

ADDENDUM NO. 2
TO GENERAL, MECHANICAL AND ELECTRICAL
ABERDEEN PUBLIC WORKS
MAINTENANCE BUILDING
ABERDEEN, SOUTH DAKOTA

Addendum Dated: March 13, 2026

Original Plans and Specifications Dated: February 20, 2026

NOTE: The Plans, details and accompanying specifications shall be amended as follows, but where any article is amended the original article shall remain in effect and shall become a part of the original plans and specifications.

A. GENERAL NOTES:

1. Fire extinguisher locations are noted in detail 1/A0 Code Review Plan.
2. The 10'-0" tall perimeter precast wall is self-supporting & will be welded. Precast mezzanine intended to be supported by precast walls.
3. The following sinks are to have solid surface countertops with a plastic laminate base or ADA apron:
 - a) Unisex Toilet 117
 - b) Women's 121
 - c) Men's 123
 - d) Men's Toilet 114
 - e) Women's Toilet 116
 - f) Unisex Toilet 128
 - g) Unisex Toilet 129
 - h) Toilet 144
 - i) ADA Toilet 145
 - j) Unisex Toilet 149
 - k) Toilet 206
 - l) Toilet 216
4. The following casework is to have plastic laminate countertops (PLAM-1) and plastic laminate base cabinets (PLAM-2):
 - a) Reception 102
 - b) Training Break 111
 - c) General Conference 146
5. Gutters are to be 8" in lieu of the 6"x6" box gutters shown on A/16, A/17, & A/19.
6. Downspouts are to be 6"x6" downspouts.
7. The catwalks shown on A9-1 & A26, in Wash Bay 212, are to be metal stairs that are on columns with a fixed base design. The side of the catwalk that is against the wall is to be mechanically fastened to the precast walls.
8. Include 4" concrete housekeeping pads under mechanical equipment on the mezzanine. Refer to Mechanical drawings for additional information.

9. All precast walls will have an expandable sealant where the precast meets the concrete floor.
10. Interior Signage is provided under contingency and contractor installed. Exterior signage is contractor provided and contractor installed, section 10 43 13.
Reference Addendum #1 Specification changes and clarifications, Section 01 21 16 – Contingency Allowances.
11. All furniture is owner provided and installed, including any lockable cabinets in Welding 212.
12. Ceramic Tile is to be on the chase walls of Women's 121 & Men's 123 Chase walls, and in the showers and floors of Men's Toilet 114 & Women's Toilet 116. Where there is ceramic tile flooring, the base is to be ceramic tile base. See attached detail 1/1 & 2/1 for more information regarding the Men's Toilet 114 and Women's Toilet 116.
13. See attached roof plan, detail 1/2, for dimensions on offset roof.
14. Wall base is to be a vinyl base throughout all rooms listed below, except where ceramic tile is located on walls.
 - a) Women's 121
 - b) Vest. 122
 - c) Men's 123
 - d) Unisex Toilet 128
 - e) Unisex Toilet 129
 - f) Toilet 144
 - g) ADA Toilet 145
 - h) Toilet 206
 - I) Pressure Washer 214
 - J) Machine Room 215
 - K) Unisex Toiler 216

B. PLAN CHANGES AND CLARIFICATIONS:

1. Sheet A0:
 - a) Code Summary, delete "2024 International Building Code (IBC)", and replace with "2021 International Building Code (IBC)".
2. Sheet A2:
 - a) Delete boot wash size 5'-3 1/2" x 3'-2 1/2". Boot wash station to be 5'-0" x 3'-0".
3. Sheet A2-A:
 - a) W10 wall type, delete "2" Exterior Concrete" to "3" Exterior Concrete".
 - b) See attached plan 1/3 for updated gridline dimensions.
4. Sheet A2-B:
 - a) W10 wall type, delete "2" Exterior Concrete" to "3" Exterior Concrete".
 - b) See attached plan 1/4 for updated gridline dimensions.

5. Sheet A2-C:

- a) W10 wall type, delete “2” Exterior Concrete” to “3” Exterior Concrete”.

6. Sheet A2-D:

- a) W10 wall type, delete “2” Exterior Concrete” to “3” Exterior Concrete”.

7. Sheet A6-A:

- a) The following rooms are to have the walls painted with epoxy paint where there is no ceramic tile:
 - I) Women’s Toilet 116
 - II) Unisex Toilet 117
 - III) Women’s 121
 - IV) Vest. 122
 - V) Men’s 123
 - VI) Toilet 144
 - VII) ADA Toilet 145
 - VIII) Unisex Toilet 149
- b) Men’s Toilet 114 & Women’s Toilet 116 are to have ceramic tile base.

8. Sheet A6-B:

- a) The following rooms are to have the walls painted with epoxy paint where there is no ceramic tile:
 - I) Unisex Toilet 128
 - II) Unisex Toilet 129
 - III) Toilet 144
 - IV) ADA Toilet 145
 - V) Toilet 206

9. Sheet A6-C:

- a) Delete wall paint PNT-1 in Vehicle Storage 218. The walls will be precast 10’-0” tall with liner panel above the precast.
- b) The following rooms will have an expandable sealant where the precast wall meets the concrete floor, in lieu of base. These rooms will not have base:
 - I) Mechanical 113
 - II) Fire Pump 113A
 - III) Streets 200
 - IV) Traffic Shop 201
 - V) Signs 202
 - VI) Pump 203
 - VII) Pipe & Meter 204
 - VIII) Parts 205
 - IX) Garage 207
 - X) Service 210
 - XI) Oil 211
 - XII) Welding 212
 - XIII) Spray Room
 - XIX) Wash Bay 217

10. Sheet A6-D:

- a) Delete wall PNT-1 in Oil 211. These walls will be precast. The ceiling will be hollow-core plank.
- b) Delete wall PNT-1 in Service 210, Welding 212, & Spray Room 213. The walls will be precast 10'-0" tall with liner panel above the precast.
- c) Delete wall paint PNT-2 in Wash Bay 217. The walls will be precast 10'-0" tall with aluminum liner panel above the precast.
- d) The following rooms are to have the walls painted with epoxy paint where there is no ceramic tile:
 - I) Pressure Washer 214
 - II) Machine Room 215
 - III) Unisex Toilet 216

11. Sheet A11:

- a) Detail 1/A11. Add Snow clips to roof. Snow clips to be located on entire West side of Metal Building roof, over door 113A on East side of Metal Building roof, and on East side of front entrance overhang. See attached Detail 1/2 for snow clip callouts on plans.

12. Sheet A16:

- a) Detail 1/A16, delete "Simple Saver "Liner System" Roof Insulation R-25+R-23" and replace with "Simple Saver "Liner System" Roof Insulation R-49".
- b) Detail 2/A16, delete "Simple Saver "Liner System" Roof Insulation R-25+R-23" and replace with "Simple Saver "Liner System" Roof Insulation R-49".
- c) Detail 3/A16:
 - I) Delete "Simple Saver "Liner System" Roof Insulation R-25+R-23" and replace with "Simple Saver "Liner System" Roof Insulation R-49".
 - II) Delete "Vertical Metal Cladding" and "3 1/2" Metal Stud" on 6" fascia of warehouse.
- d) Detail 4/A16, delete "Simple Saver "Liner System" Roof Insulation R-25+R-23" and replace with "Simple Saver "Liner System" Roof Insulation R-49".

13. Sheet A17:

- a) Detail 1/A17, delete "Simple Saver "Liner System" Roof Insulation R-25+R-23" and replace with "Simple Saver "Liner System" Roof Insulation R-49".
- b) Detail 2/A17:
 - I) Delete "Simple Saver "Liner System" Roof Insulation R-25+R-23" and replace with "Simple Saver "Liner System" Roof Insulation R-49".
 - II) Delete "Vertical Metal Cladding" and "3 1/2" Metal Stud" on 6" fascia of warehouse.

c) Detail 3/A17:

I) Delete “Simple Saver “Liner System” Roof Insulation R-25+R-23” and replace with “Simple Saver “Liner System” Roof Insulation R-49”.

II) Delete “Vertical Metal Cladding” and “3 ½” Metal Stud” on 6” fascia of warehouse.

d) Detail 4/A17, delete “Simple Saver “Liner System” Roof Insulation R-25+R-23” and replace with “Simple Saver “Liner System” Roof Insulation R-49”.

14. Sheet A19:

a) Detail 1/A19, Roof overhang depicted is a 2’-0” overhang.

15. Sheet A20:

a) Detail 5/A20, add note “Plastic cap to be installed on bollards”.

16. Sheet A21:

a) Delete sheet A21 in its entirety and replace with attached sheet A21.

17. Sheet A22:

a) Window W-G1. Hollow metal frame is to be painted – paint color selected by owner.

18. Sheet A24-1:

a) Detail 5/A24-1, ceramic tile height to extend to the ceiling at 9’-0” above finished floor.

b) Detail 12/A24-1, ceramic tile height to extend to the ceiling at 9’-0” above finished floor.

19. Sheet A24-4:

a) Add attached detail 3/1 Casework Typ.-Bottom Cabinet to sheet A24-4.

20. Sheet A36:

a) W10 wall type, delete “2” Exterior Concrete” to “3” Exterior Concrete”.

21. Sheet A37:

a) W10 wall type, delete “2” Exterior Concrete” to “3” Exterior Concrete”.

22. Sheet A39:

a) Detail 1/A39:

I) Delete “Simple Saver “Liner System” Roof Insulation R-25+R-23” and replace with “Simple Saver “Liner System” Roof Insulation R-49”.

II) Delete “Vertical Metal Cladding” and “3 ½” Metal Stud” on 6” fascia of warehouse.

23. Sheet A43:

a) Delete sheet A43 in its entirety and replace with attached sheet A43.

24. Sheet A44:

a) Delete sheet A44 in its entirety and replace with attached sheet A44.

25. Sheet S1:

a) Delete sheet S1 in its entirety and replace with attached sheet S1.

26. Sheet S2:

a) Delete sheet S2 in its entirety and replace with attached sheet S2.

27. Sheet S5:

- a) Delete sheet S5 in its entirety and replace with attached sheet S5.

28. Sheet S6:

- a) Delete sheet S6 in its entirety and replace with attached sheet S6.

29. Sheet S11:

- a) Delete sheet S11 in its entirety and replace with attached sheet S11.

30. Sheet S8:

- a) The vertical slip connection required at columns can be Unistrut detailed for vertical connection movement by the precast supplier.

C. SPECIFICATION CHANGES AND CLARIFICATIONS:

1. Supplements to Instructions to Bidders

- a) Delete 3.1.1., replace with “One set of Bidding Documents may be secured by prospective bidders from the office of the architect; deposit required. Deposit for a full set of drawings (152 pages) is to be \$350. Deposit for a full specification book (905 pages) is to be \$100. Documents are to be promptly returned to the architect by all but the successful bidders for a returned deposit if documents are in good condition. Bidders may secure additional copies of Bidding Documents upon payment of reproduction costs, not subject to refund.”

2. Section 02 50 00 – Earthwork

- a) Add Field Density Report in its entirety. See attached 1 page.
- b) Add the below text into this section:

1.1 EXCAVATION, GENERAL

1. Foundation Plan

- a) Existing building pad has had engineered fill installed and compacted per soils report to an elevation location at the bottom of proposed footings across the building pad site. City of Aberdeen will supply all engineered and backfill required for construction of Aberdeen City Maintenance Building. General contractor will be responsible for compaction from this point up for concrete slab on grade finished floor. If Alternates 1 and/or 2 are taken the City of Aberdeen will perform all excavation, engineered fill and compaction to the point as stated for the base bid to a point at the bottom of the proposed footings. As if the based bid the City of Aberdeen will supply all engineered and backfill required for construction of Alternates 1 and/or 2. General contractor will be responsible for compaction from this point up for concrete slab on grade finished floor. All staking is the responsibility of the General Contractor. Compaction testing will be contracted by the City of Aberdeen under separate contracts. All utilities will be installed on the site

and brought to within 5'-0" of the proposed Aberdeen City Maintenance Building and/or Bulk Water Storage facility. All landscaping will be supplied and completed by City of Aberdeen.

3. Section 08 16 13 – Fiberglass (FRP) Doors and Frames
 - a) Add this specification section in its entirety. See attached 4 pages.
4. Section 08 33 00 – Fire Rated Overhead Coiling Doors
 - a) Add this specification section in its entirety. See attached 4 pages.
5. Section 08 36 00 – Sectional Overhead Doors
 - a) Add this specification section in its entirety. See attached 4 pages.
6. Section 08 71 00 – Door Hardware (Scheduled by Naming Products)
 - a) Add the attached 9 pages into the Door Hardware Section 08 71 00.
7. Section 09 31 00 – Ceramic Tile
 - a) Delete 2.3.A.1. Virginia Tile.
 - b) Delete 2.3.A.1 through 2.3.A.6., and replace with “Haddonstone by Daltile. Budget to allow for 2 colors and both Crosscut &/or Vein-cut. Tile size is to be 12” x 24” x 5/16” for floors and walls for all ceramic tile in project. Trim to be Bullnose. Color chosen by owner.”
 - b) Extra Materials. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - I.) Floor Tile: Furnish 2% extra of each type, color, and pattern of floor tile installed.
8. Section 09 65 19 – Luxury Vinyl Tile
 - a) Delete 1.6.A.1 in its entirety and replace with “Floor Tile: Furnish 2% extra of each type, color, and pattern of floor tile installed.”
9. Section 09 68 13 – Carpet Tile
 - a) Extra Materials. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - I.) Floor Tile: Furnish 2% extra of each type, color, and pattern of floor tile installed.
10. Section 09 68 30 – Walk-Off Carpet
 - a) Extra Materials. Furnish extra materials described below that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
 - I.) Floor Tile: Furnish 2% extra of each type, color, and pattern of floor tile installed.
11. Section 09 91 20 – Painting
 - a) Epoxy paint shall be Sherwin Williams, Pro Industrial Pre-catalyzed Waterbased Epoxy Semi-Gloss K46-W 2151 Series.
12. Section 10 51 13 – Metal Lockers
 - a) Add the below text into this section:
 - I) 2.3 Metal Lockers: Locker Types and Arrangement: **Single tier.** 18” wide, 12” deep and 72” high, shall have rectangular

shaped perforations top and bottom for maximum ventilation.

13. Section 13 34 19 – Metal Building Systems

a) 1.4.A. Delete “IBC 2012” and replace with “IBC 2021”.

b) Add the below text into this section;

“1.1 ROOF AND WALL INSULATION

A. Thermal Performance: Provide insulated metal panel assemblies with the following maximum U-factors and minimum R-values for opaque elements when tested according to ASTM C 1363 or ASTM C 518:

1. Metal Roof Panel Assemblies:

a. R-Value: 49, Comprised of 1 layer 3 ½” batt insulation R-11, 2 layers 6” batt insulation R-19 each for total of R-49.

2. Metal Wall Panel Assemblies:

a. R-Value: 36, Comprised of 1 layer 3 ½” batt insulation R-11, 1 layer 8” batt insulation R-25 for total of R-36.

1.2 METAL ROOF PANELS

A. Varco Purden, SSR Standing-Seam Metal Roof Panels: Formed with vertical ribs at panel edges and intermediate stiffening ribs symmetrically spaced between ribs; designed for sequential installation by mechanically attaching panels to supports using concealed clips located under one side of panels and engaging opposite edge of adjacent panels.

1. Material: Zinc-coated (galvanized) steel sheet, 24 ga.

a. Exterior Finish: Fluoropolymer.

b. Color: As selected by Architect from manufacturer's full range.

2. Clips: Manufacturer's standard, floating type to accommodate thermal movement; fabricated from zinc-coated (galvanized) steel sheet.

3. Joint Type: Mechanically seamed, folded as standard with manufacturer.

4. Panel Coverage: 24 inches.

5. Panel Height: 3 inches.

6. Uplift Rating: UL 90.”

1.3 FIELD-ASSEMBLED METAL WALL PANELS

A. Panel Rib Metal Wall Panels: Formed with recessed, trapezoidal major valleys and intermediate stiffening valleys symmetrically spaced between major valleys; designed to be field assembled by lapping side edges of adjacent panels and mechanically attaching panels to supports using exposed fasteners in side laps.

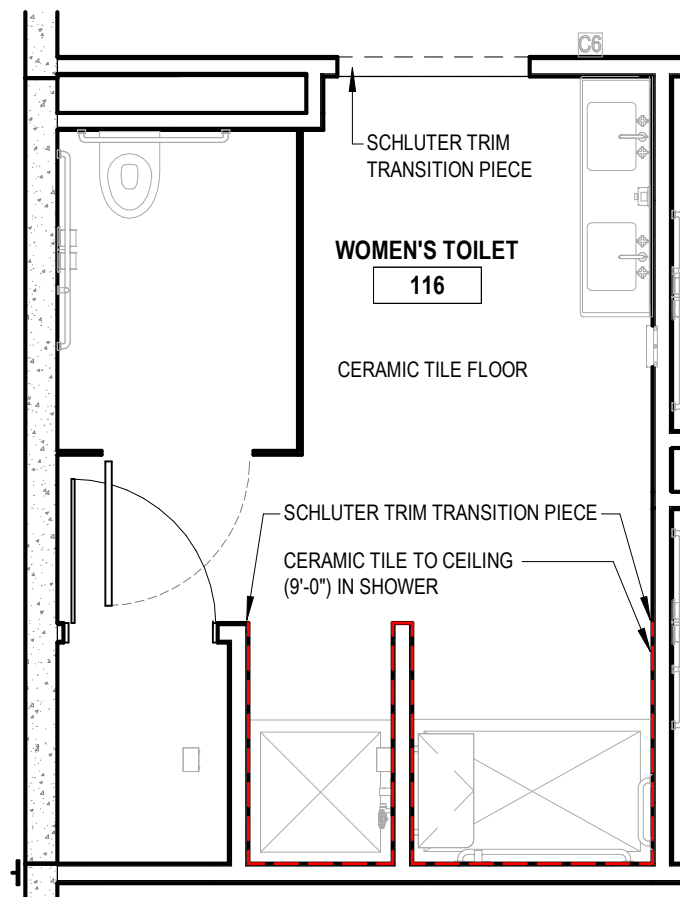
1. Material: Zinc-coated (galvanized) steel sheet, 26 ga.

a. Exterior Finish: Fluoropolymer.

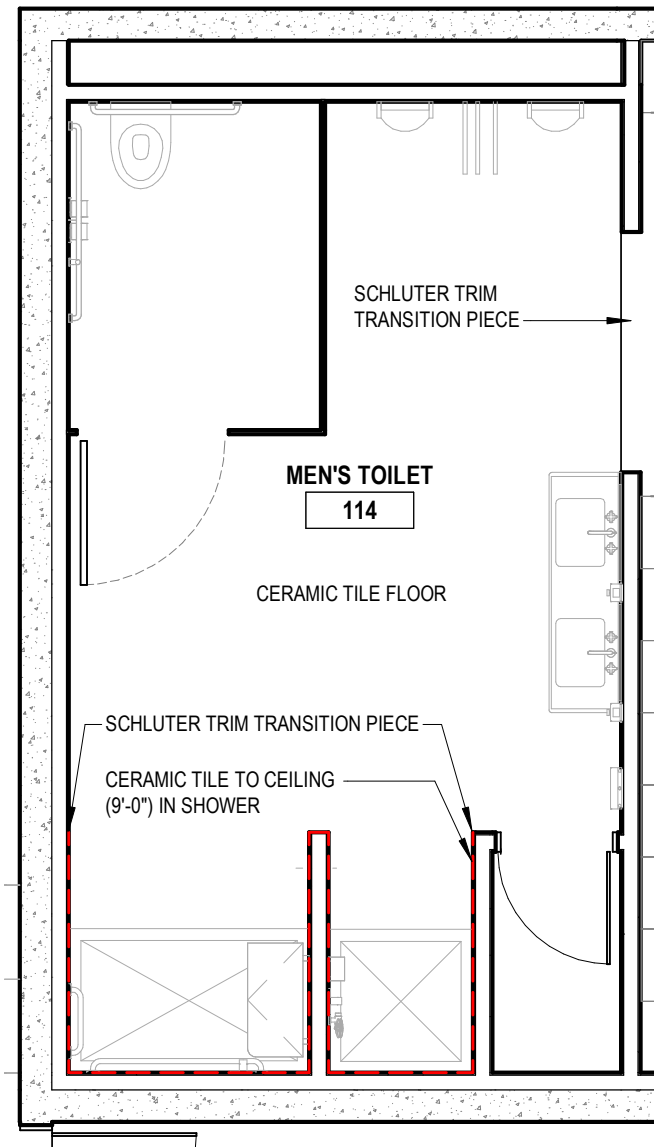
- b. Color: As selected by Architect from manufacturer's full range.
- 2. Major-Rib Spacing: 12 inches o.c.
- 3. Panel Coverage: 36 inches.
- 4. Panel Height: 1 3/16 inches.
- 14. Section 41 22 13 – Bridge Cranes
 - a) Add this specification section in its entirety. See attached 10 pages.
- 15. Section 41 34 23 – Cross Draft Pressurized Paint Booth
 - a) Add this specification section in its entirety. See attached 7 pages.

D. APPROVED EQUALS:

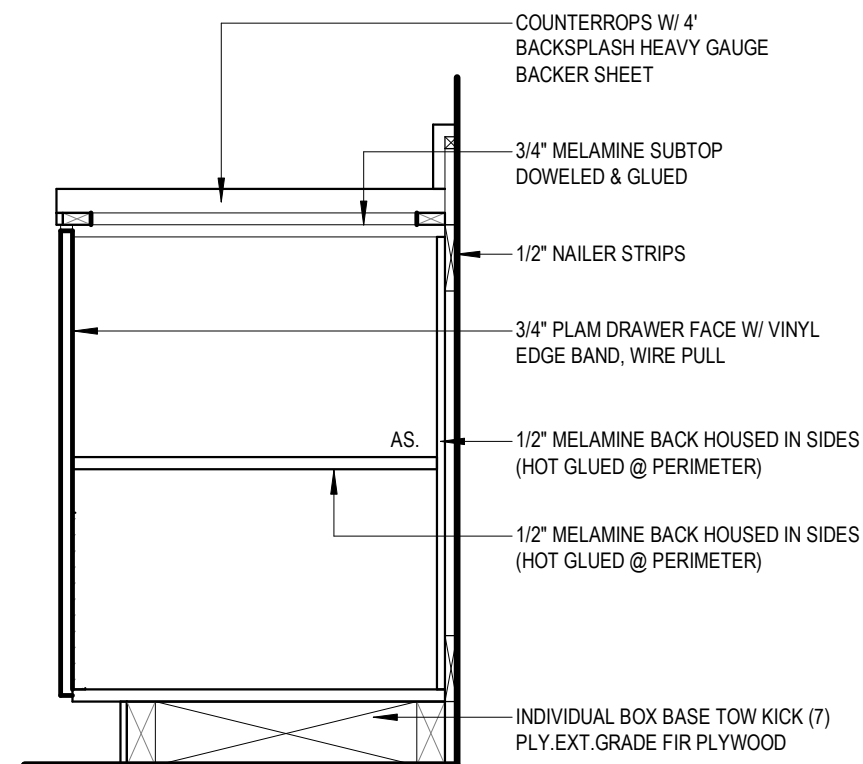
- 1. Section 07 52 19 – EPDM Membrane Roofing: Duro-Tuff Membrane 60mil.
- 2. Section 08 51 13 – Aluminum Windows: Oldcastle Building Envelope Series 3000XT Storefront.
- 3. Section 09 51 13 – Acoustical Panel Ceilings: USG Mars #86785
- 4. Section 09 68 30 – Walk-Off Carpet: Shaw Succession II Walk-Off Carpet Tile.
- 5. Section 10 51 13 – Metal Lockers: LockersMFG Knock Down Plus locker series.



1 CERAMIC TILE SHOWER
1/4" = 1'-0"



2 CERAMIC TILE SHOWER 2
1/4" = 1'-0"



3 CASEWORK TYP. - BOTTOM CABINET
1" = 1'-0"



REVISED DATE	Plans for Aberdeen Public Works Maintenance Building Aberdeen, South Dakota	Addendum 2	DRAWN BY <u>CW</u>	2
CERT. NO.			TRACED BY ____	
	HKG Architects, Inc.	Aberdeen, S.D.	CHECKED BY <u>DM</u>	OF-2
			DATE 3/12/26	PROJECT NO. 2023-0032



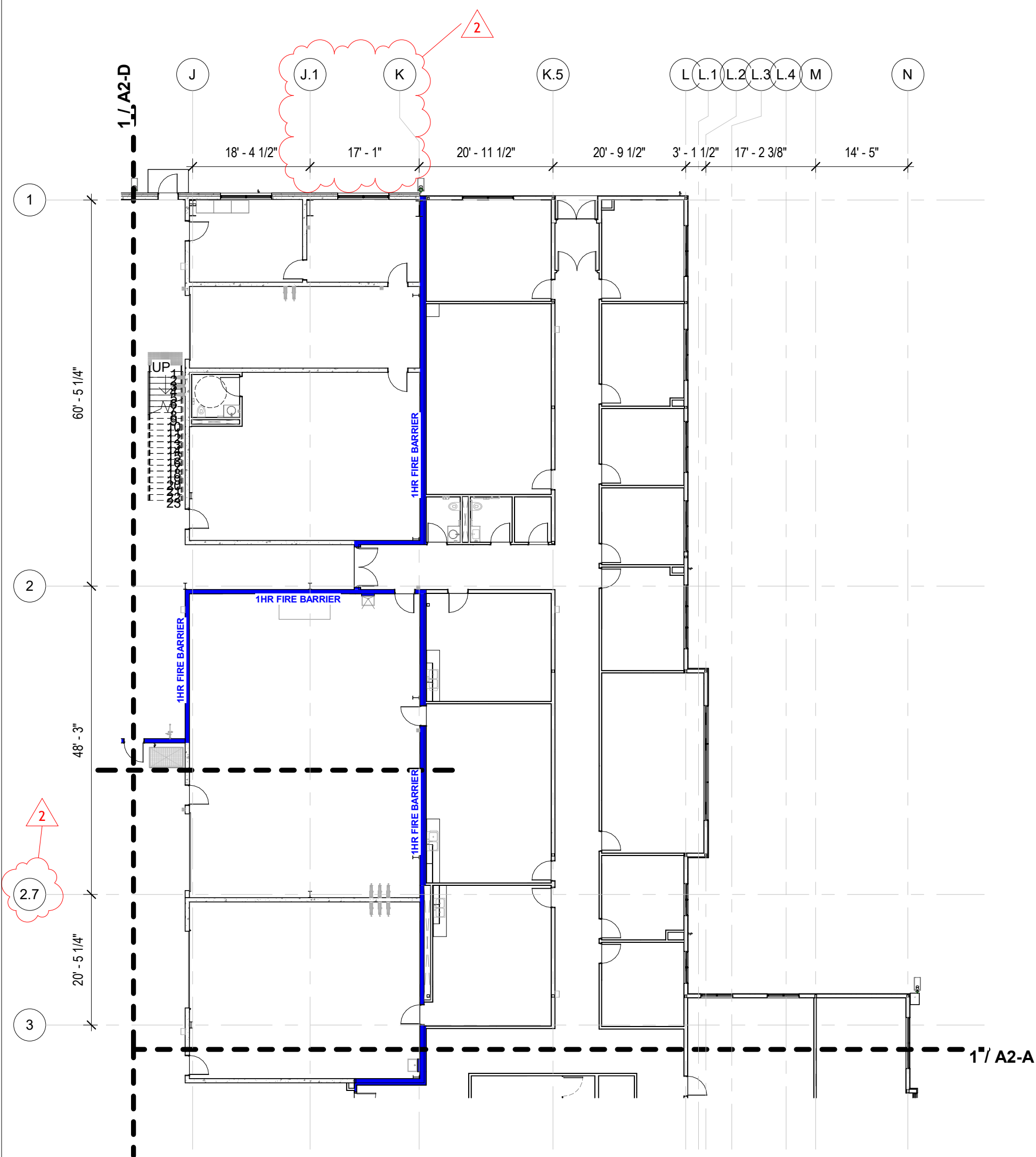
1 FIRST FLOOR PLAN - AREA A Gridlines Add.#2
1/16" = 1'-0"

1 ADDENDUM #1 3/4/26

2 ADDENDUM #2 3/13/26



REVISED DATE	Plans for Aberdeen Public Works Maintenance Building Aberdeen, South Dakota	Addendum 2	DRAWN BY <u>CW</u>	3
			TRACED BY _____	
CERT. NO.	HKG Architects, Inc.	Aberdeen, S.D.	CHECKED BY <u>DM</u>	OF- 4
			DATE 3/13/26	PROJECT NO. 2023-0032



1 FIRST FLOOR PLAN - AREA B Gridlines Add#2
1/16" = 1'-0"

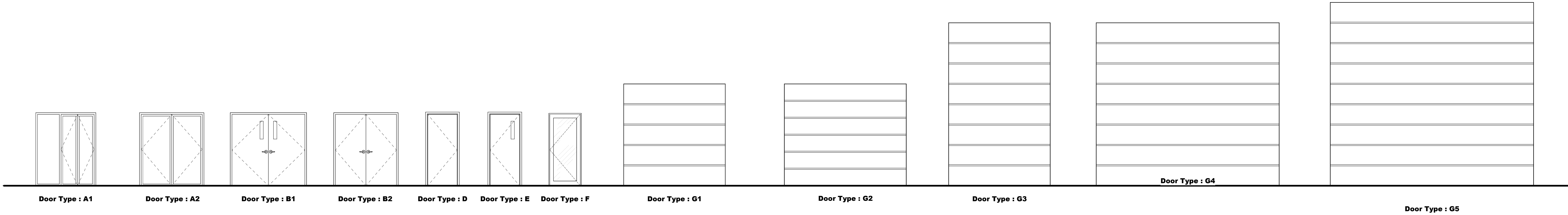
1 ADDENDUM #1 3/4/26

2 ADDENDUM #2 3/13/26

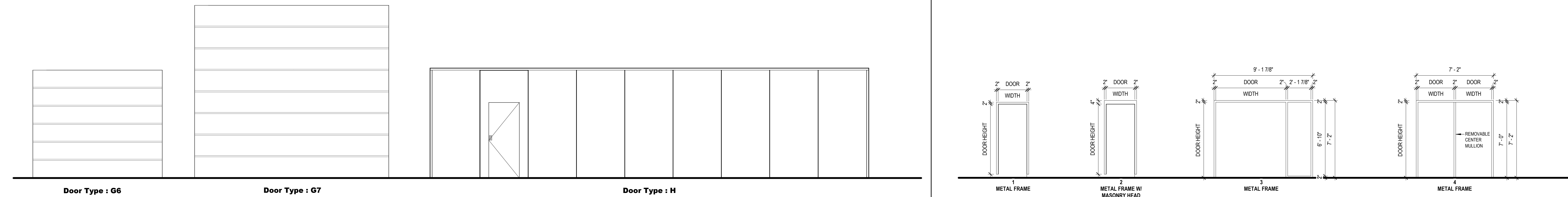


REVISED DATE	Plans for Aberdeen Public Works Maintenance Building Aberdeen, South Dakota	Addendum 2	DRAWN BY <u>CW</u>	4
			TRACED BY _____	
CERT. NO.	HKG Architects, Inc.	Aberdeen, S.D.	CHECKED BY <u>DM</u>	OF- 4
			DATE 3/13/26	PROJECT NO. 2023-0032

DOOR LEGEND



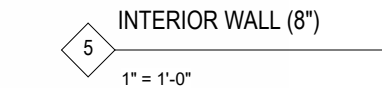
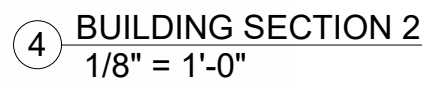
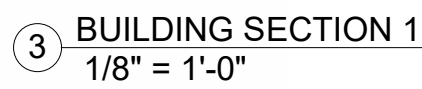
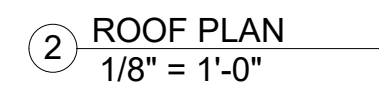
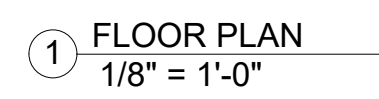
FRAME LEGEND



DOOR SCHEDULE

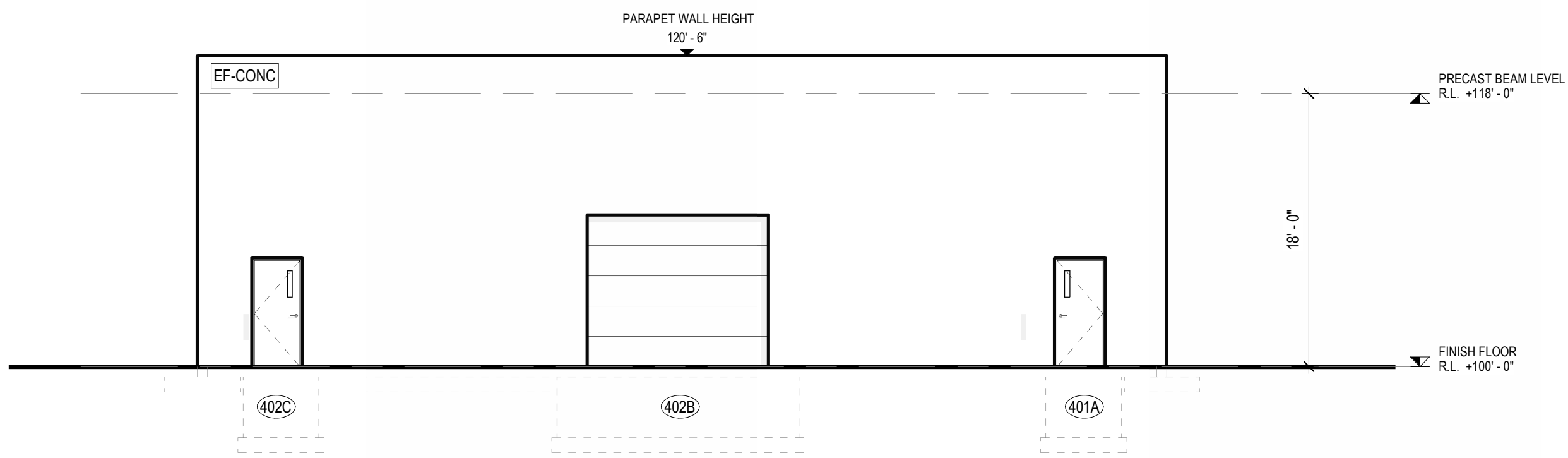
DOOR MARK	ROOM NAME	WIDTH	HEIGHT	DOOR TYPE	DOOR MODEL	DOOR MATERIAL	FRAME TYPE	FRAME MATERIAL	GLAZING	FIRE RATING	HARDWARE GROUP	HEAD	JAMB	THRESHOLD	COMMENTS
100A	ENTRY VESTIBULE	6'-0"	7'-0"	A1	FULL GLASS	ALUMINUM	3	ALUMINUM			01				NO INSULATION
100B	ENTRY VESTIBULE	6'-0"	7'-0"	A2	FULL GLASS	ALUMINUM	1	ALUMINUM			02				
101A	CORRIDOR	3'-0"	7'-0"	E	VISION PANEL	WOOD	1	HOLLOW METAL			03	1/A23	1/A23		
101B	RECEPTION	6'-0"	7'-0"	B1	VISION PANEL	WOOD	1	HOLLOW METAL			04	1/A23	1/A23		
102	RECEPTION	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			05	1/A23	1/A23		
102A	WORK ROOM	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			06	1/A23	1/A23		
103	CUSTODIAN	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			07	1/A23	1/A23		
104	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
105	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
106	STORE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			07	1/A23	1/A23		
107	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
108	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
109	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
110A	VEST	6'-0"	7'-0"	A2	FULL GLASS	ALUMINUM	1	ALUMINUM			09				
110B	VEST	6'-0"	7'-0"	A2	FULL GLASS	ALUMINUM	1	ALUMINUM			10				NO INSULATION
111	TRAINING BREAK ROOM	6'-0"	7'-0"	A2	FULL GLASS	WOOD	1	HOLLOW METAL			11	1/A23	1/A23		
112A	TRAINING	6'-0"	7'-0"	A2	FULL GLASS	WOOD	1	HOLLOW METAL			12	1/A23	1/A23		
112B	TRAINING BREAK ROOM	6'-0"	7'-0"	B1	VISION PANEL	WOOD	1	HOLLOW METAL			13	1/A23	1/A23		
112C	TRAINING	3'-0"	7'-0"	E	FLUSH	ALUMINUM	1	ALUMINUM			13	4/A23	5/A23		
112D	TRAINING	3'-0"	7'-0"	E	FLUSH	ALUMINUM	1	ALUMINUM			13	4/A23	5/A23		
112E	TRAINING	40" - 330"	10'-0"	H	FOLDING DOOR	ALUMINUM	1	ALUMINUM			13	4/A23	5/A23		MANUAL PULL
113A	MECHANICAL	6'-0"	7'-0"	B2	FLUSH	INSUL. HM	4	INSUL. HM			14				
113B	MECHANICAL	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL			15	16/A23	16/A23		
113C	FIRE PUMP	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL			16	16/A23	16/A23		
114B	MEN'S TOILET	2'-4"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			17	1/A23	1/A23		
114B	MEN'S TOILET VEST	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL		45 MIN.	17	1/A23	1/A23		
115	MEN'S TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			18	1/A23	1/A23		
116B	MEN'S TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			18	1/A23	1/A23		
117	UNISEX TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			17A	1/A23	1/A23		
118A	WOMEN'S TOILET VEST	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			17A	1/A23	1/A23		
118B	WOMEN'S LOCKER	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			18	1/A23	1/A23		
118B	TRAFFIC HQ CONFERENCE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			20	1/A23	1/A23		
119A	STREET HQ CONFERENCE	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL		45 MIN.	21	15A23	15A23		
120A	TRAFFIC HQ CONFERENCE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			22	1/A23	1/A23		
120B	TRAFFIC HQ CONFERENCE	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL		45 MIN.	21	15A23	15A23		
124	ELECTRONICS	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			07	1/A23	1/A23		
125A	PUMP CONFERENCE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			22	1/A23	1/A23		
125B	PUMP CONFERENCE	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL		45 MIN.	21	15A23	15A23		
125A	PIPE & METER CONFERENCE	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL			22	1/A23	1/A23		
126	PIPE & METER CONFERENCE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL		45 MIN.	21	15A23	15A23		
127	MECH HQ	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			05	1/A23	1/A23		
128	MEN'S TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			19	1/A23	1/A23		
129	WOMEN'S TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			19	1/A23	1/A23		
130	OFFICE SUPPLY RM	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			22	1/A23	1/A23		
131	SOLID WASTE CONFERENCE RM	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			22	1/A23	1/A23		
132	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
133A	VEST	6'-0"	7'-0"	A2	FULL GLASS	ALUMINUM	1	ALUMINUM			09				NO INSULATION
133B	VEST	6'-0"	7'-0"	A2	FULL GLASS	ALUMINUM	1	ALUMINUM			10				
134	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
135	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
136	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
137	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
138	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
139	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
140	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
141	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
142A	CORRIDOR	6'-0"	7'-0"	B1	FLUSH	WOOD	1	HOLLOW METAL		45 MIN.	23	1/A23	1/A23		
142B	CORRIDOR	6'-0"	7'-0"	B1	FLUSH	WOOD	1	HOLLOW METAL		45 MIN.	23	1/A23	1/A23		
143A	EREMBY'S OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			24	1/A23	1/A23		
143B	EREMBY'S OFFICE	3'-0"	7'-0"	E	VISION PANEL	WOOD	1	HOLLOW METAL			08	1/A23	1/A23		
144	TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			19	1/A23	1/A23		
145	ADA TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			19	1/A23	1/A23		
146	GENERAL CONFERENCE	9'-0"	7'-0"	F	FULL GLASS	WOOD	1	HOLLOW METAL			25	1/A23	1/A23		
149	UNISEX TOILET	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			19	1/A23	1/A23		
200A	STREETS	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			08	16A23	16A23	17A23	INSULATED
200B	STREETS	12'-0"	10'-0"	G2	OVERHEAD DOOR	HOLLOW METAL	-	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
201A	TRAFFIC SHOP	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
201B	TRAFFIC SHOP	12'-0"	10'-0"	G2	OVERHEAD DOOR	HOLLOW METAL	-	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
202A	SIGNS	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
203	SIGNS	6'-0"	7'-0"	B2	FLUSH	HOLLOW METAL	1	HOLLOW METAL			26	1/A23	1/A23		
203C	PUMP	12'-0"	10'-0"	G6	OVERHEAD COILING DOOR	HOLLOW METAL	-	HOLLOW METAL		NO RATING	08	16A23	16A23	17A23	INSULATED
203D	PUMP	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
204	PIPE AND METER	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL		45 MIN.	21	15A23	15A23		
204B	PIPE AND METER	12'-0"	10'-0"	G2	OVERHEAD DOOR	HOLLOW METAL	-	HOLLOW METAL			08	16A23	16A23	17A23	INSULATED
204C	PIPE AND METER	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
205A	PARTS	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
205B	PARTS	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
206	TOILET AT PARTS	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			19	1/A23	1/A23		
207	GARAGE	10'-0"	10'-0"	G1	OVERHEAD DOOR	WOOD	-	HOLLOW METAL			08	16A23	16A23	17A23	INSULATED
208A	OFFICE	3'-0"	7'-0"	D	FLUSH	WOOD	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED
208B	OFFICE	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL			05	16A23	16A23	17A23	INSULATED

DOOR MARK	ROOM NAME	WIDTH	HEIGHT	DOOR TYPE	DOOR MODEL	DOOR MATERIAL	FRAME TYPE	FRAME MATERIAL	GLAZING	FIRE RATING	HARDWARE GROUP	HEAD	JAMB	THRESHOLD	COMMENTS
209	STORE	3'-0"	7'-0"	E	FLUSH	HOLLOW METAL	1	HOLLOW METAL			05	16A22	16A22	17A22	
210A	SERVICE	3'-0"	7'-0"	E	FLUSH	HOLLOW METAL	1	HOLLOW METAL		45 MIN.	21	16A22	16A22	17A22	
210B	SERVICE	18'-0"	18'-0"	G7	OVERHEAD COILING DOOR	HOLLOW METAL	-	HOLLOW METAL		45 MIN.	07	16A22	16A22	17A22	INSULATED
210C	SERVICE	18'-0"	18'-0"	G7	OVERHEAD COILING DOOR	HOLLOW METAL	-	HOLLOW METAL		45 MIN.	07	16A22	16A22	17A22	INSULATED
210D	SERVICE	3'-0"	7'-0"	E	FLUSH	INSUL. HM	1	INSUL. HM			27	16A22	16A22	17A22	INSULATED
210E	SERVICE	18'-0"	18'-0"	G4	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			27	16A22	16A22	17A22	INSULATED
210F	SERVICE	18'-0"	18'-0"	G4	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			27	16A22	16A22	17A22	INSULATED
210G	SERVICE	18'-0"	18'-0"	G4	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			27	16A22	16A22	17A22	INSULATED
210H	SERVICE	18'-0"	18'-0"	G4	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			27	16A22	16A22	17A22	INSULATED
210I	SERVICE	18'-0"	18'-0"	G4	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			27	16A22	16A22	17A22	INSULATED
210J	SERVICE	18'-0"	18'-0"	G7	OVERHEAD COILING DOOR	INSUL. HM	-	INSUL. HM		45 MIN.	27	16A22	16A22	17A22	INSULATED
211A	OIL	5'-0"	7'-0"	G	FLUSH	HOLLOW METAL	1	HOLLOW METAL		3HR	28	1/A22	1/A22		
212A	WELDING	18'-0"	18'-0"	G7	OVERHEAD COILING DOOR	INSUL. HM	-	INSUL. HM		45 MIN.	28	1/A22	1/A22		INSULATED
212B	WELDING	18'-0"	18'-0"	G3	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			28	1/A22	1/A22		INSULATED
212C	WELDING	6'-0"	7'-0"	B2	FLUSH	HOLLOW METAL	2	HOLLOW METAL			26	1/A22	1/A22		INSULATED
212D	WELDING	18'-0"	18'-0"	G4	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			29	1/A22	1/A22	12A22	INSULATED
212E	WELDING	3'-0"	7'-0"	D	FLUSH	INSUL. HM	1	INSUL. HM			29	2/A22	3/A22		
213A	SPRAY ROOM	18'-0"	18'-0"	G7	OVERHEAD COILING DOOR	INSUL. HM	-	INSUL. HM		45 MIN.	29	1/A22	1/A22	12A22	INSULATED
213B	SPRAY ROOM	3'-0"	7'-0"	E	VISION PANEL	HOLLOW METAL	2	HOLLOW METAL		45 MIN.	21	1/A22	1/A22		INSULATED
214	PRESSURE WASHER	6'-0"	7'-0"	B2	FLUSH	FIBERGLASS	2	FIBERGLASS		45 MIN.	28A	1/A22	1/A22		
215	MACHINE ROOM	3'-0"	7'-0"	D	FLUSH	HOLLOW METAL	2	HOLLOW METAL		45 MIN.	08	1/A22	1/A22		
216	UNISET TOILET	6'-0"	7'-0"	D	FLUSH	HOLLOW METAL	1	HOLLOW METAL		45 MIN.	18A	1/A22	1/A22		
217	CORRIDOR	6'-0"	7'-0"	B1	VISION PANEL	WOOD	1	HOLLOW METAL		45 MIN.	23	1/A23	1/A23		
218	WASHBAY	3'-0"	7'-0"	E	VISION PANEL	FIBERGLASS	2	FIBERGLASS			21A	1/A22	1/A22		
218B	WASHBAY	18'-0"	18'-0"	G4	OVERHEAD DOOR	FIBERGLASS	-	FIBERGLASS			27	16A22	16A22		INSULATED
217C	WASHBAY	7'-0"	7'-0"	E	VISION PANEL	FIBERGLASS	1	FIBERGLASS			27	2/A22	3/A22		
218	WASHBAY	18'-0"	18'-0"	G4	OVERHEAD DOOR	FIBERGLASS	-	FIBERGLASS			27	16A22	16A22	12A22	INSULATED
217E	WASHBAY	7'-0"	7'-0"	E	VISION PANEL	FIBERGLASS	1	FIBERGLASS			29	2/A22	3/A22		
218A	VEHICLE STORAGE	20'-0"	18'-0"	U	OVERHEAD DOOR	FIBERGLASS	-	FIBERGLASS			29	1/A22	1/A22	12A22	INSULATED
218B	VEHICLE STORAGE	3'-0"	7'-0"	D	FLUSH	INSUL. HM	1	INSUL. HM			29	2/A22	3/A22		
218C	VEHICLE STORAGE	20'-0"	18'-0"	U	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			29	1/A22	1/A22	12A22	INSULATED
218D	VEHICLE STORAGE	3'-0"	7'-0"	D	FLUSH	INSUL. HM	1	INSUL. HM			29	2/A22	3/A22		
218E	VEHICLE STORAGE	20'-0"	18'-0"	G6	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			29	1/A22	1/A22	12A22	INSULATED
218F	VEHICLE STORAGE	3'-0"	7'-0"	D	VISION PANEL	INSUL. HM	1	INSUL. HM			29	2/A22	3/A22		
218G	VEHICLE STORAGE	3'-0"	7'-0"	E	VISION PANEL	INSUL. HM	1	INSUL. HM			29	2/A22	3/A22		
218H	VEHICLE STORAGE	20'-0"	18'-0"	G6	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM			29	1/A22	1/A22	12A22	INSULATED
301A	MEZZANINE	3'-0"	7'-0"	D	FLUSH	INSUL. HM	1	INSUL. HM			30	4/A23	5/A23		
301B	MEZZANINE	3'-0"	7'-0"	D	FLUSH	INSUL. HM	1	INSUL. HM			30	4/A23	5/A23		
301C	MEZZANINE	10'-0"	9'-4"	G2	OVERHEAD DOOR	INSUL. HM	-	INSUL. HM		90 MIN.	30	9/A22	10A22		INSULATED

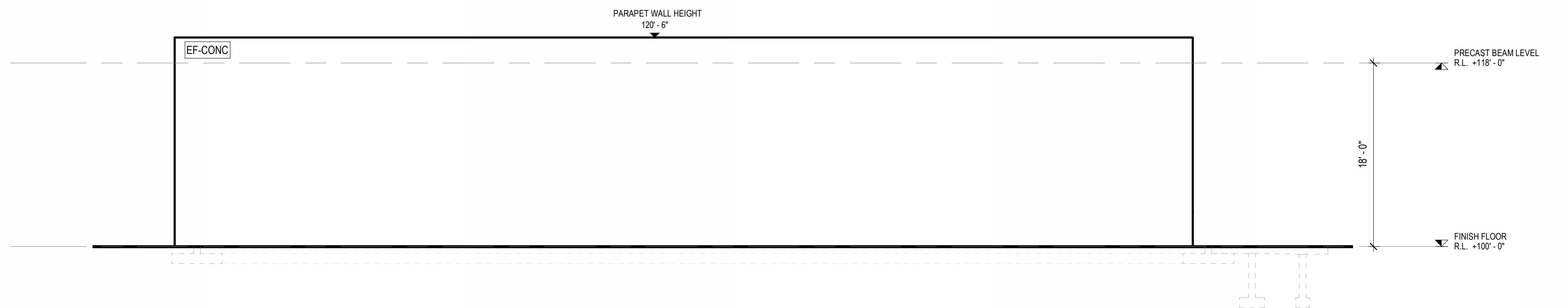


5	PRECAST CONCRETE WALL	8"	0' - 8"
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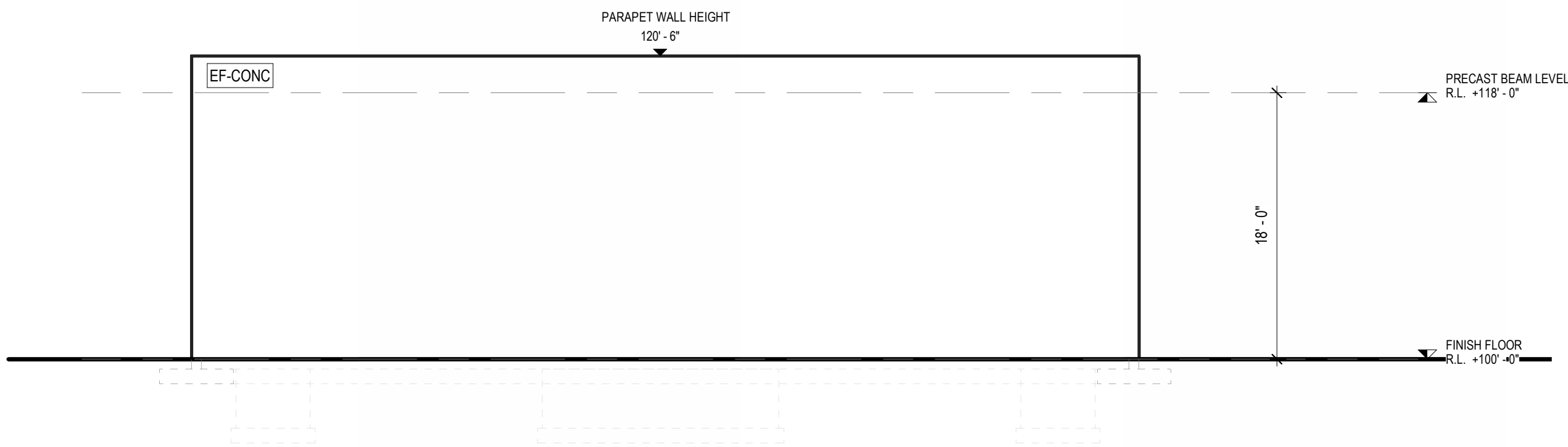
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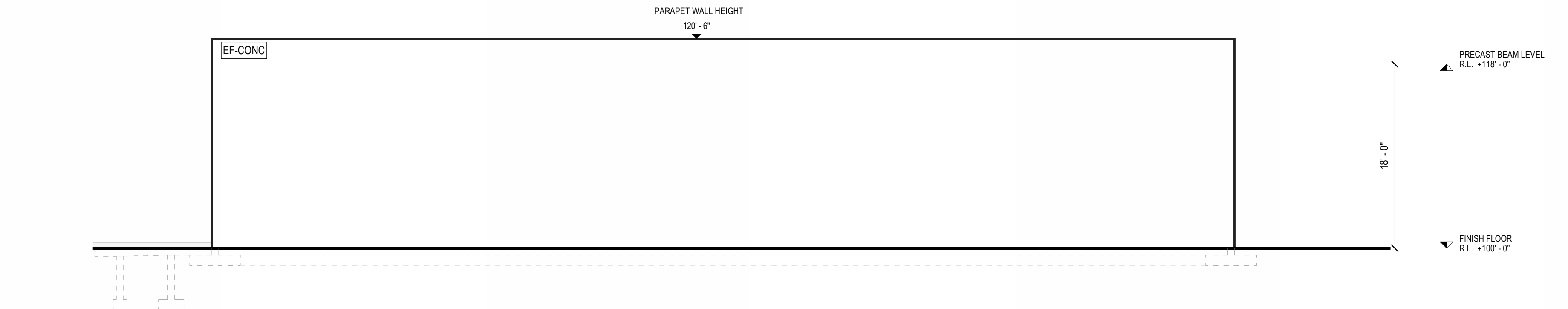
① NORTH ELEVATION
1/8" = 1'-0"



② WEST ELEVATION
1/8" = 1'-0"



③ SOUTH ELEVATION
1/8" = 1'-0"



④ EAST ELEVATION
1/8" = 1'-0"



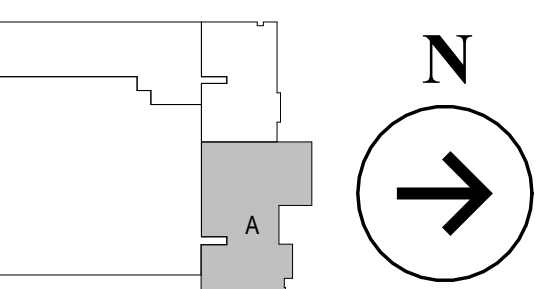
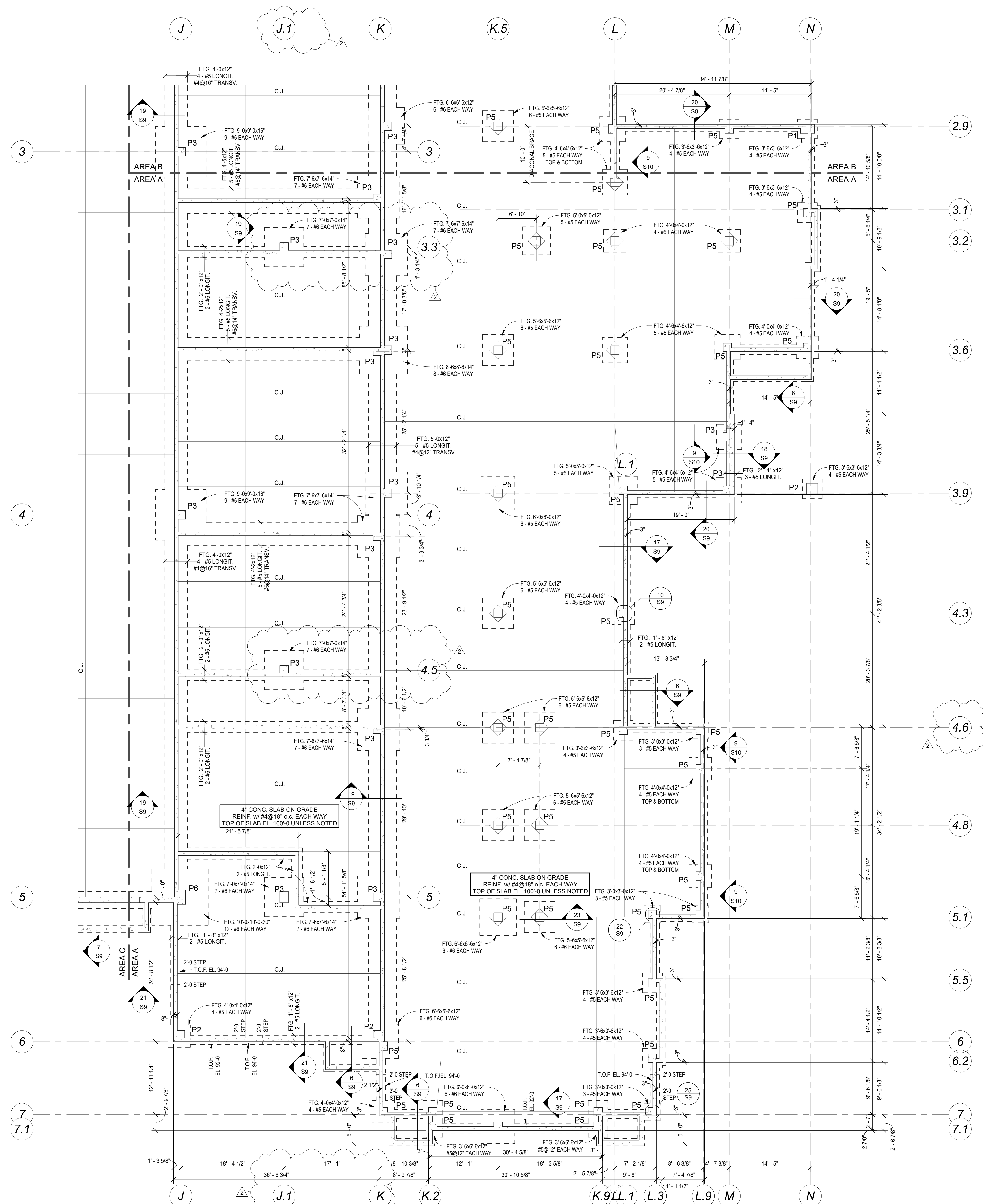
- ① ADDENDUM #1 3/4/26
② ADDENDUM #2 3/13/26

Plans for Aberdeen Public Works Maintenance Building Aberdeen, South Dakota		ELEVATIONS - SALT BUILDING	DESIGNED BY hkg architects	DATE 3/13/26	2023-0032
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1 FOUNDATION PLAN - AREA A
SCALE: 1/8" = 1'-0"

- P1 = 18"x30" CONC. PILE
6 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P2 = 24"x24" CONC. PILE
8 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P3 = 18"x24" CONC. PILE
8 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P4 = 24"x30" CONC. PILE
4 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P5 = 18"x18" CONC. PIER/PILE
4 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P6 = 24"x30" CONC. PILE
8 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP

- NOTE: 1). TOP OF FOOTING EL. 96'-0" U.N.O.
2). PRE-ENGINEERED METAL BLDG. COLS.
TOP OF PIER/PILE EL. 100'-0" U.N.O.
3). TS COLUMNS:
TOP OF PIER/PILE EL. 99'-4" U.N.O.

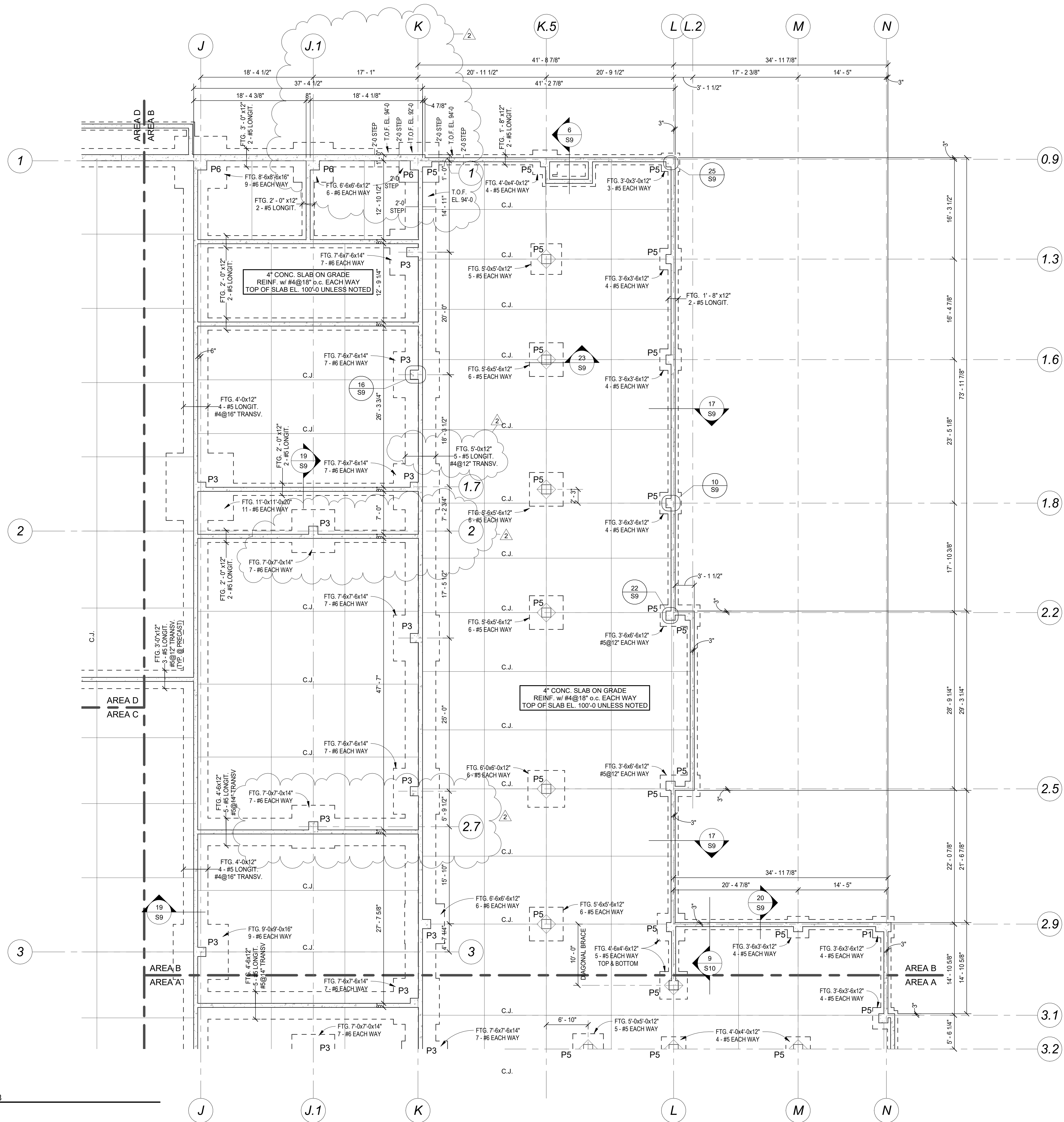


SOLLEN & LARSON
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CONSULTING STRUCTURAL ENGINEERS
3330 FLEETWHEEL DRIVE, SUITE 200
PARKERSBURG, WEST VIRGINIA 26101
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architects

2 ADDENDUM NO. 2
3/11/2026

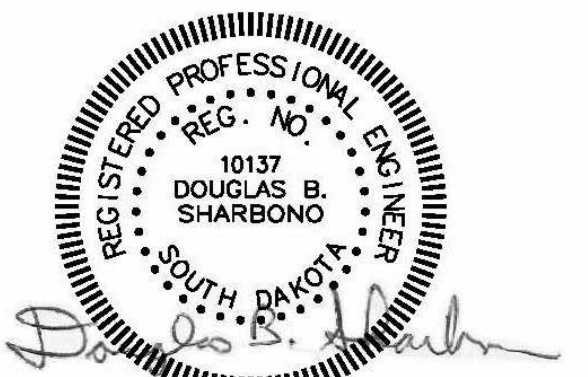
Plans for ABERDEEN PUBLIC WORKS Maintenance Building Aberdeen, South Dakota	FOUNDATION PLAN - AREA A	LT S1
HKG Architects, Inc. Aberdeen, S.D.	2/20/2026	25036



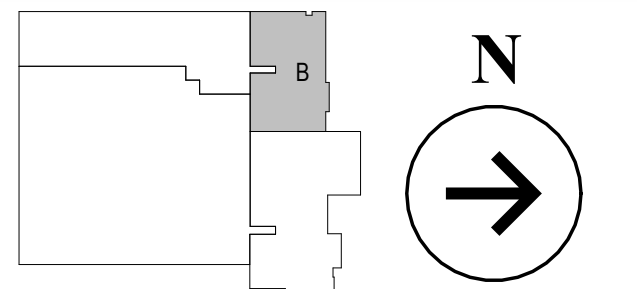
1 FOUNDATION PLAN - AREA B
SCALE: 1/8" = 1'-0"

- P1 = 18"x30" CONC. PILASTER
6 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P2 = 24"x24" CONC. PILASTER
8 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P3 = 18"x24" CONC. PILASTER
8 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P4 = 24"x30" CONC. PILASTER
4 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P5 = 18"x18" CONC. PIER/PILASTER
4 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP
- P6 = 24"x30" CONC. PILASTER
8 - #8 VERT/DWLS
#3@16" TIES, (3) TIES @ TOP

- NOTE: 1). TOP OF FOOTING EL. 96'-0" U.N.O.
2). PRE-ENGINEERED METAL BLDG. COL'S:
TOP OF PIER/PILASTER EL. 100'-0" U.N.O.
3). TS COLUMNS:
TOP OF PIER/PILASTER EL. 99'-4" U.N.O.



2/20/2026



2 ADDENDUM NO. 2
3/11/2026

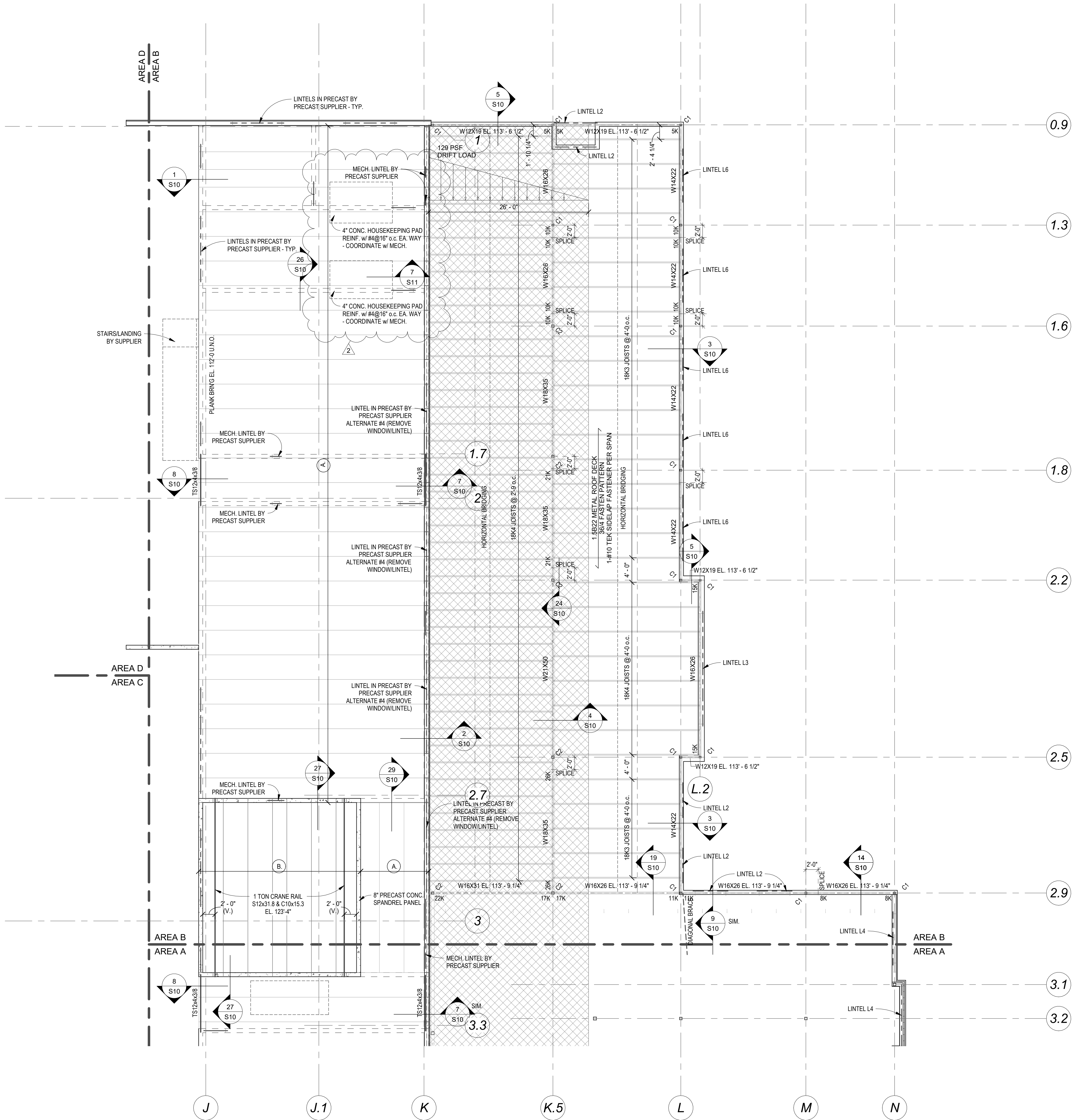
SOLLEN & LARSON
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CONSULTING STRUCTURAL ENGINEERS
3330 FLEETWATER DRIVE, SUITE 200
PARKERSBURG, WEST VIRGINIA 26101-1200
TELEPHONE (703) 255-3555 FAX (703) 255-3555

hkg
architects

PROJECT Plans for ABERDEEN PUBLIC WORKS Maintenance Building Aberdeen, South Dakota	FOUNDATION PLAN - AREA B	DATE 2/20/2026	REVISION 25036
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COLUMN/BASE PLATE SCHEDULE			
MARK	COLUMN	BASE PLATE	ANCHORS/GAGE
C1	TS4x4x5/16	11"x1"x11"	4-1" Ø ANCHORS (8"x8" GAGE)(9" EMBED)
C2	TS5x5x1/4	11"x1"x11"	4-1" Ø ANCHORS (8"x8" GAGE)(9" EMBED)
C3	TS6x6x1/4	12"x1"x12"	4-1" Ø ANCHORS (9"x9" GAGE)(9" EMBED)
NOTE: 1). ANCHOR BOLTS TO BE ASTM F1554 GR. 36 OR EQUAL. 2). 9" EMBED TYPICAL UNLESS NOTED OTHERWISE. 3). SEE BRACING DETAILS FOR EMBED DEPTH AND SHEAR & UPLIFT ANGLES. 4). PROVIDE PLATE WASHERS 3"x3/8"x3" FOR ANCHOR BOLTS.			

LINTEL SCHEDULE			
MARK	LINTEL	R.O.	REMARKS
L1	(2) 6"-16 GA. BOX LINTEL (600S162-54)	3'-0 TO 4'-0	1 KING POST (6" WALL)
L2	(2) 6"-16 GA. BOX LINTEL (600S162-54)	4'-2 TO 7'-0	2 KING POSTS (6" WALL)
L3	(2) 1200S162-54 w/ 600S300-118 TOP & BOTTOM SILL (2) 600S200-97	18'-0	(4) 600S162-68 KING POSTS (6" WALL)
L4	(2) 6"-16 GA. BOX LINTEL (600S162-54) (1) 8"-16 GA. SILL	7'-0 TO 9'-8	(4) 800S162-54 KING POSTS (8" WALL)
L5	(2) 6"-16 GA. BOX LINTEL (600S162-54)	5'-2 TO 7'-0	3 KING POSTS (8" WALL)
L6	(2) 6"-16 GA. BOX LINTEL (600S162-54)	7'-2 TO 10'-0	3 KING POSTS (6" WALL)
NOTE: 1). VERIFY ALL LINTEL OPENING WIDTHS, ELEVATIONS, AND LOCATIONS WITH THE ARCHITECTURAL PLANS. 2). IF NOT NOTED, KING POST TO MATCH WALL STUDS.			

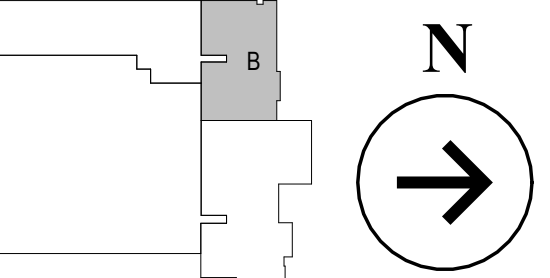


1
S6 MEZZANINE/LOW ROOF PLAN - AREA B
SCALE: 1/8" = 1'-0"

(A) = 4" CONCRETE TOPPING REINF. w/ #3@14" o.c.
EACH WAY OVER 12" HOLLOWCORE PRECAST
PLANK

(B) = 8" HOLLOWCORE PRECAST PLANK
TOP OF PRECAST EL. 124'-0"

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 10137
DOUGLAS B. SHARBONO
SOUTH DAKOTA
2/20/2026

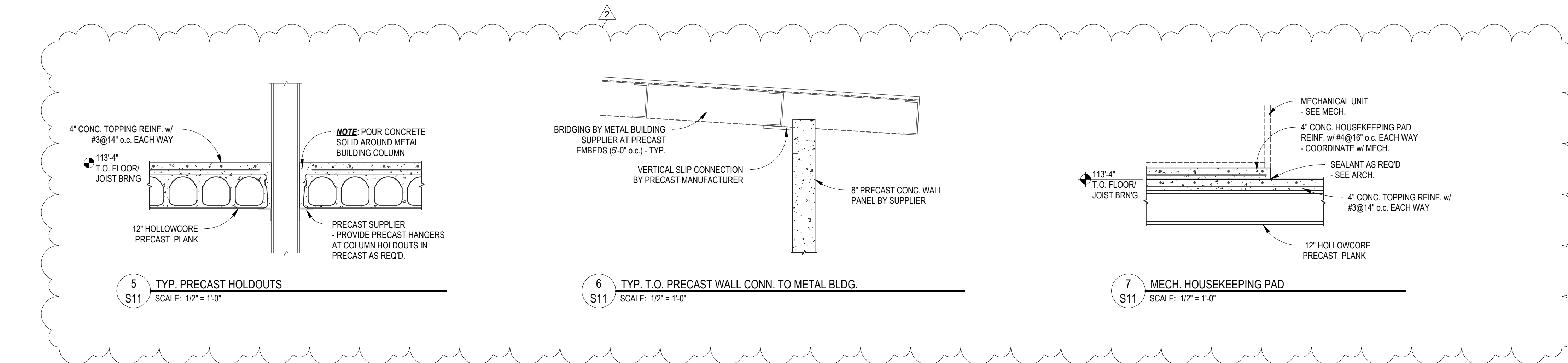
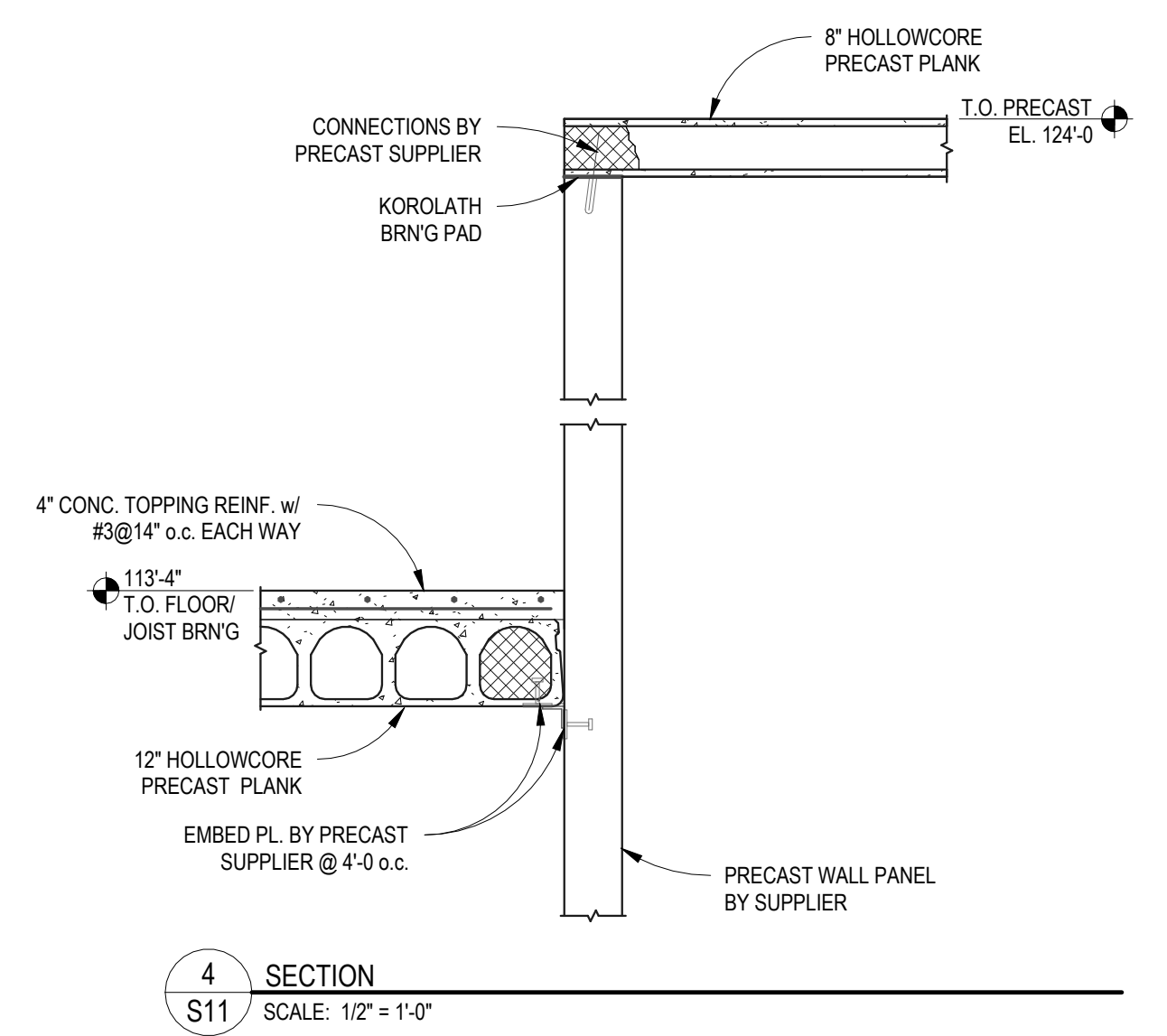
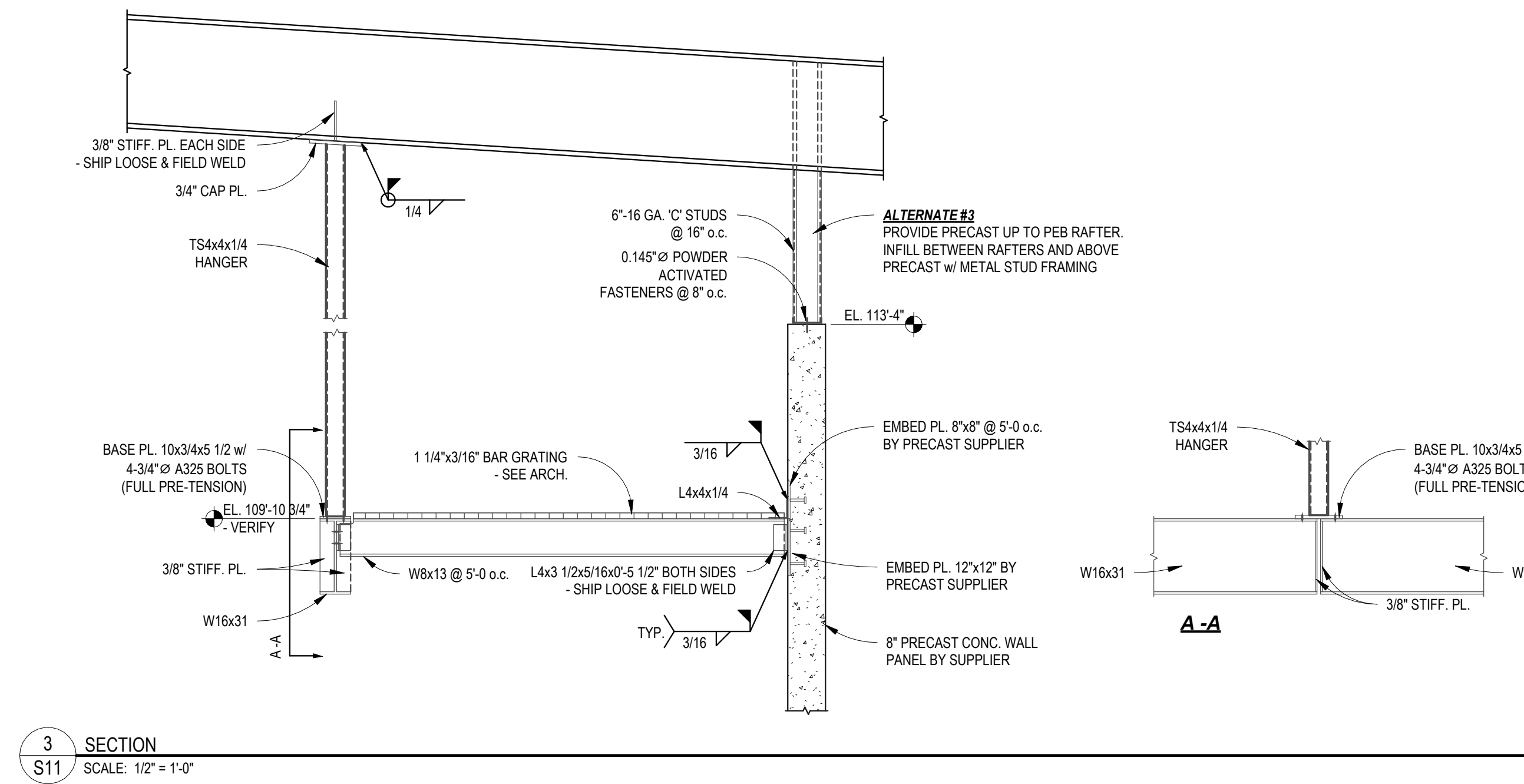
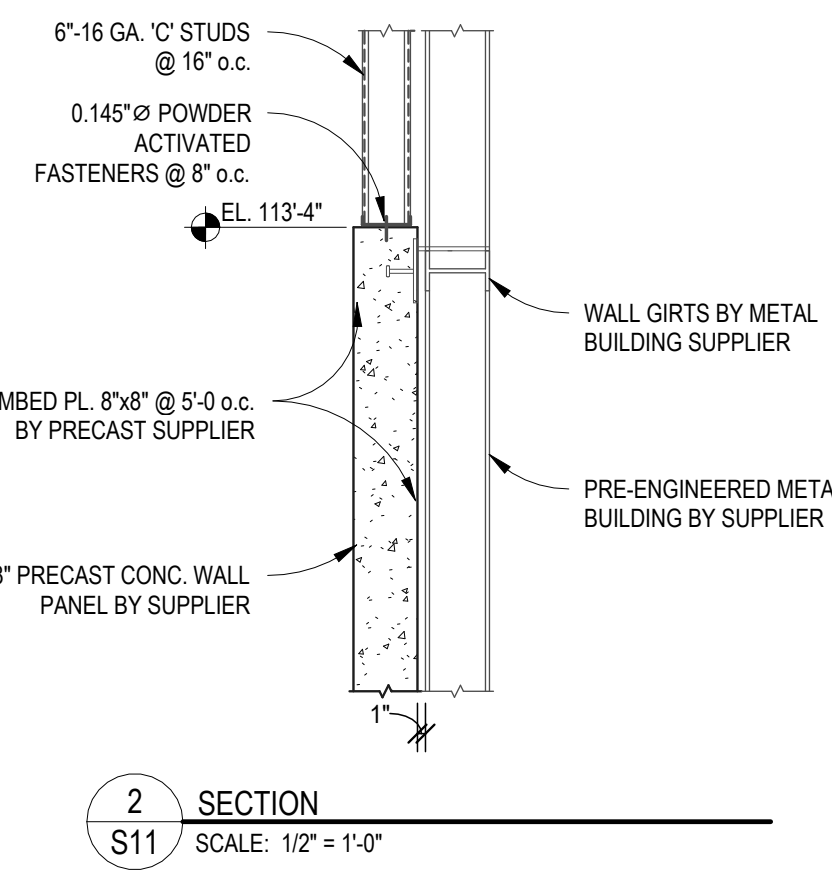
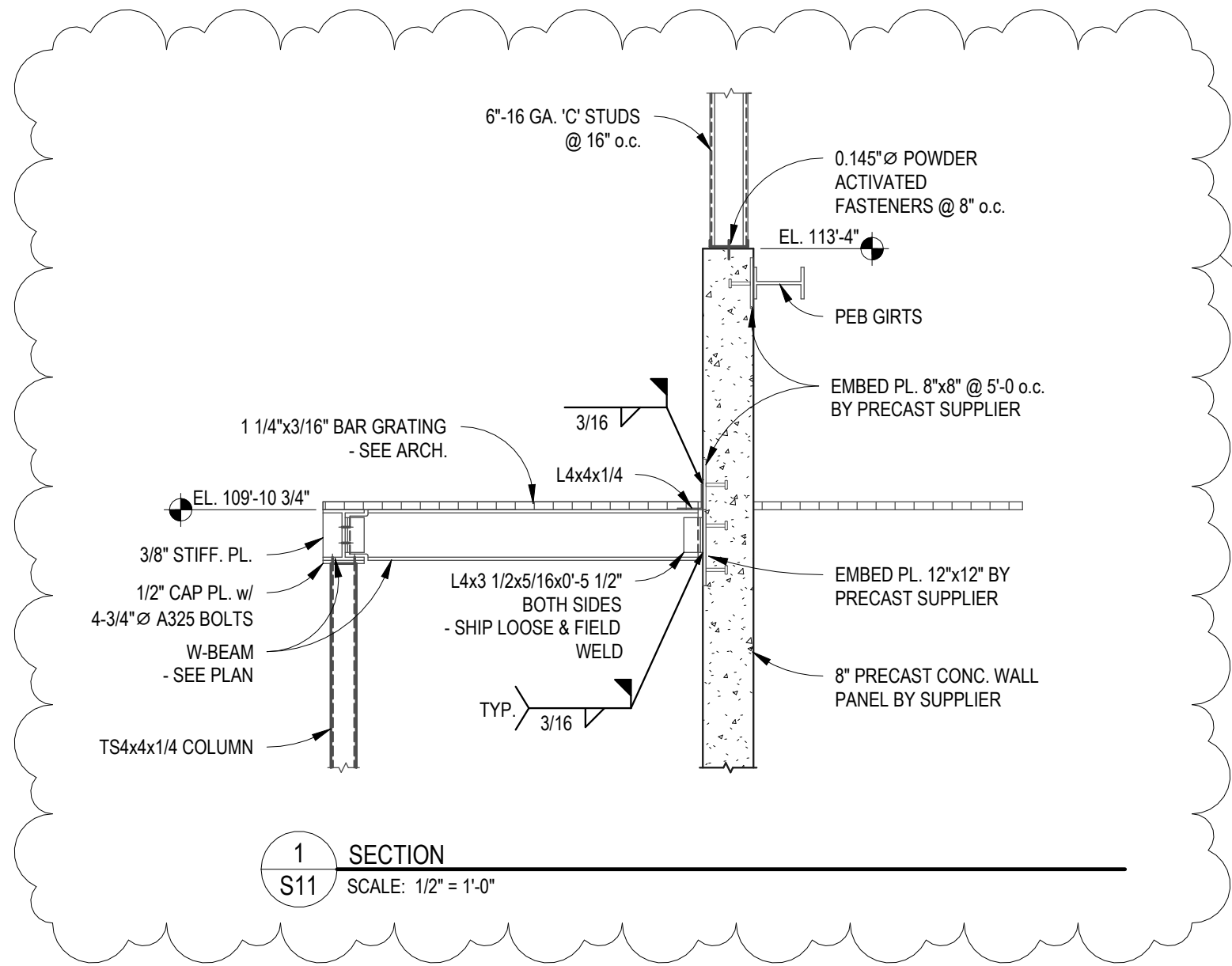


SOLLEN & LARSON
ENGINEERING
CONSULTING STRUCTURAL ENGINEERS
3330 FLEETWHEEL DRIVE, SUITE 200
ABERDEEN, SOUTH DAKOTA 58505
TELEPHONE (605) 251-3595 FAX (605) 251-3595

hkg
architects

2 ADDENDUM NO. 2
3/11/2026

Plans for ABERDEEN PUBLIC WORKS Maintenance Building Aberdeen, South Dakota	MEZZANINE/LOW ROOF FRAMING PLAN - AREA B	2/20/2026	25036
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2 ADDENDUM NO. 2
3/11/2026

2/20/2026

DENSITY FIELD REPORT

PROJECT NO: 2-1096

REPORT DATE: 10/20/2025

Report No: 1-0

New Public Works Building, Aberdeen, SD



TO: City of Aberdeen
123 South Lincoln St.
Aberdeen, SD 57402

PO Reference: 2-1096

Date	Test No.	Location {Comments}	Elev. (Ft.)	Mtl. Mark	Wet Density pcf	% H2O of Dry Mass	Dry Density pcf	% Compact ASTM D6938	% H2O Var. ASTM D6938	Spec. Density %	Spec. % H2O
09-30-25	1	Building Pad Fill, Gridline C&6	At Elevation +1,296.50	1	119.2	6.5	111.9	102	-5.7	95.0	
09-30-25	2	Building Pad Fill, Gridline G&6	At Elevation +1,297.00	1	118.5	6.7	111.1	101	-5.5	95.0	
09-30-25	3	Building Pad Fill, Gridline F&5	At Elevation +1,297.00	1	119.7	6.7	112.2	102	-5.5	95.0	
09-30-25	4	Building Pad Fill, Gridline G&1	At Elevation +1,296.50	1	116.7	5.8	110.3	100	-6.4	95.0	
09-30-25	5	Building Pad Fill, Gridline B&2	At Elevation +1,297.00	1	121.7	6.9	113.8	103	-5.3	95.0	
09-30-25	6	Building Pad Fill, Gridline A&4	At Elevation +1,297.56	1	118.1	7.6	109.8	100	-4.6	95.0	
10-06-25	7	Building Pad Fill, Gridline B&1	At Elevation +1,297.00	1	118.7	6.1	111.9	102	-6.1	95.0	
10-06-25	8	Building Pad Fill, Gridline A&6	At Elevation +1,297.00	1	118.1	6.6	110.8	101	-5.6	95.0	

MTL. MARK	PROCEDURE	MATERIAL DESCRIPTION	MAX DRY DENS. PCF	OPT. MOISTURE
1	ASTM D698-A Standard	Sand (SP)	110.0	12.2

Date	Operator	Standard Counts from Calibration		Gauge ID	Make	Model	S/N	Test Mode
		Density	Moisture					
09-30-25	Heuer			17295				Direct Transmission
10-06-25	Heuer			17295				Direct Transmission

Note: Locations indicated are approximate. results represent only the locations tested at the time of testing. Values may change due to construction activity, weather, or environmental conditions. Reports shall not be reproduced, except in full, without our written permission. We use the simple acceptance/simple rejection decision rule to determine in-tolerance and out-of-tolerance or pass/fail comply (yes/no) conditions and no measurement uncertainty is applied to this determination.

Approved:
Tim Foerster

EDGEWATER DOOR – RECOMMENDED SPECIFICATIONS

SECTION 08 16 13 – FIBERGLASS (FRP) DOORS AND FRAMES

PART 1 – GENERAL

1.1 – SECTION INCLUDES

- A. Fiberglass reinforced plastic (FRP) Doors
- B. Fiberglass reinforced plastic (FRP) Frames

1.2 – RELATED SECTIONS

- A. Applicable provisions of Division 1 shall govern all work under this section.
- B. Division 4 Section “Unit Masonry Assemblies” for installing anchors and grouting frames in masonry construction.
- C. Division 8 Section “Door Hardware” for door hardware and weather-stripping.
- D. Division 8 Section “Glazing” for glass in doors and frames.
- E. Division 9 Section “Painting” for field painting factory-primed doors and frames.

1.3 – QUALITY ASSURANCE

- A. General: Provide fiberglass reinforced door and frame units made of components of standard construction furnished by one manufacturer as coordinated assemblies.
- B. Manufacturer: Company specializing in the manufacture of fiberglass doors and frames with a minimum of fifteen years documented experience.
- C. Construction: Verify that FRP doors and frames are manufactured utilizing pultruded fiberglass components for durability, superior strength, and chemical resistance. Press-molded doors and frames will not be accepted.
- D. Resins: Resins shall comply with USDA standards for incidental food contact.
- E. Tested by Intertek to the following standards for fire rated doors.
 - 1. NFPA 252
 - 2. UL10C
 - 3. CAN/ULC S104
- F. Tested by Intertek to the following standards for Hurricane Doors
 - 1. ASTM E283/E283M-19 Standard Test Method for Rate of Air Leakage Through Exterior Windows, Curtains, Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 2. ASTM E331-16 Standard Test Method for Water Penetration of Exterior Windows, Curtain Walls, and Doors by Uniform Static Air Pressure Difference.
 - 3. ASTM E330/E330M-21 Standard Test Method for Structural Performance of Exterior Windows, Doors Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - 4. ASTM E1886-19 Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
 - 5. ASTM E1996-20 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors and Storm Shutters Impacted by Windborne Debris in Hurricanes.
- G. NAMI Certifications: NI015533 and NI015533.01
- H. Hurricane Doors meet ADA compliance – single point latching on single doors.
- I. Hardware Reinforcements: FRP doors and frames fabricated with a minimum screw holding strength to exceed WDMA extra heavy duty requirements.
- J. Paint Adhesion: Coating for FRP doors, panels and frames to conform to AAMA 624-07 for color uniformity, film adhesion, specular gloss, direct impact, abrasion resistance, chemical resistance and USDA approved.
- K. Warranty: Warranty fiberglass doors and frames for life of the initial installation against failure due to corrosion. Additionally, warranty fiberglass doors and frames for a period of 10 years against failure due to materials and workmanship from date of substantial completion.

1.4 - SUBMITTALS

- A. Product Data: For each type of door and frame indicated, include door designation, type, level and model, material description, core description, construction details and finishes.

1.5 – DELIVERY, STORAGE AND HANDLING

- A. Deliver doors and frames palletized and / or crated to provide protection during transit and job storage. Provide additional protection to prevent damage to finish of factory-finished doors and frames.
- B. Inspect doors and frames on delivery for damage and notify shipper and supplier if damage exists. Minor damages may be repaired provided refinished items match new work and are acceptable to the Architect. Remove and replace damage items that cannot be repaired as directed.
- C. Store doors and frames in accordance with HMMA 840 standards.

PART 2 – PRODUCTS

2.1 – MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by the following:
 - 1. Edgewater Door – 175 N. Western Ave. Neenah, Wisconsin 54956
Phone: 920-886-1995 Fax: 920-886-1998

2.2 – DOORS

Provide seamless doors complying with requirements indicated below:

- A. ES Series (Heavy Duty)
 - 1. Stiles: Pultruded FRP tubes with at least ¼” thick walls. Outer edge to be HDU to allow field trimming for width.
 - 2. Rails: Polymer composite with FRP strand reinforcing. Up to 1” of field trimming for height allowed.
 - 3. Internal Stiffeners: At least one vertical polymer composite with FRP strand reinforcing.
 - 4. Lite openings shall be completely sealed, integrated into the sub-frame during construction.
 - 5. Core types: **Please select one:**
 - i. Expanded polystyrene solid foam core, minimum 3# density (standard)
 - ii. Optional polyurethane core (insulated)
 - iii. Optional balsa core (impact resistance)
 - iv. Optional honeycomb core (crush resistance)
- B. EP Series (Extra Heavy Duty)
 - 1. Stiles: Pultruded FRP tubes with at least ¼” thick walls. Outer edge to be HDU to allow field trimming for width.
 - 2. Rails: Polymer composite with FRP strand reinforcing. Up to 1” of field trimming for height allowed.
 - 3. Internal Stiffeners: Vertical polymer composite with FRP strand reinforcing stiffeners every 6” on center.
 - 4. Lite openings shall be completely sealed, integrated into the sub-frame during construction.
 - 5. Core types: **Please select one:**
 - i. Expanded polystyrene solid foam core, minimum 3# density. (standard)
 - ii. Optional polyurethane core (insulated)
 - iii. Optional balsa core (impact resistance)
 - iv. Optional honeycomb core (crush resistance)
- C. EF Series (Fire)
 - 1. Stiles: Concealed intumescent with an HDU outer edge.
 - 2. Rails: High Density fire rated material with an HDU outer edge. Top rail to have concealed intumescent.
 - 3. Lite openings shall be completely sealed, integrated into the sub-frame during construction.
- D. EH Series (Hurricane)
 - 1. Expanded polystyrene solid foam core, minimum 3# density
 - 2. Doors to have windstorm, air infiltration and water penetration ratings as indicated per schedule
- E. Transom/Side Panels: To be identical to the doors in construction and materials – if applicable to this project

2.3 FRAMES

- A. General: Provide pultruded fiberglass frames for doors, transoms, sidelites and borrowed lites – where indicated and approved.
- B. Frames: Comply with the requirements of grade specified for corresponding doors.
 - 1. All Frames to be manufactured from 0.1875 inch (4.8 mm) thick fiberglass pultrusions.
 - 2. Profile must be of standard hollow type to permit installation into new concrete or block walls, as well as slip-on drywall situations.
 - 3. Solid (foam filled), boxed or coated hollow metal frames will not be accepted.
- C. Door Silencers: Provide silencers for all frames. Three for each strike jamb and two for the heads for paired openings.
- D. Plaster Guards: Provide and install plaster guards in frames for masonry installation.

- E. Anchors: Fabricated from no less than 0.125 inch (3.18 mm) thick pultruded fiberglass material.
1. New Masonry Construction: Provide wire anchors.
 2. Existing Masonry Construction: **Please select one:**
 - i. **Provide stainless steel expansion bolts, 3/8"x 4"**
 - ii. **Optional Concealed EMA: Provide stainless steel expansion bolts, 3/8"x 1-7/8". Include cover painted to match frame.**
 3. New Steel or Wood Stud Construction: Provide fiberglass anchor supports similar to flush steel channel in backside of frames for attachment from the stud wall into the frames anchor supports. This installation must take place prior to setting drywall.
 4. Existing Steel or Wood Stud: Provide drywall slip-on frame anchoring system – compression type
 5. Hurricane Construction: Minimum #14 steel screw. 6 inches from bottom, 6 and 10 inches from top, maximum 20.5 inches on center. Head anchoring 6 inches from corner and maximum 20 inches on center for singles and 8 inches from corner, 4 inches from center, at center, and maximum 21 inches on center for pairs.
 6. Fire rated Frames:
 - i. Grouted Door Frame: "T" anchors or wire anchors at each hinge location on the hinge and jamb side of the frame
 - ii. Bolt-in Door Frame: 3/8" * 4" long expansion bolts located no more than 7 1/4" from the very top (face) of the frame, spaced no more than 25 1/2" on center and a minimum of 12 1/4" from the bottom of the frame (finished floor).

2.4 – FABRICATION

- A. General: Fabricate fiberglass door and frame units to be rigid, neat in appearance and free from defects including warp and buckle. Where practical, fit and assemble units in manufacturer's plant. Clearly identify work that cannot be permanently factory assembled before shipment, to assure proper assembly at project site.
- B. Core Construction: Manufacturer's standard core construction that complies with the following:
1. All voids to be fully filled with specified core material.
 2. All core components to be chemically bonded together prior to the application of FRP faces.
- C. Framing System: Fabricate doors utilizing pultruded FRP tubes with minimum 1/4" thick walls in combination with solid polymer members.
1. All doors to be fully sealed on all 6 sides against water penetration to the core.
- D. Door Faces: Laminated composite faces shall be urethane fused to the stile and rail assembly, including the vertical stiffeners and core material, utilizing a two-part 100 percent reactive urethane adhesive and then cured under pressure until completely bonded.
- E. Face Sheets: **Please select one:**
1. **Faces to be .090 smooth (standard)**
 2. **Faces to be .120 smooth (optional)**
 3. **Faces to be .120 pebbled (optional)**
- F. Clearances: Not more than 1/8 inch (3.2 mm) at jambs, heads, and wide side joint between meeting pairs.
- G. Door Edges: Lock stile to be factory beveled 1/8" in 2" for rub free operation. Square lock-edge will not be accepted.
- H. Tolerances: Maximum diagonal distortion – 1/8 inch measured with straight edge, corner-to-corner.
- I. Hardware Reinforcement: Fabricate all hardware reinforcements utilizing premium solid polymer and fiberglass blocking. Any form of wood or metal reinforcements will not be accepted.
- J. Exposed Fasteners: Unless otherwise indicated, provide stainless steel, countersunk flat or oval heads for exposed screws and bolts.
- K. Hardware Preparations: Prepare doors and frames to receive mortised and concealed hardware according to final door hardware schedule and templates provided by hardware supplier. Doors and frames must be factory pre-drilled for all mortised hardware preps. Pilot and through-bolt holes for all surface mounted hardware to be drilled at the project site during installation.
- L. Frame Construction: Fabricate frames to size and shape shown on drawings. **Please select one:**
1. **Knock-Down (KD standard): Fabricate frames for field assembly. Include stainless steel screws and corner brackets. Fire and Hurricane rated frames available in knock-down version. Frames over 4' wide are KD only.**
 2. **Set-up and resin welded: Fabricate frames with mitered resin-welded corners and seamless face joints. Assembled frames will include temporary spreader bars.**

M. Hardware Locations:

1. Locate hardware as indicated on shop drawings or, if not indicated, according to manufacturer's standard locations.
2. Hardware Preps: If hardware information is not supplied, doors and frames will be machined for ANSI standard preps.

N. Glazing/Louver Stops: Manufacturer's standard two-piece PVC retainers.

1. Provide non-removable stops on outside of exterior and on secure side of interior doors for glass, louver and other panels in doors.
2. Provide screw-applied, removable, glazing stops on inside of glass, louvers and other panels in doors.
3. Loose, eight-piece trim kits will not be accepted. Additionally, retainers held in place by two-sided tape are not acceptable.
4. Glass to be supplied and installed under section 08800, unless stated otherwise.

O. Door Louvers: Provide sight-proof louvers for doors, where indicated. Stationary louvers to be manufactured utilizing fiberglass inverted "V" blades.

P. Astragals: 3/16" x 2" solid FRP flat plate sent loose, can be applied to either leaf.

2.5 – FINISHES

A. Prime Finish: Pre-clean and shop prime each door and frame ready for finish painting, performed at the jobsite under Section 09900.

B. Factory Finished: Where indicated, furnish fiberglass doors and frames factory pre-finished.

1. Finish: Manufacturers standard chemical resistant 2-part aliphatic acrylic polyurethane topcoat
2. Sheen: Semi-gloss
3. Pencil Hardness, ASTM D3363 – 3H
4. Pigmented gelcoats will not be accepted as a final factory finish.

C. Finish on fiberglass frames must match that of the fiberglass doors to which they are installed.

2.6 - HARDWARE

A. Hardware: All hardware shall be furnished under section 08710 unless stated otherwise.

B. Hurricane Hardware: Hardware approved to use as per Intertek listing

PART 3 – EXECUTION

3.1 – INSTALLATION

A. General: Install fiberglass doors, frames and accessories according to Shop Drawings, manufacturer's data and as specified.

B. Placing Frames: Set frames accurately in position, plumbed, aligned and braced securely until permanent anchors are set.

After wall construction is completed, remove temporary braces and spreaders, leaving surfaces smooth and undamaged.

1. Except for frames located in existing walls or partitions, place frames before construction of enclosing walls and ceilings.
2. In masonry construction, provide at least three wall anchors per jamb; install adjacent to hinge locations on hinge jamb and at corresponding heights on strike jamb. Acceptable anchors include masonry wire anchors.
3. In existing concrete or masonry construction, provide at least three completed opening anchors per jamb; install adjacent to hinge location on hinge jamb and at corresponding heights on strike jamb. Set frames and secure to adjacent construction with stainless steel expansion bolts.
4. For openings 90 inches (2286 mm) or more in height, install an additional anchor at hinge and strike jambs.

C. Factory Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

D. Door Installation: Fit fiberglass doors accurately in frames. Shim as necessary.

3.2 – ADJUSTING AND CLEANING

A. Cleaning: Clean fiberglass door and frame assemblies in accordance with manufacturer's recommended procedure.

END OF SECTION 08 16 13

SECTION 08 33 00 FIRE RATED OVERHEAD COILING DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Overhead Coiling Service Doors, Fire Rated:
 - 1. Non-insulated. Model 7301
- B. Electric motor operation for overhead coiling service doors, fire rated.

1.2 RELATED SECTIONS

- A. Section 05 10 00 - Structural Metal Framing.
- B. Section 06 10 00 - Rough Carpentry.
- C. Section 09 90 00 - Painting and Coating.
- D. Section 26 05 00 - Common Work Results for Electrical.

1.3 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM A480/A480M - Standard Specification for Flat-Rolled Stainless and Heat-Resisting Steel Plate, Sheet, and Strip.
 - 2. ASTM A653/A653M - Standard Specification for Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 3. ASTM A666 - Standard Specification for Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - 4. ASTM B209 - Standard Specification for Aluminum - Alloy Sheet and Plate.
 - 5. ASTM B221 - Standard Specification for Aluminum - Alloy Extruded Bars, Rods, Wires, Shapes and Tubes.
- B. National Fire Protection Association NFPA 80 - Standard for Fire Doors and Fire Windows.
- C. Underwriters Laboratories (UL) 10B - Standard for Fire Tests of Door Assemblies.
- D. Consult factory for projects requiring Buy American requirements for American Recovery and Reinvestment Act, Build America Buy America Act or American Iron and Steel Certification.

1.4 SUBMITTALS

- A. Shop Drawings: Indicate opening dimensions and required tolerances, jamb connection details, anchorage spacing, hardware locations, installation details, and special conditions.
- B. Product Data: Provide information on components, application, hardware, and accessories.
- C. Samples for Initial Selection: Provide manufacturer's finish charts showing full range of colors and textures available for units with factory applied finishes:
- D. Samples for Verification: Provide for each type of exposed finish on the following components in manufacturer's standard sizes:
 - 1. Curtain slats

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in the manufacturing of products specified in this section and with a minimum of five years' experience.
- B. Installer Qualifications: Installer shall be authorized and qualified to install overhead door systems on the type and scope of project specified.
- C. Source Limitations: Provide overhead coiling doors from one manufacturer for each type of door. Provide operators and other accessories from source acceptable to overhead coiling door manufacturer.
- D. Performance Requirements:
 - 1. Fire Door Construction: Conform to UL 10B.
 - 2. Installed Fire Door Assembly: Conform to NFPA 80.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of all materials in accordance with federal, state, and local laws.

1.7 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.8 WARRANTY

- A. Provide an original of the manufacturer's limited warranty against manufacturing defects and product workmanship.
 - 1. Five-year limited warranty to be free from defects in materials and workmanship from date of manufacture.
 - 2. Spring wire is warranted for 1 year.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: C.H.I. Overhead Doors, which is located at: 1485 Sunrise Dr.; Arthur, IL 61911; Toll Free Tel: 800-677-2650; Fax: 800-738-5006; Email: aia@chiohd.com; Web: <http://www.chiohd.com>
- B. Requests for substitutions will be considered in accordance with the provisions of Product Requirements.

2.2 OVERHEAD COILING SERVICE DOORS; FIRE RATED, NON-INSULATED

- A. Performance Requirements:
 - 1. Fire Door Construction: Conform to UL 10B.
 - 2. Installed Fire Door Assembly: Conform to NFPA 80.
 - 3. Seismic Performance: Evaluated to withstand earthquake motions determined per ASCE/SEI 7.
 - 4. Operation: 20,000 cycles for door assembly including operator.
- B. Model 7301 as manufactured by C.H.I. Overhead Doors.
 - 1. Fire Rating: 3/4 hour. UL listed.
 - a. Slat Material: 22 ga, .028-inch polyester painted (G90 coating) galvanized steel.
 - 1) Finish: Owner to select color from manufacturers standard color chart.
 - b. End Locks: Galvanized malleable iron, attached to every other slat to act as wearing surface and prevent lateral movement. Riveted in place.
 - c. Bottom Bar: Two steel angles bolted back-to-back. 11 ga, .114 inch.
 - 1) Finish: Primed black.
 - 2. Guides: Three, minimum 3/16 inch structural angles bolted together to form guide and mounting surface.
 - a. Finish: Hot dipped galvanized.
 - 3. Head Plate: Minimum 1/4 inch rectangular steel plate. Precision sealed ball bearings supporting drive side axle.
 - 4. Barrel Assembly:
 - a. Barrel: Steel pipe sized for maximum deflection under full load to not exceed .03 inch per 1 ft of span. Welded rings or threaded lugs to barrel assembly for curtain attachment.
 - b. Springs: Tension assembly supported in barrel by precision ball bearings. Curtain weight counterbalanced by oil tempered, helically wound torsion springs, grease packed and mounted on steel torsion shafts with cast spring plug.
 - 5. Hood: Half-hexagonal hood for structural rigidity and aesthetic appeal. Fits within head plates with intermediate supports as required.
 - a. Material: 24 ga, .022-inch (.57 mm) polyester painted (G90 coating) galvanized steel.
 - 1) Finish: To match curtain interior.
 - 6. Smoke Seals: Replaceable smoke seal perimeter gaskets or brushes for smoke and draft control as required for door listing and labeling by a qualified testing agency.
 - a. Smoke Label: Provide doors with U.L. "S" label in addition to the fire door label to certify smoke control listing.
 - 7. Mounting: Face of wall and above lintel.
 - 8. Jamb Construction, Solid Masonry: Anchor bolt fasteners.
 - 9. Jamb Construction, Steel Jambs: Self tapping fasteners.
 - 10. Automatic Closing Device: Or release holder mechanism and governor unit complying with NFPA 80. Automatic closing device activated by the following:

- a. Fusible Links: Interconnected. On both sides of door opening.
 - 1) Melting Point: 165 degrees F (74 degrees C).
- b. Smoke Detectors: Manufacturer's standard UL label. On both sides of wall and door holder release device.
 - 1) Type: LM21XPBB Release Device
- c. Heat Rise Detectors: Manufacturer's standard UL labeled. On both sides of wall and door holder release device.
- d. Connected to building fire detection, smoke detection, and alarm systems through manufacturer's UL labeled release device.
- e. Release Holder: Fail safe as an interface between detection device specified and fire rated door.
 - 1) Adjustable time delay for up to 10 seconds.
 - 2) Battery back-up system.

2.3 ELECTRIC MOTOR OPERATION FOR OVERHEAD COILING SERVICE DOORS, FIRE RATED

- A. Electric Motor Operator: Fail safe operator unit, listed, and approved for use on door. Capacity as recommended and provided by the door manufacturer. Maintains spring tension when activated by alarm, and easily reset from floor without requiring tools.
 - 1. Usage Classification: Electric operator and components capable of operating for not less than number of cycles indicated for each door.
 - a. Operator Location: Front of hood.
 - b. Power Supply: 115 VAC, single phase.
 - c. Control Station: 24 V, 3-button. Open, close, stop, (2 stations both sides of door.
 - d. Control Station Mounting: NEMA 1 Surface. Interior.
 - 2. Remote Controls:
 - a. Radio Receiver: Three button remote controls.
 - 1) Program remote controls to Open/ Close/ Stop the door.
 - b. Transmitters: 5.
 - 3. Primary Entrapment Protection Devices:
 - a. NEMA 1 Monitored Photo Sensors: Photo eyes fully monitored, non-contact, infrared beam photo sensor system. Reverses closing door to full open position when obstruction is sensed. Photo sensors to be mounted no higher than 6 inches (152 mm) above floor.

PART 3 EXECUTION

3.1 EXAMINATION

Examine substrates, areas, and conditions for compliance with requirements for substrate construction and other conditions affecting performance of the work.

- A. Examine locations of electrical connections.
- B. Proceed with installation only after all unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Install door and shutter assembly in accordance with manufacturer's instructions.
- B. Anchor to adjacent construction without distortion or stress.
- C. Fit and align door and shutter assembly including hardware, plumb, level, and square to ensure smooth operation.
- D. Make wiring connections between power supply and operator and between operator and controls.

3.3 ADJUSTING

- A. Adjust hardware and moving parts so that doors operate smoothly throughout full operating range.
- B. Adjust seals to provide a tight fit around the entire perimeter.

3.4 DEMONSTRATION

- A. Demonstrate proper operation to Owner.
- B. Perform fire door and shutter drop tests in presence of Owner or owner's representative. Require signature for manufacturer supplied drop test form.

3.5 MAINTENANCE SERVICE

- A. Initial Maintenance Service: Beginning at Substantial Completion.
 - 1. Full Maintenance: 3 months by certified employees of installing company.
 - 2. Full Maintenance: 12 months by certified employees of installing company.
 - 3. Preventative Maintenance: Repair or replace worn or defective components. Lubricate, clean, and adjust as required for door or shutter operation.
 - a. Maintenance Frequency: Quarterly.
 - 4. Parts and Supplies: Manufacturer's authorized replacement parts and supplies.
 - 5. Callback Service: Maintenance, including emergency callback service during normal working hours.

END OF SECTION

SECTION 08 36 00 SECTIONAL OVERHEAD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Commercial insulated steel sandwich doors.

1.2 RELATED SECTIONS

- A. Section 06 10 00 - Rough Carpentry.
- B. Section 09 90 00 - Painting and Coating.
- C. Section 26 05 00 - Common Work Results for Electrical.

1.3 REFERENCES

- A. America National Standards Institute (ANSI) / Door and Access Systems Manufacturers Association, International (DASMA):
 - 1. DASMA Thermal Performance Verification Program.
 - 2. ANSI/DASMA 105 - Test Method For Thermal Transmittance And Air Infiltration Of Garage Doors.
 - 3. ANSI/DASMA 108 – Determination of Structural Performance Under Uniform Static Air Pressure Difference.
 - 4. ANSI/DASMA 115 – Determination of Structural Performance Under Missile Impact and Cyclic Wind Pressure.
 - 5. ANSI/DASMA 163 - R-Value and U-Factor As Applied To A Residential or Commercial Garage Door.
- B. ASTM International (ASTM):
 - 1. ASTM A653/A653M - Standard Specification for Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 2. ASTM B209 - Standard Specification for Aluminum-Alloy Sheet and Plate.
 - 3. ASTM B221 - Standard Specification for Aluminum-Alloy Extruded Bars, Rods, Wires, Shapes and Tubes.
 - 4. ASTM C518 - Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 5. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen.
 - 6. ASTM E330 – Standard Test Method for Structural Performance of Exterior Windows, Doors, Skylights and Curtain Walls by Uniform Static Air Pressure Difference.
 - 7. ASTM E1886 – Standard Test Method for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials.
 - 8. ASTM E1996 – Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Windborne Debris in Hurricanes.
- C. American Architects Manufacturers Association (AAMA):
 - 1. AAMA 2604 – Voluntary Specification, Performance Requirements and Test Procedures for Pigmented Organic Coatings on Aluminum Extrusions and Panels (with Coil Coating Appendix).
- D. Consult factory for projects requiring Buy American requirements for American Recovery and Reinvestment Act, Build America Buy America Act or American Iron and Steel Certification.

1.4 SYSTEM DESCRIPTION

- A. Doors to Withstand:
 - 1. Positive and negative design wind loads in accordance with Building Code.
 - 2. Cycle Life: 10,000 cycles.
- B. Door Opening and Closing:
 - 1. Operation: Electric.
- C. Track and Operating Hardware:
 - 1. Follow Roof/Incline pitch type.

1.5 SUBMITTALS

- A. Submit under provisions of Section 01 30 00 - Administrative Requirements.
- B. Shop Drawings: Indicate opening dimensions and required tolerances, jamb connection details, anchorage spacing, hardware locations, installation details, and special conditions.
- C. Product Data: Provide information on components, application, hardware, and accessories.
- D. Samples for Initial Selection: Provide manufacturer's finish charts showing full range of colors and textures available for units with factory applied finishes.
- E. Samples for Verification: Provide for each type of exposed finish on the following components in manufacturer's standard sizes:
 - 1. Color Chip Sample.

1.6 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall provide an overhead door system capable of withstanding positive and negative wind loads as required by local building code for 10,000 cycles.
- B. Installer Qualifications: Installer shall be authorized and qualified to install overhead door systems on the type and scope of project specified.
- C. Source Limitations: Provide overhead sectional doors from one manufacturer for each type of door. Provide operators and other accessories from source acceptable to overhead door manufacturer.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store products in manufacturer's unopened packaging until ready for installation.
- B. Store and dispose of all materials in accordance with federal, state, and local laws.

1.8 PROJECT CONDITIONS

- A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

1.9 WARRANTY

- A. Manufacturer's limited warranty against manufacturing defect and product workmanship.
 - 1. Steel Door Sections: Used in commercial applications, under normal conditions, against splitting, cracking, rusting through or delaminating.
 - a. Warranty Period: 10 years from date of manufacture.
 - 2. Hardware, Including Springs: For defects in material or workmanship.
 - a. Warranty Period: 1 year from date of manufacture.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Acceptable Manufacturer: C.H.I. Overhead Doors, which is located at: 1485 Sunrise Dr.; Arthur, IL 61911; Toll Free Tel: 800-677-2650; Fax: 800-738-5006; Email: aia@chiohd.com; Web: <http://www.chiohd.com>.
- B. Requests for substitutions will be considered in accordance with the provisions of Product Requirements.

2.2 COMMERCIAL INSULATED STEEL SANDWICH DOORS

- A. Polyurethane Thermally Broken Insulated Steel Sandwich Doors: 2 inches thick.
 - 1. Model 3216. Thermally broken insulated steel sandwich door. Micro-grooved.
 - a. Appearance: Four evenly spaced horizontal micro-grooves, woodgrain embossed.
 - b. Exterior: 26 ga, 017 inch polyester painted galvanized steel.
 - c. Interior: 27 ga, 015 inch polyester painted galvanized steel.
 - d. Door Size (WxH): Standard up to 32 ft 2 inches x 18 ft 0 inches. Consult with C.H.I. up to 40 ft 2 inches wide or 32 ft 0 inches tall.
 - e. Finish: Owner to select color from manufacturers standard color chart.
 - 3. Additional Product Features:
 - a. Insulation: Thermally broken, foamed in place with CFC, HFC, HCFC and PFA free and non-VOC polyurethane insulation. Foam to have zero Ozone Depletion Potential (ODP) and zero Global Warming Potential (GWP).
 - b. U-factor: 0.19 per ANSI/DASMA 105. Calculated R-Value: 17.54.
 - c. DASMA Thermal Performance Verified Product
 - d. Air Infiltration: 0.10 per ANSI/DASMA 105, ASTM E283.
 - e. IECC, ASHRAE 90.1, and California Title 24 compliant for thermal performance and air infiltration.
 - f. STC Rating: 21.
 - g. Flame Spread (FSI): 15.
 - h. Smoke Developed (SDI): 180.
 - i. Thickness: 2 inches.
 - j. Joints: Tongue and Groove.
 - k. End Stile: 20 ga, .034 inch galvanized steel.
 - l. End Stile: 14 ga, .070 inch galvanized steel, painted white.
 - m. Backer Plate: 24 ga, .022 inch galvanized steel.
 - n. Locking: No lock.
 - o. Locking: One Inside slide lock.
 - p. Locking: Two Inside slide locks.
 - q. Locking: Outside center lock.
 - r. Locking: Double lock bar.
 - s. Weather Seal: U-shaped bottom astragal with aluminum retainer.
 - t. Weather Seal: Top Seal
 - u. Weather Seal: Header and Jambs. Flexible one-piece vinyl extrusion.
 - v. Operation: Electric.
 - w. Jamb Material: Steel.
 - x. Track Type: High Lift. Consult factory for more than 120 inches or openings more than 300 sq ft.
 - y. Track Appearance: Galvanized.
 - z. Track Mounting and Size: Based on door size and weight. Lower track is adjustable for weathertight fit. May upgrade to clip angle or continuous when not standard. Track is 16 ga, 0.055 inch min. galvanized steel. Gauge increases based on design requirements. 2 inch track for 2 inch rollers or 3 inch track with 3 inch rollers.
 - aa. Roller Assemblies: Galvanized steel adjustable roller holders with floating hardened steel bearing rollers, located at top and bottom of each side of each section. Size and type is determined by the manufacturer based on door size and weight.
 - bb. Hinges: 14 ga 0.070 inch (1.77 mm) galvanized steel, to 24 ft 2 inches (7.37m), and 11 ga, 0.114 inch (2.89 mm) galvanized steel if larger.
 - cc. Spring Counterbalance: Helically-wound, oil-tempered torsion springs mounted on cross-header shaft supported by galvanized steel ball bearing end plates and center carrier brackets as required. Springs to

be individually calibrated to each door. Spring shafts are hollow or solid based on door size and weight. Counterbalance transferred to doors via aircraft quality braided steel lift cables.

- dd. Spring Cycle Life: 10,000 cycles. Consult factory for life cycles up to 100,000 cycles. There are limitations based on door size and weight.

2.3 COMPONENTS

- A. Electric Operator:
 - 1. Externally mounted on drive side of door.
 - 2. Power Supply: 115 Volts AC single phase.
 - 3. Manually operable in case of power failure.
 - 4. Control Station Power: 24 VDC.
 - 5. Control Station Power: 115 VAC.
 - 6. Control Station: Three button (Open / Stop / Close) station.
 - 7. Wash Bay Doors 217B & 217D shall have water tight unit, wall station.
- B. Safety Reversing Device:
 - 1. Safety Device: Photoelectric sensor; detect obstruction and reverse door without requiring door to contact obstruction.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until work areas have been properly prepared.
- B. If preparation is the responsibility of another installer, notify Architect of unsatisfactory conditions before proceeding.

3.2 INSTALLATION

- A. Install door assembly in accordance with manufacturer's instructions.
- B. Anchor to adjacent construction without distortion or stress.
- C. Securely brace door tracks suspended from structure. Secure tracks to structural members only.
- D. Fit and align door assembly including hardware, level and plumb, to provide smooth operation.
- E. Position head and jamb weatherstripping to contact door sections when closed; secure in position.
- F. Make wiring connections between power supply and operator and between operator and controls.

3.3 ADJUSTING

- A. Adjust to operate smoothly throughout full operating range.

3.4 PROTECTION

- A. Protect installed products until completion of project.
- B. Touch-up, repair or replace damaged products before substantial completion.

END OF SECTION

SPECWORKS # 2385

HW SET: 01

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
2	EA	POWER TRANSFER	EPT2	689	VON
1	EA	MULLION	KR4954 7' 6"	689	VON
1	EA	PANIC HARDWARE	QEL99EO 3'	626	VON
1	EA	PANIC HARDWARE	QEL99NL-OP 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	MORTISE CYLINDER	20-061	626	SCH
2	EA	OFFSET DOOR PULL	8190HD-0	630	IVE
1	EA	SURFACE CLOSER	4040XP.SCUSH	689	LCN
1	EA	MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	AUTO-EQUALIZER	4642.REGARM	689	LCN
1	EA	ACTUATOR PACKAGE	8310-3857TW		LCN
1	EA	RAIN DRIP	142AA 76	CL	ZER
2	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 72" MSLA-10	AL	ZER
1	EA	RELAY BOARD	900-4RL		VON
1	EA	POWER SUPPLY	PS904	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	CARD READER	CARD READER (BY OTHERS)	TBD	TBD

ELECTRIC PANICS UNLOCKED DURING BUSINESS HOURS, BY SECURITY CONTRACTOR.

HW SET: 02

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
2	EA	PULL/PUSHBAR	9190HD-33-0	630	IVE
1	EA	SURFACE CLOSER	4040XP.SCUSH	689	LCN
1	EA	MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	AUTO-EQUALIZER	4642.REGARM	689	LCN
1	EA	ACTUATOR PACKAGE	8310-3857TW		LCN

HW SET: 03

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	PANIC HARDWARE	99NL 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	ELECTRIC STRIKE	6300	630	VON
1	EA	SURFACE CLOSER	4040XP.EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	BUTTON	REMOTE RELEASE BUTTON (BY OTHERS)	TBD	TBD

REMOTE RELEASE BUTTON IN RECEPTION 102, BY SECURITY

HW SET: 04

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	PANIC HARDWARE	9927EO-LBR 3'	626	VON
1	EA	PANIC HARDWARE	QEL9927NL-LBR 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
2	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 35" B-CS	630	IVE
1	EA	RELAY BOARD	900-2RS		VON
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	BUTTON	REMOTE RELEASE BUTTON (BY OTHERS)	TBD	TBD

REMOTE RELEASE BUTTON IN RECEPTION 102, BY SECURITY

HW SET: 05

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	OVERHEAD STOP	904S	630	GLY

HW SET: 06

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 07

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 07A

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 08

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 09

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT2	689	VON
1	EA	MULLION	KR4954 7' 6"	689	VON
1	EA	PANIC HARDWARE	99EO 3'	626	VON
1	EA	PANIC HARDWARE	QEL99NL-OP 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	MORTISE CYLINDER	20-061	626	SCH
2	EA	OFFSET DOOR PULL	8190HD-0	630	IVE
2	EA	SURFACE CLOSER	4040XP.SCUSH	689	LCN
2	EA	MOUNTING PLATE	4040XP-18PA	689	LCN
1	EA	RAIN DRIP	142AA 76	CL	ZER
2	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 72" MSLA-10	AL	ZER
1	EA	RELAY BOARD	900-2RS		VON
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	CARD READER	CARD READER (BY OTHERS)	TBD	TBD

HW SET: 10

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
2	EA	PULL/PUSHBAR	9190HD-33-0	630	IVE
2	EA	SURFACE CLOSER	4040XP.SCUSH	689	LCN
2	EA	MOUNTING PLATE	4040XP-18PA	689	LCN

HW SET: 11

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CONST LATCHING BOLT	FB51T	630	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	COORDINATOR	COR52 X FL20	628	IVE
2	EA	MOUNTING BRACKET	MB2	689	IVE
2	EA	SURFACE CLOSER	4040XP.HWPA	689	LCN
2	EA	KICK PLATE	8400 10" X 35" B-CS	630	IVE
2	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 12

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA	PANIC HARDWARE	9927L-LBR 3'	626	VON
2	EA	RIM CYLINDER	20-057	626	SCH
2	EA	SURFACE CLOSER	4040XP.EDA	689	LCN
2	EA	KICK PLATE	8400 10" X 35" B-CS	630	IVE
2	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 13

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	PANIC HARDWARE	99NL-OP 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	ELECTRIC STRIKE	6300	630	VON
1	EA	OFFSET DOOR PULL	8190HD-0	630	IVE
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	RAIN DRIP	142AA 40	CL	ZER
1	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 36" MSLA-10	AL	ZER
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	CARD READER	CARD READER (BY OTHERS)	TBD	TBD

HW SET: 14

6	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT2	689	VON
1	EA	MULLION	KR4954 7' 6"	689	VON
1	EA	PANIC HARDWARE	99EO 3'	626	VON
1	EA	PANIC HARDWARE	QEL99NL 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	MORTISE CYLINDER	20-061	626	SCH
2	EA	MEETING STILE SEAL	8193AA 84"	CL	ZER
2	EA	SURFACE CLOSER	4040XP.SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 35" B-CS	630	IVE
1	EA	HEAD SEAL	429AA 72"	CL	ZER
2	EA	JAMB SEAL	429AA 84"	CL	ZER
1	EA	MULLION SEAL	8780N 84"	BLK	ZER
1	EA	RAIN DRIP	142AA 76	CL	ZER
2	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 72" MSLA-10	AL	ZER
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	CARD READER	CARD READER (BY OTHERS)	TBD	TBD

HW SET: 15

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 16

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 17

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 17A

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 18

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PUSH PLATE	8200 4" X 16"	630	IVE
1	EA	PULL PLATE	8303-0 4" X 16"	630	IVE
1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 19

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY SET	ND40S RHO OS-OCC	626	SCH
1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 19A

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PRIVACY SET	ND40S RHO OS-OCC	626	SCH
1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 20

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	OVERHEAD STOP	904S	630	GLY

HW SET: 21

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 21A

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER

HW SET: 22

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CLASSROOM LOCK	ND70PD RHO	626	SCH
1	EA	WALL STOP	WS406/407CCV	630	IVE

HW SET: 23

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
2	EA	FIRE EXIT HARDWARE	9927L-F-LBR 3'	626	VON
2	EA	RIM CYLINDER	20-057	626	SCH
2	EA	SURFACE CLOSER	4040XP.CUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 35" B-CS	630	IVE
1	SET	SEALS	188S 20'	BLK	ZER
1	EA	MEETING STILE SEAL	S772 84"	BLK	PEM

HW SET: 24

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	652	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	SURFACE CLOSER	4040XP.EDA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	BUTTON	REMOTE RELEASE BUTTON (BY OTHERS)	TBD	TBD

REMOTE RELEASE BUTTON IN RECEPTION 102, BY SECURITY

HW SET: 25

3	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	PASSAGE SET	ND10S RHO	626	SCH
1	EA	OVERHEAD STOP	904S	630	GLY

HW SET: 26

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	EA	CONST LATCHING BOLT	FB51T	630	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	ASTRAGAL	OVERLAPPING ASTRAGAL (BY DOOR MANUF)	TBD	TBD
2	EA	OVERHEAD STOP	904S	630	GLY

HW SET: 27

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	PANIC HARDWARE	99NL 3'	626	VON
1	EA	RIM CYLINDER	20-057	626	SCH
1	EA	ELECTRIC STRIKE	6300	630	VON
1	EA	SURFACE CLOSER	4040XP.SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	HEAD SEAL	429AA 36"	CL	ZER
2	EA	JAMB SEAL	429AA 84"	CL	ZER
1	EA	RAIN DRIP	142AA 40	CL	ZER
1	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 36" MSLA-10	AL	ZER
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	CARD READER	CARD READER (BY OTHERS)	TBD	TBD

HW SET: 28

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	SET	CONST LATCHING BOLT	FB51P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	COORDINATOR	COR52 X FL20	628	IVE
1	EA	ASTRAGAL	OVERLAPPING ASTRAGAL (BY DOOR MANUF)	TBD	TBD
2	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
2	EA	KICK PLATE	8400 10" X 32" B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER
1	SET	SEALS	188S 20'	BLK	ZER

HW SET: 28A

6	EA	HINGE	5BB1 4.5 X 4.5	652	IVE
1	SET	CONST LATCHING BOLT	FB51P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	OFFICE LOCK	ND50PD RHO	626	SCH
1	EA	COORDINATOR	COR52 X FL20	628	IVE
2	EA	MOUNTING BRACKET	MB1	689	IVE
1	EA	ASTRAGAL	OVERLAPPING ASTRAGAL (BY DOOR MANUF)	TBD	TBD
2	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	SEALS	188S 17'	BLK	ZER
1	SET	SEALS	188S 20'	BLK	ZER

HW SET: 29

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	ELECTRIC STRIKE	6211 FSE 24VDC	630	VON
1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	KICK PLATE	8400 10" X 34" B-CS	630	IVE
1	EA	HEAD SEAL	429AA 36"	CL	ZER
2	EA	JAMB SEAL	429AA 84"	CL	ZER
1	EA	RAIN DRIP	142AA 40	CL	ZER
1	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 36" MSLA-10	AL	ZER
1	EA	POWER SUPPLY	PS902	GRY	VON
1	EA	WIRING DIAGRAM	WIRING DIAGRAM		VON
1	EA	CARD READER	CARD READER (BY OTHERS)	TBD	TBD

HW SET: 30

3	EA	HINGE	5BB1 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM LOCK	ND80PD RHO	626	SCH
1	EA	SURFACE CLOSER	4040XP.RWPA	689	LCN
1	EA	HEAD SEAL	429AA 36"	CL	ZER
2	EA	JAMB SEAL	429AA 84"	CL	ZER
1	EA	RAIN DRIP	142AA 40	CL	ZER
1	EA	DOOR SWEEP	8198AA 36"	CL	ZER
1	EA	THRESHOLD	8655A 36" MSLA-10	AL	ZER



SECTION 41 22 13 BRIDGE CRANES

PART 1 – GENERAL

1.1 SUMMARY

- A. Section includes: Work stations, three different bridge cranes including floor mounted steel support structure, independent steel support structures, PEMB steel saddle support structures, steel runways, movable bridge, hoist trolley, tractor drive, festooning system, and other accessories.
- B. Related sections:
 - 1. Section 03 30 00 – Cast-in-Place Concrete: Concrete slab to receive free standing work station bridge crane.
 - 2. Division 26 – Electrical: Electrical supply, conduit, wiring, and other electrical components for powering lifting device, hoist trolley tractor drive, and truck tractor drive.

1.2 REFERENCES

- A. American Institute of Steel Construction (AISC): Manual of Steel Construction, Part 5, Specification for Structural Joints Using ASTM A325 or ASTM A490 Bolts.
- B. American National Standards Institute (ANSI):
 - 1. ANSI B30.11 – Monorails and Underhung Cranes.
- C. American Society for Testing and Materials (ASTM) Publications:
 - 1. ASTM A36 – Carbon Structural Steel.
 - 2. ASTM A325 – Structural Bolts, Alloy Steel, Heat Treated, 120/150 ksi Minimum Tensile Strength.
 - 3. ASTM A490 – Structural Bolts, Alloy Steel, Heat Treated, 150 ksi Minimum Tensile Strength.
 - 4. ASTM B221 – Aluminum-Alloy Extruded Bar, Rod, Wire, Shape, and Tube.
 - 5. OSHA Section 1910.179 of Title 29, “Occupational Safety and Health Regulations – Overhead and Gantry Cranes”
 - 6. ASME B30.2, “Safety Standard – Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Hoist)”
 - 7. ASME B30.16, “Safety Standard – Overhead Hoists (Underhung)”
 - 8. ASME B30.17, “Safety Standard – Cranes And Monorails (With Underhung Trolley Or Bridge)”
 - 9. ASME HST-1, “Performance Standard for Electric Chain Hoists”
 - 10. CMAA 74, Specifications for Top Running and Under Running Single Girder Electric Overhead Traveling Cranes Utilizing Under Running Trolley Hoist”
 - 11. NFPA 70, “National Electrical Code”
- D. American Welding Society (AWS):
 - 1. AWS D1.1 – Structural Welding Code.

1.3 PERFORMANCE REQUIREMENTS

- A. Crane shall provide coverage of rectangular area of size indicated on Drawings and consists of:
 - 1. Free standing support structure requiring only floor slab support without longitudinal or lateral bracing.
 - 2. Two rigid, parallel runways. Cranes with more than two runways or with articulating ones are not acceptable.
 - 3. Rigid, single girder bridge moving perpendicular to runways. Double girder bridges and ones with articulating or threaded connections are not acceptable.
- B. Modular, pre-engineered design: Crane system shall be capable of expansion, disassembly and relocation, and accepting additional or multiple mixed capacity bridges.



- C. Productivity ratio: Crane shall be designed to manually move load with maximum force of 1/100 load weight.
- D. Runway and bridge track: Enclosed type limiting dust and dirt collection on rolling surfaces with maximum deflection of 1/450 span based in capacity plus 15 percent of lifting device weight.
- E. Crane operating temperature: 5 to 200 degrees F
- F. Crane shall be designed to withstand:
 - 1. Crane and hoist dead load.
 - 2. Inertia forces from crane and load movement.

1.4 SUBMITTALS

- A. Provide in accordance with Section 01 33 00 – Submittal Procedures:
 - 1. Product data for crane and accessories. Describe capacities, performance, operation, and applied forces to foundation.
 - 2. Shop drawings showing crane configuration, dimensions, electrical wiring diagrams, and construction and installation details.
 - 3. Copy of warranty by Paragraph 1.6 for review by Architect.
 - 4. Manufacturer's installation instructions.
 - 5. Manufacturer's operations and maintenance manual.

1.5 QUALITY ASSURANCE

- A. Manufacturer: Company specializing in designing and manufacturing cranes with 25 years successful experience.
- B. Installer: Company experienced in assembly and installation of cranes with 5 years successful experience and acceptable to crane manufacturer.
- C. Crane shall be designed, fabricated. And installed in accordance with ANSI B30.11, and OSHA 1910.179.
- D. Base crane structural design includes full rated load capacity plus 15 percent for hoist trolley weight and 25 percent impact factor for speed of lifting device and weight of tooling.
- E. Perform welding by certified operators in accordance with AWS D14.1.
- F. Bolted connections shall be in accordance with torque tightening procedures specified in AISC Manual, Part 5.
- G. Clearly label crane with rated load capacity. Place label at height and location easily read from floor level and loading position.

1.6 WARRANTY

- A. Provide under provisions of Closeout Submittals:
 - 1. 10 year warranty for crane to crane to cover defects in materials and workmanship.
 - 2. 2 years warranty for motorized tractor drive.

PART 2 – PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Harrington Hoists, Inc. 401 West End Avenue, Manheim, PA 17545, 800-233-3010;
customerservice@harringtonhoists.com, www.harringtonhoists.com.
- B. Approved Equals
 - a. Gorbels, Inc. www.gorbels.com.
- C. Requests to use equivalent products of other manufacturers shall be submitted in accordance with Product Substitution Procedures.



2.2 CRANE KIT 7.5 US TON CAPACITY – 1479962

Top Running, Single Girder, Series 3, End Trucks

CMAA Service Class C

7.5 US Ton Capacity

Power Supply: 460V-3ph-60Hz

Control Voltage: 110VAC

61' – 0" Span

Bridge: W30x148 w/ MC18x42.7 Beam supplied under separate contract by General Contractor

For 40# (1.875") ASCE Rail

Bridge Traversing Speed: 8-80 fpm

Trolley Traversing Speed: 4-40 fpm, 2-Step

Lifting Speed: 7.5/2.5 fpm

End Truck: TMS-3-1060, Raised Guide Rollers

Trolley/Hoist: ER2M080SD-ID: 20' Lift

Control Panel: P1V4340C25R11H1 (Plug/Play, VFD Driven)

Festooning: Flat Cable Power

Control: TeleRadio from BCP, 2 Trans.

Include Runway Collector Bracket

A. TM3 – 1479993 Top Running Motorized End Trucks

TMS3-1060; Custom Frames

10 Ton Capacity; Relabeled to 7.5 US Ton

Span: 61 ft 0 inch

460V-3ph-60Hz Power Supply

Traversing Speed: 80 fpm

40# (1.875") Rail Size, Raised Guide Rollers

Motor Plug Kit

Engineering Required: BF103417

#SP_Dim#Span+

Wheel Diameter: 9.84 (in.)

Wheel Hardness: 160-220 BHN

Motor Amps: 1.8 ea.

Motor Horsepower Output: 1.0 ea.

End Truck Net Weight: 567.3 (lb ea.)

B. BAK – 1479971 Bridge Beam Kit

Top Running: Single Girder, Series 3, End Trucks



Bridge Beam: W30x148 with MC18x42.7
Span: 61 ft 0 in.
10 Ton Capacity; Relabeled to 7.5 US Ton
For TM3-1060 End Trucks
For (N)ER2M Trolley/Hoist
For Flat Cable Power
Less Paint/Primer
No notch; beam sits on top End Truck

C. CWEP-1479967 Crane Wires

Top Running Single Girder Crane
11.45 Amps; 460v-3ph-60Hz System
2 End-Truck Motors ; 1.8 Amps ea.
TMS3-1060; Modified Design
61 ft. – 0 in. Span
Plug and Play with Liquid Tight Conduit
NEMA 4 Rating

D. P1-1479974 Bridge Control Panel

P1V4340C25R11H1
Crane Control Panel: Variable Frequency Drive
460V-3ph-60Hz
Fused for 16.4 Amp total hoist/trolley motor
Plug and Play
Mainline Disconnect Fuse Size: 25 Amps
Includes TeleRadio Control Kit with 2 transmitters

E. Included in Bridge Control Box Radio Remote Control

TeleRadio Panther Robust Mini Kit
Mounted to Bridge Control Panel
3 Axis of Motion
For: Single/Dual Speed Bridge Control Panel
110VAC Control Voltage
With Plug
1 Receiver(s); 2 Transmitter(s)

F. DWRPAP-1479976 Flat Cable System

FC Power Only; Plug And Play System
Top Running; Single Girder System



W30x148 Bridge Beam with MC18 Channel Cap

61 ft. 0 in. Span

For: (1) ER2M 8 to 10 Ton Trolley/Hoist

Amperage: 9.65 A/ea.

Voltage: 460V-3ph-60Hz

G. ER2M-1479970 Electric Chain Hoist

ER2M080SD-LD

8 Ton Capacity; Relabeled to 7.5 US Ton

20 ft Lift

460V-3ph-60Hz Power Supply

Lifting Speed: 7.5/2.5 fpm (adjustable with VFD)

Trolley Speed: 4-40 fpm; Non-Std; Inf. Var., 2-Step

Perpendicular Lug Mount

Standard Bottom Hook

10.5 inch Flange – 8.67-12.00 inch Flange Range

Canvas Chain Container

Less PB Complete

Less Power Supply Cable; Flat Cable Connector; Opt.4: Power and Ctrl; Hardwired

Not UL Listed

Flat Cable Connector; Option 4; Power and Control

Total Hoist/Trolley Amps: 11

Total Hoist/Trolley Net Weight: 689 (lb)

2.3 CRANE KIT 2.5 US TON CAPACITY – 1479978

Top Running, Single Girder, Series 3, End Trucks

CMAA Service Class C

2.5 US Ton Capacity

Power Supply: 460V-3ph-60Hz

Control Voltage: 110VAC

61' – 0" Span

Bridge: W27x114; Beam supplied under separate contract by General Contractor

For 40# (1.875") ASCE Rail

Bridge Traversing Speed: 8-80 fpm

Trolley Traversing Speed: 80/13 fpm

Lifting Speed: 22/3.5 fpm

End Truck: TMS-3-0360

Trolley/Hoist: ER2M025SD-SD: 20' Lift

Control Panel: P1V4340A17R11H1 (Plug/Play, VFD Driven)



Festooning: Flat Cable Power

Control: TeleRadio from BCP, 2 Trans.

Include Runway Collector Bracket

A. TM3 – 1479993 Top Running Motorized End Trucks

TMS3-0360; Custom Frames

3 Ton Capacity; Relabeled to 2.5 US Ton

Span: 61 ft 0 inch

460V-3ph-60Hz Power Supply

Traversing Speed: 80 fpm

40# (1.875") Rail Size

Motor Plug Kit

Engineering Required: BF103417

#SP_Dim#Span+

Wheel Diameter: 6.10 (in.)

Motor Amps: 0.9 ea.

Motor Horsepower Output: 0.33ea.

End Truck Net Weight: 267.2 (lb ea.)

B. BAK – 1479988 Bridge Beam Kit

Top Running: Single Girder; Series 3, End Trucks

Bridge Beam: w27x114

Span: 61 ft 0 in.

3 Ton Capacity; Relabeled to 2.5 US Ton

For TM3-0360 End Trucks

For (N)ER2M Trolley/Hoist

For Flat Cable Power

Less Paint/Primer

No notch; beam sits on top End Truck

C. CWEP-1479982 Crane Wires

Top Running Single Girder Crane

10.05 Amps; 460v-3ph-60Hz System

2 End-Truck Motors ; 0.9 Amps ea.

TMS3-0360; Modified Design

61 ft. – 0 in. Span

Plug and Play with LiquidTight Conduit

NEMA 4 Rating



D. P1-1480000 Bridge Control Panel

P1V434A17R11H1

Crane Control Panel: Variable Frequency Drive

460V-3ph-60Hz

Fused for 12.2 Amp total hoist/trolley motors

Plug and Play

Mainline Disconnect Fuse Size: 17.5 Amps

Includes TeleRadio Control Kit with 2 transmitters

E. Included in Bridge Control Box Radio Remote Control

TeleRadio Panther Robust Mini Kit

Mounted to Bridge Control Panel

3 Axis of Motion

Single/Dual Speed Bridge Control Panel

110VAC Control Voltage

With Plug

1 Receiver(s); 2 Transmitter(s)

F. DWRPAP-1479996 Flat Cable System

FC Power Only; Plug And Play System

Top Running; Single Girder System

W27x114 Bridge Beam

61 ft. 0 in. Span

(1) ER2M 1/8 to 5 Ton Trolley/Hoist

Amperage: 9.15 A/ea.

Voltage: 460V-3ph-60Hz

G. ER2M-1479983 Electric Chain Hoist

ER2M025SD-SD

2 ½ Ton Capacity

20 ft Lift

460V-3ph-60Hz Power Supply

Lifting Speed: 22/3.5 fpm (adjustable with VFD)

Suspender T

Standard Bottom Hook

10.1 inch Flange – 7.03-12.00 inch Flange Range

BK2F2 Canvas Chain Container

Less PB Complete

Less Power Supply Cable; Flat Cable Connector; Opt.4: Power and Ctrl; Hardwired

Not UL Listed

Flat Cable Connector; Option 4; Power and Control



Total Hoist/Trolley Amps: 10

Total Hoist/Trolley Net Weight: 368 (lb)

2.3 CRANE 1 TON US CAPACITY

A. Performance:

1. Crane shall provide coverage of rectangular area of size indicated on Drawings and consist of:

- a. Support structure requiring only primary structural support without longitudinal or lateral bracing.
- b. Two rigid, parallel runways. Cranes with more than two runways or with articulating runways are not acceptable.
- c. Rigid, single girder bridge moving perpendicular to runways or monorail. Double girder bridges and ones with articulating or threaded connections are not acceptable.

2. Modular, pre-engineered design: Crane system shall be capable of expansion, disassembly, and relocation, and accepting additional or multiple mixed capacity bridges.

a. Crane shall be designed, fabricated, and installed in accordance with ANSI B30.11, and OSHA 1910.179.

3. Productivity ratio: Crane shall be designed to manually move load with maximum force of 1/100 load weight.

4. Runway and bridge track: Enclosed type limiting dust and dirt collection on rolling surfaces with maximum deflection of 1/450 span based on capacity plus 15 percent for lifting device weight.

5. Crane operating temperature: 5 to 200 degrees F.

6. Crane shall be designed to withstand:

a. Structural design shall include full rated load capacity plus 15 percent for hoist and trolley weight and 25 percent impact factor for speed of lifting device and weight of tooling.

b. Crane and hoist dead load.

f. Live load capacity equal to net rated hook load: 2000 pounds (908 kg).

B. Beam Mounted Bridge Crane: Beam mounted, work station, steel construction, bridge crane with overhead hanger assemblies, two runways, bridge moving perpendicular to runways, and equipped with enclosed track, end trucks, hoist trolley, festooning system, bumpers, and other accessories.

1. Acceptable Manufacturer and Model:

a. Harrington: Series 3 Top Running Single Girder Notched Crane.

2. Construction: Fabricate from ASTM A36 steel sections with finished ends and surfaces.

3. Hanger assemblies: Provide number and type of hanger assemblies required for suspending runways from steel beam support structure.

4. Sway bracing: Provide runways with sway brace fittings for attachment of diagonal bracing to top chord of trussed runway.

5. Runways: Vierendeel truss fabricated from square steel tubes and enclosed steel track.

a. Track: Manufacturer's standard.



- b. Splice joint: Provide truss splice plates, channel-shaped track splice joint, bolts, lock washers, and nuts for joining runway sections.
- 6. Runways: Enclosed, cold formed, steel box track which permits end trucks and festoon carriers to ride along runway.
- 7. Festoon stack section: Provide enclosed track extension to provide for stacking festoon carriers at end of runway.
- 8. Bridge: Single girder, Vierendeel truss fabricated from rectangular steel tubes and enclosed steel box track. Patented design for 1000, 2000, and 4000 lb. capacities.
 - a. Track serves as bottom cord of bridge and permits hoist trolley and festoon carriers to ride on lower inside flanges.
 - b. Fabricate track lower running flanges with 2 degrees taper to center trolley within track. Flat, non-centering tracks are not acceptable.
- 9. End trucks: Manufacturer's standard end truck designed to ride inside enclosed runway track and connect to and suspend bridge.
 - a. Construction: Stamped steel fabrication with both vertical and horizontal wheels to prevent binding in runway. Designs with welds in tension are not acceptable.
 - b. Wheels: Removable, self-centering wheels with sealed lifetime lubricated bearings. Vertical wheels shall be tapered 2 degrees to match track profile. Non-removable or non-tapered wheels are not acceptable.
 - c. Drop lugs: Provide on both sides of truck to limit truck drop in the event of wheel, axle, or load bar failure.
 - d. Connection to the bridge: Provide a rigid connection between bridge and end truck. Articulating connections with threaded hardware are not acceptable.
 - e. Designed for easy attachment of peripherals.
- 10. Hoist trolley: Rigid-body trolley designed to ride inside enclosed track of bridge and carry hoist and load. Articulating trolleys are not acceptable.
 - a. Construction: Two-piece stamped steel body with two wheels each side and tapered clevis positioning hoist hook at center of trolley so load weight is evenly distributed to all four trolley wheels. Provide removable clevis pin of type and size determined by manufacturer for specified capacity. Trolleys with nonremovable clevis pins are not acceptable. Holes provided in body for mechanical connections.
 - b. Wheels: Removable, self-centering wheels with sealed lifetime lubricated bearings. Vertical wheels shall be tapered 2 degrees to match track profile. Non-removable or non-tapered wheels are not acceptable.
 - c. Drop lugs: Provide on both sides of trolley to limit trolley drop in the event of wheel, axle, or load bar failure.
 - d. Designed for easy attachment of peripherals.
- 11. End stops: Molded composite, resilient bumper installed in runway and bridge tracks to prevent end trucks, hoist trolley, and festoon carriers from rolling out of track. Bolt stops without energy absorbing bumper are not acceptable.

2.3 SHOP FINISHING

- A. Steel: Steam wash steel crane components with iron phosphate solution and apply baked enamel finish.
- C. Provide spray can of matching color, air-drying paint for field touch-up.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Do not begin installation until support structures have been properly prepared.
- B. Design and construction of reinforced concrete footings and slabs as detailed on Drawings and specified in other sections. Verify that accurate crane applied forces and anchor bolt patterns are provided for foundation design.

3.2 INSTALLATION



A. Install units and accessories in accordance with manufacturer's instructions and approved shop drawings. Do not modify crane components in any manner without advance written approval by crane manufacturer.

B. Clearances for Moving Crane Components:

1. 3 inches minimum vertical clearance from any overhead obstruction.
2. 2 inches minimum horizontal clearance from any lateral obstruction.
3. Prior to applying proper torque to the bolts, ensure runways are:
 - a. Level to within plus or minus 1/8 inch in 20 feet.
 - b. Parallel with opposite runway to within plus or minus.

3.3 FIELD QUALITY CONTROL

A. Perform field quality control testing as recommended by manufacturer. Move bridge and hoist trolley through entire travel to ensure crane is clear of obstructions and moves freely and smoothly. Inspect installed crane. Verify all bolts are tight and lock washers fully compressed.

B. Field test crane and accessories for operating functions. Ensure crane movement is smooth and proper. Adjust as required and correct deficiencies.

C. Clean surfaces. If necessary, touch-up paint damage, scratches, and blemishes with manufacturer provided matching paint. Protect crane from other construction operations.

3.4 DEMONSTRATING AND TRAINING

A. Provide demonstration and training session for Owner's representative covering operation and maintenance.

3.5 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION

41 34 23 CROSSDRAFT PRESSURIZED PAINT BOOTH**GFS Equipment Type**

GFS Model Number:	LECDW-161434-PSB-BD-OVS-CUF
Internal Clear Working Dimensions:	16' W x 14' H x 34' L
Overall Dimensions (Approximate):	17' 4" W x 16' 6" H x 34' 4" L

Equipment Base Design

Equipment Panel Construction Type:	Single skin panels
Equipment Panel Construction Finish:	White pre-paint
Equipment Panel Construction Material:	18 GA
Support Structure Construction Type:	I-Beam Structural Steel (Review Not Required)
Airflow Design:	Crossdraft
Target Average Air Velocity (FPM):	100
Light Quantity:	21
Light Type:	LED T8 4-tube Lights

Exhaust Design

Total Design Exhaust CFM:	22,400
Exhaust Method Design:	Internal bridge chamber
Exhaust Fan Framework:	(1) 42" Tube axial fan with 7.5 HP motor at 3/4" SP
Exhaust Filter Selection:	20x20x2 wave filters

Exhaust Ductwork Inclusions*(Designed for Proper Termination Point Based on Selection)*

Exhaust Duct Building Penetration:	Roof
Exhaust Duct Construction Design:	1 lot of spiral ductwork
Includes: (1) Access Door and (1) Roof Ventilator per Exhaust Fan with Lot of Ductwork and Connection Rings	
Exhaust Duct Roof Flange Quantity Included:	1
<i>Note: Duct Supports not Provided in this Quotation (Roof Flanges & Additional Items not Included Unless Listed)</i>	

Intake Design

Total Design Supply CFM:	22,400
Intake Method Design:	Internal bridge chamber
Intake Filter Selection:	20x20x1 tacky filters
Equipment Pressurization Provided Through:	AMU
Air Make-up Unit Configuration:	Vertical outdoor side discharge
Air make-up Unit MBTU/hr & Cure Temperature:	2.4 MBTU/hr (millions of BTUs)/HR (millions of BTUs) forced dry cure discharging at 160 degrees F
Air Make-up Unit Stand:	Stand Included
Air Make-up Unit Approximate Weight:	3,300 lbs (Approximate)
Air Make-up Unit Performance Operation:	Variable Air Volume (VAV)
Air Make-up Unit Variable Air Volume Design:	Paint Curing (VFD Supplied with AMU)
Air Make-up Unit Mechanical Information:	22400 CFM with 20 HP AMU motor at .5" SP
Air make-up Unit Heating System:	Natural Gas
Air make-up Unit Approximate Dimensions:	AMU Approximately 60" W x 110" H x 88" L Overall

Air Replacement Ductwork Inclusions*(Designed for Proper Termination Point Based on Selection)*

AMU Duct Construction Design:	1 lot of rectangular AMU ductwork
AMU Duct Building Penetration:	Wall (Building Flange Included)
Discharge Duct Includes: (1 lot) Straight Duct (1) Transition(s)	
<i>Note: Duct Supports not Provided in this Quotation (Roof Flanges & Additional Items not Included Unless Listed)</i>	

Equipment Access Design

Solid Back or Pass Through Equipment Flow:	Solid Back
Front Opening/Product Door Access:	Solid bi-fold door w/ (4) 18" x 48" windows
Front Opening/Product Door Size:	12' W x 12' H
Door Limit Switch(es):	Included
Personnel Door Access Arrangement:	(1) 3' W x 7' H with 18" x 24" Observation Window

Electrical Controls Design

Equipment Electrical Controls Operation:	Velocity
Equipment Pressure Control System:	Auto-balance
Economy Mode Activation Control:	Included (Gun Hanger Switch Activation Type)
Safety Solenoid Valve Inclusion:	1/2" IND Style
Filter Monitoring Framework:	Manometer

Additional Inclusions

Include Equipment ETL Listing:	ETL listed
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ITEM B: GFS INDUSTRIAL PAINT MIXING ROOM**GFS Equipment Type**

GFS Model Number:	IMRW-120608-4
Internal Clear Working Dimensions:	6' W x 8' H x 12' L
Overall Dimensions (Approximate):	6' 4" W x 10' 8" H x 13' 4" L

Equipment Base Design

Equipment Panel Construction Type:	Single skin panels
Equipment Panel Construction Finish:	White pre-paint
Equipment Panel Construction Material:	18 GA
Support Structure Construction Type:	Not Applicable (Review Not Required)
Light Quantity:	3
Light Type:	LED T8 4-tube Lights

Exhaust Design

Total Design Exhaust CFM:	949
Exhaust Fan Framework:	(1) 10" Blower fan with 1/2 HP motor at 1/2" SP

Exhaust Ductwork Inclusions*(Designed for Proper Termination Point Based on Selection)*

Exhaust Duct Building Penetration:	Roof
Exhaust Duct Construction Design:	1 lot of spiral ductwork
Includes: (1) Access Door and (1) Roof Ventilator per Exhaust Fan with Lot of Ductwork and Connection Rings	

<i>Note: Duct Supports not Provided in this Quotation (Roof Flanges & Additional Items not Included Unless Listed)</i>
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Equipment Access Design

Personnel Door Access Arrangement:	(1) 3' W x 7' H with 18" x 24" Observation Window
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Electrical Controls Design

Equipment Electrical Controls Operation:	CP-PMR
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Additional Inclusions

Include Equipment ETL Listing:	ETL listed
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EQUIPMENT FEATURES**Large Equipment Paint Booth**

Large Equipment Paint Booths are designed for long-lasting performance. Constructed of high-quality materials for unrivaled structural integrity, they deliver a superior quality finish in the most efficient manner. The Large Equipment Booth line offers extensive pre-engineered models and options that are ETL and ETL-C listed and meet or exceed industry safety standards.

Pressurized Crossdraft Paint Booth with Intake Chamber

The simplest, most cost-effective configuration, clean air is introduced into the booth through an intake plenum at the front of the enclosure and is exhausted through a plenum at the rear of the booth. Air is pulled horizontally from the front of the booth through the working depth. The intake and exhaust filter layout is designed for even air velocity throughout the working area of the booth (Consistent air velocity is an important factor in achieving a quality paint job). The intake plenum is designed with high efficiency intake filters to remove dust and dirt before it enters the paint booth. By pressurizing the booth, you will achieve a cleaner paint job because the air entering the booth will be ducted directly from the intake air source (Heated AMU or intake fan) into the booth intake plenum, bypassing potentially contaminated shop air. The booth is designed with the maximized filter quantity to assure efficient particulate filtration from the intake and exhaust filters.

Tube Axial Fan

Tube axial fans feature continuously welded housing for an airtight seal. Non-sparking cast aluminum propellers provide consistent air velocity at higher static pressures. Universal motor plates allow for adjustable belt tensioning. The belt guard provides protection from the rotating pulley, per OSHA requirements. Motors feature a heavy-gauge steel frame, double-sealed ball bearings that are mechanically locked on the shaft end, and a bolt on the motor base for easy removal.

T8 LED Light Fixtures

Glass-free, ETL listed T8 LED lamps emit virtually no ultraviolet or infrared light, and they don't contain mercury, allowing for non-hazardous waste disposal. They turn on instantly at full luminosity, with no flicker or buzz. T8 LED lamps offer up to 40 percent energy savings when compared to traditional fluorescent 32-watt T8 systems. They also last longer than traditional fluorescent bulbs, providing up to a 50,000-hour life span.

Solid Doors

Solid doors are used with pressurized input plenums to enclose paint booths. They feature 2-inch, single-skin, 18-gauge sheet steel for sturdiness and durability. Heavy-duty door hinges and P-seal rubber gaskets offer excellent booth containment.

Bi-Fold Doors

Two-slab bi-fold doors feature 2-inch, single-skin, 18-gauge sheet steel for sturdiness and durability. Heavy-duty door hinges and P-seal rubber gaskets offer excellent booth containment.

Personnel Access Doors

3-by-7-foot personnel access doors are constructed of formed sheet steel. The door can be located on either side of the booth, and it can be installed for a right- or left-hand swing. Observation windows are also available to allow further visibility.

GFS Wave® Paint Booth Filters

The most versatile single-stage filter media made for paint booths, GFS Wave accommodates all coatings and a variety of spray applications, from clear coats to high solids. GFS Wave has a 99.94 percent removal efficiency, with a holding capacity of 4.4 pounds. The composition material complies with NFPA 33, OSHA and UL 900.

Velocity® Control Panel

- UL 508A listed, programmable logic controller (PLC)-based control panel used to operate booth exhaust, safety interlocks and lights in pressurized booths
- Type 12 rated enclosure provides:
 - Protection from electrical shock for the control panel and working area
 - Protection against dust, dirt, oil and non-corrosive liquids
- Allen-Bradley operating platform
- 4-inch color touchscreen HMI, which can be located on a remote operator interface terminal for easy access and monitoring
- Standard control panel
- Included components:
 - Main door mounted disconnect handle provides additional protective features for the control panel, wiring system and lockout/tagout
 - Variable frequency drives (VFDs) with branch circuit and overload protection, per NEC Article 430
 - 120vac transformer with primary/secondary fusing for lighting and control
 - Lighting control with branch circuit protection and contactor
 - Control power supply with 24vdc
 - Airflow switches and interlocks
 - Terminal strip for field wiring
 - System operating lights
 - 30 mm pushbuttons
- Standard features:
 - Simple setup and operating screens with built-in help screens
 - Safe spray and cure mode operation with interlocks, as required by NFPA 33 and NFPA 86
 - Enhanced temperature and pressure controls
 - Alarm tracking with date and time stamps for improved troubleshooting
- Modes of Operation:
 - Spray: Initiated via pushbutton on the HMI; activates the spray gun
 - Flash: Initiated via pushbutton on the HMI or via optional puff switch located inside the booth; raises booth temperature so the paint releases its solvents more rapidly
 - Cure Initiated via pushbutton on the HMI; raises booth temperature to cure the paint
 - Pure: Initiated automatically; removes contaminated air from the booth before entering flash or cure mode
 - Cool Down: Initiated automatically; decreases booth temperature to the cool down setpoint
 - Standby: Initiated automatically; booth controls are powered but not operational
- SCCR Rating 5ka standard at operating voltage (Please Note: higher ratings available for quotation if required).

Auto-Balance System

The auto-balance system keeps a paint booth balanced when it is in operation. The system monitors interior booth pressure and adjusts the exhaust fan's RPMs to meet the need of the volume of exhaust air based on the amount of intake air. Booths with an auto-balance system stay in balance as filters load with paint overspray. This increases useful filter life, provides consistent airflow throughout the booth and controls booth pressure.

Economy Mode

Economy mode reduces the exhaust airflow by 50 percent to conserve energy when the spray gun is not in use. Also included is an auto-balance system with a variable frequency drive (VFD) to automatically adjust the airflow of the exhaust fan for proper booth balance. A compressed airflow or gun hanger switch initiates economy mode, switching from paint mode to economy mode when airflow is not detected in the compressed air line or when the spray gun is hung up and not in use.

Forced Dry Paint Curing System

The Air Make-Up Unit (AMU) in a forced dry paint curing system is designed with a two-speed motor and damper package to discharge air at 160 degrees Fahrenheit for the accelerated curing cycle. The design reduces airflow by 50 percent during cure mode. The system always uses outside air during cure mode to ensure clean air for the cure cycle. It also includes an auto-balance system with a variable frequency drive (VFD) to automatically adjust the airflow of the exhaust fan to ensure proper booth balance, not only during cure mode but during spray mode.

White Pre-Coated, Single-Skin Panels

Single-skin, precision-punched panels are made from heavy-duty, G90 sheet steel. Nut-and-bolt construction provides unmatched strength and rigidity, while the exterior flanges create a smooth surface and easier cleaning on the booth's interior walls. Each steel panel is primed and coated on both sides with a baked-on polyester topcoat for a rust-resistant cabin in even the harshest of environments.

Manometer

The manometer measures differential pressure, indicating when paint arrestors or air intake filters are sufficiently loaded and need replacement. Manometers are included with all GFS paint booths and exhaust chambers.

Solenoid Valve

To prevent the working area of the equipment from reaching combustible levels, the three-way air safety valve interlocks the compressed air supplying the application equipment with the ventilation system and prevents spraying operations when exhaust fans are off. This safety feature is in accordance with NFPA 33 requirements. Additionally, any listed light fixtures included with this equipment provide a light lens switch that will shut down operation when the lens is not in the closed position. This is required to help prevent the possibility of the electrical componentry of the light from being exposed to a combustible level of overspray. Compressed air between the valve and the spray equipment is vented out when the valve is closed to assist in preventing damage to the equipment when the safety valve is triggered.

Door Limit Switches

Limit switches shut down painting when equipment doors are opened (time delay is standard on personnel access doors). Time delay relay allows access to the booth without stopping operations. The standard limit switch is Class I, Division 2 listed. Door limit switches are required when an Auto-Balance System is included in the design.

Assembly Hardware

Necessary assembly hardware provided, including all required bolts, nuts and caulking for a complete mechanical assembly. Anchor bolts are not provided, unless specified. For easy assembly, exploded-view installation drawings are also included.

EQUIPMENT FEATURES

Non-Pressurized Paint Mix Room

Paint Mix Rooms provide a controlled area for safely mixing paint. Wall panels are fabricated from 18-gauge, unpainted, galvanized sheet steel and are pre-punched and companion-flanged for easy nut-and-bolt, on-site assembly. Paint Mix Rooms also contain a convenient 4-inch-deep, built-in containment base for potential spills. Clean air is introduced into the room through intake filters at the front of the enclosure and exhausted through a plenum at the rear of the room. Air is pulled horizontally from the front of the room through the entire working chamber.

Clean air is introduced into the room through the intake filters located at the front of the enclosure. The air is then exhausted through a plenum at the rear of the room. Air is pulled horizontally from the front of the room through the entire working depth.

Code Compliance

Note: Global Finishing Solutions Mix Rooms are designed to comply with safety and fire codes set forth by the Uniform Fire Code Article 79. The Paint Mix Room must contain an automatic fire extinguishing system.

As per the applicable codes and standards, the proposed equipment is not required to be listed as an assembly. However, the assembly will include components that, when required, are listed and/or labeled for their intended service. Third-party approvals required by local AHJ to facilitate acceptance of the equipment are the responsibility of the customer. GFS may be able to provide contact information for qualified resources to perform the third-party approvals.

The amount of flammable or combustible liquid stored in Industrial Paint Mix Rooms must be within the following limits, per NFPA 33:

- Paint Mix Rooms within 6 feet of the spray area may contain up to 2 gallons per square foot of enclosure floor area, but the combined quantities of liquids in the spray area and mix room shall not exceed 120 gallons.
- Up to 60 gallons may be stored in the spray area.
- Paint Mix Rooms farther than 6 feet from the spray area may contain up to 2 gallons per square foot of enclosure floor area but shall not exceed 300 gallons.
- If more than one mixing room is installed, the total quantity of liquids shall not exceed the amounts outlined above.
- Additional limits may be applicable based upon the amount of flammable or combustible liquids present elsewhere in the building.

T8 LED Light Fixtures

Glass-free, ETL listed T8 LED lamps emit virtually no ultraviolet or infrared light, and they don't contain mercury, allowing for non-hazardous waste disposal. They turn on instantly at full luminosity, with no flicker or buzz. T8 LED lamps offer up to 40 percent energy savings when compared to traditional fluorescent 32-watt T8 systems. They also last longer than traditional fluorescent bulbs, providing up to a 50,000-hour life span.

Personnel Access Doors

3-by-7-foot personnel access doors are constructed of formed sheet steel. The door can be located on either side of the booth, and it can be installed for a right- or left-hand swing. Observation windows are also available to allow further visibility.

Paint Mixing Room Controls

The UL listed, independent, electrical control panel features a single-point power connection for quick and easy wiring to the line side of the main disconnecting device, with a NEMA 1 rated enclosure. Components include a non-fused disconnect, magnetic motor starter, motor fuse protection, lighting contactor, lighting fuse protection, terminal strips for field wiring and system operating lights.

White Pre-Coated, Single-Skin Panels

Single-skin, precision-punched panels are made from heavy-duty, G90 sheet steel. Nut-and-bolt construction provides unmatched strength and rigidity, while the exterior flanges create a smooth surface and easier cleaning on the booth's interior walls. Each steel panel is primed and coated on both sides with a baked-on polyester topcoat for a rust-resistant cabin in even the harshest of environments.

Assembly Hardware

Necessary assembly hardware provided, including all required bolts, nuts and caulking for a complete mechanical assembly. Anchor bolts are not provided, unless specified. For easy assembly, exploded-view installation drawings are also included.

Date: March 11, 2026**Project:** Aberdeen Public Works Facility**To:** HKG Architects**Project #:** BS23045**From:** Nick Carr, Nate Reynhout**Project Location:** Aberdeen, SD**Addendum Number:** 2

To: All prime contract bidders and all others to whom Drawings and Specifications have been issued by the Engineer. Acknowledge receipt of the Addendum by inserting its number and date on the Bid Form. Failure to do so may subject bidder to disqualification. This Addendum forms a part of the Contract Documents. It modifies them as follows:

Specifications

Section 260533.13 Conduit for Electrical Systems

1. See attached specification for the following revisions:
 - a. Revised part "2.1(J) Exposed, Interior, Subject to Physical Damage" to clarify which areas of the building are to be considered as subject to physical damage.
 - b. Removed part "2.1(K) Exposed, Interior, Subject to Severe Physical Damage" in its entirety.

Drawings

Sheet M606 – Mechanical Control Details

1. See attached sheet for the following revisions:
 - a. AHU-1 controls detail updated.
 - b. AHU-2 controls detail updated.
 - c. Intake Hood Controls Detail (IH1,2) updated.

Sheet M609 – Mechanical Schedules

1. See attached sheet for the following revisions:
 - a. Air Handling Unit Schedule completed.
 - b. Condensing Unit Schedule completed.
 - c. Fan Coil Unit Schedule completed.

Sheet M610 – Mechanical Schedules

1. See attached sheet for the following revisions:
 - a. Cabinet Unit Heater Schedule updated missing information.

Sheet M611 – Mechanical Schedules

1. See attached sheet for the following revisions:
 - a. Hot Water Pressure Washer Schedule updated missing information.
 - b. Radiant Panel Schedule updated incorrect information.
 - c. Infloor Heating Schedule completed.

Sheet E100 – Electrical Site Plan

1. See attached sheet for the following revisions:
 - a. Changed the reference for the bollard detail from sheet E500 to sheet A20. (The detail on sheet E500 has been removed.)

Sheet E100B – First Floor Power Plan – Area B

1. See attached sheet for the following revisions:
 - a. Adjusted the circuiting for two of the disconnects for voltage testing in PUMP 203.

Sheet E100D – First Floor Power Plan – Area D

1. See attached sheet for the following revisions:
 - a. Added a fused disconnect and circuit for crane in WELDING 212.

Sheet E102 – Salt Building Electrical Plan

1. See attached sheet for the following revisions:
 - a. Removed disconnect, controls, and circuit for overhead door.

Sheet E500 – Electrical Details

1. See attached sheet for the following revisions:
 - a. Removed bollard detail, refer now to bollard detail on sheet A20.
 - b. One-line diagram: added wire size keynote for load bank, adjusted wire size for LDP. Adjusted keynotes E504, E505, and E507.

Sheet E501 – Electrical Schedules

1. See attached sheet for the following revisions:
 - a. Panel schedule for MSWB: Changed “Main Distribution Panel” to “Main Switchboard” for clarity. Added additional breaker. Added text for code required selective coordination.
 - b. Panel schedule for H2: removed reference to sub-feed breaker.

Sheet E502 – Electrical Schedules

1. See attached sheet for the following revisions:
 - a. Panel schedule for LDP: changed Main Capacity of the panel. Added additional breaker.
 - b. Panel schedule for L2: removed reference to sub-feed breaker.

Sheet E504 – Electrical Schedules

1. See attached sheet for the following revisions:
 - a. Panel schedule for HE1: Added text for code required selective coordination.
 - b. Panel schedule for LE1: Added text for code required selective coordination.
 - c. Panel schedule for LO1: Breaker previously intended to serve overhead door at salt building is now a spare.

END OF DOCUMENT – NC / NR

SECTION 260533.13 - CONDUIT FOR ELECTRICAL SYSTEMS

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Galvanized steel rigid metal conduit (RMC).
- B. PVC-coated galvanized steel rigid metal conduit (RMC).
- C. Flexible metal conduit (FMC).
- D. Liquidtight flexible metal conduit (LFMC).
- E. Galvanized steel electrical metallic tubing (EMT).
- F. Aluminum electrical metallic tubing (EMT).
- G. Rigid polyvinyl chloride (PVC) conduit.
- H. Liquidtight flexible nonmetallic conduit (LFNC).

1.2 RELATED REQUIREMENTS

- A. Section 260526 - Grounding and Bonding for Electrical Systems.
- B. Section 260529 - Hangers and Supports for Electrical Systems.
- C. Section 260553 - Identification for Electrical Systems: Identification products and requirements.

1.3 REFERENCE STANDARDS

- A. ANSI C80.1 - American National Standard for Electrical Rigid Steel Conduit (ERSC); 2025.
- B. ANSI C80.3 - American National Standard for Electrical Metallic Tubing -- Steel (EMT-S); 2020.
- C. NECA 1 - Standard for Good Workmanship in Electrical Construction; 2023.
- D. NECA 101 - Standard for Installing Steel Conduits (Rigid, IMC, EMT); 2020.
- E. NECA 111 - Standard for Installing Nonmetallic Raceways (RNC, ENT, LFNC); 2025.
- F. NEMA FB 1 - Fittings, Cast Metal Boxes, and Conduit Bodies for Conduit, Electrical Metallic Tubing, and Cable; 2014.
- G. NEMA RN 1 - Polyvinyl-Chloride (PVC) Externally Coated Galvanized Rigid Steel Metal Conduit and Intermediate Metal Conduit; 2018.
- H. NEMA TC 2 - Electrical Polyvinyl Chloride (PVC) Conduit; 2020.
- I. NEMA TC 3 - Polyvinyl Chloride (PVC) Fittings for Use with Rigid PVC Conduit and Tubing; 2021.
- J. NFPA 70 - National Electrical Code; Most Recent Edition Adopted by Authority Having Jurisdiction, Including All Applicable Amendments and Supplements.

- K. UL 1 - Flexible Metal Conduit; Current Edition, Including All Revisions.
- L. UL 6 - Electrical Rigid Metal Conduit-Steel; Current Edition, Including All Revisions.
- M. UL 360 - Liquid-Tight Flexible Metal Conduit; Current Edition, Including All Revisions.
- N. UL 514A - Metallic Outlet Boxes; Current Edition, Including All Revisions.
- O. UL 514B - Conduit, Tubing, and Cable Fittings; Current Edition, Including All Revisions.
- P. UL 651 - Schedule 40, 80, Type EB and A Rigid PVC Conduit and Fittings; Current Edition, Including All Revisions.
- Q. UL 797 - Electrical Metallic Tubing-Steel; Current Edition, Including All Revisions.
- R. UL 797A - Electrical Metallic Tubing - Aluminum and Stainless Steel; Current Edition, Including All Revisions.
- S. UL 1660 - Liquid-Tight Flexible Nonmetallic Conduit; Current Edition, Including All Revisions.
- T. UL 2419 - Outline of Investigation for Electrically Conductive Corrosion Resistant Compounds; Current Edition, Including All Revisions.

1.4 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Coordinate minimum sizes of conduits with actual type and quantity of conductors to be installed, including adjustments for conductor sizes increased for voltage drop.
2. Coordinate arrangement of conduits with structural members, ductwork, piping, equipment, and other potential conflicts.
3. Verify exact conduit termination locations required for boxes, enclosures, and equipment.
4. Coordinate work to provide roof penetrations that preserve integrity of roofing system and do not void roof warranty.
5. Notify Architect of conflicts with or deviations from Contract Documents. Obtain direction before proceeding with work.

B. Sequencing:

1. Do not begin installation of conductors and cables until installation of conduit between termination points is complete.

1.5 SUBMITTALS

- A. There are no shop drawing submittals required for this section.
- B. Project Record Documents: Accurately record actual routing of conduits larger than 2 inches (51 mm).

1.6 QUALITY ASSURANCE

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Receive, inspect, handle, and store conduit and fittings in accordance with manufacturer's instructions.
- B. Protect PVC conduit from sunlight.
- C. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

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 thinwall non-metallic conduit.
 - 2. Exterior, Direct-Buried: Use galvanized steel rigid metal conduit, PVC-coated galvanized steel rigid metal conduit, or rigid PVC conduit.
 - 3. Where rigid polyvinyl chloride (PVC) conduit is provided, transition to galvanized steel rigid metal conduit (RMC) long-sweep elbows wrapped in PVC tape where emerging from underground.
 - 4. Where galvanized steel rigid metal conduit (RMC) 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 acceptable to authorities having jurisdiction to provide supplementary corrosion protection or use PVC-coated galvanized steel rigid metal conduit.
 - 5. 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 acceptable to authorities having jurisdiction to provide supplementary corrosion protection for minimum of 4 inches on either side of where conduit emerges or use PVC-coated galvanized steel rigid metal conduit.
 - 6. Minimum Size: 3/4 inch.
- D. Embedded Within Concrete:
 - 1. Within Slab on Grade: Not permitted.
- E. Concealed Within Masonry Walls: Use electrical metallic tubing (EMT).
- F. Concealed Within Hollow Stud Walls: Use electrical metallic tubing (EMT).

- G. Concealed Above Accessible Ceilings: Use electrical metallic tubing (EMT).
- H. Interior, Damp or Wet Locations: Use galvanized steel rigid metal conduit.
 - 1. Liquid tight conduit with liquid tight fittings shall be used in pump rooms, kitchens, wells, sump pits, transformer connections, and other areas of moisture content
- I. Exposed, Interior, Not Subject to Physical Damage: Use electrical metallic tubing (EMT).
- J. Exposed, Interior, Subject to Physical Damage: Use galvanized steel rigid metal conduit (RMC).
 - 1. Locations subject to physical damage include:
 - a. Where exposed below 8 feet in the following areas/spaces:.
 - 1) Area A: STREETS 200, TRAFFIC 201, SIGNS 202.
 - 2) Area B: PUMP 203, PIPE & METER 204, PARTS 205, GARAGE 207.
 - 3) Area C: All spaces.
 - 4) Area D: All spaces.
 - 5) Area E: All spaces.
 - 6) Area F: All spaces.
 - 7) Mezzanine: All spaces.
- K. Exposed, Exterior: Use galvanized steel rigid metal conduit or PVC-coated galvanized steel rigid metal conduit.
- L. Concealed, Exterior, Not Embedded in Concrete or in Contact With Earth: Use galvanized steel rigid metal conduit.
- M. Corrosive Locations Above Ground: Use stainless steel rigid metal conduit (RMC).
- N. Hazardous/Classified Locations: Use galvanized steel rigid metal conduit (RMC).
- O. Flexible Connections to Luminaires Above Accessible Ceilings: Use flexible metal conduit (FMC).
 - 1. Maximum Length: 6 feet.
- P. 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 unless otherwise indicated.
 - 4. Vibrating equipment includes, but is not limited to:
 - a. Transformers.

b. Motors.

Q. Fished in Existing Walls, Where Necessary: Use flexible metal conduit (FMC).

2.2 CONDUIT - GENERAL REQUIREMENTS

A. Comply with NFPA 70.

B. Provide conduit, fittings, supports, and accessories required for complete raceway system.

C. Provide products listed, classified, and labeled as suitable for purpose intended.

D. Minimum Conduit Size, Unless Otherwise Indicated:

1. Branch Circuits: 1/2-inch trade size.
2. Branch Circuit Homeruns: 3/4-inch trade size.
3. Minimum Size: data/voice conduits - see voice & data system specification.

E. Where conduit size is not indicated, size to comply with NFPA 70 but not less than applicable minimum size requirements specified.

F. Flexible metal conduit cannot be used to daisy chain light fixtures

2.3 GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

A. Manufacturers: Republic Steel Company, Youngstown, Triangle, Allied, Wheatland, or approved equivalent.

B. Manufacturers:

1. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com/#sle.
2. Nucor Tubular Products: www.nucortubular.com/#sle.
3. Wheatland Tube, a division of Zekelman Industries: www.wheatland.com/#sle.

C. Description: NFPA 70, Type RMC galvanized steel rigid metal conduit complying with ANSI C80.1 and listed and labeled as complying with UL 6.

D. Fittings:

1. Manufacturers:

- a. ABB; T&B: www.electrification.us.abb.com.
- b. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.us/#sle.
- c. Bridgeport Fittings Inc: www.bptfittings.com.
- d. Emerson Electric Co; O-Z/Gedney: www.emerson.com..
- e. Or Equal.

2. Nonhazardous Locations: Use fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B or UL 6.
3. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
4. Connectors and Couplings: Use threaded type fittings only. Threadless fittings, including set screw and compression/gland types, are not permitted.
5. All connectors shall have insulated throats.

2.4 PVC-COATED GALVANIZED STEEL RIGID METAL CONDUIT (RMC)

- A. Manufacturers: Allied, Robroy Industries or approved equivalent.
 1. ABB; Ocal: www.electrification.us.abb.com.
 2. Calbond, a division of Atkore International www.calbond.com.
 3. Robroy Industries: www.robroy.com.
 4. Or equal.
- B. 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.
- C. Exterior Coating: Polyvinyl chloride (PVC), nominal thickness of 40 mil, 0.040 inch.
- D. 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.
- E. PVC-Coated Supports: Furnish with exterior coating of polyvinyl chloride (PVC), minimum thickness of 15 mil, 0.015 inch.

2.5 FLEXIBLE METAL CONDUIT (FMC)

- A. Manufacturers:
 1. AFC Cable Systems, Inc: www.afcweb.com.
 2. Electri-Flex Company: www.electriflex.com.
 3. International Metal Hose: www.metalhose.com.
 4. Or equal.

- B. 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.
- C. Fittings:
 - 1. Manufacturers:
 - a. ABB; T&B: www.electrification.us.abb.com/#sle.
 - b. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
 - c. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
 - d. Or equal.
 - 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 3. Material: Use steel or malleable iron.
 - a. Do not use die cast zinc fittings.
 - 4. All connectors shall have insulated throats.

2.6 LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)

- A. Manufacturers:
 - 1. AFC Cable Systems, Inc: www.afcweb.com.
 - 2. Electri-Flex Company: www.electriflex.com.
 - 3. International Metal Hose: www.metalhose.com.
 - 4. Or equal.
- B. Description: NFPA 70, Type LFMC polyvinyl chloride (PVC) jacketed steel flexible metal conduit listed and labeled as complying with UL 360.
- C. Fittings:
 - 1. Manufacturers:
 - a. ABB; T&B: www.electrification.us.abb.com/#sle.
 - b. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
 - c. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.
 - d. Or equal.
 - 2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.
 - 3. Material: Use steel or malleable iron.

- a. Do not use die cast zinc fittings.
- 4. All connectors shall have insulated throats.

2.7 GALVANIZED STEEL ELECTRICAL METALLIC TUBING (EMT)

A. Manufacturers:

- 1. Allied Tube & Conduit: www.alliedeg.com.
- 2. Nucor Tubular Products: www.nucortubular/#sle.
- 3. Rymco USA: www.rymcousa.com/#sle.
- 4. Western Tube, a division of Zekelman Industries: www.westerntube.com/#sle.
- 5. Wheatland Tube Company: www.wheatland.com.

B. Description: NFPA 70, Type EMT galvanized steel electrical metallic tubing complying with ANSI C80.3 and listed and labeled as complying with UL 797.

C. Fittings:

1. Manufacturers:

- a. ABB; T&B: www.electrification.us.abb.com/#sle.
- b. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.us/#sle.
- c. Bridgeport Fittings, LLC: www.bptfittings.com/#sle.
- d. Emerson Electric Co; O-Z/Gedney: www.emerson.com/#sle.

2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B.

3. Material: Use steel or malleable iron.

- a. Do not use die cast zinc fittings.

4. Connectors and Couplings: Use compression/gland or set-screw type.

- a. Do not use indenter type connectors and couplings.

5. Damp or Wet Locations, Where Permitted: Use fittings listed for use in wet locations.

6. All connectors shall have insulated throats.

2.8 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.

2.9 RIGID POLYVINYL CHLORIDE (PVC) CONDUIT

A. Manufacturers:

1. ABB; Carlon: www.carlon.com.
2. Allied Tube & Conduit, a division of Atkore International: www.alliedeg.com.
3. Cantex Inc: www.cantexinc.com.
4. Heritage Plastics, a division of Atkore International: www.heritageplastics.com.
5. JM Eagle: www.jmeagle.com.
6. Rymco USA: www.rymcousa.com.
7. Or equal.

- B. 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.

C. 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.

- D. Provide equipment grounding conductor. Adjust conduit size accordingly.

2.10 LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC)

A. Manufacturers:

1. AFC Cable Systems, a division of Atkore International: www.afcweb.com/#sle.
2. Electri-Flex Company: www.electriflex.com/#sle.
3. IPEX, a division of Aliaxis: www.ipexna.com/#sle.
4. Or equal.

- B. Description: NFPA 70, Type LFNC liquidtight flexible nonmetallic conduit listed and labeled as complying with UL 1660.

C. Fittings:

1. Manufacturer: Same as manufacturer of conduit to be connected.
2. Description: Fittings complying with NEMA FB 1 and listed and labeled as complying with UL 514B; suitable for type of conduit to be connected.

2.11 ACCESSORIES

- A. Corrosion Protection Tape: PVC-based, minimum thickness of 20 mil, 0.020 inch.
- B. Conduit Joint Compound: Corrosion-resistant, electrically conductive compound listed as complying with UL 2419; suitable for use with conduit to be installed.
- C. Solvent Cement for PVC Conduit and Fittings: As recommended by manufacturer of conduit and fittings to be installed.
- D. Pull Strings: Use nylon or polyester tape with average breaking strength of not less than 1,250 lbf.
- E. Foam Conduit Sealant:
1. Removable, two-part, closed-cell foam, specifically designed for sealing conduit openings against water, moisture, gases, and dust.
 2. Suitable for use with conductors/cables and associated insulation/jackets to be installed.
 3. Rated to hold minimum of 10 ft water head pressure.
 4. Products:
 - a. American Polywater Corporation; Polywater AFT Foam Duct Sealant:
www.polywater.com/#sle.
 - b. American Polywater Corporation; Polywater FST Foam Duct Sealant:
www.polywater.com/#sle.
 - c. Or equal.
- F. Sealing Compound for Hazardous/Classified Location Sealing Fittings: Listed for use with particular fittings to be installed.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that field measurements are as indicated.
- B. Verify that mounting surfaces are ready to receive conduits.
- C. Verify that conditions are satisfactory for installation prior to starting work.
- D. Verify routing and termination locations of conduit prior to rough-in.

- E. Conduit routing is shown on drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

3.2 INSTALLATION

- A. Install products in accordance with manufacturer's instructions.
- B. Install conduit in accordance with NECA 1.
- C. Galvanized Steel Rigid Metal Conduit (RMC): Install in accordance with NECA 101.
- D. PVC-Coated Galvanized Steel Rigid Metal Conduit (RMC): Install using only tools approved by manufacturer.
- E. Rigid Polyvinyl Chloride (PVC) Conduit: Install in accordance with NECA 111.
- F. Liquidtight Flexible Nonmetallic Conduit (LFNC): Install in accordance with NECA 111.
- G. Install nonmetallic conduit in accordance with manufacturer's instructions.
 - 1. For all nonmetallic conduit runs underground, all sweeps shall be of galvanized rigid construction. If sweeps are underground, sweeps shall be PVC coated.
- H. Cut conduit square using saw or pipecutter; de-burr cut ends.
- I. Bring conduit to shoulder of fittings; fasten securely.
- J. Join nonmetallic conduit using cement as recommended by manufacturer. Wipe nonmetallic conduit dry and clean before joining. Apply full even coat of cement to entire area inserted in fitting. Allow joint to cure for 20 minutes, per manufacturers installation instructions.
- K. Use conduit hubs or sealing locknuts to fasten conduit to sheet metal boxes in damp and wet locations.
- L. Avoid moisture traps; provide junction box with drain fitting at low points in conduit system.
- M. Use suitable caps to protect installed conduit against entrance of dirt and moisture.
- N. Conduit Routing:
 - 1. Unless dimensioned, conduit routing indicated is diagrammatic.
 - 2. When conduit destination is indicated without specific routing, determine exact routing required.
 - 3. Conceal conduits unless specifically indicated to be exposed.
 - 4. 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.
 - 5. 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.
6. Conduits installed underground may be routed in shortest possible manner unless otherwise indicated. Route other conduits parallel or perpendicular to building structure and surfaces, following surface contours where practical.
 - a. Conduits shall be installed in organized manner with no crossing of conduits.
 - b. Conduits shall be 4" below bottom of floor slab.
 - c. Photos of installation shall be provided to Engineer for approval prior to fill and compaction.
7. Arrange conduit to maintain adequate headroom, clearances, and access.
8. Arrange conduit to provide no more than equivalent of four 90-degree bends between pull points. Use conduit bodies to make sharp changes in direction, as around beams. Use hydraulic one shot bender to fabricate bends in metal conduit larger than 2 inch size.
9. Arrange conduit to provide no more than 150 feet between pull points.
10. Route conduits above water and drain piping where possible.
11. Arrange conduit to prevent moisture traps. Provide drain fittings at low points and at sealing fittings where moisture may collect.
12. Maintain minimum clearance of 6 inches between conduits and piping for other systems.
13. Maintain minimum clearance of 12 inches between conduits and hot surfaces. This includes, but is not limited to:
 - a. Heaters.
 - b. Hot water piping.
 - c. Flues.
14. Group parallel conduits in same area on common rack.
15. Conduit shall be installed as high as possible & up in joist space as tight to structure or deck as NEC allows. Verify with architect, engineer, & other trades for mounting height and routing of conduits prior to installation.
16. Route exposed conduit parallel and perpendicular to walls.
17. Route conduit installed above accessible ceilings parallel and perpendicular to walls.
18. Route conduit under slab, and underground from point-to-point.

19. No conduit shall be run within concrete slabs unless specifically noted otherwise.
20. Maintain adequate clearance between conduit and piping.

O. Conduit Support:

1. Secure and support conduits in accordance with NFPA 70 using suitable supports and methods approved by authorities having jurisdiction; see Section 260529.
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.
4. Use metal channel/strut with accessory conduit clamps to support multiple parallel surface-mounted conduits.
5. Use trapeze hangers assembled from threaded rods and metal channel/strut with accessory conduit clamps to support multiple parallel suspended conduits.
6. Use of spring steel conduit clips for support of conduits is not permitted.
7. Use of wire for support of conduits is not permitted.
8. Where conduit support intervals specified in NFPA 70 and NECA standards differ, comply with most stringent requirements.
9. Do not support conduit with wire or perforated pipe straps. Remove wire used for temporary supports.
10. Arrange supports to prevent misalignment during wiring installation.
11. Group related conduits; support using conduit rack. Construct rack using steel channel ; provide space on each for 25 percent additional conduits.

P. 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. Use suitable adapters where required to transition from one type of conduit to another.
4. Provide drip loops for liquidtight flexible conduit connections to prevent drainage of liquid into connectors.
5. Terminate threaded conduits in boxes and enclosures using threaded hubs or double lock nuts for dry locations and raintight hubs for wet locations.

6. Where spare conduits stub up through concrete floors and are not terminated in box or enclosure, provide threaded couplings equipped with threaded plugs set flush with finished floor.
7. Provide insulating bushings, insulated throats, or listed metal fittings with smooth, rounded edges at conduit terminations to protect conductors.
8. Secure joints and connections to provide mechanical strength and electrical continuity.

Q. Penetrations:

1. Do not penetrate or otherwise notch or cut structural members, including footings and grade beams, without approval of Structural Engineer.
2. Make penetrations perpendicular to surfaces unless otherwise indicated.
3. Provide sleeves for penetrations as indicated or as required to facilitate installation. Set sleeves flush with exposed surfaces unless otherwise indicated or required.
4. Conceal bends for conduit risers emerging above ground.
5. Where conduits penetrate waterproof membrane, seal as required to maintain integrity of membrane.
6. 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.
 - a. Sealing shall be rubber boot system. Caulking around opening only is not acceptable.
7. Provide metal escutcheon plates for conduit penetrations exposed to public view.
8. Install firestopping to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 078400
9. Where conduits pass through exterior walls or roofs, Contractor shall seal penetrations with materials outlined in Section 07 9200.
10. Where conduits pass through smoke or fire rated walls Contractor shall seal penetrations with appropriate smoke and/or fire rated materials.

R. Underground Installation:

1. Minimum Cover, Unless Otherwise Indicated or Required:
 - a. Underground, Exterior: 24 inches.
 - b. Under Slab on Grade: 12 inches to bottom of slab.
2. Provide underground warning tape along entire conduit length for service entrance where not concrete-encased; see Section 260553.

- S. 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.
- T. 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.
 - 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.
- U. 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 at each end.
- V. Provide grounding and bonding; see Section 260526.
- W. Identify conduits; see Section 260553.
- X. Provide conduit seals where raceway enters the building from underground. Seal in accordance with NEC requirements.
- Y. Provide suitable fittings to accommodate expansion and deflection where conduit crosses expansion joints.
- Z. Flexible metal conduit shall not be used in lengths longer than six feet.

3.3 FIELD QUALITY CONTROL

- A. Repair cuts and abrasions in galvanized finishes using zinc-rich paint recommended by manufacturer. Replace components that exhibit signs of corrosion.
- B. Where coating of PVC-coated galvanized steel rigid metal conduit (RMC) contains cuts or abrasions, repair in accordance with manufacturer's instructions.
- C. Correct deficiencies and replace damaged or defective conduits.

3.4 CLEANING

- A. Clean interior of conduits to remove moisture and foreign matter.

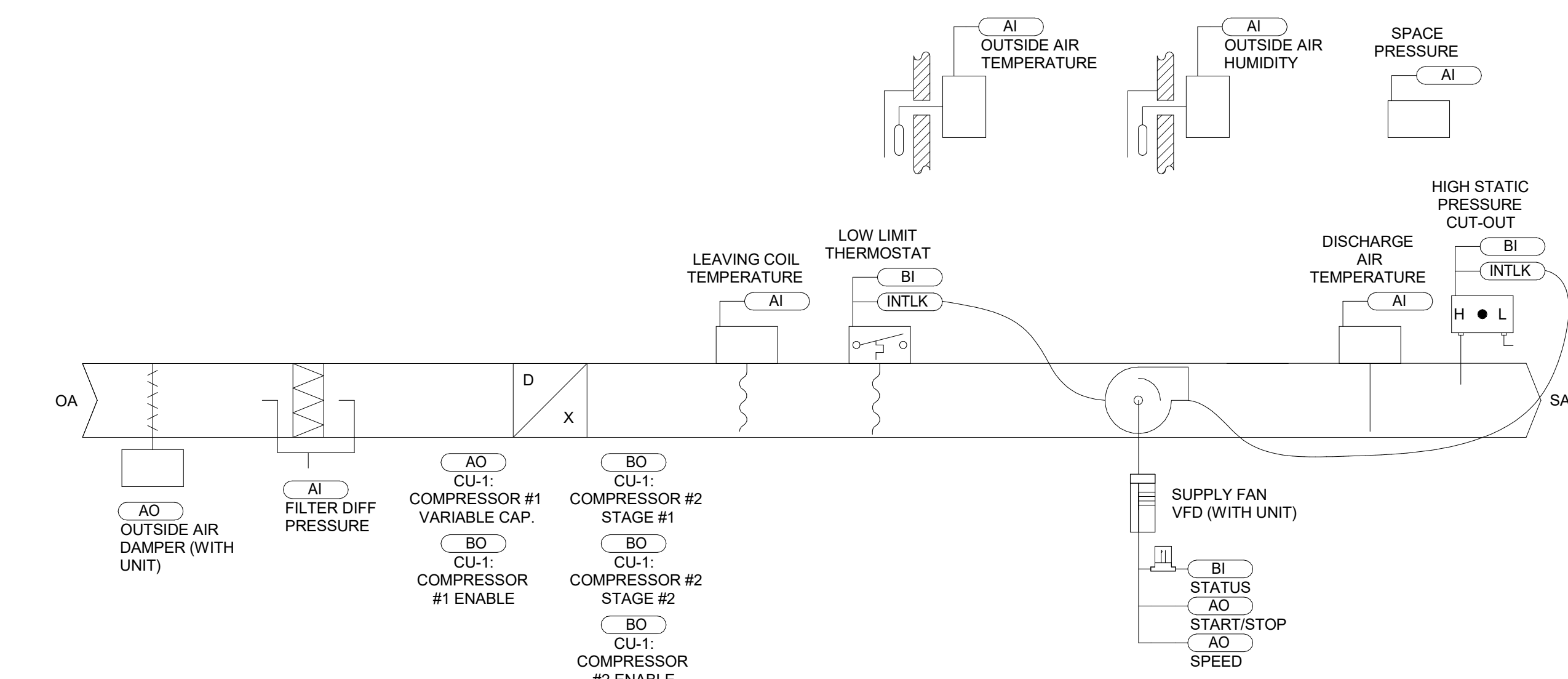
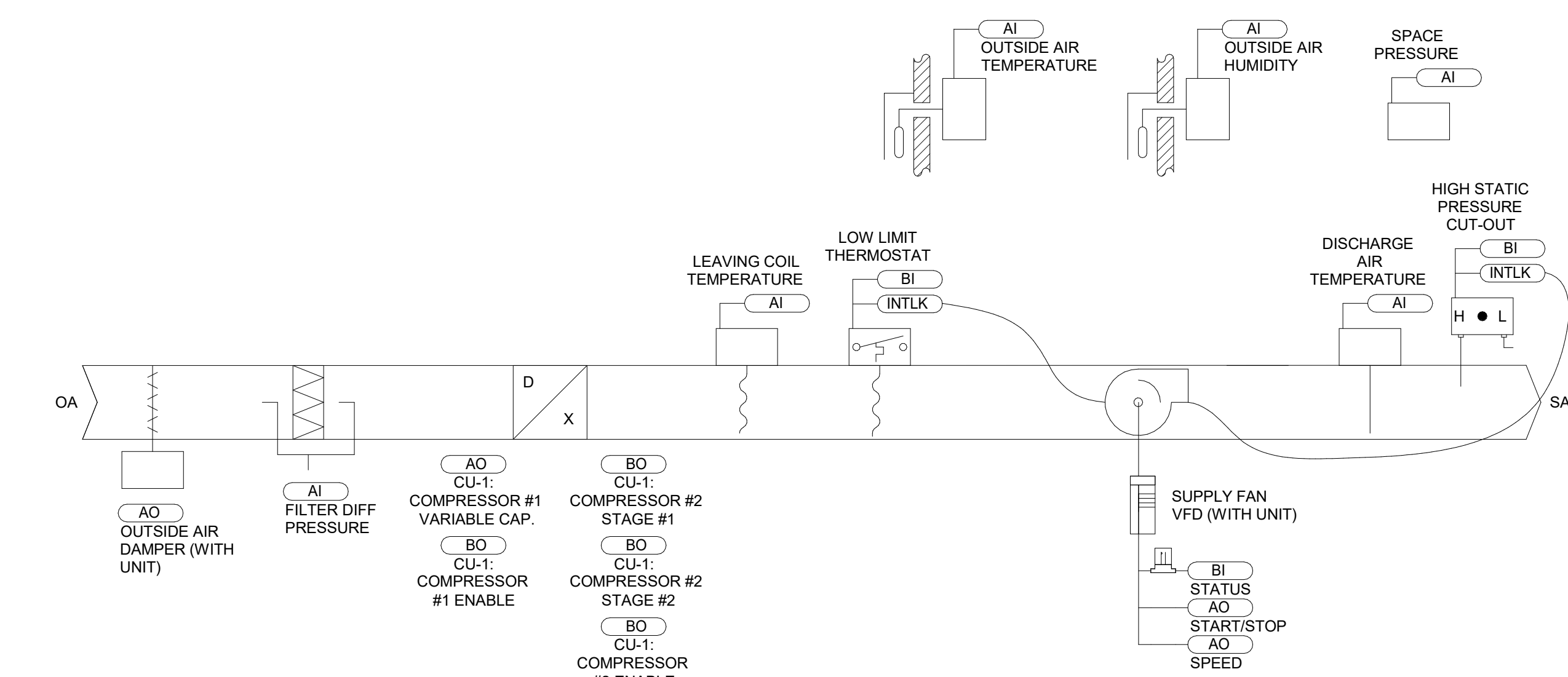
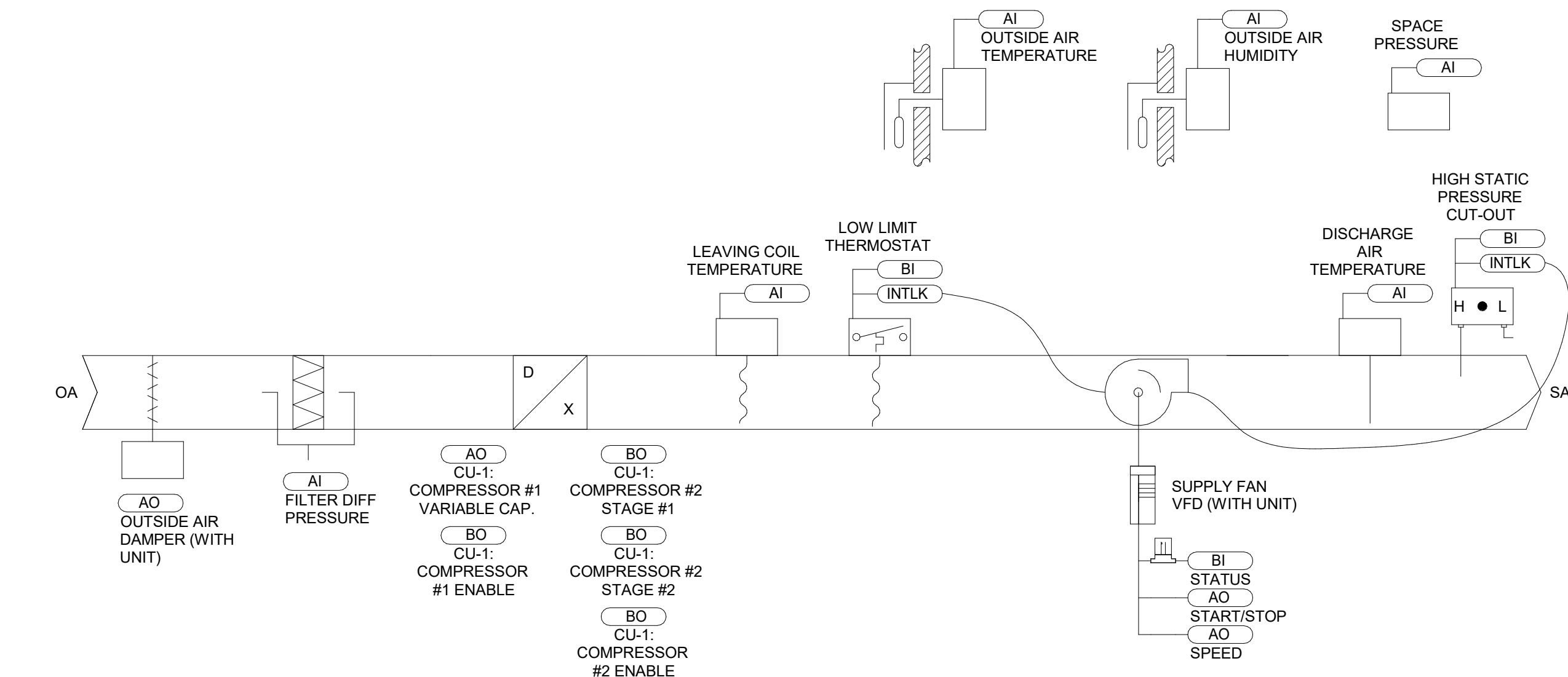
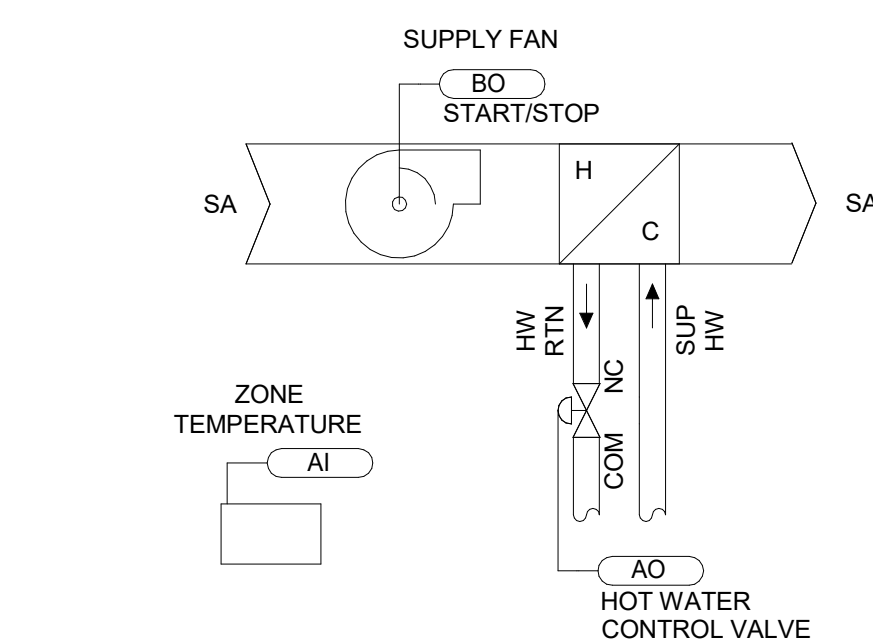
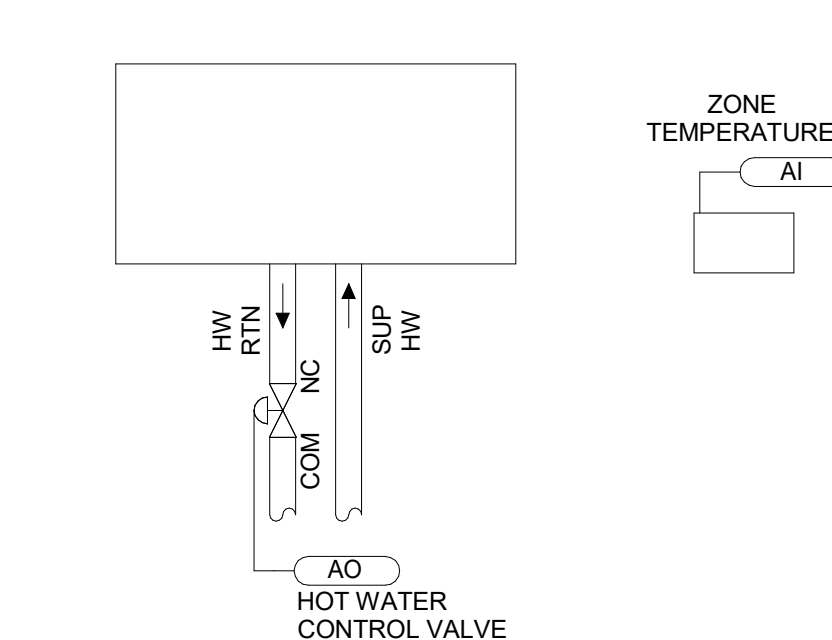
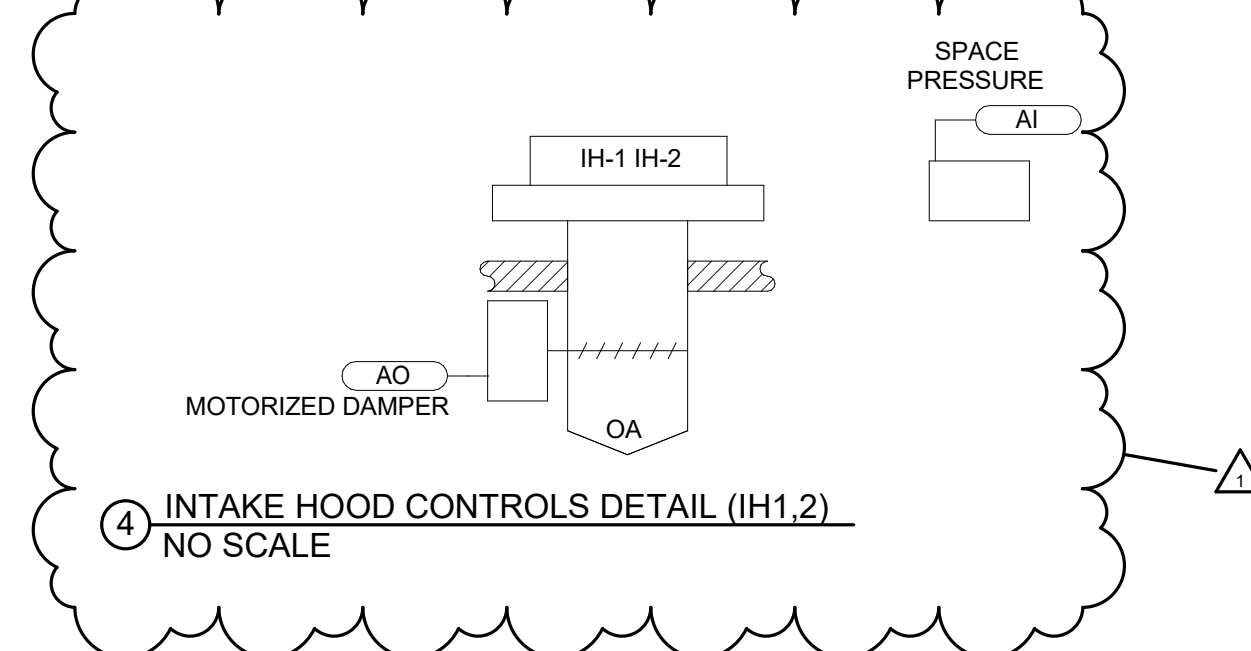
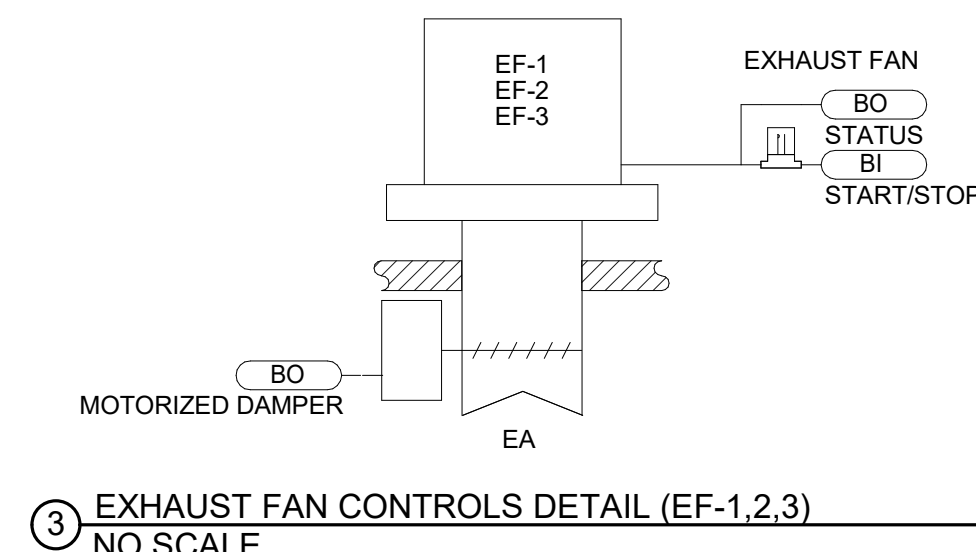
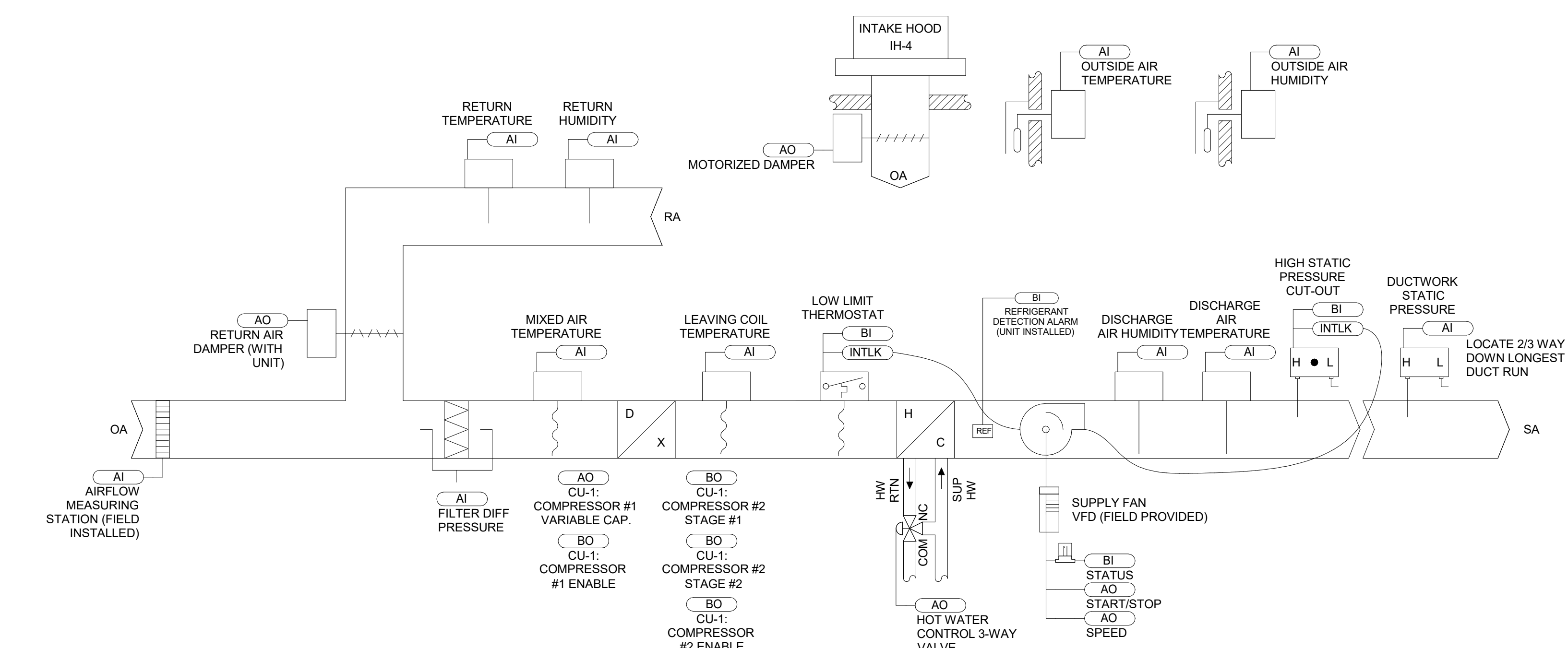
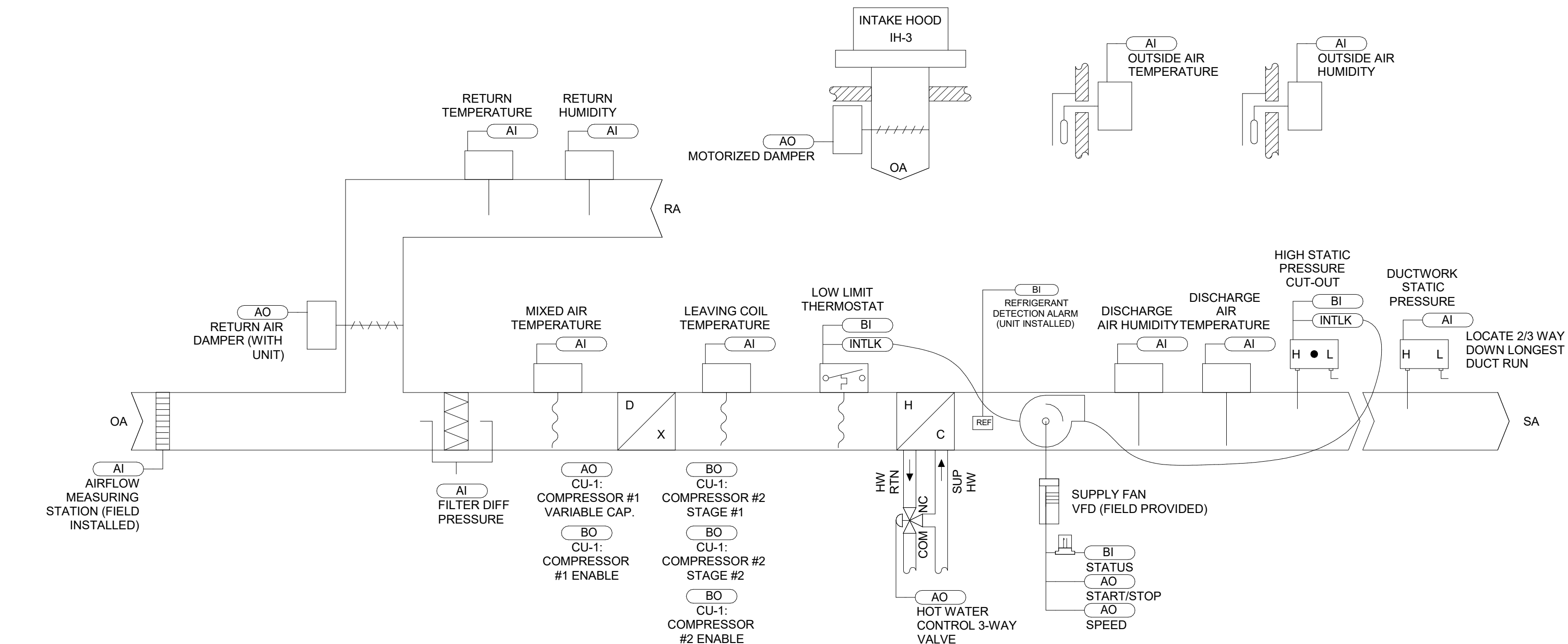
3.5 PROTECTION

- A. Immediately after installation of conduit, use suitable manufactured plugs to provide protection from entry of moisture and foreign material and do not remove until ready for installation of conductors.

3.6 INTERFACE WITH OTHER PRODUCTS

- A. Install conduit to preserve fire resistance rating of partitions and other elements, using materials and methods specified in Section 26 0050.
- B. Route conduit through roof openings for piping and ductwork wherever possible. Where separate roofing penetration is required, coordinate location and installation method with roofing installation

END OF SECTION 260533.13



3/11/26 ADDENDUM 2 CHANGES

AIR HANDLING UNIT SCHEDULE

UNIT TYPE	UNIT NO.	MANUFACTURER	MODEL	SERVES	LOCATION	CFM	MIN O.A. CFM	SUPPLY FAN				DX COOLING										REHEATING COIL (WATER)										FILTER				NOTES					
								E.S.P. IN W.G.	QTY	MAX RPM	FAN TYPE	MOTOR		TYPE	REF. TYPE	ROWS	FPI	EAT DB/WB	LAT DB/WB	APD IN W.G.	TOTAL BTUH	FACE VELOCITY (FPM)	TYPE	ROWS	FPI	GPM	CFM	EAT	LAT	APD IN W.G.	BTUH	EWT	LWT	WPD	% P.G.		FACE VELOCITY (FPM)	PRE-FILTER		POST FILTER	
												HP	ELEC																									TYPE	EFF.	TYPE	EFF.
AHU	1	DAIKIN	CAH018GDGM	OFFICE AREA	MEZZANINE A 301	8315	2010	2.75	1	2183	CENTRIFUGAL-PLENUM	15	480/3	DX	R454B	5	12	79.8/64.9	53.0/52.1	0.82	304244	493	HW	2	10	19.2	8315	45.2	75.1	0.2	272064	160	129.9	1.2 FT	35	520	2" PLEATED	MERV 8	4" PLEATED	MERV 13	1-18
AHU	2	DAIKIN	CAH017GDGM	OFFICE AREA	MEZZANINE A 301	5860	1610	2.75	1	2674	CENTRIFUGAL-PLENUM	10	480/3	DX	R454B	5	13	80.5/65.3	53.5/52.7	0.95	213233	530	HW	1	10	13.5	5860	45.3	75.5	0.2	193407	160	129.9	5.9	35	556	2" PLEATED	MERV 8	4" PLEATED	MERV 13	1-18

COMMENTS:

- HEATING COIL PERFORMANCE BASED ON 35% PROPYLENE GLYCOL.
- PROVIDE HEATING COILS WITH 0.020" COPPER TUBE WALL THICKNESS.
- UNIT TO BE DOUBLE WALL CONSTRUCTION WITH 2 INCHES OF R-13 INSULATION WITH THERMAL BREAK.
- PROVIDE WITH 8" BASE RAILS.
- PROVIDE WITH TOP SUPPLY, END RETURN, AND TOP OUTSIDE AIR CONNECTION.
- PROVIDE WITH FACTORY INSTALLED RETURN AIR MOTORIZED DAMPER AND ACTUATOR. OUTSIDE AIR DAMPER SHALL BE FIELD INSTALLED IN OA DUCTWORK, PROVIDED BY TEMPERATURE CONTROLS CONTRACTOR.
- PROVIDE ACCESS SECTIONS WITH MARINE LIGHT KIT AND GFI OUTLET.
- PROVIDE WITH NEMA PREMIUM SUPPLY FAN MOTOR WITH FACTORY INSTALLED SHAFT GROUNDING KITS. FAN SHALL BE MOUNTED ON SPRING ISOLATORS.
- SUPPLY FAN MOTOR SHALL BE FACTORY WIRED TO EXTERNAL JUNCTION BOX.
- PROVIDE WITH WINDOWS IN ACCESS DOORS OF THE COILS AND SUPPLY FAN SECTIONS.
- PROVIDE LED LIGHTS IN THE FOLLOWING SECTIONS: COILS, SUPPLY FANS, MIXING AND FILTERS. PREWIRE TO SINGLE SWITCH MOUNTED ON THE EXTERIOR OF THE UNIT.
- PROVIDE WITH FACTORY INSTALLED 120V CONVENIENCE OUTLET ON THE EXTERIOR OF THE UNIT.
- PROVIDE WITH DOUBLE SLOPED STAINLESS STEEL DRAIN PANS BELOW BOTH THE HEATING AND COOLING COILS.
- ALL OUTSWING ACCESS DOORS IN POSITIVE PRESSURE SECTIONS SHALL BE PROVIDED WITH HANDLES AND SECONDARY SAFETY CATCHES ON THE INSIDE OF DOOR FRAME.
- MEAN PRESSURE DROP OF 0.6" PER FILTER BANK (1.2" TOTAL) INCLUDED IN SUPPLY FAN SIZING.
- PROVIDE WITH FACTORY INSTALLED AND WIRED R-454B REFRIGERANT DETECTOR BY THE EVAPORATOR COIL IN THE UNIT. WIRE TO FACTORY INSTALLED TERMINAL STRIP. TEMPERATURE CONTROLS CONTRACTOR SHALL MONITOR STATUS OF REFRIGERANT DETECTOR.
- R-32 REFRIGERANT SHALL ALSO BE ACCEPTABLE FOR THIS PROJECT AS LONG AS COOLING PERFORMANCE INDICATED IS MET.
- COOLING PERFORMANCE BASED ON 45F REFRIGERANT SUCTION TEMPERATURE.

DUCTLESS SPLIT HEAT PUMP SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	ELECTRIC				COOLING				EAT		COMMENTS
				VOLTAGE	PHASES	MCA	BTUH	SEER2	AMB					
DSU	1	BOSCH	BMSS500-AAU036-1CSXWD	208	1	37 A	36000	23	95 °F	95 °F	73 °F		1,2,3,4	
DSU	1	BOSCH	BMSS500-AAU036-1AHXWD	208	1	3 A	36000	23	95 °F	95 °F	67 °F			

COMMENTS:

- PROVIDE WIRELESS REMOTE THERMOSTAT WITH WALL MOUNT.
- PIPE CONDENSATE TO DRAIN.
- PROVIDE WITH MANUFACTURER'S CONDENSING UNIT STAND.
- PROVIDE WITH ALL ACCESSORIES REQUIRED FOR COOLING OPERATION DOWN TO -20°F.

FAN COIL UNIT SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	CFM	MIN O.A. CFM	E.S.P.	SUPPLY FAN		ELECTRIC				DX COOLING												HEATING COIL					COMMENTS
							QUANTITY	HP	VOLTAGE	PHASES	MCA	TYPE	REF. TYPE	ROWS	APD	BTUH	EAT DB	EAT WB	LAT DB	LAT WB	BTUH	GPM	WPD	EAT	EWT	LWT	% P.G.			
FCU	1	DAIKIN	BCHD0161	905	905	0.75 in-wg	2	0.5	120	1	14 A	DX	R-454B	3	0.24 in-wg	61594	95°F	73°F	52.5°F	51.9°F	116209	8.3	6.45 ftH2O	-20°F	160°F	130.1°F	35%	1-8		
FCU	2	DAIKIN	BCHD0501	2540	2540	0.75 in-wg	2	4.42	480	3	13 A	DX	R-454B	3	0.24 in-wg	178467	95°F	73°F	51.6°F	51.1°F	346426	24.4	16.67 ftH2O	-20°F	160°F	129.8°F	35%	1-8		
FCU	3	DAIKIN	BCHD0081	570	570	0.75 in-wg	1	0.5	120	1	8 A	DX	R-454B	3	0.33 in-wg	35596	95°F	73°F	54.7°F	54.1°F	69510	4.7	8.71 ftH2O	-20°F	160°F	129.9°F	35%	1-8		
FCU	4	DAIKIN	BCHD0501	2400	2400	0.75 in-wg	2	4.42	480	3	13 A	DX	R-454B	3	0.13 in-wg	158479	95°F	73°F	53.5°F	52.7°F	332507	23.4	15.42 ftH2O	-20°F	160°F	129.8°F	35%	1-8		
FCU	5	DAIKIN	BCHD0301	1805	1805	0.75 in-wg	1	4.42	480	3	7 A	DX	R-454B	3	0.26 in-wg	120550	95°F	73°F	53.0°F	52.4°F	222687	15.8	8.96 ftH2O	-20°F	160°F	130.1°F	35%	1-8		
FCU	6	DAIKIN	BCHD0161	990	990	0.75 in-wg	2	0.5	120	1	14 A	DX	R-454B	3	0.27 in-wg	65462	95°F	73°F	53.2°F	52.7°F	123207	8.6	7.01 ftH2O	-20°F	160°F	129.7°F	35%	1-8		

COMMENTS:

- UNIT TO BE HORIZONTALLY SUSPENDED UNIT WITH SUPPLY AND RETURN DUCT CONNECTIONS. PROVIDE WITH HANGING ISOLATORS.
- UNIT TO BE DOUBLE WALL CONSTRUCTION WITH 1 INCH OF R-6 INSULATION.
- HEATING COIL TO BE BASED ON 35% PROPYLENE GLYCOL.
- ALL VALVES SHALL BE LOCATED IN CABINET AND SHALL BE INSTALLED ABOVE DRAIN PIPE.
- PROVIDE SINGLE POINT POWER CONNECTION WITH UNIT MOUNTED DISCONNECT.
- PROVIDE WITH CONDENSATE PUMP AND TRANSFORMER FOR PUMP TO BE POWERED BY FAN COIL UNIT.
- PROVIDE SUPPLY FAN WITH EC MOTOR.
- PROVIDE WITH FACTORY MOUNTED OVERFLOW SWITCH AND FREEZESTAT.

HUMIDIFIER SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	CAPACITY LBS/HR	ELECTRICAL CONSUMPTION				DISTRIBUTOR LOCATION	EAT DB	EA RH	COMMENTS
					VOLTAGE	PHASES	MCA	MOCP				
H	1	NORTEC	EL-SPACE-005-480/3	5	120 V	1	15.6	20 A	INTEGRAL	72 °F	45	1,2,3,4,5,6

COMMENTS:

- IN SPACE, WALL MOUNTED ELECTRODE TYPE STEAM HUMIDIFIER WITH BUILT IN BLOWER PACK AND INTERNAL DRAIN WATER COOLER.
- INTERFACE WITH BAS TO ALLOW BAS TO INPUT SPACE RELATIVE HUMIDITY.
- ROUTE FULL SIZE INSULATED DRAIN FROM DRAIN CONNECTION ON MAIN UNIT TO FLOOR DRAIN WITH FUNNEL.
- PROVIDE WITH FACTORY INSTALLED DISCONNECT SWITCH FOR SINGLE POINT POWER CONNECTION TO THE EQUIPMENT.
- PROVIDE CONTROL PANEL WITH ALARM DRY CONTACT FOR CONNECTION TO THE BAS FOR MONITORING.
- PROVIDE WITH MANUFACTURER'S RECOMMENDED POTABLE WATER 5 MICRON FILTER.

FAN SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	SERVICE	VIBRATION ISOLATION	CFM	S.P.D.	VOLTAGE	HP	SONES	PHASES	COMMENTS
EF	1	LOREN COOK COMPANY			EXHAUST		1755	0.50 in-wg	480	0.75	0	3	
EF	2	LOREN COOK COMPANY			EXHAUST		650	0.50 in-wg	120	0.33	0	1	
EF	3	LOREN COOK COMPANY			EXHAUST		120	0.50 in-wg	120	0.05	0	1	
EF	4	LOREN COOK COMPANY	SON-B100				0	0.00 in-wg	480	0.75	0	3	
EF	5	LOREN COOK COMPANY	SON-B180				0	0.00 in-wg	480	0.75	0	3	
EF	6	LOREN COOK COMPANY	SON-B100				0	0.00 in-wg	120	0.33	0	1	
EF	7	LOREN COOK COMPANY	SON-B180				0	0.00 in-wg	480	0.75	0	3	
EF	8	LOREN COOK COMPANY	SON-B150				0	0.00 in-wg	480	0.5	0	3	
EF	9	LOREN COOK COMPANY	SON-B120				0	0.00 in-wg	480	0.33	0	3	
EF	10	LOREN COOK COMPANY	GC-162/164	-	-		0	0.00 in-wg	120	0	0	1	PLASTIC GRILL
EF	12	GREENHECK	SE2-30-				0	0.00 in-wg	480	0.75	0	3	
EF	13	GREENHECK	SBCR3-54-				0	0.00 in-wg	480	2	0	3	
EF	14	GREENHECK	SBCR3-54-				0	0.00 in-wg	480	2	0	3	
EF	14	GREENHECK	SBCR3-54-				0	0.00 in-wg	480	2	0	3	
EF	18	LOREN COOK COMPANY	GC-162/164	-	-		0	0.00 in-wg	120	0	0	1	PLASTIC GRILL
EF	21	GREENHECK	SBCR3-54-				0	0.00 in-wg	480	0.75	0	3	
EF	22	GREENHECK	SE2-30-				0	0.00 in-wg	120	0.5	0	1	
EF	23	GREENHECK	SBCR3-54-				0	0.00 in-wg	480	1.5	0	3	
EF	24	GREENHECK	SBCR3-54-				0	0.00 in-wg	480	1.5	0	3	

COMMENTS:

- PROVIDE WITH STANDARD PREWIRED DISCONNECT.
- PROVIDE WITH THERMAL OVERLOAD.
- PROVIDE WITH MOTORIZED DAMPER.
- PROVIDE WITH RUBBER ISOLATORS.
- PROVIDE WITH ROOF CURB.
- PROVIDE WITH ANODIZED ALUMINUM OR PLASTIC GRILLE.
- PROVIDE WITH WALL CAP, ROOF CAP, EAVE VENT WITH BACK DRAFT DAMPER.
- INLINE FAN WITH STANDARD PLUG DISCONNECT, ALUMINUM WALL CAP.
- PROVIDE WITH STD DISCONNECT NEMA 3, VENTED ROOF CURB, GREASE TERMINATOR. FAN TO BE UL 762 RATED FOR GREASE EXHAUST.
- PROVIDE VARIABLE SPEED SWITCH.

CONDENSING UNIT SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	SERIES	CAPACITY BTUH	AMBIENT TEMP.	REF TYPE	SUCTION TEMPERATURE	SCCR	ELECTRICAL				COMMENTS
										V	PH	MCA	EER	
CU	1	AAON	CFA-030-C-A-3-LA00N	AHU-1	312500	95 °F	R-454B	45 °F	65 KAIC	480	3	61 A	11.8	1-12
CU	2	AAON	CFA-017-C-A-3-LA00N	AHU-2	208700	95 °F	R-454B	45 °F	65 KAIC	480	3	37 A	12.9	1-12
CU	3	AAON	CFA-007-A-A-3-LA00H	FCU-1	73600	95 °F	R-454B	45 °F	65 KAIC	480	3	15 A	12.5	1-12
CU	4	AAON	CFA-015-B-A-3-LA00N	FCU-2	183100	95 °F	R-454B	45 °F	65 KAIC	480	3	34 A	12.4	1-12
CU	5	AAON	CFA-003-A-A-3-LA00H	FCU-3	37400	95 °F	R-454B	45 °F	65 KAIC	480	3	9 A	14.2	1-12
CU	6	AAON	CFA-013-B-A-3-LA00N	FCU-4	154200	95 °F	R-454B	45 °F	65 KAIC	480	3	30 A	13	1-12
CU	7	AAON	CFA-013-B-A-3-LA00N	FCU-5	154200	95 °F	R-454B	45 °F	65 KAIC	480	3	30 A	13	1-12
CU	8	AAON	CFA-007-A-A-3-LA00H	FCU-6	73600	95 °F	R-454B	45 °F	65 KAIC	480	3	15 A	12.5	1-12

COMMENTS:

- PROVIDE WITH CONDENSER COIL HAIL GUARDS.
- PROVIDE WITH 5 YEAR COMPRESSOR WARRANTY.
- PROVIDE WITH REFRIGERANT PIPING, SIZE AND ROUTE AS PER MANUFACTURER'S RECOMMENDATION.
- PROVIDE WITH VARIABLE CAPACITY LEAD COMPRESSOR.
- UNIT TO BE CONTROLLED BY THE BUILDING AUTOMATION SYSTEM.
- PROVIDE WITH SINGLE POINT POWER CONNECTION WITH FACTORY INSTALLED NON-FUSED DISCONNECT SWITCH.
- UNIT TO BE INSTALLED ON SUPPORT CURBS ON ROOF.
- PROVIDE WITH COMPRESSOR SOUND BLANKETS.
- PROVIDE LOW AMBIENT OPTION FOR OPERATION DOWN TO 0°F.
- PROVIDE WITH FACTORY WIRED 120V CONVENIENCE OUTLET.
- PROVIDE WITH PHASE/BROWN OUT PROTECTION.
- PROVIDE WITH ECM CONDENSER FANS.

REGISTER GRILLES AND DIFFUSER SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	NOMINAL SIZE			THROAT SIZE			MAX CFM	THROW	S.P.D.	NC	FRAME	COMMENTS
				WIDTH	LENGTH	DIA.	WIDTH	LENGTH	DIA.						
E	1	KRUEGER	EGCS	10"	10"		6"	6"	215	N/A	0.06 in-wg	10	SURFACE		
E	2	KRUEGER	EGCS	12"	24"	10"	22"	22"	500	N/A	0.02 in-wg	15	LAY-IN		
R	1	KRUEGER	EGCS	12"	24"	24"	10"	22"	500	N/A	0.02 in-wg	15	LAY-IN		
R	2	KRUEGER	EGCS18	24"	24"	24"	22"	22"	1150	N/A	0.02 in-wg	15	LAY-IN		
S	3	KRUEGER	EGCS	12"	24"	24"	10"	22"	500	N/A	0.02 in-wg	15	SURFACE		
S	1	KRUEGER	51400	24"	24"	6"			120		0.04 in-wg	15	LAY-IN		
S	1Q	KRUEGER	RM1						393	7	0.11 in-wg	24			
S	2	KRUEGER	51400	24"	24"	6"			120		0.04 in-wg	15	LAY-IN		
S	3	KRUEGER	51400	24"	24"	10"			120		0.04 in-wg	15	LAY-IN		
S	4	KRUEGER	51400	24"	24"	6"			120		0.04 in-wg	15	SURFACE		
S	5	KRUEGER	51400	24"	24"	6"			120		0.04 in-wg	15	SURFACE		
S	6	KRUEGER	51400	24"	24"	10"			120		0.04 in-wg	15	SURFACE		

GAS FIRED UNIT HEATER SCHEDULE														
UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	CFM	HEATING		HP	MOTOR			PHASES	COMMENTS	
						BTU/H INPUT	BTU/H OUTPUT		RPM	MCA	VOLTAGE			
UH	1	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	2	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	3	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	4	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	5	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	6	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	7	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	8	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	9	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	10	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	11	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	12	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	13	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	14	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	15	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	16	REZNOR	UDXC 250	VEHICLE STORAGE 218	3202	250000	207500		1050	8 A	120	1	1.2	
UH	17	REZNOR	UDXC 30	PRESSURE WASHER 215	456	30000	24600		1550	2 A	120	1	1.2	
UH	18	REZNOR	UDXC 45	WELDING 212	629	45000	37350		1550	3 A	120	1	1.2	
UH	19	REZNOR	UDXC 200	SERVICE 210	2562	200000	166000		1050	8 A	120	1	1.2	
UH	20	REZNOR	UDXC 200	SERVICE 210	2562	200000	166000		1050	8 A	120	1	1.2	
UH	21	REZNOR	UDXC 250	GARBAGE TRUCK STOR 219	3202	250000	207500		1050	8 A	120	1	1.2,3	
UH	22	REZNOR	UDXC 250	GARBAGE TRUCK STOR 219	3202	250000	207500		1050	8 A	120	1	1.2,3	
UH	23	REZNOR	UDXC 250	GARBAGE TRUCK STOR 219	3202	250000	207500		1050	8 A	120	1	1.2,3	
UH	24	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	25	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	26	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	27	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	28	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	29	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	30	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	31	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	
UH	32	REZNOR	UDXC 250	VEHICLE STORAGE 220	3202	250000	207500		1050	8 A	120	1	1.2,4	

- COMMENTS:
- PROVIDE DIGITAL HEATING ONLY THERMOSTAT.
 - PROVIDE MANUFACTURER'S RECOMMENDED COMPLETE VENT AND INTAKE SYSTEM.
 - PROVIDE IN ALTERNATE #1 SCOPE.
 - PROVIDE IN ALTERNATE #2 SCOPE.

ELECTRIC HEAT SCHEDULE									
UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	MOUNT TYPE	ELECTRICAL DATA		THERMOSTAT TYPE	COMMENTS	
					KW	VOLT			
EUH	1	REZNOR	EWHB	WALL	10	480	3	INTEGRAL	1,2,3,4,5

COMMENTS:

- STAINLESS STEEL MOISTURE RESISTANT HOUSING WITH NEMA 4X NONMETALLIC ELECTRICAL ENCLOSURE ON BOTTOM OF UNIT.
- SEALED TUBULAR HEATING ELEMENTS WITH SS FINS AND SS ADJUSTABLE OUTLET LOUVERS.
- PROVIDE WITH STAINLESS STEEL SWIVEL MOUNTING BRACKET FOR WALL MOUNTING.
- PROVIDE WITH WATERTIGHT DISCONNECT SWITCH.
- PROVIDE WITH REMOTE FIELD INSTALLED NEMA-4X THERMOSTAT.

HYDRONIC UNIT HEATER SCHEDULE														
UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	CFM	HEATING					MOTOR			
						BTU/H	GPM	EWT	LWT	WPD	% GLYCOL	HP	RPM	MCA
HUH	1	SIGMA	039V	113A FIRE PUMP	570	20000	2	160 °F	130 °F	0.10 tH2O	35	0.05	850	120
HUH	2	SIGMA	067V	113 MECHANICAL	1180	36700	3.75	160 °F	130 °F	0.10 tH2O	35	0.13	1350	120
HUH	3	SIGMA	039V	207 GARAGE	570	20000	2	160 °F	130 °F	0.10 tH2O	35	0.05	850	120

- COMMENTS:
- VERTICAL MOUNT UNIT HEATER.
 - SUSPEND UNIT FROM STRUCTURE ABOVE WITH THREADED RODS AND VIBRATION ISOLATORS.
 - PROVIDE WITH FACTORY INSTALLED MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION.
 - CAPACITY BASED ON 35% PROPYLENE GLYCOL.

CABINET UNIT HEATER SCHEDULE														
UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	CFM	HEATING					MOTOR			
						BTU/H	GPM	EWT	LWT	WPD	% GLYCOL	HP	RPM	MCA
CUH	1	SIGMA	SFF-03	110 VEST.	300	15880	1.5	160 °F	130 °F	0.30 tH2O	35	0.2	1075	2 A
CUH	2	SIGMA	SFF-03	100 ENTRY VEST.	300	15880	1.5	160 °F	130 °F	0.30 tH2O	35	0.2	1075	2 A
CUH	3	SIGMA	SFF-03	133 VEST.	300	15880	1.5	160 °F	130 °F	0.30 tH2O	35	0.2	1075	2 A

COMMENTS:

- WITH 1 ROW COIL.
- PROVIDE WITH FACTORY INSTALLED MOTOR STARTER WITH THERMAL OVERLOAD PROTECTION.
- PROVIDE WITH FACTORY INSTALLED MOTOR SPEED CONTROLLER FOR FINAL AIR BALANCING.
- PROVIDE WITH FACTORY INSTALLED POWER DISCONNECT SWITCH.
- ARCHITECT SHALL SELECT CABINET COLOR FROM STANDARD COLOR CHART.
- FULLY EXPOSED INVERTED WALL MOUNTED. FRONT TOP IN. FRONT BOTTOM OUT.
- PROVIDE WITH FACTORY INSTALLED RELAY FOR ON/OFF CONTROL. TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE INPUT TO RELAY FROM BAS.
- CAPACITY BASED ON 35% PROPYLENE GLYCOL.

MAKE-UP AIR SCHEDULE														
UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	CFM	MAX RPM	MOTOR				FINAL FILTER			
							E.S.P.	HP	VOLTAGE	PHASES	VIBRATION ISOLATION	TYPE	EFF.	ROWS
MAU	1	DAKIN	CAH018GHGM	302 MEZZANINE B	7900	2183	1.00 in-wg	5	480	3	SPRING ISOLATORS	PLEATED	MERV 8	2
MAU	2	DAKIN	CAH015GHGM	302 MEZZANINE B	6950	2183	1.00 in-wg	5	480	3	SPRING ISOLATORS	PLEATED	MERV 8	2
MAU	3	DAKIN	BCHNE0301	302 MEZZANINE B	2600	2201	1.00 in-wg	4.42	480	3	SPRING ISOLATORS	PLEATED	MERV 8	2

COMMENTS:

- PROVIDE WITH 0 A. MOTORIZED DAMPER.
- PROVIDE WITH 3" PERMANENT FILTER FRAME WITH REPLACEABLE MEDIA.
- SCR CONTROLLER.
- PROVIDE WITH DDC ACTUATOR.
- PROVIDE WITH BLOWER AUXILIARY CONTACT (WIRED TO LOW VOLTAGE TERMINAL BLOCK) AND REMOTE START/STOP STEP CONTROLLER.
- CONTROLS SHALL BE DDC BY TEMPERATURE CONTROL CONTRACTOR.
- PROVIDE WITH 14" TALL ROOF CURB, DOWN DISCHARGE PLENUM, RAIN HOOD, STARTER, FUSED DISCONNECT, SOLID STATE STEP CONTROLLER, EXHAUST FAN INTERLOCK, MOTORIZED INLET DAMPERS.
- PROVIDE WITH 5 STAGES OF ELECTRIC HEAT.
- SINGLE POINT POWER CONNECTION.
- PROVIDE WITH 2" PERMANENT FILTER FRAME WITH REPLACEABLE MEDIA.

VARIABLE AIR VOLUME BOX SCHEDULE																									
UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	INLET STATIC	INLET CONNECTION	COOLING				HEATING				REHEAT SECTION						NC					
						OCCUPIED CFM		UNOCCUPIED CFM		OCCUPIED CFM		UNOCCUPIED CFM		GPM	BTUH	EWT	LWT	ROWS	WPD	APD	% GLYCOL	LAT	RAD	DIS	COMMENTS
						MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN												
VAV	1-1A	KRUEGER	LMHS-10	1.00 in-wg	10"	800	240	400	0	800	240	800	0	2.5	26200	160	137.8	2	0.74	0.23 in-wg	35	85.2 F	13	18	12,34,5
VAV	1-1B	KRUEGER	LMHS-12	1.00 in-wg	12"	1200	360	600	0	1200	360	1200	0	3	38800	160	126.2	2	1.08	0.27 in-wg	35	84.8 F	16	14	1,2,3,4,5
VAV	1-2	KRUEGER	LMHS-14	1.00 in-wg	14"	1835	1835	550	0	1835	1835	550	0	3	44900	160	128.3	2	0.67	0.25 in-wg	35	77.6 F	13	16	1,2,3,4,5
VAV	1-3	KRUEGER	LMHS-12	1.00 in-wg	12"	1000	300	500	0	1000	300	1000	0	2.5	33300	160	131.8	2	0.82	0.20 in-wg	35	85.7 F	15	12	1,2,3,4,5
VAV	1-4	KRUEGER	LMHS-06	1.00 in-wg	6"	320	100	160	0	320	100	320	0	1.25	10900	160	141.5	2	0.35	0.16 in-wg	35	86.4 F	15	18	1,2,3,4,5
VAV	1-5	KRUEGER	LMHS-06	1.00 in-wg	6"	320	100	160	0	320	100	320	0	1.25	10900	160	141.5	2	0.35	0.16 in-wg	35	86.4 F	15	18	1,2,3,4,5
VAV	1-6	KRUEGER	LMHS-06	1.00 in-wg	6"	300	90	150	0	300	90	300	0	1.25	10700	160	141.9	2	0.35	0.14 in-wg	35	87.8 F	15	16	1,2,3,4,5
VAV	1-7	KRUEGER	LMHS-10	1.00 in-wg	10"	870	260	435	0	435	260	435	0	0.75	12800	160	123.9	2	0.09	0.27 in-wg	35	82.0 F	13	14	1,2,3,4,5
VAV	1-8	KRUEGER	LMHS-06	1.00 in-wg	8"	600	180	300	0	300	180	300	0	0.75	9500	160	133.1	2	0.19	0.27 in-wg	35	84.2 F	17	20	1,2,3,4,5
VAV	1-9	KRUEGER	LMHS-08	1.00 in-wg	8"	570	170	285	0	285	170	285	0	0.75	9400	160	133.6	2	0.19	0.25 in-wg	35	85.3 F	16	18	1,2,3,4,5
VAV	1-10	KRUEGER	LMHS-08	1.00 in-wg	8"	500	500	250	0	500	500	500	0	1.25	13800	160	136.7	2	0.47	0.17 in-wg	35	80.4 F	16	18	1,2,3,4,5
VAV	2-1	KRUEGER	LMHS-06	1.00 in-wg	6"	350	105	175	0	350	105	350	0	1.5	12500	160	142.4	2	0.47	0.18 in-wg	35	87.8 F	16	19	1,2,3,4,5
VAV	2-2	KRUEGER	LMHS-06	1.00 in-wg	6"	350	105	175	0	350	105	350	0	1.5	12500	160	142.4	2	0.47	0.18 in-wg	35	87.8 F	16	19	1,2,3,4,5
VAV	2-3	KRUEGER	LMHS-06	1.00 in-wg	6"	220	65	110	0	220	65	220	0	0.75	7300	160	139.5	2	0.14	0.09 in-wg	35	85.4 F	11	14	1,2,3,4,5
VAV	2-4	KRUEGER	LMHS-10	1.00 in-wg	10"	860	260	430	0	430	260	430	0	1	13800	160	130.7	2	0.15	0.26 in-wg	35	84.6 F	12	14	1,2,3,4,5
VAV	2-5	KRUEGER	LMHS-06	1.00 in-wg	6"	350	105	175	0	350	105	350	0	1.5	12500	160	142.4	2	0.47	0.18 in-wg	35	87.8 F	16	19	1,2,3,4,5
VAV	2-6	KRUEGER	LMHS-10	1.00 in-wg	8"	580	175	290	0	290	175	290	0	1	10000	160	138.7	2	0.32	0.22 in-wg	35	86.9 F	17	20	1,2,3,4,5
VAV	2-7	KRUEGER	LMHS-06	1.00 in-wg	6"	1150	350	350	0	350	350	350	0	1.5	11800	160	142.4	2	0.47	0.18 in-wg	35	87.8 F	16	19	1,2,3,4,5
VAV	2-8	KRUEGER	LMHS-10	1.00 in-wg	10"	780	235	390	0	390	235	390	0	1.25	12900	160	138.2	2	0.23	0.19 in-wg	35	85.4 F	11	14	1,2,3,4,5
VAV	2-9	KRUEGER	LMHS-08	1.00 in-wg	8"	420	130	210	0	420	130	420	0	1.5	14400	160	139.8	2	0.62	0.13 in-wg	35	86.5 F	14	17	1,2,3,4,5
VAV	2-10	KRUEGER	LMHS-06	1.00 in-wg	8"	440	135	220	0	220	135	220	0	0.75	6500	160	141.6	1	0.62	0.08 in-wg	35	82.3 F	15	18	1,2,3,4,5
VAV	2-11	KRUEGER	LMHS-06	1.00 in-wg	6"	340	105	170	0	340	105	340	0	1.5	11400	160	143.9	2	0.47	0.15 in-wg	35	85.9 F	16	19	1,2,3,4,5
VAV	2-12	KRUEGER	LMHS-06	1.00 in-wg	6"	320	100	160	0	230	100	320	0	1.25	10900	160	141.5	2	0.35	0.16 in-wg	35	86.4 F	15	18	1,2,3,4,5
VAV	2-13	KRUEGER	LMHS-08	1.00 in-wg	8"	500	150	250	0	500	150	500	0	1.75	17800	160	138.5	2	0.79	0.20 in-wg	35	87.8 F	14	18	1,2,3,4,5
COMMENTS:																									
1	CAPACITY BASED ON 35% PROPYLENE GLYCOL																								
2	CAPACITY BASED ON 55 DEG. FAWT																								
3	HEATING CAPACITY BASED ON MAXIMUM HEATING AIRFLOW LISTED																								
4	PROVIDE WITH CONTROLS ENCLOSURE FOR FIELD INSTALLED CONTROLS																								
5	PROVIDE WITH HINGED ACCESS DOOR ON BOTTOM OF THE BOX																								

WATER SOFTENER SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURE	MODEL	EXCHANGE CAP. @ 60 LB SALT	PIPE SIZE	FLOW RATE		BACKWASH RATE	TANK SIZES		ELECTRICAL			COMMENTS
						PEAK	CONTINUOUS		SOFTENER	BRINE	VOLTAGE	PHASES	MCA	
WS	1	CULLIGAN	CTM-120-PF	119	2"	73 GPM	55 GPM	8 GPM	16 DIA. X 65 H	24 DIA. X 50 H	120	1	1 A	1-6

COMMENTS:

- DUPLEX MODEL WITH ONE (1) COMMON BRINE TANK.
- UNIT SHALL BE A DUPLEX PARALLEL WATER METER/DEMAND AUTOMATIC WATER SOFTENER. WATER SOFTENER CONTROLS SHALL BE SET UP FOR PROGRESSIVE OPERATION TO OPERATE BOTH TANKS SIMULTANEOUSLY.
- PERFORMANCE SHOWN IS PER BRINE TANK.
- INSTALL ON 4" HIGH CONCRETE PAD TO BE PROVIDED BY THE GENERAL CONTRACTOR.
- PERFORMANCE BASED ON 22 GPG INFLUENT HARDNESS.
- MAXIMUM 25 PSI PRESSURE DROP AT 73 GPM FLOW.

WATER HEATER SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	LOCATION	SERVES	STORAGE CAPACITY	FUEL	GAS INPUT	ELECTRIC INPUT	RECOVERY RATE	TEMP. RISE	VOLTAGE	PHASES	COMMENTS
WH	1	A. O. SMITH	BTHL-400A	MECHANICAL 113	DOMESTIC HOT WATER	220.0 gal	NG	399900		451	100 °F	120	1	1-6
WH	2	A. O. SMITH	BTHL-400A	MECHANICAL 113	DOMESTIC HOT WATER	220.0 gal	NG	399900		451	100 °F	120	1	1-6
WH	3	CHRONOMITE	CMI-12L277	UNISEX TOILET 216	DOMESTIC HOT WATER	0.0 gal	ELEC.		3.3 kW	0	65 °F	277	1	7-8

COMMENTS:

- PROVIDE AGA-RATED TEMPERATURE AND PRESSURE RELIEF VALVE.
- ASME CERTIFIED.
- PROVIDE WITH CONDENSATE NEUTRALIZER KIT.
- PROVIDE WITH AMERICAN WHEATLEY BDT-26 ASME CERTIFIED EXPANSION TANK. (DET-1)
- INSTALL OF 4" THICK CONCRETE HOUSEKEEPING PAD PROVIDED BY THE GENERAL CONTRACTOR.
- SEALED COMBUSTION DIRECT EXHAUST UNIT.
- INSTANTANEOUS ELECTRIC TANKLESS. THERMOSTATIC CONTROL, MINIMUM OPERATING PRESSURE: 25-PSI, 0.2 GPM ACTIVATION FLOW RATE, 65°F RISE AT 0.35 GPM FLOW RATE. BUILT-IN ASSE 1070 TMV SET: 105°F. MOUNT BELOW LAVATORY.
- ENTERING WATER TEMP = 40°F, LEAVING WATER TEMP = 105°F.

BOOSTER PUMP SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	SUCTION PRESSURE (INLEST SIDE)	DISCHARGE PRESSURE (OUTLET SIDE)	TOTAL GPM	ELECTRICAL			RPM	COMMENTS
							VOLTAGE	PHASES	HP (PER PUMP)		
DBP	1	BELL & GOSSETT	HV204L-33SVX2	30 psi	80 psi	180	480	3	10	3600	1-8

COMMENTS:

- DESCRIPTION: SKID MOUNTED DUPLEX BOOSTER PUMP SYSTEM WITH MULTI-PUMP CONTROLLER, VFDS FOR EACH PUMP FACTORY WIRED, AND 4" STAINLESS STEEL SUCTION/DISCHARGE HEADERS.
- INSTALL SKID ON 4" HIGH CONCRETE PAD TO BE PROVIDED BY THE GENERAL CONTRACTOR. COORDINATE WITH THE GENERAL CONTRACTOR.
- PROVIDE PRESSURE GAUGE ON SUCTION AND DISCHARGE HEADERS.
- CONTROL PANEL SHALL HAVE MAIN POWER DISCONNECT SWITCH AND PREWIRED FOR SINGLE POINT POWER CONNECTION BY THE ELECTRICAL CONTRACTOR. CONTROL PANEL SHALL HAVE NEMA 1 ENCLOSURE.
- PROVIDE ISOLATION VALVES AT EACH PUMP SUCTION AND DISCHARGE.
- PROVIDE CONTROL PANEL WITH ALARM DRY CONTACT FOR CONNECTION TO THE BAS FOR MONITORING.
- PROVIDE FACTORY INSTALLED AND WIRED PRESSURE SENSOR ON DISCHARGE PIPING TO CONTROL PUMP OPERATION.
- WESFELS 211 GALLON DRAWDOWN TANK TO BE SHIPPED LOOSE FOR FIELD INSTALLATION. WORKING PRESSURE OF 125 PSIG. INSTALL ON 4" HIGH CONCRETE PAD TO BE PROVIDED BY THE GENERAL CONTRACTOR. COORDINATE WITH THE GENERAL CONTRACTOR.

BACKFLOW PREVENTION DEVICE SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	TYPE	LOCATION	SYSTEM SERVED	SIZE (IN)	FLOW RATE		MAX PRESSURE DROP (PSI)	NOTES
								MAX (GPM)			
BPD	1	WATTS	LF709	DCVA	MECHANICAL 113	MAIN WATER SERVICE	4"	300		5	1,2
BPD	2	WATTS	LF007	DCVA	MECHANICAL 113	LAWN IRRIGATION SERVICE	2"	80		5	1,2
BPD	3	WATTS	LF909	RPZA	MECHANICAL 113	NON-POTABLE SERVICE	2-1/2"	110		14	2,3

COMMENTS:

- BACKFLOW PREVENTION DEVICE SHALL MEET STANDARDS ASSE 1015.
- BACKFLOW PREVENTION DEVICE TO BE FIELD CERTIFIED PRIOR TO OWNER OCCUPANCY.
- PROVIDE AIR GAP FITTING AND ROUTE RELIEF TO FLOOR SINK.

HOT WATER PRESSURE WASHER SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	GPM	FUEL TYPE	HEATING BTUH	PRESSURE PSI	HP	ELECTRICAL		COMMENTS
									VOLTAGE	PHASES	
PW	1	AALADIN	3530	5	NG	440000	3000	10	240	3	1,2,3,4
PW	2	AALADIN	3530	5	NG	440000	3000	10	240	3	2,3,4,5

COMMENTS:

- PROVIDE WITH TWO HOSE REELS WITH 150 FT OF 1/2" HEAVY DUTY HIGH PRESSURE HOSE AND TWO INSULATED TRIGGER GUNS WITH INSULATED WANDS WITH ADJUSTABLE SIDE HANDLE.
- PROVIDE WITH DRAFT DIVERTER
- PROVIDE WITH MULTI-REMOTE CONTROL STATIONS WITH WATER RESISTANT CABINET.
- PROVIDE TIME DELAY WITH THERMAL SHUTDOWN.
- PROVIDE WITH ONE HOSE REEL WITH 150 FT OF 1/2" HEAVY DUTY HIGH PRESSURE HOSE AND ONE INSULATED TRIGGER GUN WITH INSULATED WAND WITH ADJUSTABLE SIDE HANDLE.

RADIANT PANEL SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	BTUH	GPM	AVERAGE WATER TEMPERATURE	AIR TEMPERATURE	PANEL LENGTH	PANEL WIDTH	COMMENTS
RCP	1	AIRTEX	HPH2448L PANEL	1050	0.75 GPM	145 °F	70 °F	2' - 0"	4' - 0"	1,2,3,4,5

COMMENTS:

- AIR TEMPERATURE OF 70 DEG. F.
- 35% PROPYLENE GLYCOL.
- COORDINATE FRAME STYLE WITH CEILING TYPE.
- PROVIDE WITH 1" THICK FIBERGLASS INSULATION ON TOP OF PANEL. INSULATION SHALL BE RATED FOR INSTALLATION IN A RETURN AIR PLENUM (25/50).
- FACTORY WHITE PANEL COLOR.

AIR COMPRESSOR SCHEDULE

UNIT TYPE	UNIT NUMBER	MANUFACTURER	MODEL	HP	TYPE	CAPACITY CFM@ 90 PSI	RPM	RECIEVER	REDUCING VALVE		ELECTRIC		COMMENTS
									IN	OUT	VOLTAGE	PHASES	
AC	1	INGERSOLL RAND	2545K10V	10	VERTICAL	35.600	800	120	175 psi	100 psi	480	3	1-6
AC	2	INGERSOLL RAND	2545K10V	10	VERTICAL	35.600	800	120	175 psi	100 psi	480	3	1-6

COMMENTS:

- PROVIDE WITH A COMBINATION DELUXE ALTERNATOR PANEL (MONTED AND WIRED) WHICH SHALL ENABLE BOTH COMPRESSION UNITS TO OPERATE IN RESPONSE TO SYSTEM DEMAND. ALTERNATOR PANEL SHALL INCLUDE (2) DEFINITE PURPOSE (DP) STARTERS WITH OVERLOADS, (1) CONTROL RELAY FOR ALTERNATION, (2) ON/OFF SWITCHES, FUSED CONTROL CIRCUIT, (2) FUSED DISCONNECT SWITCHES WITH DOOR INTERLOCK, (2) 120 VOLT CONTROL TRANSFORMERS, (2) RESET BUTTONS, AND NEMA 1 IUL & CSA APPROVED.)
- PROVIDE WITH AIR-COOLED REFRIGERATED DRYER. SEPARATE 120V/1PH POWER CONNECTION PROVIDED BY ELECTRICAL CONTRACTOR.
- PROVIDE WITH LOW OIL LEVEL SWITCH.
- PROVIDE WITH HIGH EFFICIENCY COALESING FILTER.
- PROVIDE WITH ELECTRIC DRAIN VALVE.
- PROVIDE WITH INSTALLATION KIT TO INCLUDE VIBRATION ISOLATION PADS, 3-FOOT STAINLESS STEEL BRAIDED HOSE, AND WEDGE ANCHOR BOLTS.

PLUMBING FIXTURE SCHEDULE

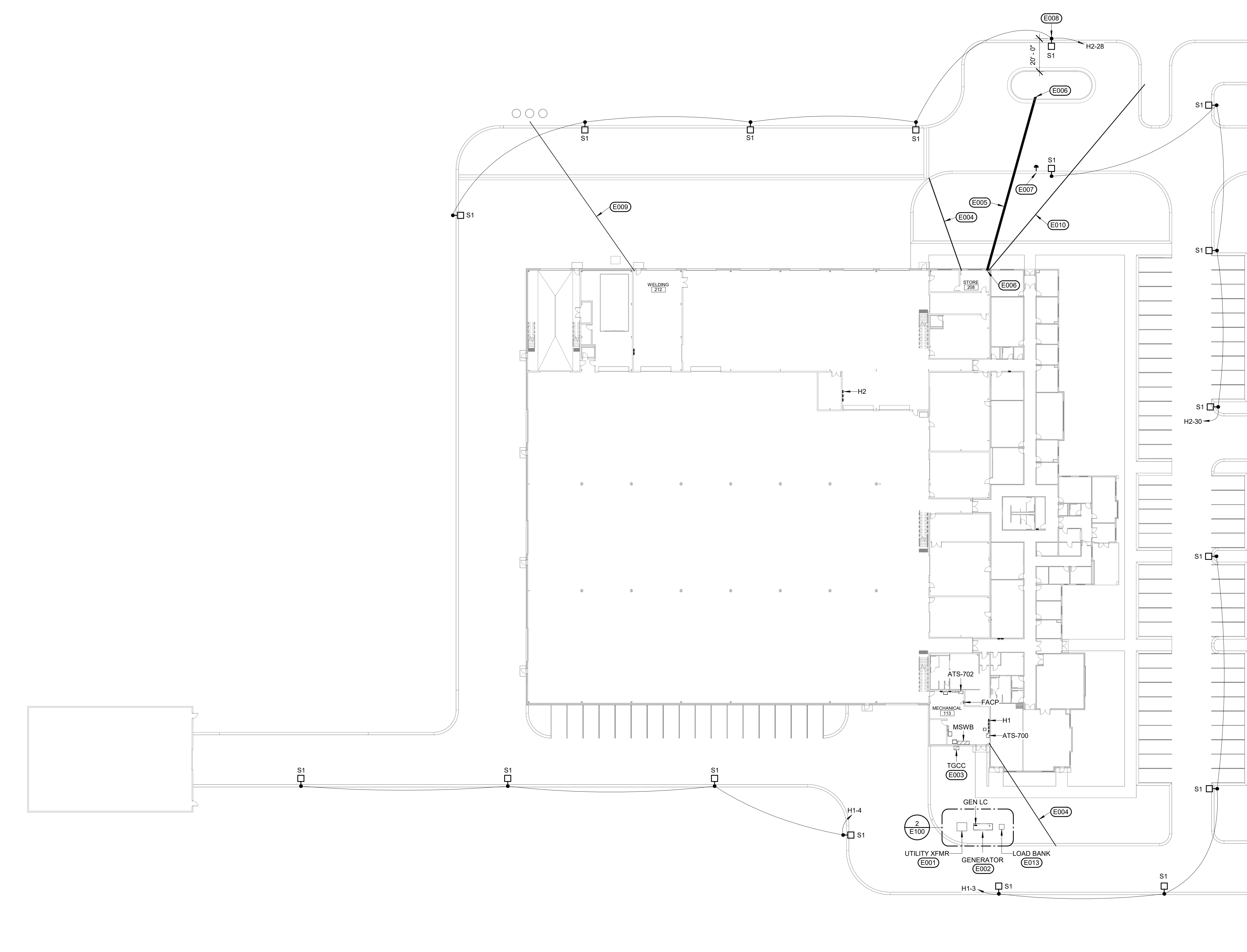
UNIT TYPE	UNIT NUMBER	FIXTURE TYPE	MANUFACTURER	MODEL	TRIM	SUPPLIES	WASTE	WASTE	VENT	SUPPLY		TRIM/REMARKS
										CW	HW	
WC	1	WATER CLOSET, FLUSH VALVE, WALL HUNG, ELONG	AMERICAN STANDARD	2257.101	SLOAN REGAL, 111-SFSM-1.28-TMO SENSOR, BATTERY OPERATED	--	--	4"	2"	1 1/4"		CHURCH 9500SSCT SEAT, JOSAM SERIES 12000 CARRIER. CARRIER TO BE PROVIDE WITH 2" AUXILIARY WASTE CONNECTION FOR WATER CLOSETS LOCATED IN WOMEN'S 122 AND TOILET 145. TOP SPUD.
WC	2	WATER CLOSET, FLUSH VALVE, WALL HUNG, ELONG, ADA	AMERICAN STANDARD	2257.101	SLOAN REGAL, 111-SFSM-1.28-TMO SENSOR, BATTERY OPERATED	--	--	4"	2"	1 1/4"		CHURCH 9500SSCT SEAT, JOSAM SERIES 12000 CARRIER. CARRIER TO BE PROVIDE WITH 2" AUXILIARY WASTE CONNECTION FOR WATER CLOSET LOCATED IN ADA TOILET 146. TOP SPUD, MOUNT SEAT AT 19" MAX. TRIP LEVER TO WIDE SIDE OF STALL.
UR	1	URINAL, WALL HUNG	AMERICAN STANDARD	6590.001	SLOAN REGAL, 186-SFSM-0.5-TMO SENSOR, BATTERY OPERATED	--	--	2"	1 1/2"	3/4"		JOSAM SERIES 17000 CARRIER
UR	2	URINAL, WALL HUNG, ADA	AMERICAN STANDARD	6590.001	SLOAN REGAL, 186-SFSM-0.5-TMO SENSOR, BATTERY OPERATED	--	--	2"	1 1/2"	3/4"		JOSAM SERIES 17000 CARRIER, MOUNT TOP OF RIM AT 17" MAX. A.F.F. TRIP LEVER TO WIDE SIDE OF STALL.
L	1	INTERGRAL COUNTERTOP AND SINK BY OTHERS	--	--	SLOAN OPTIMA, EAF-150, 0.5GPM AERATED FLOW SENSOR, BATTERY OPERATED	BRASSCRAFT, KTSCR19C	GRID DRAIN	2"	1 1/2"	1/2"	1/2"	VANDAL RESISTANT 0.5 GPM FLOW OUTLET AND THERMOSTATIC MIXING FOR SINGLE FAUCET AND 4" COVER PLATE. OFFSET GRID DRAIN, TRUEBRO LAV GUARD TAILPIECE INSULATION, SUPPLY KIT WITH STOP VALVE AND TUBE RISERS. PROVIDE ASSE 1070 RATED THERMAL MIXING VALVE LOCATED DOWNSTREAM OF THE FIXTURE STOPS.
SK	1	SINK - STAINLESS STEEL, DOUBLE COMPARTMENT	ELKAY	LRAD331965PD	ZURN, Z871C4-XL-HS	BRASSCRAFT, KTSCR19C	LKPD1 STRAINER	2"	1 1/2"	1/2"	1/2"	DOUBLE COMPARTMENT STAINLESS STEEL COUNTERTOP SINK, REAR CENTER DRAIN OUTLET, HOLE DRILLING CONFIGURATION 4 (4 HOLES AT 4" OC.), 8" GOOSENECK SPOUT, 1.5 GPM AERATOR FLOW OUTLET, CERAMIC DISK CARTRIDGES, 4" WRIST BLADE HANDLES WITH HAND SPRAY. PROVIDE WITH 17 GAUGE CHROME PLATED P TRAP, STRAINER, AND SUPPLY KIT WITH KEVED ANGLED STOP VALVE AND TUBE RISERS. SEE ARCHITECTURAL PLANS FOR COUNTERTOP ELEVATIONS. COORDINATE SINK OPENING WITH COUNTERTOP MILLWORK. PROVIDE ASSE 1070 RATED THERMAL MIXING VALVE LOCATED DOWNSTREAM OF THE FIXTURE STOPS.
SK	2	FLOOR MOUNTED UTILITY SINK	FIAT	FL-1	FIAT, A1 FAUCET	BRASSCRAFT, KTSCR19C	--	2"	1 1/2"	1/2"	1/2"	4" CENTERSET CHROME PLATED, METAL FAUCET WITH 6-3/4" SWING SPOUT, 4" WRIST BLADE HANDLES, RUBBER STOPPER & DRAIN ASSEMBLY, CHECK VALVES, 17 GAUGE CHROME PLATED P TRAP, AND SUPPLY KIT WITH KEVED ANGLED STOP VALVE AND TUBE RISERS. PROVIDE ASSE 1070 RATED THERMAL MIXING VALVE LOCATED DOWNSTREAM OF THE FIXTURE STOPS.
EWC	1	FILTERED AND REFRIGERATED WATER CHILLER, SPLIT LEVEL W/ WATER BOTTLE FILLER, ADA	ELKAY	LZSTL8WSLK	--	BRASSCRAFT, KTSCR19C	--	2"	1 1/2"	1/2"		DUAL WATER COOLER WITH ELECTRONIC SENSOR OPERATED BOTTLE FILLER, WALL MOUNTED, ANTI-SQUIRT BUBBLER, SS TON AND SHROUD, FRONTSIDE PUSH BARS, ACCESSORIES: PROVIDE 3-PACK FILTER REPLACEMENT, CANE APRON, 17 GA. C.P. P-TRAP AND SUPPLY. NOTES: VERIFY AND COORDINATE FINAL ORIENTATION WITH ARCHITECTURAL LAYOUTS. ELECTRICAL: 120V, 1.1 AMP
SH	1	SHOWER - TILED SURROUND	--	--	ZURN, Z7301-SS-MT-S8	--	2" FLOOR DRAIN		1/2"	1/2"		SHOWER TRIM, FLOOR VOLUME CONTROL HANDLE, THERMOSTATIC VALVE CARTRIDGE
SH	2	SHOWER - TILED SURROUND - ADA	--	--	ZURN, Z7301-SS-MT-DV2P-HW-H7-S8	--	2" FLOOR DRAIN		1/2"	1/2"		ALL METAL TRIM, FIXED AND HAND SHOWER HEADS, SLIDE BAR, DIVERTER VALVE, INLINE VACUUM BRAKER
UB	1	UTILITY BOX, LAUNDRY	GUY GRAY	WB200HA	--	--	--	2"	1 1/2"	1/2"	1/2"	BOTTOM CW & HW W/ ARRESTERS, 2" DRAIN SUITABLE FOR RECESSED OR SURFACE MOUNTING
WH	1	WALL HYDRANT W/ BACKFLOW PREVENTED BOX AND DOOR	WOODFORD	867	--	--	--	--	--	--	3/4"	FREEZE RESISTANT, SELF DRAINING W/ BACKFLOW PREVENTOR, REMOVABLE KEY, BOX AND DOOR. MOUNT AT 24" A.F.G.
HB	1	HOSE BIB - COLD WATER	WOODFORD	26	--	--	--	--	--	--	3/4"	ANTI-SIPHON WITH VACUUM BREAKER, ONLY INSTALLED IN NON-FREEZING AREAS. MOUNT AT 36" AFF.
HB	2	HOSE BIB - HOT WATER	WOODFORD	26	--	--	--	--	--	--	3/4"	ANTI-SIPHON WITH VACUUM BREAKER, ONLY INSTALLED IN NON-FREEZING AREAS. MOUNT AT 36" AFF.
ESH	1	EMERGENCY SHOWER & EYE/FACE WASH	BRADLEY	S19314	--	--	--	--	1 1/4"	1 1/4"		STAINLESS STEEL PIPE MATERIAL AND BALL VALVE. PLASTIC SHOWER HEAD, WITH PLASTIC SHROUD, STAINLESS STEEL HALO EYE/ FACE RECEPTOR AND DUST COVER. STRAINER, INTERNAL FILTERS, STAY OPEN SS VALVES, SS PULL ROD W/ TRIANGLE HANDLE, PUSH FLAG PEDAL, UNIVERSAL EMERGENCY SIGN, BRADLEY S19-2150 EMERGENCY FIXTURE THERMOSTATIC MIXING VALVE (TMV-2), PIPED ASSEMBLY WITH INLET AND OUTLET SHUTOFF, SURFACE MOUNTED STAINLESS STEEL CABINET W/ WINDOW IN DOOR.
HR	1	HOSE REEL - COLD WATER	REELCRAFT	83075 OLP	--	--	--	--	3/4"			PROVIDE WITH VACUUM BREAKER AND 75 FEET OF 3/4" DIAMETER HOSE.
HR	2	HOSE REEL - HOT WATER	REELCRAFT	83075 OLP	--	--	--	--	3/4"			PROVIDE WITH VACUUM BREAKER AND 75 FEET OF 3/4" DIAMETER HOSE.
HR	3	HOSE REEL - COMPRESSED AIR	REELCRAFT	83075 OLP	--	--	--	--				PROVIDE WITH 75 FEET OF 3/4" DIAMETER HOSE. COORDINATE OUTLET TYPE WITH OWNER.
MSK	1	MOP SINK, FLOOR MOUNTED	FIAT	MSB-2424	ZURN, Z843M1-RC-CS W/ VACUUM BREAKER	--	SS DOME STRAINER	3"	2"	3/4"	3/4"	HOSE AND BRACKET, MOP HANGER, CERAMIC DISK CARTRIDGES, STAINLESS STEEL BUMPER GAUGES, STAINLESS STEEL WALL GAUGES.
FD	1(2')	FLOOR DRAIN	JAY R SMITH	2005	--	--	--	2"	2"			9" DIAMETER CAST IRON BODY, 5" DIAMETER NICKEL BRONZE STRAINER HEAD, HEELPROOF GRATE, ACCESSORIES: VANDAL PROOF SCREWS.
FD	1(3')	FLOOR DRAIN	JAY R SMITH	2005	--	--	--	3"	2"			9" DIAMETER CAST IRON BODY, 5" DIAMETER NICKEL BRONZE STRAINER HEAD, HEELPROOF GRATE, ACCESSORIES: VANDAL PROOF SCREWS.
FD	2(3')	FLOOR DRAIN	JAY R SMITH	2350	--	--	--	3"	2"			12" DIAMETER CAST IRON BODY, 8 1/2" DIAMETER DUCTILE IRON BUCKET AND GRATE. ACCESSORIES: VANDAL PROOF SCREWS, ENAMEL COATED CAST IRON BODY WITH FLANGE, CLAMPING COLLAR, SEDIMENT BUCKET, BOTTOM OUTLET, AND NO-HUB JOINT.
FD	2(4')	FLOOR DRAIN	JAY R SMITH	2350	--	--	--	4"	2"			12" DIAMETER CAST IRON BODY, 8 1/2" DIAMETER DUCTILE IRON BUCKET AND GRATE. ACCESSORIES: VANDAL PROOF SCREWS, ENAMEL COATED CAST IRON BODY WITH FLANGE, CLAMPING COLLAR, SEDIMENT BUCKET, BOTTOM OUTLET, AND NO-HUB JOINT.
FD	3(4')	TRAFFIC FLOOR DRAIN	JAY R SMITH	2470-M	--	--	--	4"				CAST IRON BODY WITH DUCTILE IRON HINGED GRATE, AND SEDIMENT BUCKET. GRATE TO MEET ASME SPECIAL DUTY LOAD RATING.
FD	4(3')	FLOOR DRAIN W/ FUNNEL	JAY R SMITH	2005	--	--	--	3"	2"			9" DIAMETER CAST IRON BODY, 5" DIAMETER NICKEL BRONZE STRAINER HEAD, ACCESSORIES: JAY R SMITH 9703 STAINLESS STEEL FUNNEL, VANDAL PROOF SCREWS.
FS	1(4')	FLOOR SINK	JAY R SMITH	3151	--	--	--	4"	2"			12" SQUARE, 8" DEEP, PORCELAIN ENAMEL, ACID RESISTANT COATED, CAST IRON BODY. ACCESSORIES: SEDIMENT BUCKET, 1/2-NICKEL BRONZE GRATE.
FS	1(6')	FLOOR SINK	JAY R SMITH	3450	--	--	--	6"	3"			16" SQUARE, 12" DEEP, ACID RESISTANT COATED, CAST IRON BODY, ACCESSORIES: SEDIMENT BUCKET, 1/2 GRATE.
TD	1(25'-0")	6" WIDE TRENCH DRAIN	JAY R SMITH	9440	--	--	--	4"				6" WIDE, CLASS C SLOTTED GRATE, DUCTILE IRON
CB	1(2x2')	2 x 2 CATCH BASIN	JAY R SMITH	9960	--	--	--	4"				2X2' CATCH BASIN, CLASS C SLOTTED GRATE, DUCTILE IRON, STAINLESS SEDIMENT BUCKET, 9440 CHANNEL/CATCH BASIN ADAPTOR, 4" PIPE ADAPTOR
RD	1(4')	ROOF DRAIN	JAY R SMITH	1010Y	--	--	--	--				16" DIAMETER, ENAMEL COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDER DECK CLAMP, SUMP RECEIVER, ALUMINUM DOME, NO HUB JOINT.
RD	1(6')	ROOF DRAIN	JAY R SMITH	1010Y	--	--	--	--				16" DIAMETER, ENAMEL COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDER DECK CLAMP, SUMP RECEIVER, ALUMINUM DOME, NO HUB JOINT.
ORD	1(4')	OVERFLOW ROOF DRAIN	JAY R SMITH	1080Y	--	--	--	--				16" DIAMETER, ENAMEL COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDERDECK CLAMP, SUMP RECEIVER, 2" EXTERIOR WATER DAM, ALUMINUM DOME, NO-HUB JOINT.
ORD	1(6')	OVERFLOW ROOF DRAIN	JAY R SMITH	1080Y	--	--	--	--				16" DIAMETER, ENAMEL COATED CAST IRON BODY WITH FLANGE, FLASHING RING WITH GRAVEL STOP, UNDERDECK CLAMP, SUMP RECEIVER, 2" EXTERIOR WATER DAM, ALUMINUM DOME, NO-HUB JOINT.
DSN	1(4')	DOWNSPOUT NOZZLE	JAY R SMITH	1770Y	--	--	--	--				NICKEL BRONZE BODY NO HUB OUTLET.
DSN	1(6')	DOWNSPOUT NOZZLE	JAY R SMITH	1770Y	--	--	--	--				NICKEL BRONZE BODY NO HUB OUTLET.

COMMENTS:

- COMPLY WITH ALL MANUFACTURER INSTALLATION REQUIREMENTS TO PROVIDE COMPLETE AND OPERATIONAL FIXTURES.
- PROVIDE TRANSITION FITTING AS REQUIRED TO CONNECT TO BRANCH PIPING, WHICH MAY BE A DIFFERENT SIZE, AND AS SHOWN ON DRAWINGS. PROVIDE FIXTURE OPTIONS AS REQUIRED TO CONNECT TO SPECIFIED WASTE PIPING TYPE.
- PROVIDE STOP VALVES, BACKFLOW PREVENTERS AND SUPPORTS AS REQUIRED BY THE MANUFACTURER AND PLUMBING CODE.
- COORDINATE WITH ELECTRICAL DESIGN FOR POWER SUPPLY AND LOCATIONS.
- HOT WATER SHALL BE LIMITED TO ALL FIXTURES IN ACCORDANCE WITH ASSE STANDARDS: PUBLIC LAVATORIES SHALL BE LIMITED TO 110°F (ASSE 1070), SINGLE SHOWER LIMITED TO 120°F (ASSE 1016/ ASSE 1069), AND EMERGENCY EYEWASH/SHOWERS LIMITED TO 120°F (ASSE 1071). PROVIDE MIXING VALVE AND ANY ASSOCIATED ACCESS PANELS AS REQUIRED.

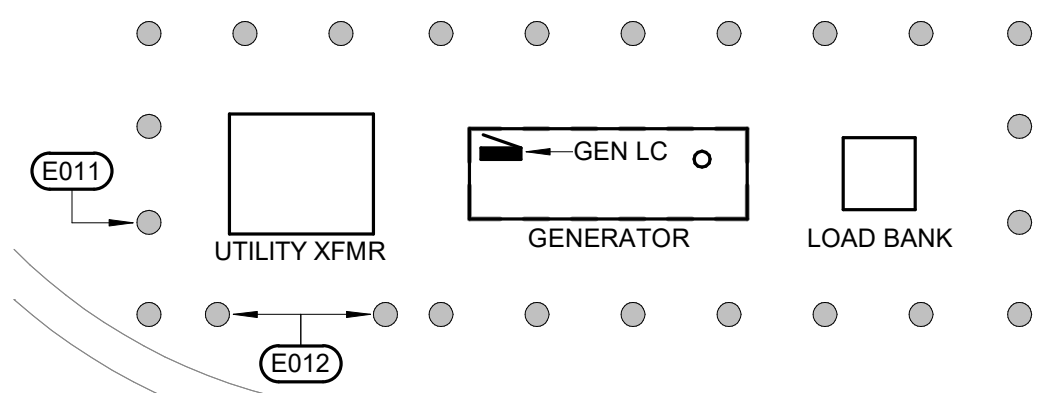
INFLOOR HEATING SCHEDULE

UNIT TYPE	ZONE NUMBER	LOCATION	SPACING	CAPACITY	EWT	LWT	GPM	HEAD	APPROXIMATE AREA
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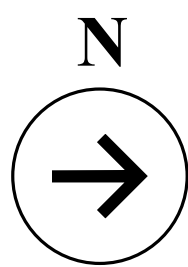
- ELECTRICAL SPECIFIC NOTES**
- E001 UTILITY TRANSFORMER. COORDINATE ALL SERVICE REQUIREMENTS WITH UTILITY (NORTHWESTERN ENERGY). PROVIDE PAD FOR THE TRANSFORMER PER UTILITY REQUIREMENTS. PROVIDE A CT CABINET AND METER SOCKET PER UTILITY REQUIREMENTS.
- E002 ENGINE GENERATOR. GENERATOR ENCLOSURE SHALL BE MINIMUM 4' IN ALL DIRECTIONS FROM OBSTRUCTIONS AND AT LEAST 5' FROM THE BUILDING. ALSO PROVIDE COMMUNICATIONS CABLING AS REQUIRED BY MANUFACTURER BETWEEN GENERATOR, CONTROL PANEL, ATS(S), ETC. COMMUNICATIONS CABLING SHALL BE INSTALLED IN DEDICATED CONDUIT, SIZED AS REQUIRED.
- E003 TEMPORARY GENERATOR CONNECTION CABINET.
- E004 PROVIDE (2) 1" CONDUIT STUB OUTS (ONE FOR POWER, ONE FOR COMMUNICATIONS) FOR MOTORIZED GATE. STUB ONE END UP NEAR THE CURB OF THE ROAD, AND THE OTHER END IN MECHANICAL 113. COORDINATE EXACT LOCATION FOR EXTERIOR STUB UP WITH ARCHITECTURAL SITE PLAN AND SHOP DRAWINGS.
- E005 PROVIDE (6) 1" CONDUIT STUB OUTS (THREE FOR POWER, THREE FOR COMMUNICATIONS) FOR FUEL ISLAND PUMP STATIONS. STUB ONE END OF THE CONDUITS UP AT THE FUEL ISLAND, AND THE OTHER END ON THE EXTERIOR WALL OF STORE 208. COORDINATE EXACT LOCATION FOR FUEL ISLAND STUB UPS WITH ARCHITECTURAL SITE PLAN AND SHOP DRAWINGS. ELECTRICAL SYSTEMS SHALL FULLY COMPLY WITH NEC ARTICLE 514.
- E006 PROVIDE EXPLOSION-PROOF SEAL FITTINGS ON THE FUEL ISLAND CONDUITS WITHIN 10FT OF EMERGING ABOVE GRADE. PER NEC 514.8, THIS SHALL BE THE FIRST FITTING AFTER THE CONDUIT EMERGES.
- E007 PROVIDE AN EMERGENCY SHUTOFF DISCONNECT IN A WEATHERPROOF ENCLOSURE AND MOUNTED ON A PEDESTAL. INSTALL DISCONNECT ACCORDING TO NEC 514.11. DEVICE SHALL DISCONNECT ALL CURRENT-CARRYING CONDUCTORS FOR ALL CIRCUITS RELATED TO THE FUEL ISLAND PUMP STATIONS, AND SHALL BE LOCATED NOT LESS THAN 20FT OR MORE THAN 100FT FROM THE FUEL DISPENSING DEVICES.
- E008 POLE LIGHT SHALL BE INSTALLED NOT LESS THAN 20FT AWAY FROM THE FUEL ISLAND PUMP STATION TO REMAIN CLEAR OF THE CLASSIFIED AREA. REFER TO ARCHITECTURAL SITE PLAN FOR EXACT DIMENSIONS OF THE FUEL ISLAND.
- E009 PROVIDE A 1-1/2" CONDUIT STUB OUT FOR HEATED ASPHALT TANKS. STUB ONE END UP NEAR THE CURB OF THE ROAD, AND THE OTHER END IN WELDING 212. COORDINATE EXACT LOCATION FOR EXTERIOR STUB UP WITH ARCHITECTURAL SITE PLAN AND SHOP DRAWINGS.
- E010 PROVIDE (2) 1" CONDUIT STUB OUTS (ONE FOR POWER, ONE FOR COMMUNICATIONS) FOR PUBLIC WATER STATION. STUB ONE END UP NEAR THE CURB OF THE ROAD, AND THE OTHER END IN WELDING 212. COORDINATE EXACT LOCATION FOR EXTERIOR STUB UP WITH ARCHITECTURAL SITE PLAN AND SHOP DRAWINGS.
- E011 PROVIDE CONCRETE BOLLARDS AND INSTALL ACCORDING TO BOLLARD DETAIL ON SHEET A20. BOLLARDS SHALL BE 36-INCHES CLEAR OF CONCRETE HOUSEKEEPING PADS AND SPACED NO MORE THAN 4-FOOT APART.
- E012 VERIFY BOLLARD SPACING COMPLIES WITH UTILITY REQUIREMENTS FOR ACCESSING TRANSFORMER.
- E013 LOAD BANK. SEE ONE-LINE DIAGRAM FOR ADDITIONAL INFORMATION.

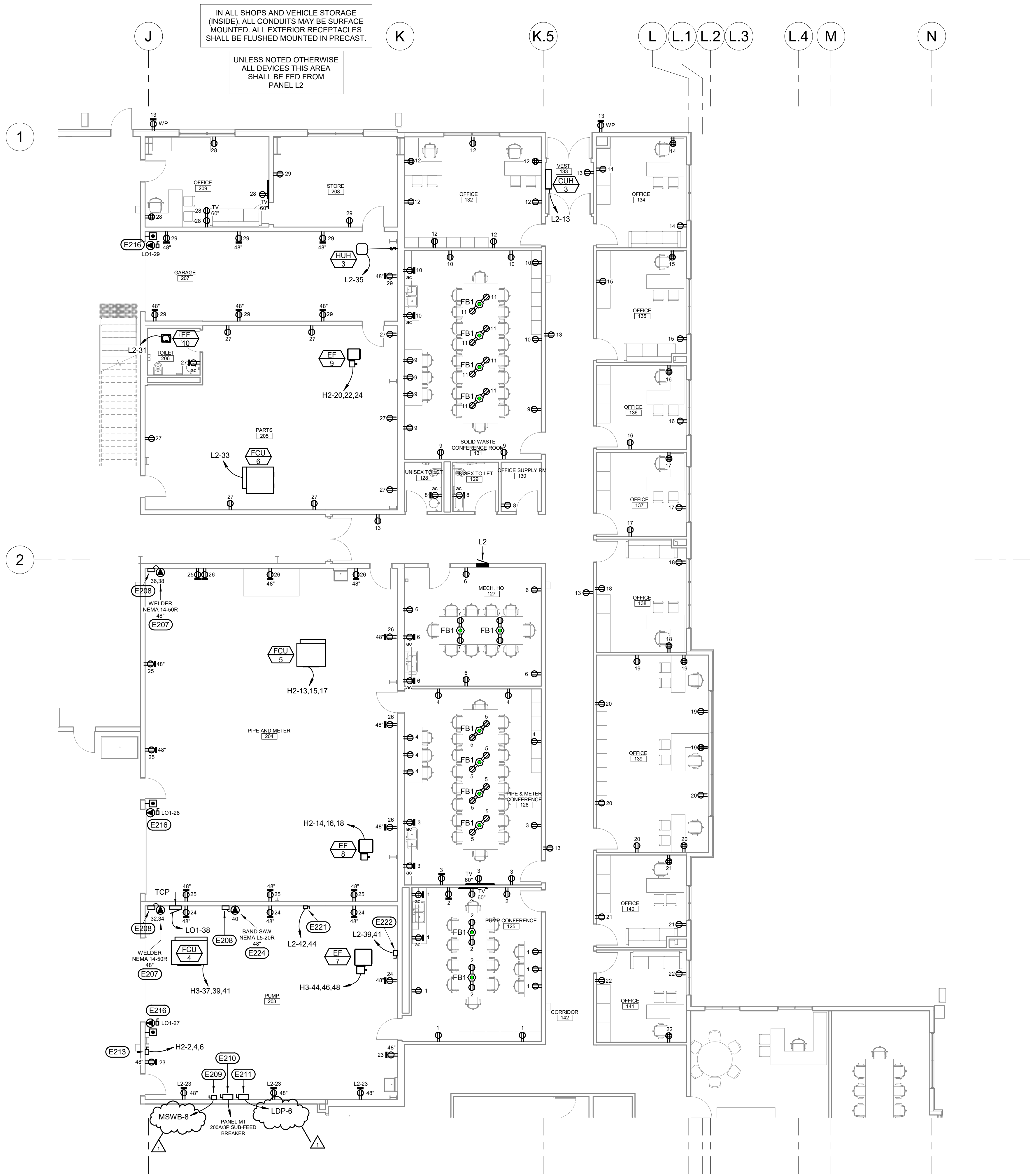
1 ELECTRICAL SITE PLAN
1" = 30'-0"



2 ENLARGED POWER PLAN - UTILITY XFMR & GENERATOR
1/8" = 1'-0"

3/11/26 ADDENDUM 2 CHANGES

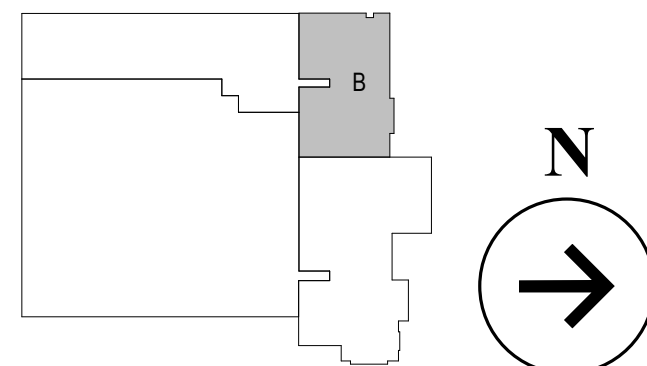




1 FIRST FLOOR POWER PLAN - AREA B
1/8" = 1'-0"

- ELECTRICAL SPECIFIC NOTES**
- E207 PROVIDE A NEMA 14-50R RECEPTACLE FOR WELDER. VERIFY WELDER LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- E208 PROVIDE AN EXTERNAL GFCI PROTECTION DEVICE SIZED FOR THE CIRCUIT SHOWN. INSTALL NEAR RECEPTACLE/EQUIPMENT IN A READILY ACCESSIBLE LOCATION. (NORTH SHORE SAFETY LINECARD PGFS OR EQUAL.)
- E209 PROVIDE A 100A FRAME NON-FUSED DISCONNECT FOR VOLTAGE TESTING. PROVIDE ENGRAVED LABEL "VOLTAGE TESTING FOR 480V/3PH, 100A".
- E210 PROVIDE A 200A FRAME NON-FUSED DISCONNECT FOR VOLTAGE TESTING. PROVIDE ENGRAVED LABEL "VOLTAGE TESTING FOR 240V/3PH, 200A".
- E211 PROVIDE A 200A FRAME NON-FUSED DISCONNECT FOR VOLTAGE TESTING. PROVIDE ENGRAVED LABEL "VOLTAGE TESTING FOR 208V/3PH, 200A".
- E213 PROVIDE A 30A FRAME NON-FUSED DISCONNECT FOR FREE-STANDING BRIDGE CRANE.
- E216 AUTOMATIC OVERHEAD DOOR PUSHBUTTON STATIONS AND OPERATORS. EQUIPMENT PROVIDED AND INSTALLED BY GC. CONNECTED/POWERED BY EC. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND COORDINATE EXACT REQUIREMENTS WITH ARCHITECTURAL SPECIFICATIONS/SHOP DRAWINGS. PROVIDE NECESSARY CONTROL WIRING FOR SAFETY FEATURES. COORDINATE EXACT LOCATIONS WITH OWNER AND OTHER TRADES TO MAKE ALL SERVICES FIT IN THIS AREA. TYPICAL.
- E221 PROVIDE A 30A FRAME NON-FUSED DISCONNECT FOR DRILL PRESS. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- E222 PROVIDE A 60A FRAME NON-FUSED DISCONNECT FOR PLASMA CUTTER. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- E224 PROVIDE A NEMA L5-20R LOCKING-TYPE RECEPTACLE FOR BAND SAW. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.

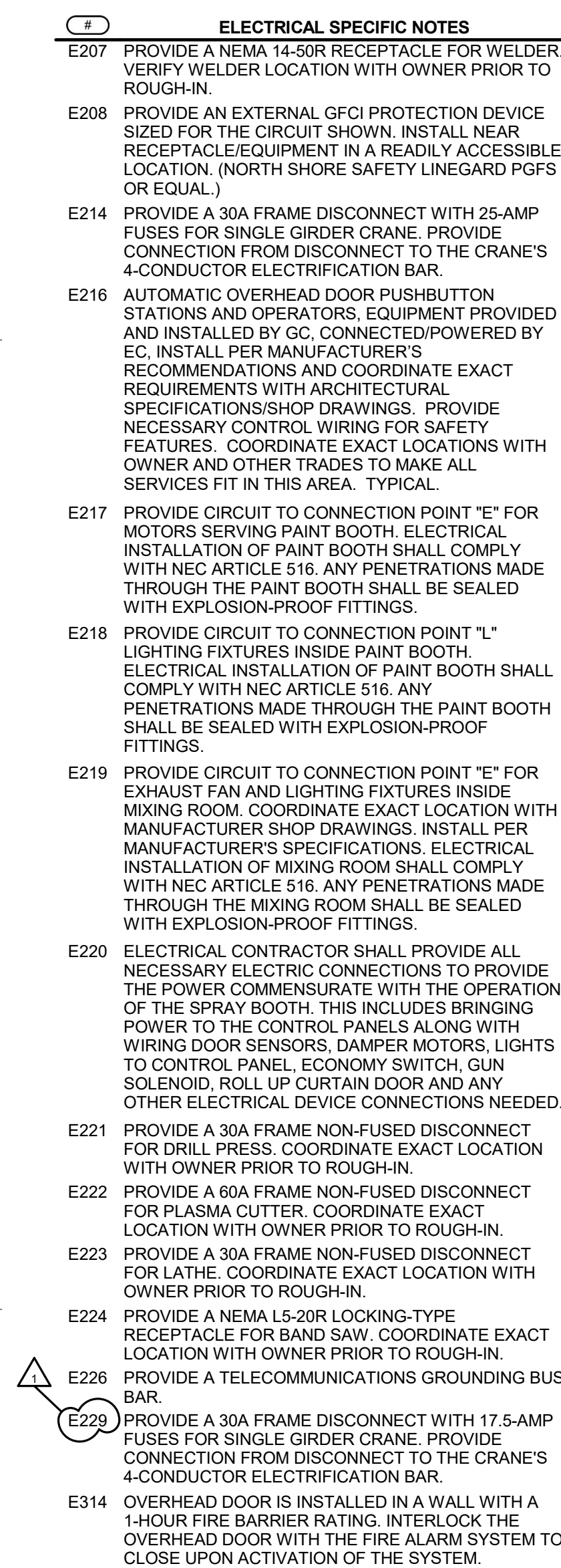
3/11/26 ADDENDUM 2 CHANGES



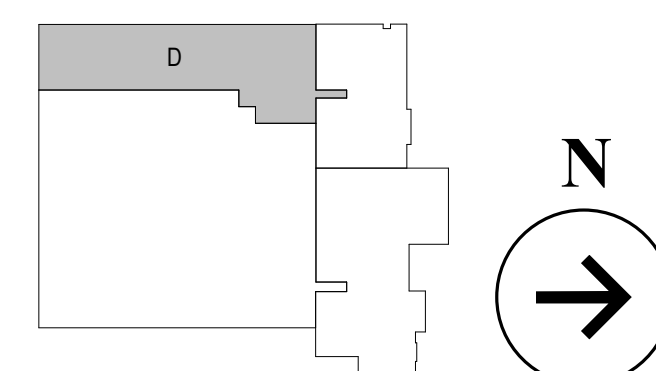
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hkg
architects

Plans for ABERDEEN PUBLIC WORKS Maintenance Building Aberdeen	FIRST FLOOR POWER PLAN - AREA B	Revised By: NR Revised On: NR Checked By: JK	E100B
HKG Architects, Inc.	Aberdeen, S.D.	Date: 02/20/26	Sheet: 8523045



1 3/11/26 ADDENDUM 2 CHANGES

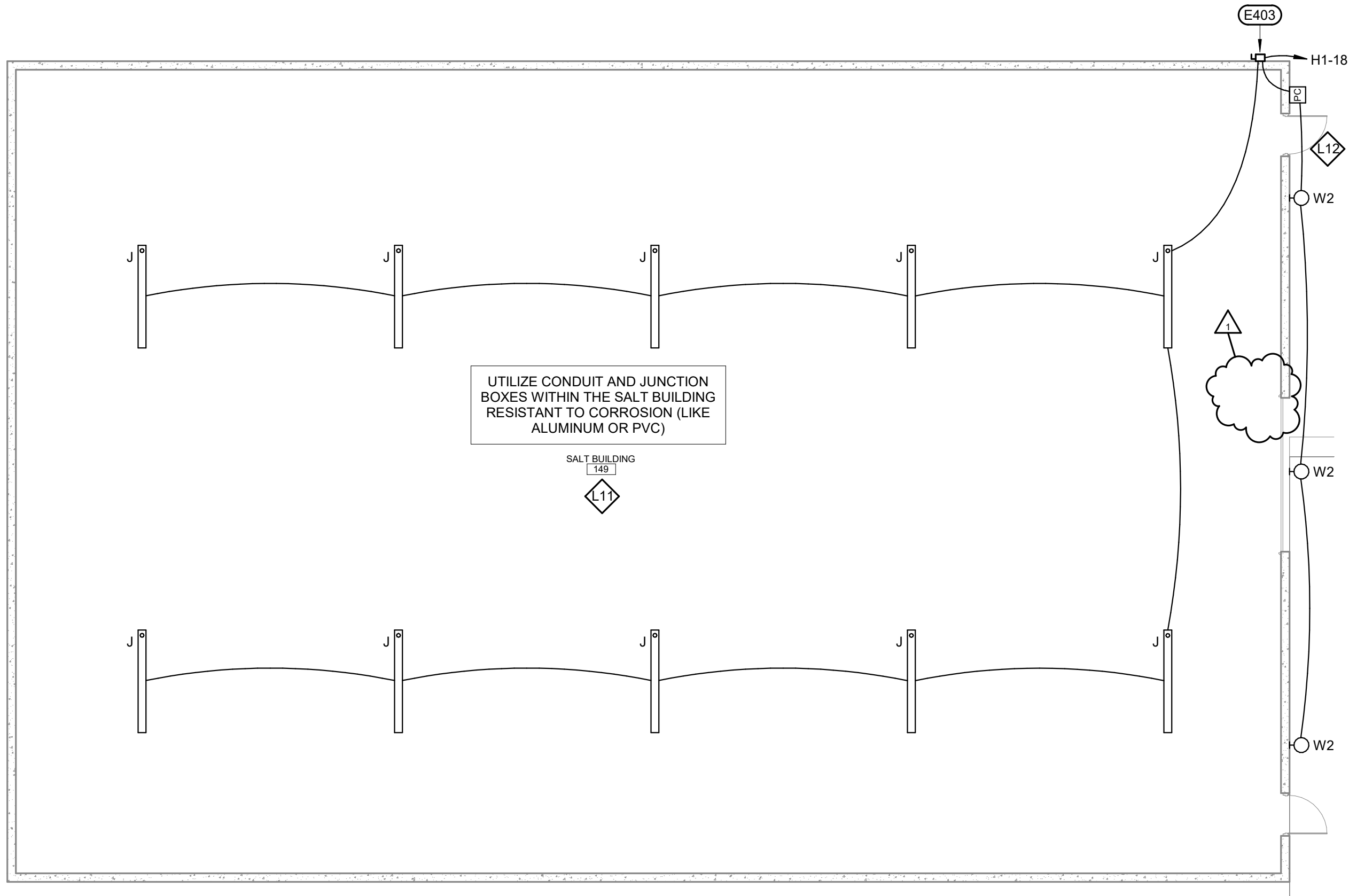


ELECTRICAL SPECIFIC NOTES

E403 PROVIDE A 30A NON-FUSED DISCONNECT IN A NEMA 3R ENCLOSURE FOR A LOCAL MEANS OF DISCONNECTING THE LIGHTING IN THE SALT STORAGE BUILDING.

LIGHTING CONTROL SEQUENCE OF OPERATIONS

- L11 SEQUENCE 11 - LIGHTING WITHIN A DEFINED ROOM OR SPACE SHALL BE CONTROLLABLE BY MEANS OF LOCAL OCCUPANCY SENSORS. LIGHTS SHALL BE PERMITTED TO BE ALL ON OR ALL OFF. OCCUPANCY SENSORS SHALL BE PROVIDED FOR 100% COMPLETE MINOR MOTION COVERAGE IN THE ROOM OR SPACE. OCCUPANCY SENSORS SHALL BE CEILING MOUNTED IF CEILINGS ARE PRESENT. THE CONTRACTOR SHALL CONFIRM THE PRESENCE OF A CEILING WITH THE DOCUMENTS. OCCUPANCY SENSORS SHALL TURN LIGHTS ON AND OFF (I.E. AUTO ON, AUTO OFF).
- L12 SEQUENCE 12 - EXTERIOR LIGHTING ON THE SALT BUILDING SHALL BE CONTROLLABLE BY MEANS OF A PHOTOCELL, SEPARATE FROM THE MAIN BUILDING. EXTERIOR LIGHTING SHALL TURN ON AT DUSK AND TURN OFF AT DAWN. LIGHTS SHALL BE PERMITTED TO BE ALL ON OR ALL OFF.

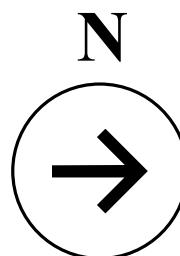


1 SALT BUILDING ELECTRICAL PLAN
1/8" = 1'-0"

LIGHTING/SWITCHING KEY	
LOW VOLTAGE SWITCHES	5" - ON / OFF
5" - ON / OFF / DIMMING	5" - ON / OFF / DIMMING
5" - ON / OFF / DIMMING	5" - ON / OFF / DIMMING
5" - ON / OFF / DIMMING	5" - ON / OFF / DIMMING



3/11/26 ADDENDUM 2 CHANGES



WPE
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hkg
architects

Plans for ABERDEEN PUBLIC WORKS Maintenance Building Aberdeen	SALT BUILDING ELECTRICAL PLAN	NR NR JK	E102
HWG Architects, Inc.	Aberdeen, S.D.	02/20/26	BS23045

MAIN SWITCHBOARD: MSWB

MOUNTING:		VOLTAGE:		PHASES:		WIRE:		MAIN CAPACITY:	
SURFACE		480/277 Wye		3		4		1600 A	
FEEDER SIZE:		SEE ONE-LINE DIAGRAM		LOCATION:		MECHANICAL 113		MAIN CONNECTION:	
CT		ITEM FED		WIRE SIZE		A		B	
1		ATS-702 / PANEL ODP	400 A	3	400 A	SEE ONE-LINE DIAGRAM	46784	52214	52478
2		ATS-700 / PANEL HE1	200 A	3	250 A	SEE ONE-LINE DIAGRAM	9638	6537	2423
3		XFMR T1 / PANEL LDP	450 A	3	450 A	SEE ONE-LINE DIAGRAM	127058	122121	133899
4		PANEL H1	200 A	3	200 A	SEE ONE-LINE DIAGRAM	37405	36377	37769
5		PANEL H2	200 A	3	200 A	SEE ONE-LINE DIAGRAM	40983	42756	37213
6		PANEL H3	400 A	3	400 A	SEE ONE-LINE DIAGRAM	61346	61346	61346
7		XFMR TM1 / PANEL M1	125 A	3	125 A	SEE ONE-LINE DIAGRAM	27545	24655	27545
8		E209 DISCONNECT FOR VOLTAGE TESTING	100 A	3	100 A	#4	18013	18013	18013
9		SPARE	200 A	3	200 A		0	0	0
10		SPACE (400-AMP FRAME)	--	3	--		--	--	--
11		SPACE (400-AMP FRAME)	--	3	--		--	--	--
TOTAL LOAD:		1103508 W		AMPS:		TOTAL CONNECTED LOAD:		368752 W	
LOAD CLASSIFICATION		CONNECTED LOAD		DEMAND FACTOR		ESTIMATED DEMAND		PANEL TOTALS	
Heating		18300 VA		100.00%		18300 VA		TOTAL CONN. LOAD: 1103508 VA	
Lighting		88203 VA		100.00%		88203 VA		TOTAL EST. DEMAND: 1013503 VA	
Motor		531551 VA		102.05%		542442 VA		TOTAL CONN. AMPS: 1327 A	
Other		203574 VA		100.00%		203574 VA		TOTAL EST. DEMAND AMPS: 1219 A	
Power		1000 VA		100.00%		1000 VA			
Receptacle		111120 VA		54.50%		60560 VA			
WYE		149780 VA		56.39%		65754 VA			

Notes:
SERVICE-ENTRANCE RATED. AIC RATING: 35,000
PROVIDE DIGITAL METERS, SURGE PROTECTIVE DEVICE, GROUND FAULT PROTECTION, AND ARC ENERGY REDUCTION SWITCH.
NOTE 1: PROVIDE A SQUARE D 250-AMP P-FRAME BREAKER SET TO TRIP AT 200-AMPS.
CODE REQUIRED SELECTIVE COORDINATION WAS BASED ON SQUARE D DESIGN - OTHER MFRS ARE ACCEPTED, BUT IT IS UP TO THEM TO RUN THE TESTS TO ENSURE SELECTIVE COORDINATION IS...

MOUNTING:		VOLTAGE:		PHASES:		WIRE:		MAIN CAPACITY:	
SURFACE		480/277 Wye		3		4		200 A	
FEEDER SIZE:		SEE ONE-LINE DIAGRAM		LOCATION:		MECHANICAL 113		MAIN CONNECTION:	
CT		ITEM FED		WIRE SIZE		A		B	
1		CRANE 210 (SERVICE)	10	25 A	3	4046	305	4046	305
3						14522	3333	14522	3333
5						1552	305	1552	305
7		PAINT BOOTH - MOTORS	4	70 A	3	942	222	942	222
9						942	222	942	222
11						2250	3300	2250	3300
13						1680	2155	2432	1724
15		FCU-5	12	15 A	3	1435	1293	3600	1470
17						1680	2769	1680	2769
19						2530	1567	2357	2925
21		(#1) EF-21	12	20 A	3	3381	--	3381	--
23						3381	--	3381	--
25		LTG - WELDING	8	20 A	1	0	--	0	--
27		EXT LTG - OVERHEAD DOORS W	12	20 A	1	0	--	0	--
29		LTG - SERVICE, OIL	10	20 A	1	0	--	0	--
31		LTG - WASH, SPRAY/PAINT	12	20 A	1	0	--	0	--
33		(#1) LTG - GARBAGE	6	20 A	1	0	--	0	--
35		(#1) EXT LTG - OHD GARBAGE	12	20 A	1	0	--	0	--
37		LTG - AREA B SHOPS	12	20 A	1	0	--	0	--
39		LTG - MEZZ A & B	12	20 A	1	0	--	0	--
41						0	--	0	--
43		CRANE 212 (WELDING)	12	20 A	3	0	--	0	--
45						0	--	0	--
47		SPARE	20 A	1	--	0	--	0	--
49		SPARE	20 A	1	--	0	--	0	--
51		SPARE	20 A	1	--	0	--	0	--
53		SPARE	20 A	1	--	0	--	0	--
TOTAL CONNECTED LOAD:		40963 W		42796 W		37213 W		AMPS: 146 A	
LOAD CLASSIFICATION		CONNECTED LOAD		DEMAND FACTOR		ESTIMATED DEMAND		PANEL TOTALS	
Heating		13300 VA		100.00%		13300 VA		TOTAL CONN. LOAD: 120992 VA	
Lighting		31866 VA		100.00%		31866 VA		TOTAL EST. DEMAND LOAD: 131883 VA	
Motor		75825 VA		114.36%		86717 VA		TOTAL CONN. CURRENT: 146 A	
Power		0 VA		0.00%		0 VA		TOTAL EST. DEMAND CURRENT: 159 A	

MOUNTING:		VOLTAGE:		PHASES:		WIRE:		MAIN CAPACITY:	
SURFACE		480/277 Wye		3		4		400 A	
FEEDER SIZE:		SEE ONE-LINE DIAGRAM		LOCATION:		MECHANICAL 113		MAIN CONNECTION:	
CT		ITEM FED		WIRE SIZE		A		B	
1		CU-1	4	80 A	3	13524	8203	13524	8203
3						1995	6651	1995	6651
5						6651	3326	6651	3326
7						2106	2106	2106	2106
9		MAU-1	12	20 A	3	2106	3880	2106	3880
11						2794	3880	2794	3880
13						2794	443	2794	443
15		CU-7	8	40 A	3	443	443	443	443
17						--	--	--	--
19						--	--	--	--
21		MAU-3	12	20 A	3	--	--	--	--
23						--	--	--	--
25						--	--	--	--
27						--	--	--	--
29						--	--	--	--
31						--	--	--	--
33		FCU-2	12	15 A	3	--	--	--	--
35						--	--	--	--
37						--	--	--	--
39		FCU-4	12	15 A	3	--	--	--	--
41						--	--	--	--
43						--	--	--	--
45		EF-5	12	20 A	3	--	--	--	--
47						--	--	--	--
49						--	--	--	--
51		SPACE	--	3	--	--	--	--	--
53						--	--	--	--
TOTAL CONNECTED LOAD:		61346 W		61346 W		61346 W		AMPS: 221 A	
LOAD CLASSIFICATION		CONNECTED LOAD		DEMAND FACTOR		ESTIMATED DEMAND		PANEL TOTALS	
Motor		184039 VA		105.51%		194182 VA		TOTAL CONN. LOAD: 184039 VA	
Power		0 VA		0.00%		0 VA		TOTAL EST. DEMAND LOAD: 194182 VA	
								TOTAL CONN. CURRENT: 221 A	
								TOTAL EST. DEMAND CURRENT: 234 A	

H1		VOLTS:		480/277 Wye		PHASES:		3		WIRE:		4		MAIN CAPACITY:		200 A		
		AIC RATING:		35,000		LOCATION:		MECHANICAL 113		MAIN CONNECTION:				MLO				
		MOUNTING:		SURFACE		FEEDER SIZE:		SEE ONE-LINE DIAGRAM				MAIN TYPE:		TYPE 1				
CKT	LOAD TYPE	ITEM FED	WIRE SIZE	AMPS	POLES	BREAKER TYPE	A	B	C	BREAKER TYPE	POLES	AMPS	WIRE SIZE	ITEM FED	LOAD TYPE	CKT		
1	L	LTG - AREA A OFFICES (S)	12	20 A	1		2327	2375				1	20 A	12	LTG - AREA A OFFICES (N)	L	2	
3	L	LTG - SITE POLES E	10	20 A	1			1724	1724			1	20 A	10	LTG - SITE POLES E	L	4	
5	L	LTG - VEHICLE STOR ZONE A	8	20 A	1					3375	3375	1	20 A	10	LTG - VEHICLE STOR ZONE B	L	6	
7	L	LTG - VEHICLE STOR ZONE C	12	20 A	1		2700	2475				1	20 A	10	LTG - VEHICLE STOR ZONE D	L	8	
9	L	LTG - VEHICLE STOR ZONE E	12	20 A	1			2475	2475			1	20 A	12	LTG - VEHICLE STOR ZONE F	L	10	
11	L	LTG - VEHICLE STOR ZONE G	12	20 A	1					2475	2475	1	20 A	12	LTG - VEHICLE STOR ZONE H	L	12	
13	L	LTG - VEHICLE STOR ZONE I	12	20 A	1		2475	3150				1	20 A	8	(#2) LTG - VEHICLE STOR ZONE J	L	14	
15	L	(#2) LTG - VEHICLE STOR ZONE K	10	20 A	1			3150	2925			1	20 A	8	(#2) LTG - VEHICLE STOR ZONE L	L	16	
17	L	(#2) LTG - VEHICLE STOR ZONE M	8	20 A	1					2925	1240	1	20 A	8	LTG - SALT BUILDING	L	18	
19							6208	176									20	
21	M	DBP-1	10	25 A	3				6208	176			3	20 A	12	DCP-1	M	22
23										6208	176						24	
25							443	942									26	
27	M	EF-12	12	20 A	3				443	942			3	20 A	12	EF-13	M	28
29											443	942					30	
31							942	443									32	
33	M	EF-14	12	20 A	3				942	443			3	20 A	#12	EF-1	M	34
35										942	443						36	
37							3326	7538									38	
39	M	CU-3	10	25 A	3				3326	7538			3	45 A	8	CU-4	M	40
41										3326	7538						42	
43							942	942									44	
45	M	(#2) EF-23	12	20 A	3				942	942			3	20 A	12	(#2) EF-24	M	46
47										942	942						48	
49							--	--		--	--		--	3	--		50	
51	--	SPACE	--	3	--											SPACE	--	52
53										--	--						54	
TOTAL CONNECTED LOAD:							37405 W	36377 W		37769 W	AMPS:	134 A	LOAD:	111550 S W				
LOAD CLASSIFICATION			CONNECTED LOAD			DEMAND FACTOR			ESTIMATED DEMAND			PANEL TOTALS						
Lighting			45840 VA			100.00%			45840 VA									
Motor			65711 VA			108.60%			71365 VA									
Power			0 VA			0.00%			0 VA			TOTAL EST. DEMAND LOAD: 117204 VA						
												TOTAL CONN. CURRENT: 134 A						
												TOTAL EST. DEMAND CURRENT: 141 A						

(#1) AND (#2) DENOTE BREAKERS USED AS PART OF A SPECIFIC ALTERNATE. IF THE ALTERNATE IS NOT ACCEPTED, MARK THE BREAKER AS A SPARE

A triangle containing the number 1 is positioned to the left of the first row of the table. A line connects the triangle to the first row, indicating the starting point for the sequence.

PROVIDE WITH FEED-THRU LUGS FOR CONNECTION TO PANEL L1B

CONNECTED TO PANEL L1A FEED-THRU LUGS



HE1			VOLTS:			480/277 Wye			PHASES:			3			WIRE:			4			MAIN CAPACITY:			200 A		
			AIC RATING:			35,000			LOCATION:			MECHANICAL 113			MLO			MAIN CONNECTION:			TYPE 1					
			MOUNTING:			SURFACE			FEEDER SIZE:			SEE ONE-LINE DIAGRAM			MAIN TYPE:											
CKT	LOAD TYPE	ITEM FED	WIRE SIZE	AMPS	POLES	BREAKER TYPE	A (WATTS)		B (WATTS)		C (WATTS)		BREAKER TYPE	POLES	AMPS	WIRE SIZE	ITEM FED	LOAD TYPE	CKT							
1	O, H, R, L	XFMR TE1 / PANEL LE1	ONE-LINE	125 A	3	NOTE 1	3860	3254	4360	312			1	20 A	12	EM LTG - OFFICES & SHOPS	L	2								
3										0	2423	1	20 A	12	EM EXT LTG - EGRESS DOORS	L	4									
5												1	20 A	12	EM LTG - AREA D SHOPS, MEZZ B	L	8									
7							--	SPARE	20 A	1	--	0	2524	1	20 A	12	EM LTG - VEH STOR, MEZZ A	L	8							
9							--	SPARE	20 A	1	--			1	20 A	12	(#2) EM LTG - VEH STOR, GARB	L	10							
11	--	SPARE	20 A	1	--		0	--	0	--	--	1	--	1	--	SPACE	--	12								
13	--	SPARE	20 A	1	--			0	--	--	--	1	--	1	--	SPACE	--	14								
15	--	SPARE	20 A	1	--				0	--	--	1	--	1	--	SPACE	--	16								
17	--	SPARE	20 A	1	--					0	--	--	1	--	1	--	SPACE	--	18							
19	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	20							
21	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	22							
23	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	24							
25	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	26							
27	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	28							
29	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	30							
31	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	32							
33	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	34							
35	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	36							
37	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	38							
39	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	40							
41	--	SPACE	--	1	--		--	--	--	--	--	--	1	--	1	--	SPACE	--	42							
TOTAL CONNECTED LOAD:							9638 W		6537 W		2423 W		AMPS:		22 A		LOAD: 18597.9 W									
LOAD CLASSIFICATION			CONNECTED LOAD			DEMAND FACTOR			ESTIMATED DEMAND			PANEL TOTALS														
Heating			5000 VA			100.00%			5000 VA			TOTAL CONN. LOAD:									18598 VA					
Lighting			10498 VA			100.00%			10498 VA			TOTAL EST. DEMAND LOAD:									18598 VA					
Other			740 VA			100.00%			740 VA			TOTAL CONN. CURRENT:									22 A					
Power			0 VA			0.00%			0 VA			TOTAL EST. DEMAND CURRENT:									22 A					
Receptacle			2360 VA			100.00%			2360 VA																	
PROVIDE WITH SURGE PROTECTIVE DEVICE. NOTE 1: PROVIDE A SQUARE D 125-AMP EJB BREAKER SET TO TRIP AT 80-AMPS (FOR SELECTIVE COORDINATION). CODE REQUIRED SELECTIVE COORDINATION WAS BASED ON SQUARE D DESIGN - OTHER MANUFACTURERS ARE ACCEPTED, BUT IT IS UP TO THEM TO RUN THE TESTS TO ENSURE SELECTIVE COORDINATION IS ACHIEVED.																										

LE1			VOLTS:			120/208 Wye			PHASES:			3			WIRE:			4			MAIN CAPACITY:		175 A	
			A/C RATING:		22,000		LOCATION:		MECHANICAL 113		MAIN CONNECTION:		MCB											
			MOUNTING:		SURFACE		FEEDER SIZE:		SEE ONE-LINE DIAGRAM		MAIN TYPE:		TYPE 1											
CKT	LOAD TYPE	ITEM FED	WIRE SIZE	AMPS	POLES	BREAKER TYPE	A (WATTS)	B (WATTS)	C (WATTS)	BREAKER TYPE	POLES	AMPS	WIRE SIZE	ITEM FED	LOAD TYPE	CKT								
1	--	FACP	12	20 A	1	--	0	--	--	--	1	--	--	SPACE	--	2								
3	O	COIN/O2 PANEL	12	20 A	1	--	--	0	--	--	1	--	--	SPACE	--	4								
5	--	SPARE	--	20 A	1	--	--	--	0	--	1	--	--	SPACE	--	6								
7	--	SPARE	--	20 A	1	--	0	--	--	--	1	--	--	SPACE	--	8								
9	--	SPARE	--	20 A	1	--	--	0	--	--	1	--	--	SPACE	--	10								
11	--	SPARE	--	20 A	1	--	--	--	0	--	1	--	--	SPACE	--	12								
13	--	SPARE	--	20 A	1	--	0	--	--	--	1	--	--	SPACE	--	14								
15	--	SPARE	--	20 A	1	--	--	0	--	--	1	--	--	SPACE	--	16								
17	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	18								
19	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	20								
21	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	22								
23	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	24								
25	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	26								
27	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	28								
29	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	30								
31	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	32								
33	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	34								
35	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	36								
37	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	38								
39	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	40								
41	--	SPACE	--	1	--	--	--	--	--	--	1	--	--	SPACE	--	42								
			TOTAL CONNECTED LOAD:				3860 W	4360 W	0 W	AMPS:		23 A	LOAD: 8220 W											
LOAD CLASSIFICATION			CONNECTED LOAD		DEMAND FACTOR		ESTIMATED DEMAND		PANEL TOTALS															
Heating			5000 VA		100.00%		5000 VA		TOTAL CONN. LOAD: 8220 VA															
Lighting			120 VA		100.00%		120 VA		TOTAL EST. DEMAND LOAD: 8220 VA															
Other			740 VA		100.00%		740 VA		TOTAL CONN. CURRENT: 23 A															
Power			0 VA		0.00%		0 VA		TOTAL EST. DEMAND CURRENT: 23 A															
Receptacle			2260 VA		100.00%		2260 VA																	
PROVIDE WITH SURGE PROTECTIVE DEVICE. FOR THE MAIN BREAKER IN THIS PANEL, PROVIDE A SQUARE D 250-AMP JD BREAKER SET TO TRIP AT 175-AMPS (FOR SELECTIVE COORDINATION). PROVIDE A 150-AMP, 2-POLE SUB-FED BREAKER (SQUARE D HD) SET TO TRIP AT 60-AMPS TO SERVE GENERATOR LOAD CENTER (GEN LG) (FOR SELECTIVE COORDINATION). CODE REQUIRED SELECTIVE COORDINATION WAS BASED ON SQUARE D DESIGN - OTHER MFRS ARE ACCEPTED, BUT IT IS UP TO THEM TO RUN THE TESTS TO ENSURE SELECTIVE COORDINATION IS ACHIEVED.																								

1 3/11/26 ADDENDUM 2 CHANGES