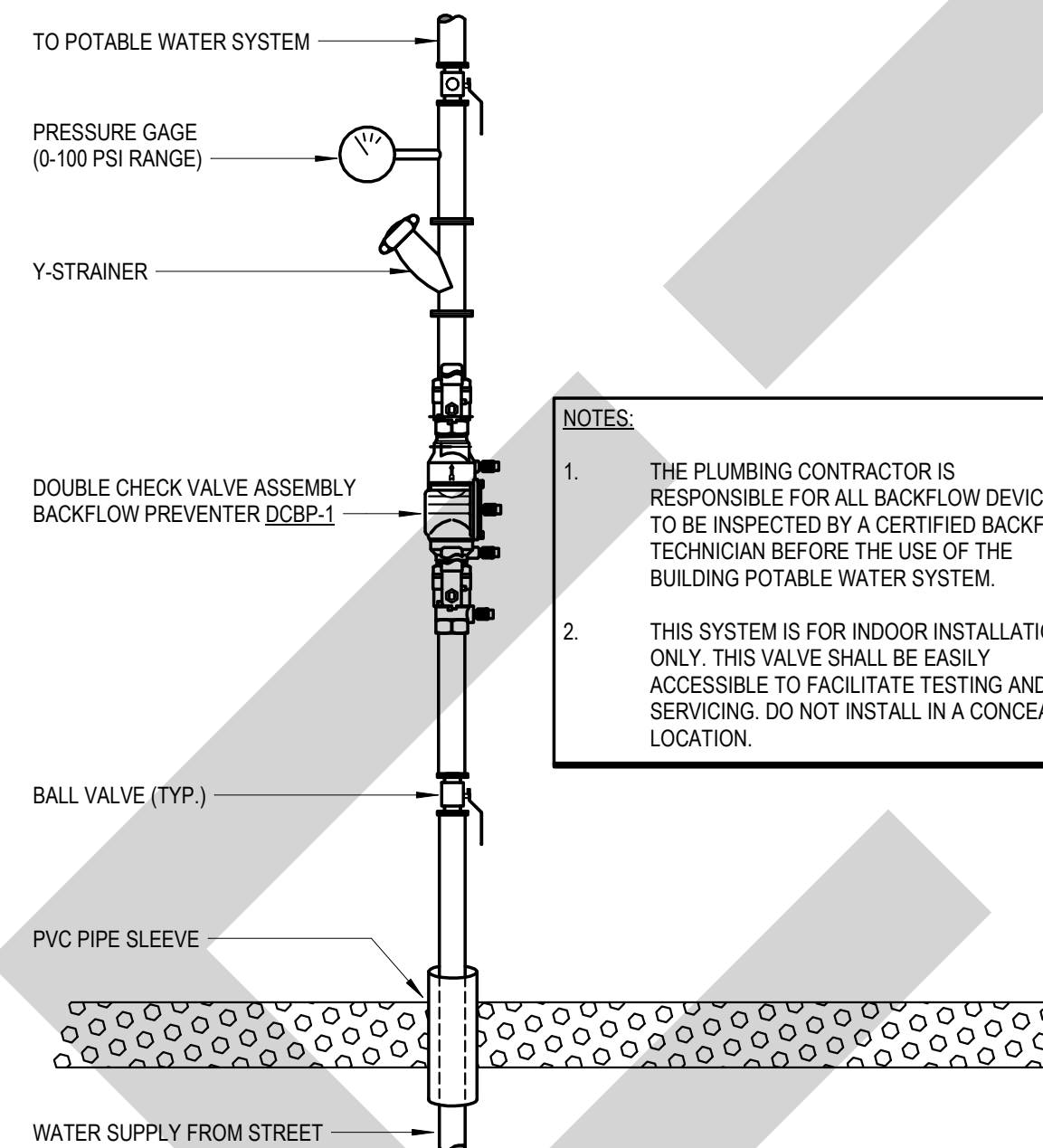
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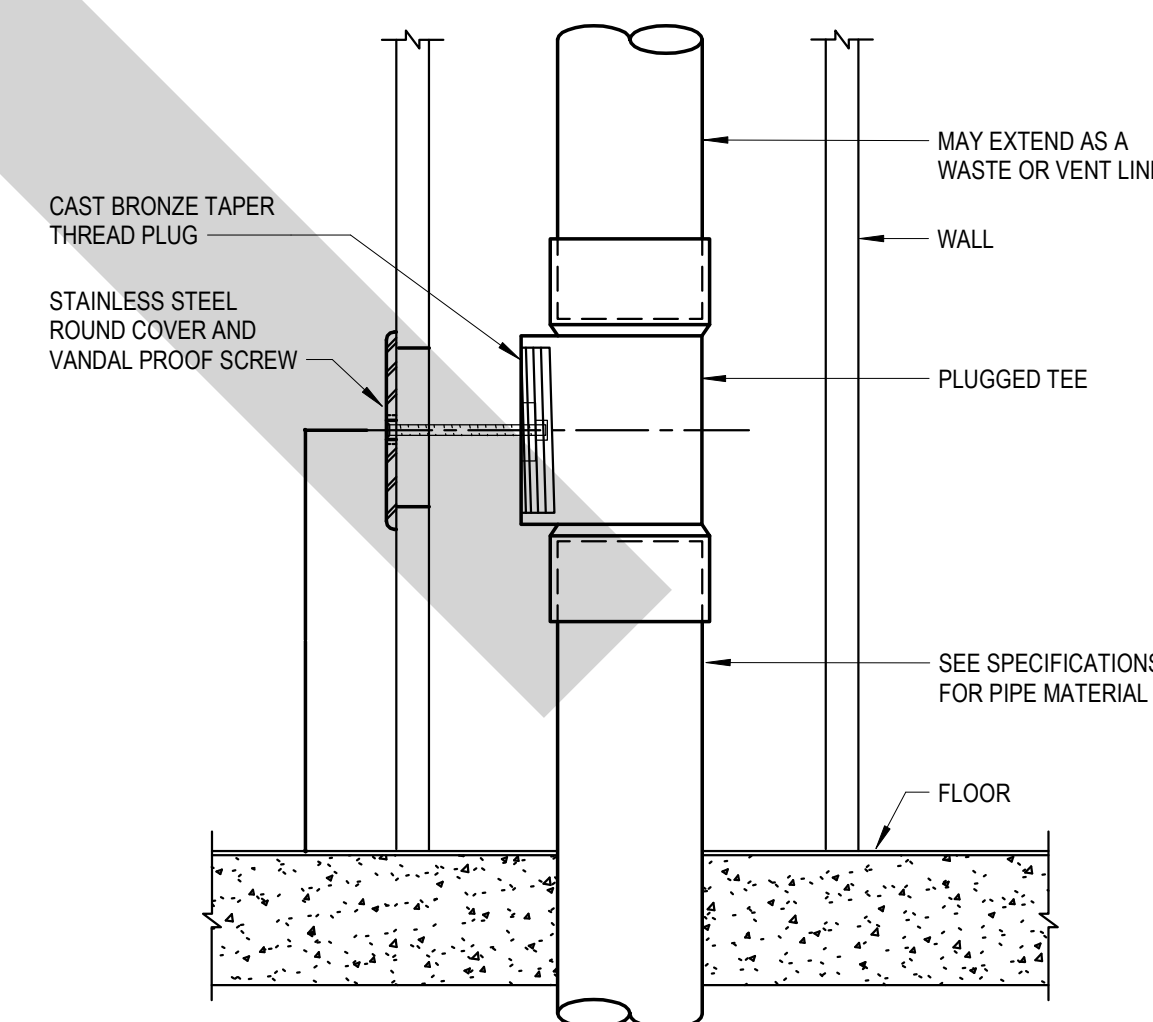
B1 WASHING MACHINE HOOK-UP DETAIL
NTS



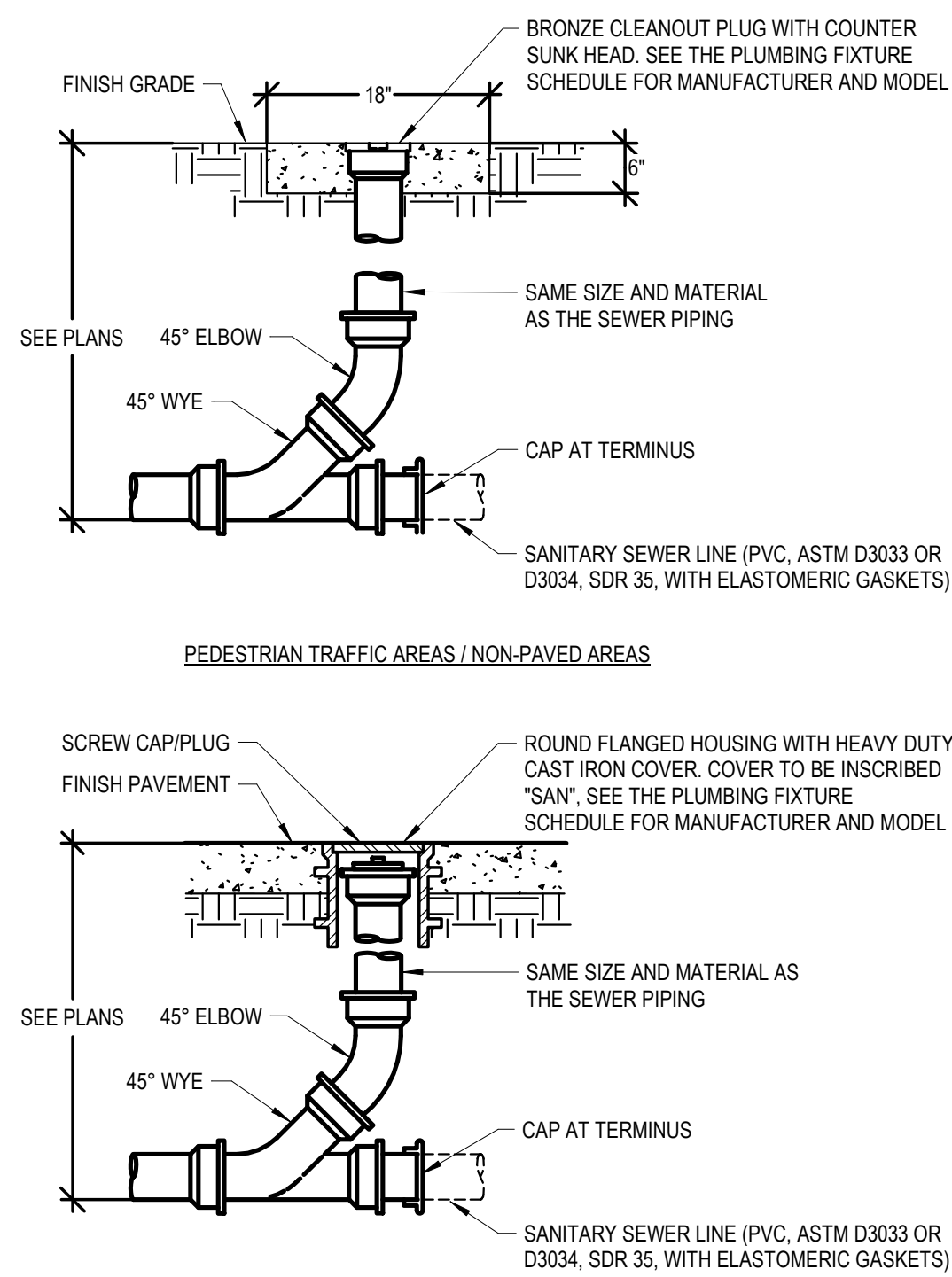
B2 TRAP ARM DETAIL
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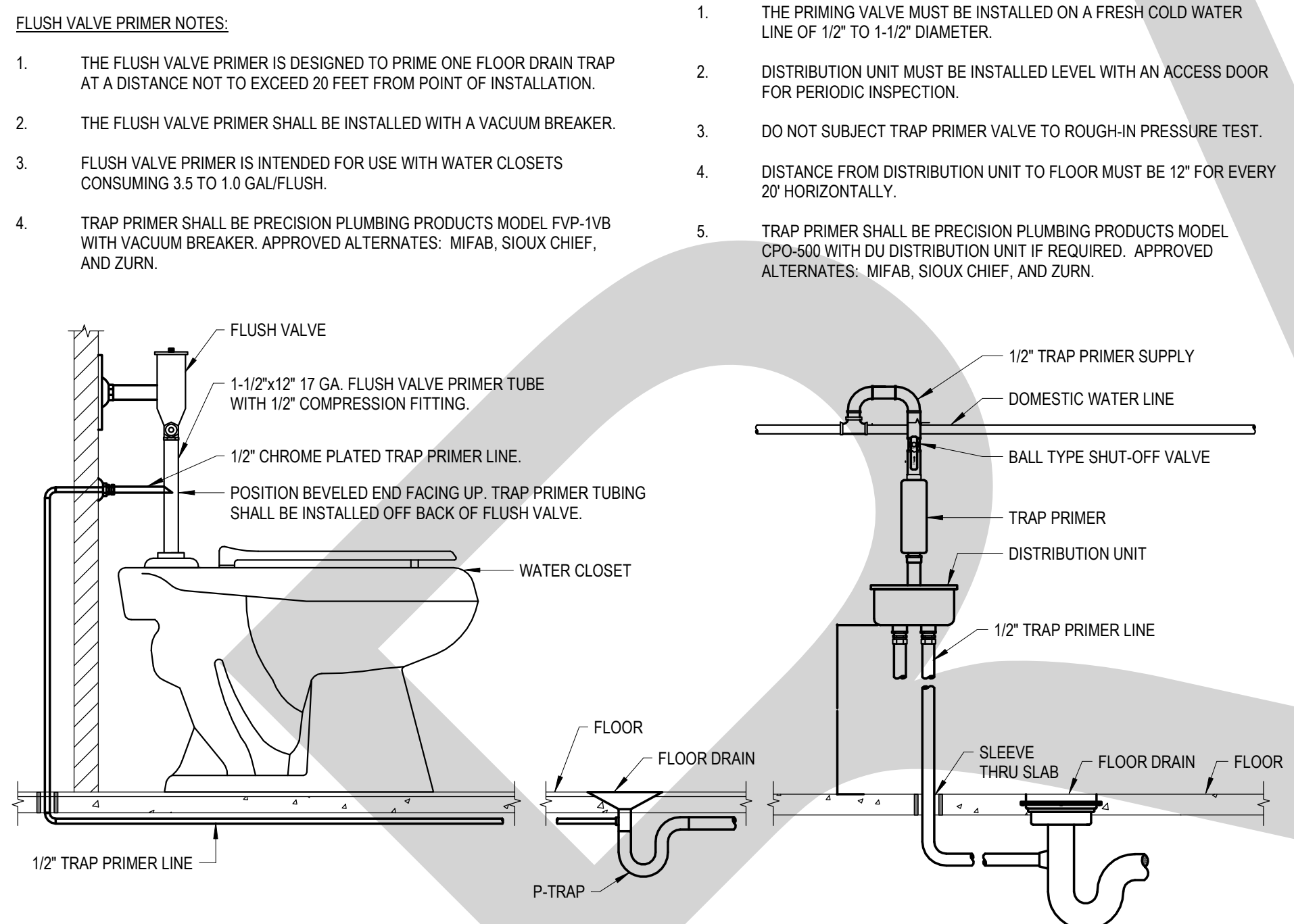
B4 BUILDING WATER SERVICE DETAIL
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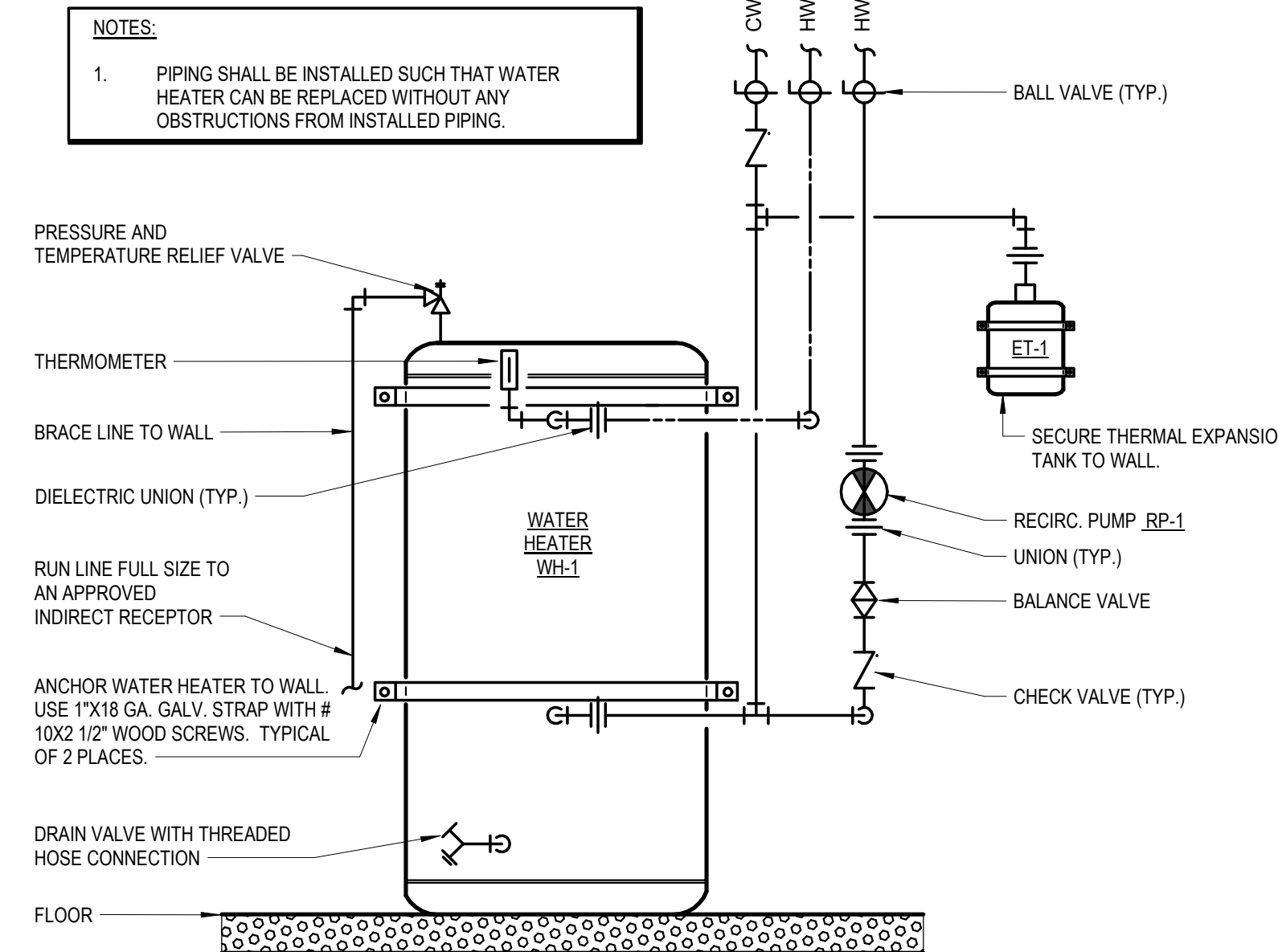
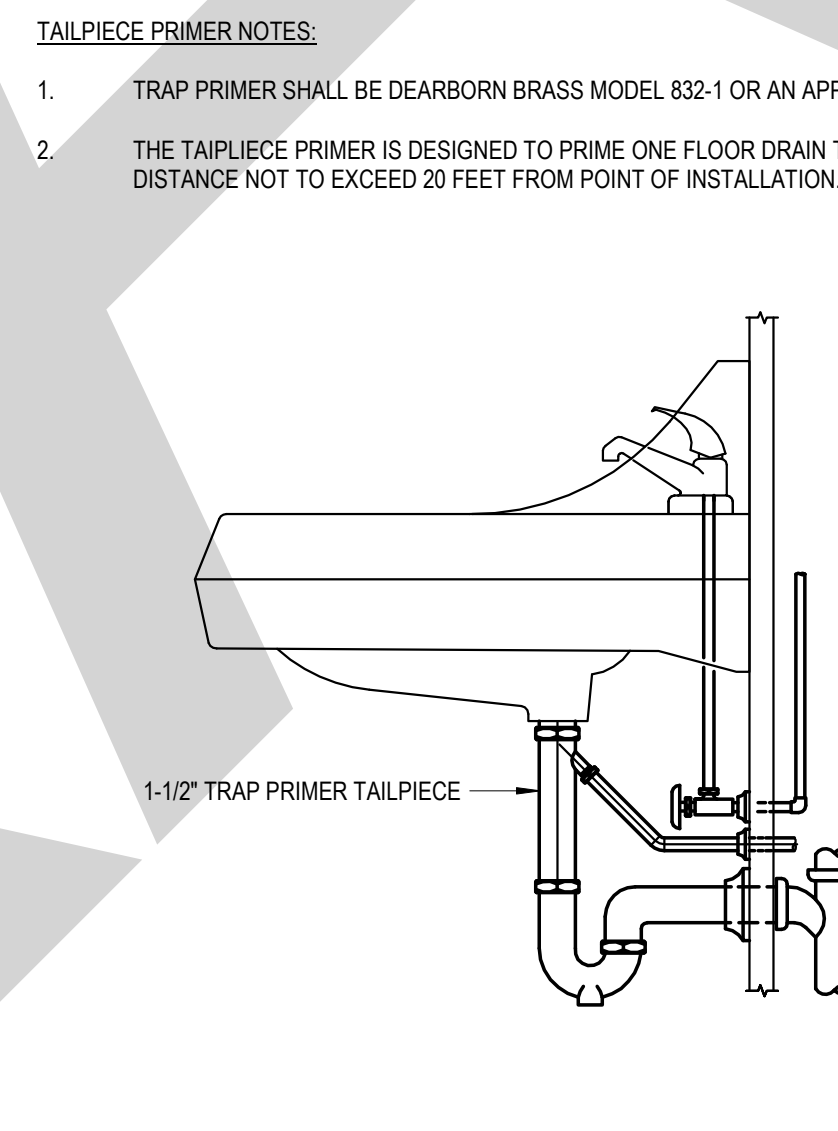
B6 WALL CLEANOUT (WCO) DETAIL
NTS



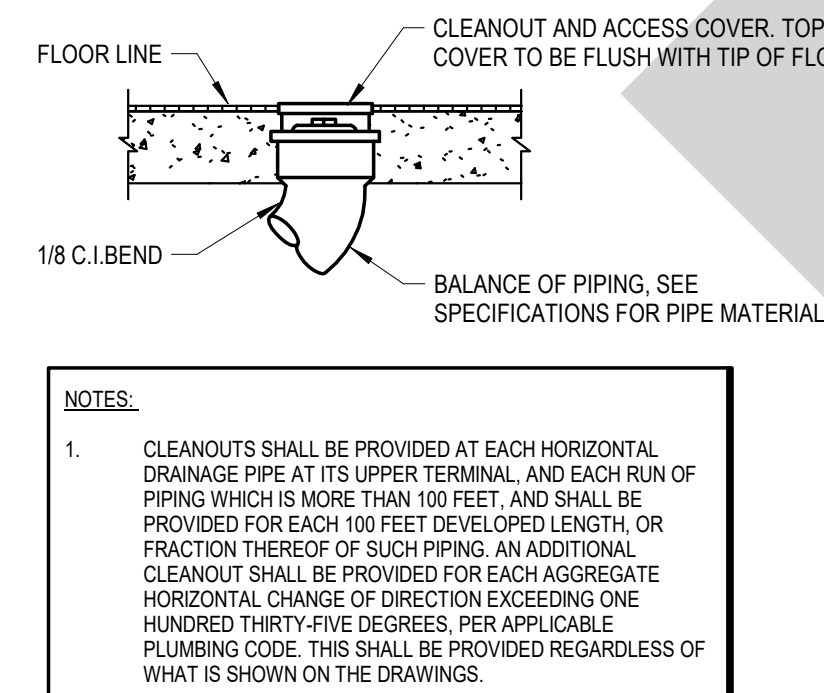
1 GRADE CLEANOUT (GCO) DETAIL
NTS



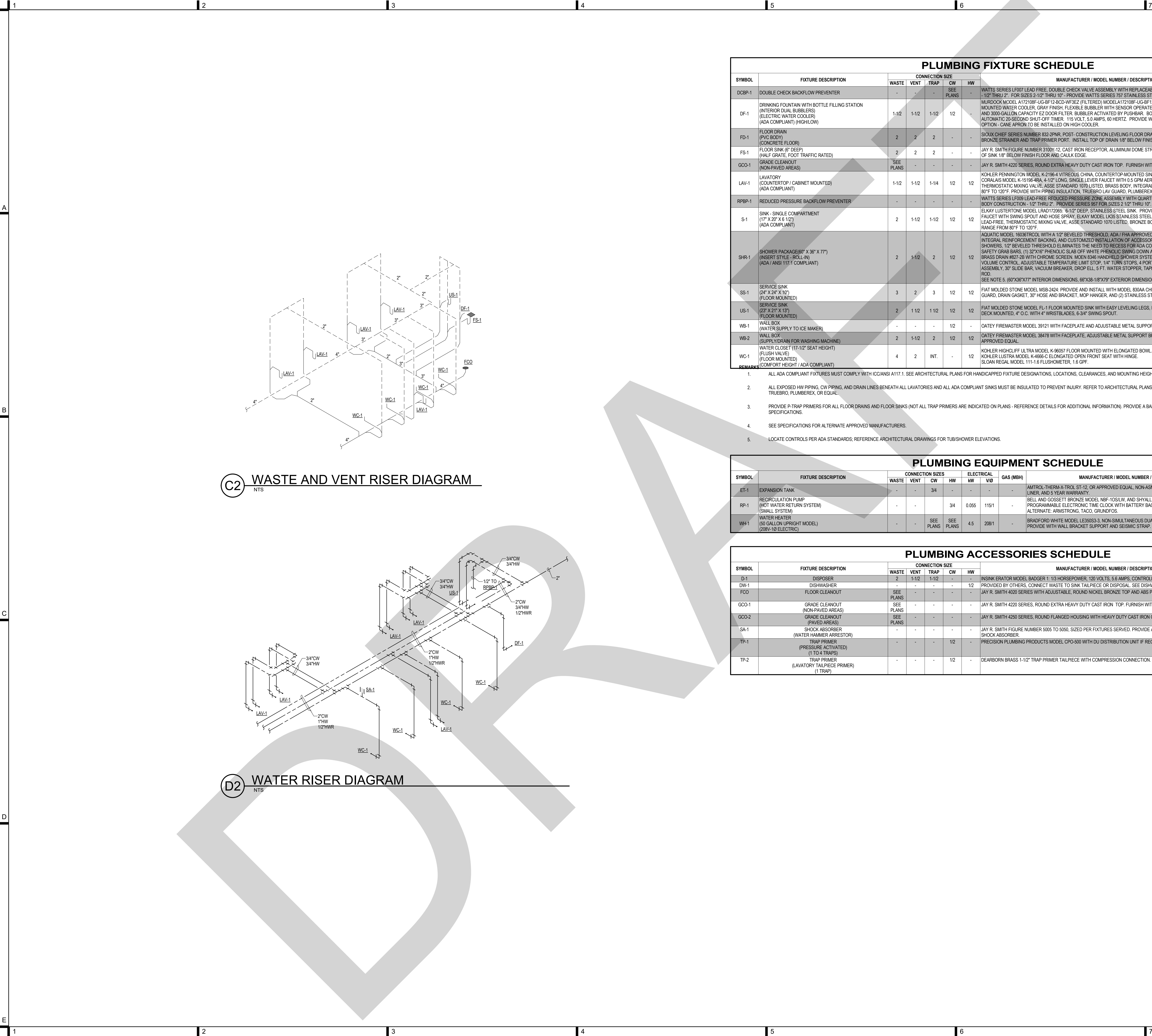
D2 TRAP PRIMER CONNECTION DETAIL
NTS



D5 ELECTRIC WATER HEATER DETAIL
NTS



E1 FLOOR CLEANOUT (FCO) DETAIL
NTS



PLUMBING FIXTURE SCHEDULE									
SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZE					MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS		
		WASTE	VENT	TRAP	CW	HW			
DCBP-1	DOUBLE CHECK BACKFLOW PREVENTER	-	-	-	SEE PLANS	-	WATTS SERIES LF07 LEAD FREE, DOUBLE CHECK VALVE ASSEMBLY WITH REPLACEABLE SEATS AND SEAT DISCS, CAST BRONZE BODY CONSTRUCTION, 1/2" THRU 2", FOR SIZES 2-1/2" THRU 10". PROVIDE WATTS SERIES 757 STAINLESS STEEL DOUBLE CHECK VALVE ASSEMBLY. PROVIDE WITH STRAINER.		
DF-1	DRINKING FOUNTAIN WITH BOTTLE FILLING STATION (INTERIOR DUAL BUBBLERS) (ELECTRIC WATER COOLER) (ADA COMPLIANT) (HIGHLOW)	1-1/2	1-1/2	1-1/2	1/2	-	MURDOCK MODEL A172108F-UG-BF12-BCD-WF3EZ (FILTERED) MODEL A172108F-UG-BF12-BCD (NON-FILTERED) BARRIER-FREE, UNIVERSAL 8-INCH, WALL MOUNTED WATER COOLER, GRAY FINISH, FLEXIBLE BUBBLER WITH SENSOR OPERATED BOTTLE FILLER WITH BOTTLE COUNTER DISPLAY, H2O-TO-GO AND 3000-GALLON CAPACITY EZ-POUR FILTER, BUBBLER ACTIVATED BY PUSHBAR, BOTTLE FILLER ACTIVATED BY ELECTRONIC SENSOR WITH AUTOMATIC 20-SECOND SHUT-OFF TIMER, 115 VOLT, 5.0 AMPS, 60 HERTZ. PROVIDE WITH JAY R. SMITH 9834 FLOOR MOUNTED SUPPORT CARRIER. OPTION - CANE APRON TO BE INSTALLED ON HIGH COOLER.		
FD-1	FLOOR DRAIN (PVC BODY) (CONCRETE FLOOR)	2	2	2	-	-	SIOUX CHIEF SERIES NUMBER 832-2PNR, POST, CONSTRUCTION LEVELING FLOOR DRAIN, NO-HUB OUTLET, 6-1/2" ROUND, ADJUSTABLE NICKEL BRONZE STRAINER AND TRAP PRIMER PORT. INSTALL TOP OF DRAIN 1/8" BELOW FINISH FLOOR AND CAULK EDGE.		
FS-1	FLOOR SINK (6" DEEP) (HALF GRATE, FOOT TRAFFIC RATED)	2	2	2	-	-	JAY R. SMITH FIGURE NUMBER 310Y-12, CAST IRON RECEPTOR, ALUMINUM DOME STRAINER, NICKEL BRONZE GRATE, AND TRAP PRIMER. INSTALL TOP OF SINK 1/8" BELOW FINISH FLOOR AND CAULK EDGE.		
GCO-1	GRADE CLEANOUT (NON-PAVED AREAS)	SEE PLANS	-	-	-	-	JAY R. SMITH 4220 SERIES, ROUND EXTRA HEAVY DUTY CAST IRON TOP. FURNISH WITH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".		
LAV-1	LAVATORY (COUNTER TOP / CABINET MOUNTED) (ADA COMPLIANT)	1-1/2	1-1/2	1-1/4	1/2	1/2	KOHLER PENNINGTON MODEL K-219R-4 VITREOUS CHINA, COUNTER TOP MOUNTED SINK WITH HOLES ON 4" CENTERS, AND GRID STRAINER. KOHLER CORALAIS MODEL K-1519R-4BA, 4-1/2" LONG, SINGLE LEVER FAUCET WITH 0.5 GPM AERATOR. PROVIDE WITH WATTS SERIES LFUS-8 LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRASS BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F. PROVIDE WITH PIPING INSULATION, TRUEBRO LAV GUARD, PLUMBEREX HAND-SHIELD, OR EQUAL.		
RPBP-1	REDUCED PRESSURE BACKFLOW PREVENTER	-	-	-	-	-	WATTS SERIES LF00 LEAD-FREE REDUCED PRESSURE ZONE ASSEMBLY WITH QUARTER TURN BALL VALVES, STRAINER, AND AIR GAP. CAST COPPER BODY CONSTRUCTION - 1/2" THRU 2". PROVIDE SERIES 967 FOR SIZES 2-1/2" THRU 10". SEE NOTE .		
S-1	SINK - SINGLE COMPARTMENT (17" X 20" X 6 1/2") (ADA COMPLIANT)	2	1-1/2	1-1/2	1/2	1/2	ELKAY LUSTERTONE MODEL LRAD172065, 6-1/2" DEEP, STAINLESS STEEL SINK. PROVIDE AND INSTALL ELKAY MODEL LK3001CR SINGLE LEVER CHROME FAUCET WITH SWING SPOUT AND HOSE SPRAY, ELKAY MODEL LK35 STAINLESS STEEL STRAINER BASKET AND TAILPIECE, AND WATTS SERIES LFUS-8 LEAD-FREE, THERMOSTATIC MIXING VALVE, ASSE STANDARD 1070 LISTED, BRASS BODY, INTEGRAL CHECK VALVES, AND SELECTABLE TEMPERATURE RANGE FROM 80°F TO 120°F.		
SHR-1	SHOWER PACKAGE (60" X 36" X 77") (INSERT STYLE - ROLL-IN) (ADA / ANSI 117.1 COMPLIANT)	2	1-1/2	2	1/2	1/2	AQUATIC MODEL 16036TRCOL WITH A 1/2" BEVELED THRESHOLD, ADA / FHA APPROVED, ONE-PIECE MODULE WITH ACRYLX APPLIED ACRYLIC SURFACE, INTEGRAL REINFORCEMENT BACKING, AND CUSTOMIZED INSTALLATION OF ACCESSORIES. ADA MINIMUM INSIDE DIMENSIONS OF 80" X 30" FOR ROLL-IN SHOWERS, 1/2" BEVELED THRESHOLD ELIMINATES THE NEED TO RECESS FOR ADA COMPLIANCE IF A 1/2" MINIMUM FLOORING IS USED. INCLUDE: SAFETY GRAB BARS, (1) 32"x16" PHENOLIC SLAB OFF-WHITE PHENOLIC SWING DOWN ADA COMPLIANT SEAT WITH LEGS, (1) SIOUX CHIEF CAULKLESS BRASS DRAIN H827-28 WITH CHROME SCREEN, MOEN 5346 HANDHELD SHOWER SYSTEM WITH 2.5 GPM FLOW RESTRICTOR, POS-TEMP WITHOUT VOLUME CONTROL, ADJUSTABLE TEMPERATURE LIMIT STOP, 1/4" TURN STOPS, 4 PORT CYCLING VALVE, HANDHELD SHOWER, 69" DOUBLE SWIVEL HOSE ASSEMBLY, 3/16" SLIDE BAR, VACUUM BREAKER, DROP ELL, 5 FT. WATER STOPPER, TAPE-WEIGHTED SHOWER CURTAIN, AND STAINLESS STEEL CURTAIN ROD. SEE NOTE 5, (60"x36"x77" INTERIOR DIMENSIONS, 66"x38-1/8"x79" EXTERIOR DIMENSIONS).		
SS-1	SERVICE SINK (24" X 24" X 10") (FLOOR MOUNTED)	3	2	3	1/2	1/2	FIAT MOLDED STONE MODEL MSB-2424. PROVIDE AND INSTALL WITH MODEL 830AA CHROME FAUCET, GRID STRAINER, STAINLESS STEEL BUMPER GUARD, DRAIN GASKET, 3/8" HOSE AND BRACKET, MOP HANGER, AND (2) STAINLESS STEEL WALL GUARDS. MOUNT FAUCET 36" AFF.		
US-1	SERVICE SINK (23" X 21" X 13") (FLOOR MOUNTED)	2	1-1/2	1-1/2	1/2	1/2	FIAT MOLDED STONE MODEL FL-1 FLOOR MOUNTED SINK WITH EASY LEVELING LEGS, DRAIN ASSEMBLY AND STOPPER WITH FIAT A1 CHROME FAUCET, DECK MOUNTED, 4" O.C. WITH 4" WRISTBLADES, 6-3/4" SWING SPOUT.		
WB-1	WALL BOX (WATER SUPPLY TO ICE MAKER)	-	-	-	1/2	-	QATEY FIREMASTER MODEL 39121 WITH FACEPLATE AND ADJUSTABLE METAL SUPPORT BRACKETS. FIRE-RATED, LOW LEAD, OR APPROVED EQUAL.		
WB-2	WALL BOX (SUPPLY DRAIN FOR WASHING MACHINE)	2	1-1/2	2	1/2	1/2	QATEY FIREMASTER MODEL 38478 WITH FACEPLATE, ADJUSTABLE METAL SUPPORT BRACKETS, AND WATER HAMMER ARRESTORS. FIRE-RATED, OR APPROVED EQUAL.		
WC-1	WATER CLOSET (17-1/2" SEAT HEIGHT) (FLUSH VALVE) (FLOOR MOUNTED) (COMFORT HEIGHT / ADA COMPLIANT)	4	2	INT.	-	1/2	KOHLER HIGHCLIFF ULTRA MODEL K-8657 FLOOR MOUNTED WITH ELONGATED BOWL. KOHLER LUSTRA MODEL K-4666-C ELONGATED OPEN FRONT SEAT WITH HINGE. LLOAN REGAL MODEL 111-1.6 FLUSHOMETER, 1.6 GPF.		

- REMARKS:
- ALL ADA COMPLIANT FIXTURES MUST COMPLY WITH ICC/ANSI A117.1. SEE ARCHITECTURAL PLANS FOR HANDICAPPED FIXTURE DESIGNATIONS, LOCATIONS, CLEARANCES, AND MOUNTING HEIGHTS.
 - ALL EXPOSED HW PIPING, CW PIPING, AND DRAIN LINES BENEATH ALL LAVATORIES AND ALL ADA COMPLIANT SINKS MUST BE INSULATED TO PREVENT INJURY. REFER TO ARCHITECTURAL PLANS. INSULATE WITH MOLDED CLOSED CELL VINYL INSULATION - TRUEBRO, PLUMBEREX, OR EQUAL.
 - PROVIDE P-TRAP PRIMERS FOR ALL FLOOR DRAINS AND FLOOR SINKS (NOT ALL TRAP PRIMERS ARE INDICATED ON PLANS - REFERENCE DETAILS FOR ADDITIONAL INFORMATION). PROVIDE A BALL TYPE SHUT-OFF VALVE UPSTREAM OF PRIMER VALVE. SEE SPECIFICATIONS.
 - SEE SPECIFICATIONS FOR ALTERNATE APPROVED MANUFACTURERS.
 - LOCATE CONTROLS PER ADA STANDARDS; REFERENCE ARCHITECTURAL DRAWINGS FOR TUB/SHOWER ELEVATIONS.

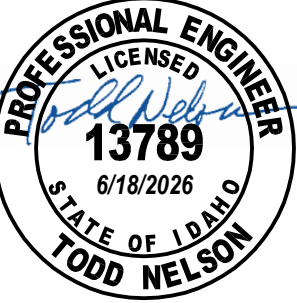
PLUMBING EQUIPMENT SCHEDULE									
SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZES					ELECTRICAL KW	VIB V/Ø	GAS (MBH)
		WASTE	VENT	CW	HW	HW			
ET-1	EXPANSION TANK	-	-	3/4	-	-	-	-	-
RP-1	RECIRCULATION PUMP (HOT WATER RETURN SYSTEM) (SMALL SYSTEM)	-	-	-	3/4	0.055	115/1	-	-
WH-1	WATER HEATER (50 GALLON UPRIGHT MODEL) (208V-10 ELECTRIC)	-	-	SEE PLANS	SEE PLANS	4.5	208/1	-	-

PLUMBING ACCESSORIES SCHEDULE									
SYMBOL	FIXTURE DESCRIPTION	CONNECTION SIZE					MANUFACTURER / MODEL NUMBER / DESCRIPTION / ADDITIONAL COMMENTS		
		WASTE	VENT	TRAP	CW	HW			
D-1	DISPOSER	2	1-1/2	1-1/2	-	1/2	INSINK ERATOR MODEL BADGER 1-1/2 HORSEPOWER, 120 VOLTS, 3.6 AMPS, CONTROLLED BY WALL SWITCH. PROVIDE WITH PRE-WIRED POWER CORD. PROVIDED BY OTHERS, CONNECT WASTE TO SINK TAILPIECE OR DISPOSAL. SEE DISHWASHER CONNECTION DETAIL.		
FCO	FLOOR CLEANOUT	SEE PLANS	-	-	-	-	JAY R. SMITH 4020 SERIES WITH ADJUSTABLE, ROUND NICKEL BRONZE TOP AND ABS PLUG.		
GCO-1	GRADE CLEANOUT (NON-PAVED AREAS)	SEE PLANS	-	-	-	-	JAY R. SMITH 4220 SERIES, ROUND EXTRA HEAVY DUTY CAST IRON TOP. FURNISH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".		
GCO-2	GRADE CLEANOUT (PAVED AREAS)	SEE PLANS	-	-	-	-	JAY R. SMITH 4250 SERIES, ROUND FLANGED HOUSING WITH HEAVY DUTY CAST IRON COVER. FURNISH WITH ABS PLUG. COVER TO BE INSCRIBED "SAN".		
SA-1	SHOCK ABSORBER (WATER HAMMER ARRESTOR)	-	-	-	-	-	JAY R. SMITH FIGURE NUMBER 5005 TO 5050, SIZED PER FIXTURES SERVED. PROVIDE AN ACCESS PANEL AND A BALL TYPE SHUT-OFF UPSTREAM OF SHOCK ABSORBER.		
TP-1	TRAP PRIMER (PRESSURE ACTIVATED) (1 TO 4 TRAPS)	-	-	-	1/2	-	PRECISION PLUMBING PRODUCTS MODEL CPO-500 WITH DU DISTRIBUTION UNIT IF REQUIRED FOR SERVING MORE THAN ONE TRAP.		
TP-2	TRAP PRIMER (LAVATORY TAILPIECE PRIMER) (1 TRAP)	-	-	-	1/2	-	DEARBORN BRASS 1-1/2" TRAP PRIMER TAILPIECE WITH COMPRESSION CONNECTION.		

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DATE
DATE

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DATE: 11/06/25
DRAWN BY: JD
CHECKED BY: TN

PHASE: CONSTRUCTION DOCUMENTS

PLUMBING
SCHEDULES

SHEET NO.

P4.0

ELECTRICAL ABBREVIATIONS	
SYMBOL	DESCRIPTION
AC	ABOVE COUNTER
ACH	ABOVE COUNTER, HORIZONTAL MOUNT, CENTERED IN BACKSPLASH
ACV	ABOVE COUNTER, VERTICAL MOUNT, 6" ABOVE COUNTER OR 3" ABOVE BACKSPLASH
ACI	AVAILABLE FAULT CURRENT
AF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
C	CILING MOUNT
C.O.	CONVENIENCE OUTLET
EC	EMPTY CONDUIT WITH PULL LINE
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HW	HARD WIRE / DIRECT CONNECTION
KA	KILO - AMPS
KS	DENOTES INSTALLATION IN KNEESPACE OF MILLWORK. DEVICE SHALL BE CENTERED IN KNEESPACE. KNEESPACE LOCATIONS TO BE COORDINATED WITH MILLWORK ELEVATIONS PRIOR TO ROUGH-IN
MA	MILLI - AMPS
MLO	MAIN LUGS ONLY
MW	MILLWORK INSTALLATION OF DEVICE, INSTALL HORIZONTAL, INSTALL WITH TOP OF BOX 2" BELOW BOTTOM OF DRAWER OR COUNTER TOP, SEE TYPICAL DETAIL
OC	ON CENTER
SPD	SURGE PROTECTION DEVICE
UON	UNLESS OTHERWISE NOTED
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF

RECEPTACLE DEVICE ABBREVIATIONS		
SYMBOL	DESCRIPTION	NOTES
GFI	GROUND FAULT CIRCUIT INTERRUPTER	
S	INTEGRAL SURGE PROTECTION (SPD) TYPE	
USB	INTEGRAL USB CHARGING PORTS AND TRANSFORMER	

EQUIPMENT CONNECTION SCHEDULE			
SYMBOL	DESCRIPTION	HARDWARE (HW) OR DEVICE	NOTES
CP	COPY MACHINE	NEMA 5-20R	
D	ELECTRIC DRYER	NEMA 14-30R	
EW	ELECTRIC WATER COOLER	HW	1, 2
IC	ICE MACHINE	NEMA 5-20R	
PL	PLOTTER	NEMA 5-20R, SPD TYPE	
R	ELECTRIC RANGE	NEMA 14-50R	
RF	REFRIGERATOR	NEMA 5-20R	
TR	TELECOMMUNICATIONS RACK	(2) NEMA 5-20R, SPD TYPE	
W	ELECTRIC WASHER	NEMA 5-20R	

- NOTES:
1. CONCEAL CONNECTION IN MANUFACTURER'S ASSEMBLY.
 2. FINAL MOUNTING HEIGHT TO BE COORDINATED WITH EQUIPMENT INSTALLATION.

SWITCH DEVICE ABBREVIATIONS		
SYMBOL	DESCRIPTION	NOTES
3, 4	3 OR 4-WAY TOGGLE SWITCH	
P	PULL LIGHT TYPE	1

- NOTES:
1. ILLUMINATED WHEN IN 'ON' POSITION.

TELECOMMUNICATIONS DEVICE ABBREVIATIONS		
SYMBOL	DESCRIPTION	NOTES
AP	WIRELESS ACCESS POINT	1

- NOTES:
1. REFER TO TYPICAL INSTALLATION DETAILS FOR APPLICATIONS NOTED ON PLANS.

ELECTRICAL SYMBOLS LIST	
SYMBOL	DESCRIPTION
	CAPPED RACEWAY
	INTERCONNECTION RACEWAY AND CONDUCTORS
	RACEWAY SLEEVES, QUANTITY AND SIZE AS SCHEDULED
	TELECOMMUNICATIONS SYSTEM RACEWAY
	UNDERGROUND PRIMARY RACEWAY AND CONDUCTORS
	UNDERGROUND SECONDARY RACEWAY AND CONDUCTORS
	EXTERIOR PAD MOUNTED TRANSFORMER
	TELECOMMUNICATIONS NETWORK EQUIPMENT RACK
	IN-GRADE PULLBOX
	BRANCH CIRCUIT PANEL/BOARD, SURFACE AND FLUSH MOUNTED, DASHED LINE DENOTES MINIMUM WORKING CLEARANCE
	TERMINAL CABINET, SURFACE AND FLUSH MOUNTED, DASHED LINE DENOTES MINIMUM WORKING CLEARANCE
	ELECTRICAL SWITCHBOARD, FLOOR MOUNTED ON HOUSEKEEPING PAD, DASHED LINE DENOTES MINIMUM WORKING CLEARANCE
	GROUND BUS BAR
	TELECOMMUNICATIONS TERMINAL BOARD (TTB), 3/4" THICK, FIRE-TREATED PLYWOOD, HEIGHT: 8'-0" UON, WIDTH AS SHOWN ON PLANS
	DUPLEX RECEPTACLE, (CONVENIENCE OUTLET, C.O.) NUMBER INDICATES CIRCUIT
	DOUBLE DUPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE OR CONNECTION, CEILING OR WALL MOUNTED
	JUNCTION BOX, CEILING OR WALL MOUNTED, B - BLANK
	MOTORIZED DAMPER
	MOTOR OUTLET
	DISCONNECT SWITCH
	KNOB BOX
	VARIABLE FREQUENCY DRIVE; SEE MECHANICAL
	CIRCUIT BREAKER
	PUSHBUTTON STATION (FLUSH)
	WATT-HOUR METER
	TELECOMMUNICATIONS OUTLET, B - BLANK; NUMBER IN SYMBOL DENOTES QUANTITY OF CABLES AND CONNECTIONS; SCRIPT DENOTES RACK CONNECTION
	THERMOSTAT OUTLET
	KEYNOTE NUMBER
	DETAIL REFERENCE
	ENLARGED PLAN REFERENCE
	EQUIPMENT DESIGNATION

* SEE SPECIFICATION SECTION 280233 FOR ADDITIONAL CONDUIT REQUIREMENTS

ELECTRICAL SYMBOLS LIST GENERAL NOTES:

1. HEIGHTS INDICATED ARE TO CENTER OF ITEM.
2. EXISTING ELECTRICAL ITEMS INDICATED WITH SHADED SOLID LINES.
3. ALL SYMBOLS IDENTIFIED MAY NOT BE USED ON PLANS.

LIGHTING SYMBOLS	
SYMBOL	DESCRIPTION
	WALL MOUNTED LIGHTING OUTLET AND LUMINAIRE
	RECESSED SQUARE LIGHTING OUTLET AND LUMINAIRE
	RECESSED ROUND LIGHTING OUTLET AND LUMINAIRE
	MONOPOINT LIGHTING OUTLET AND LUMINAIRE
	LIGHTING OUTLET AND LUMINAIRE
	PENDANT MOUNTED LIGHTING OUTLET AND LUMINAIRE
	GRID MOUNTED RECESSED LIGHTING OUTLET AND LUMINAIRE
	DUAL HEAD EMERGENCY UNIT
	EXIT LIGHTING OUTLET AND FIXTURE, CEILING OR WALL MOUNTED; DIRECTIONAL ARROWS AS REQUIRED OR AS NOTED; HATCH DENOTES FACE ORIENTATION
	POLE AND ARM MOUNTED LUMINAIRE
	LOW-VOLTAGE SWITCH / BUTTON STATION
	LOW-VOLTAGE RELAY ASSIGNMENT, TAG IDENTIFIES RELAY PANEL
	LOCAL / ROOM CONTROL ZONE ASSIGNMENT
	SUSPENDED TRACK LIGHTING UNIT AND ASSEMBLY
	DECORATIVE POLE AND LUMINAIRE ASSEMBLY

LIGHTING SYMBOLS GENERAL NOTES:

1. EXISTING ELECTRICAL ITEMS INDICATED WITH SHADED SOLID LINES.
2. ALL SYMBOLS IDENTIFIED MAY NOT BE USED ON PLANS.
3. GRAPHICAL SIZE OF LUMINAIRES ON PLANS INTENDED TO DEPICT NOMINAL SIZE OF LUMINAIRE.
4. REFER TO LIGHTING CONTROL AND LUMINAIRE INSTALLATION SCHEDULES ON LIGHTING PLANS FOR ADDITIONAL INSTALLATION INSTRUCTIONS.

ELECTRICAL RACEWAY AND CABLEING GENERAL INSTRUCTIONS

1. ALL ELECTRICAL SYSTEMS SHALL BE INSTALLED IN LISTED RACEWAY SYSTEMS COMPLYING WITH THE REQUIREMENTS SET FORTH IN THESE DRAWINGS AND SPECIFICATIONS.
2. ALL ELECTRICAL CONDUCTORS SHALL BE LISTED AND SUITABLE FOR THE ENVIRONMENT AND APPLICATION WITHIN WHICH THEY ARE INSTALLED.
3. CONDUCTORS FOR SYSTEMS OPERATING AT GREATER THAN OR EQUAL TO 120 VOLTS NOMINAL TO GROUND SHALL UTILIZE NOT LESS THAN #12 AWG (AMERICAN WIRE GAUGE). CONDUCTORS SHALL BE INCREASED IN SIZE RELEVANT TO VOLTAGE DROP OR WHERE RACEWAY FILL RATIOS REQUIRE REDUCTION IN AMPACITY LISTINGS. WHERE NEUTRAL CONDUCTORS ARE REQUIRED, THE NEUTRAL CONDUCTOR SHALL BE CONSIDERED A CURRENT-CARRYING CONDUCTOR.
4. AMPACITY OF ELECTRICAL CONDUCTORS SHALL BE BASED ON 75 DEGREE CELSIUS TEMPERATURE RATING.
5. THE USE OF MULTI-WIRE BRANCH CIRCUITS THAT SHARE A NEUTRAL CONDUCTOR (COMMONLY REFERRED TO AS AN EDISON CIRCUIT) ARE PROHIBITED. DEDICATED NEUTRAL CONDUCTORS SHALL BE INSTALLED FOR ALL LINE-TO-GROUND BRANCH CIRCUIT CONNECTIONS.
6. ALL FEEDER AND BRANCH CIRCUITS SHALL BE EQUIPPED WITH A DEDICATED EQUIPMENT GROUNDING CONDUCTOR. IN NO CASE SHALL RACEWAYS BE UTILIZED AS THE ONLY EQUIPMENT GROUNDING CONNECTION.
7. BRANCH CIRCUITS DERIVED FROM THE SAME SOURCE MAY BE COMBINED IN SINGLE RACEWAY WHERE PRACTICAL, IN NO CASE, UNLESS PART OF A LISTED FACTORY-BUILT WIRING SYSTEM, SHALL MORE THAN THREE (3) LINE-TO-GROUND BRANCH CIRCUITS BE COMBINED INTO A SINGLE RACEWAY. BRANCH CIRCUITS AND FEEDER CIRCUITS FOR DEDICATED EQUIPMENT CONNECTIONS OR LINE-TO-LINE AND POLY-PHASE CONNECTIONS SHALL BE IN RACEWAY DEDICATED TO EACH CONNECTION.
8. INSTALLED BRANCH CIRCUIT ROUTING, COMBINING, AND DEVICE-TO-DEVICE CONNECTIONS AS INSTALLED IN THE FIELD SHALL BE DEPICTED ON CONTRACTOR'S AS-BUILT DRAWINGS. AS-BUILT DRAWINGS SHALL BE CONTINUALLY UPDATED AS THE CONSTRUCTION PROGRESSES.

GENERAL ELECTRICAL INSTALLATION REQUIREMENTS

1. FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND/OR SPECIFIED IN ALL SECTIONS OF DIVISION 26 AND ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED, BUT REASONABLY INFERRED FOR A COMPLETE INSTALLATION INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE, AND READY FOR OPERATION. ALL SPECIFIED PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH ALL MANUFACTURERS' INSTRUCTIONS AND REQUIREMENTS.
2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND WIRING. MOST DIRECT ROUTING OF CONDUITS AND WIRING IS NOT ASSURED. EXACT REQUIREMENTS SHALL BE GOVERNED BY ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONDITIONS OF THE JOB. CONSULT ALL OTHER DRAWINGS IN PREPARATION OF THE BID. EXTRA LENGTHS OF WIRING OR ADDITION OF PULL OR JUNCTION BOXES, ETC. NECESSITATED BY SUCH CONDITIONS SHALL BE INCLUDED IN THE BID. CHECK ALL INFORMATION AND REPORT ANY APPARENT DISCREPANCIES BEFORE SUBMITTING BID.
3. SEQUENCE, COORDINATE AND INTEGRATE THE VARIOUS ELEMENTS OF ELECTRICAL SYSTEMS, MATERIALS AND EQUIPMENT.
4. COORDINATE ELECTRICAL SYSTEMS, EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. INFORM CONTRACTORS OF OTHER TRADES OF THE REQUIRED ACCESS TO AND CLEARANCES AROUND ELECTRICAL EQUIPMENT TO MAINTAIN SERVICEABILITY AND CODE COMPLIANCE.
5. VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
6. ARRANGE FOR CHASES, SLOTS AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION TO ALLOW FOR ELECTRICAL INSTALLATIONS.
7. COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.
8. SEQUENCE, COORDINATE AND INTEGRATE INSTALLATIONS OF ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. GIVE PARTICULAR ATTENTION TO LARGE EQUIPMENT REQUIRING POSITIONING PRIOR TO CLOSING IN THE BUILDING.
9. WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE. PREFERENCE SHOULD BE GIVEN TO ADA GOVERNING REQUIREMENTS FOR ACCESSIBLE AND OPERABLE COMPONENTS.
10. COORDINATE CONNECTION OF ELECTRICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD SERVICE COMPANIES AND CONTROLLING AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE.
11. INSTALL SYSTEMS, MATERIALS AND EQUIPMENT TO CONFORM WITH APPROVED SUBMITTAL DATA, INCLUDING COORDINATION DRAWINGS, TO THE GREATEST EXTENT POSSIBLE. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS, RECOGNIZING THAT PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. WHERE COORDINATION REQUIREMENTS CONFLICT WITH INDIVIDUAL SYSTEM REQUIREMENT, REFER CONFLICT TO THE ARCHITECT.
12. INSTALL SYSTEMS, MATERIALS AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS WHERE INSTALLED EXPOSED IN FINISHED SPACES.
13. INSTALL ELECTRICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS AND AS REQUIRED BY CODE. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
14. ALL ELECTRICAL ITEMS, EQUIPMENT, ETC. REQUIRING ACCESS AND MAINTENANCE TO BE PROVIDED WITH ACCESS PANELS BY ELECTRICAL CONTRACTOR WHEN LOCATED BEHIND HARD INACCESSIBLE FINISHED SURFACES. SEE ARCHITECTURAL CEILING PLANS FOR CEILING AND WALL FINISH TYPES.
15. INSTALL ACCESS PANEL OR DOORS WHERE EQUIPMENT IS CONCEALED BEHIND FINISHED SURFACES. ACCESS PANELS AND DOORS ARE SPECIFIED IN DIVISION 8 SECTION 'ACCESS DOORS'.
16. INSTALL SYSTEMS, MATERIALS, AND EQUIPMENT GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.
17. ONLY QUALITY WORKMANSHIP WILL BE ACCEPTED. HAPHAZARD OR POOR INSTALLATION PRACTICE WILL BE CAUSE FOR REJECTION OF WORK.
18. PROVIDE FOREMAN IN CHARGE OF THIS WORK AT ALL TIMES.
19. WHERE THE SPECIFICATIONS CALL FOR AN INSTALLATION TO BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, A COPY OF SUCH RECOMMENDATIONS SHALL AT ALL TIMES BE KEPT IN THE JOB SUPERINTENDENT'S OFFICE AND SHALL BE AVAILABLE TO THE OWNER'S REPRESENTATIVE.
20. WHERE AIR PLENUMS ARE ENCOUNTERED, ALL CABLES AND CONDUCTORS NOT IN RACEWAYS SHALL BE RATED, LISTED, AND SUITABLE FOR USE IN PLENUM SPACES.
21. PROVIDE A MEANINGFUL QUALITY ASSURANCE PROGRAM. TO ASSIST THE CONTRACTOR IN THIS PROGRAM, THE SPECIFICATIONS CONTAINED HEREIN ARE SET FORTH AS THE MINIMUM ACCEPTABLE REQUIREMENTS. THIS DOES NOT RELIEVE THE CONTRACTOR FROM EXECUTING OTHER QUALITY ASSURANCE MEASURES TO OBTAIN A COMPLETE, OPERATING FACILITY WITHIN THE SCOPE OF THIS PROJECT.
22. THE CONTRACTOR SHALL INSURE THAT ALL WORKMANSHIP, ALL MATERIALS EMPLOYED, ALL REQUIRED EQUIPMENT AND THE MANNER AND METHOD OF INSTALLATION CONFORMS TO ACCEPTED CONSTRUCTION AND ENGINEERING PRACTICES, AND THAT EACH PIECE OF EQUIPMENT IS IN SATISFACTORY WORKING CONDITION TO SATISFACTORILY PERFORM ITS FUNCTIONAL OPERATION.
23. PROVIDE QUALITY ASSURANCE TESTS AND OPERATIONAL CHECK ON ALL COMPONENTS OF THE ELECTRICAL DISTRIBUTION SYSTEM, ALL LIGHTING FIXTURES, AND COMMUNICATION SYSTEMS.

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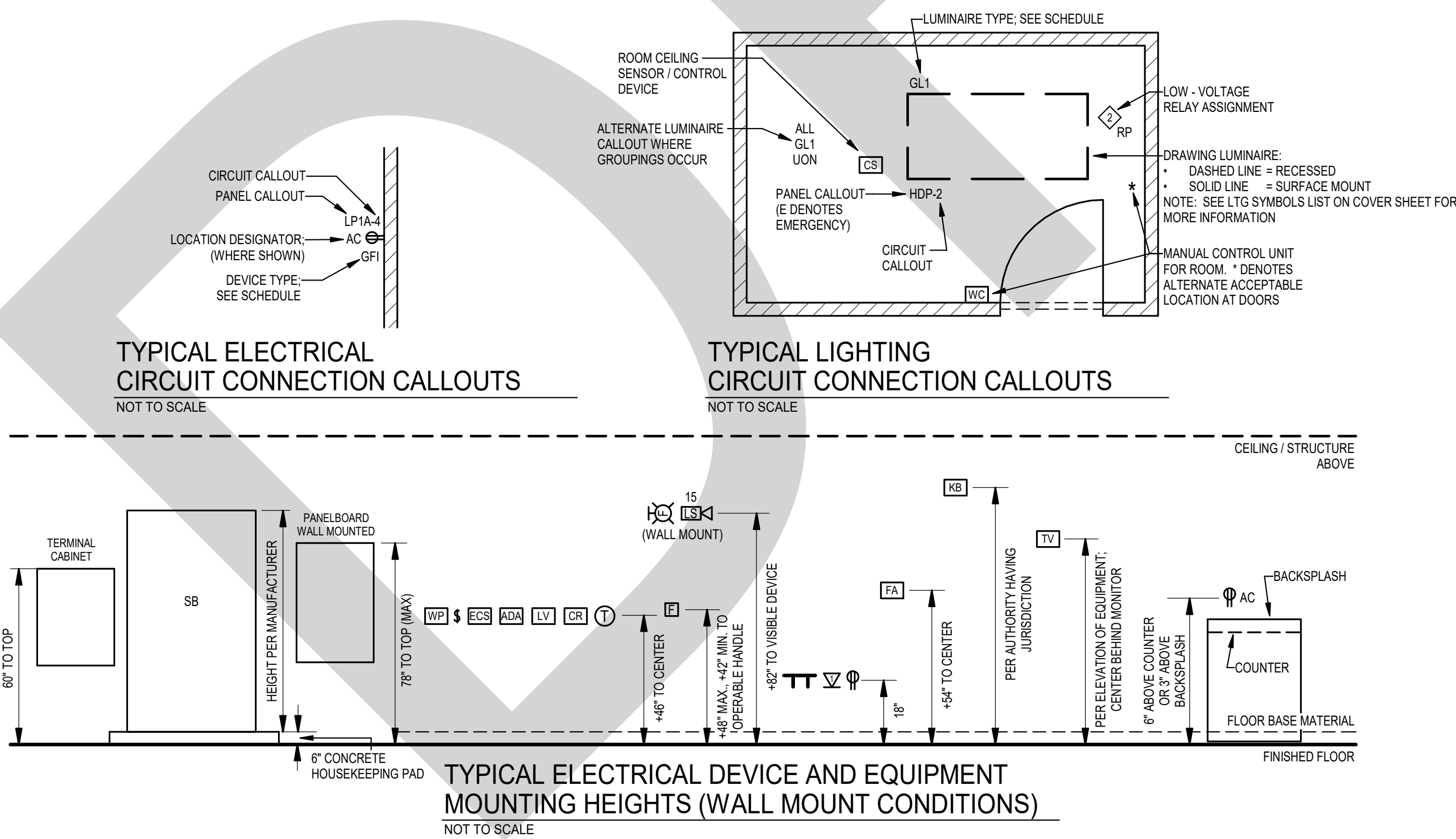
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COMcheck Software Version 4.1.5.5

Interior Lighting Compliance Certificate

Project Information

Energy Code: 2018 IECC
Project Title: Moscow City Shop - Existing Shop TI
Project Type: Alteration
Construction Site: Moscow, ID
Owner/Agent:
Designer/Contractor: GEOFFREY L. JOHNSON
EIDAM & ASSOCIATES
1111 W. JEFFERSON ST.
SUITE 412
BOISE, ID 83702

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft ²)	C Allowed Watts / ft ²	D Allowed Watts (B X C)
1-Moscow City Shop (Office)	6023	0.79	4758
Total Allowed Watts =			4758

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)
Moscow City Shop (Office 6023 sq.ft.)				
LED 1: BL1: BARE STRIP 4': Other:	1	21	20	420
LED 5: EM1: EMERGENCY LIGHTING UNIT: Other:	1	7	1	Exempt
Exemption:Exit signs				
LED 5 copy 1: EM2: EMERGENCY LIGHTING UNIT: Other:	1	6	16	Exempt
Exemption:Emergency lighting automatically off during normal business operation				
LED 5 copy 2: EM3: EMERGENCY LIGHTING UNIT: Other:	1	1	11	Exempt
Exemption:Emergency lighting automatically off during normal business operation				
LED 6 copy 1: EX1: EXIT SIGN: Other:	1	4	3	Exempt
Exemption:Exit signs				
LED 12 copy 1: GS1: GRID LED 2X4: Other:	1	7	32	224
LED 12 copy 2: GS2: GRID LED 2X2: Other:	1	30	27	810
LED 12 copy 2: SL1: SURFACE LED 1X4: Other:	1	24	49	1176
LED 12 copy 3: SL2: SURFACE LED 1X2: Other:	1	3	25	75
LED 6 copy 2: EX2: DUAL FACE EXIT SIGN: Other:	1	1	3	Exempt
Exemption:Exit signs				
Total Proposed Watts =			2705	

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2018 IECC requirements in COMcheck Version 4.1.5.5 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title

Signature

Date



COMcheck Software Version 4.1.5.5

Inspection Checklist

Energy Code: 2018 IECC

Requirements: 0.0% were addressed directly in the COMcheck software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR4]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the interior lighting and electrical systems and equipment and document where exceptions to the standard are claimed. Information provided should include interior lighting power calculations, wattage of bulbs and ballasts, transformers and control devices.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.3.1, C405.2.3.2 [EL23]	Daylight zones provided with individual controls that control the lights independent of general area lighting. See code section C405.2.3.2 Daylight-responsive controls for applicable spaces, C405.2.3.1 Daylight-responsive control function and section C405.2.3.2 Sidelit zone.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.2.4 [EL26]	Separate lighting control devices for specific uses installed per approved lighting plans.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.2.4 [EL27]	Additional interior lighting power allowed for special functions per the approved lighting plans and is automatically controlled and separated from general lighting.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.3 [EL6]	Exit signs do not exceed 5 watts per face.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.6 [EL26]	Low-voltage dry-type distribution electric transformers meet the minimum efficiency requirements of Table C405.6.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.7 [EL27]	Electric motors meet the minimum efficiency requirements of Tables C405.7(1) through C405.7(4). Efficiency verified through certification under an approved certification program or the equipment efficiency ratings shall be provided by motor manufacturer (where certification programs do not exist).	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.8.2, C405.8.2.1 [EL28]	Escalators and moving walks comply with ASME A17.1/CSA B44 and have automatic controls configured to reduce speed to the minimum permitted speed in accordance with ASME A17.1/CSA B44 or applicable local code when not conveying passengers.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.9 [EL29]	Total voltage drop across the combination of feeders and branch circuits <= 5%.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C303.3, C408.2.5.2 [F17]	Furnished O&M instructions for systems and equipment to the building owner or designated representative.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.4.1 [F18]	Interior installed lamp and fixture lighting power is consistent with what is shown on the approved lighting plans, demonstrating proposed watts are less than or equal to allowed watts.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	See the Interior Lighting fixture schedule for values.
C408.1.1 [F157]	Building operations and maintenance documents will be provided to the owner. Documents will cover manufacturers' information, specifications, programming procedures and means of illustrating to owner how building, equipment and systems are intended to be installed, maintained, and operated.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.5.1 [F16]	Furnished as-built drawings for electric power systems within 90 days of system acceptance.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.3 [F133]	Lighting systems have been tested to ensure proper calibration, adjustment, programming, and operation.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

Section # & Req.ID	Rough-In Electrical Inspection	Complies?	Comments/Assumptions
C405.2.2.2 [EL22]	Spaces required to have light-reduction controls have a manual control that allows the occupant to reduce the connected lighting load in a reasonably uniform illumination pattern >= 50 percent.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.2.1.1, C405.2.1.2 [EL18]	Occupancy sensors installed in classrooms/lecture/training rooms, conference/meeting/multipurpose rooms, copy/print rooms, lounges/breakrooms, enclosed offices, open plan office areas, restrooms, storage rooms, locker rooms, warehouse storage areas, and other spaces <= 300 sqft that are enclosed by floor-to-ceiling height partitions. Reference section language C405.2.1.2 for control function in warehouses and section C405.2.1.3 for open plan office spaces.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.2.1.2 [EL19]	Occupancy sensors control function in warehouses: in warehouses, the lighting in aislesways and open areas is controlled with occupant sensors that automatically reduce lighting power by 50% or more when the areas are unoccupied. The occupant sensors control lighting in each aisleway independently and do not control lighting beyond the aisleway being controlled by the sensor.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.2.1.3 [EL20]	Occupant sensor control function in open plan office areas: Occupant sensor controls in open office spaces >= 300 sq ft. have controls 1) configured so that general lighting can be controlled separately in control zones with floor areas <= 600 sq ft. within the space, 2) automatically turn off general lighting in all control zones within 20 minutes after all occupants have left the space, 3) are configured so that general lighting power in each control zone is reduced by >= 80% of the full zone general lighting power within 20 minutes of all occupants leaving that control zone, and 4) are configured such that any daylight responsive control will activate space general lighting or control zone general lighting only when occupancy for the same area is detected.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C405.2.2.2.1, C405.2.2.2.2 [EL21]	Each area not served by occupancy sensors (per C405.2.1.1) have time-switch controls and functions detailed in sections C405.2.2.1 and C405.2.2.2.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

1 High Impact (Tier 1) 2 Medium Impact (Tier 2) 3 Low Impact (Tier 3)

LIGHTING SYSTEM FUNCTIONAL TESTING: CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY WITH THIS SECTION.

FUNCTIONAL TESTING: PRIOR TO PASSING FINAL INSPECTION, THE CONTRACTOR THROUGH COMMISSIONING SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH THE FOLLOWING FOR THE APPLICABLE CONTROL TYPE.

OCCUPANT SENSOR CONTROLS: WHERE OCCUPANT SENSOR CONTROLS ARE PROVIDED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:

- CERTIFY THAT THE OCCUPANT SENSOR HAS BEEN LOCATED AND AIMED IN ACCORDANCE WITH MANUFACTURER RECOMMENDATIONS.
- FOR PROJECTS WITH SEVEN OR FEWER OCCUPANT SENSORS, EACH SENSOR SHALL BE TESTED.
- FOR PROJECTS WITH MORE THAN SEVEN OCCUPANT SENSORS, TESTING SHALL BE DONE FOR EACH UNIQUE COMBINATION OF SENSOR TYPE AND SPACE GEOMETRY. WHERE MULTIPLES OF EACH UNIQUE COMBINATION OF SENSOR TYPE AND SPACE GEOMETRY ARE PROVIDED, NOT LESS THAN 10 PERCENT, BUT IN NO CASE LESS THAN ONE, OF EACH COMBINATION SHALL BE TESTED UNLESS THE CODE OFFICIAL OR DESIGN PROFESSIONAL REQUIRES A HIGHER PERCENTAGE TO BE TESTED. WHERE 30 PERCENT OR MORE OF THE TESTED CONTROLS FAIL, ALL REMAINING IDENTICAL COMBINATIONS SHALL BE TESTED.

FOR OCCUPANT SENSOR CONTROLS TO BE TESTED, VERIFY THE FOLLOWING:

- WHERE OCCUPANT SENSOR CONTROLS INCLUDES STATUS INDICATORS, VERIFY CORRECT OPERATION. THE CONTROLLED LIGHTS TURN OFF OR DOWN TO THE PERMITTED LEVEL WITHIN THE REQUIRED TIME.
- FOR AUTO-ON OCCUPANT SENSOR CONTROLS, THE LIGHTS TURN ON TO THE PERMITTED LEVEL WHEN AN OCCUPANT ENTERS THE SPACE.
- FOR MANUAL-ON OCCUPANT SENSOR CONTROLS, THE LIGHTS TURN ON ONLY WHEN MANUALLY ACTIVATED. THE LIGHTS ARE NOT INCORRECTLY TURNED ON BY MOVEMENT IN ADJACENT AREAS OR BY HVAC OPERATION.

TIME-SWITCH CONTROLS. WHERE TIME-SWITCH CONTROLS ARE PROVIDED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:

- CONFIRM THAT THE TIME-SWITCH CONTROL IS PROGRAMMED WITH ACCURATE WEEKDAY, WEEKEND, AND HOLIDAY SCHEDULES.
- PROVIDE DOCUMENTATION TO THE OWNER OF TIME-SWITCH CONTROLS PROGRAMMING INCLUDING WEEKDAY, WEEKEND, HOLIDAY SCHEDULES, AND SET-UP AND PREFERENCE PROGRAM SETTINGS.
- VERIFY THE CORRECT TIME AND DATE IN THE TIME SWITCH.
- VERIFY THAT ANY BATTERY BACK-UP IS INSTALLED AND ENERGIZED.
- VERIFY THAT THE OVERRIDE TIME LIMIT IS SET TO NOT MORE THAN 2 HOURS.
- SIMULATE OCCUPIED CONDITION. VERIFY AND DOCUMENT THE FOLLOWING:
 - ALL LIGHTS CAN BE TURNED ON AND OFF BY THEIR RESPECTIVE AREA CONTROL SWITCH.
 - THE SWITCH ONLY OPERATES LIGHTING IN THE ENCLOSED SPACE IN WHICH THE SWITCH IS LOCATED.
- SIMULATE UNOCCUPIED CONDITION. VERIFY AND DOCUMENT THE FOLLOWING:
 - NONEXEMPT LIGHTING TURNS OFF.
 - MANUAL OVERRIDE SWITCH ALLOWS ONLY THE LIGHTS IN THE ENCLOSED SPACE WHERE THE OVERRIDE SWITCH IS LOCATED TO TURN ON OR REMAIN ON UNTIL THE NEXT SCHEDULED SHUTOFF OCCURS.
- ADDITIONAL TESTING AS SPECIFIED BY THE REGISTERED DESIGN PROFESSIONAL.

DAY LIGHT RESPONSIVE CONTROLS. WHERE DAYLIGHT RESPONSIVE CONTROLS ARE PROVIDED, THE FOLLOWING SHALL BE VERIFIED:

- CONTROL DEVICES HAVE BEEN PROPERLY LOCATED, FIELD CALIBRATED, AND SET FOR ACCURATE SET POINTS AND THRESHOLD LIGHT LEVELS.
- DAYLIGHT CONTROLLED LIGHTING LOADS ADJUSTED TO LIGHT LEVEL SET POINTS IN RESPONSE TO AVAILABLE DAYLIGHT.
- THE LOCATIONS OF CALIBRATION ADJUSTMENT EQUIPMENT ARE READILY ACCESSIBLE ONLY TO AUTHORIZED PERSONNEL.

DOCUMENTATION REQUIREMENTS:

DOCUMENTS CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET DOCUMENTED PERFORMANCE CRITERIA OF IECC SECTION C405 ARE TO BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY.

COMCHECK NOTE:
LUMINAIRE QUANTITIES INDICATED WITHIN THIS REPORT ARE NOT TO BE USED BY CONTRACTORS, SUPPLIERS OR ANY OTHER ENTITY FOR ESTIMATING OR TAKEOFF PURPOSES. REFER TO THE LIGHTING PLAN(S) FOR LUMINAIRE TYPES AND QUANTITIES.

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JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC:CRH
CHECKED BY: GLJ

PHASE: PERMIT SET

LIGHTING
COMPLIANCE
CERTIFICATE

SHEET NO.

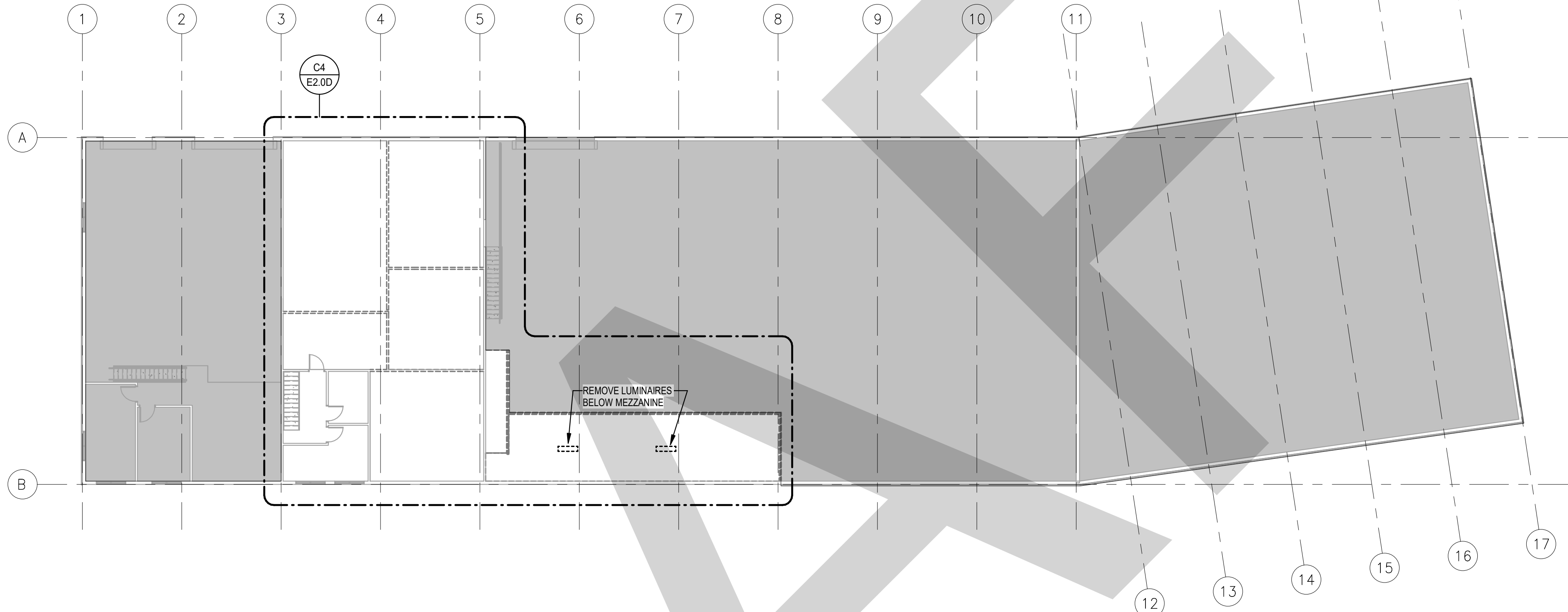
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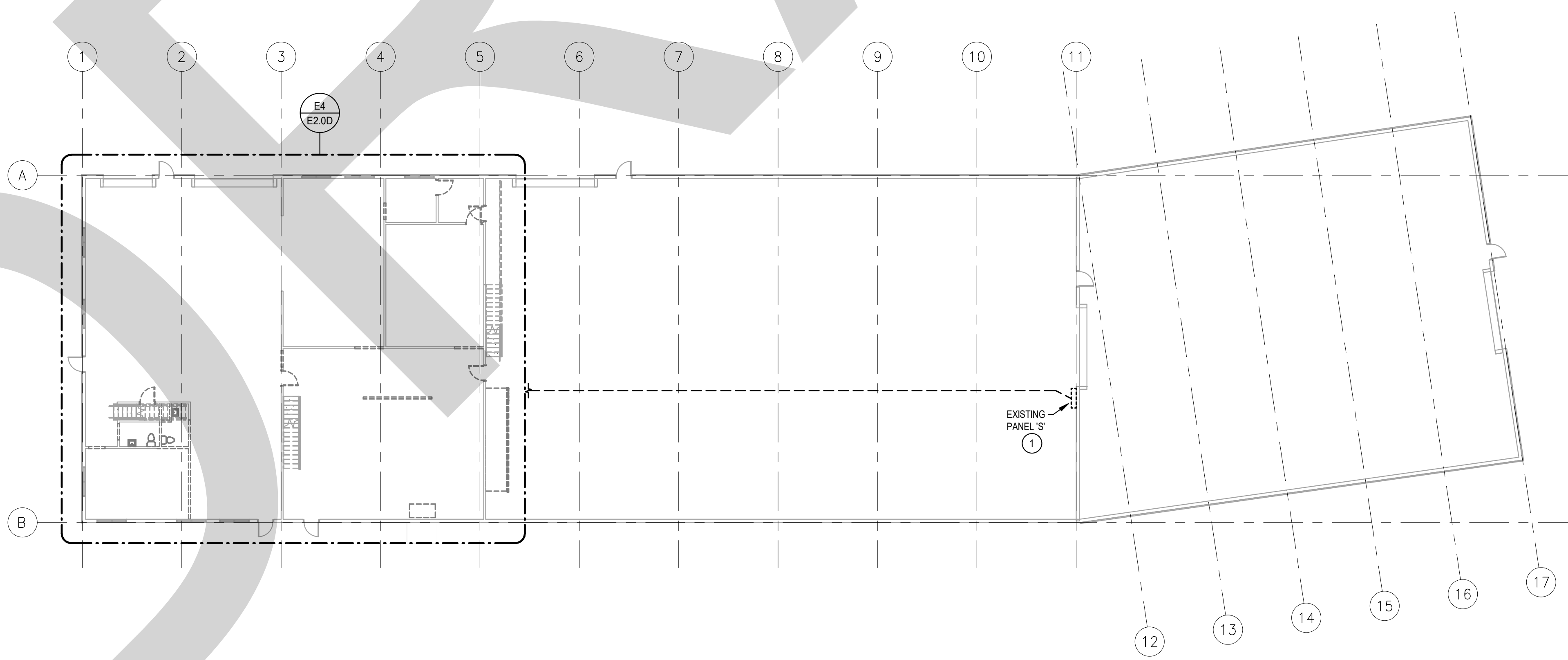
DEMOLITION GENERAL INSTRUCTIONS		
SHEETROCK WALLS (ENTIRE WALL)	REMOVE ALL EXISTING ELECTRICAL APPARATUS ENCOUNTERED IN FRAMED WALLS BEING REMOVED. REMOVE CONNECTIONS BACK TO NEXT REMAINING DEVICE. WHERE UPSTREAM AND DOWNSTREAM CONNECTIONS ARE REQUIRED TO REMAIN ACTIVE, EXTEND ALL CONNECTIONS TO MAINTAIN CIRCUIT OPERATION.	
SHEETROCK WALLS (PORTION OF WALL)	REMOVE ALL EXISTING ELECTRICAL APPARATUS ENCOUNTERED IN THE PORTION OF THE WALL BEING REMOVED INCLUDING ENCOUNTERED CONCEALED CONNECTIONS. WHEN CONCEALED ELECTRICAL CONNECTIONS ARE ENCOUNTERED WITHIN THE PORTION OF THE WALL AFFECTED BY DEMOLITION, REROUTE, EXTEND, AND RECONNECT ALL OTHER DEVICES AND CIRCUITS AFFECTED.	
SPOT - DEMOLITION IN SHEETROCK WALLS	WHERE ELECTRICAL DEVICES THAT ARE LOCATED WITHIN OR ON WALLS ARE SHOWN TO BE REMOVED, BUT THE WALL IS REMAINING, REMOVE NOTED DEVICE, CONNECTIONS, AND RACEWAYS. EXTEND CONNECTIONS IN CONCEALED AREAS TO UPSTREAM AND DOWNSTREAM DEVICES THAT ARE REQUIRED TO REMAIN OPERATIONAL. PATCH AND REPAIR ARCHITECTURAL SURFACES AFFECTED BY DEMOLITION ACTIVITIES.	
MASONRY WALLS (ENTIRE WALL)	REMOVE ALL EXISTING ELECTRICAL APPARATUS, BOXES, AND RACEWAYS ENCOUNTERED IN OR ON MASONRY WALLS BEING REMOVED. REMOVE CONNECTIONS BACK TO NEXT REMAINING DEVICE. WHERE UPSTREAM AND DOWNSTREAM CONNECTIONS ARE REQUIRED TO REMAIN ACTIVE, EXTEND ALL CONNECTIONS TO MAINTAIN CIRCUIT OPERATION. WHERE CONNECTIONS TO REMAINING DEVICES ARE DISCOVERED TO BE ROUTED UNDERGROUND / UNDERSLAB, NOTIFY ARCHITECT OF THE CONDITION FOR DETERMINATION OF ACTION REQUIRED.	
MASONRY WALLS (PORTION OF WALL)	REMOVE ALL EXISTING ELECTRICAL APPARATUS, BOXES, AND RACEWAYS ENCOUNTERED IN OR ON THE PORTION OF THE WALL BEING REMOVED INCLUDING ENCOUNTERED CONCEALED CONNECTIONS. REMOVE CONNECTIONS BACK TO NEXT REMAINING DEVICE. WHERE UPSTREAM AND DOWNSTREAM CONNECTIONS ARE REQUIRED TO REMAIN ACTIVE, EXTEND ALL CONNECTIONS TO MAINTAIN CIRCUIT OPERATION. WHERE CONNECTIONS TO REMAINING DEVICES ARE DISCOVERED TO BE ROUTED UNDERGROUND / UNDERSLAB, NOTIFY ARCHITECT OF THE CONDITION FOR DETERMINATION OF ACTION REQUIRED.	
SPOT - DEMOLITION IN MASONRY WALLS	WHERE ELECTRICAL DEVICES THAT ARE LOCATED WITHIN OR ON WALLS ARE SHOWN TO BE REMOVED, BUT THE WALL IS REMAINING, REMOVE NOTED DEVICE AND CONNECTIONS AND ABANDON RACEWAY IN PLACE. INSTALL COVERPLATE OVER ABANDONED OPENING. COVERPLATE FINISH AND TYPE SHALL BE UTILIZED IN COMPLIANCE WITH DIVISION 26 FOR THE TYPE OF AREA THE WORK IS IN. EXTEND CONNECTIONS IN CONCEALED AREAS TO UPSTREAM AND DOWNSTREAM DEVICES THAT ARE REQUIRED TO REMAIN OPERATIONAL. PATCH AND REPAIR ARCHITECTURAL SURFACES AFFECTED BY DEMOLITION ACTIVITIES.	
Ceilings (ENTIRE CEILING)	REMOVE ALL EXISTING ELECTRICAL APPARATUS ENCOUNTERED IN CEILINGS BEING REMOVED. REMOVE CONNECTIONS BACK TO NEXT REMAINING DEVICE. WHERE UPSTREAM AND DOWNSTREAM CONNECTIONS ARE REQUIRED TO REMAIN ACTIVE, EXTEND ALL CONNECTIONS TO MAINTAIN CIRCUIT OPERATION.	
Ceilings (PORTION OF CEILING)	REMOVE ALL EXISTING ELECTRICAL APPARATUS ENCOUNTERED IN THE PORTION OF THE CEILING BEING REMOVED INCLUDING ENCOUNTERED CONCEALED CONNECTIONS. WHEN CONCEALED ELECTRICAL CONNECTIONS ARE ENCOUNTERED WITHIN THE PORTION OF THE CEILING AFFECTED BY DEMOLITION, REROUTE, EXTEND, AND RECONNECT ALL OTHER DEVICES AND CIRCUITS AFFECTED.	
SPOT - DEMOLITION IN CEILINGS	WHERE ELECTRICAL DEVICES THAT ARE LOCATED WITHIN OR ON CEILINGS ARE SHOWN TO BE REMOVED, BUT THE CEILING IS REMAINING, REMOVE NOTED DEVICE, CONNECTIONS, AND RACEWAYS. EXTEND CONNECTIONS IN CONCEALED AREAS TO UPSTREAM AND DOWNSTREAM DEVICES THAT ARE REQUIRED TO REMAIN OPERATIONAL. PATCH AND REPAIR ARCHITECTURAL SURFACES AFFECTED BY DEMOLITION ACTIVITIES.	

TYPICAL ELECTRICAL DEMOLITION LEGEND		
SYMBOL	DESCRIPTION	NOTES
	LUMINAIRE	1, 2, 4
	EMERGENCY LIGHTING UNIT	1, 3
	EXIT SIGN	1, 3
	SWITCHING DEVICE	1, 2
	RECESSED LUMINAIRE	1, 2
	PANELBOARD / DISTRIBUTION EQUIPMENT	4
	TRANSFORMER	4
	DISCONNECT SWITCH	1, 2
	CONTROL PANEL OR EQUIPMENT ENCLOSURE	4
	ELECTRICAL EQUIPMENT CONNECTION, GENERAL DESCRIPTION NOTED ON PLAN	1, 2
	ELECTRICAL EQUIPMENT CONNECTION, GENERAL DESCRIPTION NOTED ON PLAN	1, 2
	FIRE ALARM DEVICE	1, 2
	CAMERA	1, 3
	THERMOSTAT	1, 2
	NETWORK OUTLET	1, 2
	PAGING SPEAKER AND DEVICE	1, 2

- NOTES:
1. REMOVE CIRCUIT AND CONTROL CONDUCTORS.
 2. LEGALLY DISPOSE OF DEVICE UNLESS OTHERWISE NOTED.
 3. DELIVER TO OWNER STOCK PER OWNER DIRECTION.
 4. REFER TO SPECIFIC INSTRUCTIONS NOTED ON PLANS.



C2 OVERALL ELECTRICAL DEMOLITION PLAN - FLOOR 2
1/16" = 1'-0"



E2 OVERALL ELECTRICAL DEMOLITION PLAN - FLOOR 1
1/16" = 1'-0"

THESE PLANS REPRESENT EXISTING DEVICE AND EQUIPMENT LOCATIONS AS CLOSELY AS REASONABLY DISCERNIBLE AND ARE PROVIDED FOR CONTRACTOR INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN VERIFICATION OF EXISTING CONDITIONS PRIOR TO BID.

SHEET KEYNOTES

1. DISCONNECT ALL ELECTRICAL CONNECTIONS. REMOVE AND LEGALLY DISPOSE OF PANELBOARD ASSEMBLY. RETAIN RECOVERED EXISTING BRANCH CIRCUITS NOT REMOVED BY OTHER DEMOLITION ACTIVITIES FOR EXTENSION AND RECONNECTION TO REPLACEMENT PANELBOARD. REFER TO ONE LINE DIAGRAM AND OTHER ELECTRICAL PLANS FOR ADDITIONAL INSTRUCTIONS.

GENERAL NOTES

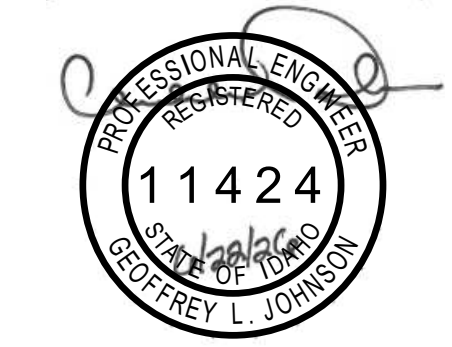
1. REMOVE ALL EXISTING DEVICES IN AREAS OF DEMOLITION SHOWN UNLESS OTHERWISE NOTED ON OTHER PLANS.
2. PROTECT EXISTING DEVICES AND CONNECTIONS TO REMAIN DURING CONSTRUCTION TO THE FURTHEST EXTENT POSSIBLE. WHERE EXISTING DEVICES THAT ARE TO REMAIN ARE DAMAGED BY CONTRACTOR, CONTRACTOR SHALL REPLACE DEVICE AND/OR CONNECTION WITH NEW COMPATIBLE WITH EXISTING SYSTEM(S).
3. WHERE EXISTING DEVICES AND CONNECTIONS ARE AFFECTED BY OTHER DEMOLITION WORK, EXTEND CONNECTIONS TO EXISTING TO REMAIN DEVICES AND RECONNECT TO KEEP ACTIVE. EXISTING DEVICES IN AREAS OF NO DEMOLITION MAY BE AFFECTED BY DEMOLITION AND AS SUCH SHALL BE MAINTAINED IN OPERATION DURING AND AFTER CONSTRUCTION COMPLETION.
4. WHERE DEMOLITION IS INDICATED FOR DEVICES IN MASONRY WALL CONSTRUCTION, REMOVE DEVICE AND CONNECTIONS AND ABANDON BOX IN PLACE IN WALL. FURNISH AND INSTALL BLANK COVERPLATE ON ABANDONED BOX.
5. ALL UNUSED/ABANDONED CONDUCTORS INSTALLED ABOVE ACCESSIBLE CEILINGS SHALL BE REMOVED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE REQUIREMENTS.
6. WHERE ALL DEVICES AND CONNECTIONS ON A CIRCUIT ARE REMOVED, REMOVE HOMERUN CONDUCTORS BACK TO RESPECTIVE PANELBOARD. MAKE RESPECTIVE CIRCUIT BREAKER/CONNECT SWITCH SPARE AND UPDATE DIRECTORY LABEL AS NECESSARY.
7. WHERE DEVICE DEMOLITION IS SHOWN IN WALLS TO REMAIN, REMOVE DEVICE AND ALL RESPECTIVE CONNECTIONS AND ABANDON BOX/CONDUIT IN PLACE. FURNISH AND INSTALL BLANK COVERPLATE ON ABANDONED BOX.
8. REFER TO ARCHITECTURAL DEMOLITION PLANS FOR DETAILED INSTRUCTIONS RESPECTIVE TO WALL, FLOOR, AND CEILING SCOPE OF WORK.
9. EXISTING ELECTRICAL INFRASTRUCTURE INSTALLATIONS TO REMAIN IN USE. ALL EXISTING ELECTRICAL WIRING, APPARATUS, FIXTURES, EQUIPMENT, ETC. IN CLOSE PROXIMITY TO ALTERED OR NEW WORK SHALL BE UPGRADED, MODIFIED, AND BROUGHT TO CURRENT ADOPTED CODE STANDARDS IN ACCORDANCE WITH NEC AND LOCAL ORDINANCES. CLOSE PROXIMITY SHALL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.

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LOCHSA ENGINEERING

201 N. MAPLE GROVE RD., SUITE 100
BOISE, IDAHO 83704
(208) 342-7168

MRK	DATE	DESCRIPTION
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JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC:CRH
CHECKED BY: GLJ

PHASE: PERMIT SET

**OVERALL
ELECTRICAL
DEMOLITION
PLANS**

SHEET NO.

E1.0

SHEET KEYNOTES

1. --

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CONRAD
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ARCHITECTURE | PLANNING
INTERIOR DESIGN

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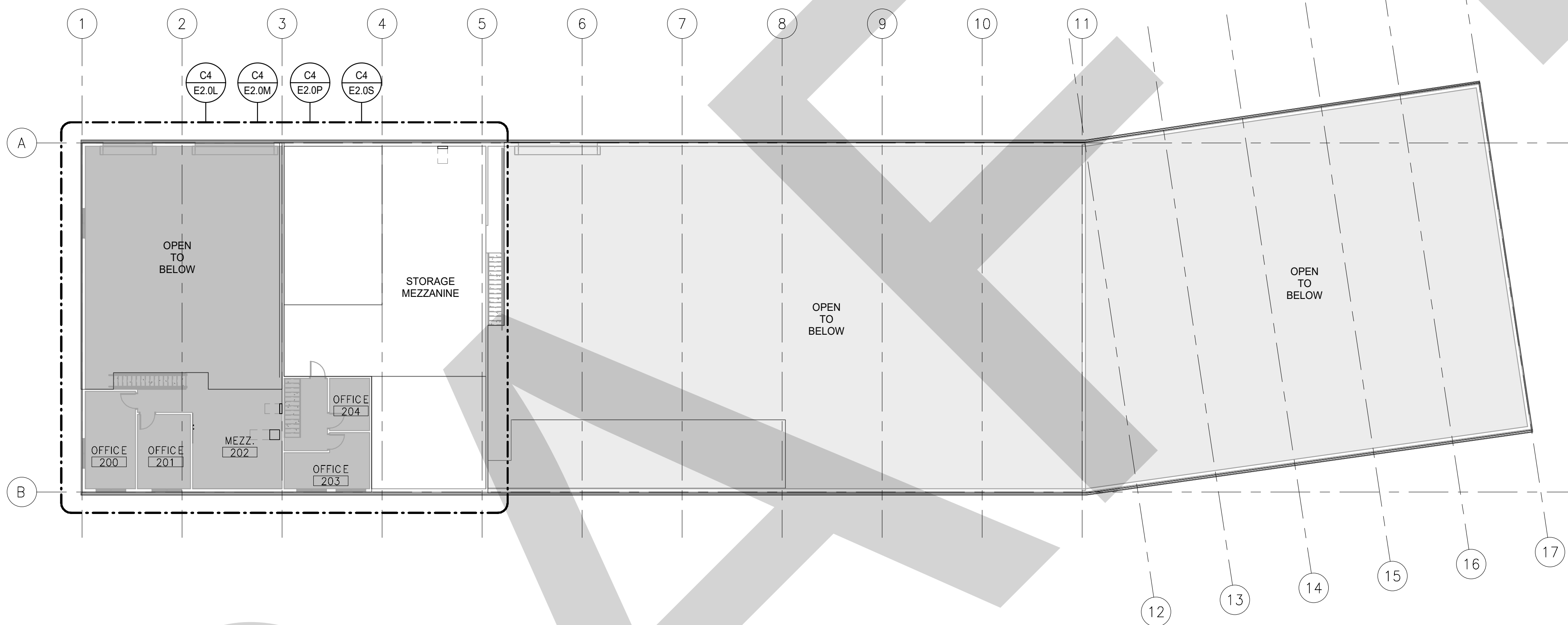
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GENERAL NOTES

1. REFER TO RESPECTIVE SYSTEM PLANS FOR APPLICABLE GENERAL NOTES AND
INSTALLATION INSTRUCTIONS.



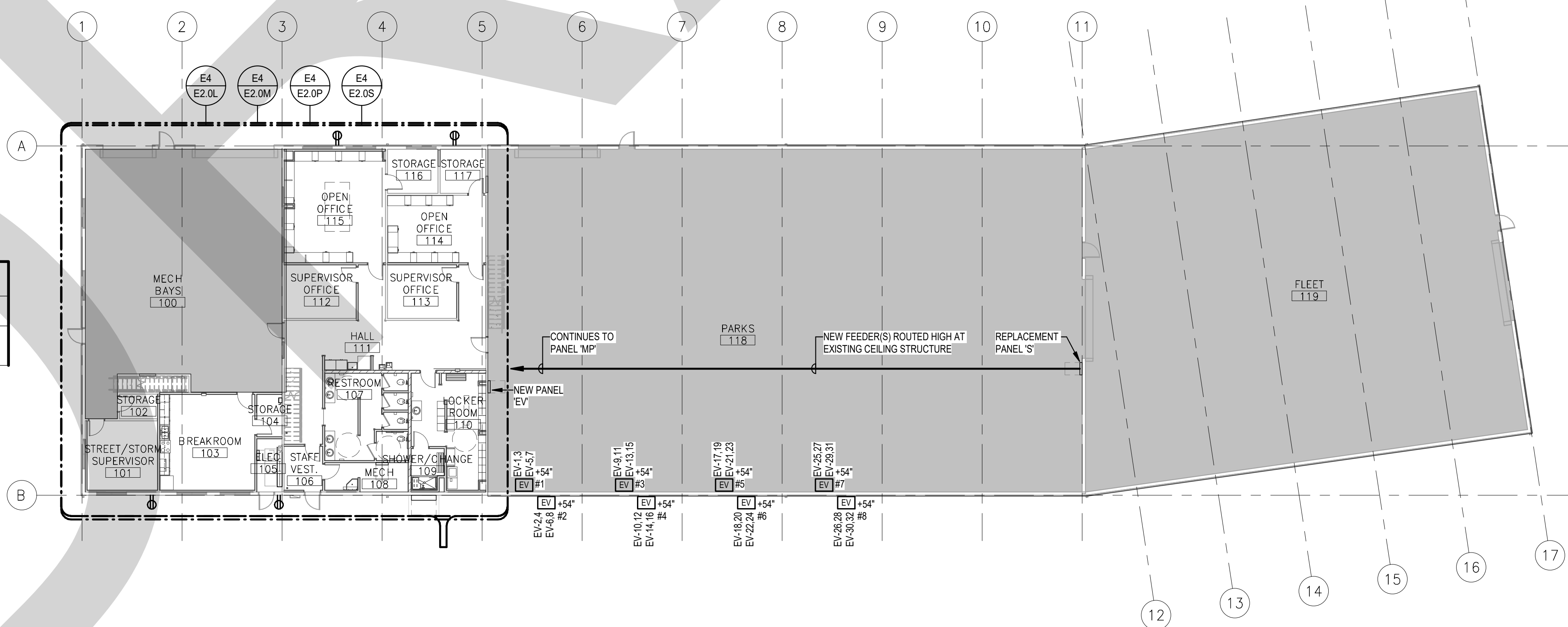
C3 OVERALL ELECTRICAL PLAN - FLOOR 2
1/16" = 1'-0"

E.V. STATION CIRCUIT SCHEDULE					
EQUIPMENT	VOLTAGE	LEVEL	POWER	FEEDER	RACEWAY
EV (CKT. 1)	208/1	II	6.656 KW	2-6 & 1-10(G)	3/4"
EV (CKT. 2)	208/1	II	6.656 KW	2-6 & 1-10(G)	3/4"

NOTES:
1. INSTALLATION SHALL COMPLY WITH NEC ARTICLE 625.

E.V. CHARGING STATION SCHEDULE					
EQUIPMENT	DESCRIPTION	VOLTAGE	LEVEL	MANUFACTURER	MODEL
EV	WALL-MOUNT, DUAL-PORT LEVEL II CHARGING STATION, 18-FT CABLE (2) EACH WITH SAE J1772 CONNECTOR, INTEGRAL METER AND LCD DISPLAY	208/1	II	CHARGEPOINT	CT4023-GW1 SERIES

NOTES:
1. OWNER FURNISHED, CONTRACTOR INSTALLED.
2. CONTRACTOR SHALL BE CERTIFIED BY MANUFACTURER.



E3 OVERALL ELECTRICAL PLAN - FLOOR 1
1/16" = 1'-0"

THESE PLANS REPRESENT EXISTING DEVICE AND EQUIPMENT LOCATIONS
AS CLOSELY AS REASONABLY DISCERNIBLE AND ARE PROVIDED FOR
CONTRACTOR INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR
HIS OWN VERIFICATION OF EXISTING CONDITIONS PRIOR TO BID.

DESCRIPTION
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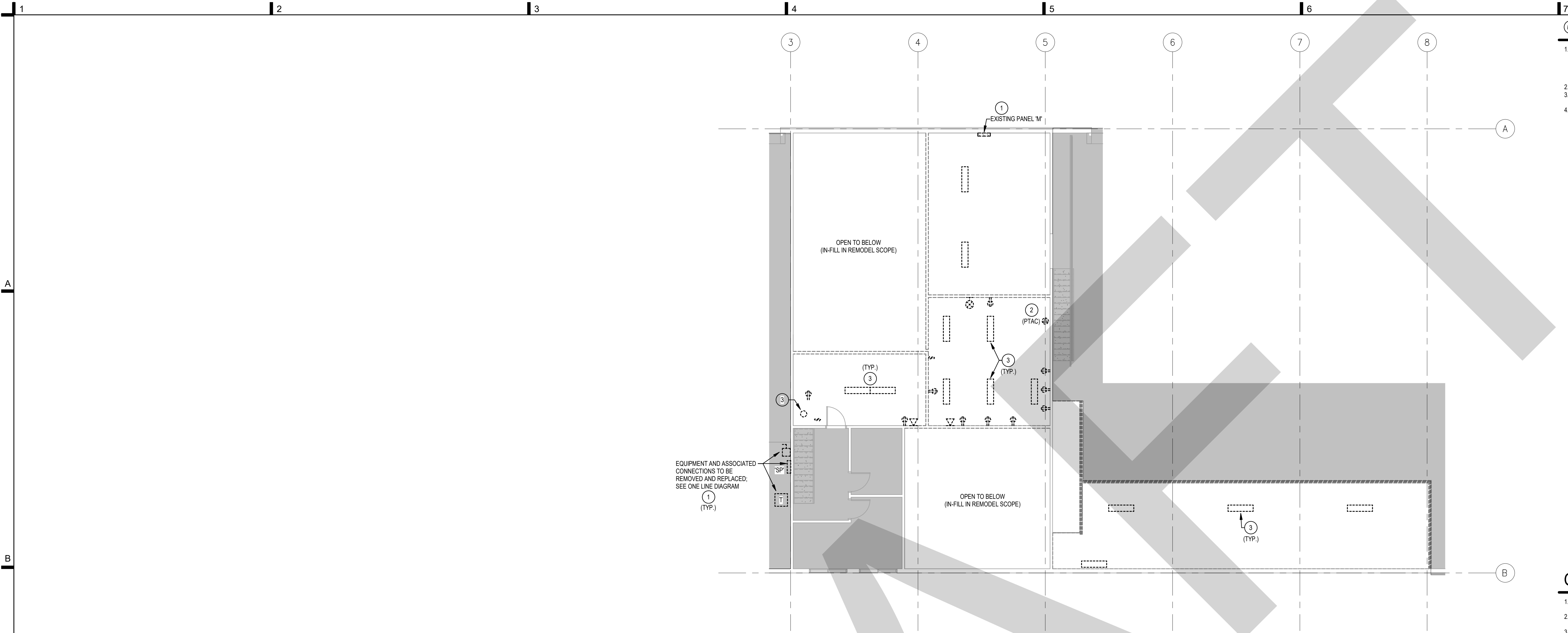
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OVERALL
ELECTRICAL
PLANS

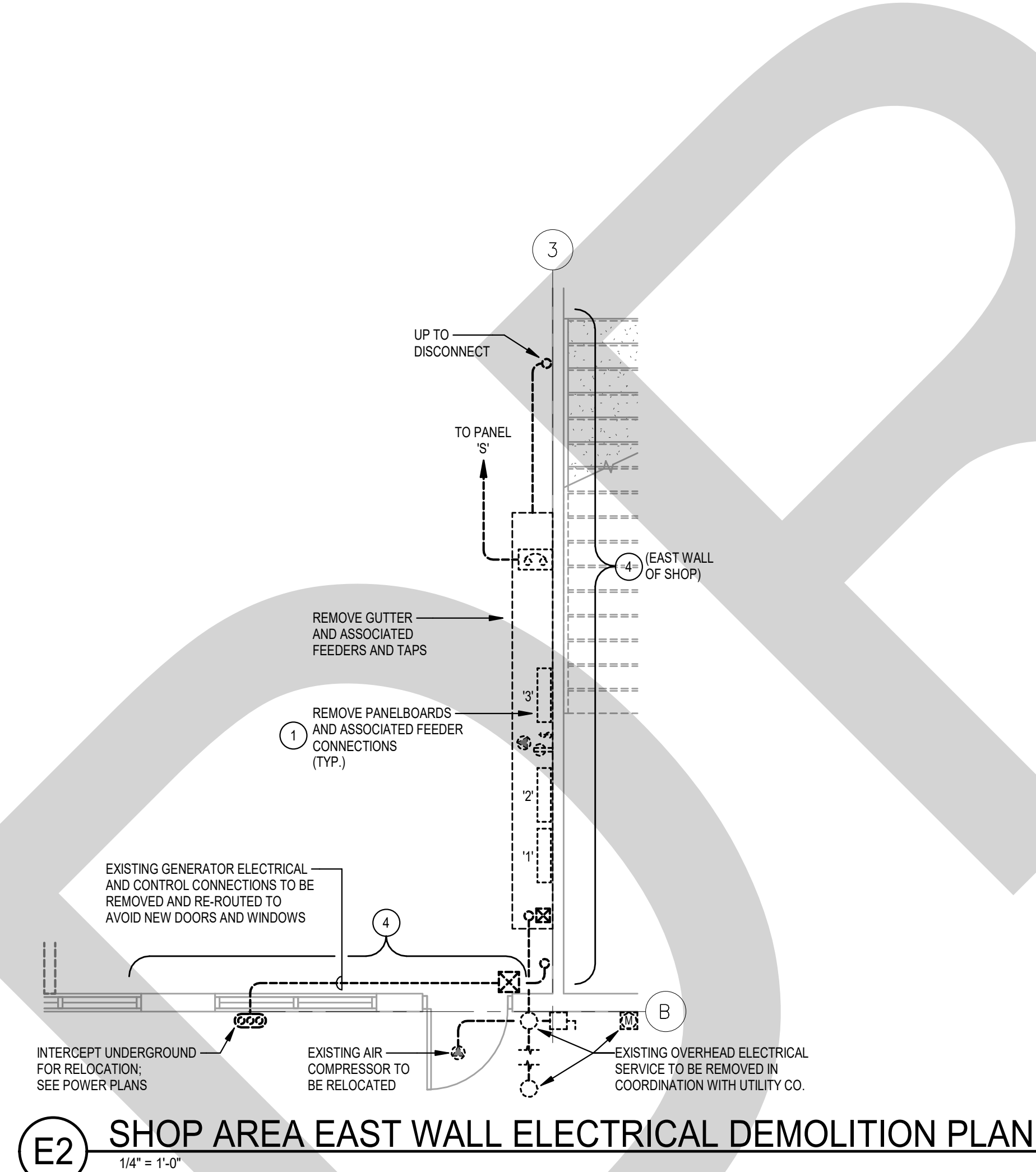
SHEET NO.

E2.0

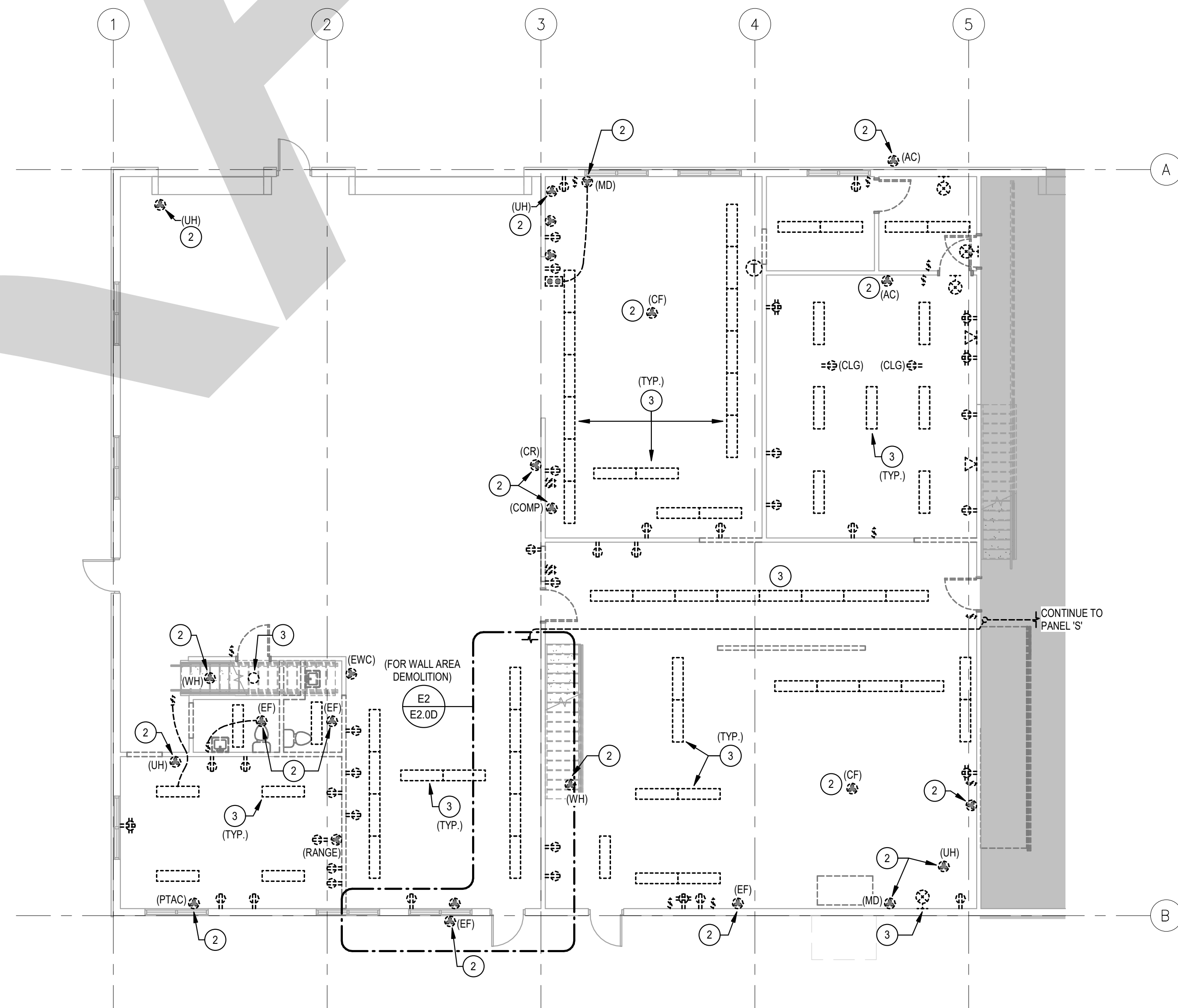
EIDAM AND ASSOCIATES PROJECT NUMBER 23-052



C4 ELECTRICAL DEMOLITION PLAN - FLOOR 2
1/8" = 1'-0"



E2 SHOP AREA EAST WALL ELECTRICAL DEMOLITION PLAN
1/4" = 1'-0"



E4 ELECTRICAL DEMOLITION PLAN - FLOOR 1
1/8" = 1'-0"

SHEET KEYNOTES

1. DISCONNECT ALL ELECTRICAL CONNECTIONS. REMOVE AND LEGALLY DISPOSE OF PANELBOARD ASSEMBLY. RETAIN RECOVERED. EXISTING BRANCH CIRCUITS NOT REMOVED BY OTHER DEMOLITION ACTIVITIES FOR EXTENSION AND RECONNECTION TO REPLACEMENT PANELBOARD. REFER TO ONE LINE DIAGRAM AND OTHER ELECTRICAL PLANS FOR ADDITIONAL INSTRUCTIONS.
2. DISCONNECT EXISTING MECHANICAL AND/OR EXISTING SHOP EQUIPMENT.
3. DISCONNECT, REMOVE, AND LEGALLY DISPOSE OF LUMINAIRE ASSEMBLY INCLUDING LAMPS, BALLAST(S), DRIVERS, ETC.
4. ALL ENCOUNTERED EQUIPMENT CONNECTIONS, RECEPTACLES, CONTROLS, DISCONNECTS, ETC. ASSOCIATED WITH SHOP EQUIPMENT SHALL BE REMOVED. FOR BRANCH CIRCUIT INFRASTRUCTURE THAT IS TO REMAIN, REFER TO ONE LINE DIAGRAM FOR ADDITIONAL INSTRUCTIONS.

GENERAL NOTES

1. REFER TO OVERALL ELECTRICAL DEMOLITION PLAN, SHEET E1.0, AND INSTRUCTION NOTES AND LEGENDS FOR ADDITIONAL DEMOLITION REQUIREMENTS.
2. REMOVE ALL EXISTING DEVICES IN AREAS OF DEMOLITION SHOWN UNLESS OTHERWISE NOTED ON OTHER PLANS.
3. PROTECT EXISTING DEVICES AND CONNECTIONS TO REMAIN DURING CONSTRUCTION TO THE FURTHEST EXTENT POSSIBLE. WHERE EXISTING DEVICES THAT ARE TO REMAIN ARE DAMAGED BY CONTRACTOR, CONTRACTOR SHALL REPLACE DEVICE AND/OR CONNECTION WITH NEW COMPATIBLE WITH EXISTING SYSTEM(S).
4. WHERE EXISTING DEVICES AND CONNECTIONS ARE AFFECTED BY OTHER DEMOLITION WORK, EXTEND CONNECTIONS TO EXISTING TO REMAIN DEVICES AND RECONNECT TO KEEP ACTIVE. EXISTING DEVICES IN AREAS OF NO DEMOLITION MAY BE AFFECTED BY DEMOLITION AND AS SUCH SHALL BE MAINTAINED IN OPERATION DURING AND AFTER CONSTRUCTION COMPLETION.
5. WHERE DEMOLITION IS INDICATED FOR DEVICES IN MASONRY WALL CONSTRUCTION, REMOVE DEVICE AND CONNECTIONS AND ABANDON BOX IN-PLACE IN WALL. FURNISH AND INSTALL BLANK COVER PLATE ON ABANDONED BOX.
6. ALL UNUSED/ABANDONED CONDUCTORS INSTALLED ABOVE ACCESSIBLE CEILINGS SHALL BE REMOVED IN ACCORDANCE WITH NATIONAL ELECTRIC CODE REQUIREMENTS.
7. WHERE ALL DEVICES AND CONNECTIONS ON A CIRCUIT ARE REMOVED, REMOVE HOMERUN CONDUCTORS BACK TO RESPECTIVE PANELBOARD. MAKE RESPECTIVE CIRCUIT BREAKER/DISCONNECT SWITCH SPARE AND UPDATE DIRECTORY/LABEL AS NECESSARY.
8. WHERE DEVICE DEMOLITION IS SHOWN IN WALLS TO REMAIN, REMOVE DEVICE AND ALL RESPECTIVE CONNECTIONS AND ABANDON BOX/CONDUIT IN PLACE. FURNISH AND INSTALL BLANK COVER PLATE ON ABANDONED BOX.
9. REFER TO ARCHITECTURAL DEMOLITION PLANS FOR DETAILED INSTRUCTIONS RESPECTIVE TO WALL, FLOOR, AND CEILING SCOPE OF WORK.
10. EXISTING ELECTRICAL INFRASTRUCTURE INSTALLATIONS TO REMAIN IN USE. ALL EXISTING ELECTRICAL WIRING, APPARATUS, FIXTURES, EQUIPMENT, ETC. IN CLOSE PROXIMITY TO ALTERED OR NEW WORK SHALL BE UPGRADED, MODIFIED, AND BROUGHT TO CURRENT ADOPTED CODE STANDARDS IN ACCORDANCE WITH NEC AND LOCAL ORDINANCES. CLOSE PROXIMITY SHALL BE DETERMINED BY THE AUTHORITY HAVING JURISDICTION.

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DEMOLITION

PLANS

SHEET NO.

E2.0D

EIDAM AND ASSOCIATES PROJECT NUMBER 23-052

LIGHTING CONTROL SCHEDULE													
SYSTEM / ROOM / AREA	DIMMING	MANUAL	SENSOR(S)	DAYLIGHT	NETWORK INTERFACE	PROGRAM SEQUENCE	NOTES						
101													
102													
103													
104													
105													
106													
107													
107 (STALLS)													
108													
109													
110													
111													
112													
113													
114													
115													
116													
117													
MEZZANINE STORAGE													

PROGRAM SEQUENCE SCHEDULE	
SEQUENCE	DESCRIPTION
A	MANUAL ON, MANUAL OFF.
B	MANUAL ON, AUTO OFF.
B1	MANUAL ON, MANUAL DIMMING, AUTO OFF.
C	AUTO ON, AUTO OFF.
C1	BUSINESS DAYS: AUTO ON AT 7:00 AM, AUTO OFF AT 10:00 PM. NON-BUSINESS AND HOLIDAYS: DISABLED.
C2	AUTO ON, AUTO OFF, WITH MANUAL OVERRIDE (DIMMING WHERE SCHEDULED).

NOTES:
1. UNCONTROLLED SECURITY LIGHTING.
2. MULTIPLE SENSORS IN PARALLEL.

LUMINAIRE INSTALLATION SCHEDULE			
ROOM	LUMINAIRE INSTALLATION	NOMINAL MOUNTING HEIGHT	INSTALLATION NOTES
101	CEILING	RECESSED	---
102	CEILING	SURFACE	
103	CEILING	RECESSED	
104	CEILING	SURFACE	
105	CEILING	SURFACE	
106	CEILING	RECESSED	
107	CEILING	SURFACE	B1
108	CEILING	SURFACE	B
109	CEILING	SURFACE	C2
110	CEILING	SURFACE	B
111	CEILING	RECESSED	A
112	CEILING	RECESSED	C
113	CEILING	RECESSED	C2
114	CEILING	RECESSED	A
115	CEILING	RECESSED	C
116	CEILING	RECESSED	C2
117	CEILING	RECESSED	C2
MEZZ STORAGE	SUSPENDED	-10' AFF	

WALL CONTROL DEVICE SCHEDULE				
ROOM	DEVICE ID	BUTTONS	CONTROL ZONE	SWITCH LABEL
111	1, 2, 3	1 2 3 4	HALL 111	HALL
MEZZ	1, 2	1 2	MEZZANINE	STOR

NOTES:
1. MANUFACTURER SHALL CUSTOM ENGRAVE SWITCH BUTTONS WITH LABELS AS SCHEDULED.
2. SELECT BUTTON QUANTITY PER DEVICE.
3. PROGRAM BUTTON(S) PER LIGHTING CONTROL DEVICE SCHEDULE.

LUMINAIRE SCHEDULE									
TYPE	DESCRIPTION	MOUNTING	LAMPS	WATTS / LUMINAIRE	VOLTAGE	EMERGENCY	MANUFACTURER	CATALOG NUMBER	ALTERNATE MANUFACTURERS
BL1	BARE STRIP LUMINAIRE, 48" OVERALL LENGTH, STEEL HOUSING, FLAT DIFFUSE LENS, GENERAL OPTICAL DISTRIBUTION, DIMMING DRIVER, CHAIN HANGERS, WITH WIREGUARD, WHITE FINISH	SEE PLANS	LED 3000LM 3000K	20 VA	120	NA	LITHONIA	CLX4-48-3000LM-SEF-FDL-120-6210-39K-3000K-WH-HC8-N-120-10000	HUBBELL METALUX
EM1	EMERGENCY LIGHTING UNIT, CONCEALED HEADS, MOTORIZED DOOR, HEAD, INTEGRAL BATTERY	SEE PLANS	INT. LED	1 VA	120	INTEGRAL BATTERY	LITHONIA	EM1	LIGHTGUARD SURELITES
EM2	EMERGENCY LIGHTING UNIT, CONCEALED HEADS, MOTORIZED DOOR, HEAD, INTEGRAL BATTERY	SEE PLANS	INT. LED	16 VA	120	INTEGRAL BATTERY	CONCEALITE	FSLEDB86***	EMERGO-LITE
EM3	EMERGENCY LIGHT, DIE CAST ALUMINUM, WET LOCATION, 0° THROUGH 120° RANGE, ADA COMPLIANT	SEE PLANS	LED	11 VA	120	NICKEL CADMIUM	LITHONIA	APN08-EXT	LIGHTGUARD SURELITES
EX1	EXIT LIGHT, DIE CAST ALUMINUM, LED, GREEN LETTERING, BRUSHED ALUMINUM FACE WITH BLACK HOUSING, SINGLE FACE	AS INDICATED ON PLANS	INT. LED	3 VA	120	INTEGRAL BATTERY	LITHONIA	LOC1-G-EL-N	LIGHTGUARD SURELITES
EX2	EXIT LIGHT, DIE CAST ALUMINUM, LED, GREEN LETTERING, BRUSHED ALUMINUM FACE WITH BLACK HOUSING, DOUBLE FACE	AS INDICATED ON PLANS	INT. LED	3 VA	120	INTEGRAL BATTERY	LITHONIA	LOC2-G-EL-N	LIGHTGUARD SURELITES
GS1	GRID MOUNT LED, 24" VOLUMETRIC DISTRIBUTION, RIBBED ACRYLIC LENS, PRISMATIC REFLECTOR WITH TRIM RINGS, DIMMING DRIVER	CEILING RECESSED	LED 4000LM 3500K	32 VA	120	NA	LITHONIA	2BL74-RB-40L-ADPT-E21-LP05	HUBBELL METALUX
GS2	GRID MOUNT LED, 24" VOLUMETRIC DISTRIBUTION, RIBBED ACRYLIC LENS, PRISMATIC REFLECTOR WITH TRIM RINGS, DIMMING DRIVER	CEILING RECESSED	LED 3000LM 3500K	27 VA	120	NA	LITHONIA	2BL74-RB-30L-ADPT-E21-LP05	HUBBELL METALUX
SL1	SURFACE LUMINAIRE, 8" X 48" NOMINAL, EXTRUDED ALUMINUM HOUSING WITH HIGH IMPACT POLYCARBONATE LENS, WHITE FINISH, DIMMING DRIVER, FLAT END CAPS	CEILING SURFACE	LED 4750 LM 3500K	49 VA	120	NA	KENALL	NLH48-48-F-MW-PP-48L39K-CCC-120	LUMINAIRE LIGHTING
SL2	SURFACE LUMINAIRE, 8" X 24" NOMINAL, EXTRUDED ALUMINUM HOUSING WITH HIGH IMPACT POLYCARBONATE LENS, WHITE FINISH, DIMMING DRIVER, FLAT END CAPS	CEILING SURFACE	LED 2375 LM 3500K	25 VA	120	NA	KENALL	NLH24-F-MW-PP-24L39K-CCC-120	LUMINAIRE LIGHTING

LUMINAIRE SCHEDULE NOTES:
1. UTILIZE HANGER CHAINS FOR SUSPENDED MOUNTING IF FIELD CONDITIONS REQUIRE. UTILIZE TANDEM-CONNECTING HARDWARE FOR APPLICATIONS SHOWN ON PLANS.
2. WHERE DIMMING FUNCTIONS ARE NOT UTILIZED, CAP 0-10V LEADS AT DRIVER.
3. ORIENT REFRACTORS IN CEILING IN CONSISTENT PATTERN DIRECTED BY ARCHITECT.
4. FIELD PAINT DOOR AND TRIM TO MATCH CEILING PAINT FINISH. PAINT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
5. CONFIGURE AND PROVIDE MOUNTING KITS REQUIRED FOR INSTALLATION CONDITIONS REQUIRED FOR PLACEMENT PER PLANS.

LIGHTING CONTROL DEVICE SYMBOLS	
SYMBOL	DESCRIPTION
RP	RELAY PANEL ASSIGNMENT; TAG IDENTIFIES PANEL
CS	CEILING MOUNTED SENSOR DEVICE
DS	DAYLIGHT SENSOR DEVICE; CEILING MOUNTED UON
PC	PHOTOCELL SENSOR
PP	LIGHTING CONTROL POWER PACK / POWER SUPPLY
WC1	WALL-MOUNTED CONTROL STATION; TAG IDENTIFIES DEVICE ID
WC2	WIRELESS COMMUNICATION DEVICE
WS	WALL-MOUNTED SENSOR DEVICE
CS	LIGHTING NETWORK CONTROL; BUS CONNECTION
DM	LIGHTING SYSTEM DIMMING CONNECTION
LV	LIGHTING SYSTEM LINE-VOLTAGE CONNECTION
TC	NETWORK CONNECTION

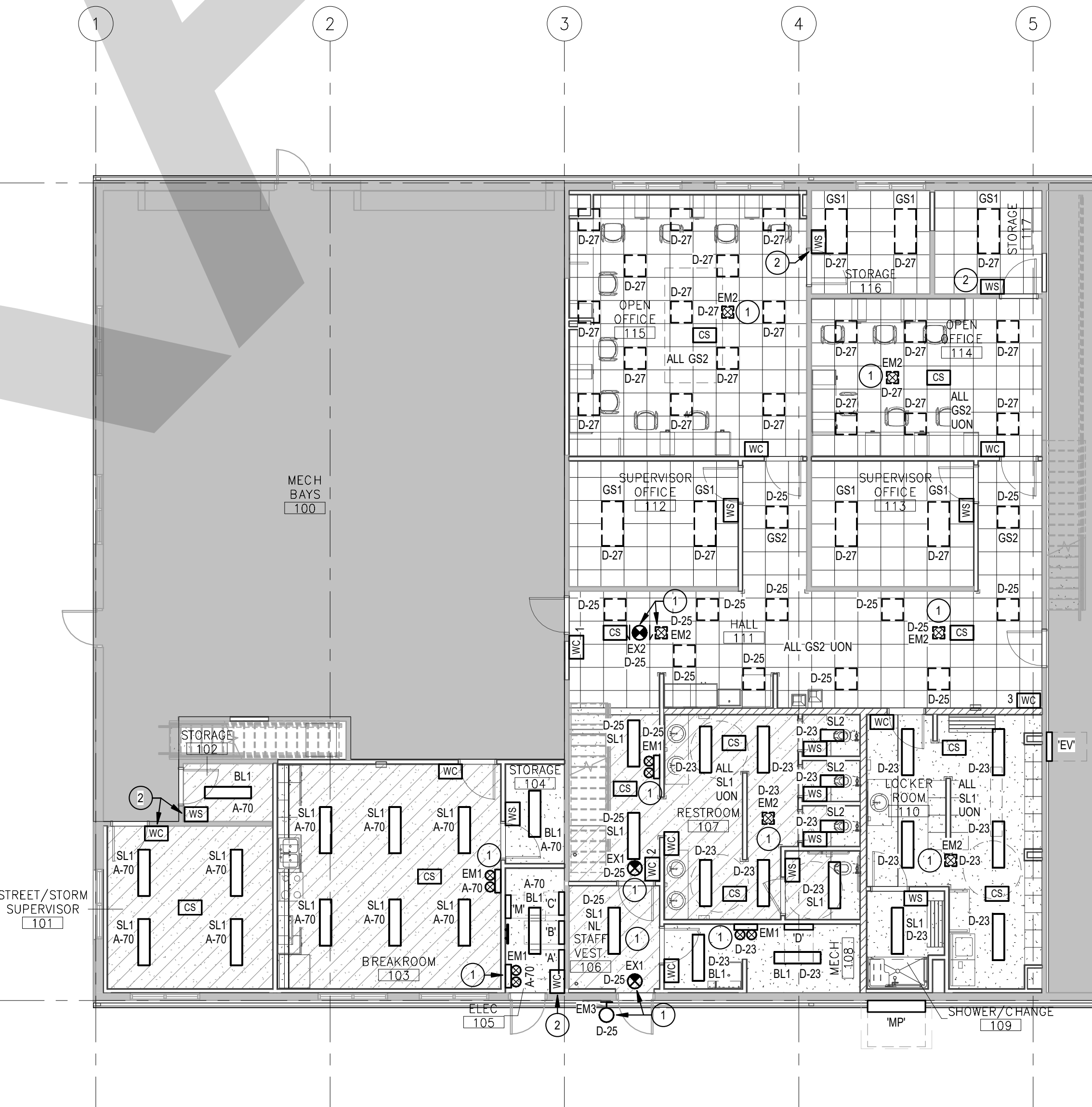
LIGHTING CONTROL SYSTEM GENERAL NOTES

- SELECT CONTROL COMPONENTS FOR FUNCTIONS, OPERATIONS, AND PROGRAMMING REQUIREMENTS SUMMARIZED ON LIGHTING CONTROL SCHEDULE(S). ALL CONTROL COMPONENTS SHALL BE COMPATIBLE WITH AND CERTIFIED FOR USE ON LIGHTING CONTROL SYSTEM.
- LOCAL AREA NETWORK (LAN) CONNECTIONS FOR INTEGRATION WITH BUILDING LAN SYSTEM SHALL BE COORDINATED WITH OWNER'S INFORMATION TECHNOLOGY PERSONNEL PRIOR TO CONNECTION TO NETWORK SYSTEMS.
- WIRELESS COMMUNICATION DEVICES (WIFI) UTILIZED FOR COMMUNICATION TO WIRELESS-ENABLED LIGHTING CONTROLS SHALL BE PLACED AND ORIENTED IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS FOR SIGNAL STRENGTH AND COVERAGE BOUNDARIES. CONSULT MANUFACTURER FOR RECOMMENDATIONS PRIOR TO SUBMITTING BID. ADDITIONAL WIRELESS COMMUNICATION DEVICES WHERE REQUIRED, SHALL BE INCLUDED ALONG WITH ASSOCIATED INFRASTRUCTURE AND INSTALLATION.
- CONTROL BUS BRIDGE DEVICES SHALL BE PROVIDED BASED UPON THE FUNCTIONS, OPERATIONS, AND PROGRAMMING REQUIREMENTS SUMMARIZED ON LIGHTING CONTROL SCHEDULE(S). INSTALL IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION REQUIREMENTS. BRIDGE DEVICES MAY BE LOCATED EITHER AT SYSTEM HEAD END OR FIELD-MOUNTED. WHERE FIELD MOUNTED, LOCATE IN CONCEALED, ACCESSIBLE POSITIONS IN CEILING AREAS.
- CONTROL BUS SIGNAL CABLES SHALL BE INSTALLED FOR A COMPLETE NETWORKED SYSTEM AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SPECIFICATIONS. CONTROL-BUS CABLES MAY BE ROUTED THROUGH CONCEALED CEILING AREAS IN SIMILAR FASHION TO OTHER LOW-VOLTAGE SYSTEMS, BUT SHALL BE INSTALLED IN RACEWAYS WHERE INSTALLED IN WALLS OR THROUGH-WALL PENETRATIONS. WHERE AIR-PLenums ARE ENCOUNTERED, CABLEING SHALL BE LISTED FOR USE IN PLENUM SPACES.
- CEILING MOUNTED SENSORS, INCLUDING DAYLIGHT SENSORS, SHALL BE POSITIONED WITHIN EACH SPACE IN COORDINATION WITH ALL OTHER ROOM COMPONENTS INCLUDING LUMINAIRES, HVAC REGISTERS, ETC. CONSULT ARCHITECTURAL AND MECHANICAL PLANS FOR INFORMATION ON OTHER SYSTEMS. POSITION SENSORS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS FOR OPTIMIZING SENSOR PERFORMANCE.
- POWER PACKS/POWER SUPPLY COMPONENTS SHALL BE UTILIZED FOR AND SHALL ACT AS THE INTERFACE BETWEEN THE LUMINAIRE(S), THIRD PARTY DEVICES, AND CONTROLS. SELECT POWER PACK FOR THE LOAD SERVED AND THE OPERATIONAL CONSIDERATIONS OF THE ROOM/AREA. POWER PACK EQUIPMENT SHALL BE INSTALLED IN CONCEALED, ACCESSIBLE LOCATIONS AND SHALL BE LOCATED IN GENERAL PROXIMITY TO THE LOAD SERVED. WHERE INSTALLED IN WALLS OR THROUGH-WALL PENETRATIONS, LOCATE POWER PACKS AS CLOSE AS POSSIBLE TO THE LOAD.
- DIMMING CONTROL CONNECTIONS SHALL BE IMPLEMENTED BETWEEN ALL GROUPED LUMINAIRES, EITHER BY ZONE OR BY ROOM, REGARDLESS OF CONTROL SEQUENCES. DIMMING CONTROLS PER ROOM/AREA ZONE SHALL BE EXTENDED TO THE SCHEDULED LIGHTING CONTROL INTERFACE.

THESE PLANS REPRESENT EXISTING DEVICE AND EQUIPMENT LOCATIONS AS CLOSELY AS REASONABLY DISCERNIBLE AND ARE PROVIDED FOR CONTRACTOR INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN VERIFICATION OF EXISTING CONDITIONS PRIOR TO BID.

LIGHTING PLAN - FLOOR 2

1/8" = 1'-0"



LIGHTING PLAN - FLOOR 1

1/8" = 1'-0"

SHEET KEYNOTES

- CONNECT TO UNCONTROLLED LEG OF LIGHTING CIRCUIT.
- CUT INTO EXISTING SURFACE AND CONCEAL ALL CONNECTIONS. PATCH AND REPAIR SURFACES TO MATCH.

GENERAL NOTES

- REFER TO LUMINAIRE SCHEDULE ON THIS SHEET FOR LUMINAIRE TYPES AND ADDITIONAL INSTALLATION INSTRUCTIONS ASSOCIATED WITH RESPECTIVE LUMINAIRE TYPES.
- REFER TO LIGHTING CONTROL DEVICE SCHEDULE AND TYPICAL CONTROL SYSTEM SCHEMATICS ON THIS SHEET FOR CONTROL DEVICE TYPES, CONTROL SYSTEM CONNECTION REQUIREMENTS, AND GENERAL INSTALLATION INSTRUCTIONS.
- REFER TO LIGHTING SYMBOLS LIST FOR GENERAL DESCRIPTION OF LUMINAIRE SYMBOLS, CONTROL SYMBOLS, AND CONNECTION NOMENCLATURE.
- REFER TO MECHANICAL SYSTEM CONTROL SCHEMATICS FOR INSTALLATION AND INTERFACE REQUIREMENTS FOR LIGHTING CONTROL DEVICES AND BUILDING MANAGEMENT SYSTEMS, DIRECT DIGITAL CONTROL SYSTEMS, AND OTHER HVAC AND CONTROL INTERFACE REQUIREMENTS.
- ALL LUMINAIRES AND LIGHTING CONTROL DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. DO NOT PROCEED WITH THE WORK WITHOUT PROPER REVIEW OF ALL MANUFACTURERS LITERATURE, SHOP DRAWINGS, AND DETAILS.
- ALL LUMINAIRES SHALL BE SUPPORTED FROM STRUCTURE. DO NOT UTILIZE CEILING GRIDS AS THE ONLY MEANS OF SUPPORT.
- SEISMIC SUPPORTS SHALL BE FURNISHED AND INSTALLED IN ACCORDANCE WITH SEISMIC SPECIFICATIONS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.
- COORDINATE LUMINAIRE PLACEMENT WITH ARCHITECTURAL REFLECTED CEILING PLANS, MECHANICAL AND PLUMBING PLANS, FIRE-SPRINKLER SYSTEM LAYOUTS, AND STRUCTURAL ASSEMBLIES PRIOR TO INSTALLATION.
- CEILING GRID ORIENTATION AND FRAMING FOR HARD-LD ASSEMBLY CEILINGS SHALL BE VERIFIED PRIOR TO LUMINAIRE INSTALLATION.
- RECESSED LUMINAIRES SHALL BE INSTALLED FLUSH WITH FINISHED SURFACES. DO NOT CUT OPENINGS LARGER THAN LUMINAIRE TRIMS.
- SUSPENDED LUMINAIRES SHALL BE INSTALLED PARALLEL WITH THE FLOOR UNLESS OTHERWISE NOTED, AND SHALL BE PLUMB WITH BUILDING LINES AND STRUCTURE.
- FINAL INSTALLATION HEIGHT OF PENDANT MOUNTED LUMINAIRES SHALL BE GOVERNED BY PROPER COORDINATION WITH OTHER TRADES. SCHEDULED HEIGHTS INDICATED ARE NOMINAL. ADEQUATE LENGTH OF CABLES, STEMS, AND OTHER SUPPORT STRUCTURES SHALL BE FURNISHED BASED ON FIELD CONDITIONS ENCOUNTERED. FINAL INSTALLATION HEIGHTS SHALL BE ADJUSTED UPON REVIEW OF THE INSTALLATION. PROVIDE ADEQUATE SPARE LENGTH OF SUSPENSION MATERIALS FOR FINAL ADJUSTMENTS WHERE OBSTRUCTIONS SUCH AS DUCTWORK, PIPING, EQUIPMENT RACKS, ETC. EXIST. SPAN OBSTRUCTION WITH RIGID SUSPENSION SYSTEM.
- EXIT SIGNS SHALL BE LOCATED TO PROVIDE CLEAR VISIBLE IDENTIFICATION OF EXIT DOORS AND EGRESS PATHWAYS. EXIT SIGNS SHALL NOT BE OBSTRUCTED FROM VIEW. FIELD-MODIFY EXIT SIGNS TO ALLOW FOR DIRECTIONAL INDICATIONS AS DIRECTED.
- LOCATE WALL MOUNTED LIGHTING CONTROL DEVICES NOT MORE THAN 12-INCHES FROM THE TRIM OF THE DOOR ON THE LATCH SIDE, OR NOT MORE THAN 12-INCHES FROM THE DOOR SIDE LIGHT (WHERE APPLICABLE) OR NOT MORE THAN 12-INCHES FROM OPEN POSITION OF THE DOOR WHERE INSTALLED ON OPPOSING WALL FROM THE DOOR LATCH. DO NOT INSTALL WALL MOUNTED LIGHTING CONTROL DEVICES BEHIND DOORS IN THE OPEN POSITION.
- LOCATE ALL LIGHTING AND CONTROL SYSTEM POWER SUPPLIES, REMOTE DRIVERS, OR INTERFACE EQUIPMENT IN ACCESSIBLE LOCATIONS. DO NOT EXCEED MANUFACTURER'S PUBLISHED DISTANCE LIMITATIONS BETWEEN SUCH DEVICES AND LUMINAIRES OR CONTROLS.
- MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE UTILIZED FOR LINE-TO-NEUTRAL LOADS. ALL LIGHTING BRANCH CIRCUITS SHALL BE EQUIPPED WITH DEDICATED NEUTRAL CONDUCTORS.
- EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSTALLED WITH ALL BRANCH LIGHTING CIRCUITS. RACEWAYS SHALL BE BONDED IN ACCORDANCE WITH NEC REQUIREMENTS.
- ALL LUMINAIRES EQUIPPED WITH DIMMING DRIVERS OR POWER SUPPLIES SHALL BE EQUIPPED WITH DIMMING CONTROL CONDUCTORS THROUGHOUT THE ENTIRE CIRCUIT. WHERE DIMMING FUNCTIONS ARE NOT SCHEDULED TO BE UTILIZED, ALL DIMMING CONTROL CONDUCTORS SHALL BE CAPPED WITH LISTED TERMINATIONS AT THE LUMINAIRE. IDENTIFY ALL DIMMING CONTROL CONDUCTORS UNIQUELY AND INDEPENDENTLY FROM POWER SYSTEM CONDUCTORS AT EACH LUMINAIRE CONNECTION.
- UNCONTROLLED LUMINAIRES, EXIT SIGNS, AND UNITARY EMERGENCY LIGHTING UNITS SHALL BE CONNECTED TO THE UNCONTROLLED LEG OF LIGHTING CIRCUIT. DO NOT ROUTE CONTROLLED CONNECTIONS THROUGH THESE DEVICES.
- LOW-VOLTAGE LIGHTING CONTROL CONNECTIONS, REGARDLESS OF WIRING CLASSIFICATION SYSTEM, SHALL BE INSTALLED IN RACEWAYS IN WALL CAVITIES AND IN AREAS WHERE WIRING CANNOT BE CONCEALED WITH CEILING SYSTEMS. LOW VOLTAGE CONTROL CABLEING MAY BE SUPPORTED FROM STRUCTURE IN ACCESSIBLE CONCEALED CEILING CAVITIES; UTILIZE J-HOOKS, D-RINGS, OR CABLE TRAYS FOR CABLEING SUPPORT IN THESE AREAS. CABLEING IS NOT PERMITTED TO BE ROUTED WITHOUT SUPPORT WITHIN CEILING CAVITIES.
- ALL PROGRAMMABLE LIGHTING CONTROL DEVICES SHALL BE FIELD-ADJUSTED AFTER COMPLETION OF INSTALLATION. SET TIME DELAYS, SENSITIVITY, COVERAGE PATTERNS, AND OTHER ADJUSTABLE SETTINGS IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS, AND THE DIRECTION OF THE ELECTRICAL ENGINEER. WHERE THIRD-PARTY COMMISSIONING IS REQUIRED, COMPLY WITH THE REQUIREMENTS SET FORTH BY THE COMMISSIONING AGENCY.
- COORDINATE WITH THE PROJECT PAINTING CONTRACTOR TO PAINT ALL VISIBLE OVERHEAD STRUCTURES TO MATCH THE PROJECT PAINTING REQUIREMENTS. DO NOT FIELD PAINT LUMINAIRE HOUSINGS OR SENSORS.

EXPOSED RACEWAY INSTALLATIONS

EXPOSED RACEWAYS SHALL BE PERMITTED IN ALL SHOP CEILING AREAS. EXPOSED RACEWAYS SHALL BE INSTALLED PLUMB WITH BUILDING LINES AND SHALL NOT BE ROUTED DIAGONAL OR ALONG WALLS. EXPOSED RACEWAYS ARE NOT PERMITTED IN THE FOLLOWING GENERAL AREAS AND THOSE SPECIFIC AREAS NOTED ON PLANS:
• EXTERIOR
• OFFICES
• RESTROOMS
• HALLWAYS / CORRIDORS
• COMMON AREAS

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INTERIOR DESIGN

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MOSCOW CITY
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CITY OF MOSCOW

CONSULTANTS:

ELECTRICAL ENGINEER

IDAM AND ASSOCIATES
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(208) 345-7127

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STRUCTURAL ENGINEER

LOCHSA ENGINEERING
201 N. MAPLE GROVE RD., SUITE 100
BOISE, IDAHO 83704
(208) 342-7168

DESCRIPTION

DATE

INR

PHASE:

PERMIT SET

LIGHTING PLANS

SHEET NO.

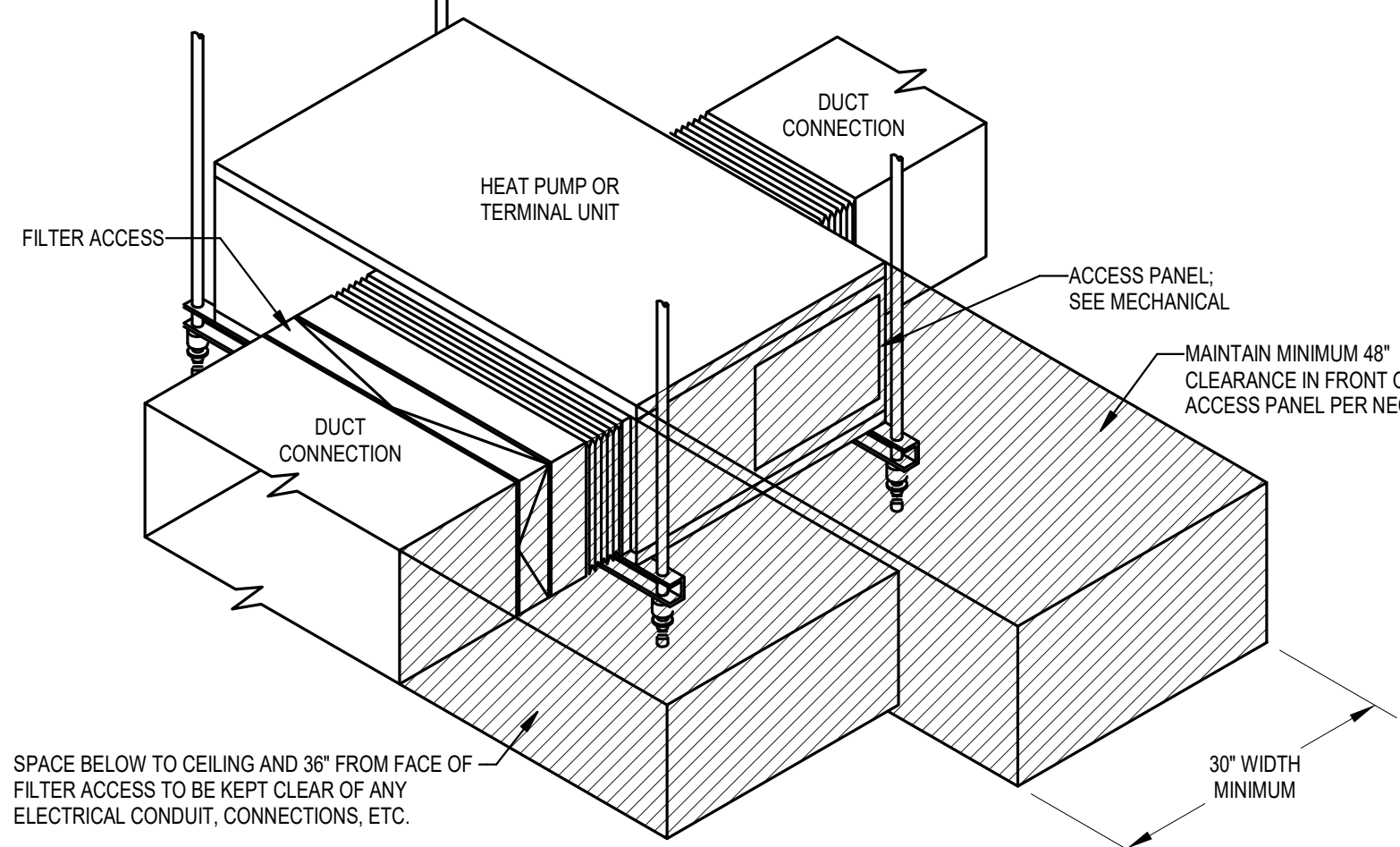
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IDAM AND ASSOCIATES PROJECT NUMBER 23-052

MECHANICAL EQUIPMENT CONNECTION SCHEDULE									
EQUIPMENT	VOLTAGE	FLA	DISCONNECT	PANEL	CIRCUIT #	CONDUCTORS	CONDUIT	NOTES	
EH-1	208/1	5.6	INTEGRAL TO UNIT	M	3.11	2-12 & 1-10(G)	3/4"		
EH-2	208/1	5.6	INTEGRAL TO UNIT	M	13.15	2-12 & 1-10(G)	3/4"		
EH-3	208/1	5.6	INTEGRAL TO UNIT	M	17.19	2-12 & 1-10(G)	3/4"		
EH-4	208/1	5.6	INTEGRAL TO UNIT	M	24	2-12 & 1-10(G)	3/4"		
EH-5	208/1	5.6	INTEGRAL TO UNIT	M	6.8	2-12 & 1-10(G)	3/4"		
EH-6	208/1	5.6	INTEGRAL TO UNIT	M	10.12	2-12 & 1-10(G)	3/4"		
ERV-1	208/1	3.5	INTEGRAL TO UNIT	M	25.27	3-12 & 1-10(G)	3/4"		
EUH-1	208/3	42.6	60A/3P NONFUSED, NEMA "T"	M	26.36.39	3-6 & 1-10(G)	3/4"		
EUH-2	208/3	42.6	60A/3P NONFUSED, NEMA "T"	M	29.31.33	3-6 & 1-10(G)	3/4"		
EUH-3	208/3	42.6	60A/3P NONFUSED, NEMA "T"	M	32.34.36	3-6 & 1-10(G)	3/4"		
FC-1.1	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-1.2	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-1.3	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-2.1	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-2.2	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-2.3	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-3.1	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-3.2	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-4.1	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
FC-5.1	208/1	---	2-POLE TOGGLE SWITCH	---	---	3-12 & 1-10(G)	3/4"	1, 2, 3	
H-1	120/1	2.5	INTEGRAL TO UNIT	A	75	2-12 & 1-10(G)	3/4"	4, 5	
HP-1.0	208/1	38.3	60A/3P NONFUSED, NEMA "3R"	M	1.3	3-6 & 1-10(G)	3/4"		
HP-2.0	208/1	38.3	60A/3P NONFUSED, NEMA "3R"	M	22.24	3-6 & 1-10(G)	3/4"		
HP-3.0	208/1	19.6	60A/3P NONFUSED, NEMA "3R"	M	16.20	3-10 & 1-10(G)	3/4"		
HP-4.0	208/1	11.6	60A/3P NONFUSED, NEMA "3R"	M	14.16	3-12 & 1-10(G)	3/4"		
HP-5.0	208/1	11.6	60A/3P NONFUSED, NEMA "3R"	M	5.7	3-12 & 1-10(G)	3/4"		
RP-1	120/1	1.46	SINGLE-POLE TOGGLE SWITCH	D	26	2-12 & 1-10(G)	3/4"		
WH-1	208/1	21.6	60A/3P NONFUSED, NEMA "T"	M	21.23	2-10 & 1-10(G)	3/4"		

NOTES:

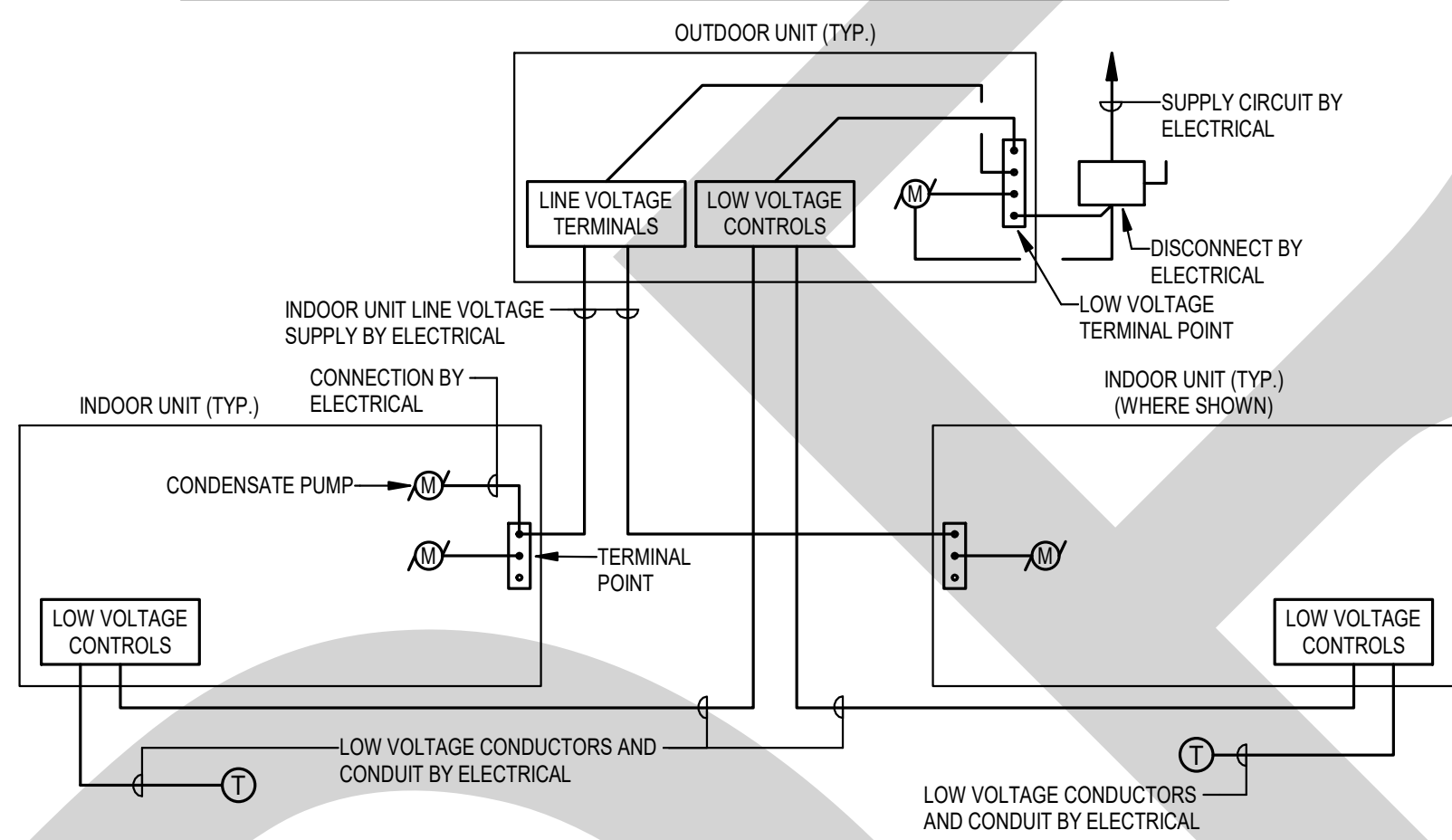
1. WIRING HARNESS TO RESPECTIVE OUTDOOR UNIT.
2. ROUTE ALL ELECTRICAL CONNECTIONS ALONG SAME PATH AS MECHANICAL LINE SETS.
3. 1"EC TO RESPECTIVE OUTDOOR UNIT FOR CONTROLS.
4. FIELD CONNECT TO WALL MOUNTED CONTROLLER PER MANUFACTURER.
5. FIELD INSTALL LAMPS IN INTEGRAL LUMINAIRE PER MANUFACTURER.



CEILING MOUNTED MECHANICAL EQUIPMENT DETAIL

NOT TO SCALE

ELECTRICAL CONNECTION REQUIREMENTS FOR SPLIT-SYSTEM AC UNITS: BASIS OF DESIGN PRODUCT SPECIFIED BY MECHANICAL. REQUIRES INDOOR UNITS TO BE POWERED FROM OUTDOOR UNITS AS SCHEDULED ON DRAWINGS. OTHER DUCTLESS SPLIT SYSTEM MANUFACTURERS ARE ALLOWED IF DEEMED EQUAL. THE MECHANICAL CONTRACTOR WILL BE RESPONSIBLE FOR ANY COST IMPACTS IF ELECTRICAL WIRING AND WIRING CONFIGURATIONS ARE DIFFERENT THAN THAT SPECIFIED AND WILL BE REQUIRED TO COORDINATE THE DIFFERENCES WITH THE ELECTRICAL CONTRACTOR.



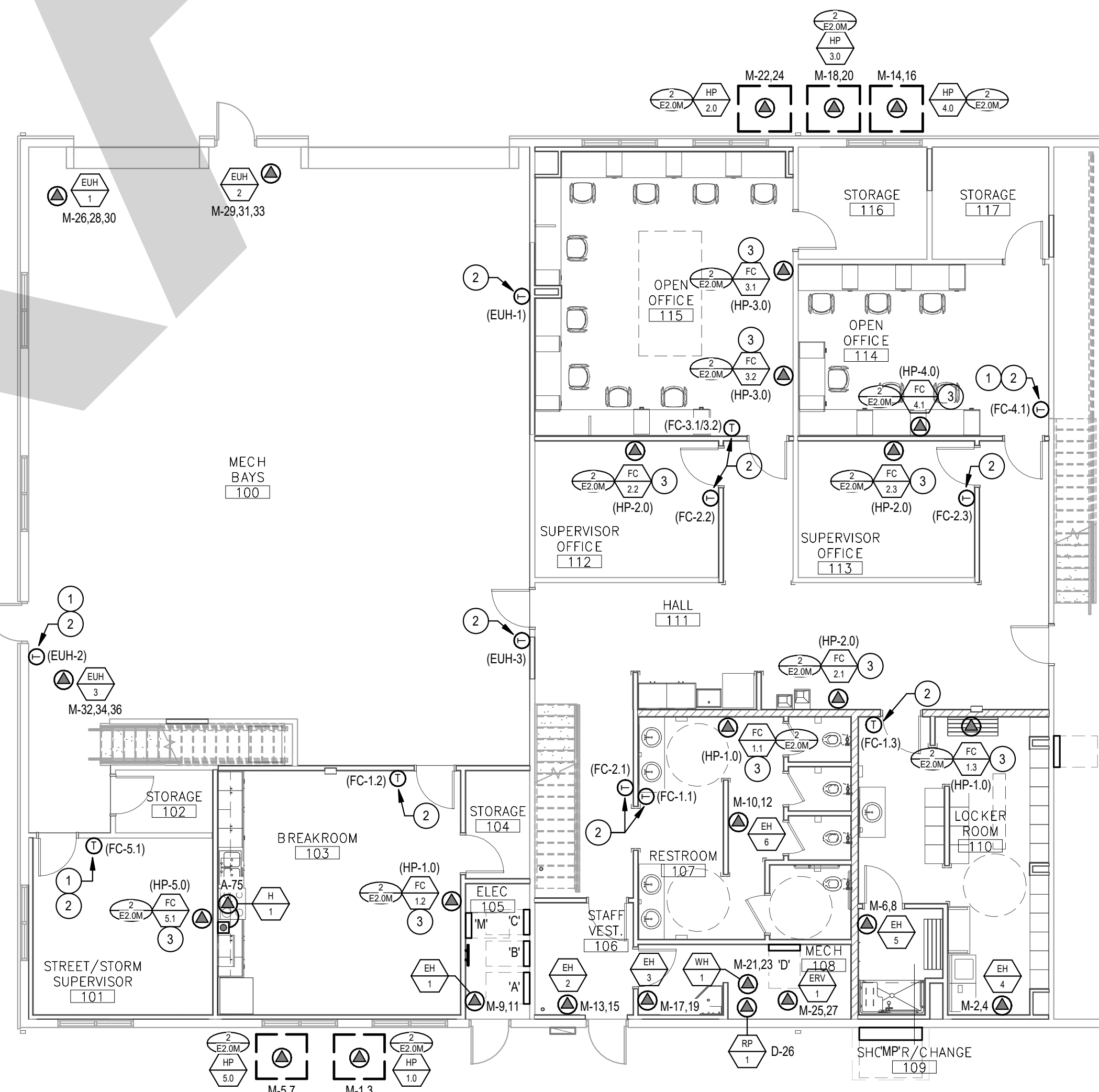
DUCTLESS SPLIT AC EQUIPMENT WIRING DIAGRAM

NOT TO SCALE

THESE PLANS REPRESENT EXISTING DEVICE AND EQUIPMENT LOCATIONS AS CLOSELY AS REASONABLY DISCERNIBLE AND ARE PROVIDED FOR CONTRACTOR INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN VERIFICATION OF EXISTING CONDITIONS PRIOR TO BID.

C4 MECHANICAL POWER PLAN - FLOOR 2

1/8" = 1'-0"



E4 MECHANICAL POWER PLAN - FLOOR 1

1/8" = 1'-0"

SHEET KEYNOTES

1. CUT-INTO EXISTING SURFACE AND CONCEAL ALL CONNECTIONS. PATCH AND REPAIR EXISTING SURFACES TO MATCH.
2. 3/4" CONDUIT AND CONTROL CONDUCTORS TO RESPECTIVE EQUIPMENT.
3. CONNECT CONDENSATE PUMP TO LINE-VOLTAGE TERMINALS OF UNIT (120V). PUMP CONNECTIONS TO BE FIELD INSTALLED.

GENERAL NOTES

1. REFER TO MECHANICAL PLANS FOR DUCTWORK CONFIGURATIONS AND DUCT CONNECTIONS TO MECHANICAL EQUIPMENT. ELECTRICAL CONNECTIONS TO MECHANICAL EQUIPMENT SHALL BE PROPERLY COORDINATED WITH MECHANICAL AND PLUMBING CONTRACTORS TO MAINTAIN ACCESS TO AND WORKING CLEARANCE AROUND ALL MECHANICAL EQUIPMENT PRIOR TO COMMENCING INSTALLATION.
2. REFER TO CEILING MOUNTED MECHANICAL EQUIPMENT DETAIL(S) FOR CONNECTIONS TO ELECTRICAL COMPONENTS ASSOCIATED WITH MECHANICAL EQUIPMENT. DISCONNECTING MEANS MOUNTING LOCATIONS, AND WORKING CLEARANCE REQUIREMENTS, DETAIL(S) ARE SHOWN ON SHEET E4.00.
3. REFER TO ARCHITECTURAL CODE PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES. PENETRATIONS OF FIRE-RATED ASSEMBLIES SHALL BE PERFORMED IN ACCORDANCE WITH UL REQUIREMENTS AND DIVISION 7 SPECIFICATIONS.
4. MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE UTILIZED FOR LINE TO NEUTRAL LOADS. DEDICATED NEUTRAL CONDUCTORS SHALL BE PROVIDED FOR ALL CIRCUITS.
5. ALL JUNCTION BOXES LOCATED ABOVE ACCESSIBLE CEILINGS SHALL BE LOCATED NO MORE THAN 36 INCHES ABOVE CEILING LEVEL.
6. REVIEW AND COORDINATE ALL EQUIPMENT CONNECTIONS WITH SUBMITTALS, SHOP DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS FOR ALL ELECTRICALLY OPERATED EQUIPMENT SUPPLIED BY OTHER DIVISIONS OF WORK PRIOR TO COMMENCING WORK. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES IN ELECTRICAL CONNECTIONS BASED UPON REVIEW.

EXPOSED RACEWAY INSTALLATIONS

EXPOSED RACEWAYS SHALL BE PERMITTED IN ALL SHOP CEILING AREAS. EXPOSED RACEWAYS SHALL BE INSTALLED PLUMB WITH BUILDING LINES AND SHALL NOT BE ROUTED DIAGONAL OR ALONG WALLS. EXPOSED RACEWAYS ARE NOT PERMITTED IN THE FOLLOWING GENERAL AREAS AND THOSE SPECIFIC AREAS NOTED ON PLANS:

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DESCRIPTION
DATE
MRK

JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC/CRH
CHECKED BY: GLJ

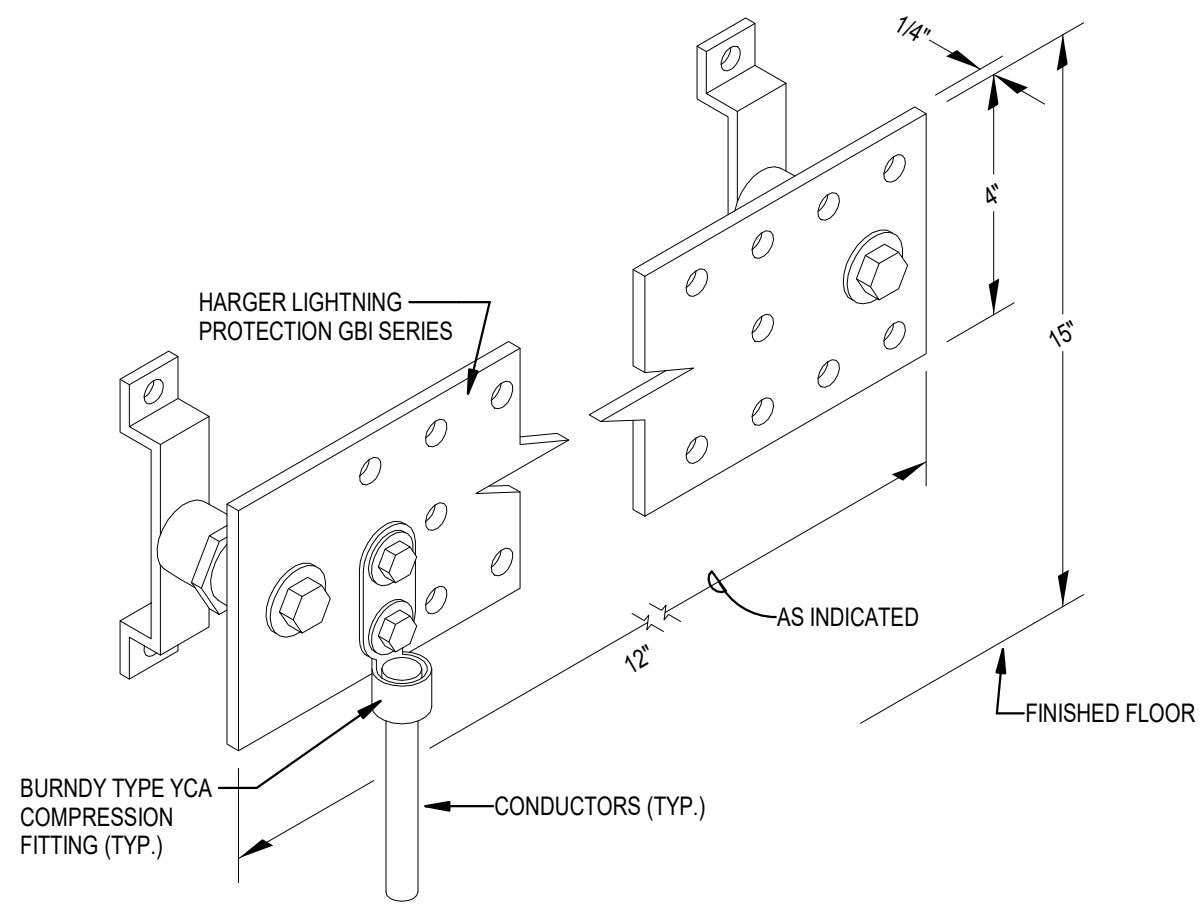
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MECHANICAL
POWER PLANS

SHEET NO.

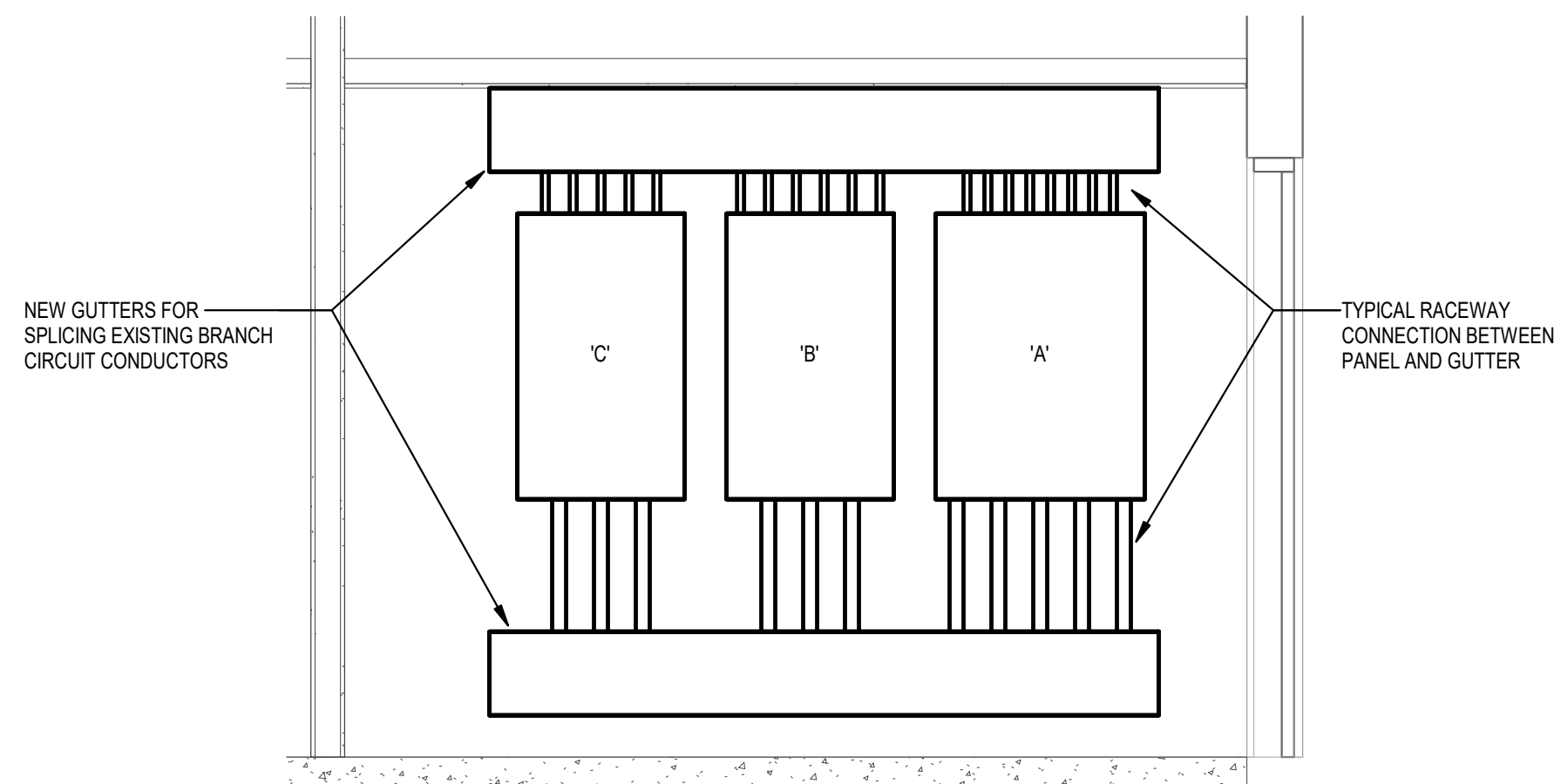
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EIDAM AND ASSOCIATES PROJECT NUMBER 23-052

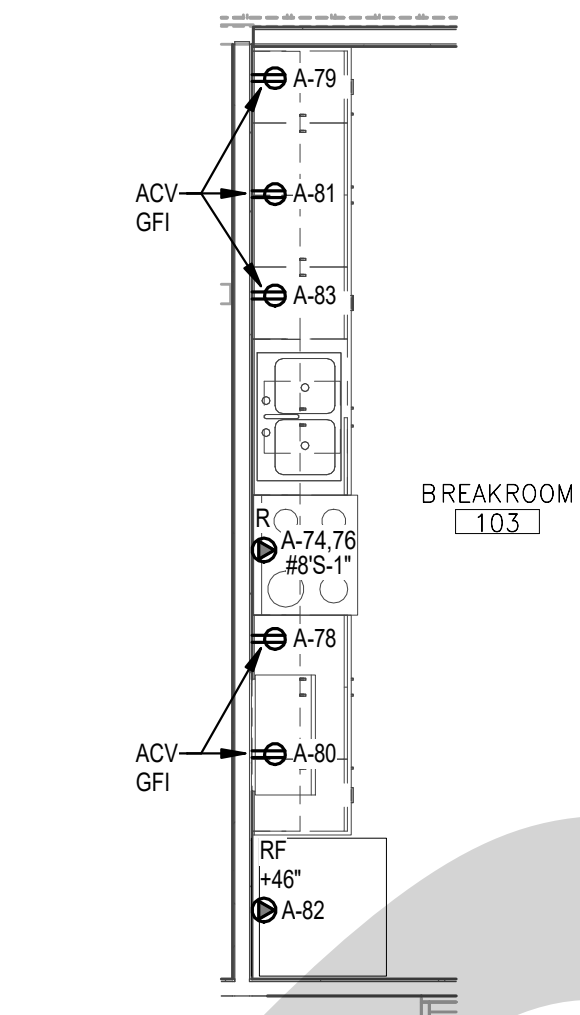


GROUND BUS BAR (GBB) DETAIL
NOT TO SCALE

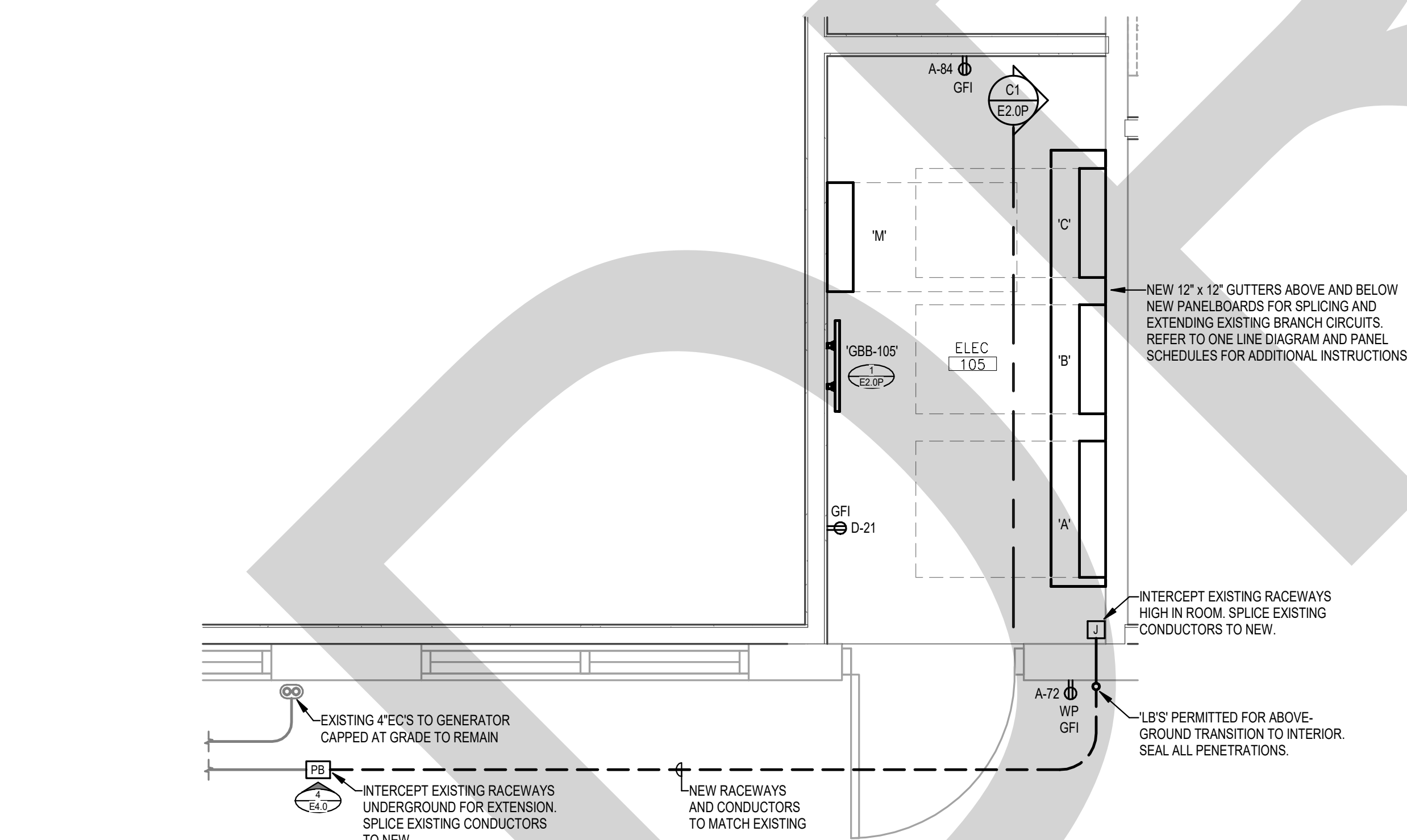
CONNECTION SCHEDULE			
FROM	TO	CONDUCTOR(S)	NOTES
PANEL MP	GBB-105	1-3/0(CU)	
GBB-105	CONCRETE ENCASED ELECTRODE	1-3/0(CU)	EXTEND EXISTING ELECTRODE IF AVAILABLE
GBB-105	STRUCTURAL STEEL	1-3/0(CU)	VISIBLE CONNECTION
GBB-105	WATER SERVICE	1-3/0(CU)	VISIBLE CONNECTION
GBB-105	GAS METER PIPING	1-3/0(CU)	VISIBLE CONNECTION
GBB-105	GBB-202	1-3/0(CU)	
GBB-202	TERMINAL BOARD	1-4(CU)	BOND TERMINAL BOARD SECTIONS WITH #4(CU)
GBB-202	EXISTING DISCONNECT 'SP'	1-4(CU)	



C1 ELEC 105 EAST ELEVATION
1/2" = 1'-0"

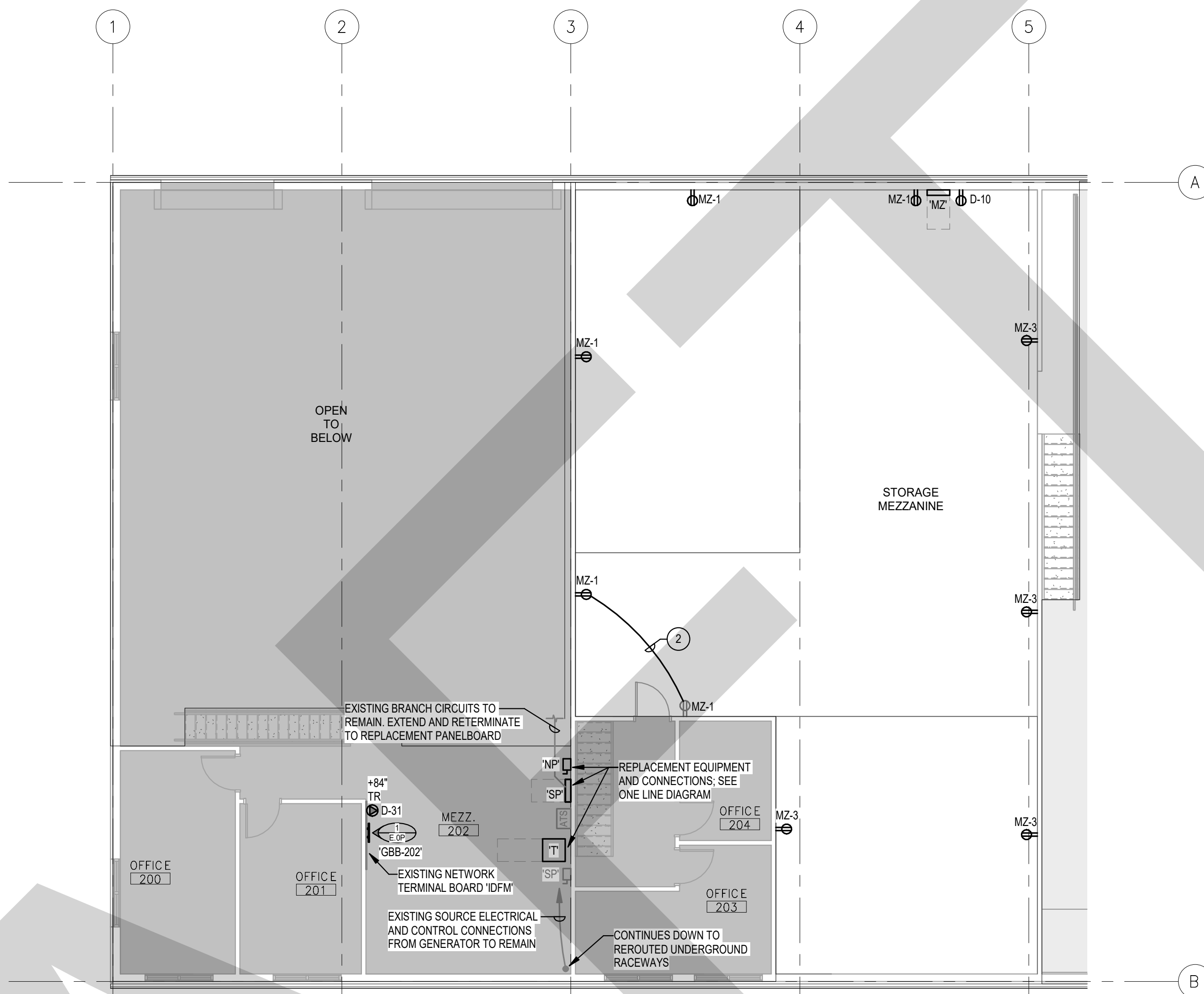


C3 BREAKROOM 103 POWER PLAN
1/4" = 1'-0"

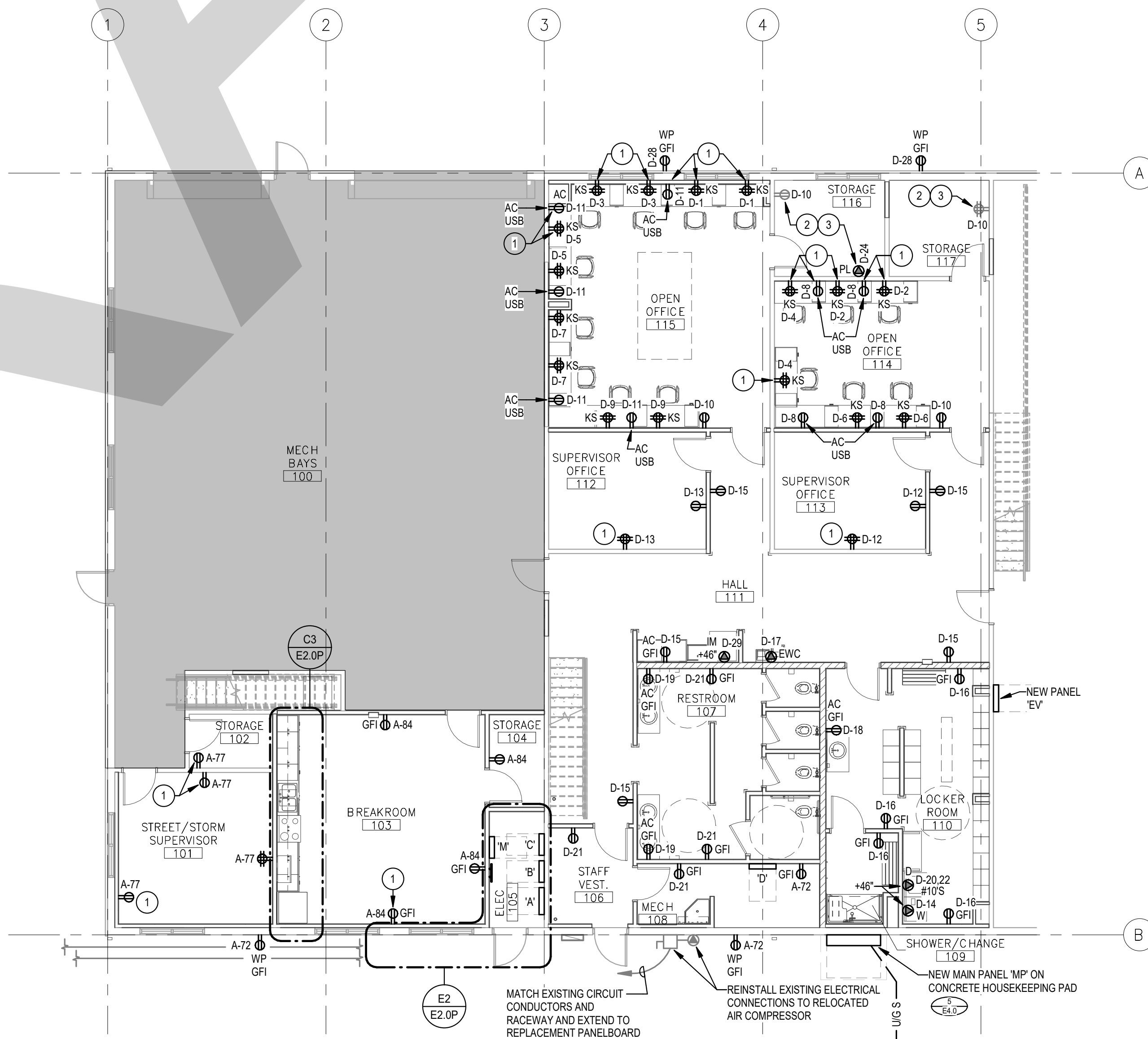


E2 ELEC 105 POWER PLAN
1/2" = 1'-0"

THESE PLANS REPRESENT EXISTING DEVICE AND EQUIPMENT LOCATIONS AS CLOSELY AS REASONABLY DISCERNIBLE AND ARE PROVIDED FOR CONTRACTOR INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN VERIFICATION OF EXISTING CONDITIONS PRIOR TO BID.



C4 POWER PLAN - FLOOR 2
1/8" = 1'-0"



E4 POWER PLAN - FLOOR 1
1/8" = 1'-0"

SHEET KEYNOTES

- CUT-INTO EXISTING SURFACE AND CONCEAL ALL CONNECTIONS. PATCH AND REPAIR EXISTING SURFACES TO MATCH.
- NEW BRANCH CIRCUIT CONNECTION TO REPLACE EXISTING DEVICE CONNECTION.
- REPLACE EXISTING DEVICE(S) AND COVERPLATE(S) WITH NEW MATCHING NEW.

GENERAL NOTES

- REFER TO SYMBOLS LIST ON E0.00 FOR REFERENCED SYMBOLS AND DESCRIPTIONS.
- RECEPTACLE LOCATIONS SHALL BE COORDINATED WITH MILLWORK, WALL FINISHES, WINDOW HEIGHTS, AND OTHER WALL MOUNTED EQUIPMENT PRIOR TO ROUGH-IN. NOTIFY ARCHITECT OF CONFLICTS PRIOR TO PROCEEDING WITH WORK.
- MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE UTILIZED FOR LINE TO NEUTRAL LOADS. DEDICATED NEUTRAL CONDUCTORS SHALL BE PROVIDED FOR ALL CIRCUITS.
- ALL JUNCTION BOXES LOCATED ABOVE ACCESSIBLE CEILINGS SHALL BE LOCATED NO MORE THAN 36 INCHES ABOVE CEILING LEVEL.
- REFER TO ARCHITECTURAL CODE PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES.
- PENETRATIONS OF FIRE-RATED ASSEMBLIES SHALL BE PERFORMED IN ACCORDANCE WITH UL REQUIREMENTS AND DIVISION 7 SPECIFICATIONS.
- RECEPTACLE AND WIRING DEVICE MOUNTING HEIGHTS SHALL BE REFERENCED FROM FINISHED FLOOR HEIGHT.
- REVIEW AND COORDINATE ALL EQUIPMENT CONNECTIONS WITH SUBMITTALS, SHOP DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS FOR ALL ELECTRICALLY OPERATED EQUIPMENT SUPPLIED BY OTHER DIVISIONS OF WORK PRIOR TO COMMENCING WORK. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES IN ELECTRICAL CONNECTIONS BASED UPON REVIEW.
- FURNISH AND INSTALL ALL ELECTRICAL CONNECTIONS TO MOTORIZED DOOR OPERATORS AND ELECTRIFIED DOOR HARDWARE AS DIRECTED BY DOOR HARDWARE INSTALLER. COORDINATE LOCATION OF CONTROLLER, POWER SUPPLY, SAFETY SENSORS, AND ALL INTERCONNECTIONS WITH DOOR HARDWARE SUPPLIER PRIOR TO COMMENCING WORK.
- ALL EXTERIOR PENETRATIONS SHALL BE SEALED. PENETRATIONS OF EXTERIOR WALLS SHALL BE POSITIONED AT LEAST 6" AWAY FROM WALL JOINTS.

EXPOSED RACEWAY INSTALLATIONS

EXPOSED RACEWAYS SHALL BE PERMITTED IN ALL SHOP CEILING AREAS. EXPOSED RACEWAYS SHALL BE INSTALLED PLUMB WITH BUILDING LINES AND SHALL NOT BE ROUTED DIAGONAL OR ALONG WALLS. EXPOSED RACEWAYS ARE NOT PERMITTED IN THE FOLLOWING GENERAL AREAS AND THOSE SPECIFIC AREAS NOTED ON PLANS:

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DESCRIPTION
DATE
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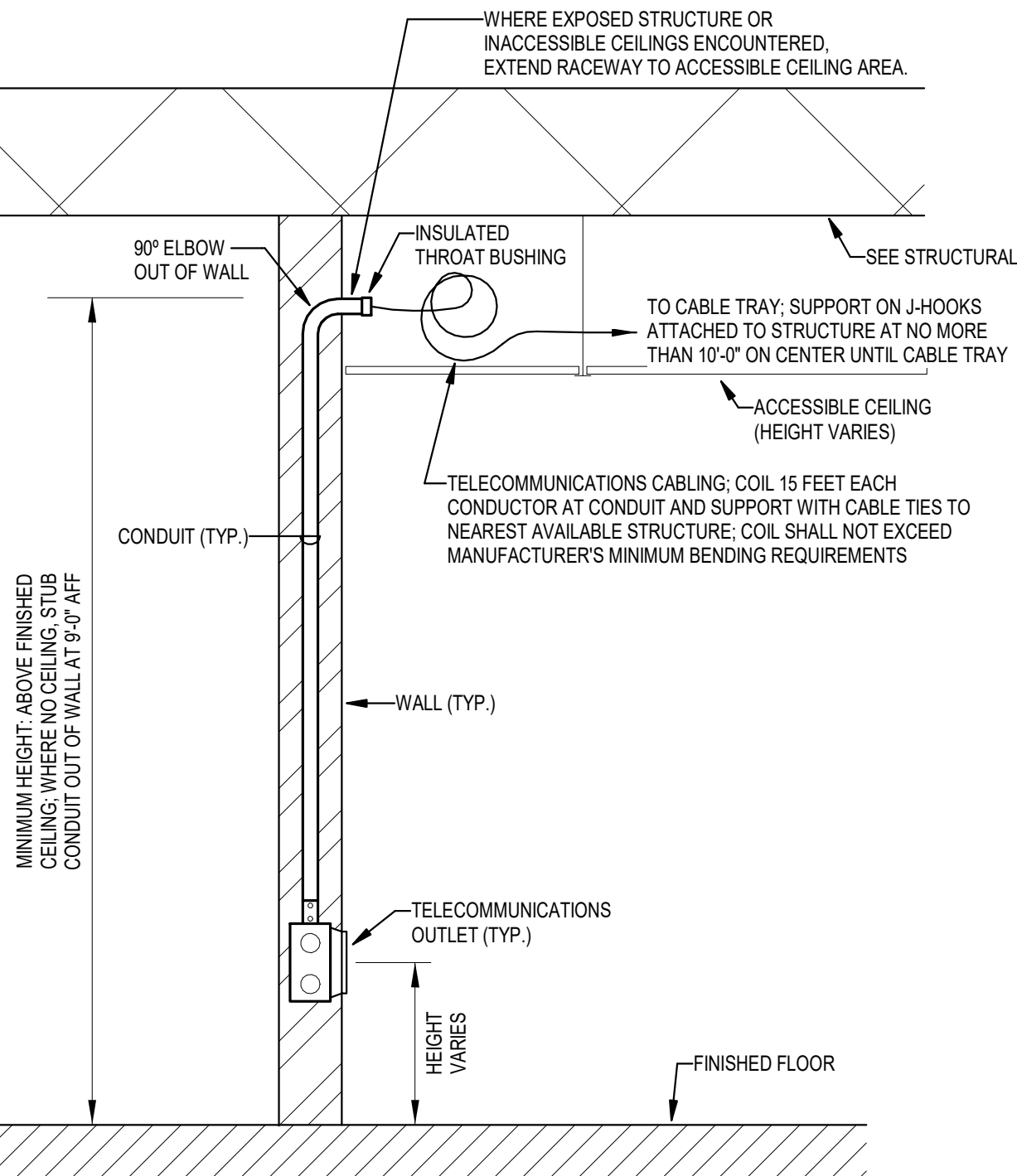
JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC/CRH
CHECKED BY: GLJ

PHASE: PERMIT SET

POWER PLANS

SHEET NO.

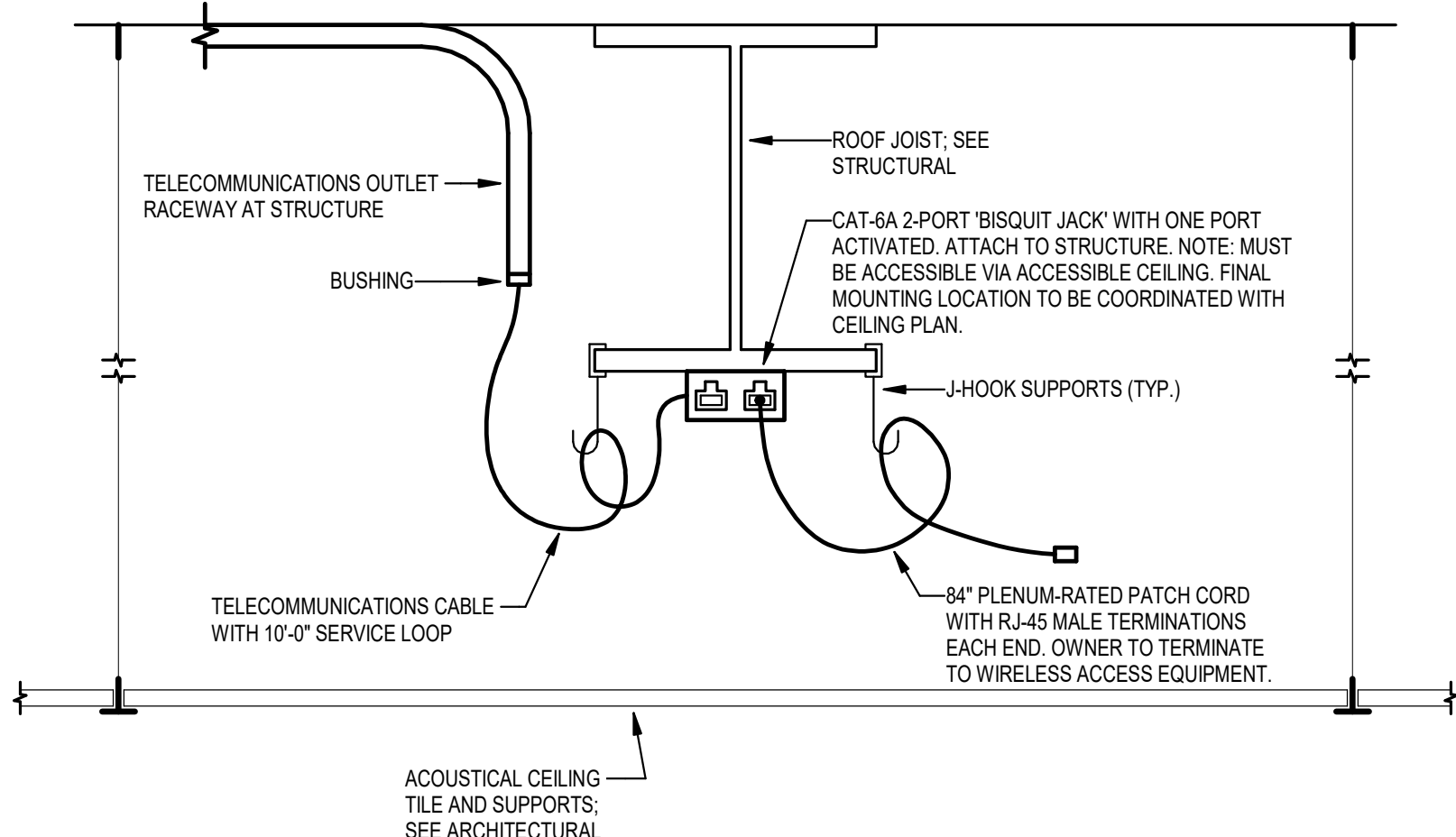
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TELECOMMUNICATIONS
OUTLET INSTALLATION DETAIL

NOT TO SCALE

1
E2.05



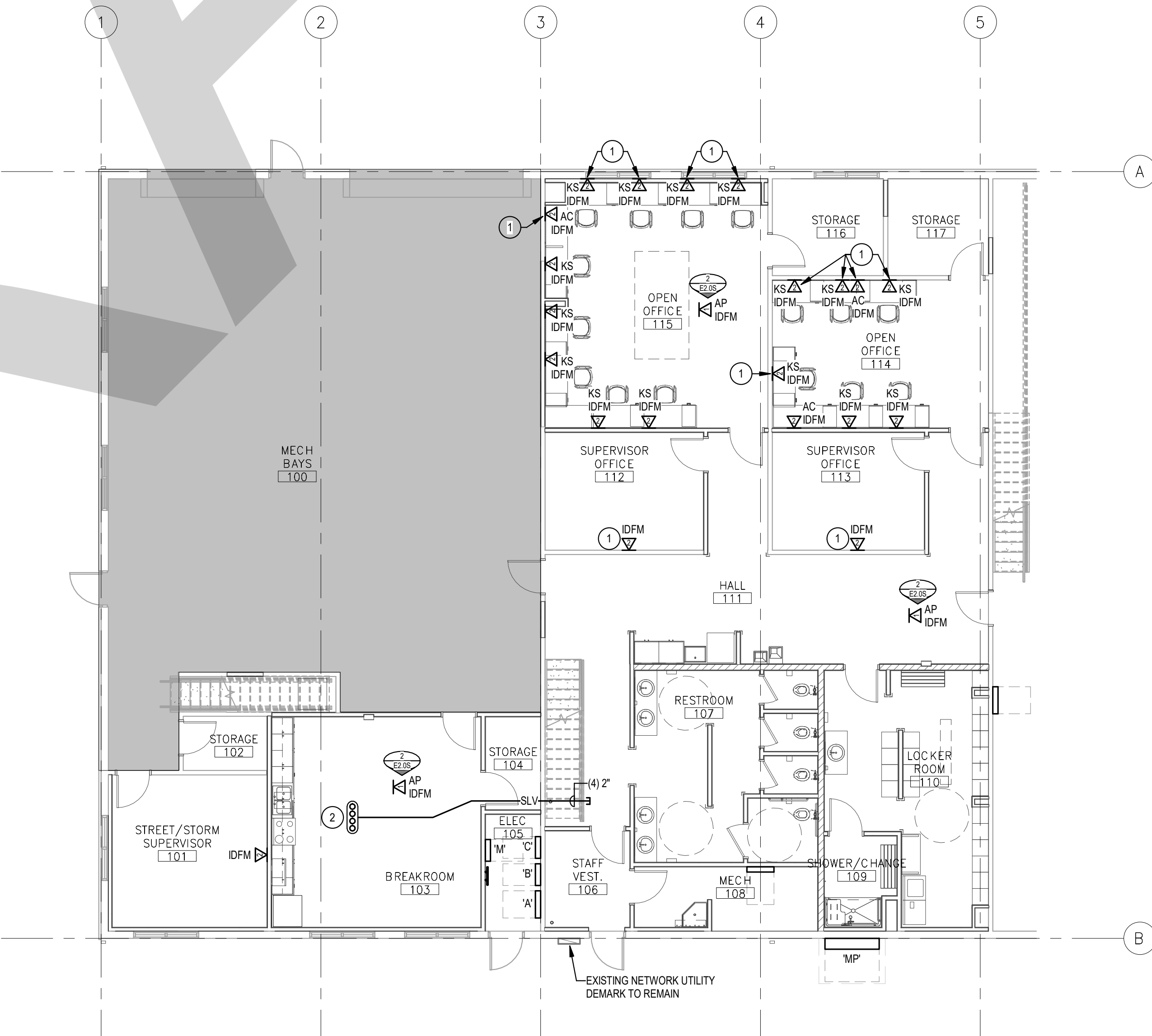
CEILING MOUNTED
WIRELESS ACCESS POINT INSTALLATION DETAIL

NOT TO SCALE

2
E2.06

C4 SYSTEMS PLAN - FLOOR 2

1/8" = 1'-0"



E4 SYSTEM PLAN - FLOOR 1

1/8" = 1'-0"

SHEET KEYNOTES

- CUT-INTO EXISTING SURFACE AND CONCEAL ALL CONNECTIONS. PATCH AND REPAIR EXISTING SURFACES TO MATCH.
- (4) 2" SLEEVES VERTICAL THROUGH FLOOR ABOVE TO EXISTING "IDFM".

GENERAL NOTES

- ALL JUNCTION BOXES LOCATED ABOVE ACCESSIBLE CEILINGS SHALL BE LOCATED NO MORE THAN 36" ABOVE CEILING LEVEL.
- REFER TO ARCHITECTURAL CODE PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES.
- PENETRATIONS OF FIRE-RATED ASSEMBLIES SHALL BE PERFORMED IN ACCORDANCE WITH UL REQUIREMENTS AND DIVISION 7 SPECIFICATIONS.
- REVIEW AND COORDINATE ALL EQUIPMENT CONNECTIONS WITH SUBMITTALS, SHOP DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS FOR ALL ELECTRICALLY OPERATED EQUIPMENT SUPPLIED BY OTHER DIVISIONS OF WORK PRIOR TO COMMENCING WORK. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES IN ELECTRICAL CONNECTIONS BASED UPON REVIEW.
- LOCATE TELECOMMUNICATIONS OUTLETS WITHIN 6" OF NEAREST RECEPTACLE. COORDINATE LOCATION WITH POWER PLANS PRIOR TO ROUGH-IN.
- MINIMUM CONDUIT SIZE FOR TELECOMMUNICATIONS CIRCUITS: 1 INCH.
- ALL TELECOMMUNICATIONS CONDUITS TERMINATED IN OPEN AIR/ABOVE CEILINGS SHALL BE FURNISHED WITH INSULATED THROAT BUSHINGS.
- SPECIAL SYSTEM CONDUCTORS ABOVE ACCESSIBLE CEILING SHALL BE ROUTED TO RESPECTIVE HEAD END EQUIPMENT VIA CABLE TRAY OR RACEWAY SLEEVE(S). SUPPORT BY J-HOOKS AT 10' ON CENTER SUPPORTED FROM STRUCTURE ENROUTE TO CABLE TRAY. ROUTE CONDUCTORS THROUGH CONDUIT WHERE CEILING SPACES ARE EXPOSED OR UNACCESSIBLE.
- OVERHEAD RACEWAY SLEEVES SHALL BE INSTALLED IN CONCEALED SPACES AS HIGH AS POSSIBLE TO STRUCTURE. COORDINATE ROUTING WITH STRUCTURAL, SYSTEMS AND MECHANICAL SYSTEMS. TURN ENDS DOWN TO 36" ABOVE FINISHED CEILING OR 24" ABOVE CABLE TRAYS. SEAL ALL WALL PENETRATIONS.
- FILL ONE OVERHEAD RACEWAY SLEEVE AT A TIME. DO NOT UTILIZE NEXT SLEEVE UNTIL FILL IS COMPLETE. DO NOT EXCEED CODE-REQUIRED FILL. MAINTAIN AS MANY SPARE SLEEVES AS POSSIBLE.
- REFER TO TELECOMMUNICATIONS OUTLET INSTALLATION DETAIL, ON THIS SHEET, FOR TYPICAL INSTALLATION REQUIREMENTS.

EXPOSED RACEWAY INSTALLATIONS

EXPOSED RACEWAYS SHALL BE PERMITTED IN ALL SHOP CEILING AREAS. EXPOSED RACEWAYS SHALL BE INSTALLED PLUMB WITH BUILDING LINES AND SHALL NOT BE ROUTED DIAGONAL OR ALONG WALLS. EXPOSED RACEWAYS ARE NOT PERMITTED IN THE FOLLOWING GENERAL AREAS AND THOSE SPECIFIC AREAS NOTED ON PLANS:

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DESCRIPTION
DATE
MRK

JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC/CRH
CHECKED BY: GLJ

PHASE: PERMIT SET

SYSTEMS PLANS

SHEET NO.

E2.05

IDAM AND ASSOCIATES PROJECT NUMBER 23-052

Attachment "C"

Moscow City Shop Existing Shop TI

24000.01

ALL BIDS SHALL BEAR THIS ADDRESS:

City of Moscow
206 East Third Street
Moscow, ID 83843

ARTICLE 1

PROJECT NAME AND LOCATION

Moscow City Shop Existing Shop TI
650 N. Van Buren St.
Moscow, ID 83843

ARCHITECT OR ENGINEER

Lombard-Conrad Architects
472 W. Washington St.
Boise, Idaho 83702

(208) 780-0022

CONTRACT TIME

CALENDAR DAYS: 180 consecutive calendar days consecutive
calendar days from commencement of construction, substantial completion by no later than
04/01/2027.

LIQUID. DAMAGES

EACH EXCESS CALENDAR DAY: \$250.00

BID OPENING

DATE: July 30, 2026

TIME: 3:00 p.m.

PLACE: Bid opens at Council Chambers, Moscow City Hall
206 E. Third Street, Moscow, Idaho 83843

NAME AND ADDRESS OF BIDDER TELEPHONE NO.

Ginno Construction of Idaho, Inc.
3893 N. Schreiber Way
Coeur d'Alene, ID 83815
p. 208.667.5560

IF PARTNERSHIP NAMES OF PARTNERS

IF CORPORATION STATE OF INCORPORATION

Idaho

BID GUARANTEE Min. 5% of Bid

UNDERLINE ONE:

BID BOND, CASH, CERTIFIED CHECK, CASHIER'S CHECK

ADDENDA RECEIPT ACKNOWLEDGED

ADDENDA NUMBERED: 1 ☒ 2 ☒ 3 ☒ 4 ☐
(Check all that have been received)

ALLOWANCE ACKNOWLEDGED

NONE LISTED:

ARTICLE 2

IN COMPLIANCE WITH THE NOTICE TO CONTRACTORS-INVITATION TO BID, AND IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS, THE CONTRACT DOCUMENTS, DRAWINGS AND SPECIFICATIONS FOR THE PROJECT, THE UNDERSIGNED BIDDER, BEING DULY LICENSED TO PERFORM SUCH WORK BY THE STATE OF IDAHO AND BEING THOROUGHLY FAMILIAR WITH ALL LOCAL CONDITIONS AFFECTING THE COST OF THE PROJECT, HAVING CAREFULLY EXAMINED THE SITE, CONTRACT DOCUMENTS, DRAWINGS AND SPECIFICATIONS AND ANY ADDENDA THERETO PREPARED BY THE PROJECT ARCHITECT OR ENGINEER, PROPOSES TO PROVIDE, AND TO FURNISH FOR THE COSTS SET FORTH IN THE FOLLOWING BID SCHEDULE, ALL LABOR AND MATERIAL, TOOLS, UTILITIES, TRANSPORTATION, EQUIPMENT AND SERVICES REQUIRED TO PERFORM AND TO COMPLETE IN A WORKMANLIKE MANNER ALL THE WORK FROM THE DATE OF THE NOTICE TO PROCEED WITHIN THE ESTABLISHED CONSTRUCTION TIME, SUBJECT TO LIQUIDATED DAMAGES FOR EXCESS WORKING TIME AS ESTABLISHED UNDER ARTICLE 1.

ARTICLE 3 BID SCHEDULE**BASE BID DESCRIPTION: Base Bid.****FOR THE SUM OF:**One million seventy four thousand **DOLLARS (\$1,074,000)****ALTERNATE #1 DESCRIPTION:****FOR THE SUM OF:**Zero **DOLLARS (\$0.00)****ALTERNATE #2 DESCRIPTION:****FOR THE SUM OF:**Zero **DOLLARS (\$0.00)****ALTERNATE #3 DESCRIPTION:****FOR THE SUM OF:**Zero **DOLLARS (\$0.00)**

THE LOW BIDDER WILL BE DETERMINED ON THE BASIS OF THE BASE BID PLUS ANY ALTERNATES WHICH ARE ACCEPTED. ALTERNATES MAY BE ACCEPTED IN ANY ORDER AND ARE NOT REQUIRED TO BE ACCEPTED IN SEQUENTIAL ORDER AS THEY ARE LISTED ON THE BID PROPOSAL FORM.

Bidder understands that the Owner reserves the right to reject any or all bids and to waive any informality in the bidding.

The bidder agrees that this bid shall be good for a period of sixty (60) calendar days after the scheduled opening time for receiving bids.

Upon receipt of written Notice of Intent to Award of this bid, Bidder will execute the formal Contract within ten (10) calendar days and deliver a Surety Bond or Bonds as required by Article 7 "Performance and Payment Bonds" of the Instructions to Bidders.

ARTICLE 4 LIST OF SUBCONTRACTORSPlumbing(Name) Hilliard's Heating & Plumbing(Address) 350 NW Park St. Pullman, WA 99163Idaho Plumbing Contractors License No. 078263; PWC-C-12545Heating, Ventilating & Air Conditioning(Name) Hilliard's Heating & Plumbing(Address) 350 NW Park St. Pullman, WA 99163Idaho Public Works Contractors License No. PWC-C-12545Idaho HVAC Contractors License No. HVC-C-721Electrical(Name) B&H Electric LLC(Address) 285 W Prairie Shopping Center #154 Hayden, ID 83835Idaho Public Works Contractors License No. 4871886Idaho Electrical Contractors License No. 071028

Should the listing of subcontractors change due to selection of alternates or other similar circumstances, attach explanation.

Bidder warrants that bid has been prepared and that any contract resulting from acceptance of this bid is subject to Executive Order 2009-10 and the Fixed Price Construction Contract.

The undersigned notifies that it is of this date duly licensed as an Idaho Contractor and further that it possesses Idaho Contractor's License No. PWC-C-14560, and is domiciled in the State of Idaho.

Dated this 30th day of July, 2026
(date) (month) (year)

Respectfully submitted by:

Ginno Construction of Idaho, Inc.

(Company)

(Seal - if bid is by a corporation)

3893 N. Schreiber Way

(Street or PO Address)

Coeur d'Alene, ID 83815

(City, State and zip code)


(Authorized Signature)

Charles Richard Wells, President

(Title)

208.667.5560

(Telephone Number)

N/A

(FAX Number)

DK2NAX995GF4

(UEI Number)

Have you remembered to include bid security (bid bond or a certified or cashiers check), Contractor's Affidavit Concerning Alcohol and Drug-Free Workplace?

Execute and Submit with Bid**CONTRACTOR'S AFFIDAVIT
CONCERNING ALCOHOL AND DRUG-FREE WORKPLACE**STATE OF IdahoCOUNTY OF Kootenai

Pursuant to the Section 72-1717, Idaho Code, I, the undersigned, being duly sworn, depose and certify that Ginno Construction of Idaho, Inc. is in compliance with the provisions of Section 72-1717, Idaho Code; that Ginno Construction of Idaho, Inc. provides a drug-free workplace program that complies with the provisions of Title 72, Chapter 17, Idaho Code, and will maintain such program throughout the life of a state construction contract; and that Ginno Construction of Idaho, Inc. shall subcontract Work only to subcontractors meeting the requirements of Section 72-1717(1)(a), Idaho Code.

Ginno Construction of Idaho, Inc.
Name of Contractor

3893 N. Schreiber Way
Address

Coeur d'Alene, ID 83815
City and State

By: [Signature]
(Signature)

Subscribed and sworn to before me this 30th day of July,
2026.

Commission expires:



[Signature]
NOTARY PUBLIC, residing at

Rathdrum, ID

**FAILURE TO EXECUTE THIS AFFIDAVIT AND SUBMIT IT ALONG WITH YOUR BID SHALL
MAKE YOUR BID NON-RESPONSIVE.**

Placeholder for Attachment “D”

DRAFT

Date:	July 17 th , 2026	Addendum #:	01
Project:	Moscow City Shop Existing Shop TI	Project #:	24000.01
Address:	650 N Van Buren St, Moscow, ID., 83843		

BIDS DUE

Time: 3:00 pm PST
Date: July 30th, 2026
Place: Moscow City Hall
Address: 206 E. Third Street,
City, State: Moscow, ID., 83843

To all Planholders: Please notify everyone concerned as your sub-contractors and suppliers of the issuance and contents of this addendum prior to date of bid opening.

DOCUMENTS:

Please see attached documents: Plan Holders list, Pre-Bid Meeting Sign-In Sheet

DRAWINGS:**Architectural:**SHEET A3.0 – DOOR SCHEDULES AND ASSEMBLY TYPES:

- Add remark #1 for door 110.

Structural:SHEET A1.02 – MEZZANINE FRAMING PLANS:

- Add note for top of mezzanine framing elevation.

Electrical:SHEET E0.0 – ELECTRICAL COVER SHEET:

- Equipment Connection Schedule: Add equipment 'MD' associated installation instructional notes to schedule.

SHEET E2.0P – POWER PLANS:

- E4 – Power Plan – Floor 1: Add motorized door and associated control equipment electrical connections to motorized overhead door in south exterior and just east of gridlines B/5.

SHEET E3.1 – PANEL SCHEDULES:

- Branch Panel 'D' Schedule: Add circuit breaker and 'MD' load connection to position #30.

SPECIFICATIONS:**Architectural:****SECTION 087100 – DOOR HARDWARE:**

- Revise paragraph 2.6.A.1.a (Cylindrical Locks – Grade 1)
- Revise paragraph 2.7.A.1.a (Cylindrical Locks – Grade 2)
- Revise paragraph 2.9.A.1.a (Cylinders)
- Revise paragraph 3.5.D (Hardware Sets)

APPROVALS: *Approvals are based on manufacturers only. Contractors are responsible for bidding on approved equipment equivalent in size and performance to that specified. Contractor is also responsible for all special electrical, mechanical, or other field adaptations required for equipment or items used other than that shown in the original project design. All mechanical and electrical equipment shall bear the UL label.*

Architectural:

Section 081416 – FLUSH WOOD DOORS: Lynden Door

Section 081700 – DOOR HARDWARE: Sargent Manufacturing (exit devices and closers)

Mechanical:

ERV: S&P

RFI LOG:

Q: Opening 108 – What hardware group for this opening?

A: Hardware group #03. Specifications have been updated to reflect this revision.

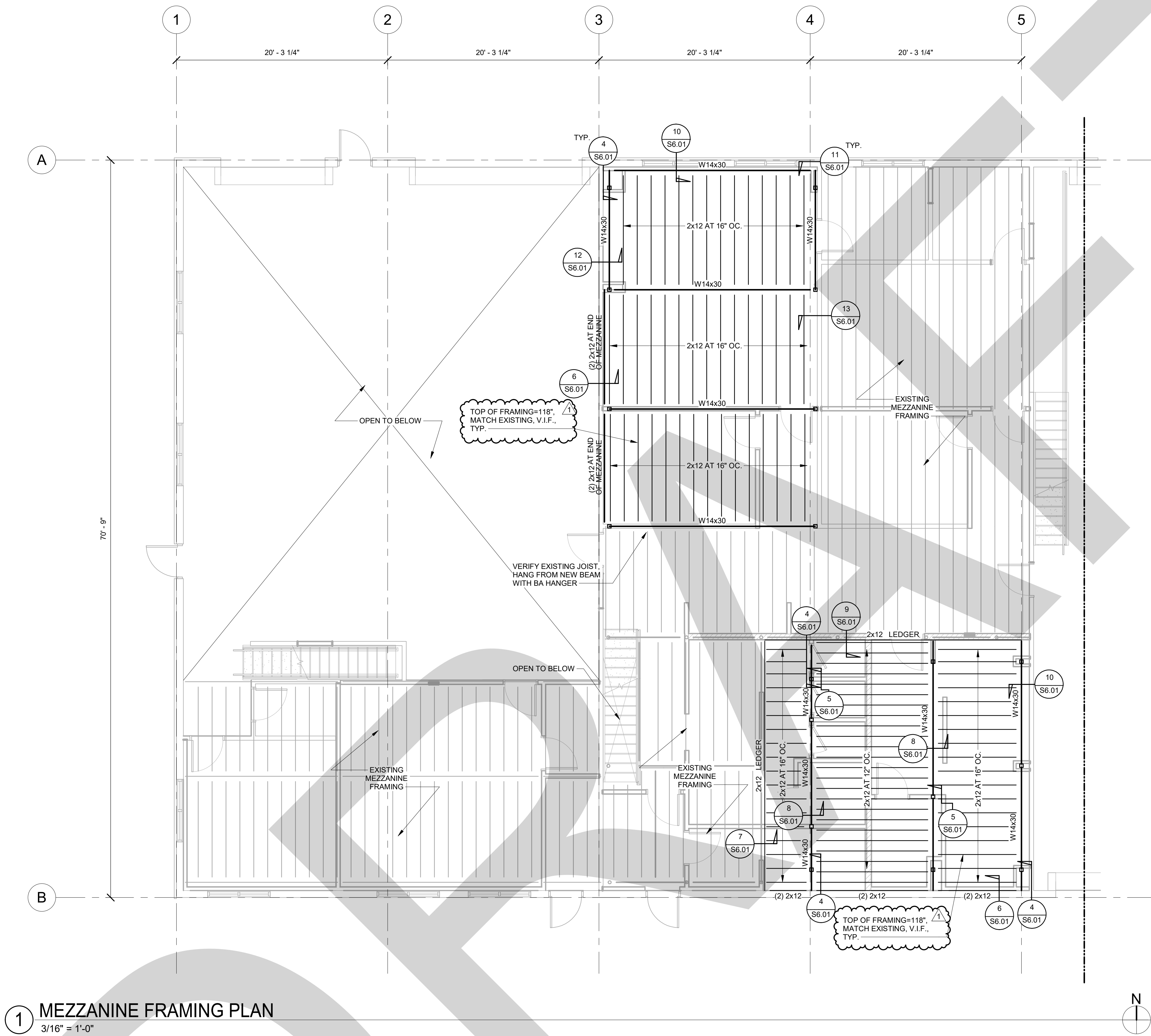
Q: Opening 110 – Should opening 110 have a louver/light as shown on the plans? Elevation B4/A6.0.

A: Yes, this is correct. Remark #1 has been added to the door schedule for clarity.

ATTACHMENT LIST:

- **DRAWINGS:** A3.0, S1.02 E0.0, E2.0P, E3.1
- **SPECIFICATIONS:** 087100 – DOOR HARDWARE
- **DOCUMENTS:** PLAN HOLDERS LIST, PRE-BID MEETING SIGN-IN

7/7/2026 1:16:11 PM Autodesk Docs\\Moscow City Shop - Existing Shop TI\\SLOCC442_Moscow City Shop-TI_Struct.rvt



1 MEZZANINE FRAMING PLAN
3/16" = 1'-0"

FLOOR FRAMING PLAN NOTES

- For structural design notes, see sheets starting at S0.01.
- Top of concrete floor reference elevation = 100'-0" typical unless noted.
- All structural walls shown on this plan are located below the floor framing.
- For general framing details, see sheets S5.11 thru S5.53.
- Denotes deck direction.
- Denotes header, see schedule on - / - - -
- Floor Deck
1 1/8" APA T&G sheathing 40/20 (sub-floor)
Nailing patterns
10d at 6" oc., all panel edges
10d at 12" oc., at intermediate supports stagger panel joints. For additional information, see - / - - -

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CONRAD
ARCHITECTS**

ARCHITECTURE | PLANNING
INTERIOR DESIGN

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STAMP:



**MOSCOW CITY
SHOP - EXISTING
SHOP TI**

CITY OF MOSCOW

CONSULTANTS:

ELECTRICAL ENGINEER

EIDAM AND ASSOCIATES

291 E SHORE DR., SUITE 210
EAGLE, IDAHO 83616
(208) 345-7127

MECHICAL ENGINEER

MUSGROVE ENGINEERING P.A.

234 S. WHISPERWOOD WAY
BOISE, IDAHO 83709
(208) 384-0595

STRUCTURAL ENGINEER

LOCHSA ENGINEERING

201 N. MAPLE GROVE RD., SUITE 100
BOISE, IDAHO 83704
(208) 342-7168

Lochsa

201 N. Maple Grove Ste. 100
BOISE IDAHO 83704
Phone (208) 342-7168
I.E. JOB #24LOCC442

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CONSENT OF LOCHSA ENGINEERING.

APPROVAL AREA

MRK DATE 07/17/26 ADDENDUM #01 DESCRIPTION

JOB NO.: Client Number
DATE: 05/15/26
DRAWN BY: JS/AC
CHECKED BY: MB

PHASE: 100% CD

**MEZZANINE
FRAMING PLANS**

SHEET NO.

S1.02

ELECTRICAL ABBREVIATIONS	
SYMBOL	DESCRIPTION
AC	ABOVE COUNTER
ACH	ABOVE COUNTER, HORIZONTAL MOUNT, CENTERED IN BACKSPLASH
ACV	ABOVE COUNTER, VERTICAL MOUNT, 6" ABOVE COUNTER OR 3" ABOVE BACKSPLASH
ACF	AVAILABLE FAULT CURRENT
AFF	ABOVE FINISHED FLOOR
AIC	AMPERES INTERRUPTING CAPACITY
ATS	AUTOMATIC TRANSFER SWITCH
C	CILING MOUNT
C.O.	CONVENIENCE OUTLET
EC	EMPTY CONDUIT WITH PULL-LINE
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HW	HARD WIRE / DIRECT CONNECTION
KA	KILO - AMPS
KS	DENOTES INSTALLATION IN KNEESPACE OF MILLWORK. DEVICE SHALL BE CENTERED IN KNEESPACE. KNEESPACE LOCATIONS TO BE COORDINATED WITH MILLWORK ELEVATIONS PRIOR TO ROUGH-IN
mA	MILLI - AMPS
MLO	MAIN LUGS ONLY
MW	MILLWORK INSTALLATION OF DEVICE. INSTALL HORIZONTAL. INSTALL WITH TOP OF BOX 2" BELOW BOTTOM OF DRAWER OR COUNTER TOP. SEE TYPICAL DETAIL.
OC	ON CENTER
SPD	SURGE PROTECTION DEVICE
UON	UNLESS OTHERWISE NOTED
WAP	WIRELESS ACCESS POINT
WP	WEATHERPROOF

RECEPTACLE DEVICE ABBREVIATIONS		
SYMBOL	DESCRIPTION	NOTES
GFI	GROUND FAULT CIRCUIT INTERRUPTER	
S	INTEGRAL SURGE PROTECTION (SPD) TYPE	
USB	INTEGRAL USB CHARGING PORTS AND TRANSFORMER	

EQUIPMENT CONNECTION SCHEDULE			
SYMBOL	DESCRIPTION	HARDWARE (HW) OR DEVICE	NOTES
CP	COPY MACHINE	NEMA 5-20R	
D	ELECTRIC DRYER	NEMA 14-30R	
EWIC	ELECTRIC WATER COOLER	HW	1, 2
ICE	ICE MACHINE	NEMA 5-20R	
MD	MOTORIZED OVERHEAD DOOR	HW	1, 2, 3, 4, 5
PL	PLUMBER	NEMA 5-20R, SPD TYPE	
R	ELECTRIC RANGE	NEMA 14-30R	
RF	REFRIGERATOR	NEMA 5-20R	
TR	TELECOMMUNICATIONS RACK	(2) NEMA 5-20R, SPD TYPE	
W	ELECTRIC WASHER	NEMA 5-20R	

- NOTES:
- CONCEAL CONNECTION IN MANUFACTURER'S ASSEMBLY.
 - FIELD CONNECT TO MANUFACTURER'S SUPPLIED CONTROL DEVICES, SAFETY SENSORS, AND DUAL-DIRECTION MOTORS.
 - INSTALL AND CONNECT PER EQUIPMENT MANUFACTURER'S SHOP DRAWINGS AND INSTRUCTIONS.
 - INSTALL SINGLE-POLE TOGGLE SWITCH AT CONNECTION FOR LOCAL DISCONNECT.

SWITCH DEVICE ABBREVIATIONS		
SYMBOL	DESCRIPTION	NOTES
3, 4	3 OR 4-WAY TOGGLE SWITCH	
P	PILOT LIGHT TYPE	1

- NOTES:
- ILLUMINATED WHEN 'ON' POSITION.

TELECOMMUNICATIONS DEVICE ABBREVIATIONS		
SYMBOL	DESCRIPTION	NOTES
AP	WIRELESS ACCESS POINT	1

- NOTES:
- REFER TO TYPICAL INSTALLATION DETAILS FOR APPLICATIONS NOTED ON PLANS.

ELECTRICAL SYMBOLS LIST	
SYMBOL	DESCRIPTION
	CAPPED RACEWAY
	INTERCONNECTION RACEWAY AND CONDUCTORS
	RACEWAY SLEEVES: QUANTITY AND SIZE AS SCHEDULED
	TELECOMMUNICATIONS SYSTEM RACEWAY
	UNDERGROUND PRIMARY RACEWAY AND CONDUCTORS
	UNDERGROUND SECONDARY RACEWAY AND CONDUCTORS
	EXTERIOR PAD MOUNTED TRANSFORMER
	TELECOMMUNICATIONS NETWORK EQUIPMENT RACK
	IN-GRADE PULLBOX
	BRANCH CIRCUIT PANELBOARD, SURFACE AND FLUSH MOUNTED, DASHED LINE DENOTES MINIMUM WORKING CLEARANCE
	TERMINAL CABINET, SURFACE AND FLUSH MOUNTED, DASHED LINE DENOTES MINIMUM WORKING CLEARANCE
	ELECTRICAL SWITCHBOARD, FLOOR MOUNTED ON HOUSEKEEPING PAD, DASHED LINE DENOTES MINIMUM WORKING CLEARANCE
	GROUND BUS BAR
	TELECOMMUNICATIONS TERMINAL BOARD (TTB), 3/4" THICK, FIRE-TREATED PLYWOOD, HEIGHT: 8'-0" UON, WIDTH AS SHOWN ON PLANS
	DUPLEX RECEPTACLE, (CONVENIENCE OUTLET, C.O.) NUMBER INDICATES CIRCUIT
	DOUBLE DUPLEX RECEPTACLE
	SPECIAL PURPOSE RECEPTACLE OR CONNECTION, CEILING OR WALL MOUNTED
	JUNCTION BOX, CEILING OR WALL MOUNTED, B - BLANK
	MOTORIZED DAMPER
	MOTOR OUTLET
	DISCONNECT SWITCH
	KNOX BOX
	VARIABLE FREQUENCY DRIVE; SEE MECHANICAL
	CIRCUIT BREAKER
	PUSHBUTTON STATION (FLUSH)
	WATTHOUR METER
	TELECOMMUNICATIONS OUTLET, B - BLANK; NUMBER IN SYMBOL DENOTES QUANTITY OF CABLES AND CONNECTIONS; SCRIPT DENOTES RACK CONNECTION
	THERMOSTAT OUTLET
	KEYNOTE NUMBER
	DETAIL REFERENCE
	ENLARGED PLAN REFERENCE
	EQUIPMENT DESIGNATION

- * SEE SPECIFICATION SECTION 280233 FOR ADDITIONAL CONDUIT REQUIREMENTS
- ELECTRICAL SYMBOLS LIST GENERAL NOTES:
- HEIGHTS INDICATED ARE TO CENTER OF ITEM.
 - EXISTING ELECTRICAL ITEMS INDICATED WITH SHADED SOLID LINES.
 - ALL SYMBOLS IDENTIFIED MAY NOT BE USED ON PLANS.

LIGHTING SYMBOLS	
SYMBOL	DESCRIPTION
	WALL MOUNTED LIGHTING OUTLET AND LUMINAIRE
	RECESSED SQUARE LIGHTING OUTLET AND LUMINAIRE
	RECESSED ROUND LIGHTING OUTLET AND LUMINAIRE
	MONOPOINT LIGHTING OUTLET AND LUMINAIRE
	LIGHTING OUTLET AND LUMINAIRE
	PENDANT MOUNTED LIGHTING OUTLET AND LUMINAIRE
	GRID MOUNTED RECESSED LIGHTING OUTLET AND LUMINAIRE
	DUAL HEAD EMERGENCY UNIT
	FLUSH MOUNTED EMERGENCY LIGHT
	EXIT LIGHTING OUTLET AND FIXTURE, CEILING OR WALL MOUNTED; DIRECTIONAL ARROWS AS REQUIRED OR AS NOTED; HATCH DENOTES FACE ORIENTATION
	POLE AND ARM MOUNTED LUMINAIRE
	LOW-VOLTAGE SWITCH / BUTTON STATION
	LOW-VOLTAGE RELAY ASSIGNMENT, TAG IDENTIFIES RELAY PANEL
	LOCAL / ROOM CONTROL ZONE ASSIGNMENT
	SUSPENDED TRACK LIGHTING UNIT AND ASSEMBLY
	DECORATIVE POLE AND LUMINAIRE ASSEMBLY

- LIGHTING SYMBOLS GENERAL NOTES:
- EXISTING ELECTRICAL ITEMS INDICATED WITH SHADED SOLID LINES.
 - ALL SYMBOLS IDENTIFIED MAY NOT BE USED ON PLANS.
 - GRAPHICAL SIZE OF LUMINAIRES ON PLANS INTENDED TO DEPICT NOMINAL SIZE OF LUMINAIRE.
 - REFER TO LIGHTING CONTROL AND LUMINAIRE INSTALLATION SCHEDULES ON LIGHTING PLANS FOR ADDITIONAL INSTALLATION INSTRUCTIONS.

- ELECTRICAL RACEWAY AND CABLEING GENERAL INSTRUCTIONS
- ALL ELECTRICAL SYSTEMS SHALL BE INSTALLED IN LISTED RACEWAY SYSTEMS COMPLYING WITH THE REQUIREMENTS SET FORTH IN THESE DRAWINGS AND SPECIFICATIONS.
 - ALL ELECTRICAL CONDUCTORS SHALL BE LISTED AND SUITABLE FOR THE ENVIRONMENT AND APPLICATION WITHIN WHICH THEY ARE INSTALLED.
 - CONDUCTORS FOR SYSTEMS OPERATING AT GREATER THAN OR EQUAL TO 120 VOLTS NOMINAL TO GROUND SHALL UTILIZE NOT LESS THAN #12 AWG (AMERICAN WIRE GAUGE). CONDUCTORS SHALL BE INCREASED IN SIZE RELEVANT TO VOLTAGE DROP OR WHERE RACEWAY FILL RATIOS REQUIRE REDUCTION IN AMPACITY LISTINGS. WHERE NEUTRAL CONDUCTORS ARE REQUIRED, THE NEUTRAL CONDUCTOR SHALL BE CONSIDERED A CURRENT-CARRYING CONDUCTOR.
 - AMPACITY OF ELECTRICAL CONDUCTORS SHALL BE BASED ON 75 DEGREE CELSIUS TEMPERATURE RATING.
 - THE USE OF MULTI-WIRE BRANCH CIRCUITS THAT SHARE A NEUTRAL CONDUCTOR (COMMONLY REFERRED TO AS AN EDISON CIRCUIT) ARE PROHIBITED. DEDICATED NEUTRAL CONDUCTORS SHALL BE INSTALLED FOR ALL LINE-TO-GROUND BRANCH CIRCUIT CONNECTIONS.
 - ALL FEEDER AND BRANCH CIRCUITS SHALL BE EQUIPPED WITH A DEDICATED EQUIPMENT GROUNDING CONDUCTOR. IN NO CASE SHALL RACEWAYS BE UTILIZED AS THE ONLY EQUIPMENT GROUNDING CONNECTION.
 - BRANCH CIRCUITS DERIVED FROM THE SAME SOURCE MAY BE COMBINED IN SINGLE RACEWAY WHERE PRACTICAL. IN NO CASE, UNLESS PART OF A LISTED FACTORY-BUILT WIRING SYSTEM, SHALL MORE THAN THREE (3) LINE-TO-GROUND BRANCH CIRCUITS BE COMBINED INTO A SINGLE RACEWAY. BRANCH CIRCUITS AND FEEDER CIRCUITS FOR DEDICATED EQUIPMENT CONNECTIONS OR LINE-TO-LINE AND POLY-PHASE CONNECTIONS SHALL BE IN RACEWAY DEDICATED TO EACH CONNECTION.
 - INSTALLED BRANCH CIRCUIT ROUTING, COMBINING, AND DEVICE-TO-DEVICE CONNECTIONS AS INSTALLED IN THE FIELD SHALL BE DEPICTED ON CONTRACTOR'S AS-BUILT DRAWINGS. AS-BUILT DRAWINGS SHALL BE CONTINUALLY UPDATED AS THE CONSTRUCTION PROGRESSES.

- GENERAL ELECTRICAL INSTALLATION REQUIREMENTS
- FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON THE DRAWINGS AND/OR SPECIFIED IN ALL SECTIONS OF DIVISION 26 AND ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED, BUT REASONABLY REQUIRED FOR A COMPLETE INSTALLATION INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE, AND READY FOR OPERATION. ALL SPECIFIED PRODUCTS SHALL BE INSTALLED IN ACCORDANCE WITH ALL MANUFACTURERS' INSTRUCTIONS AND REQUIREMENTS.
 - DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND WIRING. MOST DIRECT ROUTING OF CONDUITS AND WIRING IS NOT ASSURED. EXACT REQUIREMENTS SHALL BE GOVERNED BY ARCHITECTURAL, STRUCTURAL AND MECHANICAL CONDITIONS OF THE JOB. CONSULT ALL OTHER DRAWINGS IN PREPARATION OF THE BID. EXTRA LENGTHS OF WIRING OR ADDITION OF PULL OR JUNCTION BOXES, ETC. NECESSARY BY SUCH CONDITIONS SHALL BE INCLUDED IN THE BID. CHECK ALL INFORMATION AND REPORT ANY APPARENT DISCREPANCIES BEFORE SUBMITTING BID.
 - SEQUENCE, COORDINATE AND INTEGRATE THE VARIOUS ELEMENTS OF ELECTRICAL SYSTEMS, MATERIALS AND EQUIPMENT.
 - COORDINATE ELECTRICAL SYSTEMS, EQUIPMENT AND MATERIALS INSTALLATION WITH OTHER BUILDING COMPONENTS. INFORM CONTRACTORS OF OTHER TRADES OF THE REQUIRED ACCESS TO AND CLEARANCES AROUND ELECTRICAL EQUIPMENT TO MAINTAIN SERVICEABILITY AND CODE COMPLIANCE.
 - VERIFY ALL DIMENSIONS BY FIELD MEASUREMENTS.
 - ARRANGE FOR CHASES, SLOTS AND OPENINGS IN OTHER BUILDING COMPONENTS DURING PROGRESS OF CONSTRUCTION TO ALLOW FOR ELECTRICAL INSTALLATIONS.
 - COORDINATE THE INSTALLATION OF REQUIRED SUPPORTING DEVICES AND SLEEVES TO BE SET IN POURED-IN-PLACE CONCRETE AND OTHER STRUCTURAL COMPONENTS AS THEY ARE CONSTRUCTED.
 - SEQUENCE, COORDINATE AND INTEGRATE INSTALLATIONS OF ELECTRICAL MATERIALS AND EQUIPMENT FOR EFFICIENT FLOW OF THE WORK. GIVE PARTICULAR ATTENTION TO LARGE EQUIPMENT REQUIRING POSITIONING PRIOR TO CLOSING IN THE BUILDING.
 - WHERE MOUNTING HEIGHTS ARE NOT DETAILED OR DIMENSIONED, INSTALL SYSTEMS, MATERIALS AND EQUIPMENT TO PROVIDE THE MAXIMUM HEADROOM POSSIBLE. PREFERENCE SHOULD BE GIVEN TO ADA GOVERNING REQUIREMENTS FOR ACCESSIBLE AND OPERABLE COMPONENTS.
 - COORDINATE CONNECTION OF ELECTRICAL SYSTEMS WITH EXTERIOR UNDERGROUND AND OVERHEAD SERVICE COMPANIES AND CONTROLLING AGENCIES. PROVIDE REQUIRED CONNECTION FOR EACH SERVICE.
 - INSTALL SYSTEMS, MATERIALS AND EQUIPMENT TO CONFORM WITH APPROVED SUBMITTAL DATA, INCLUDING COORDINATION DRAWINGS, TO THE GREATEST EXTENT POSSIBLE. CONFORM TO ARRANGEMENTS INDICATED BY THE CONTRACT DOCUMENTS, RECOGNIZING THAT PORTIONS OF THE WORK ARE SHOWN ONLY IN DIAGRAMMATIC FORM. WHERE COORDINATION REQUIREMENTS CONFLICT WITH INDIVIDUAL SYSTEM REQUIREMENT, REFER CONFLICT TO THE ARCHITECT.
 - INSTALL SYSTEMS, MATERIALS AND EQUIPMENT LEVEL AND PLUMB, PARALLEL AND PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS WHERE INSTALLED EXPOSED IN FINISHED SPACES.
 - INSTALL ELECTRICAL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE AND REPAIR OR REPLACEMENT OF EQUIPMENT COMPONENTS AND AS REQUIRED BY CODE. AS MUCH AS PRACTICAL, CONNECT EQUIPMENT FOR EASE OF DISCONNECTING WITH MINIMUM OF INTERFERENCE WITH OTHER INSTALLATIONS.
 - ALL ELECTRICAL ITEMS, EQUIPMENT, ETC. REQUIRING ACCESS AND MAINTENANCE TO BE PROVIDED WITH ACCESS PANELS BY ELECTRICAL CONTRACTOR WHEN LOCATED BEHIND HARD INACCESSIBLE FINISHED SURFACES. SEE ARCHITECTURAL CEILING PLANS FOR CEILING AND WALL FINISH TYPES.
 - INSTALL ACCESS PANEL OR DOORS WHERE EQUIPMENT IS CONCEALED BEHIND FINISHED SURFACES. ACCESS PANELS AND DOORS ARE SPECIFIED IN DIVISION 8 SECTION 'ACCESS DOORS'.
 - INSTALL SYSTEMS, MATERIALS AND EQUIPMENT GIVING RIGHT-OF-WAY PRIORITY TO SYSTEMS REQUIRED TO BE INSTALLED AT A SPECIFIED SLOPE.
 - ONLY QUALITY WORKMANSHIP WILL BE ACCEPTED. HAPHAZARD OR POOR INSTALLATION PRACTICE WILL BE CAUSE FOR REJECTION OF WORK.
 - PROVIDE FOREMAN IN CHARGE OF THIS WORK AT ALL TIMES.
 - WHERE THE SPECIFICATIONS CALL FOR AN INSTALLATION TO BE MADE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, A COPY OF SUCH RECOMMENDATIONS SHALL AT ALL TIMES BE KEPT IN THE JOB SUPERINTENDENT'S OFFICE AND SHALL BE AVAILABLE TO THE OWNER'S REPRESENTATIVE.
 - WHERE AIR PLENUMS ARE ENCOUNTERED, ALL CABLES AND CONDUCTORS NOT IN RACEWAYS SHALL BE RATED, LISTED, AND SUITABLE FOR USE IN PLENUM SPACES.
 - PROVIDE A MEANINGFUL QUALITY ASSURANCE PROGRAM. TO ASSIST THE CONTRACTOR IN THIS PROGRAM, THE SPECIFICATIONS CONTAINED HEREIN ARE SET FORTH AS THE MINIMUM ACCEPTABLE REQUIREMENTS. THIS DOES NOT RELIEVE THE CONTRACTOR FROM EXECUTING OTHER QUALITY ASSURANCE MEASURES TO OBTAIN A COMPLETE OPERATING FACILITY WITHIN THE SCOPE OF THIS PROJECT.
 - THE CONTRACTOR SHALL INSURE THAT ALL WORKMANSHIP, ALL MATERIALS EMPLOYED, ALL REQUIRED EQUIPMENT AND THE MANNER AND METHOD OF INSTALLATION CONFORMS TO ACCEPTED CONSTRUCTION AND ENGINEERING PRACTICES, AND THAT EACH PIECE OF EQUIPMENT IS IN SATISFACTORY WORKING CONDITION TO SATISFACTORILY PERFORM ITS FUNCTIONAL OPERATION.
 - PROVIDE QUALITY ASSURANCE TESTS AND OPERATIONAL CHECK ON ALL COMPONENTS OF THE ELECTRICAL DISTRIBUTION SYSTEM, ALL LIGHTING FIXTURES, AND COMMUNICATION SYSTEMS.

LOMBARD
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ARCHITECTS

ARCHITECTURE | PLANNING
INTERIOR DESIGN
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ORIGINAL SEALED
DOCUMENTS ON FILE
WITH ENGINEER.
DATE OF ORIGINAL SEAL:
09/26/2024

MOSCOW CITY
SHOP - EXISTING
SHOP TI

CITY OF MOSCOW

CONSULTANTS:

ELECTRICAL ENGINEER

IDAM AND ASSOCIATES

1111 W. JEFFERSON ST., SUITE 412
BOISE, IDAHO 83702
(208) 345-7127

MECHANICAL ENGINEER

MUSGROVE ENGINEERING P.A.

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STRUCTURAL ENGINEER

LOCHSA ENGINEERING

201 N. MAPLE GROVE RD., SUITE 100
BOISE, IDAHO 83704
(208) 342-7168

DESCRIPTION	
MRK	DATE
1	07/17/2026

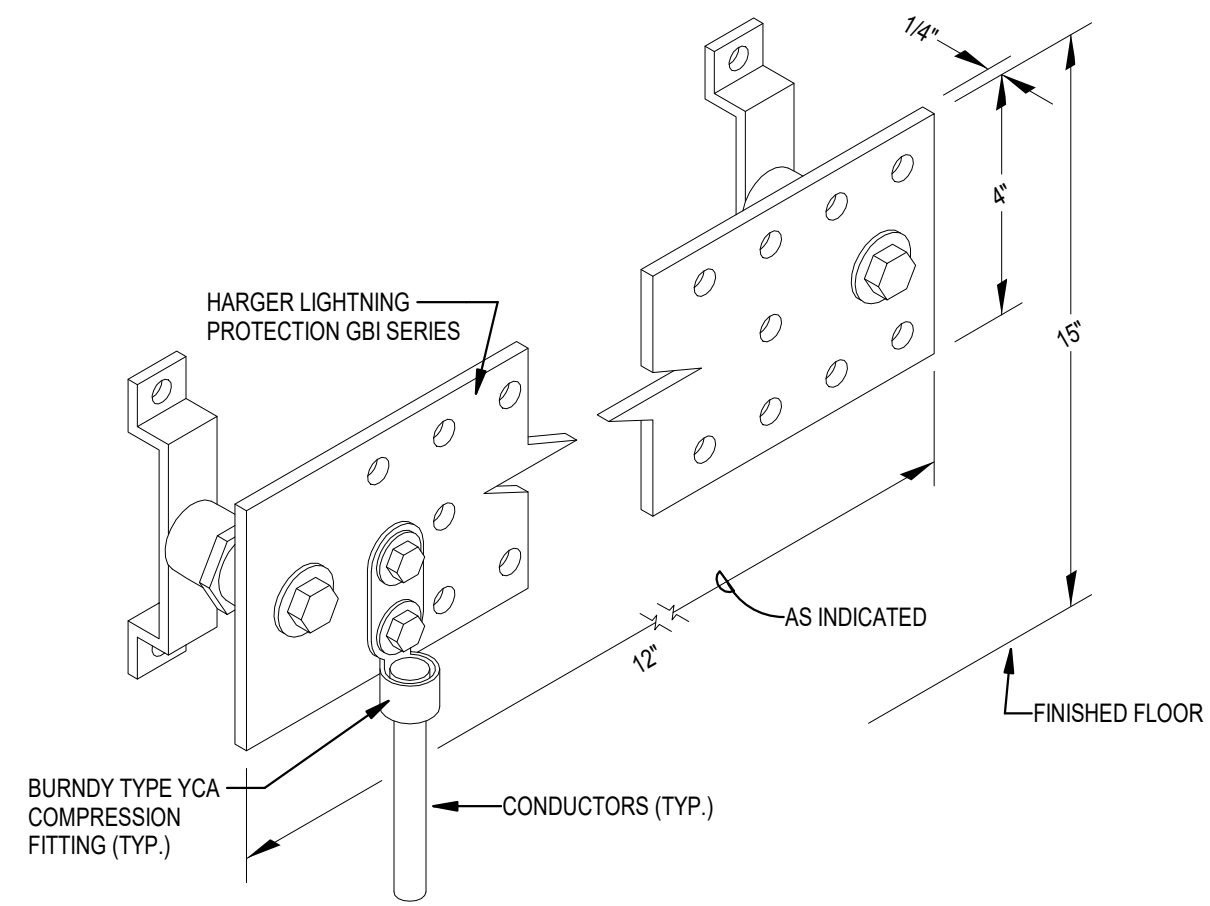
JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC/CRH
CHECKED BY: GLJ

PHASE: PERMIT SET

ELECTRICAL
COVER SHEET

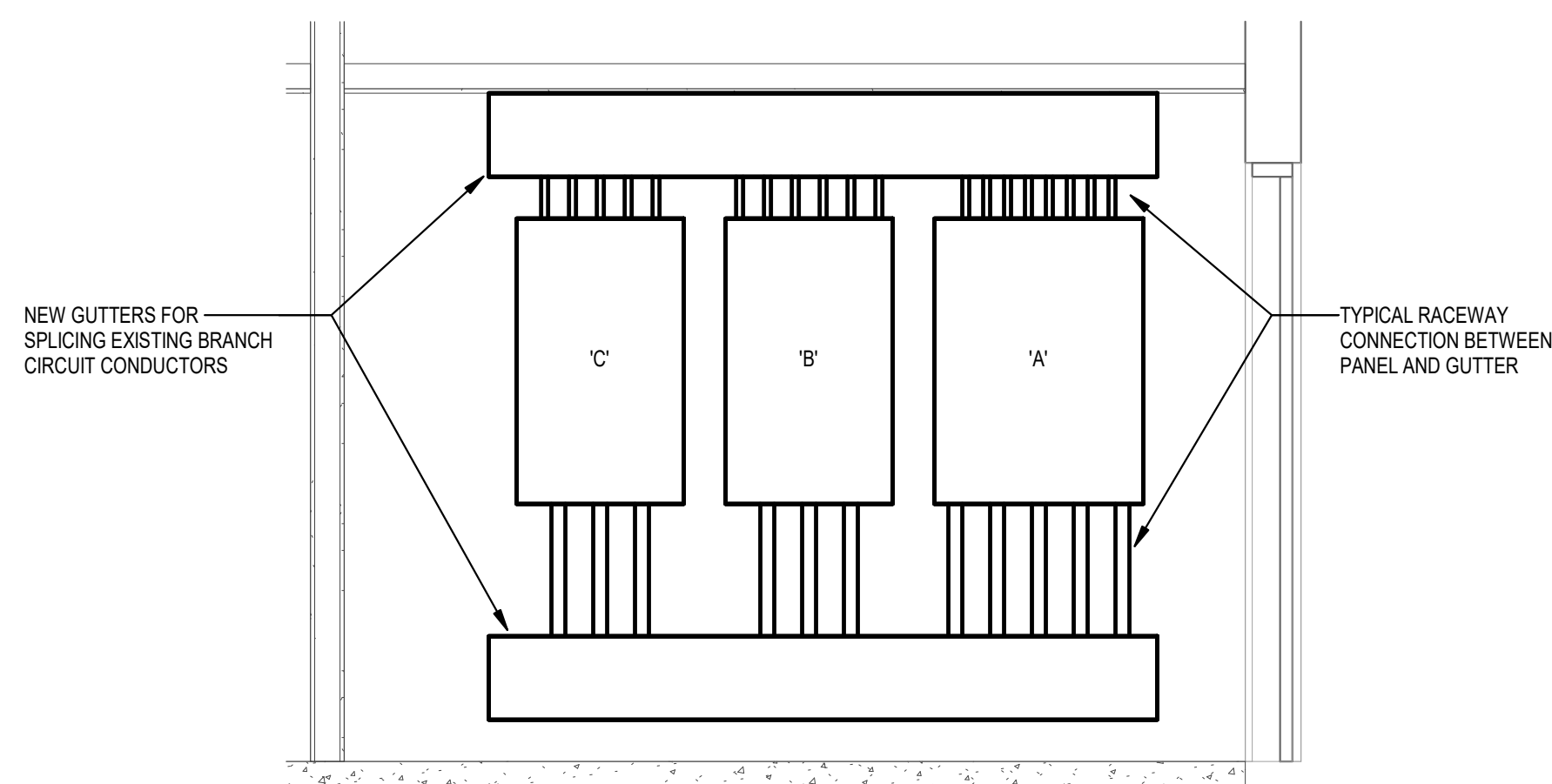
SHEET NO.

E0.0

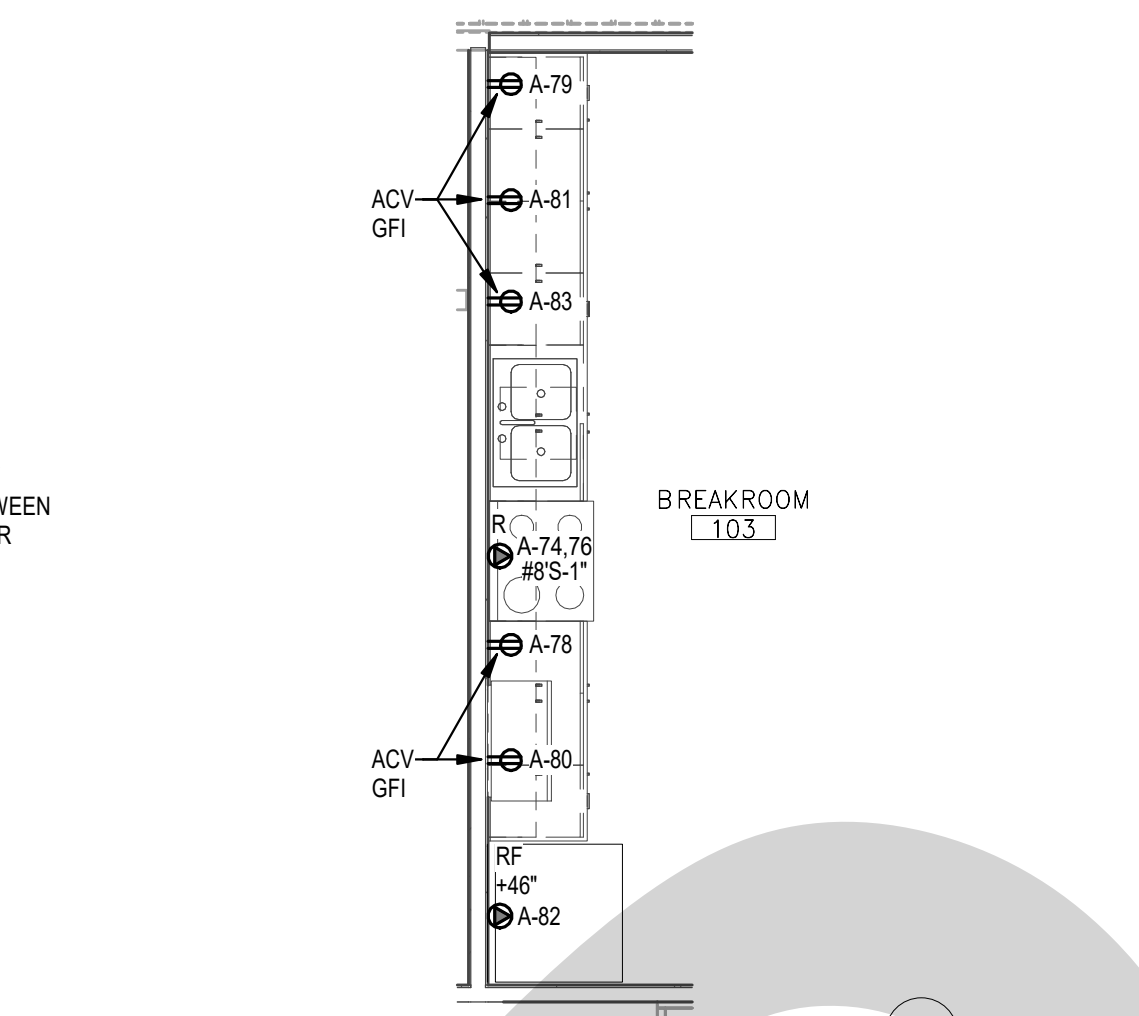


GROUND BUS BAR (GBB) DETAIL
NOT TO SCALE

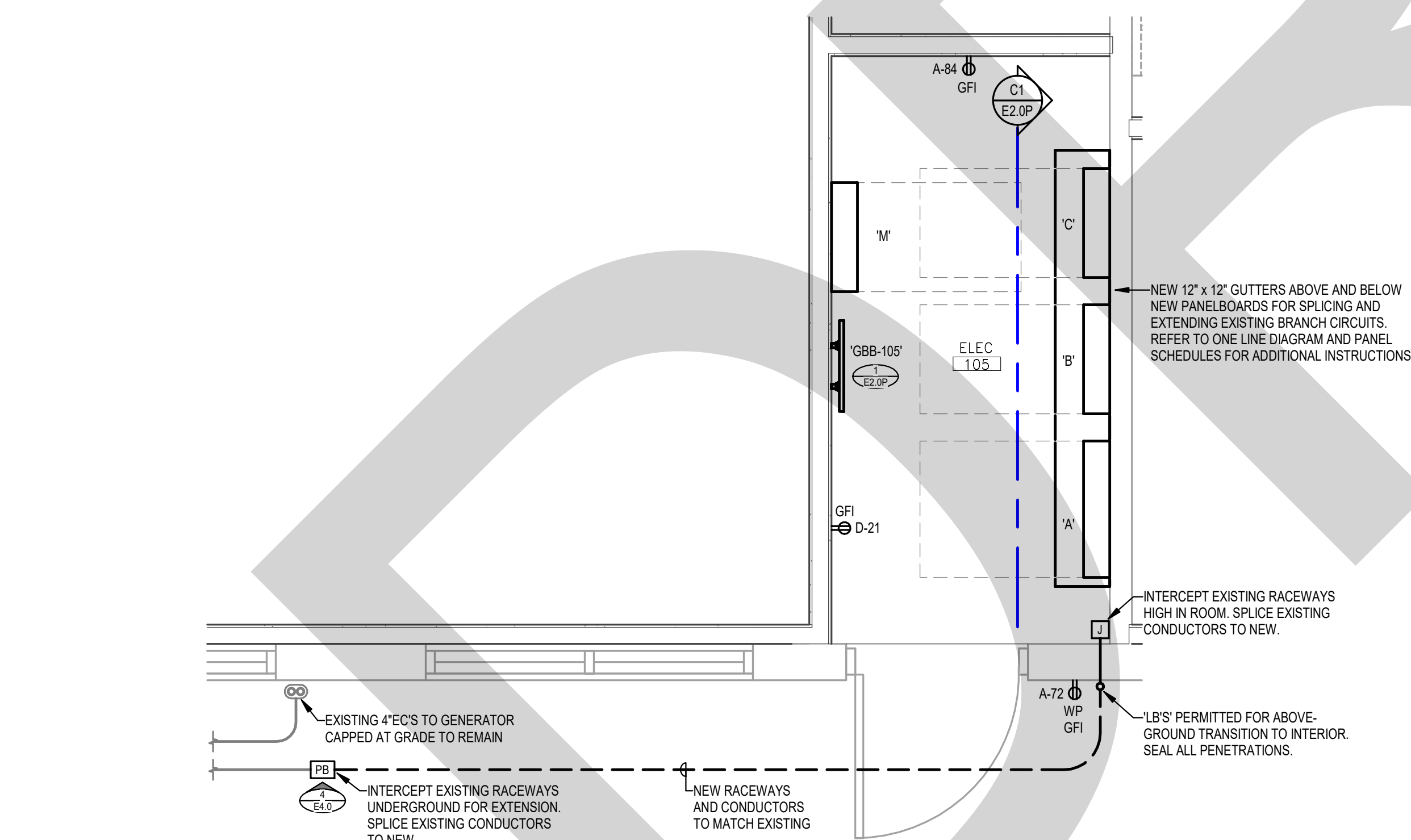
FROM	TO	CONDUCTOR(S)	NOTES
PANEL MP	GBB-105	1-3/0(CU)	EXTEND EXISTING ELECTRODE IF AVAILABLE
GBB-105	CONCRETE ENCASED ELECTRODE	1-3/0(CU)	
GBB-105	STRUCTURAL STEEL	1-3/0(CU)	VISIBLE CONNECTION
GBB-105	WATER SERVICE	1-3/0(CU)	VISIBLE CONNECTION
GBB-105	GAS METER PIPING	1-3/0(CU)	VISIBLE CONNECTION
GBB-105	GBB-202	1-3/0(CU)	
GBB-202	TERMINAL BOARD	1-4(CU)	BOND TERMINAL BOARD SECTIONS WITH #4(CU)
GBB-202	EXISTING DISCONNECT 'SP'	1-4(CU)	



C1 ELEC 105 EAST ELEVATION
1/2" = 1'-0"

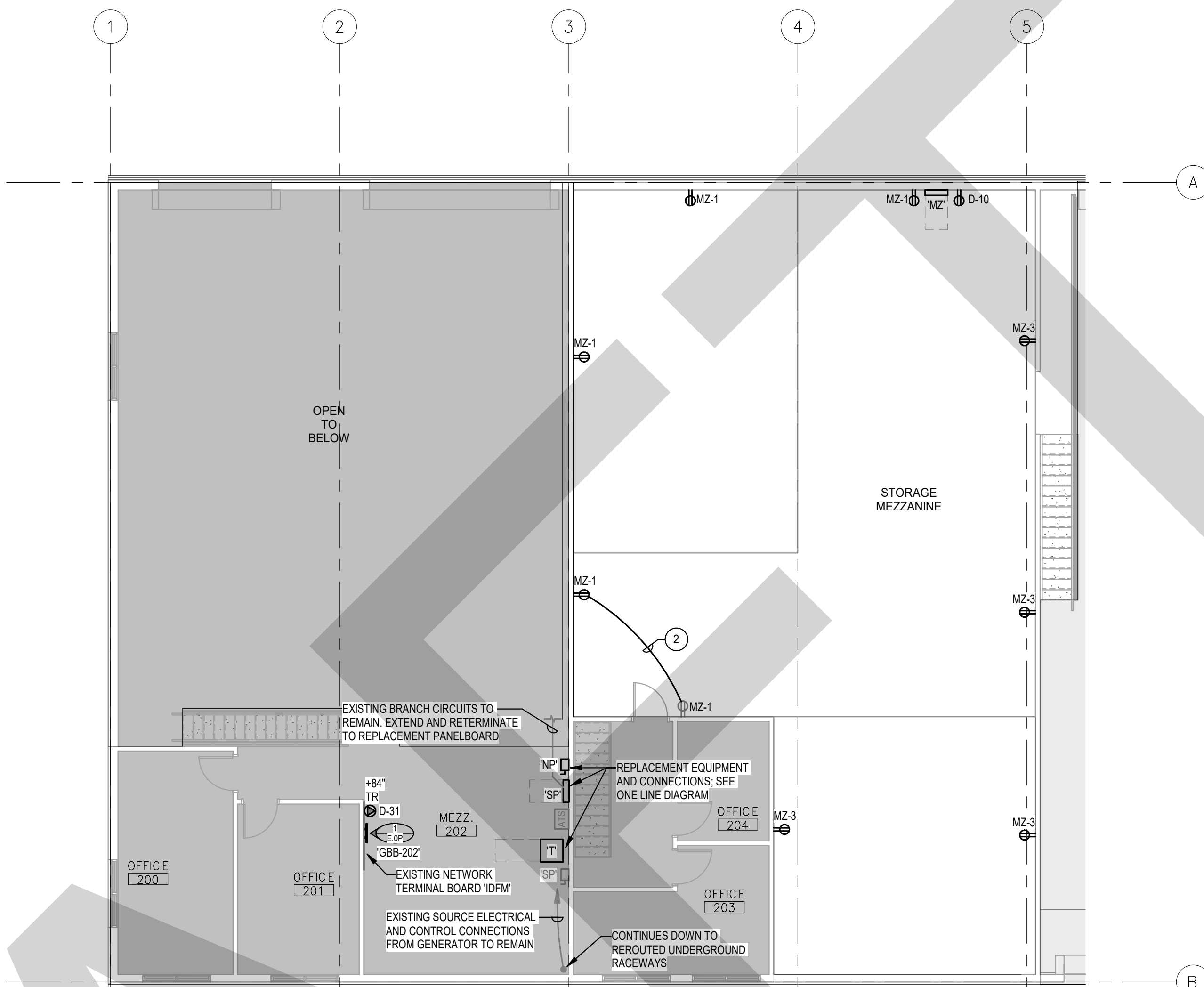


C3 BREAKROOM 103 POWER PLAN
1/4" = 1'-0"

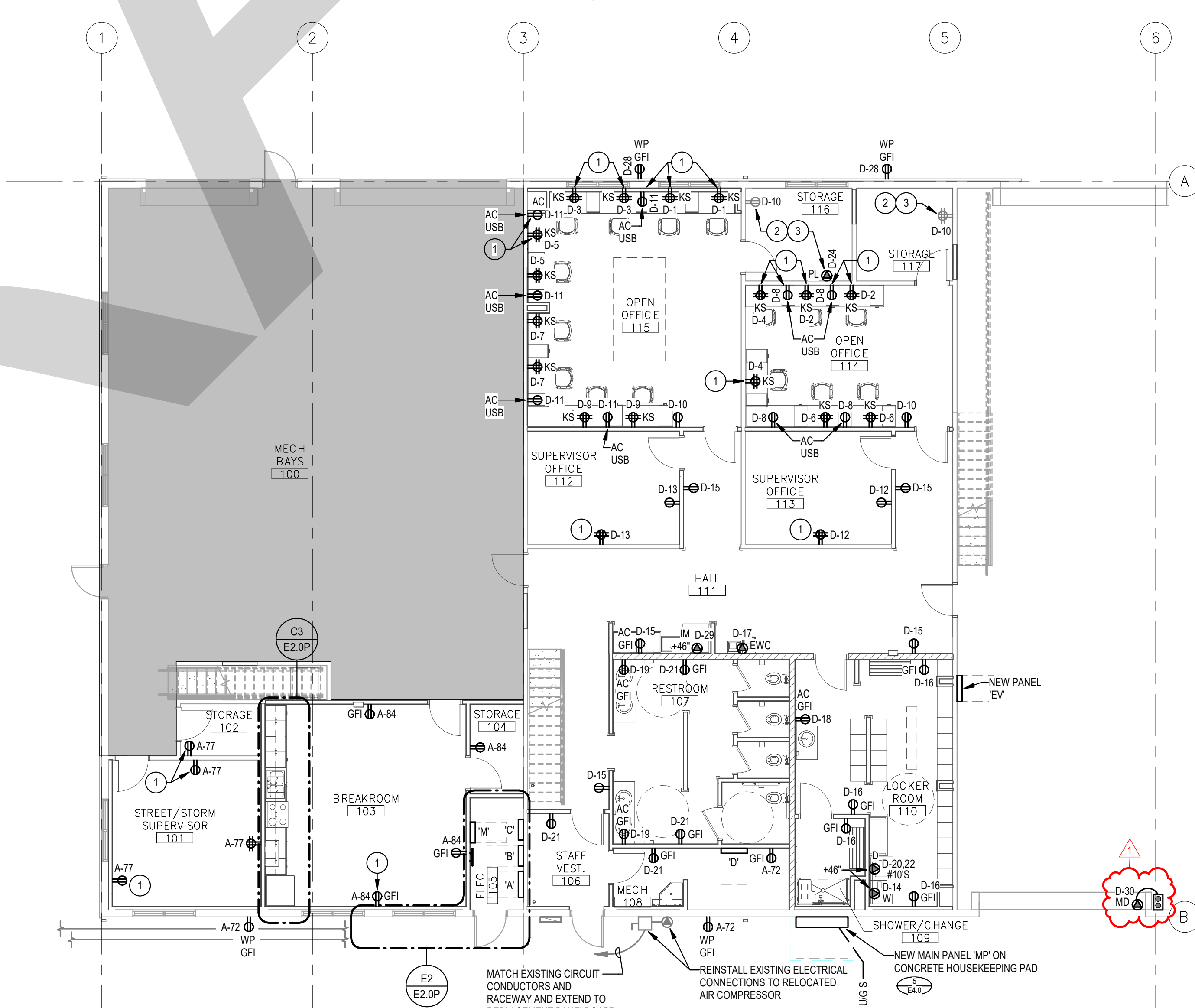


E2 ELEC 105 POWER PLAN
1/2" = 1'-0"

THESE PLANS REPRESENT EXISTING DEVICE AND EQUIPMENT LOCATIONS AS CLOSELY AS REASONABLY DISCERNIBLE AND ARE PROVIDED FOR CONTRACTOR INFORMATION. CONTRACTOR SHALL BE RESPONSIBLE FOR HIS OWN VERIFICATION OF EXISTING CONDITIONS PRIOR TO BID.



C4 POWER PLAN - FLOOR 2
1/8" = 1'-0"



E4 POWER PLAN - FLOOR 1
1/8" = 1'-0"

SHEET KEYNOTES

- CUT-INTO EXISTING SURFACE AND CONCEAL ALL CONNECTIONS. PATCH AND REPAIR EXISTING SURFACES TO MATCH.
- NEW BRANCH CIRCUIT CONNECTION TO REPLACE EXISTING DEVICE CONNECTION.
- REPLACE EXISTING DEVICE(S) AND COVERPLATE(S) WITH NEW MATCHING NEW.

GENERAL NOTES

- REFER TO SYMBOLS LIST ON E0.00 FOR REFERENCED SYMBOLS AND DESCRIPTIONS.
- RECEPTACLE LOCATIONS SHALL BE COORDINATED WITH MILLWORK, WALL FINISHES, WINDOW HEIGHTS, AND OTHER WALL MOUNTED EQUIPMENT PRIOR TO ROUGH-IN. NOTIFY ARCHITECT OF CONFLICTS PRIOR TO PROCEEDING WITH WORK.
- MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE UTILIZED FOR LINE TO NEUTRAL LOADS. DEDICATED NEUTRAL CONDUCTORS SHALL BE PROVIDED FOR ALL CIRCUITS.
- ALL JUNCTION BOXES LOCATED ABOVE ACCESSIBLE CEILINGS SHALL BE LOCATED NO MORE THAN 36 INCHES ABOVE CEILING LEVEL.
- REFER TO ARCHITECTURAL CODE PLANS FOR LOCATIONS OF FIRE-RATED ASSEMBLIES. PENETRATIONS OF FIRE-RATED ASSEMBLIES SHALL BE PERFORMED IN ACCORDANCE WITH UL REQUIREMENTS AND DIVISION 7 SPECIFICATIONS.
- RECEPTACLE AND WIRING DEVICE MOUNTING HEIGHTS SHALL BE REFERENCED FROM FINISHED FLOOR HEIGHT.
- REVIEW AND COORDINATE ALL EQUIPMENT CONNECTIONS WITH SUBMITTALS, SHOP DRAWINGS, AND MANUFACTURER'S INSTRUCTIONS FOR ALL ELECTRICALLY OPERATED EQUIPMENT SUPPLIED BY OTHER DIVISIONS OF WORK PRIOR TO COMMENCING WORK. NOTIFY ARCHITECT IN WRITING OF ANY DISCREPANCIES IN ELECTRICAL CONNECTIONS BASED UPON REVIEW.
- FURNISH AND INSTALL ALL ELECTRICAL CONNECTIONS TO MOTORIZED DOOR OPERATORS AND ELECTRIFIED DOOR HARDWARE AS DIRECTED BY DOOR HARDWARE INSTALLER. COORDINATE LOCATION OF CONTROLLER, POWER SUPPLY, SAFETY SENSORS, AND ALL INTERCONNECTIONS WITH DOOR HARDWARE SUPPLIER PRIOR TO COMMENCING WORK.
- ALL EXTERIOR PENETRATIONS SHALL BE SEALED. PENETRATIONS OF EXTERIOR WALLS SHALL BE POSITIONED AT LEAST 6" AWAY FROM WALL JOINTS.

EXPOSED RACEWAY INSTALLATIONS

EXPOSED RACEWAYS SHALL BE PERMITTED IN ALL SHOP CEILING AREAS. EXPOSED RACEWAYS SHALL BE INSTALLED PLUMB WITH BUILDING LINES AND SHALL NOT BE ROUTED DIAGONAL OR ALONG WALLS. EXPOSED RACEWAYS ARE NOT PERMITTED IN THE FOLLOWING GENERAL AREAS AND THOSE SPECIFIC AREAS NOTED ON PLANS:

- EXTERIOR
- OFFICES
- RESTROOMS
- HALLWAYS / CORRIDORS
- COMMON AREAS

LOMBARD CONRAD ARCHITECTS

ARCHITECTURE | PLANNING
INTERIOR DESIGN

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ORIGINAL SEALED DOCUMENTS ON FILE WITH ENGINEER.
DATE OF ORIGINAL SEAL: 09/26/2024

MOSCOW CITY SHOP - EXISTING SHOP TI

CITY OF MOSCOW

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(208) 342-7168

MRK DATE 07/17/2026 AUDENDUM #01 DESCRIPTION

JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: MKC/CRH
CHECKED BY: GLJ

PHASE: PERMIT SET

POWER PLANS

SHEET NO.

E2.0P

EIDAM AND ASSOCIATES PROJECT NUMBER 23-052

SECTION 087100 - DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Mechanical and electrified door hardware
2. Electronic access control system components

B. Section excludes:

1. Windows
2. Cabinets (casework), including locks in cabinets
3. Signage
4. Toilet accessories
5. Overhead doors

C. Related Sections:

1. Division 01 "General Requirements" sections for Allowances, Alternates, Owner Furnished Contractor Installed, Project Management and Coordination.
2. Division 06 Section "Rough Carpentry"
3. Division 06 Section "Finish Carpentry"
4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold installation specified in this section.
5. Division 08 Sections:
 - a. "Metal Doors and Frames"
 - b. "Flush Wood Doors"
6. Division 26 "Electrical" sections for connections to electrical power system and for low-voltage wiring.
7. Division 28 "Electronic Safety and Security" sections for coordination with other components of electronic access control system and fire alarm system.

1.2 REFERENCES

A. UL LLC

1. UL 10B - Fire Test of Door Assemblies
2. UL 10C - Positive Pressure Test of Fire Door Assemblies
3. UL 1784 - Air Leakage Tests of Door Assemblies
4. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

1. Sequence and Format for the Hardware Schedule
2. Recommended Locations for Builders Hardware
3. Keying Systems and Nomenclature

4. Installation Guide for Doors and Hardware

C. NFPA – National Fire Protection Association

1. NFPA 70 – National Electric Code
2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
3. NFPA 101 – Life Safety Code
4. NFPA 105 – Smoke and Draft Control Door Assemblies
5. NFPA 252 – Fire Tests of Door Assemblies

D. ANSI - American National Standards Institute

1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

1.3 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
2. Prior to forwarding submittal:
 - a. Review drawings and Sections from related trades to verify compatibility with specified hardware.
 - b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.

B. Action Submittals:

1. Product Data: Submit technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
 - a. Wiring Diagrams: For power, signal, and control wiring and including:
 - 1) Details of interface of electrified door hardware and building safety and security systems.
 - 2) Schematic diagram of systems that interface with electrified door hardware.
 - 3) Point-to-point wiring.
 - 4) Risers.
3. Samples for Verification: If requested by Architect, submit production sample of requested door hardware unit in finish indicated and tagged with full description for coordination with schedule.

- a. Samples will be returned to supplier. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule:
- a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work critical in Project construction schedule.
 - b. Submit under direct supervision of a Door Hardware Institute (DHI) certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule published by DHI.
 - c. Indicate complete designations of each item required for each opening, include:
 - 1) Door Index: door number, heading number, and Architect's hardware set number.
 - 2) Quantity, type, style, function, size, and finish of each hardware item.
 - 3) Name and manufacturer of each item.
 - 4) Fastenings and other pertinent information.
 - 5) Location of each hardware set cross-referenced to indications on Drawings.
 - 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
 - 7) Mounting locations for hardware.
 - 8) Door and frame sizes and materials.
 - 9) Degree of door swing and handing.
 - 10) Operational Description of openings with electrified hardware covering egress, ingress (access), and fire/smoke alarm connections.
5. Key Schedule:
- a. After Keying Conference, provide keying schedule that includes levels of keying, explanations of key system's function, key symbols used, and door numbers controlled.
 - b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
 - c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
 - d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
 - e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion. Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
 - f. Prepare key schedule by or under supervision of supplier, detailing Owner's final keying instructions for locks.
- C. Informational Submittals:
- 1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
 - 2. Provide Product Data:
 - a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
 - b. Include warranties for specified door hardware.

D. Closeout Submittals:

1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
 - a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Final approved hardware schedule edited to reflect conditions as installed.
 - d. Final keying schedule
 - e. Copy of warranties including appropriate reference numbers for manufacturers to identify project.
 - f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.

E. Inspection and Testing:

1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results of functional testing and inspection for:
 - a. Fire door assemblies, in compliance with NFPA 80.
 - b. Required egress door assemblies, in compliance with NFPA 101.

1.4 QUALITY ASSURANCE

A. Qualifications and Responsibilities:

1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years documented experience supplying both mechanical and electromechanical door hardware similar in quantity, type, and quality to that indicated for this Project. Supplier to be recognized as a factory direct distributor by the manufacturer of the primary materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:

- a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
 2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
 3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
 4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.
- C. Pre-Installation Meetings
1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.
 - 5) Address for delivery of keys.
 2. Pre-installation Conference
 - a. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - b. Inspect and discuss preparatory work performed by other trades.
 - c. Inspect and discuss electrical roughing-in for electrified door hardware.
 - d. Review sequence of operation for each type of electrified door hardware.
 - e. Review required testing, inspecting, and certifying procedures.
 - f. Review questions or concerns related to proper installation and adjustment of door hardware.
 3. Electrified Hardware Coordination Conference:

- a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site. Promptly replace products damaged during shipping
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package. Deliver each article of hardware in manufacturer's original packaging.
- C. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
- D. Provide secure lock-up for door hardware delivered to Project. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

1.6 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.7 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.
 1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
 2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

- a. Mechanical Warranty

- 1) Locks
 - a) Schlage ND Series: 10 years
 - b) Schlage ALX Series: 10 years
- 2) Exit Devices
 - a) Von Duprin: 10 years
- 3) Closers
 - a) LCN 4050 Series: 25 years

1.8 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.
- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and project suitability to ensure continuity of existing and future performance and maintenance standards. After investigating available product offerings, the Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 012500.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

- A. Fabrication
 1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.

2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
 3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.
- B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.
- C. Cable and Connectors:
1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
 2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
 3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.3 HINGES

- A. Manufacturers and Products:
1. Scheduled Manufacturer and Product:
 - a. Ives 5PB series
 2. Acceptable Manufacturers and Products:
 - a. Match existing
- B. Requirements:
1. Provide hinges conforming to ANSI/BHMA A156.1.
 2. Provide five knuckle, plain bearing hinges.
 3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
 4. Doors over 1-3/4 inch (44 mm) thick or over 36 inches (914 mm) wide:
 - a. Exterior: Bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Steel, 5 inches (127 mm) high
 5. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
 6. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
 7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:

- a. Steel Hinges: Steel pins
- b. Non-Ferrous Hinges: Stainless steel pins
- c. Out-Swinging Exterior Doors: Non-removable pins
- d. Out-Swinging Interior Lockable Doors: Non-removable pins
- e. Interior Non-lockable Doors: Non-rising pins

2.4 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Standard weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
5. 2 inches or thicker doors:
 - a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high
6. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
7. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
8. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component. Provide mortar guard for each electrified hinge specified.

2.5 SPRING HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 3SP series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide 3 knuckle, steel based, spring full mortise hinges.
3. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
4. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Do not use spring hinges of door 96 inches and greater in height.

2.6 CYLINDRICAL LOCKS – GRADE 1

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Best, 9k Series 14D
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide escutcheon with lock status indicator window on top of lockset rose:
 - a. Escutcheon height (including rose) 6.05 inches high by 3.68 inches wide.
 - b. Indicator window measuring a minimum 3.52-inch by .60 inch with 1.92 square-inches of front facing viewing area and 180-degree visibility with a total of .236 square-inches of total viewable area.
 - c. Provide snap-in serviceable window to prevent tampering. Lock must function if indicator is compromised.
 - d. Provide messages color-coded with full text and symbol, as scheduled, for easy visibility.
 - e. Unlocked and Unoccupied message will display on white background, and Locked and Occupied message will display on red background.
3. Cylinders: Refer to "KEYING" article, herein.
4. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
5. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.

6. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Provide electrified options as scheduled in the hardware sets.
9. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
 - a. Lever Design: Schlage Rhodes.

2.7 CYLINDRICAL LOCKS – GRADE 2

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Best, 9k Series 14D
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements

1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 2, and UL Listed for 3-hour fire doors with a minimum cycle life of 1 million.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with 1/2-inch latch throw. Provide 3/4" latch throw for UL listing at pairs.
4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
5. Provide independently operating levers with two external return spring cassettes mounted under roses to prevent lever sag.
6. Provide a minimum of 5 points of lever engagement between the cassette spindle and lever shank to prevent lever sag.
7. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
8. Plug-n-Play – Provide modular lockset allowing lock functions to be created for 7 typical functions by inserting/installing parts into the exterior of a fully assembled chassis
9. Reconfigurable Chassis - Provide modular lockset that allows the function to be reconfigured by removing external components from the chassis
10. Lever Trim: Solid cast levers and wrought roses on both sides.
 - a. Lever Design: Schlage Rhodes.

2.8 EXIT DEVICES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin 78 series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or Fire Exit Hardware with manufacturer's approved strikes.
2. Cylinders: Refer to "KEYING" article, herein.
3. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrified requirements. No plastic inserts are allowed in touchpads.
4. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect. Touchpad must extend a minimum of one half of door width.
5. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
6. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
7. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
8. Provide electrified options as scheduled.
9. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
10. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.9 CYLINDERS**A. Manufacturers and Products:**

1. Scheduled Manufacturer and Product:

- a. Best Cormax

B. Requirements:

1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article, herein.
2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. Patented Restricted Small Format: cylinder with small format interchangeable cores (SFIC) with restricted, patented keyway.
3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent protected.
4. Nickel silver bottom pins.

2.10 KEYING**A. Scheduled System:**

1. Existing factory registered system:

- a. Provide cylinders/cores keyed into Owner's existing factory registered keying system. Comply with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

B. Requirements:

1. Construction Keying:

a. Replaceable Construction Cores.

- 1) Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - a) 3 construction control keys
 - b) 12 construction change (day) keys.
- 2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:

- a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
- b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
 - 1) Permanent Control Keys: 3.
 - 2) Master Keys: 6.
 - 3) Change (Day) Keys: 3 per cylinder/core that is keyed differently
 - 4) Key Blanks: Quantity as determined in the keying meeting.

2.11 KEY MANAGEMENT SOFTWARE

A. Requirements

1. Provide training and onboarding, including:
 - a. Connecting Overtur to the factory master key software, enabling real time visibility of key system data.

2.12 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Per Owner's request

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.13 DOOR CLOSERS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. LCN 4050A series
2. Acceptable Manufacturers and Products:
 - a. Match existing

B. Requirements:

1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
2. Provide door closers with fully hydraulic, full rack and pinion action with cast aluminum cylinder.
3. Closer Body: 1-1/2-inch (38 mm) diameter with 11/16-inch (17 mm) diameter heat-treated pinion journal and full complement bearings.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and all weather requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.

5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and back check.
7. Pressure Relief Valve (PRV) Technology: Not permitted.
8. Provide stick on templates, special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.

2.14 DOOR TRIM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Requirements:

1. Provide push plates, push bars, pull plates, pulls, and hands-free reversible door pulls with diameter and length as scheduled.

2.15 PROTECTION PLATES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Requirements:

1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.16 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:

- a. Ives
 - 2. Acceptable Manufacturers:
 - a. Match existing
 - B. Provide door stops at each door leaf:
 - 1. Provide wall stops wherever possible. Provide concave type where lockset has a push button of thumbturn.
 - 2. Where a wall stop cannot be used, provide universal floor stops.
 - 3. Where wall or floor stop cannot be used, provide overhead stop.
 - 4. Provide roller bumper where doors open into each other and overhead stop cannot be used.
- 2.17 SILENCERS
- A. Manufacturers:
 - 1. Scheduled Manufacturer:
 - a. Ives
 - 2. Acceptable Manufacturers:
 - a. Match existing
 - B. Requirements:
 - 1. Provide "push-in" type silencers for hollow metal or wood frames.
 - 2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
 - 3. Omit where gasketing is specified.
- 2.18 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING
- A. Manufacturers:
 - B. Scheduled Manufacturer:
 - 1. Zero International
 - C. Acceptable Manufacturers:
 - 1. Match existing
 - D. Seals and Gasketing: Provide continuous gasketing on exterior openings, to the head and jambs, forming a continuous seal between the door and the frame. Provide smoke, light, or sound gasketing on interior doors where indicated.
 - 1. Provide self-tapping fasteners for aluminum extruded gasketing being applied to hollow metal frames.

- a. Provide non-corrosive fasteners for all exterior applications.
 - b. Provide security fasteners where indicated.
2. Provide neoprene, EPDM, silicone, or nylon brush inserts as specified in hardware sets. Provide non brush inserts of solid or sponge cell, as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.
- E. Smoke Labeled Gasketing: At all smoke labeled openings, provide smoke listed perimeter gasketing assemblies complying with NFPA 105 listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction for smoke control ratings indicated based on testing according to UL 1784.
- F. Fire Listed Gasketing: Assemblies complying with NFPA 80 that are listed by a testing and inspecting agency acceptable to authorities having jurisdiction for fire ratings indicated based on testing according to UL-10C.
 1. Where frame-applied intumescent seals are required by the manufacturer, provide gaskets that comply with UL10C Standard for Positive Pressure Fire Tests of Door Assemblies and UBC 7-2, Fire Tests of Door Assemblies.
- G. Sound-Rated Gasketing: Provide acoustic gasketing to meet Sound Transmission Class (STC) rating required.
- H. Meeting-Stile Gasketing: Provide meeting-stile gasketing that fastens to the meeting stiles forming a continuous seal when doors are closed.
- I. Door Sweeps or Shoes: Apply to the bottom of the door to close the gap between the door bottom and finished floor or saddle threshold.
 1. Provide solid neoprene, EPDM, silicone, or nylon brush type of seal as specified in hardware sets. Vinyl inserts are not allowed except where specified in hardware sets.
- J. Automatic Door Bottoms:
 1. Provide closed cell sponge, bulb neoprene. or EPDM type of seal as specified in hardware sets.
 2. Door bottom to be mortised, semi mortised, or surface mount as with a minimum thickness as specified in hardware sets.
- K. Rain Drips:
 1. Provide overhead rain drips for out-swinging hollow metal doors that are not covered against 45 degree blowing rain. Aluminum extrusion to be a minimum of .088 inches thick and extend 2.50 inches from the face of the frame, in anodized finish to match door.
 2. Door sweeps or shoes with integral rain drip must meet ADA requirements
- L. Thresholds: Provide threshold units not less than 4 inches wide, formed to accommodate change in floor elevation where indicated, and fabricated to accommodate door hardware and fit door frames.
 1. Threshold extrusion to be a minimum thickness as specified in hardware sets.

2.19 COAT HOOKS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Match existing

B. Provide coat hooks as specified.

2.20 FINISHES

A. FINISH: BHMA 626/652 (US26D); EXCEPT:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Hinges at shower or toilet room doors: BHMA 630 (US32D)
3. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
4. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
5. Protection Plates: BHMA 630 (US32D)
6. Overhead Stops and Holders: BHMA 630 (US32D)
7. Door Closers: Powder Coat to Match
8. Wall Stops: BHMA 630 (US32D)
9. Latch Protectors: BHMA 630 (US32D)
10. Weatherstripping: Clear Anodized Aluminum
11. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.

2. Custom Steel Doors and Frames: HMMA 831.
 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install inspection, testing as specified in section 1.03.E unless otherwise required to comply with governing regulations.
- C. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- D. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- G. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated.
- I. Lock Cylinders:
1. Install construction cores to secure building and areas during construction period.
 2. Replace construction cores with permanent cores as indicated in keying section.
 3. Furnish permanent cores to Owner for installation.
- J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY AND SECURITY sections for:
1. Conduit, junction boxes and wire pulls.
 2. Connections to and from power supplies to electrified hardware.
 3. Connections to fire/smoke alarm system and smoke evacuation system.
 4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
 5. Connections to panel interface modules, controllers, and gateways.
 6. Testing and labeling wires with Architect's opening number.
- K. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- L. Continuous Hinges: Re-locate the door and frame fire rating labels where they will remain visible so that the hinge does not cover the label once installed.
- M. Door Closers & Auto Operators: Mount closers/operators on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Mount closers/operators so they are not visible in corridors, lobbies and other public spaces unless approved by Architect.
- N. Overhead Stops/Holders: Mount overhead stops/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

- O. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
- P. Thresholds:
 - 1. Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."
 - 2. Aluminum thresholds to be cut-in, and scribed around mullions, frame members, and stops. Do not butt to thresholds. Provide a continuous surface across full width of opening from jamb to jamb.
 - 3. Where aluminum panic-type (rabbeted) thresholds with neoprene inserts are specified, undercut doors as required to properly mate with seal in threshold.
- Q. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- R. Perimeter Gasketing:
 - 1. Apply to head and jamb, forming seal between door and frame.
 - 2. Install gasketing in a manner eliminating need to cut any seal to install surface mounted hardware. Install compatible mounting bracket for surface mounted hardware unless minimum 1/4 inch thick solid aluminum seals are provided for mounting of surface applied hardware.
- S. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- T. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is closed.

3.3 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Spring Hinges: Adjust to achieve positive latching when door can close freely from an open position of 30 degrees.
 - 2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
 - 3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three to six months after date of Substantial Completion, examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors and door hardware.

3.4 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items per manufacturer's instructions to restore proper function and finish.

- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.5 DOOR HARDWARE SCHEDULE

- A. The intent of the hardware specification is to specify the hardware for interior and exterior doors, and to establish a type, continuity, and standard of quality. However, it is the door hardware supplier's responsibility to thoroughly review existing conditions, schedules, specifications, drawings, and other Contract Documents to verify the suitability of the hardware specified.
- B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application.
- C. Hardware items are referenced in the following hardware schedule. Refer to the above specifications for special features, options, cylinders/keying, and other requirements.
- D. Hardware Sets:

148489 OPT0474473 Version 1

Legend:

-  Link to catalog cut sheet
 Electrified Opening

Hardware Group No. 03

For use on Door #(s):

102 108

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	9K37D14D		626	BES
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 04

For use on Door #(s):

104 116 117

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	STOREROOM LOCK	9K37D14D		626	BES
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 05

For use on Door #(s):

101 112 113

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	9K37AB14D		626	BES
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER

Hardware Group No. 05A

For use on Door #(s):

114 115

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	9K37AB14D		626	BES
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER

Hardware Group No. 05B

For use on Door #(s):

111B

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	ENTRANCE LOCK	9K37AB14D		626	BES
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER
1	EA	DOOR SWEEP	39A		A	ZER
			(AS REQ'D)			
1	EA	THRESHOLD	PER DETAILS		TBD	TBD

Hardware Group No. 06

For use on Door #(s):

106

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PANIC HARDWARE	78-L-BE-06		626	VON
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

PANIC DEVICE IS SPECIFIED. VERIFY HARDWARE FOR EXTEIROR DOOR. PROVIDE PANIC DEVICE OR PASSAGE LOCK MATCHING EXTERIOR.

Hardware Group No. 07

For use on Door #(s):

109

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		630	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	9K37H14D		626	BES
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER

Hardware Group No. 08

For use on Door #(s):

103 111A

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PASSAGE SET	9K30N14D		626	BES
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

Hardware Group No. 09

For use on Door #(s):

107A 107B 107C

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5PB1 4.5 X 4		630	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	9K37H14D		626	BES
1	EA	WALL STOP	WS65		673	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER
1	EA	COAT AND HAT HOOK	507		626	IVE

Hardware Group No. 09A

For use on Door #(s):

107D

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	SPRING HINGE	3SP1 4.5 X 4		630	IVE
1	EA	PRIVACY LOCK W/ OUTSIDE INDICATOR	9K37H14D		626	BES
1	EA	WALL STOP	WS406/407CCV		630	IVE
1	EA	GASKETING	488SBK PSA		BK	ZER
1	EA	COAT AND HAT HOOK	507		626	IVE

Hardware Group No. 10

For use on Door #(s):

110

Provide each door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
3	EA	HINGE	5BB1 4.5 X 4.5		652	IVE
1	EA	PUSH PLATE	8200 6" X 16"		630	IVE
1	EA	PULL PLATE	8305 8" 4" X 16"		630	IVE
1	EA	SURFACE CLOSER	4050A RW/PA		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	WALL STOP	WS406/407CCV		630	IVE
3	EA	SILENCER	SR64		GRY	IVE

END OF SECTION

Bidders

Company Name	Email	Phone	Fax	Location
1. Prime Bidder				
ACM, Inc. *	dcarnazzo@buildwithacm.com	(208) 286-1863		Boise ID
For qualified subcontractors, we welcome your competitive proposals and general inquiries! Please email ALL sub bid proposals to our ACM Estimating team estimating@buildwithacm.com *** DRAWINGS AND SPECS AVAILABLE UPON REQUEST ***Or you can call 208-9				
ACM, Inc. *	rcoronelrosas@buildwithacm.com	(208) 559-3300		Boise ID
Also please send Proposals to estimating@buildwithacm.com				
Ginno Construction Company *	kyle@ginnoconstruction.com	(208) 667-5560		Coeur D Alene ID
Ginno Construction Company *	bidding@ginnoconstruction.com	(208) 667-5560		Coeur d'Alene ID
Mangum Construction LLC *	aaron@mangum-construction.com	(509) 254-1034		Clarkston WA
2. Sub Bidder				
B & H Electric, LLC	gret@bhelectriccompany.com	(208) 603-8812		Careywood ID
Valley Electric, Inc. *	Joe@lcvalleyelectric.com	(208) 743-3419		Lewiston ID

PLAN HOLDERS - BOISE BLUEPRINT SPECIALITIES

Moscow City Shop - Existing Shop TI

Remodel of 6,110 sf of office space in the existing City shop building.

Plan Holders

Date	Company	Contact
6/27/26 7:32 am	Dodge Data & Analytics 2860 S State Hwy 161 Ste 160 #501 Grand Prairie, TX 75052	Jayalakshmi L Tel: 413-376-7032
6/30/26 2:03 pm	iSqFt 1914 North Ave West Missoula, MT 59801	Construct Connect Tel: 800-364-2059
6/26/26 8:51 am	McGraw Hill Construction 3461 NW Yeon Ave Portland, OR 97210	Lori Bachman Tel: 844-326-3826 Fax: 609-964-7447
6/25/26 10:21 am	Plan Center Northwest PO Box 2486 Clackamas, OR 97015	Brie Kidwell Tel: 503-650-0148

JUL
30**MOSCOW CITY SHOP - EXISTING SHOP TI - MOSCOW**Location: 650 North Van Buren Street Moscow Latah ID 83843
When: 3:00 PM**PLAN HOLDERS - Idaho AGC**

Bid Time:	3:00 PM	Status:	Open Bid
Postponed:	No	Street:	650 North Van Buren Street
City:	Moscow	County:	Latah
Zip Code:	83843		

Pre Bid:

The pre-bid conference and walk-through will be held on July 15th, at 2:00 P.M. The conference will be held at the existing Moscow City Shop at 650 Van Buren St. [Mandatory: No]

Project Type:	Commercial Construction	Bid Packages:	No
Estimate Low:		Estimate High:	\$950,000
Contract#/Ref:		Published Date:	

Plan Status:	Online	Spec Status:	Online
No of Plans:	0	No of Specs:	0
Plans Cost:			

Description:

The work consists of an interior remodel of 6,110 square feet of the existing shop building. All labor, materials, equipment and services necessary to provide the construction should be included in the bid.

Project Contacts

Company Name	Email	Phone	Fax	Location
Primary Contact				
Lombard Conrad Architects	mattg@lcarch.com	(208) 780-0004 []	[]	Boise ID

Bidders

Company Name	Email	Phone	Fax	Location
1. Prime Bidder				
ACM, Inc. *	dcarnazzo@buildwithacm.com	(208) 286-1863		Boise ID
For qualified subcontractors, we welcome your competitive proposals and general inquiries! Please email ALL sub bid proposals to our ACM Estimating team estimating@buildwithacm.com *** DRAWINGS AND SPECS AVAILABLE UPON REQUEST ***Or you can call 208-9				
ACM, Inc. *	rcoronelrosas@buildwithacm.com	(208) 559-3300		Boise ID
Also please send Proposals to estimating@buildwithacm.com				
Ginno Construction Company *	kyle@ginnoconstruction.com	(208) 667-5560		Coeur D Alene ID
Ginno Construction Company *	bidding@ginnoconstruction.com	(208) 667-5560		Coeur d'Alene ID
Mangum Construction LLC *	aaron@mangum-construction.com	(509) 254-1034		Clarkston WA
2. Sub Bidder				
B & H Electric, LLC	gret@bhelectriccompany.com	(208) 603-8812		Careywood ID
Valley Electric, Inc. *	Joe@lcvalleyelectric.com	(208) 743-3419		Lewiston ID

PLAN HOLDERS - MISSOULA PLANS EXCHANGE



Moscow City Shop Existing Shop TI, Idaho

Normal

User

Specialty

Send Email

Viewed = 53

Saved = 3

Order Print = 0

Order CD = 0

Email = 0

Total = 56

Company Name	Email	Action Date	Action	Planroom
Missoula Plans Exchange	tbrooks@mpe.us	07/16/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/15/2026	VIEWED	MIPE
Knife River	josh.harrington@kniferiver.com	07/15/2026	VIEWED	MIPE
C & C Construction of the Pacific NW Inc	Mtpm@roofing32425.com	07/14/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/14/2026	VIEWED	MIPE
Sutinen Insulation LLC	severi@sutineninsulation.com	07/13/2026	VIEWED	MIPE
Sparrow Contracting LLC	Joe@sparrowcontracting.net	07/13/2026	VIEWED	MTPE
MT Energy	noah@gomtenergy.com	07/13/2026	VIEWED	MIPE
Sparrow Contracting LLC	Joe@sparrowcontracting.net	07/13/2026	VIEWED	MTPE
MT Energy	noah@gomtenergy.com	07/12/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/11/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/10/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/09/2026	VIEWED	MIPE
Norlift, Inc	heaths@norlift.com	07/09/2026	VIEWED	MIPE
Doors & Hardware Unlimited	paul@dhudoors.com	07/09/2026	VIEWED	GFBE
MT Energy	noah@gomtenergy.com	07/08/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/07/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/06/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/05/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/04/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/03/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/02/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	07/01/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	06/30/2026	VIEWED	MIPE
Nationwide Construction LLC	j.fischer@psestimating.com	06/30/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	06/29/2026	VIEWED	MIPE
Razz Construction, Inc	bids@razzconstruction.com	06/29/2026	VIEWED	MTPE
Razz Construction, Inc	bids@razzconstruction.com	06/29/2026	VIEWED	MTPE
Keller Supply Company	thogan@kellersupply.com	06/29/2026	VIEWED	MTPE
Sierra Pacific Windows	dsears@spi-ind.com	06/29/2026	VIEWED	MIPE
IMS Masonry	jking@jmsmasonry.com	06/29/2026	VIEWED	MTPE
C & C Construction of the Pacific NW Inc	Mtpm@roofing32425.com	06/28/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	06/28/2026	VIEWED	MIPE
MT Energy	noah@gomtenergy.com	06/27/2026	VIEWED	MIPE
Razz Construction, Inc	bids@razzconstruction.com	06/27/2026	VIEWED	MTPE
Razz Construction, Inc	bids@razzconstruction.com	06/27/2026	VIEWED	MTPE
Doors & Hardware Unlimited	laramie@dhudoors.com	06/26/2026	VIEWED	GFBE
MT Energy	noah@gomtenergy.com	06/26/2026	VIEWED	MIPE
White Diamond Concrete	clarence@whitediamondconcrete.com	06/26/2026	VIEWED	MTPE
Diversions Contract Window Coverings	lsglin@gmail.com	06/26/2026	SAVED	MIPE
Diversions Contract Window Coverings	lsglin@gmail.com	06/26/2026	VIEWED	MIPE
Valley Electrical Contracting Inc.	mnurse@valleyec.com	06/26/2026	VIEWED	MIPE
TC Glass	cortney@tcglassinc.com	06/26/2026	VIEWED	MIPE
Atlas Boiler & Equipment Co.	lillie@nbiatlasboiler.com	06/26/2026	VIEWED	MIPE

Company Name	Email	Action Date	Action	Planroom
Missoula Concrete Construction	dclouse@missoulaconcrete.com	06/26/2026	VIEWED	MIPE
Doors & Hardware Unlimited	paul@dhudoors.com	06/26/2026	SAVED	GFBE
Doors & Hardware Unlimited	paul@dhudoors.com	06/26/2026	VIEWED	GFBE
Montana Concrete Polishing	jan@mtpolishing.com	06/26/2026	VIEWED	MIPE
Industry Roofing & Reconstruction	estimating@industryroofingmt.com	06/25/2026	VIEWED	MTPE
MT Energy	noah@gomtenergy.com	06/25/2026	VIEWED	MIPE

Print 



 Compliant with ADA WCAG 2.1 Level AA



Moscow City Shop Existing Shop TI, Idaho

Viewed = 53 Saved = 3 Order Print = 0 Order CD = 0 Email = 0 Total = 56

Company Name	Email	Action Date	Action	Planroom
Great Falls Builders Exchange	gfbe@greatfallsplans.com	06/25/2026	VIEWED	GFBE
Missoula Plans Exchange	tbrooks@mpe.us	06/25/2026	SAVED	MIPE
Missoula Plans Exchange	tbrooks@mpe.us	06/25/2026	VIEWED	MIPE
Great Falls Builders Exchange	susie@greatfallsplans.com	06/25/2026	VIEWED	GFBE
Great Falls Builders Exchange	susie@greatfallsplans.com	06/25/2026	VIEWED	GFBE
Knife River Prestress	andy.roberts@kniferiver.com	06/25/2026	VIEWED	MIPE

Print



Compliant with ADA WCAG 2.1 Level AA

PLAN HOLDERS - TRI-CITIES CONSTRUCTION COUNCIL

Moscow City Shop - Existing Shop TI - City of Moscow

Project Details have been reviewed by:

Electrical Contractor

(13) [Crimson Power LLC](#) 
Phone: (509) 947-2819

Fire Protection Contractor

(1) [Fire Control](#) 
Phone: (509) 489-1444

(1) [Tristate Fire Protection LLC](#) 
Phone: (509) 380-4795

General Contractor

(2) [CB Construction Inc](#) 
Phone: (541) 786-5315

(1) [Chervenell Construction Company](#) 
Phone: (509) 735-3377

(1) [Dax Moreno Construction DBA Moreno & Castillo Construction](#) 
Phone: (509) 386-8276

(1) [Dynamic Metals Inc](#) 
Phone: (509) 653-2727

(3) [HR Quality Construction LLC](#) 

(1) [Kirby Nagelhout Construction Company](#) 
Phone: (541) 389-7119

(1) [Trademark Builders LLC](#) 
Phone: (509) 945-5701

(2) [Wellens General Contractors Inc](#) 
Phone: (541) 426-4071

HVAC Supplier

(2) [ACI Mechanical & HVAC Sales](#) 
Phone: (206) 767-2600

Manufacturers Rep

(4) [Johnson Barrow Inc.](#) 
Phone: (206) 826-3182

(6) [Pacific Lighting Systems Inc \(PLS\)](#) 
Phone: (206) 323-2200

Masonry Contractor

- (2) [PMI Inc](#) 
Phone: (509) 586-3336

Plancenter

- (1) [Tri-City Construction Council](#) 
Phone: (509) 582-7424

Roofing Contractor

- (3) [Royal Roofing](#) 
Phone: (509) 547-8475

Sub / Specialty Contractor

- (2) [Advanced Restoration & Coatings LLC](#) 
Phone: (509) 947-9875
- (2) [D&R Insulation LLC](#) 
Phone: (509) 619-4931
- (1) [Diversions](#) 
Phone: (208) 765-8084
- (2) [Don Jordan Energy Systems Inc](#) 
Phone: (509) 457-8892
- (2) [DuPree Building Specialties \(Leslie Enterprises Inc dba\)](#) 
Phone: (509) 484-2000
- (2) [Ferguson Waterworks- Pasco](#) 
Phone: (509) 544-2245
- (2) [Intermountain West Insulation \(IBP\)](#) 
Phone: (509) 735-8411
- (2) [Kilgore TEC Products, Inc.](#) 
Phone: (509) 893-0750
- (2) [Northwest Trends](#) 
Phone: (360) 667-0344
- (3) [TruFrame LLC](#) 
Phone: (360) 667-0344
- (7) [Wayne Dalton Genie Sales](#) 
Phone: (509) 735-4235

Supplier

- (3) [Consolidated Electrical Distributors - Richland](#) 
Phone: (509) 737-8282
- (1) [Convoy Supply Inc](#) 

Phone: (509) 533-1531

(2) [Graybar Electric](#) 

Phone: (509) 532-9211

(1) [H2 Precast Inc](#) 

Phone: (509) 884-6644

(2) [HD Fowler-Pasco](#) 

Phone: (509) 545-0255

(1) [Industrial Air Systems Inc](#) 

Phone: (206) 367-5115

(4) [Mid Columbia Hardware](#) 

Phone: (509) 967-1475

(2) [Noland Door Co Inc](#) 

Phone: (541) 567-1826

(3) [Platt Electric Supply](#) 

Phone: (541) 564-0102

(1) [Stoneway Electric Supply](#) 

Phone: (509) 943-4664

(2) [Trane](#) 

Phone: (509) 867-5747

(2) [Western States / Cat Rental](#) 

Phone: (509) 543-2200

Traffic Control/Striping

(1) [Stripe Rite Inc.](#) 

Phone: (509) 585-0181

Close this Window

Meeting Date:	July 15 th 2026	Time:	2:00PM	Location:	650 Van Buren St.
Type of Meeting:	Pre-Bid Meeting				
Project Name:	Moscow City Shop – Existing Shop TI	Project #:	24000.01		

(PLEASE PRINT)

Attendee's Name	Company or Address	E-Mail Address/Phone Number
Kevin Sprada	291 Barnhart RD Careywood 83809	E: Kevin@UBA/Electricecompany.com P: 208-603-8812
Paul Larsen	Crow Electric	E: scott@crowelectricllc.com P: 208-791-3973
Aaron Mangum	Mangum Construction	E: aaron@mangum-construction.com P: 509-254-1034
Jim Peters	Source Electric	E: Jim@source-electric.com P: 208 310 2502
Dave Hartman	All Wall Contracting	E: DaveH@AllWallinc.com P: 208-661-2766
Logan Brooks	Superior Floors	E: Logan@SuperiorFloors.com P: 208-862-1919
Brad Cook	Strum Ele.	E: bcook@strumelectric.net P: 509-552-9415
Reece Hewett	Kenaston Corp.	E: rhewett@kenaston.cc P: 208-791-8754
Matt Shoemaker	Gino Construction	E: mshoemaker@ginoconstruction.com P: 208-310-5228
Jerry Hansen	Gropp Electric	E: JHANSEN@GROPP.COM P: 986-600-7755
Matt Grove	Gropp Heating, Air	E: mgrove@groppinc.com P: 208-301-8623

Meeting Date:	July 15 th 2026	Time:	2:00PM	Location:	650 Van Buren St.
Type of Meeting:	Pre-Bid Meeting				
Project Name:	Moscow City Shop – Existing Shop TI	Project #:	24000.01		

(PLEASE PRINT)

Attendee's Name	Company or Address	E-Mail Address/Phone Number
Ryan Collins	wellens bc	E: Ryan@wellensbc.com P: 541-398-1691
Jake Lish	Kandg Plumbing	E: Jlish@kandgconstructionllc.com P: 208 790 8098
Brock Carlin	Kandg Plumbing	E: BrockCarlin@gmail.com P: 208-791-9312
JE RIFWETT	Valley Chronic	E: jec@llc va flc/fllc.com P: 208 743 3419
		E:
		P:
		E:
		P:
		E:
		P:
		E:
		P:
		E:
		P:
		E:
		P:

Attachment "F"

**LOMBARD
CONRAD**
ARCHITECTS

ADDENDUM

Date: July 24 th , 2026	Addendum #: 02
Project: Moscow City Shop Existing Shop TI	Project #: 24000.01
Address: 650 N Van Buren St, Moscow, ID., 83843	

BIDS DUE

Time: 3:00 pm PST
Date: July 30th, 2026
Place: Moscow City Hall
Address: 206 E. Third Street,
City, State: Moscow, ID., 83843

To all Plan holders: Please notify everyone concerned as your sub-contractors and suppliers of the issuance and contents of this addendum prior to date of bid opening.

DRAWINGS:

ARCHITECTURAL:

A2.1 – FINISH PLAN AND ROOM SCHEDULE:

- Revise room finish remark #2 for clarity.

SPECIFICATIONS:

GENERAL:

SECTION 011000 – SUMMARY:

- Revise paragraph 1.5.A.1
- Revise paragraph 1.6.A.1

ELECTRICAL:

SECTION 275133 – EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS:

- Revise paragraph 1.2
- Revise paragraph 1.3
- Revise paragraph 2.3

DOCUMENTS:

Please see Plan Holders/Confirmed Bidders list.

APPROVALS: Approvals are based on manufacturers only. Contractors are responsible for bidding on approved equipment equivalent in size and performance to that specified. Contractor is also responsible for all special electrical, mechanical, or other field adaptations required for equipment or items used other than that shown in the original project design. All mechanical and electrical equipment shall bear the UL label.

ARCHITECTURAL:

Section 081416 – FLUSH WOOD DOORS: Oregon Door

Section 081113 – HOLLOW METAL DOORS AND FRAMES: Daybar

RFI LOG:

Q: "Can we use FMC or does everything need to be in rigid metal conduit?"

A: Specification Section 260533 governs the installation requirements for raceways and boxes for electrical systems. Refer to paragraph 3.1.B for raceway applications. Refer to paragraph 3.2.V for limitations regarding the use of FMC. In addition, Specification Section 260519 governs the installation requirements for low-voltage electrical power conductors and cables. Refer to paragraph 3.3 for allowed as well as prohibited uses/applications for Type MC Cables.

ATTACHMENT LIST:

- **DRAWINGS:** A2.1
- **SPECIFICATIONS:** 011000 – SUMMARY, 275133 – EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS
- **DOCUMENTS:** PLAN HOLDERS LIST

MATERIAL LEGEND

SYMBOL	DESCRIPTION
ACP	SUSPENDED ACOUSTICAL CEILING PANEL (095113)
C	CORNER GUARD (102600)
CONC-PC	PRECAST CONCRETE (034500)
CONC-S	CONCRETE - SEALED (033000)
CPT	CARPET TILE (096813)
CTCTB	CERAMIC TILE / CERAMIC TILE BASE (093013)
EB	EDGE BANDING (123623.13)
EM	ENTRY MAT (096813)
EP	EPOXY PAINT (099123)
EX	EXISTING TO REMAIN
FRP	FIBERGLASS REINFORCED WALL PANEL (066400)
G	GROUT (093013)
GYP	GYPSUM BOARD (092900)
L	LOCKERS (105113)
M	MELAMINE
NF	NO FINISH
OTS	OPEN TO STRUCTURE
P	PAINT (099123)
PL	PLASTIC LAMINATE (123623.13)
RB	RUBBER BASE (096513)
RSF	RESILIENT SHEET FLOORING (096516)
RTF	RESILIENT TILE FLOORING (096519)
SSM	SIMULATED STONE MATERIAL (123661)
WP	WALL PROTECTION (102600)

ROOM FINISH SCHEDULE

ROOM NO.	ROOM NAME	FLOOR	BASE	WALLS				CEILING		REMARKS
				N	E	S	W	MAT.	FIN.	
101	STREET/STORM SUPERVISOR	RTF	RB1	P1	P2	P1	P1	EX. GYP	P1	1, 2
102	STORAGE	CONC-S	RB2	P1	P1	P1	P1	EX. GYP	P1	
103	BREAKROOM	RTF	RB1	P1	P2	P1	P1	EX. GYP	P1	1, 2
104	STORAGE	RTF	RB1	P1	P1	P1	P1	GYP	P1	
105	ELEC	CONC-S	RB1	P1	P1	P1	P1	GYP	P1	
106	STAFF VEST.	EM	RB1	P2	P2	P2	P2	EX. GYP	P1	2
107	RESTROOM	RSF	RSF	EP1	EP1	EP1	WP	EX. GYP	EP1	2
107A	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP/GYP	EP1	2
107B	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP/GYP	EP1	2
107C	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP/GYP	EP1	2
107D	STALL	RSF	RSF	EP1	WP	EP1	EP1	EX. GYP	EP1	2
108	MECH	CONC-S	RB2	EP1	EP1/FRP	EP1/FRP	EP1	GYP	EP1	
109	SHOWER/CHANGE	RSF	RSF	EP1	EP1	EP1	EP1	GYP	EP1	
110	LOCKER ROOM	RTF	RB2	EP1	EP1	EP1	EP1, WP	GYP	P1	1, 2, 3
111	HALL	CONC-S	RB1	P1, P2	P1	P1, P2	P1	EX. GYP/ACP	P1	1
112	SUPERVISOR OFFICE	RTF	RB1	P2	P1	P1	P1	ACP	FF	1, 2
113	SUPERVISOR OFFICE	RTF	RB1	P2	P1	P1	P1	ACP	FF	1
114	OPEN OFFICE	CONC-S	RB1	P1	P2	P1	P2	ACP	FF	1
115	OPEN OFFICE	CONC-S	RB1	P1	P1	P1	P2	ACP	FF	1
116	STORAGE	CONC-S	RB1	P1	P1	P1	P1	ACP	FF	
117	STORAGE	CONC-S	RB1	P1	P1	P1	P1	ACP	FF	

ROOM FINISH REMARKS

- ACCENT PAINT THIS ROOM.
- EXISTING EXPOSED CONCRETE SLAB IN THIS ROOM. INSTALL FLOOR LEVELING COMPOUND AS NECESSARY TO PROVIDE LEVEL FLOOR SURFACE. WHERE APPLICABLE, PREP FLOOR FOR NEW FLOORING INSTALLATION.
- SEE ELEVATIONS FOR EXTENTS OF WALL PROTECTION (WP).
- FRP (066400) AT MOP SINK. SEE DETAIL E5/A6.0 FOR EXTENTS.

KEYNOTES

- FURNITURE, OWNER PROVIDED AND INSTALLED. SHOWN FOR COORDINATION PURPOSES.
- WINDOW COVERING (WT), FULL EXTENT OF WINDOW. POSITION CHAIN ON SIDE INDICATED BY ARROW.

FINISH LEGEND

- CONC-S - CONCRETE (SEALED) (033000).
- CPT1 - CARPET TILE (096813)
- EM - ENTRY MAT (096813).
- RSF1 - RESILIENT SHEET FLOORING (096516)
- RTF1 - RESILIENT TILE FLOORING (096519)
- C CORNER GUARD (102600)
- PH ACCENT PAINT (099123)
- WP# WALL PROTECTION (102600)

GENERAL FINISH NOTES

- WHERE DISSIMILAR MATERIALS / COLORS JOIN, TERMINATE WITH CLEAN, CRISP, STRAIGHT LINE.
- FLOORING CONTRACTOR TO INSPECT SUBFLOOR CONDITIONS AND NOTIFY OWNERS AND PROJECT MANAGER OF ACCEPTANCE AND SUITABILITY FOR MATERIALS.
- ALL FLOORING AND RUBBER BASE TO CONTINUE UNDER OPEN MILLWORK, EXTEND INTO KNEE SPACE AND TOE KICK TO FACE OF WALL.
- THRESHOLDS TO OCCUR AT CENTERLINE OF DOOR UNLESS NOTED OTHERWISE.
- PATTERNS ARE SHOWN FOR MATERIAL DIFFERENTIATION ONLY. AND NOT LITERAL MATERIAL FOR STYLE AND SHAPE.
- EQUIPMENT AND FURNISHINGS SHOWN ARE FOR REFERENCE ONLY AND NOT IN CONTRACT.
- ALL PRODUCTS ARE TO BE INSTALLED PER MANUFACTURER INSTRUCTIONS USING MANUFACTURER'S APPROVED ADHESIVES. LOW VOC ADHESIVES ARE REQUIRED AT FLOORING, WALL BASE AND ANY NEW FINISH MATERIALS.
- MAINTAIN SIMILAR DYE LOTS AT ADJACENT SIMILAR MATERIALS.
- THRESHOLDS TO OCCUR AT CENTERLINE OF DOORS WHERE DISSIMILAR MATERIALS JOIN UNLESS NOTED OTHERWISE.
- SEE SHEET A8.0 FOR TYPICAL FLOOR TRANSITION DETAIL.
- SEE ELEVATIONS FOR MULTIPLE WALL FINISHES.
- PAINT ALL SURFACES OF H.M. FRAMES, H.M. DOORS, LOUVERS AND GRILLS U.N.O. COLORS AS SELECTED BY ARCHITECT.
- PROVIDE SEALANT AT ALL GYP. BOARD TO DISSIMILAR MATERIALS.
- ALL GYPSUM BOARD ON RESTROOM AND JANITOR ROOM WALLS SHALL BE MOISTURE RESISTANT.
- NUMBERS AFTER SYMBOLS REPRESENT DIFFERENT STYLES AND COLORS AS DEFINED IN SPECIFICATIONS.
- SEE DETAIL A1/A8.0 FOR TYPICAL WALL MOUNTED ACCESSORIES.
- SEE DETAIL A3/A8.0 FOR TYPICAL ADA SIGNAGE MOUNTING. SEE SPECIFICATION SECTION 101423.

E1 FLOOR 1 FINISH PLAN

1/8" = 1'-0"

LOMBARD
CONRAD
ARCHITECTS

ARCHITECTURE | PLANNING
INTERIOR DESIGN

472 W. Washington St. | Boise, ID 83702
P: 208.345.6077 | F: 208.345.4902

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written permission of LOMBARD CONRAD ARCHITECTS, INC.
is prohibited and subject to criminal prosecution.

STAMP:

LICENSED
ARCHITECT
JAN 1983/1
6/22/2026
MATTHEW GESERICK
[STATE OF IDAHO]

MOSCOW CITY
SHOP - EXISTING
SHOP TI

CITY OF MOSCOW

CONSULTANTS:

ELECTRICAL ENGINEER

EIDAM AND ASSOCIATES

1111 W. JEFFERSON ST., STE. 412
BOISE, IDAHO 83702
(208) 345-7127

MECHANICAL ENGINEER

MUSGROVE ENGINEERING P.A.

234 S. WHISPERWOOD WAY
BOISE, IDAHO 83709
(208) 384-0585

STRUCTURAL ENGINEER

LOCHSA ENGINEERING

201 N. MAPLE GROVE RD., SUITE 100
BOISE, IDAHO 83704
(208) 342-7168

MARK DATE 07/24/26

DESCRIPTION ADDENDUM #2

JOB NO.: 24000.01
DATE: 06/22/2026
DRAWN BY: BC/SB
CHECKED BY: MG

PHASE: PERMIT SET

FINISH PLAN &
ROOM SCHEDULE

SHEET NO.

A2.1

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Work performed by Owner.
5. Owner's product purchase contracts.
6. Owner-furnished/Contractor-installed (OFCI) products.
7. Owner-furnished/Owner-installed (OFOI) products.
8. Contractor's use of site and premises.
9. Work restrictions.
10. Specification and Drawing conventions.
11. Miscellaneous provisions.

B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.
2. Section 017300 "Execution" for coordination of Owner-installed products.

1.3 DEFINITIONS

- A. Work Package: A group of specifications, drawings, and schedules prepared by the design team to describe a portion of the Project Work for pricing, permitting, and construction.

1.4 PROJECT INFORMATION

A. Project Identification: Moscow City Shop Existing Shop TI

1. Project Location: 650 N. Van Buren Street, Moscow, ID 83843.

B. Owner: City of Moscow .

1. Owner's Representative: Bill Belknap, 504 S. Washington Street, Moscow, ID 83843.

C. Architect: Matt Geserick - Lombard Conrad Architects.

1. Architect's Representative: Brenna Church – Lombard Conrad Architects.

- D. Architect's Consultants: Architect has retained the following design professionals, who have prepared designated portions of the Contract Documents:

1. Structural Engineer : Rob Butterfield, LOCHSA Engineers
2. Mechanical Engineer: Todd Nelson, Musgrove Engineering, PA
3. Electrical Engineer: Geoff Johnson, Eidam and Associates

1.5 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and includes, but is not limited to, the following:

1. Remodel of 6110 square feet of interior space in the existing shop building as shown in the Work indicated in the Contract Documents.

- B. Type of Contract:

1. Project will be constructed under a single prime contract.

1.6 PHASED CONSTRUCTION

- A. Construct the Work in phases, with each phase substantially complete as indicated below.

1. Schedule of Work:
Notice to Proceed 9/1/2026
Project Final Completion 4/1/2027

- B. Before commencing Work of each phase, submit an updated copy of Contractor's construction schedule, showing the sequence, commencement and completion dates, and move-out and -in dates of Owner's personnel for all phases of the Work.

1.7 WORK PERFORMED BY OWNER

- A. Cooperate fully with Owner, so work may be carried out smoothly, without interfering with or delaying Work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1.8 OWNER-FURNISHED/CONTRACTOR-INSTALLED (OFICI) PRODUCTS

- A. Owner's Responsibilities: Owner will furnish products indicated and perform the following, as applicable:

1. Provide to Contractor Owner-reviewed Product Data.
2. Provide for delivery of Owner-furnished products to Project site.
3. Upon delivery, inspect, with Contractor present, delivered items.

- a. If Owner-furnished products are damaged, defective, or missing, arrange for replacement.

4. Obtain manufacturer's inspections, service, and warranties.
5. Inform Contractor of earliest available delivery date for Owner-furnished products.

B. Contractor's Responsibilities: The Work includes the following, as applicable:

1. Designate delivery dates of Owner-furnished products in Contractor's construction schedule, utilizing Owner-furnished earliest available delivery dates.
2. Review Owner-reviewed Product Data, noting discrepancies and other issues in providing for Owner-furnished products in the Work.
3. Receive, unload, handle, store, protect, and install Owner-furnished products.
4. Make building services connections for Owner-furnished products.
5. Protect Owner-furnished products from damage during storage, handling, and installation and prior to Substantial Completion.
6. Repair or replace Owner-furnished products damaged following receipt.
7. Contractor will pay use tax for OFCI items, tax estimated at \$2,000, this amount will be adjusted by change order based on the actual value of what is supplied.

1.9 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Unrestricted Use of Site: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

1.10 WORK RESTRICTIONS

- A. Comply with restrictions on construction operations.
1. Comply with limitations on use of public streets, work on public streets, rights of way, and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: There are no work hour restrictions the contractor shall adhere to the City's noise ordinance, which can be found at:
<https://www.ci.moscow.id.us/DocumentCenter/View/1352/Chapter-11---Noise-Regulations-PDF>
- C. On-Site Work Day Restrictions: Shall adhere to the City's ordinance, which can be found at:
<https://www.ci.moscow.id.us/DocumentCenter/View/1352/Chapter-11---Noise-Regulations-PDF>
- D. Smoking and Controlled Substance Restrictions: Use of tobacco products , alcoholic beverages, and other controlled substances within the existing building] **[on Project site]** on Owner's property is not permitted.
- E. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
1. Maintain list of approved screened personnel with Owner's representative.

1.11 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- D. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION 011000

SECTION 275133 – EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS**PART 1 – GENERAL****1.1 RELATED DOCUMENTS**

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes the following work:

1. Contractor shall analyze, survey, and test existing facility for emergency responder radio coverage. Prepare documents summarizing test/survey results. If survey indicates compliance with requirements of IFC 510, no further work is required. If survey does not indicate compliance with IFC 510, contractor shall include and perform section 1.2.A.2 work.
2. Design and install an approved emergency responder radio coverage system throughout the existing building in accordance with IFC Section 1103.2.

1.3 DEFINITIONS

- A. Radio Signal Strength: The building shall be considered to have acceptable emergency responder radio coverage when signal strength measurements in 95% of all areas of the building and 99% in elevators (measured at the primary recall floor), and stair shafts, meet the signal strength requirements in IFC Sections 510.4.1.1 and 510.4.1.2.
- B. Minimum Signal Strength into the Building: A minimum signal strength of -95dBm shall be receivable within the building.
- C. Minimum Signal Strength Out of the Building: A minimum signal strength of -95dBm shall be received by the agency's radio system when transmitted from within the building.
- D. Authority Having Jurisdiction: Moscow Fire Department.

1.4 PERFORMANCE REQUIREMENTS

- A. System Design: The emergency responder radio coverage system shall be designed in accordance with IFC Sections 510.4.2.1 through 510.4.2.5.
- B. Frequency Range: The frequency range which must be supported shall be any frequencies or ranges as determined by the Regional Radio System operator in all areas of the building.
- C. Technical Requirements: Systems, components, and equipment required to provide emergency responder radio coverage system(s) shall comply with IFC Sections 510.4.1 through 510.4.2.5.

1.5 SUBMITTALS

- A. General Submittal Requirements:

1. System design documents shall be submitted to the Authority Having Jurisdiction prior to submitting to the Architect.
2. Product Data: For each type of product to be implemented.
3. Shop Drawings: Show complete system riser diagram and connection requirements including all system components, power supplies, secondary power systems, etc. Include plans, elevations, sections, details, and attachments to other work.

4. Qualification Data: For qualified testing personnel, system designer, and installation personnel.
5. Field quality-control reports.
6. Operation and Maintenance Data: For systems and components to include in emergency, operation, and maintenance manuals.

1.6 QUALITY ASSURANCE

A. Designer and Testing Personnel Qualifications:

1. Personnel shall be currently certified and in possession of a current FCC General Radio Telephone Operator License and a certificate or certification issued by at least one of the following:

- a. Associated Public Safety Communications Officials International (APCO).
- b. National Association of Business and Education Radio (NABER).
- c. Personal Communications Industry Association (PCIA).
- d. Manufacturer of the equipment being installed.

B. Installer Qualifications:

1. Personnel shall be trained and certified by manufacturer of components implemented for installation of units required for this Project.

C. Source Limitations for Systems and Components: Obtain emergency responder radio coverage system components from single source from single manufacturer.

D. FCC Compliance: The emergency responder radio coverage system design, installation, and components shall comply with all applicable federal regulations including, but not limited to, FCC 47 DFR Part 90.219.

E. Approval Prior to Installation: No amplification system capable of operating on frequencies used shall be installed without prior coordination and approval of the radio system licensee.

PART 2 – PRODUCTS

2.1 AMPLIFICATION SYSTEMS ALLOWED

A. Buildings or structures which cannot support the required level of radio coverage shall be equipped with one of the following amplification system types:

1. Radiating Cable System.
2. Internal multiple antenna system with FCC certificated bi-directional amplifiers.
3. Other systems that may meet the technical requirements and be approved by the radio system manager and Authority Having Jurisdiction in order to achieve the required adequate radio coverage.

2.2 POWER SUPPLIES

A. Conform with NFPA 72, Section 10.5 Requirements.

2.3 **SECONDARY POWER**

A. All systems utilizing electrically powered component(s) shall be provided with an independent battery system or an emergency generator source derived from the distribution system within the building capable of operating for a period of at least twenty-four (24) hours without external power input. Battery systems shall automatically charge in the presence of external power inputs. Secondary power systems shall include all interconnection components to the emergency electrical system for a fully operational, code compliant installation.

2.4 SIGNAL BOOSTERS

A. Signal Boosters: Shall meet the following minimum requirements:

1. All signal booster components shall be contained in a NEMA 4 rated cabinet.
2. Battery systems shall be contained in a NEMA 4 rated cabinet.
3. The system shall include automate alarming of malfunctions of the signal booster and battery system. Any resulting trouble alarm shall be automatically transmitted to an approved central station or proprietary supervising station as defined in NFPA 72 or, when approved by the Authority Having Jurisdiction, shall sound an audible signal at a constantly attended location.
4. Equipment shall have FCC certification prior to installation.
5. Signal boosters must be equipped with filters that reject adjacent frequencies in addition to multi-band pass filters.

PART 3 – EXECUTION

3.1 CONSTRUCTION PERMIT REQUIRED

A. For the installation of approved emergency responder radio coverage systems, a construction permit for the installation and related equipment is required as specified in IFC Section 105.7.5.

3.2 INSTALLATION REQUIREMENTS

A. The installation of the emergency responder radio coverage system shall be in accordance with IFC Sections 510.5.1 through 510.5.5.

3.3 ACCEPTANCE TESTING

A. Upon completion of installation and prior to Occupancy, complete acceptance testing.

B. Test Procedures:

1. All areas of the building shall be divided into a grid of approximately forty (40) equal areas in size.
2. Utilize a two (2) watt, portable transceiver with speaker/microphone and flexible antenna (or any calibrated device which will produce signal levels useable by the prescribed portable radio). Field strength testing instruments must have been calibrated within one (1) year of the data of the acceptance test. Field strength testing instruments must be of the frequency selective type incorporating a flexible antenna similar to the ones used on the hand-held transceivers. Authorities Having Jurisdiction may designate alternate methods of measuring the signal level, which satisfy appropriate levels of public safety coverage.

3. Test signal strength in each building area identified by grid created. Select a location within the center of each gridded area, key test radio to verify communication to and from the outside of the building through the Regional Radio System. Once a location within each gridded area is selected, prospecting for other spots within the gridded areas is not permitted.

4. Measure and record all gain values of all amplifiers implemented. Deliver recorded values to Owner for filing upon completion.

5. Utilize a calibrated spectrum analyzer or other suitable test equipment to ensure spurious oscillations are not present or being generated by signal boosters.

6. A maximum of two (2) nonadjacent areas will be allowed to fail the test.

7. If more than three (3) subdivided areas fail testing, the system shall be deemed to have failed and must be redesigned and reinstalled to comply with the performance requirements. Redesign and reinstallation costs shall be borne by the Contractor.

3.4 APPROVAL PRIOR TO OCCUPANCY

A. A Certificate of Occupancy will not be issued to any structure if employed systems fail to meet the minimum signal strength requirements.

3.5 ADDITIONAL FREQUENCIES AND CHANGE OF FREQUENCIES

A. The system shall be capable of modification or expansion to frequencies and/or frequency ranges in the event frequency changes are required by the FCC.

3.6 IDENTIFICATION

A. Provide permanent placard at or near the building's fire alarm control panel stating "THIS BUILDING IS EQUIPPED WITH AN EMERGENCY RESPONDER RADIO COVERAGE SYSTEM."

END OF SECTION

TRI-CITIES CONSTRUCTION COUNCIL - UNIQUE VISITORS LIST

Moscow City Shop - Existing Shop TI - City of Moscow

Project Details have been reviewed by:

Electrical Contractor

(13) [Crimson Power LLC](#) 
Phone: (509) 947-2819

(1) [MCC](#) 
Phone: (509) 851-8182

Fire Protection Contractor

(1) [Fire Control](#) 
Phone: (509) 489-1444

(1) [Tristate Fire Protection LLC](#) 
Phone: (509) 380-4795

General Contractor

(10) [CB Construction Inc](#) 
Phone: (541) 786-5315

(1) [Chervenell Construction Company](#) 
Phone: (509) 735-3377

(2) [Dax Moreno Construction DBA Moreno & Castillo Construction](#) 
Phone: (509) 386-8276

(1) [Dynamic Metals Inc](#) 
Phone: (509) 653-2727

(3) [HR Quality Construction LLC](#) 

(1) [Kirby Nagelhout Construction Company](#) 
Phone: (541) 389-7119

(1) [Trademark Builders LLC](#) 
Phone: (509) 945-5701

(6) [Wellens General Contractors Inc](#) 
Phone: (541) 426-4071

HVAC Supplier

(2) [ACI Mechanical & HVAC Sales](#) 
Phone: (206) 767-2600

Insurance & Bonding

(2) [HUB International Northwest LLC](#) 
Phone: (509) 319-2903

Landscaping Contractor

- (2) [Heritage Professional Landscaping](#) 
Phone: (509) 586-0744

Manufacturers Rep

- (4) [Johnson Barrow Inc.](#) 
Phone: (206) 826-3182
- (6) [Pacific Lighting Systems Inc \(PLS\)](#) 
Phone: (206) 323-2200

Masonry Contractor

- (2) [PMI Inc](#) 
Phone: (509) 586-3336

Plancenter

- (4) [Tri-City Construction Council](#) 
Phone: (509) 582-7424

Plumbing Contractor

- (4) [Alden Plumbing](#) 
Phone: (509) 386-5704

Roofing Contractor

- (4) [Royal Roofing](#) 
Phone: (509) 547-8475

Sub / Specialty Contractor

- (2) [Advanced Restoration & Coatings LLC](#) 
Phone: (509) 947-9875
- (1) [Bright Line Pavement Markings LLC](#) 
Phone: (509) 621-2000
- (2) [D&R Insulation LLC](#) 
Phone: (509) 619-4931
- (1) [Diversions](#) 
Phone: (208) 765-8084
- (2) [Don Jordan Energy Systems Inc](#) 
Phone: (509) 457-8892
- (3) [DuPree Building Specialties \(Leslie Enterprises Inc dba\)](#) 
Phone: (509) 484-2000

(2) [Ferguson Waterworks- Pasco](#)

Phone: (509) 544-2245

(2) [Intermountain West Insulation \(IBP\)](#)

Phone: (509) 735-8411

(2) [Kilgore TEC Products, Inc.](#)

Phone: (509) 893-0750

(2) [Northwest Trends](#)

(3) [TruFrame LLC](#)

Phone: (360) 667-0344

(7) [Wayne Dalton Genie Sales](#)

Phone: (509) 735-4235

Supplier

(3) [Consolidated Electrical Distributors - Richland](#)

Phone: (509) 737-8282

(1) [Convoy Supply Inc](#)

Phone: (509) 533-1531

(2) [Graybar Electric](#)

Phone: (509) 532-9211

(1) [H2 Precast Inc](#)

Phone: (509) 884-6644

(2) [HD Fowler-Pasco](#)

Phone: (509) 545-0255

(1) [Industrial Air Systems Inc](#)

Phone: (206) 367-5115

(4) [Mid Columbia Hardware](#)

Phone: (509) 967-1475

(2) [Noland Door Co Inc](#)

Phone: (541) 567-1826

(4) [Platt Electric Supply](#)

Phone: (541) 564-0102

(1) [Stoneway Electric Supply](#)

Phone: (509) 943-4664

(2) [Trane](#)

Phone: (509) 867-5747

(1) [Western Rock Products](#)

Phone: (208) 743-4278

(2) [Western States / Cat Rental](#)

Phone: (509) 543-2200

Traffic Control/Striping

(1) [Stripe Rite Inc.](#)

SPOKANE REGIONAL PLAN CENTER - BIDDERS LIST

Moscow City Shop - Existing Shop TI
2026-3635
Moscow, Latah
Bid Date: 7/30/2026 - 3:00pm PT

Communications / Technology Contractor
 members of this online network

Companies in red are

CTS Cabling & Technology Services

3751 W 5th suite 5&6

Post Falls, ID 83854

Bidding Low Voltage Network Cabling

(208) 818-1965

FAX

Contact:

 Terrance Jorissen
 (terrancej@cablects.com)

Electrical Contractor

Companies in red are members of this online network

Gropp Heating Air & Electric

PO Box 8929

Moscow, ID 83843

(208) 882-7672

(208) 882-3414 FAX

Contact:

 Jerry Hansen
 (jhansen@moscow.com)

Source Electric Inc

1003 Onaway Rd

Potlatch, ID 83855

(208) 310-2502

FAX

Contact:

Jim Peters (jim@source-electric.net)

M & M Harrison Electric

911 N Sumner St

Colfax, WA 99111

(509) 397-2333

(509) 397-4910 FAX

Contact:

 Mark Harrison
 (markh@mmharrison.com)

Mike's Mechanical

1005 Warner Ave

Lewiston, ID 83501

HVAC and Plumbing and Electrical

(208) 743-0776

(208) 746-3815 FAX

Contact:

Tyrel Funke (tyrelf@mikes-mechanical.com)

General Contractor

Companies in red are members of this online network

Ginno Construction Co

3893 N Schreiber Way

Coeur d Alene, ID 83814

Please send quotes to bidding@ginnoconstruction.com

(208) 667-5560

(208) 665-0471 FAX

Contact:

 Kyle Wells
 (kyle@ginnoconstruction.com)

Kenaston Corporation

2517 Main St

Lewiston, ID 83501

Kenaston Corporation is Bidding Prime on this project and accepting all subbids.

(208) 746-1351

(208) 746-1937 FAX

Contact:

 Reece Hewett
 (rhewett@kenaston.com)

Wellens General Contractors

107 W Alder Street

Enterprise, OR 97828

Please send bids to ryan@wellensgc.com

(541) 426-4071

(541) 426-6385 FAX

Contact:

 Ryan Collins
 (ryan@wellensgc.com)

CB Construction Inc

1202 Adams Ave

La Grande, OR 97850

CB Const,Inc will be submitting a proposal on this project. Please send questions and pricing to

(541) 263-1555

FAX

Contact:

 Troy Farwell
 (troy@cbconst.us)

Bidding@CBCONST.US

Mangum Construction LLC

1451 Bridge St
Clarkston, WA 99403

(509) 758-7877
(509) 758-7877 FAX

Contact:
Aaron Mangum
(aaron@mangum-construction.com)

Please provide sub bids via email to: aaron@mangum-construction.com

Service Provider

Companies in red are members of this online network

Arrow Services Inc

PO Box 13463
Spokane, WA 99213
Final Detail Cleaning

(509) 951-3572
(509) 534-3699 FAX

Contact:
Greg Thogerson
(ArrowMH@comcast.net)

Supplier

Companies in red are members of this online network

Valley Containers

2805 Turning Point Loop
Clarkston, WA 99403

(208) 553-6632
FAX

Contact:
Derek Vanderpas
(derekvanderpas23@hotmail.com)

Valley Containers delivers secure shipping containers, office units, and job site dumpsters- fast reliable and ready when you are. Serving Central Idaho and surrounding areas.

Hahn Supply Inc/Hahn Rental

2101 Main Street
Lewiston, ID 83501

(208) 791-7987
(208) 743-2938 FAX

Contact:
Michael Gruben
(mgruben@hahnrental.com)

PORTABLE RESTROOMS, JOB TRAILERS, AERIAL EQUIPMENT, FORKLIFTS AND ALL YOUR RENTAL NEEDS. EVERYTHING TO GET THE JOB DONE SWIFTLY, EFFECTIVELY, AND PRECISELY.

United Rentals

3004 N & S Highway
Lewiston, ID 83501

(208) 791-1100
(208) 746-6503 FAX

Contact:
Jeremy Littlefield
(jlittle10@ur.com)

General Equipment and tool rental, used equipment sales with over 1000 locations to transfer from, if we do not have it we can get it!

Western States Equipment Company Inc

16772 Hatwai Bypass Rd
Lewiston, ID 83501

(208) 298-3300
(208) 298-3310 FAX

Contact:
Chris Ackerland
(chrisackerland@wseco.com)

Call us for RENTAL QUOTES on all your equipment needs big or small! Check out our WEBSITE -- www.catrentalstore.com/westernstates

[User Agreement](#)

Spokane Regional Plan Center

209 N Havana - Spokane Wa 99202 - Ph: 509.328.9600 - Email: projectinfo@plancenter.net

Open Monday thru Friday - 8:00 AM to 4:00 PM



MISSOULA PLANS EXCHANGE - BIDDERS LIST

JUL
30

MOSCOW CITY SHOP EXISTING SHOP TI, IDAHO
Location: 650 N Van Buren St Moscow Latah ID
When: 2:00 PM

Documents ▾

Project Actions ▾

Status: BiddingBIN #: Online

State:

Postponed: No

Bid Time: 2:00 PM

Status: BiddingPostponed: No

Street: 650 N Van Buren StCity: Moscow

County: LatahZip Code:

State: ID

Pre Bid:

Pre-bid walk: On-site, July 15th at 2:00pm PST [Mandatory: No]

Project Type: Regular

Bid Packages: No

Estimate Low:

Estimate High:

Contract#/Ref:

Published Date:

Plan Status: Online

Spec Status: Online

No of Plans: 0

No of Specs: 0

Plans Cost:

Description:

The work consists of an interior remodel of 6,110 square feet of the existing shop building. All labor, materials, equipment and services necessary to provide the construction should be included in the bid.

Bid Date Information

Bid Date	Bid Time	Extended	Bid Date Change
07/30/2026	2:00 PM	No	No

Addenda & Updates

Number	Type	Entered
A1	Addenda	07/17/2026

Project Contacts

Architect

Lombard Conrad Architects

Bidders

Send Email to Bidders

* = Confirmed Bidder / Plan Holder

General Contractor

Razz Construction, Inc

ABADAN - BIDDERS LIST

Company Name	Email
ACM, Inc.	dcarnazzo@buildwithacm.com
ACM, Inc.	rcoronelrosas@buildwithacm.com
Ginno Construction Company	kyle@ginnoconstruction.com
Ginno Construction Company	bidding@ginnoconstruction.com
Kenaston Corporation	rhewett@kenaston.com
Mangum Construction LLC	aaron@mangum-construction.com
B & H Electric, LLC	gret@bhelectriccompany.com
Valley Electric, Inc.	Joe@lcvalleyelectric.com

DRAFT

Attachment "G"

**LOMBARD
CONRAD**
ARCHITECTS

ADDENDUM

Date: July 27th, 2026
Project: Moscow City Shop Existing Shop TI
Address: 650 N Van Buren St, Moscow, ID., 83843

Addendum #: 03
Project #: 24000.01

BIDS DUE

Time: 3:00 pm PST
Date: July 30th, 2026
Place: Moscow City Hall
Address: 206 E. Third Street,
City, State: Moscow, ID., 83843

To all Plan holders: Please notify everyone concerned as your sub-contractors and suppliers of the issuance and contents of this addendum prior to date of bid opening.

SPECIFICATIONS:

ELECTRICAL:

SECTION 275133 – EMERGENCY RESPONDER RADIO COVERAGE SYSTEMS

Emergency Responder Radio Coverage System will not be provided as part of the construction contract. This system will be tested and if required, provided by the Owner.

ATTACHMENT LIST: None