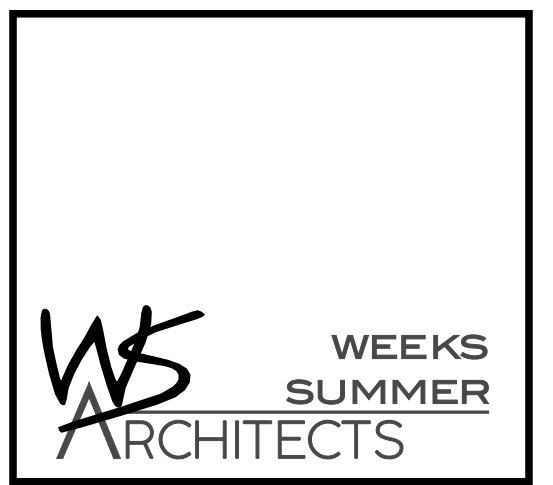


# POWERMASTER 311 JARCO DRIVE FUQUAY-VARINA, NORTH CAROLINA



**NC DEPT. OF INSURANCE 2018 APPENDIX B**  
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS  
(EXCEPT 1 & 2-FAMILY DWELINGS AND TOWNHOUSES)  
(REPRODUCE THE FOLLOWING DATON THE BUILDING PLANS SHEET 1 OR 2)

NC

Name Of Project: POWERMASTER ELECTRIC  
Address: 311 JARCO DRIVE, FUQUAY-VARINA  
Zip Code: 27526  
Owner Or Authorized Agent: W. S. Architects, PA Phone: (919) 779-9797  
E-mail: ginger@wsarchitectspa.com

Owned By:  City/County  Private  State  
Code Enforcement Jurisdiction:  Town  County - HARNETT CO.  State

**LEAD DESIGN PROFESSIONAL: W. S. ARCHITECTS, PA**

Designer	FIRM	NAME	LIC. #	TELEPHONE	E-MAIL
Architectural:	W. S. Architects, PA	Ginger Summer	11075	(919) 779-9797	ginger@wsarchitectspa.com
Electrical:	Burke Design Group	Benjamin E Burke	22038	(919) 771-1916	ben@bdg-nc.com
Fire Alarm:	---	---	---	---	---
Plumbing:	Burke Design Group	Benjamin E Burke	22038	(919) 771-1916	ben@bdg-nc.com
Mechanical:	Burke Design Group	Benjamin E Burke	22038	(919) 771-1916	ben@bdg-nc.com
Sprinkler-Standpipe:	---	---	---	---	---
Structural:	Ross Linden	Brian Ross	---	---	---
Retaining Walls	> 5 High:	---	---	---	---
Other:	---	---	---	---	---

**2018 NC BUILDING CODE:**  New Building  Shell/Core  1st Time Interior Completions  
 Addition  Phased Construction - Shell Core

**2018 NC EXISTING BUILDING CODE:**  Prescriptive  Alteration Level I  Historic Property  
 Repair  Alteration Level II  Change of Use  
 Chapter 14  Alteration Level III

CONSTRUCTED: (date) \_\_\_\_\_ CURRENT OCCUPANCY(S) (Ch. 3): ---  
RENOVATED: (date) \_\_\_\_\_ PROPOSED OCCUPANCY(S) (Ch. 3): B, S1

OCCUPANCY CATEGORY (Table 1604.5): Current: II Proposed: II

**BASIC BUILDING DATA**  
CONSTRUCTION TYPE:  I-A  II-A  III-A  IV  V-A  
 I-B  II-B  III-B  IV-B

SPRINKLERS:  NO  PARTIAL  NFPA 13  NFPA 13R  NFPA 13D  
STANDPIPES:  NO CLASS  II  III  III  WET  DRY  
PRIMARY FIRE DISTRICT:  NO  YES FLOOD HAZARD AREA:  NO  YES  
SPECIAL INSPECTIONS REQUIRED:  NO  YES

GROSS BUILDING AREA	EXISTING (SF)	NEW (SF)	SUB-TOTAL	TENANT
3RD FLOOR	---	2,575	---	---
2ND FLOOR	---	---	---	---
MEZZANINE	---	9,600	---	---
1ST FLOOR	---	---	---	---
BASEMENT	---	---	---	---
<b>TOTAL</b>	---	<b>12,175</b>	---	---

**ALLOWABLE AREA:**  
PRIMARY OCCUPANCY:  ASSEMBLY  BUSINESS  EDUCATIONAL  FACTORY  HIGH-HAZARD  INSTITUTIONAL

MERCANTILE  RESIDENTIAL  STORAGE

UTILITY & MISCELLANEOUS

**ACCESSORY OCCUPANCY CLASSIFICATION(S): BUSINESS INCIDENTAL USES (Table 509):**  
This separation is not exempt as a Non-Separated Use (see exceptions).  
SPECIAL USES (Chapter 4 - List Code Sections):  
SPECIAL PROVISIONS (Chapter 5 - List Code Sections):  
MIXED OCCUPANCY: Separation: SEPARATED MIXED USE Exception: \_\_\_\_\_  
Select one:  $\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$   
 $\frac{5,150/40,250 + 7,025/30,625 = 0.358 \text{ less than } 1$

STORY NO.	DESCRN AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2 AREA	(C) AREA FOR OPEN SPACE INCREASE 1.5	(D) ALLOWABLE AREA OR UNLIMITED 2.3
1	B	2,575	23,000	17,250	40,250
1	S-1	7,025	17,500	13,125	30,625
---	---	---	---	---	---

1. Frontage Area Increases From Section 506.2 Are Computed Thus:  
A. Perimeter Which Fronts A Public Way Or Open Space Having 20 Ft Min. Width = \_\_\_\_\_ (F).  
B. Total Building Perimeter = \_\_\_\_\_ (P).  
C. Ratio (F/P) = \_\_\_\_\_ (F/P).  
D. W = Minimum Width Of Public Way = --- (W)

2. Unlimited area applicable under conditions of Section 507  
3. Max. Building Area = Total No. Of Stories In The Building X D (maximum 3 stories) (506.2)  
4. The Maximum Area Of Open Parking Garages Must Comply With 406.5.4. The Maximum Area Of Air Traffic Control Towers Must Comply With 412.3.1.  
5. Frontage increase is based on the unspinklered area value in Table 506.2.

ALLOWABLE HEIGHT	ALLOWABLE (TABLE 503)	SHOWN ON PLANS	CODE REFERENCE
BUILDING HEIGHT IN FEET	55 (FT)	24 (FT)	---
BUILDING HEIGHT IN STORIES	2 (STORIES)	2 (STORIES)	---

1. Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

**NC DEPT. OF INSURANCE 2018 APPENDIX B** BUILDING CODE SUMMARY CONTINUED

**FIRE PROTECTION REQUIREMENTS**

BUILDING ELEMENT	FIRE SEPN DIST. (FT)	RATING REQ'D	RATING PROV'D (W/ REDUCTION)	DETAIL # AND SHEET #	DES. # FOR RATED ASSY	DES. # FOR RATED PENETN	DES. # FOR RATED JOINTS
STRUCTURAL FRAME, INCLUDING COLUMNS, GIRDERS, TRUSSES	≥ 30'	0	0	---	---	---	---
BEARING WALLS	---	---	---	---	---	---	---
EXTERIOR	---	---	---	---	---	---	---
NORTH	---	---	---	---	---	---	---
EAST	---	---	---	---	---	---	---
WEST	---	---	---	---	---	---	---
SOUTH	---	---	---	---	---	---	---
INTERIOR	---	---	---	---	---	---	---
NONBEARING WALLS AND PARTITIONS	---	---	---	---	---	---	---
EXTERIOR	---	---	---	---	---	---	---
NORTH	≥ 30'	0	0	---	---	---	---
EAST	≥ 30'	0	0	---	---	---	---
WEST	≥ 30'	0	0	---	---	---	---
SOUTH	≥ 30'	0	0	---	---	---	---
INTERIOR WALL & PARTITIONS	---	---	---	---	---	---	---
FLOOR CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	---	---	---	---	---	---	---
FLOOR CEILING ASSEMBLY	---	---	---	---	---	---	---
COLUMNS SUPPORTING FLOORS	---	---	---	---	---	---	---
ROOF CONSTRUCTION INCLUDING SUPPORTING BEAMS AND JOISTS	---	---	---	---	---	---	---
ROOF CEILING ASSEMBLY	---	---	---	---	---	---	---
COLUMNS SUPPORTING ROOF	---	---	---	---	---	---	---
SHAFTS ENCLOSURES-EXIT	---	---	---	---	---	---	---
SHAFTS ENCLOSURES-OTHER	---	---	---	---	---	---	---
CORRIDOR SEPARATION	---	---	---	---	---	---	---
OCCUPANCY/FIRE BARRIER SEPARATION	---	---	---	---	---	---	---
PARTY/FIRE WALL SEPARATION	0	0	---	---	---	---	---
SMOKE BARRIER SEPARATION	0	0	---	---	---	---	---
SMOKE PARTITION	2	2	---	---	U419	---	---
TENANT/DWELLING UNIT/SLEEPING UNIT SEPARATION	0	0	---	---	---	---	---
INCIDENTAL USE SEPARATION	---	---	---	---	---	---	---

\*INDICATE SECTION NO. PERMITTING REDUCTION

**PERCENTAGE OF WALL OPENING CALCULATIONS**

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
---	---	---	---
---	---	---	---
---	---	---	---
---	---	---	---

**LIFE SAFETY SYSTEM REQUIREMENTS**

EMERGENCY LIGHTING:  YES  NO SMOKE DETECTION SYSTEMS:  YES  NO  
EXIT SIGNS:  YES  NO PANIC HARDWARE:  YES  NO  
FIRE ALARM:  YES  NO

**LIFE SAFETY PLAN REQUIREMENTS** SHEET NUMBER A0.2

FIRE AND/OR SMOKE RATED WALL LOCATIONS (CHAPTER 7)  
 ASSUMED AND REAL PROPERTY LINE LOCATIONS (IF NOT ON SITE PLAN)  
 EXTERIOR WALL OPENING AREA WITH RESPECT TO DISTANCE TO ASSUMED PROPERTY LINES (705.8)  
 OCCUPANCY USE FOR EACH AREA AS IT RELATES TO OCCUPANT LOAD CALCULATION (TABLE 1004.1.2)  
 OCCUPANT LOADS FOR EACH AREA  
 EXIT ACCESS TRAVEL DISTANCES (1017)  
 COMMON PATH OF TRAVEL DISTANCES (1006.2.1 & 1006.3.2(1))  
 DEAD END LENGTHS (1020.4)  
 CLEAR EXIT WIDTHS FOR EACH EXIT DOOR  
 MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE BASED ON EGRESS WIDTH (1005.3)  
 ACTUAL OCCUPANT LOAD FOR EACH DOOR  
 A SEPARATE SCHEMATIC PLAN INDICATING WHERE FIRE RATED FLOOR/CEILING AND/OR ROOF STRUCTURE IS PROVIDED FOR PURPOSES OF OCCUPANCY SEPARATION  
 LOCATION OF DOORS WITH PANIC HARDWARE (1010.1.10)  
 LOCATION OF DOORS WITH DELAYED EGRESS LOCKS AND THE AMOUNT OF THE DELAY (1010.1.9.7)  
 LOCATION OF DOORS WITH ELECTROMAGNETIC EGRESS LOCKS (1010.1.9.9)  
 LOCATION OF DOORS EQUIPPED WITH HOLD-OPEN DEVICES  
 LOCATION OF EMERGENCY ESCAPE WINDOWS (1030)  
 THE SQUARE FOOTAGE OF EACH FIRE AREA (202)  
 THE SQUARE FOOTAGE OF EACH SMOKE COMPARTMENT FOR OCCUPANCY CLASSIFICATION I-2 (407.5)  
 NOTE ANY CODE EXCEPTIONS ON TABLE NOTES THAT MAY HAVE BEEN UTILIZED REGARDING THE ITEMS ABOVE

**ACCESSIBLE DWELLING UNITS (SECTION 1107)**

TOTAL UNITS	ACCESSIBLE REQ'D	ACCESSIBLE PROV'D	TYPE A UNITS REQ'D	TYPE A UNITS PROV'D	TYPE B UNITS REQ'D	TYPE B UNITS PROV'D	TOTAL ACCESSIBLE UNITS PROV'D
---	---	---	---	---	---	---	---

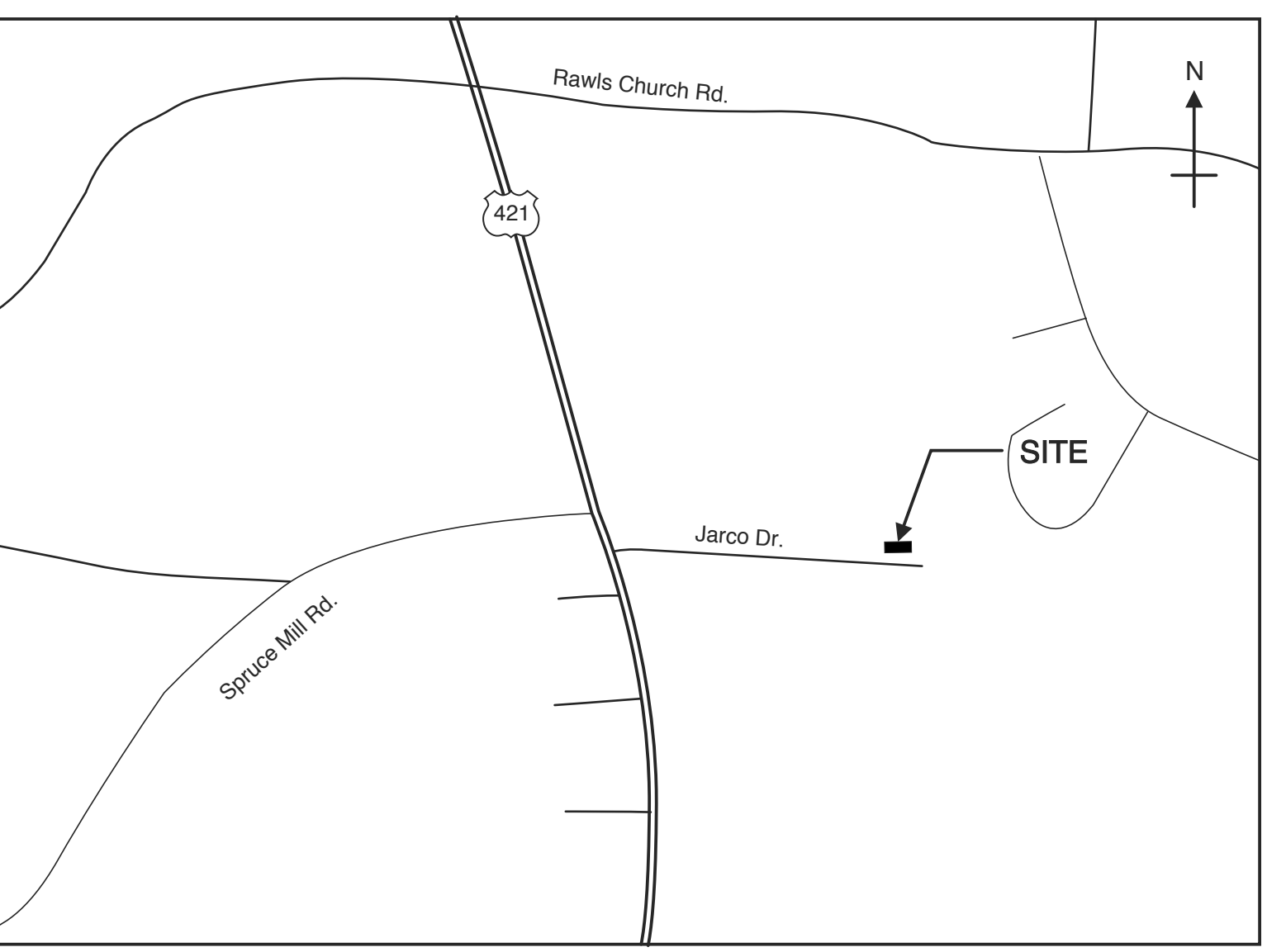
**ACCESSIBLE PARKING (SECTION 1106)**

LOT OR PARKING AREA	TOTAL # OF SPACES REQ'D	TOTAL # OF SPACES PROV'D	# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
			REG. WITH 5' ACCESS AISLE	132' ACCESS AISLE	8' ACCESS AISLE	
---	---	---	---	---	---	---
TOTAL	---	---	---	---	---	---

**PLUMBING FIXTURE REQUIREMENT (TABLE 2902.1)**

USE	WATERCLOSETS			LAVATORIES			SHOWERS/TUBS	DRINKING FOUNTAINS	
	MALE	FEMALE	UNISEX	MALE	FEMALE	UNISEX		REGULAR	ACCESSIBLE
SPACE EXIST'G	---	---	---	---	---	---	---	---	---
NEW REQ'D	---	---	1	---	---	1	---	---	---

**SPECIAL APPROVALS**  
Special Approval: (Local Jurisdiction, Dept of Insurance, OSC, DPI, DHHS, etc., describe below)



**NC DEPT. OF INSURANCE 2018 APPENDIX B** BUILDING CODE SUMMARY CONTINUED

**ENERGY SUMMARY**

**ENERGY REQUIREMENTS:**  
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual cost for the proposed design.

Existing building envelope complies with code: \_\_\_\_\_  
Exempt Building: \_\_\_\_\_ Provide code or statutory reference: \_\_\_\_\_

Climate Zone: \_\_\_\_\_  
Method of Compliance: \_\_\_\_\_ (If "Other" specify source here)

**THERMAL ENVELOPE (Prescriptive method only)**

**Roof/Ceiling Assembly (each assembly)**  
Description of assembly STANDING SEAM MTL.  
U-Value of total assembly \_\_\_\_\_  
R-Value of insulation R-19 + R-11 WITH THERMAL BLOCKS  
Skylights in each assembly \_\_\_\_\_  
U-Value of skylight \_\_\_\_\_  
Total square footage of skylights in each assembly \_\_\_\_\_

**Exterior Walls (each assembly)**  
Description of assembly METAL PANEL WITH 8" GIRTS  
U-Value of total assembly \_\_\_\_\_  
R-Value of insulation R-25 WITH THERMAL BREAK  
Openings (windows or doors with glazing) \_\_\_\_\_  
U-Value of assembly \_\_\_\_\_  
Solar heat gain coefficient 0.26  
Projection factor 0.08  
Door R-Values STOREFRONT DOOR 0.77  
INSUL HM 0.50  
INSUL OH 0.50

**Walls below grade (each assembly)**  
Description of assembly \_\_\_\_\_  
U-Value of total assembly \_\_\_\_\_  
R-Value of insulation \_\_\_\_\_

**Floors over unconditioned space (each assembly)**  
Description of assembly \_\_\_\_\_  
U-Value of total assembly \_\_\_\_\_  
R-Value of insulation \_\_\_\_\_

**Floors slab on grade**  
Description of assembly \_\_\_\_\_  
U-Value of total assembly \_\_\_\_\_  
R-Value of insulation R-10  
Horizontal/Vertical requirement 12"  
Slab heated \_\_\_\_\_

**STRUCTURAL DESIGN (PROVIDE ON SHEET 1 OR 2 OF THE STRUCTURAL SHEETS)**

**DESIGN LOADS:**  
IMPORTANCE FACTORS: WIND (I W) --- SNOW (I S) --- SEISMIC (I E) ---  
LIVE LOADS: ROOF --- psf MEZZANINE --- psf FLOOR --- psf  
GROUND SNOW LOAD: --- psf  
WIND LOAD: BASIC WIND SPEED --- mph (ASCE-7) EXPOSURE CATEGORY ---

**SEISMIC DESIGN CATEGORY**  A  B  C  D

PROVIDE THE FOLLOWING SEISMIC DESIGN PARAMETERS:  
OCCUPANCY CATEGORY (TABLE 1604.5)  I  II  III  IV  
SPECTRAL RESPONSE ACCELERATION  $S_s$  --- %g  $S_1$  --- %g  III  IV  
SITE CLASSIFICATION (ASCE 7)  A  B  C  D  
--- Field Test --- Presumptive --- Historical Data (check one)

**BASIC STRUCTURAL SYSTEM (check one)**  
--- BEARING WALL --- DUAL W/SPECIAL MOMENT FRAME  
--- BUILDING FRAME --- DUAL WINTERMEDIATE R/C OR SPECIAL STEEL  
--- MOMENT FRAME --- INVERTED PENDULUM

**ANALYSIS PROCEDURE** --- SIMPLIFIED --- EQUIVALENT LATERAL FORCE --- DYNAMIC  
**ARCHITECTURAL, MECHANICAL, COMPONENTS ANCHORED**  YES  NO  
**LATERAL DESIGN CONTROL** EARTHQUAKE  WIND

**SOIL BEARING CAPACITIES:**  
FIELD TEST (PROVIDE COPY OF TEST REPORT) --- psf  
PRESUMPTIVE BEARING CAPACITY --- psf  
PILE SIZE, TYPE, AND CAPACITY ---



**PHASE PLAN DESCRIPTION**

Phase 1 (shell for storage)  
-All concrete footing and slab on grade complete  
-All exterior walls complete. Insulated, doors and windows installed.  
-Electrical service and panels in place  
-All lights in storage area installed and exit signs installed  
-All power in exterior walls, any drop down outlets and any under slab conduits in place  
-Fans and louvers installed  
-plumbing rough in complete

Phase 2 (fit-up of 1st floor offices)  
-All structure for 2nd floor installed, 2nd floor poured and stairs installed  
-Rated separation installed (2 hr fire barrier)  
-Interior walls on first floor complete along with electrical, mechanical and plumbing  
-Waste oil heaters installed in storage areas

Phase 3 (fit-up of 2nd floor offices)  
-Interior walls in second floor complete along with electrical, mechanical and plumbing

**NC DEPT. OF INSURANCE 2018 APPENDIX B** BUILDING CODE SUMMARY CONTINUED

**MECHANICAL DESIGN (PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)**

**MECHANICAL SUMMARY:**  
THERMAL ZONE: \_\_\_\_\_  
INTERIOR DESIGN CONDITIONS: \_\_\_\_\_  
BUILDING HEATING LOAD: \_\_\_\_\_  
BUILDING COOLING LOAD: \_\_\_\_\_

**MECHANICAL SPACING CONDITIONING SYSTEM**

**UNITARY**  
DESCRIPTION OF UNIT: \_\_\_\_\_  
HEATING EFFICIENCY: \_\_\_\_\_  
COOLING EFFICIENCY: \_\_\_\_\_  
SIZE CATEGORY OF UNIT: \_\_\_\_\_

**BOILER**  
SIZE CATEGORY, IF OVERSIZED, STATE REASON: \_\_\_\_\_

**CHILLER**  
SIZE CATEGORY, IF OVERSIZED, STATE REASON: \_\_\_\_\_

LIST EQUIPMENT EFFICIENCIES: \_\_\_\_\_

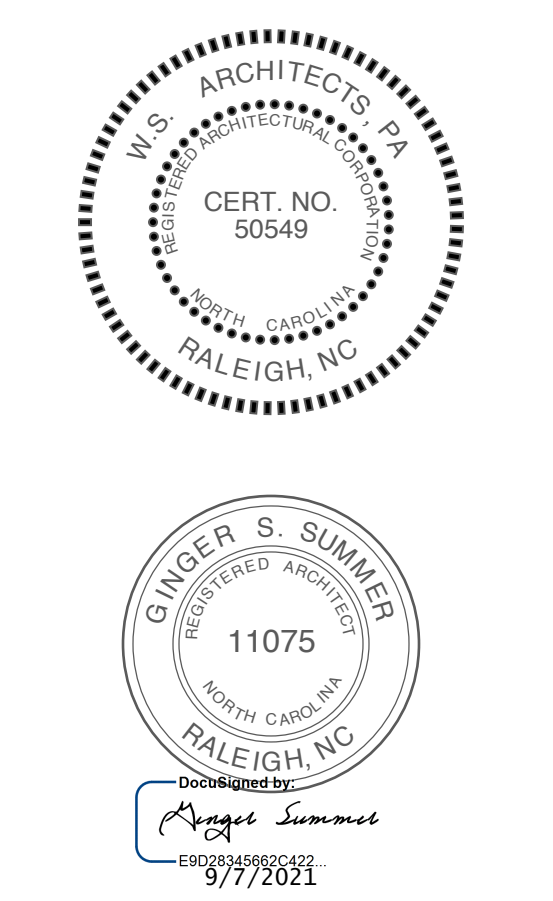
**ELECTRICAL DESIGN (PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)**

**METHOD OF COMPLIANCE: (SELECT ONE)**

**LIGHTING SCHEDULE (each fixture type)**  
LAMP TYPE REQUIRED IN FIXTURE \_\_\_\_\_  
NUMBER OF LAMPS IN FIXTURE \_\_\_\_\_  
BALLAST TYPE USED IN THE FIXTURE \_\_\_\_\_  
NUMBER OF BALLASTS IN FIXTURE \_\_\_\_\_  
TOTAL WATTAGE PER FIXTURE \_\_\_\_\_  
TOTAL INTERIOR WATTAGE SPECIFIED VS. ALLOWED (whole building or space by space) \_\_\_\_\_  
TOTAL EXTERIOR WATTAGE SPECIFIED VS. ALLOWED \_\_\_\_\_

**ADDITIONAL PRESCRIPTIVE COMPLIANCE**  
 506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT  
 506.2.2 REDUCED LIGHTING POWER DENSITY  
 506.2.3 ENERGY RECOVERY VENTILATION SYSTEMS  
 506.2.4 HIGHER EFFICIENCY SERVICE WATER HEATING  
 506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY  
 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS

W. S. ARCHITECTS, PA  
3305-109 Durham Drive  
Raleigh, North Carolina 27603  
919.779.9797  
www.wsarchitectspa.com



PROJECT TITLE  
**POWERMASTER ELECTRIC**  
311 JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**

DRAWING TITLE  
**COVER SHEET**

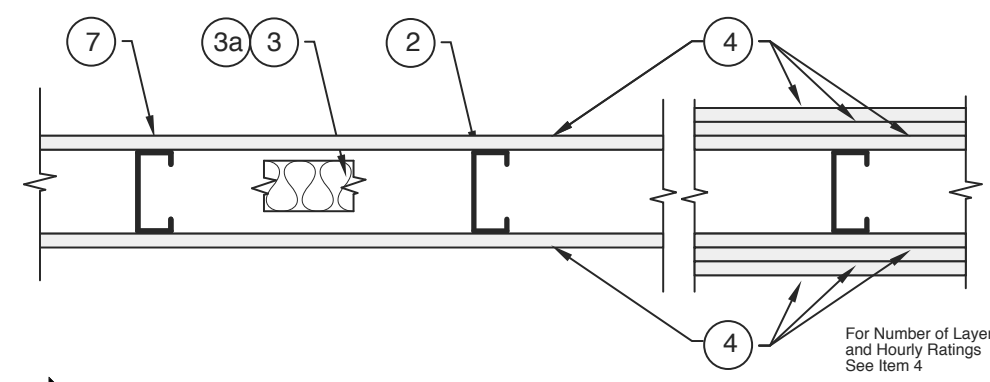
SHEET 1 OF 9

**A0.1**

PLOT DATE 08/16/21  
REVISION 09/07/21

This original sheet is 24" x 36"; other dimensions indicate it has been altered.  
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**Design No. U419**  
Nonbearing Wall Ratings 1, 2, 3 or 4 Hr  
(See Items 3 & 4)



1. Floor and Ceiling Runners — (Not shown) — Channel shaped, fabricated from min 25 MSG (min 20 MSG when Item 4A is used) corrosion-protected steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.
2. Steel Studs — Channel shaped, fabricated from min 25 MSG (min 20 MSG when Item 4A is used) corrosion-protected steel, min width as indicated under Item 4, min 1-1/4 in. flanges and 1/4 in. return, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.
3. Batts and Blankets\* — (Required as indicated under Item 4) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 4. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

3A. Batts and Blankets\* — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See Batts and Blankets (BKNV or BZJZ) Categories for names of Classified companies.

4. Gypsum Board\* — Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

**Wallboard Protection on Each Side of Wall**

Rating	Min Stud Depth	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 3)
1	3-1/2"	1 layer, 5/8 in. thick	Optional
1	2-1/2"	1 layer, 1/2 in. thick	1-1/2 in.
2	1-5/8"	1 layer, 3/4 in. thick	Optional
2	1-5/8"	2 layers, 1/2 in. thick	Optional
2	1-5/8"	2 layers, 5/8 in. thick	Optional
2	3-1/2"	1 layer, 3/4 in. thick	3 in.
3	1-5/8"	3 layers, 1/2 in. thick	Optional
3	1-5/8"	2 layers, 3/4 in. thick	Optional
3	1-5/8"	3 layers, 5/8 in. thick	Optional
4	1-5/8"	4 layers, 5/8 in. thick	Optional
4	1-5/8"	4 layers, 1/2 in. thick	Optional
4	2-1/2"	2 layers, 3/4 in. thick	2 in.

CANADIAN GYPSUM COMPANY — 1/2 in. thick Type C, IP-X2 or IPC-AR; WRC, 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX or WRC; 3/4 in. thick Type IP-X3, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

UNITED STATES GYPSUM CO — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type SCX, SHX, WRX, IP-X1, AR, C, WRC, FRX-G, IP-AR, IP-X2, IPC-AR; 3/4 in. thick Type IP-X3, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

USG MEXICO S A DE C V — 1/2 in. thick Type C, IP-X2, IPC-AR or WRC; 5/8 in. thick Type AR, C, IP-AR, IP-X1, IP-X2, IPC-AR, SCX, SHX, WRX, WRC or; 3/4 in. thick Type IP-X3, ULTRACODE, ULTRACODE SHC or ULTRACODE WRC.

4A. Gypsum Board\* — (As an alternate to Item 4) — 5/8 in. thick gypsum panels, installed as described in Item 4 with Type S-12 steel screws. The length and spacing of the screws as specified under Item 5.

CANADIAN GYPSUM COMPANY — Type FRX

UNITED STATES GYPSUM CO — Type FRX

4B. Gypsum Board\* — (As an alternate to Items 4 and 4A) — 5/8 in. thick, 2 ft. wide, tongue and groove edge, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 5. Joint covering (Item 7) not required.

CANADIAN GYPSUM COMPANY — Type SHX

UNITED STATES GYPSUM CO — Type SHX

USG MEXICO S A DE C V — Type SHX

5. Fasteners — (Not shown) — Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 6). Single layer systems: 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. Two layer systems: First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. Three-layer systems: First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. Four-layer systems: First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

6. Furring Channels — (Optional, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 4A.

7. Joint Tape and Compound — Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

8. Siding, Brick or Stucco — (Optional, not shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

9. Caulking and Sealants\* — (Optional, not shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.

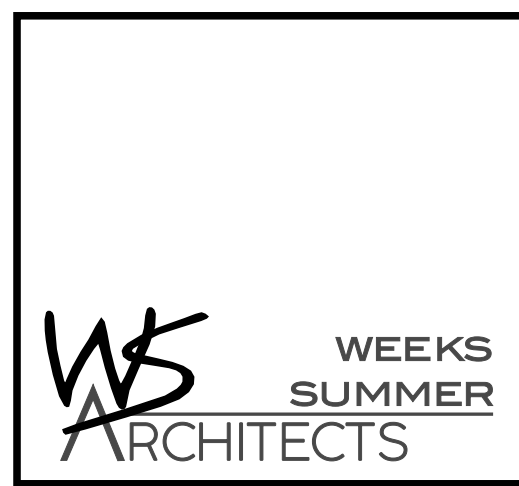
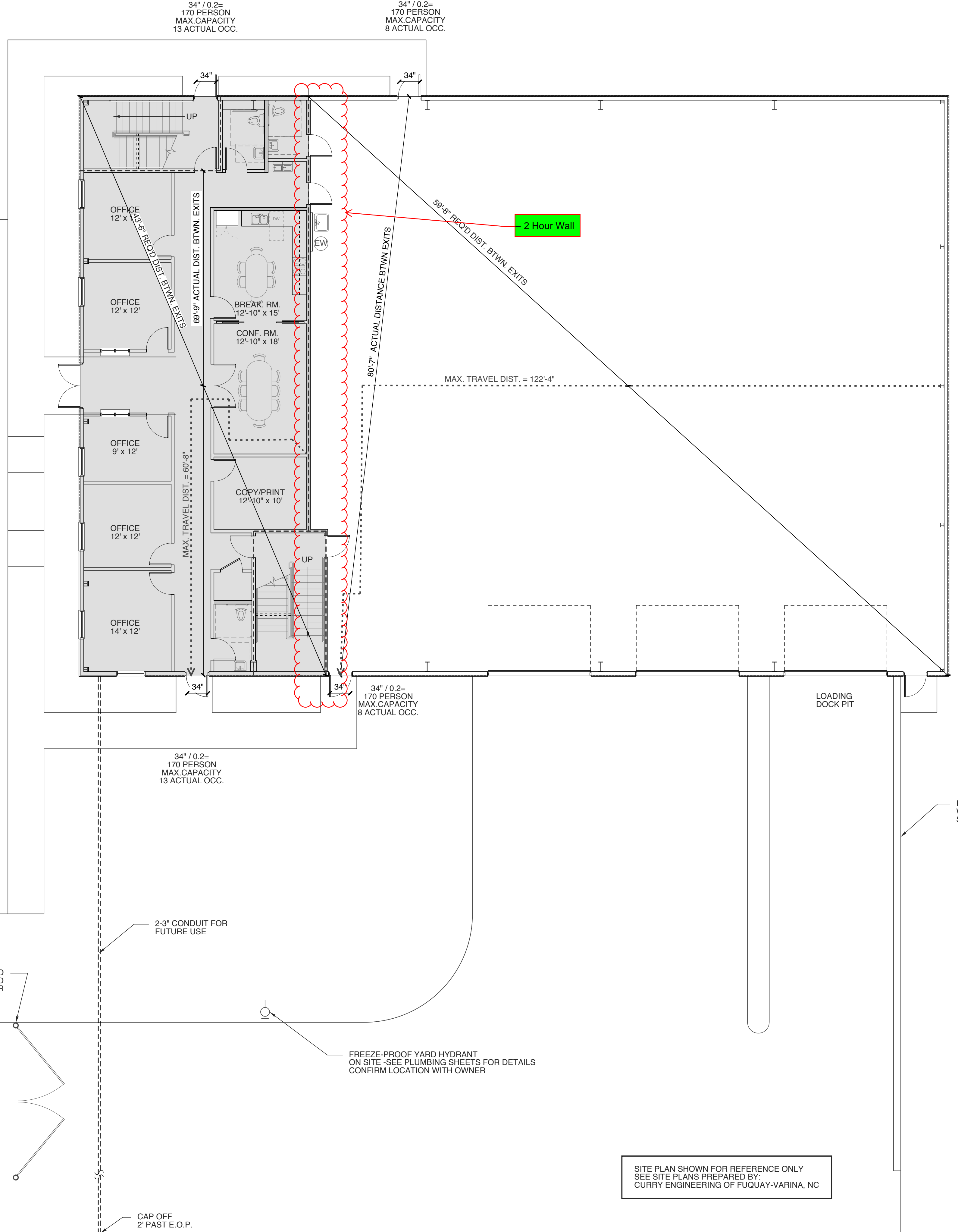
UNITED STATES GYPSUM CO — Type AS

\*Bearing the UL Classification Mark

AREAS	
2,575 SF	OFFICE AREA
7,025 SF	STORAGE AREA
9,600 SF	TOTAL AREA

WALL LEGEND	
	EXT. METAL WALL PANEL WITH LINER SYSTEM & FURRING W/ DRYWALL
	EXT. METAL WALL PANEL WITH LINER SYSTEM
	2 HR. RATED FIRE BARRIER
	1 HR. RATED FIRE BARRIER
	PARTIAL HEIGHT MTL STUD WALL 3 5/8"
	PARTIAL HEIGHT MTL STUD WALL 6"

EGRESS REQ. & CODE REF.	
	USE: BUSINESS 2,575 SF/100 = 26 PEOPLE
	USE: STORAGE 7,025 SF/ 500 = 15 PEOPLE
	41 TOTAL OCCUPANTS
	---
	41 x 0.2" = 8.2" CLEAR EGRESS WIDTH REQ'D
	DOORS TO HAVE 32" MIN. CLR. PER 404.2.2 OF ANSI A117.1
	THE CLEAR WIDTH OF INTERIOR ACCESSIBLE ROUTE IS 36" MIN. PER 403.5 OF ANSI A117.1



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PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**  
DRAWING TITLE  
**LIFE SAFETY**

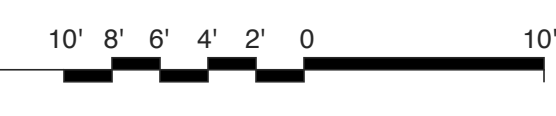
SHEET 2 OF 9

**A.O.2**

PLOT DATE 8/13/21  
REVISION 00/00/19

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**1 LIFE SAFETY/ SITE PLAN**  
SCALE: 1/8" = 1'-0"





**WALL LEGEND**

- EXT. METAL WALL PANEL WITH LINER SYSTEM & FURRING W/ DRYWALL
- EXT. METAL WALL PANEL WITH LINER SYSTEM
- 2 HR. RATED FIRE BARRIER
- 1 HR. RATED FIRE BARRIER
- PARTIAL HEIGHT MTL STUD WALL 3 5/8"
- PARTIAL HEIGHT MTL STUD WALL 6"

**FOR PERMIT PROCESS ONLY**

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

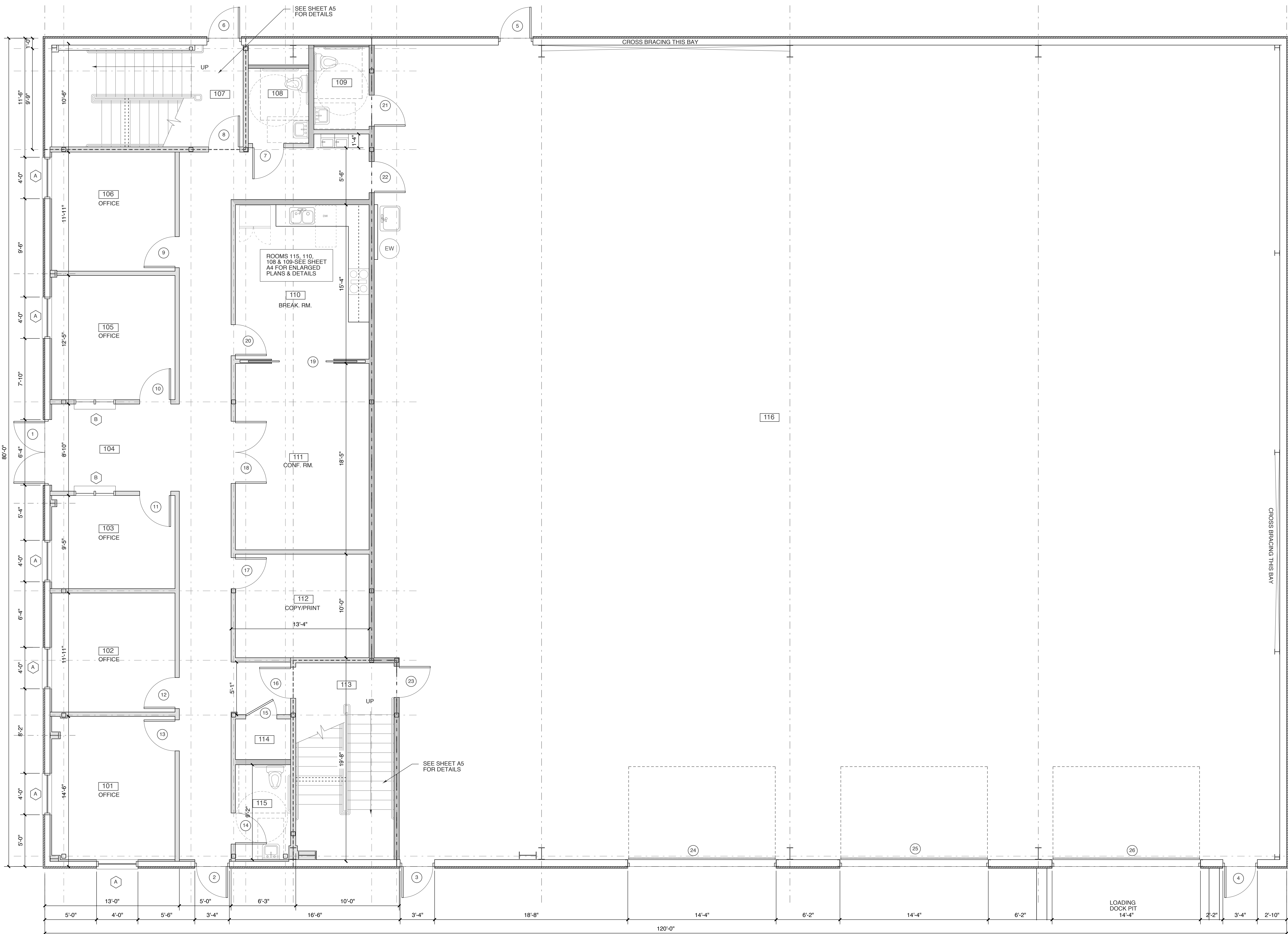
PROJECT NO.  
**2019**  
DRAWING TITLE  
**1st FLOOR PLAN**

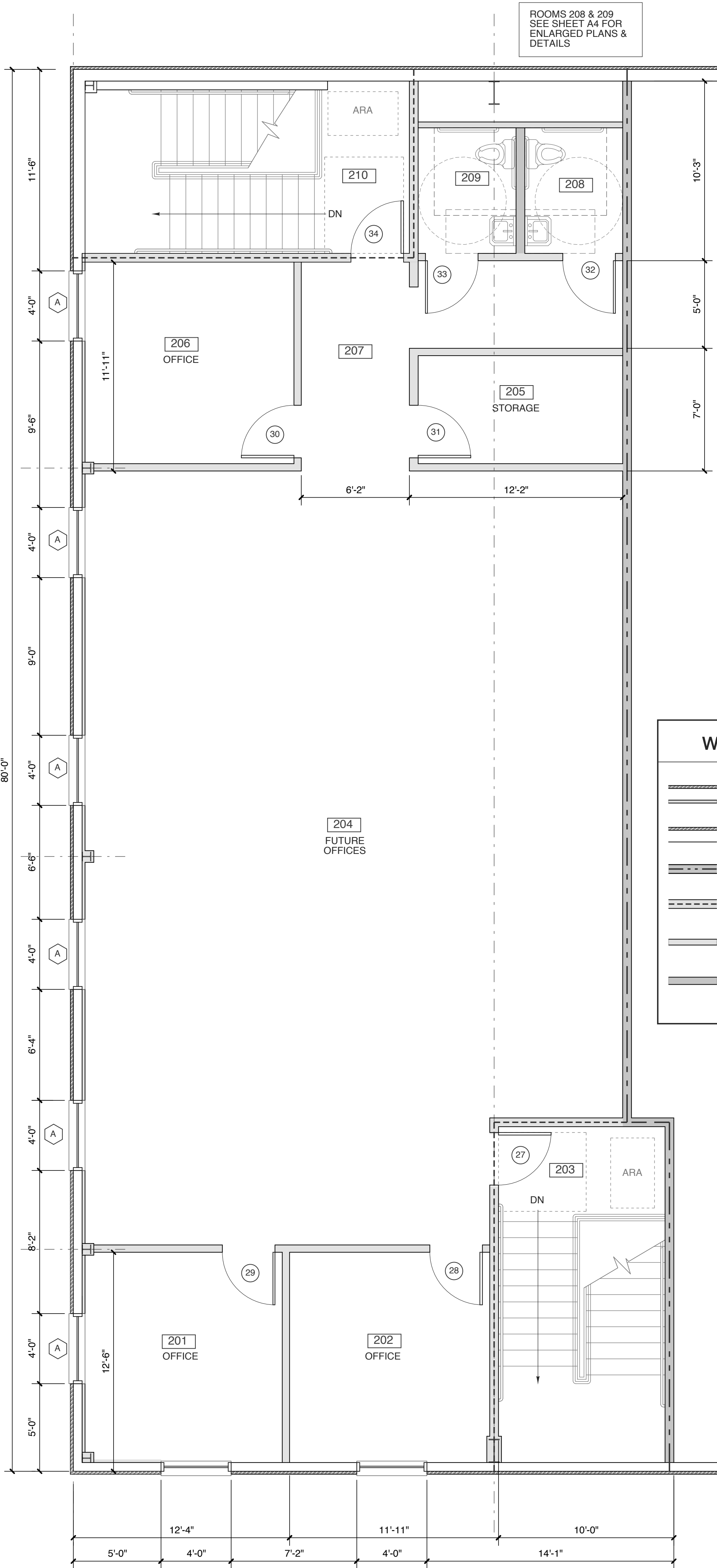
SHEET 3 OF 9

**A1.1**

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**WALL LEGEND**

- EXT. METAL WALL PANEL WITH LINER SYSTEM & FURRING W/ DRYWALL
- EXT. METAL WALL PANEL WITH LINER SYSTEM
- 2 HR. RATED FIRE BARRIER
- 1 HR. RATED FIRE BARRIER
- 
- 

**ROOM FINISH SCHEDULE**

MARK	ROOM NAME	FLOOR	BASE	WALL				WAINSCOT	CEILING		REMARKS / NOTES
				N	E	S	W		MATERIAL	HGT.	
101	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
102	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
103	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
104	ENTRY	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
105	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
106	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
107	STAIR 1	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	RUBBER TREADS	
108	RESTROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
109	RESTROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
110	BREAK ROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
111	CONFERENCE ROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
112	COPY/PRINT	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
113	STAIR 2	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	RUBBER TREADS	
114	CLOSET	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
115	RESTROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
116	WAREHOUSE	SEALED CONCRETE	RUBBER	PTD. DW. @ INT.	---	---	---	---	OPEN TO STRUCTURE	RUBBER BASE @ GBW	
201	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
202	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
203	STAIR 2	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	RUBBER TREADS	
204	FUTURE OFFICES	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
205	STORAGE	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
206	OFFICE	CARPET	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
207	CORRIDOR	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
208	RESTROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
209	RESTROOM	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	---	
210	STAIR 1	LVT	RUBBER	PTD. DW.	---	---	---	ACC. TILE	8'-0"	RUBBER TREADS	

CONFIRM W/ OWNER

**DOOR SCHEDULE**

MARK	DOOR			FRAME			HWR SET NO.	REMARKS
	SIZE	MATL	TYPE	TYPE	DETAILS			
1	3'-0" x 7'-0" x 1-3/4"	ALUM.	A	ALUM	---	1	---	
2	3'-0" x 7'-0" x 1-3/4"	INSUL. HM.	B	INSUL HM	---	1	---	
3	3'-0" x 7'-0" x 1-3/4"	INSUL. HM.	B	INSUL HM	---	1	---	
4	3'-0" x 7'-0" x 1-3/4"	INSUL. HM.	B	INSUL HM	---	1	---	
5	3'-0" x 7'-0" x 1-3/4"	INSUL. HM.	B	INSUL HM	---	1	---	
6	3'-0" x 7'-0" x 1-3/4"	INSUL. HM.	B	INSUL HM	---	1	---	
7	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
8	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	3	1 HR. RATED	
9	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
10	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
11	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
12	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
13	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
14	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	2	---	
15	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	5	---	
16	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	3	1 HR. RATED	
17	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	5	---	
18	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	5	---	
19	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	---	---	
20	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	5	---	
21	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	2	2 HR. RATED	
22	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	3	2 HR. RATED	
23	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	3	2 HR. RATED	
24	3'-0" x 7'-0" x 1-3/4"	INSUL. MTL.	C	INSUL. STL.	---	---	VERIFY OPENING DIMS W/ MANF.	
25	3'-0" x 7'-0" x 1-3/4"	INSUL. MTL.	C	INSUL. STL.	---	---	VERIFY OPENING DIMS W/ MANF.	
26	3'-0" x 7'-0" x 1-3/4"	INSUL. MTL.	C	INSUL. STL.	---	---	VERIFY OPENING DIMS W/ MANF.	
27	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	3	1 HR. RATED	
28	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
29	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
30	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
31	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	5	---	
32	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
33	3'-0" x 7'-0" x 1-3/4"	SC. WD.	C	HM	---	4	---	
34	3'-0" x 7'-0" x 1-3/4"	SC. WD.	D	HM	---	3	1 HR. RATED	

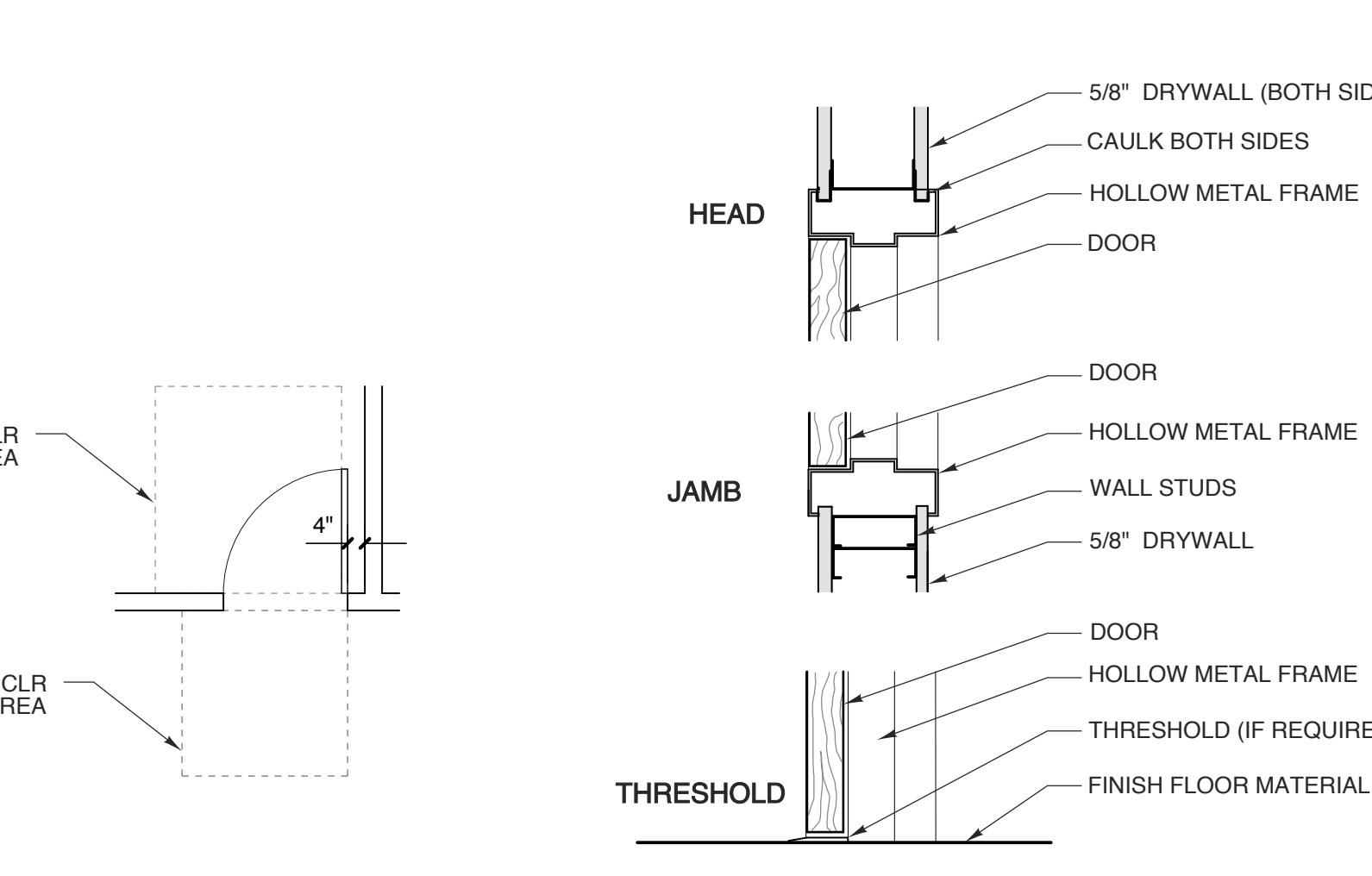
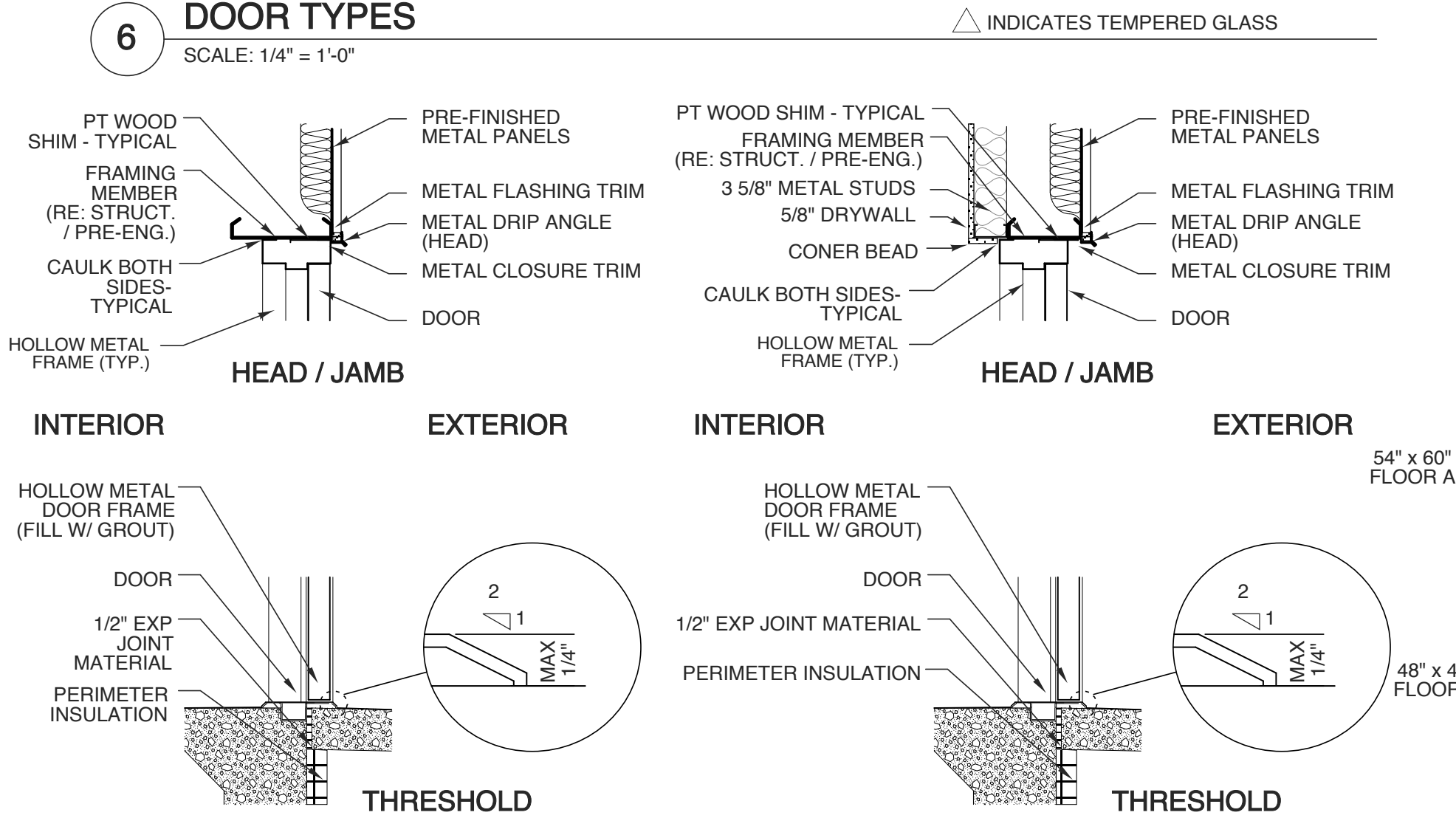
**NOTES:**

- COORDINATE KEYING OF HARDWARE WITH OWNER
- DOOR HANDLES TO BE LEVER HANDLE
- ALL DOORS TO MEET NCSBC SECTION 1609.1.2

**HARDWARE SETS**

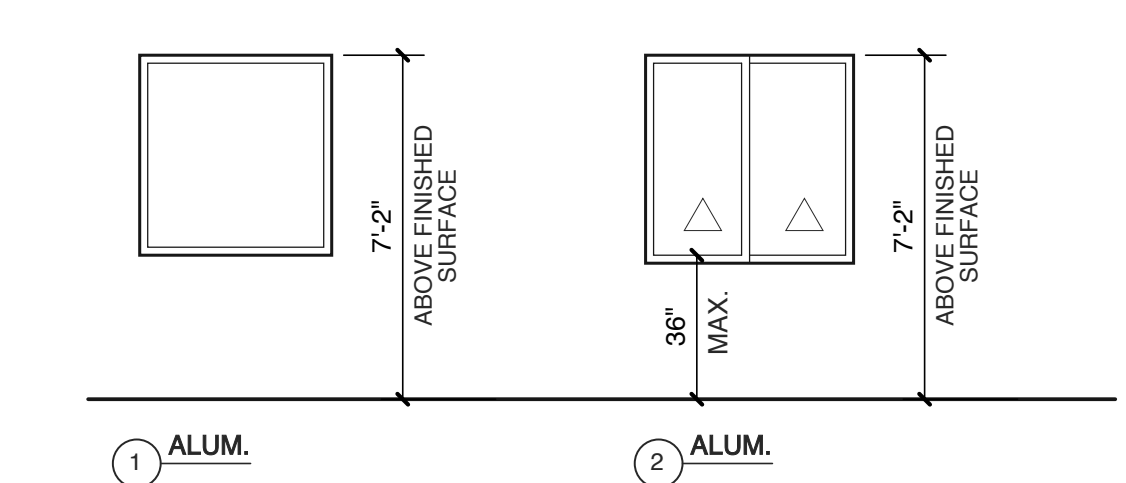
1. LOCK SET W/ CLOSER
2. PRIVACY SET W/ CLOSER
3. PASSAGE SET W/ CLOSER
4. PRIVACY SET
5. PASSAGE SET

CONFIRM WITH OWNER

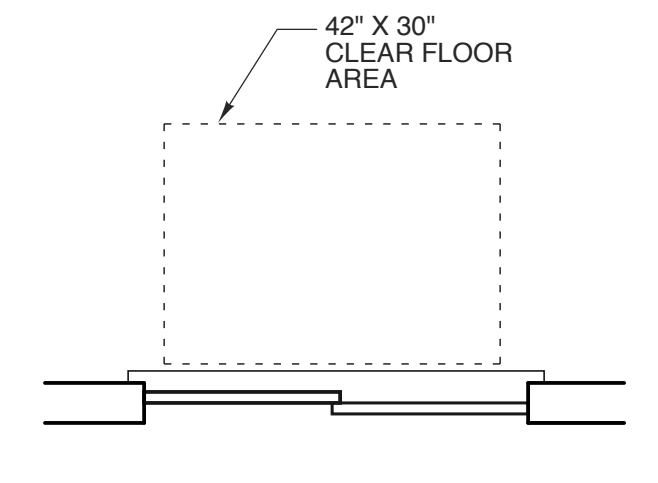


WINDOW SCHEDULE							
MARK	W	SIZE	H	TYPE	MATERIAL	GLASS	REMARKS
(A)	4'-0"	x	4'-2"	1	ALUMINUM	1" INSUL. LOW E GLASS	FIXED
(B)	4'-4"	x	4'-4"	2	ALUMINUM	TEMPERED	SLIDING

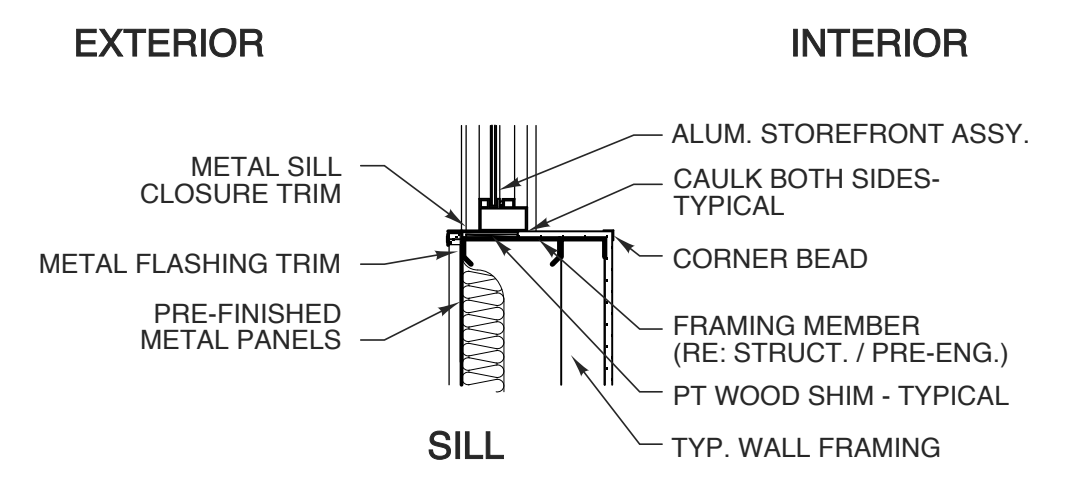
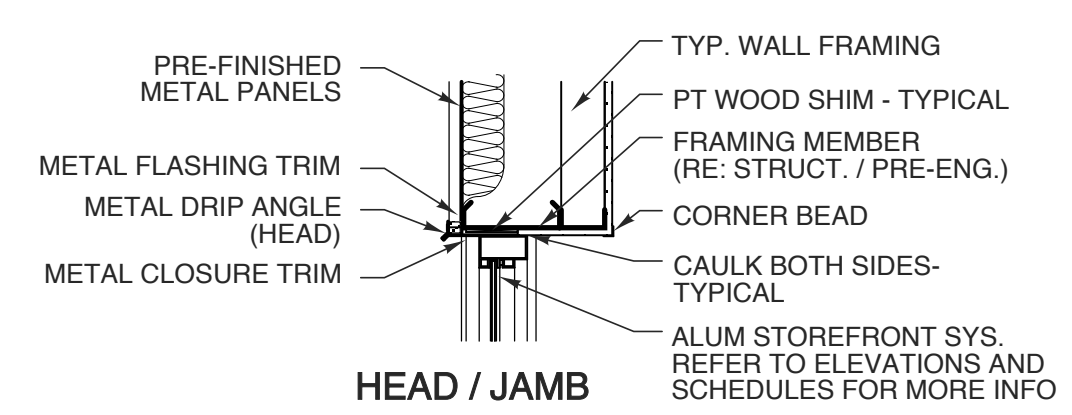
NOTES:  
 -SEE WINDOW TYPE ELEVATIONS AND DETAILS.  
 -FIELD VERIFY ALL OPENING SIZES. DIMENSIONS GIVEN FOR REFERENCE.  
 -INCLUDE THERMAL BREAK PER MANUFACTURER'S STANDARDS WITH ALL FRAMES.  
 -ALL WINDOWS TO MEET NCSBC SECTION 1609.1.2  
 -SEE COMCHECK REPORT FOR ENERGY REQUIREMENTS.



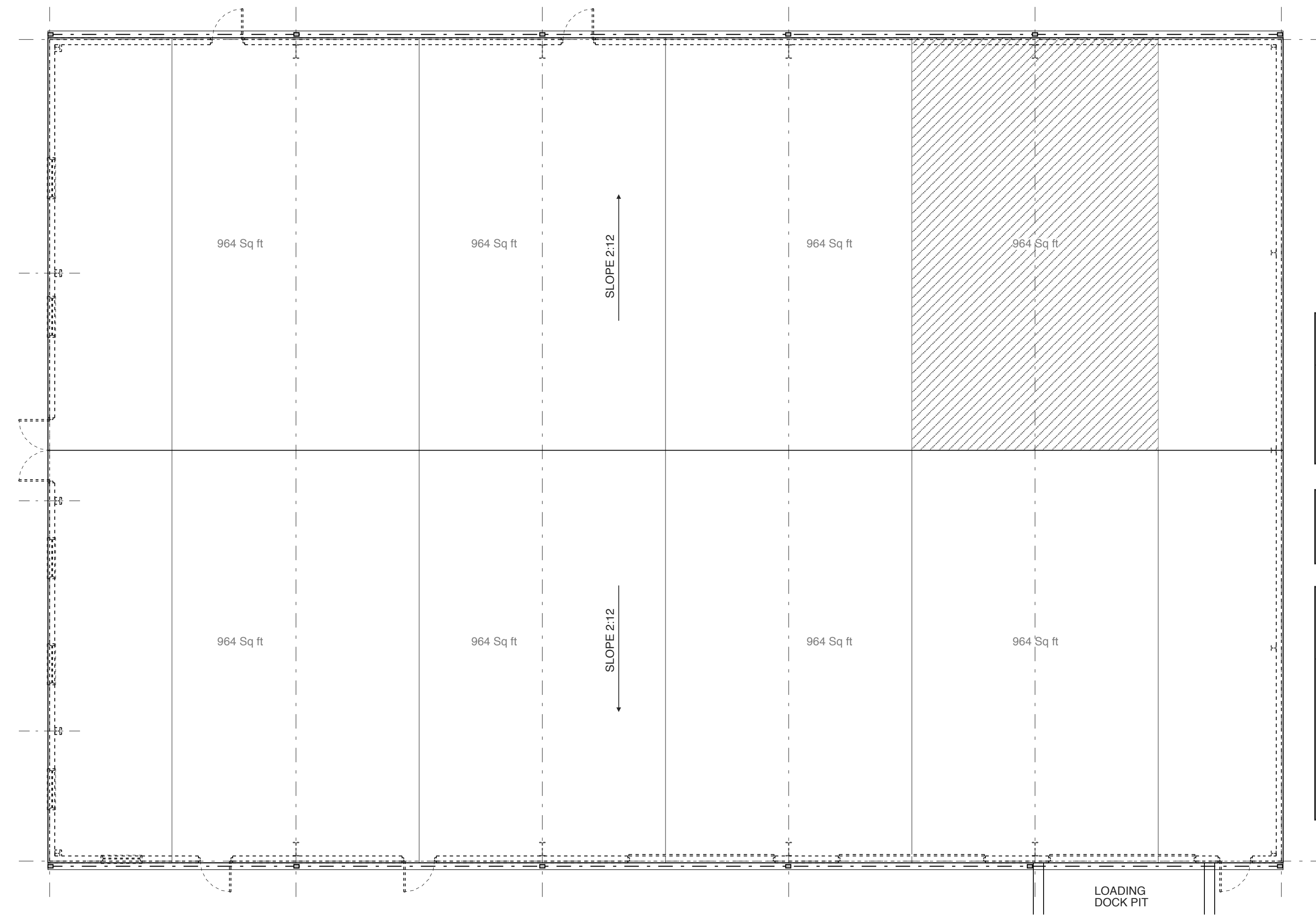
4 WINDOW TYPES  
 SCALE: 1/4" = 1'-0"  
 △ INDICATES TEMPERED GLASS



3 PARALLELL APPROACH FOR WINDOW  
 SCALE: 1/2" = 1'-0"



2 ALUMINUM STOREFRONT WINDOW @ METAL PANELS  
 SCALE: 3/4" = 1'-0"

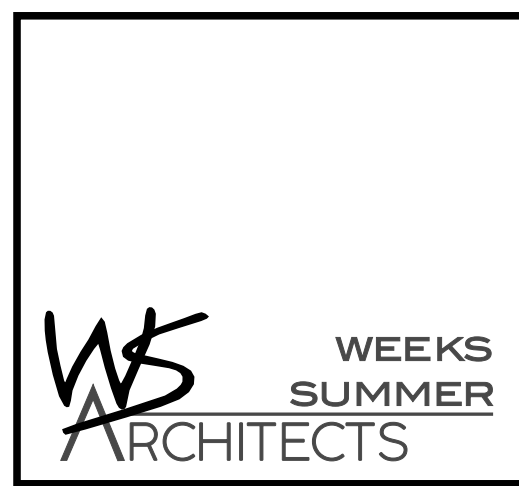
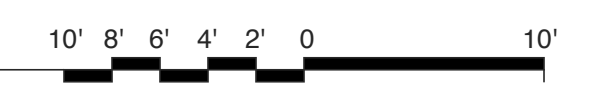


ROOF DRAINAGE LEGEND	
■	3.5" x 5" VERTICAL LEADER
---	6" EAVE GUTTER @ 1/8:12 SLOPE

ALL ROOF PENETRATIONS TO BE PAINTED TO MATCH ROOF.

ROOF DRAINAGE CALCULATIONS PER 2012 NC PLUMBING CODE		
TABLE 1106.2 (2) RECTANGULAR VERTICAL LEADERS		
3-1/2 X 5 @ 4"/HR		5,320 SF MAX AREA
TABLE 1106.6 SIZE OF SEMI-CIRCULAR ROOF GUTTERS		
6" DIA. @ 4"/HR		1,360 SF MAX AREA @ 1/8: 12 (1%) SLOPE

1 ROOF PLAN  
 SCALE: 1/8" = 1'-0"



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PROJECT TITLE  
**POWERMASTER ELECTRIC**  
 JARCO DRIVE  
 FUQUAY-VARINA, NORTH CAROLINA

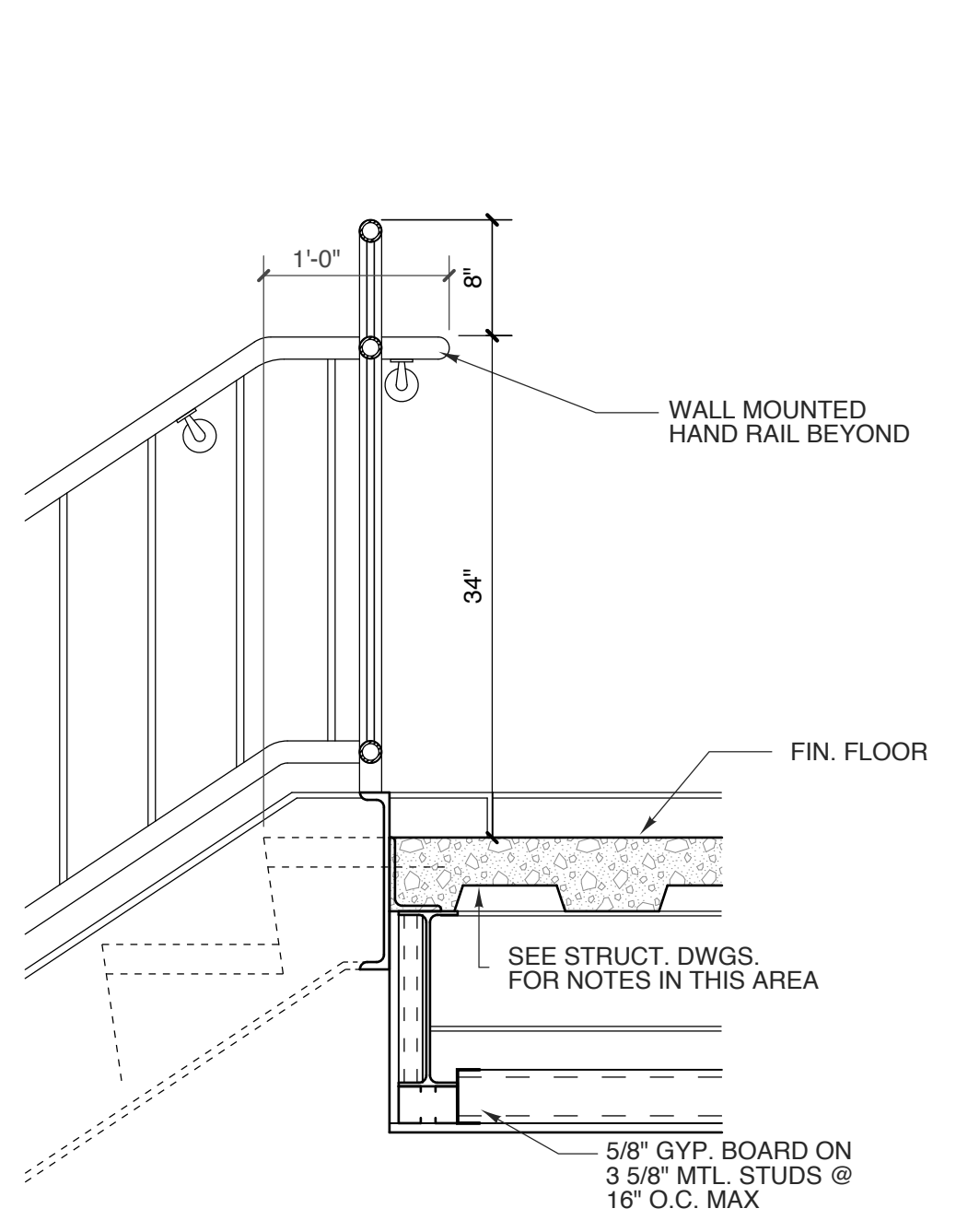
PROJECT NO.  
**2019**  
 DRAWING TITLE  
**ROOF PLAN**

SHEET **5** OF **9**

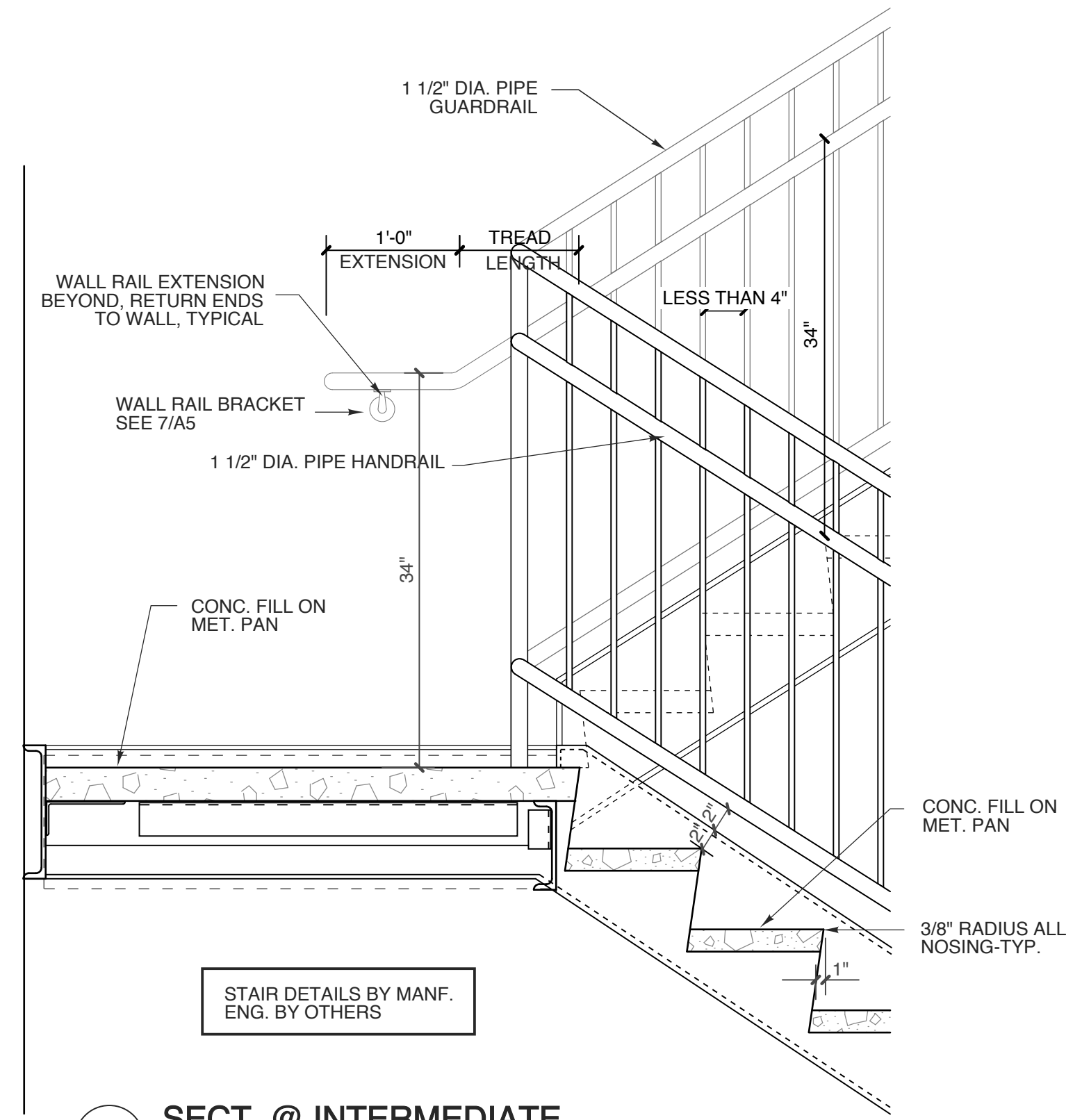
**A1.3**

PLOT DATE  
 REVISION 00/00/19

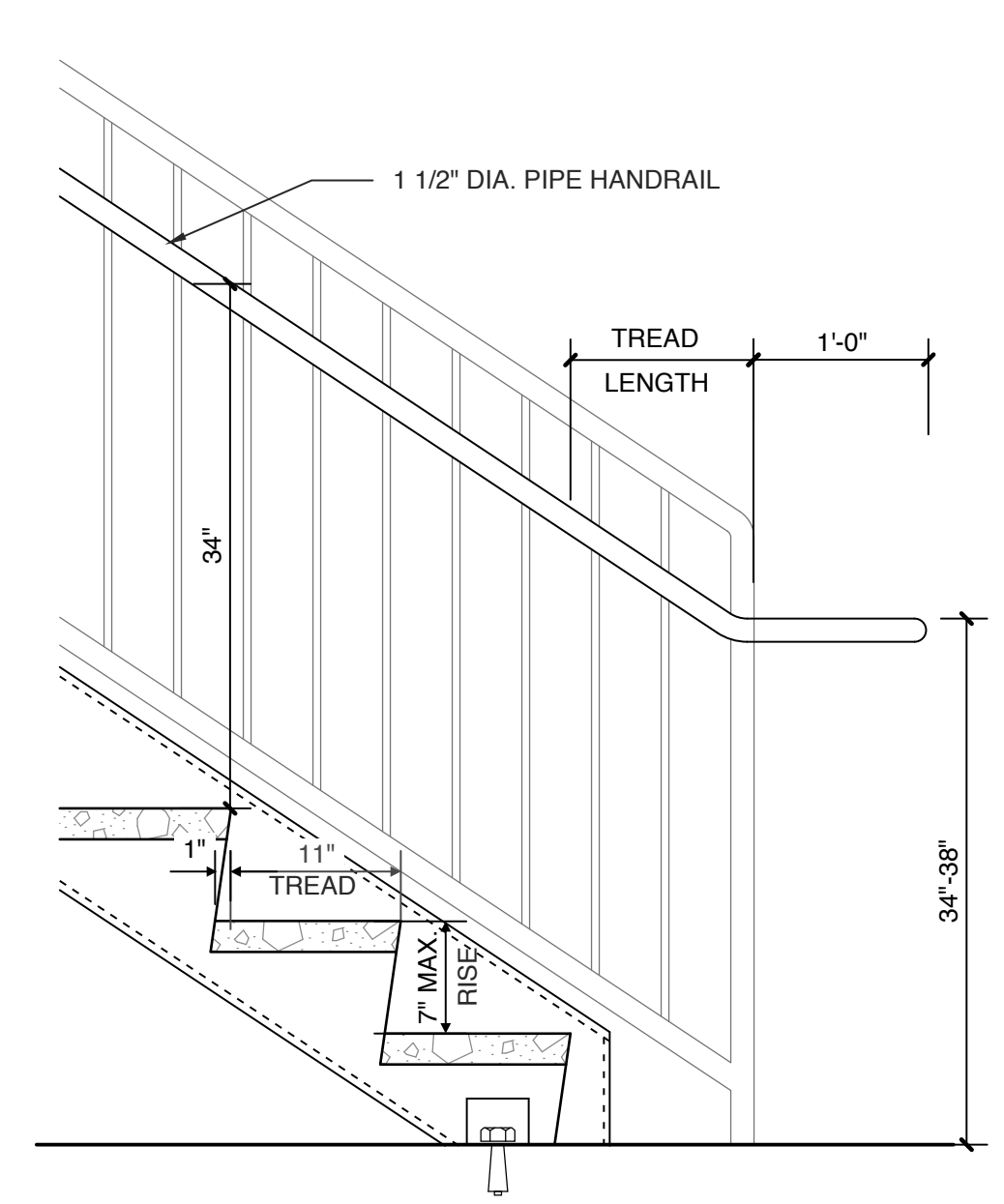
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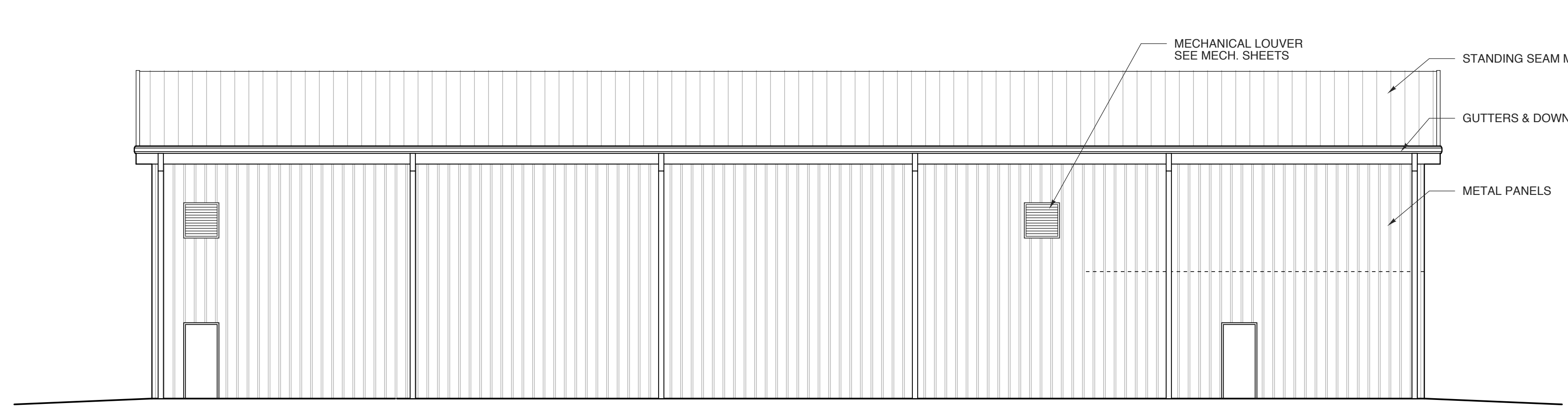
**7** SECT. @ TOP LANDING  
SCALE: 1" = 1'-0"



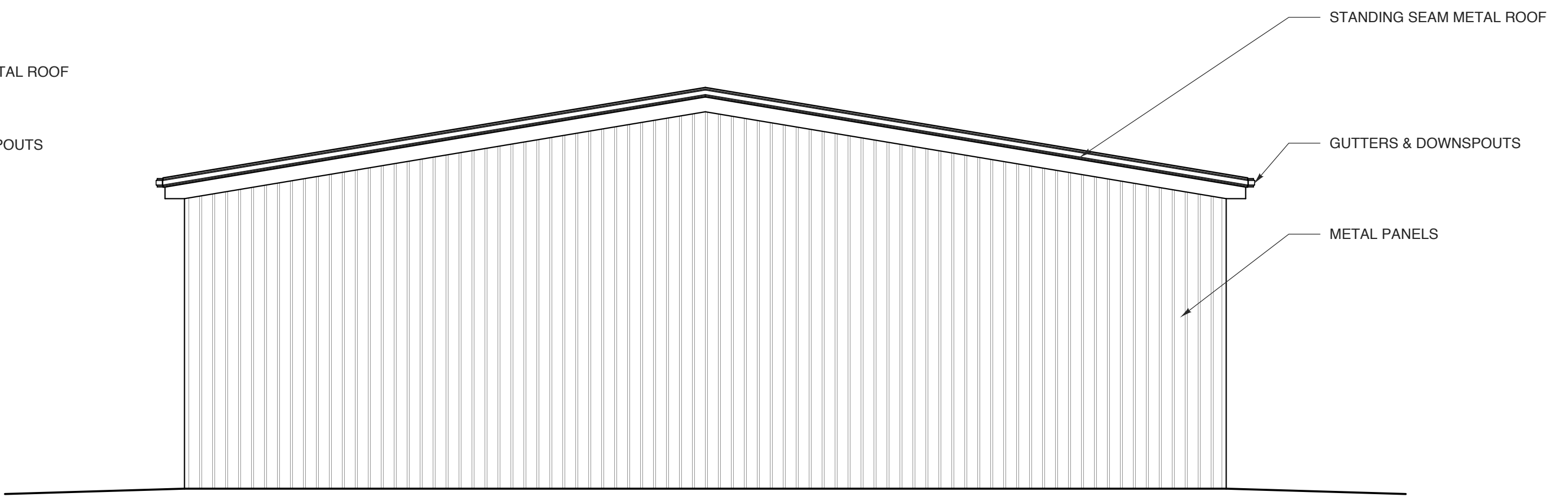
**6** SECT. @ INTERMEDIATE  
SCALE: 1" = 1'-0"



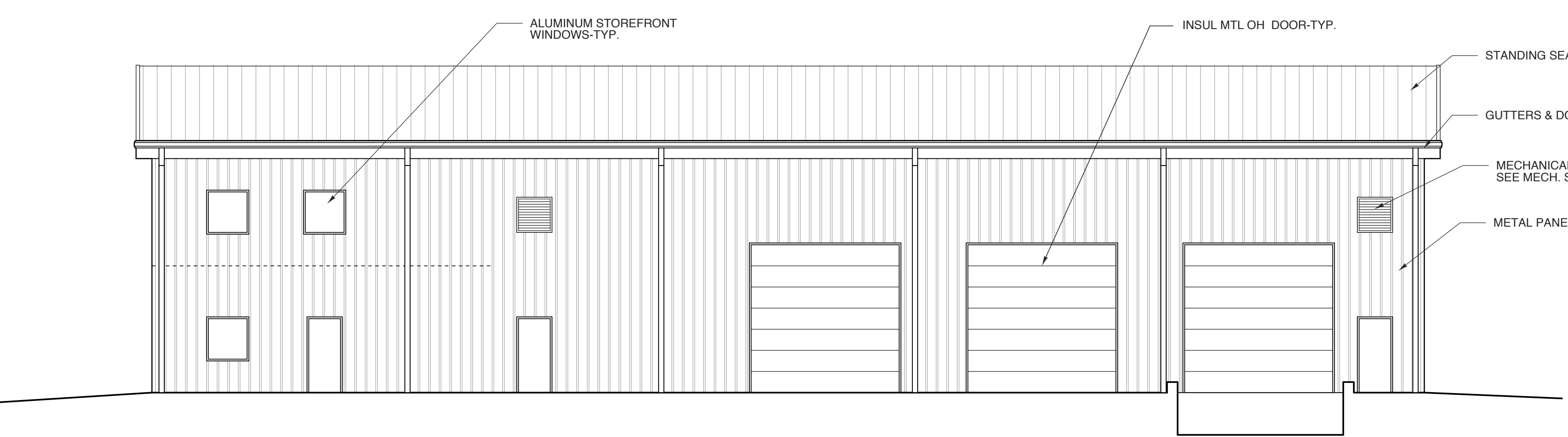
**5** SECT. @ BOTTOM LANDING  
SCALE: 1" = 1'-0"



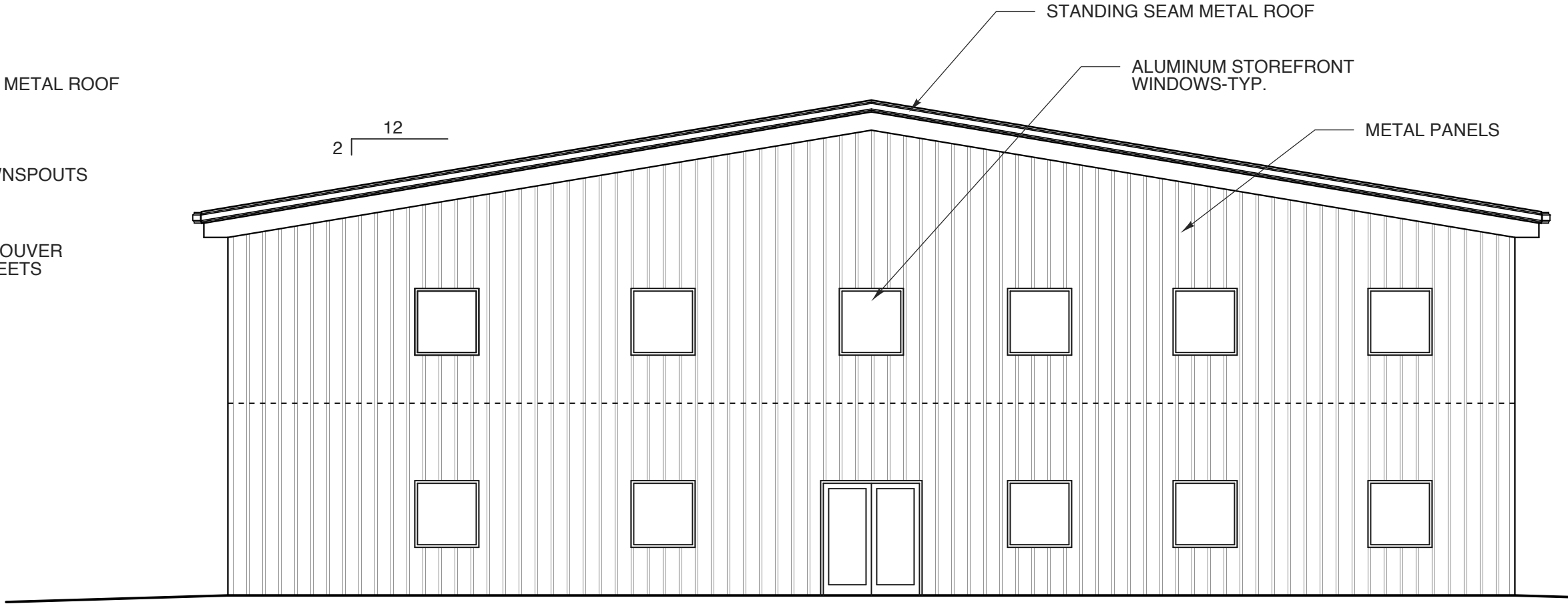
**4** SIDE ELEVATION  
SCALE: 1/8" = 1'-0"



**3** REAR ELEVATION  
SCALE: 1/8" = 1'-0"



**2** SIDE ELEVATION  
SCALE: 1/8" = 1'-0"



**1** FRONT ELEVATION  
SCALE: 1/8" = 1'-0"

**FOR PERMIT  
PROCESS ONLY**

PROJECT TITLE  
**POWERMASTER  
ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

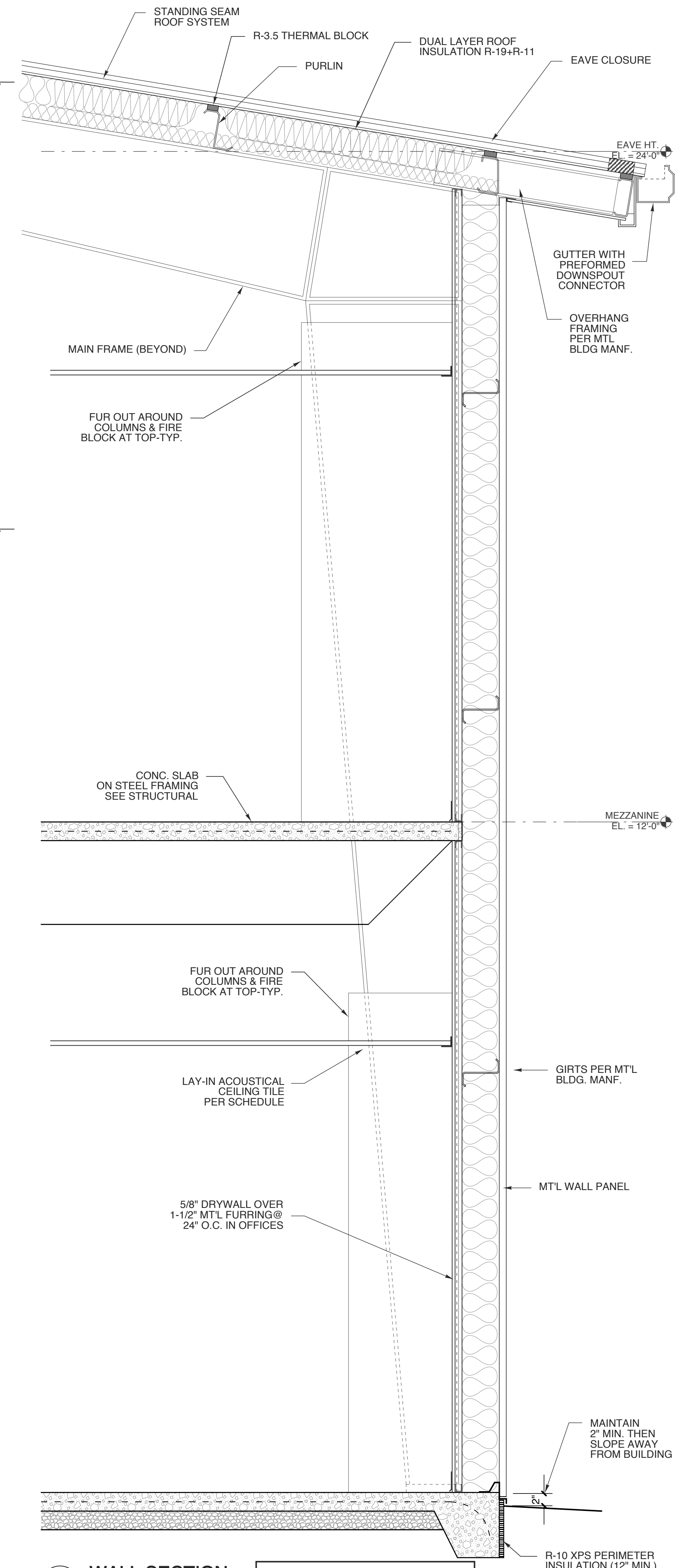
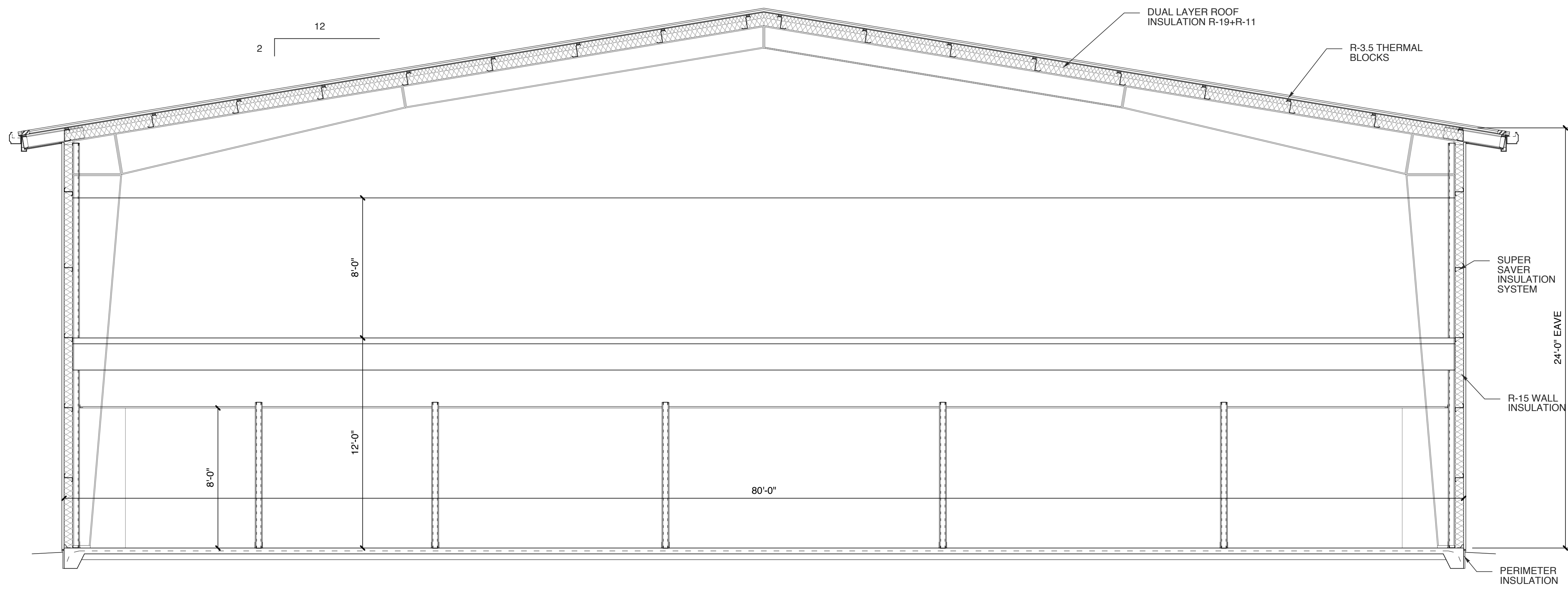
PROJECT NO.  
**2019**  
DRAWING TITLE  
**ELEVATIONS**

SHEET **6** OF **9**

**A2**

PLOT DATE 8/13/21  
REVISION 00/00/19

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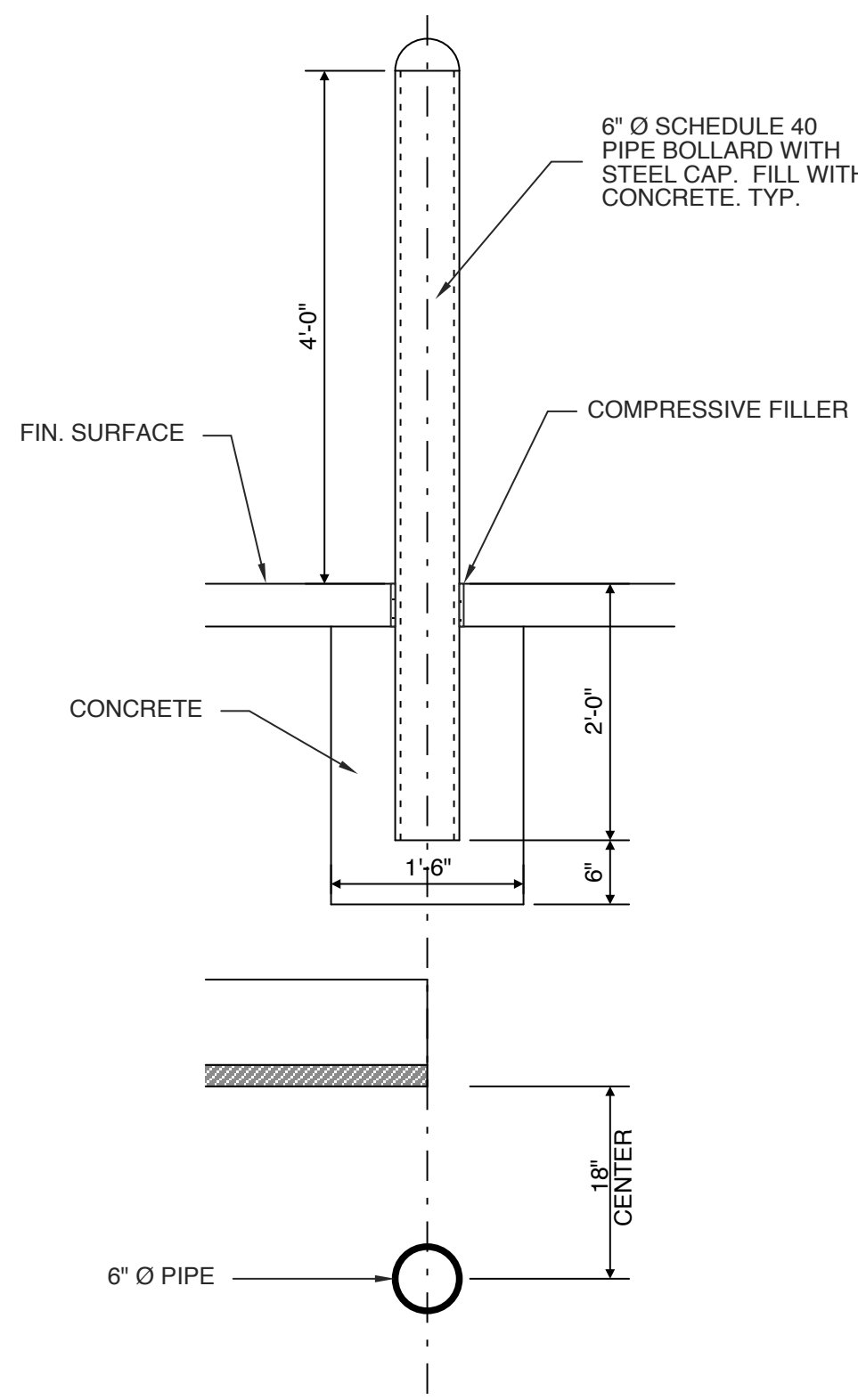
**1 BUILDING SECTION**  
SCALE: 1/4" = 1'-0"

SEE STRUCTURAL DRAWINGS FOR FOUNDATION AND FRAMING INFORMATION

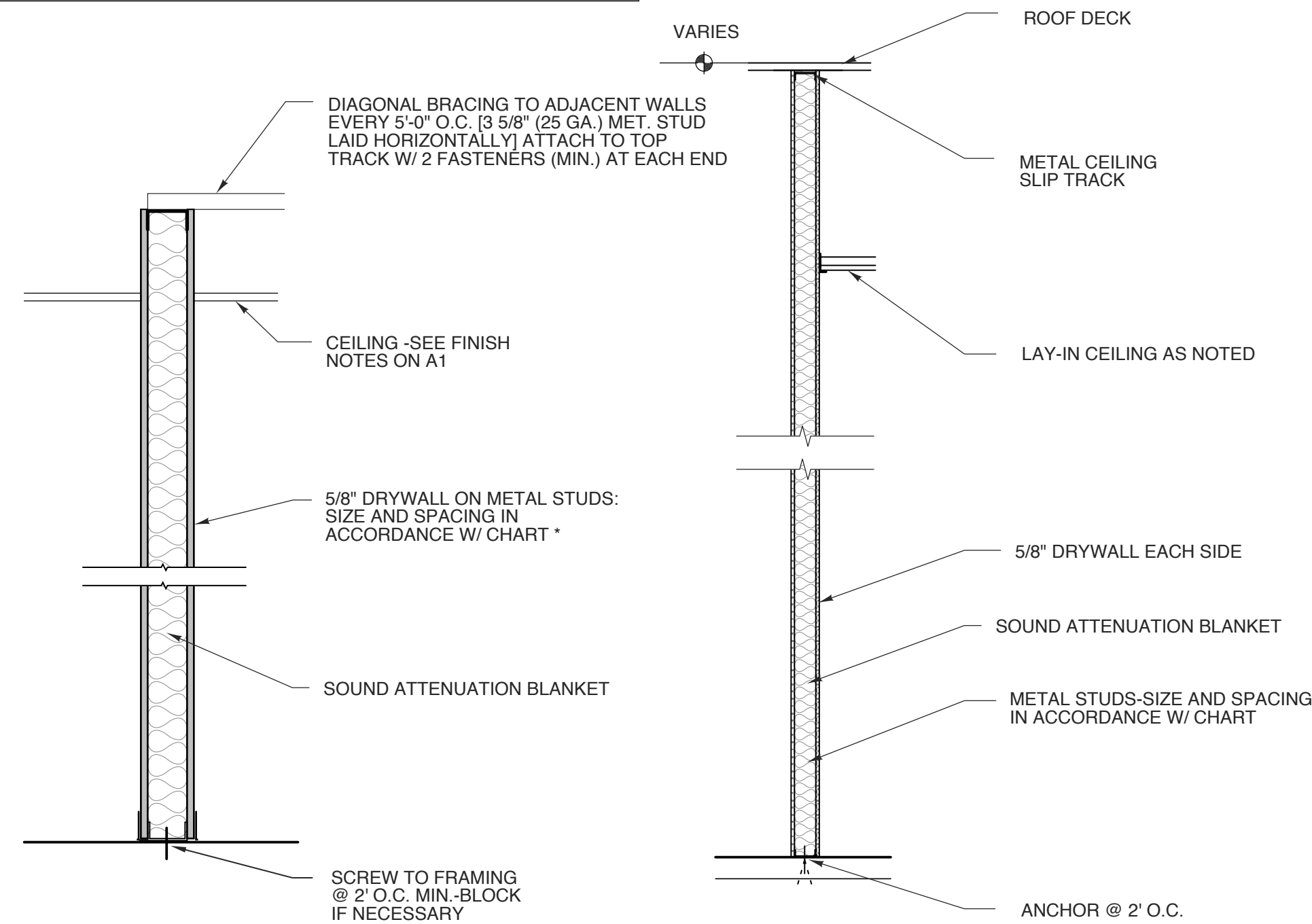
\* MAXIMUM STUD HEIGHTS FOR INTERIOR TENANT SEPARATION WALLS

Size	Gauge	O.C. Spacing	Max. Height
2 1/2"	25 ga.	12"	13'-11"
		16"	12'-8"
		24"	11'-1"
3 5/8"	24 ga.	12"	18'-6"
		16"	16'-10"
		24"	14'-8"
3 1/2"	25 ga.	12"	18'-0"
		16"	16'-4"
		24"	14'-4"
6"	25 ga.	12"	27'-7"
		16"	26'-0"
		24"	21'-10"
8"	25 ga.	12"	34'-10"
		16"	31'-7"
		24"	27'-7"

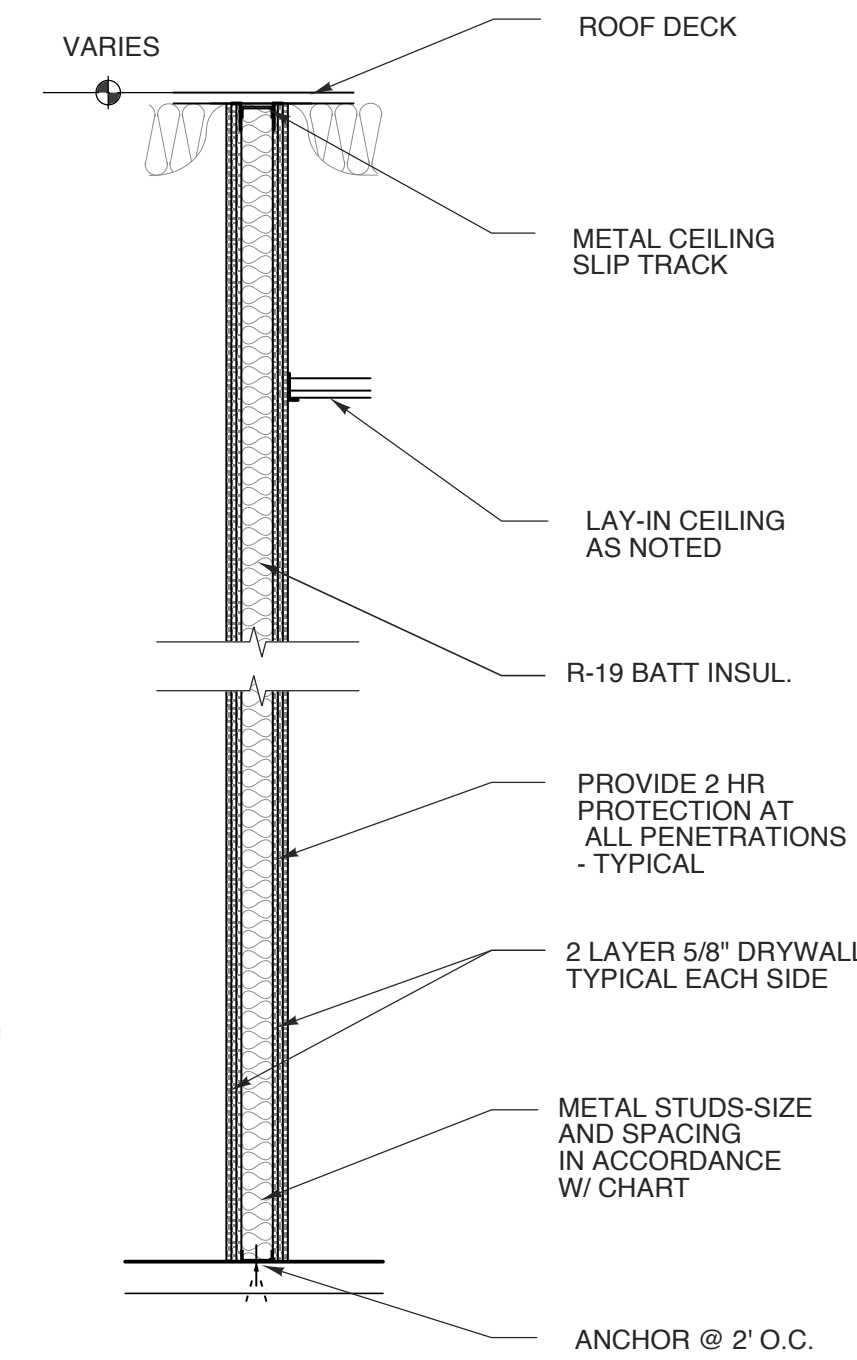
Top track by Fire Trak Corp. or equal and of same gauge as stud  
\* Based upon information furnished by Dietrich for CWN type steel studs. (alternate stud types and gauges shall be approved by the architect)



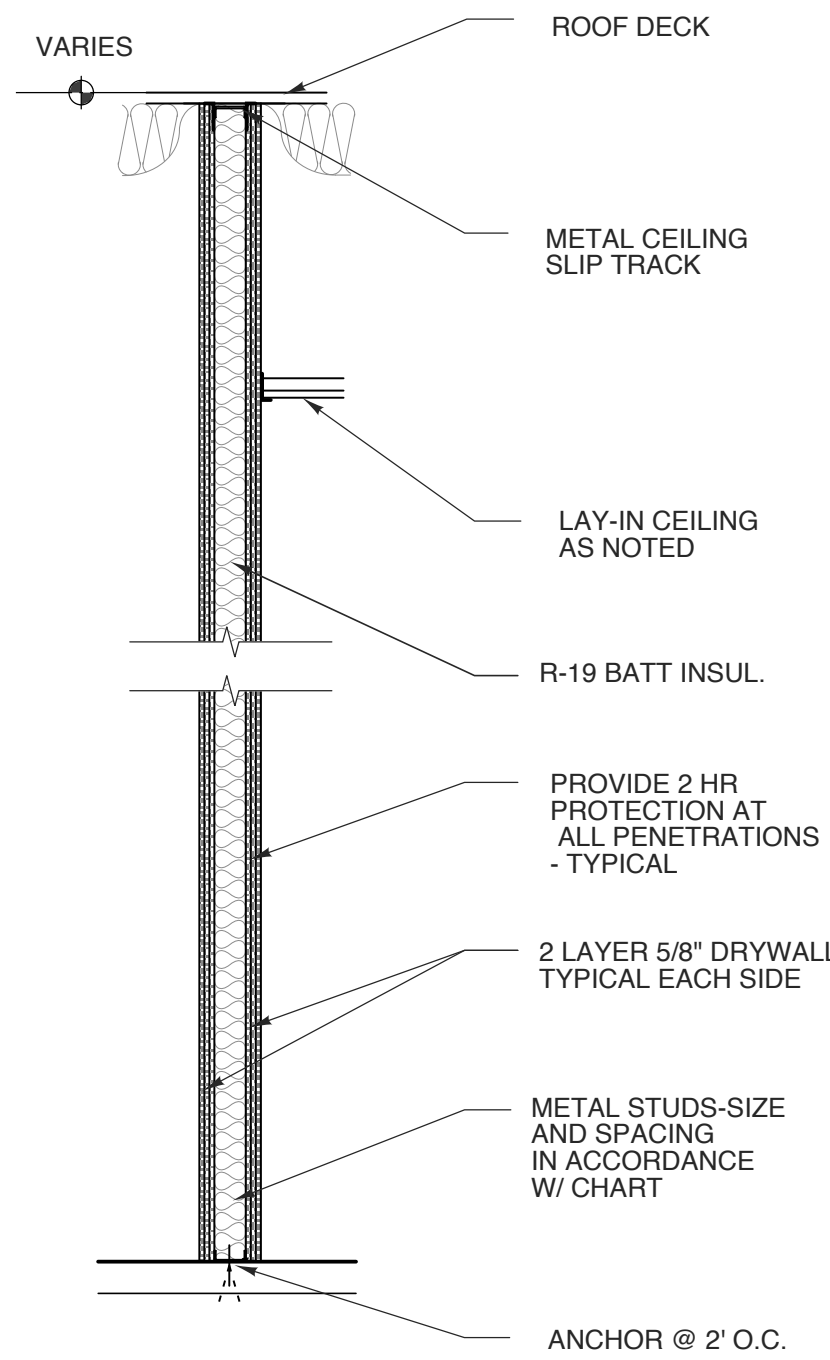
**2 BOLLARD DETAIL**  
SCALE: 3/4" = 1'-0"



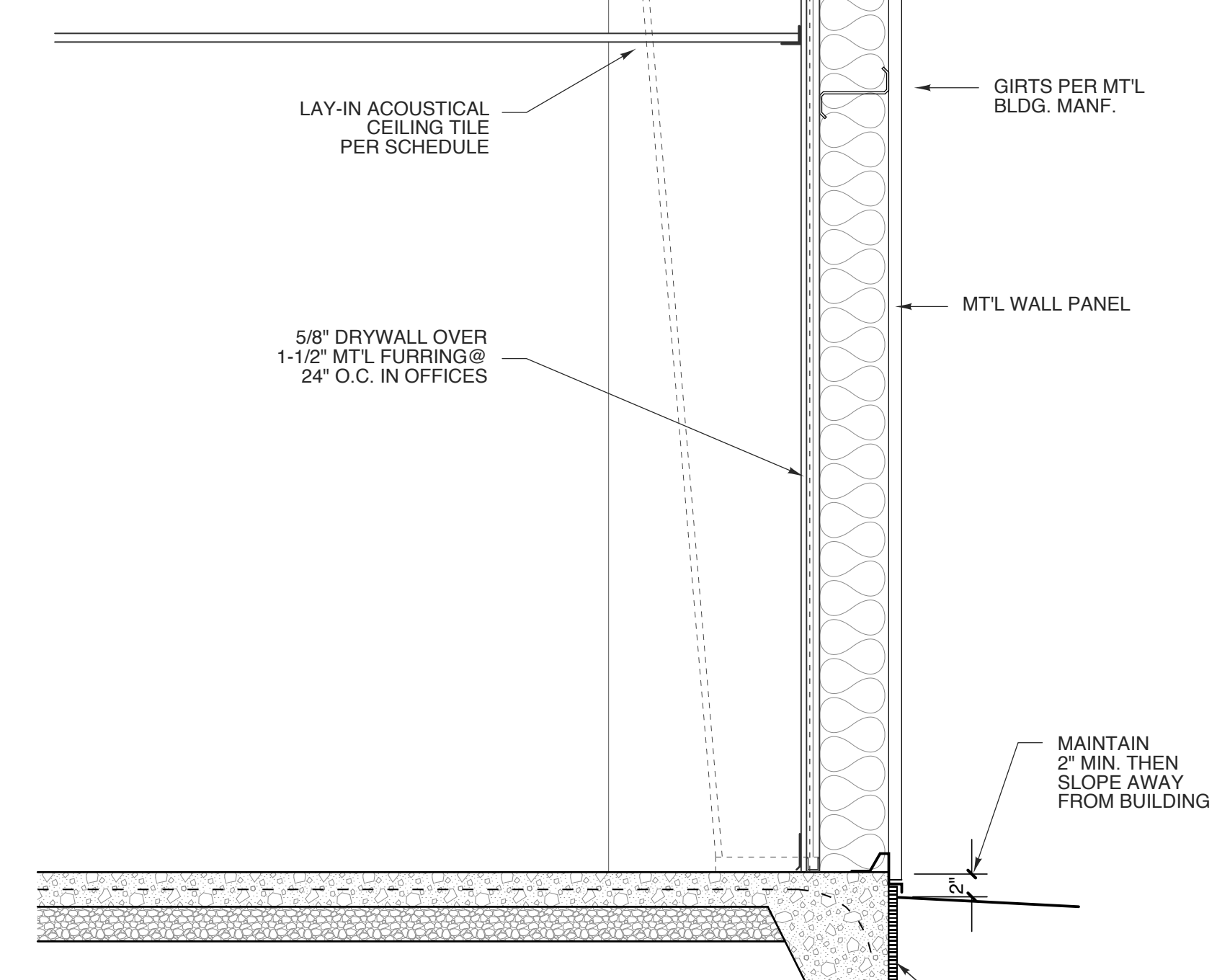
**6 NON-RATED WALL SECTION**  
SCALE: NTS



**5 FULL HEIGHT WALL SECTION**  
SCALE: 1/2" = 1'-0"



**10 2 HOUR SEPARATION WALL**  
SCALE: 1/2" = 1'-0"



**3 WALL SECTION**  
SCALE: 3/4" = 1'-0"

SEE STRUCTURAL DRAWINGS FOR FOUNDATION AND FRAMING INFORMATION

**FOR PERMIT PROCESS ONLY**

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

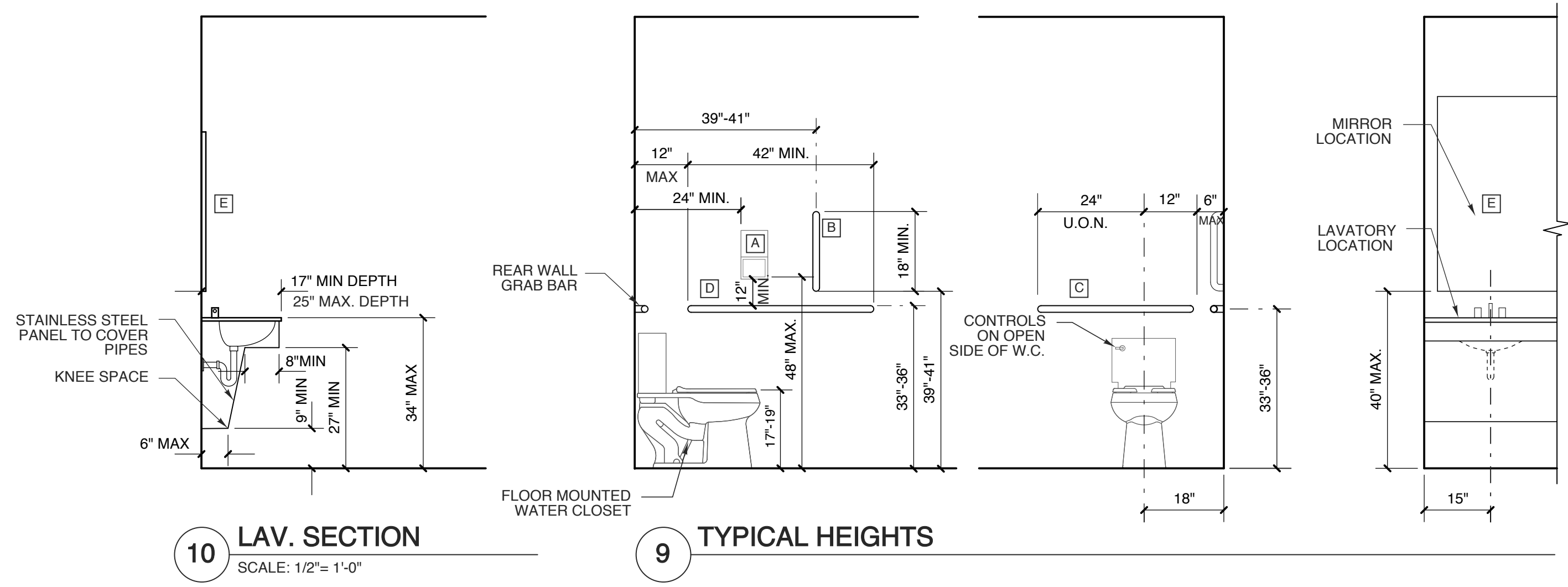
PROJECT NO.  
**2019**  
DRAWING TITLE  
**SECTIONS**

SHEET **7** OF **9**

**A3**

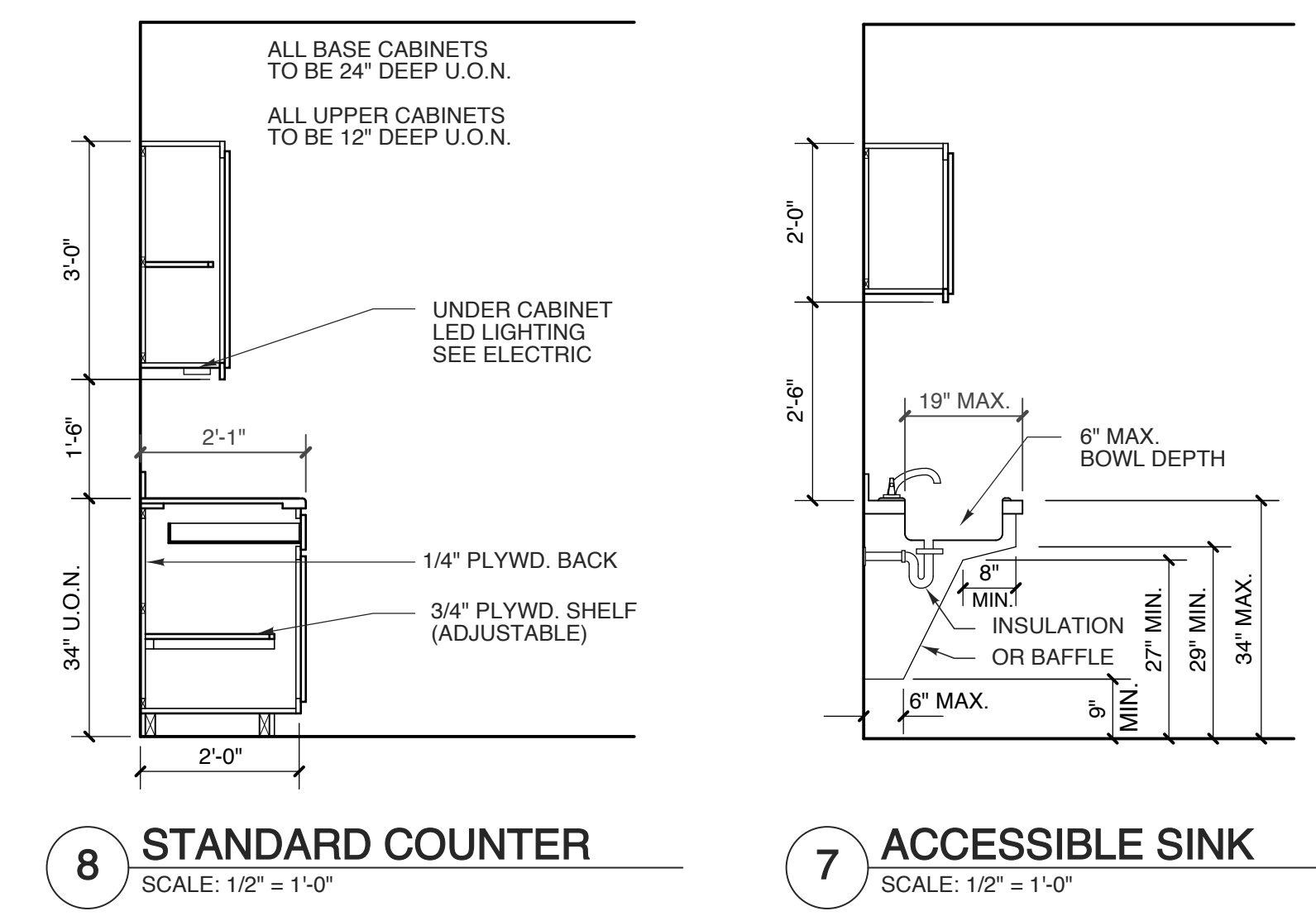
PLOT DATE  
REVISION **00/00/19**

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TOILET ACCESSORY SCHEDULE		
MARK	ITEM	MOUNT
A	SURFACE-MOUNTED MULTI-ROLL TOILET TISSUE DISPENSER (B-4288)	15" MIN. A.F.S.
B	18" VERTICAL GRAB BAR (B-6806X18)	33"-36" A.F.S.
C	36" HORIZONTAL GRAB BAR (B-6806X36)	33"-36" A.F.S.
D	42" HORIZONTAL GRAB BAR (B-6806X42)	33"-36" A.F.S.
E	WELDED FRAME MIRROR (B-290-5030)	RE: ELEV.

MANUFACTURER: BOBRICK WASHROOM EQUIPMENT OR APPROVED EQUAL  
 FINISH: SATIN STAINLESS STEEL

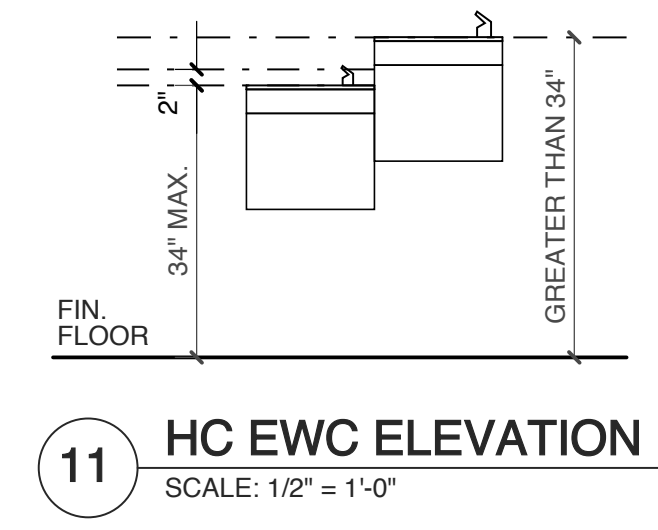


**10 LAV. SECTION**  
 SCALE: 1/2" = 1'-0"

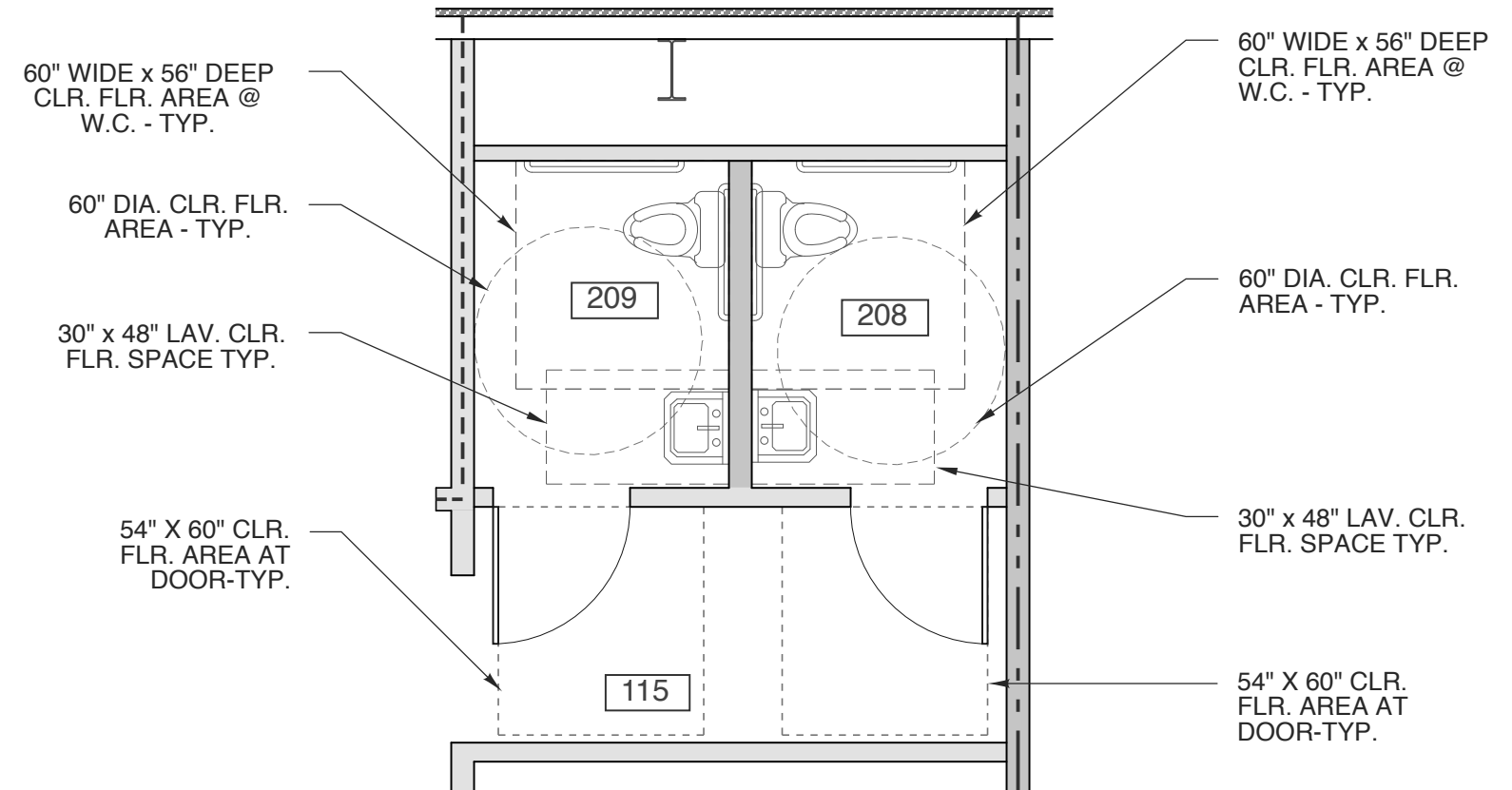
**9 TYPICAL HEIGHTS**

**8 STANDARD COUNTER**  
 SCALE: 1/2" = 1'-0"

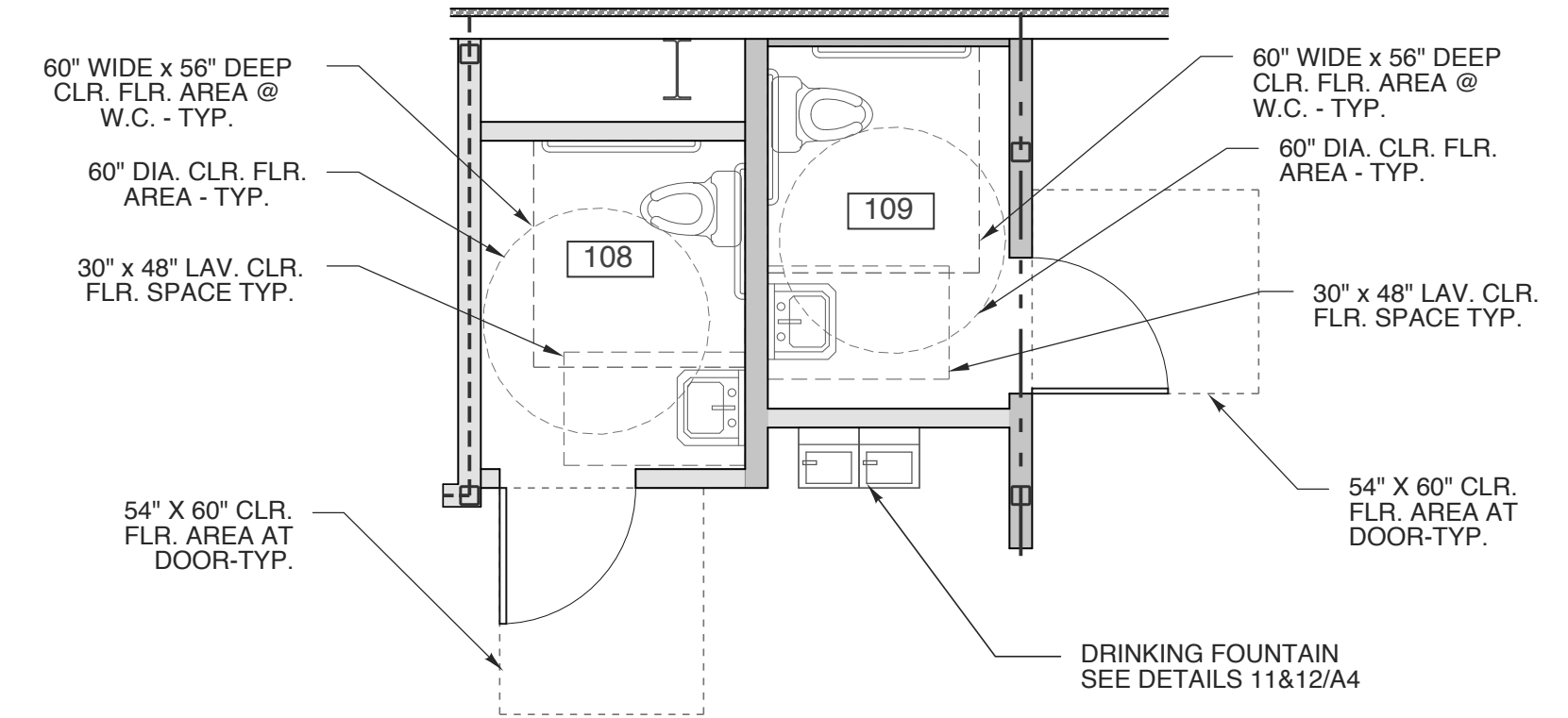
**7 ACCESSIBLE SINK**  
 SCALE: 1/2" = 1'-0"



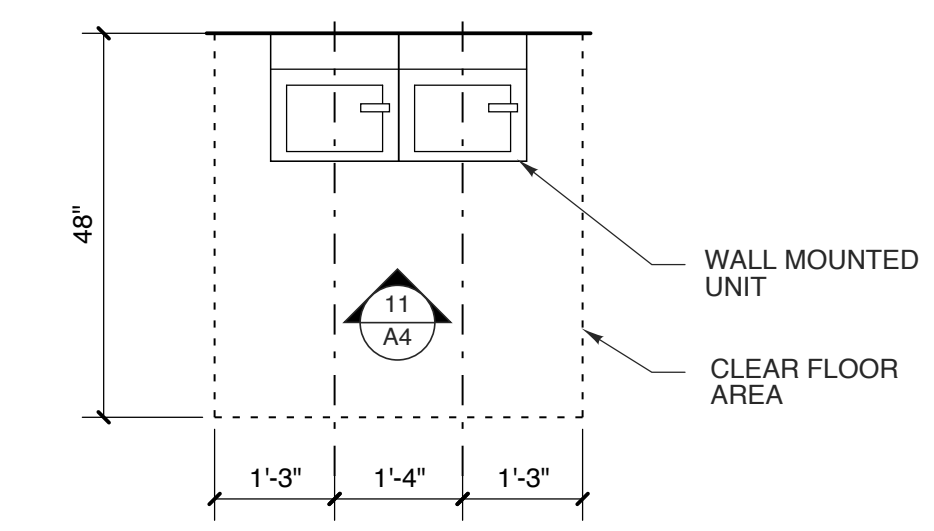
**11 HC EWC ELEVATION**  
 SCALE: 1/2" = 1'-0"



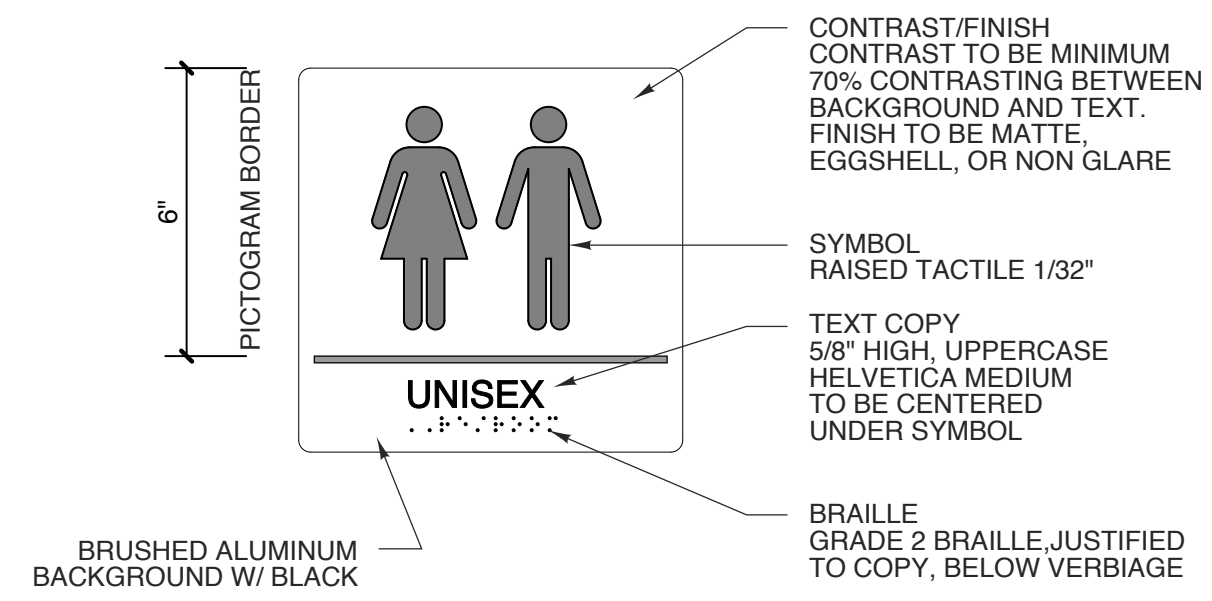
**6 RESTROOMS-2ND FLR**  
 SCALE: 1/4" = 1'-0"



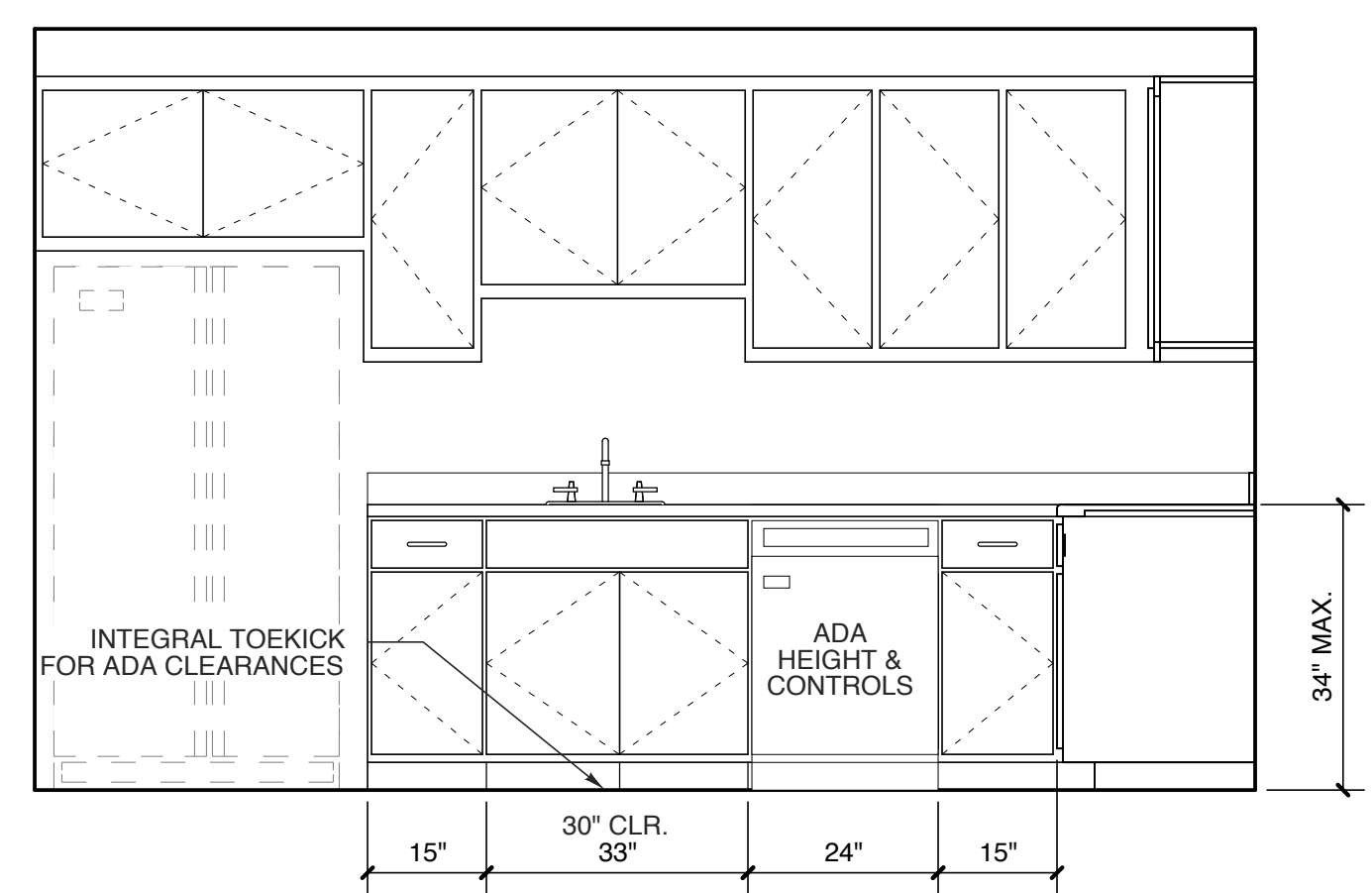
**5 RESTROOMS-1ST FLR**  
 SCALE: 1/4" = 1'-0"



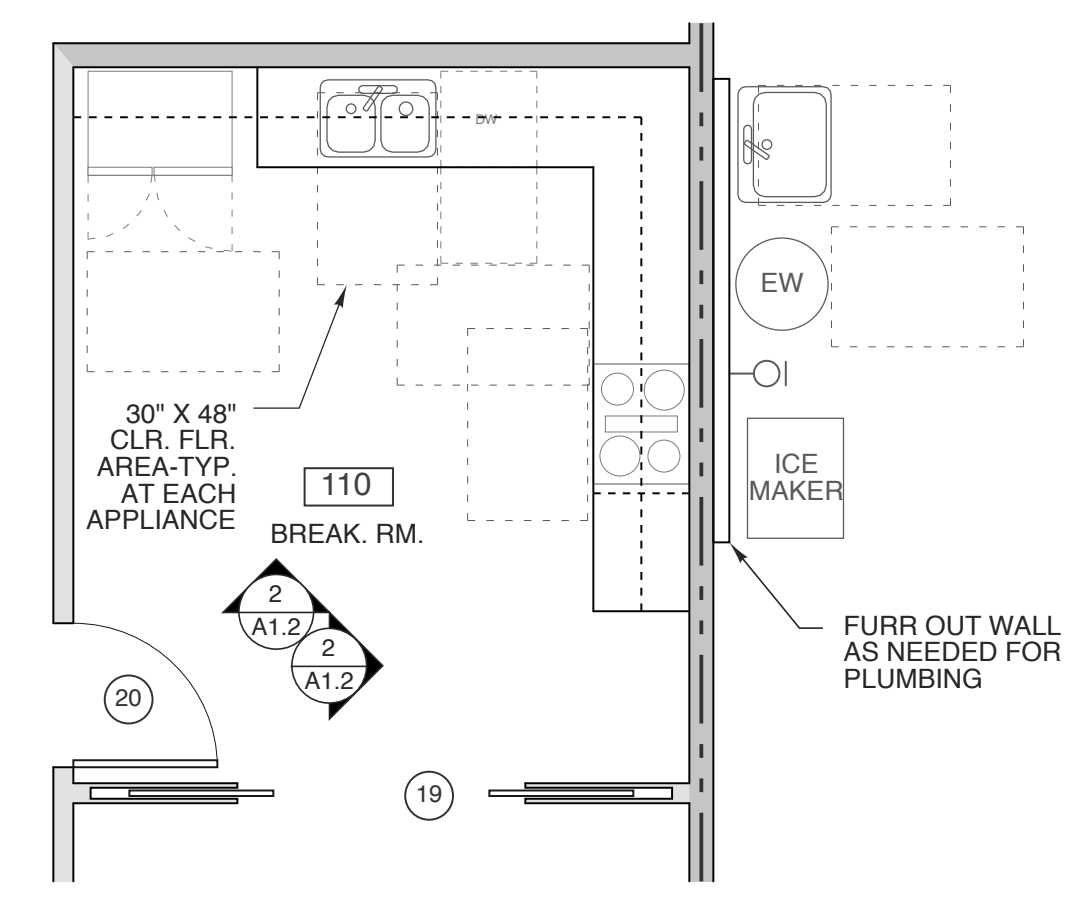
**12 HC EWC PLAN**  
 SCALE: 1/2" = 1'-0"



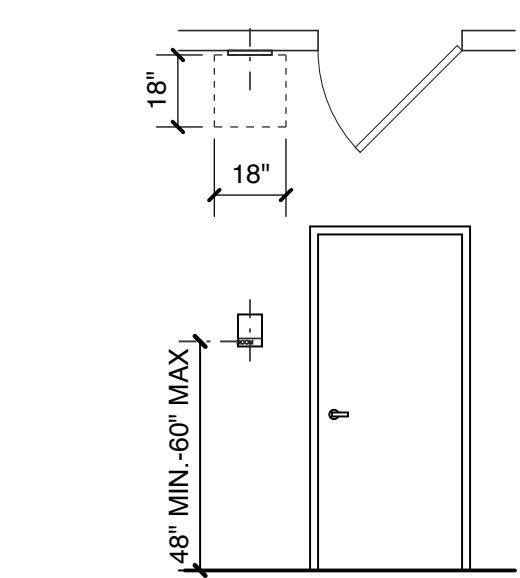
**13 TYP. SIGNAGE**  
 SCALE: 3" = 1'-0"



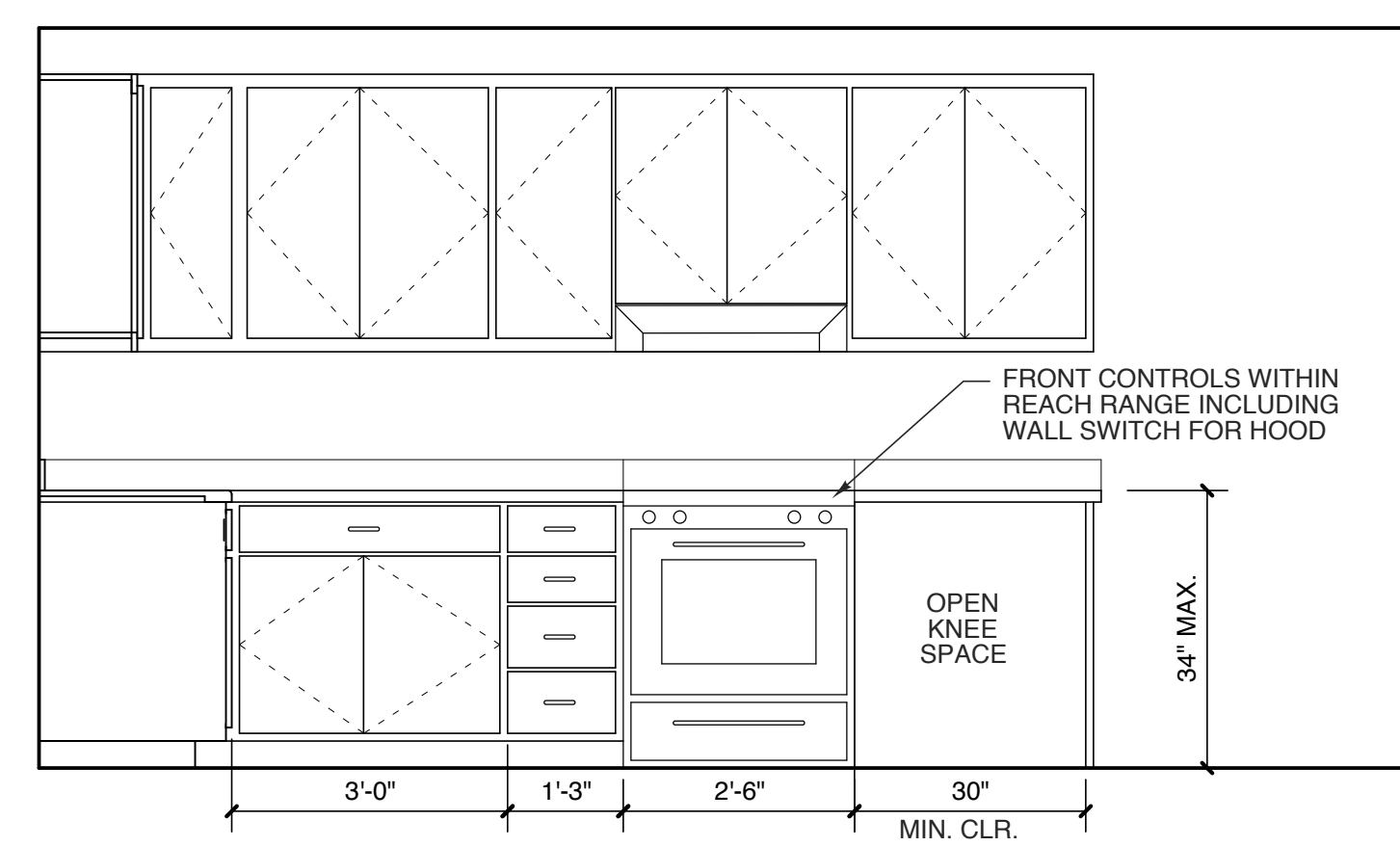
**4 BREAKROOM 110**  
 SCALE: 1/2" = 1'-0"



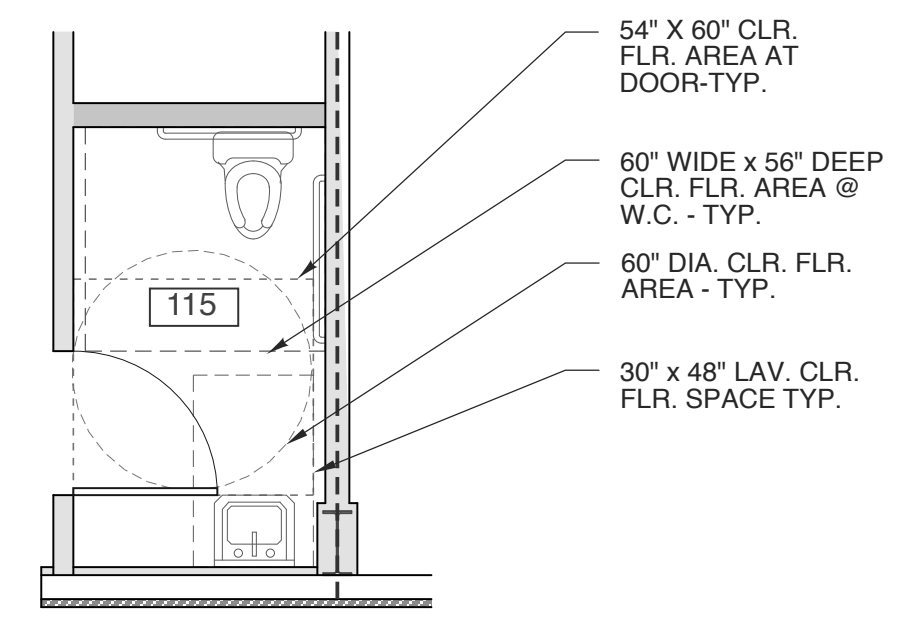
**3 BREAK ROOM**  
 SCALE: 1/4" = 1'-0"



**14 SIGNAGE PLACEMENT**  
 SCALE: 1/4" = 1'-0"



**2 BREAKROOM 110**  
 SCALE: 1/2" = 1'-0"



**1 RESTROOM**  
 SCALE: 1/4" = 1'-0"

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PROJECT TITLE  
**POWERMASTER ELECTRIC**  
 JARCO DRIVE  
 FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**  
 DRAWING TITLE  
**DETAILS**

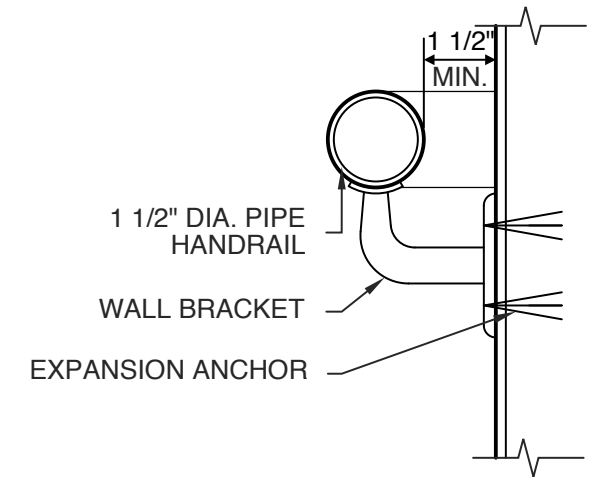
SHEET **8** OF **8**

**A4**

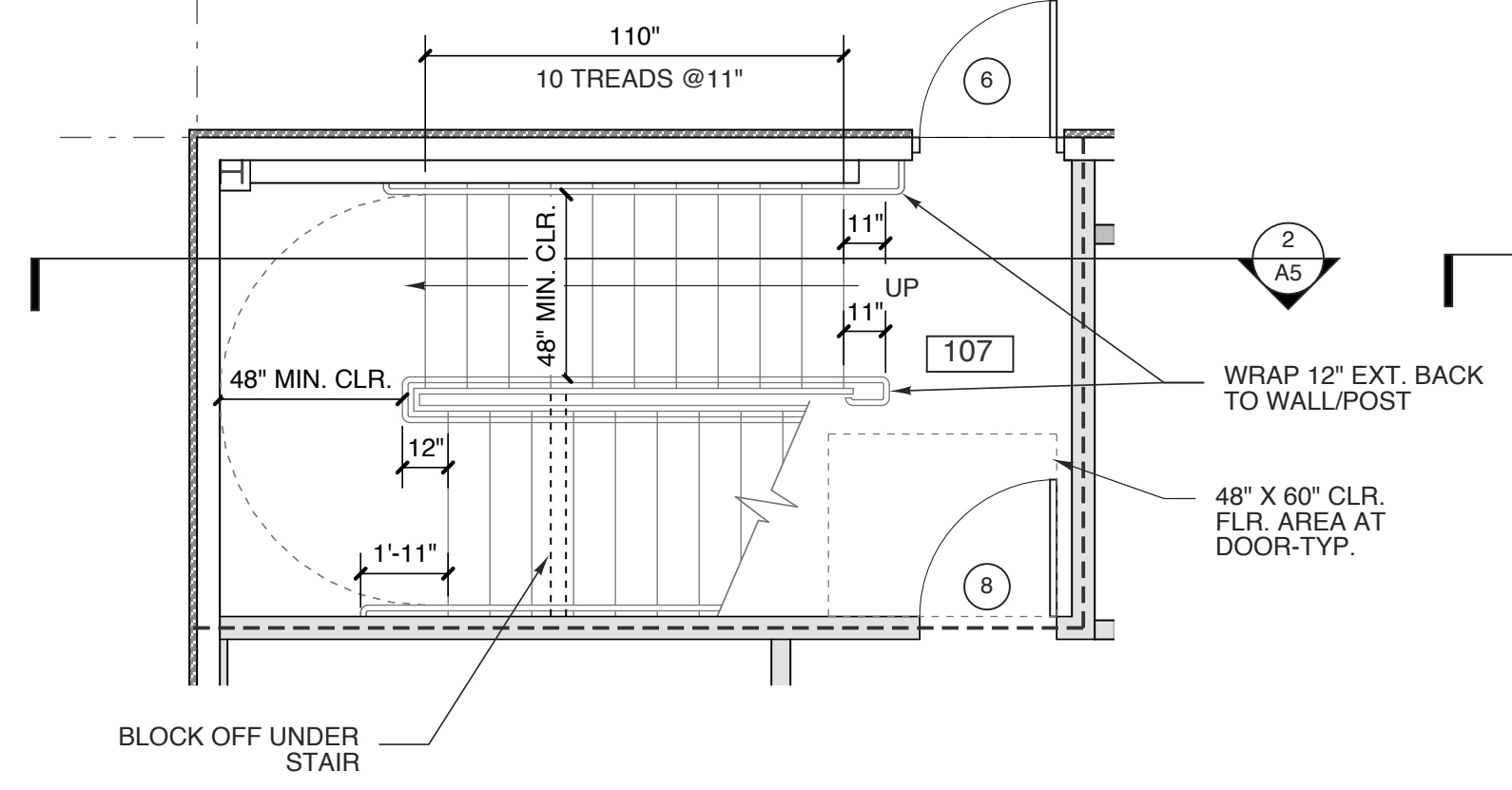
PLOT DATE 8/13/21  
 REVISION 00/00/19

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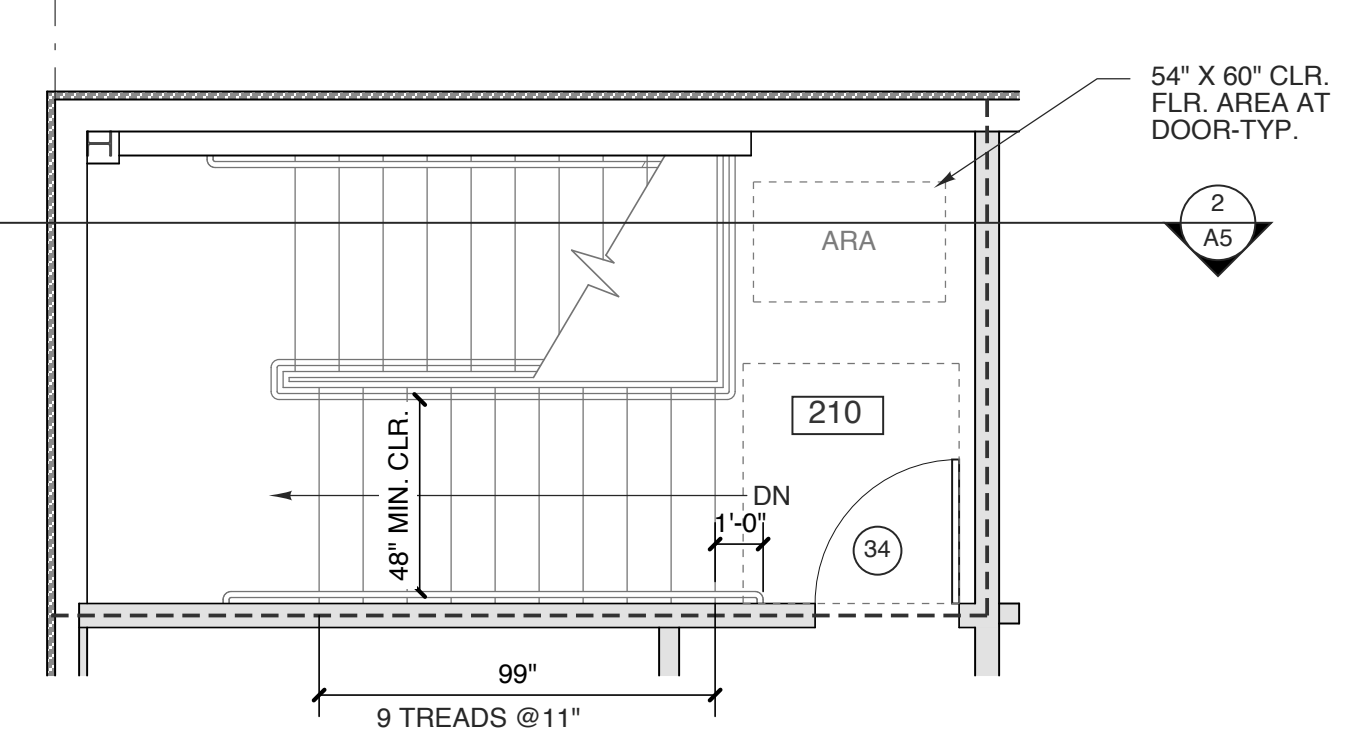




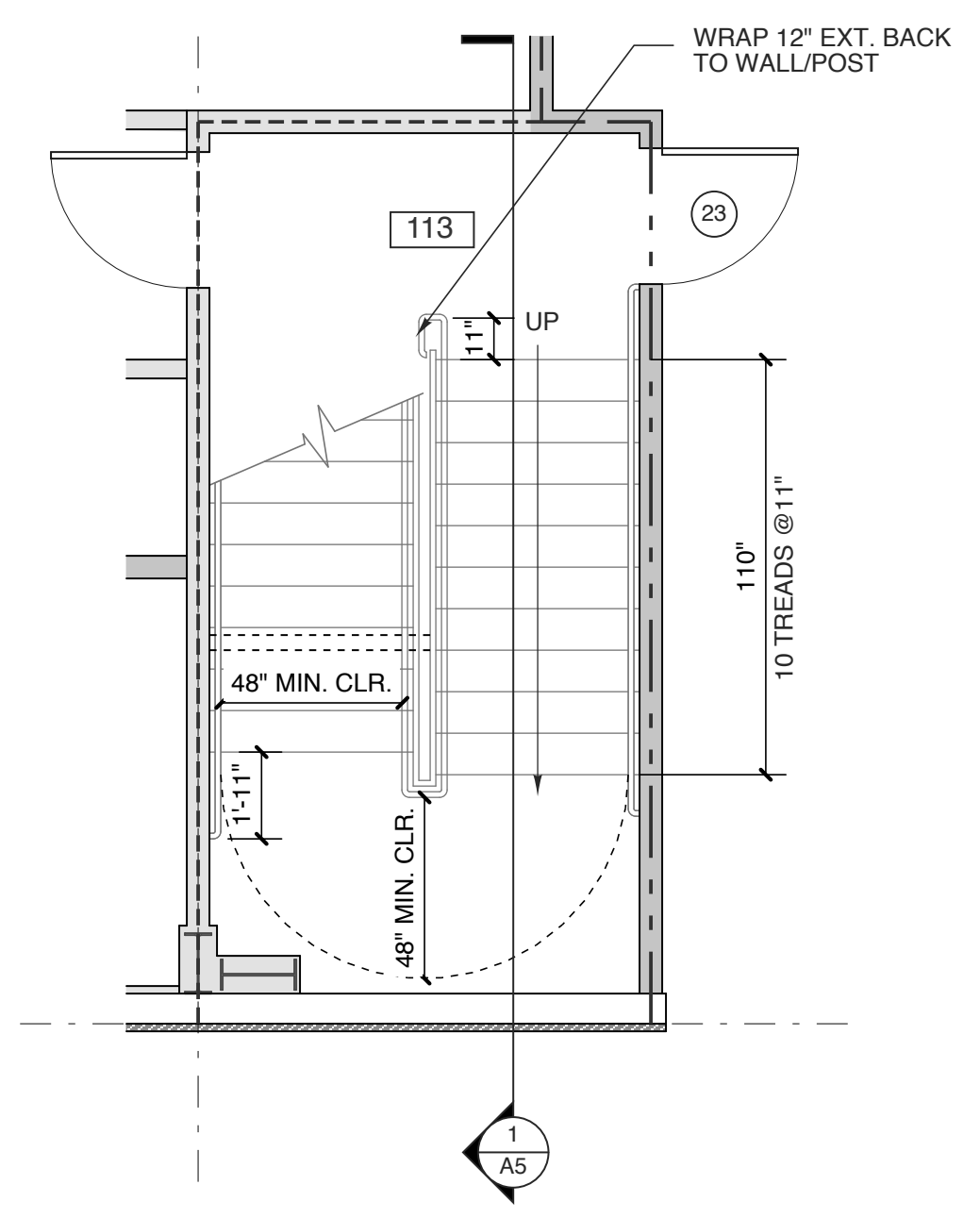
**7 WALL RAIL BRACKET**  
SCALE: 3" = 1'-0"



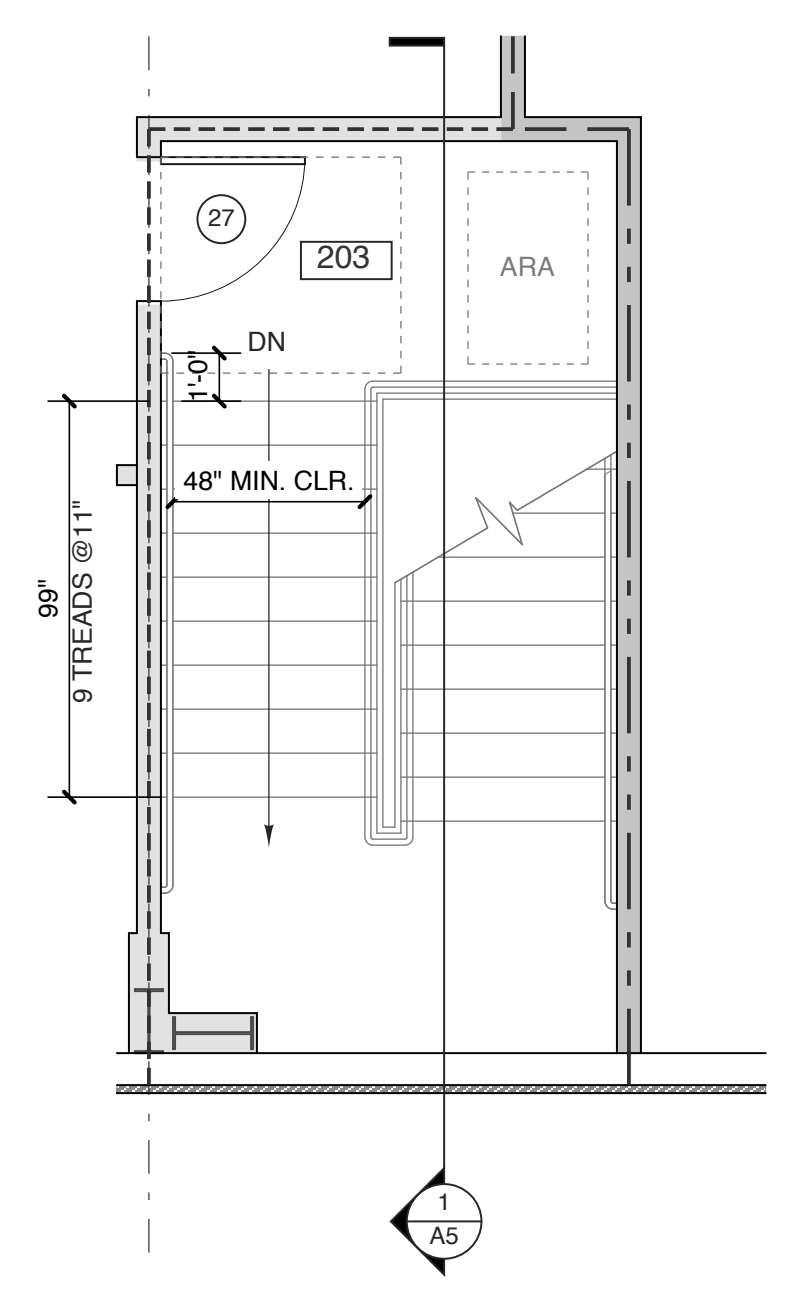
**6 STAIR PLAN-lower level**  
SCALE: 1/4" = 1'-0"



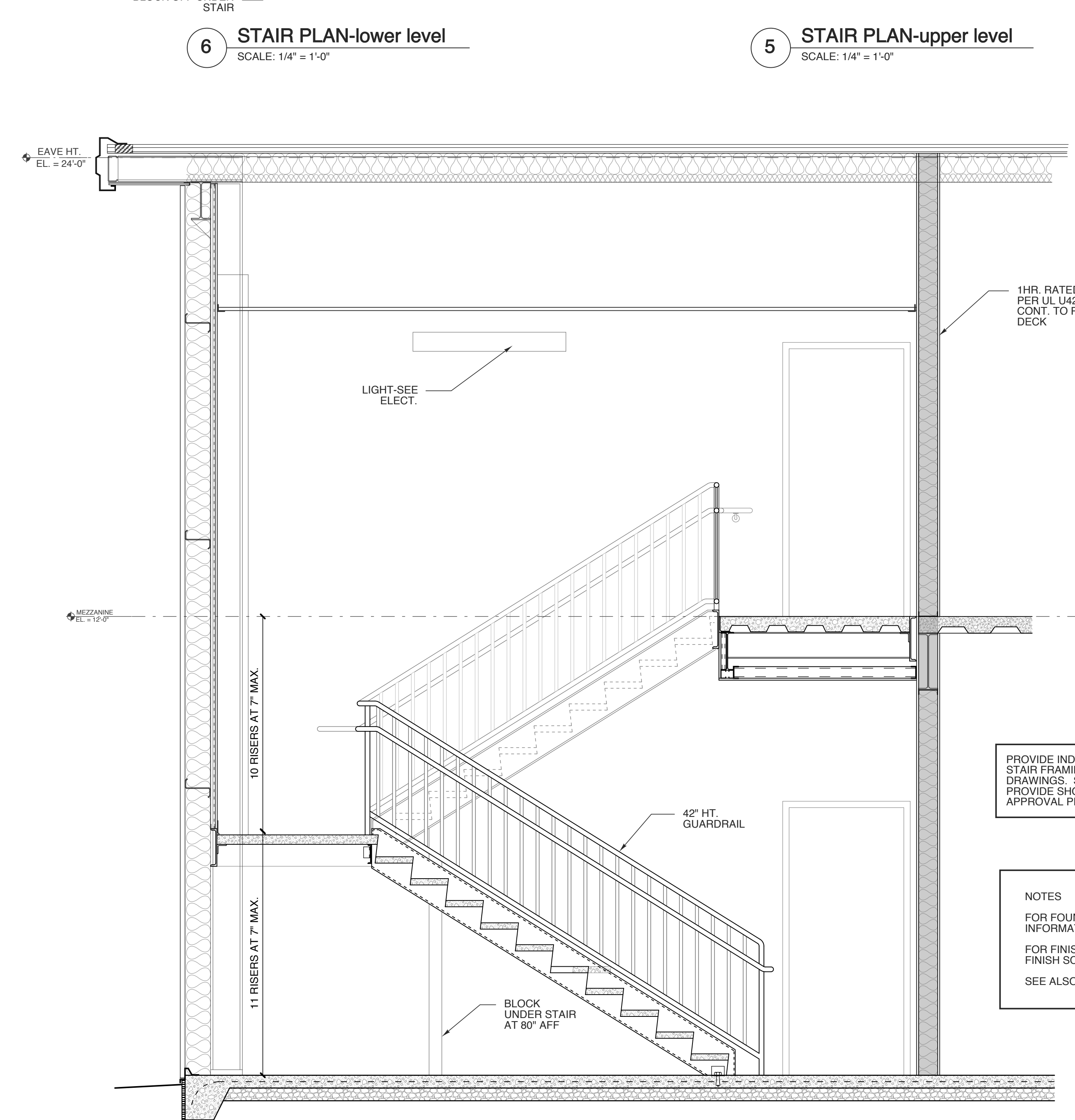
**5 STAIR PLAN-upper level**  
SCALE: 1/4" = 1'-0"



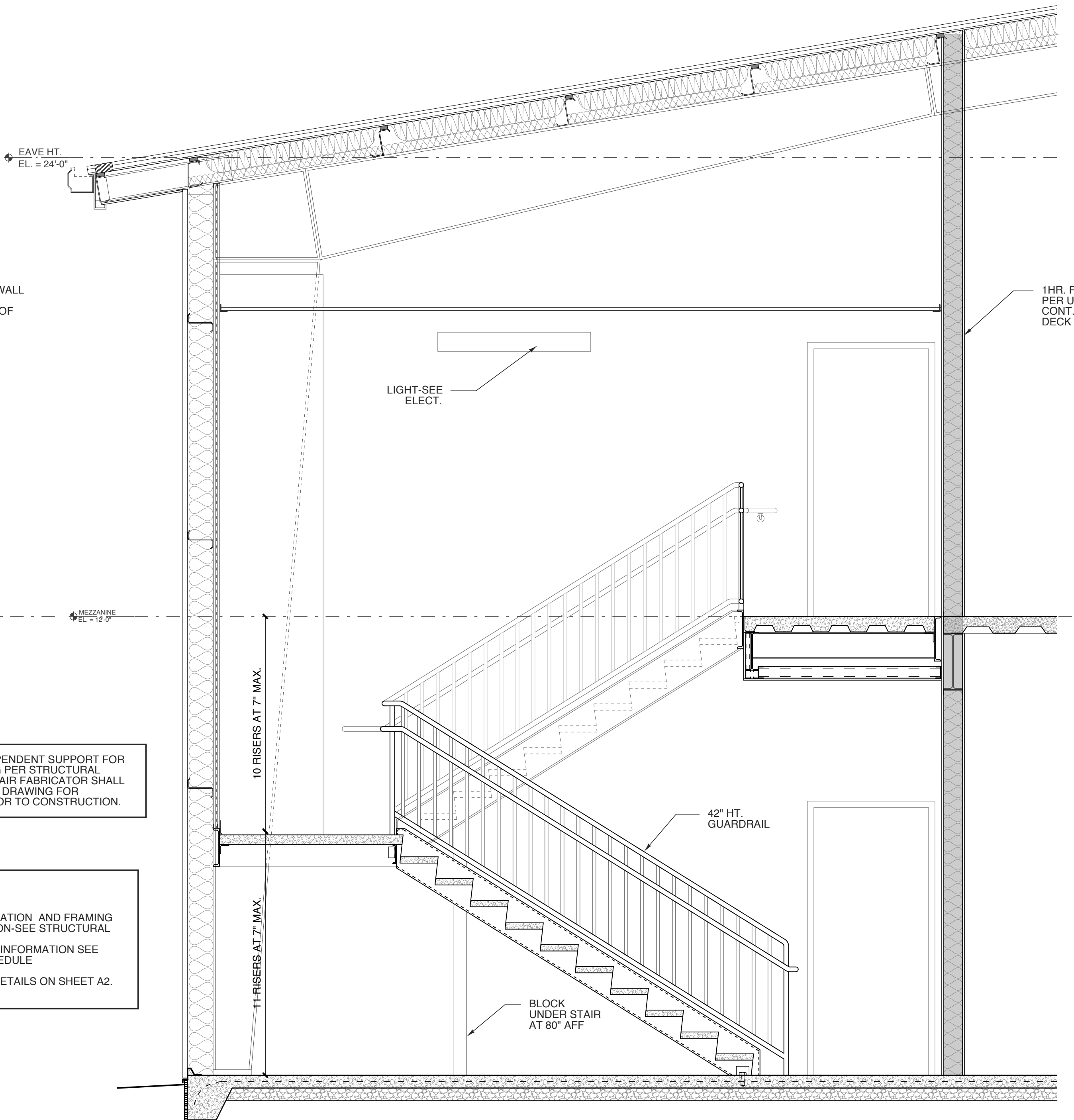
**4 STAIR PLAN-lower level**  
SCALE: 1/4" = 1'-0"



**3 STAIR PLAN-upper level**  
SCALE: 1/4" = 1'-0"



**2 STAIR SECTION**  
SCALE: 1/2" = 1'-0"



**1 STAIR SECTION**  
SCALE: 1/2" = 1'-0"

PROVIDE INDEPENDENT SUPPORT FOR STAIR FRAMING PER STRUCTURAL DRAWINGS. STAIR FABRICATOR SHALL PROVIDE SHOP DRAWING FOR APPROVAL PRIOR TO CONSTRUCTION.

NOTES  
FOR FOUNDATION AND FRAMING INFORMATION-SEE STRUCTURAL  
FOR FINISH INFORMATION SEE FINISH SCHEDULE  
SEE ALSO DETAILS ON SHEET A2.

**FOR PERMIT PROCESS ONLY**

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

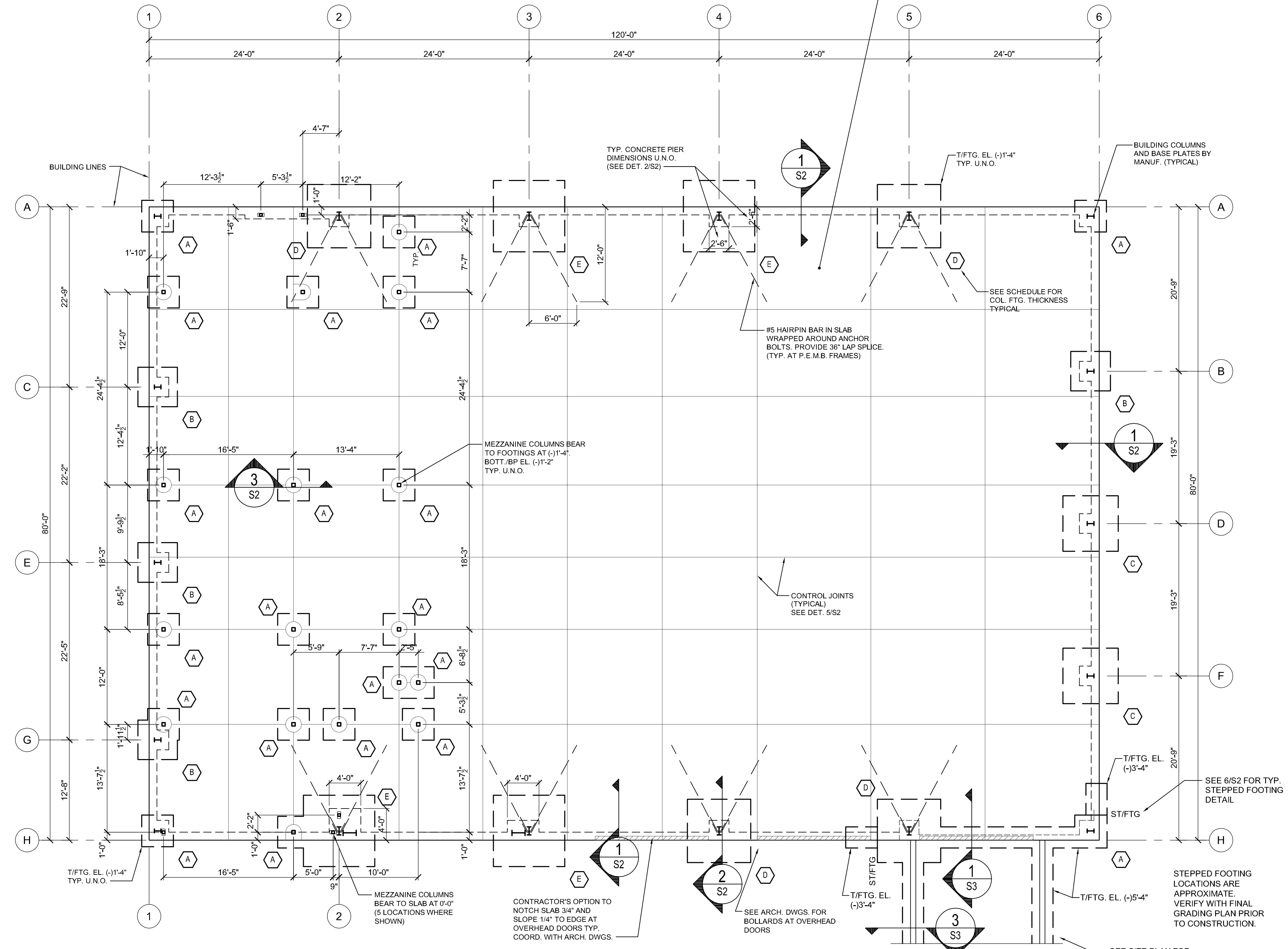
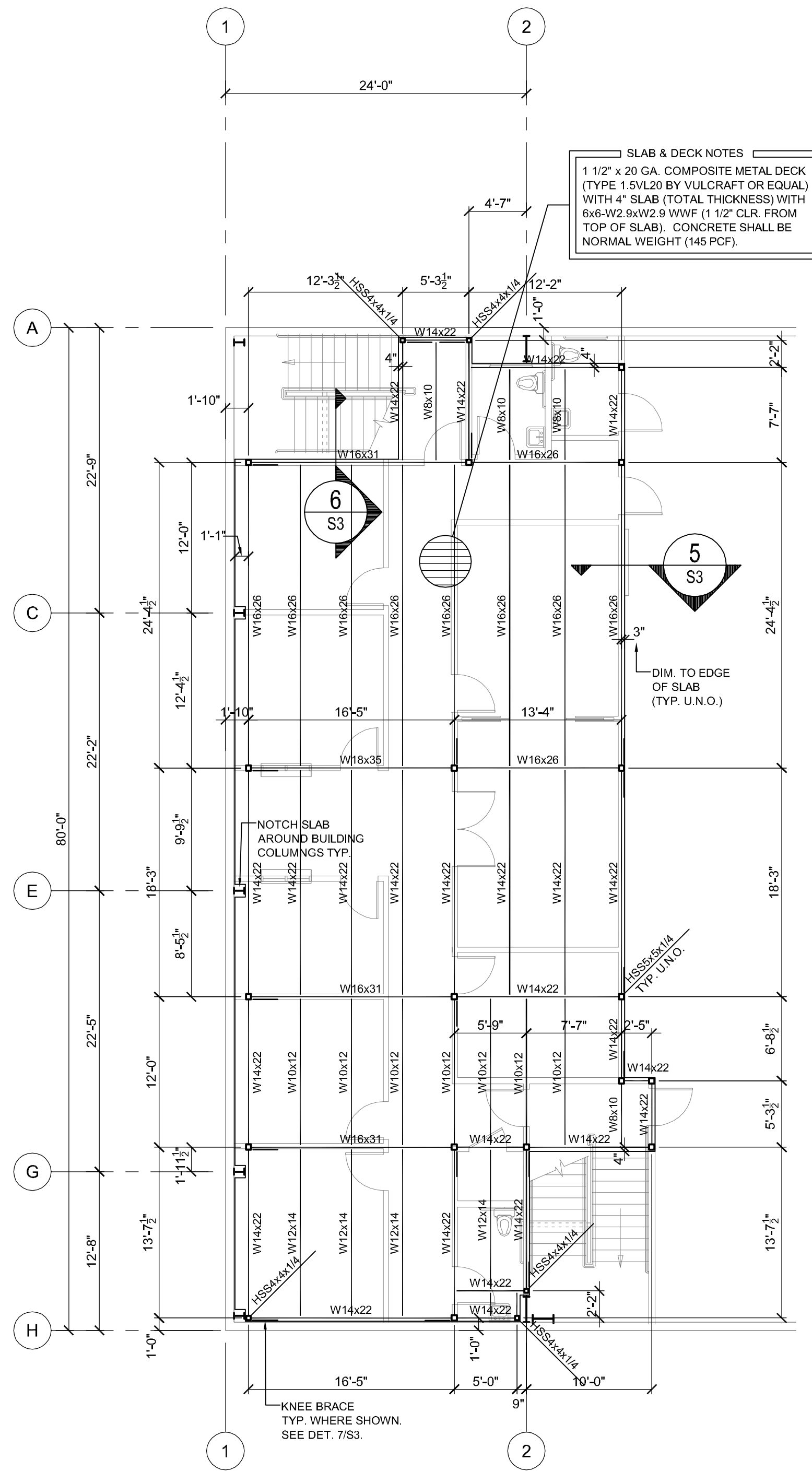
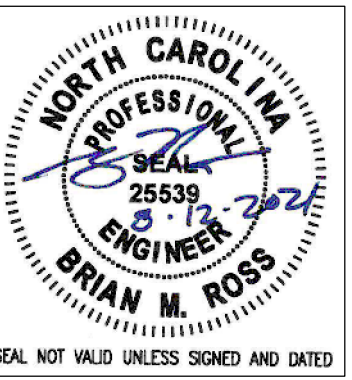
PROJECT NO.  
**2019**  
DRAWING TITLE  
**STAIRS**

SHEET **9** OF **9**

**A5**

PLOT DATE 8/13/21  
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MARK	SIZE		THK.	REINFORCEMENT	
	N-S	E-W		N-S	E-W
A	4'-0"	4'-0"	1'-4"	#5 AT 12"	#5 AT 12"
B	5'-0"	5'-0"	1'-4"	#5 AT 12"	#5 AT 12"
C	7'-0"	7'-0"	2'-0"	#6 AT 12"	#6 AT 12"
D	8'-0"	8'-0"	2'-0"	#6 AT 12"	#6 AT 12"
E	9'-0"	9'-0"	2'-0"	#6 AT 12"	#6 AT 12"

STRUCTURAL NOTES

I. GENERAL

1. DESIGN CODES

NORTH CAROLINA BUILDING CODE, 2018 EDITION (AMENDED 2015 INTERNATIONAL BUILDING CODE)

ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)

AISC MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN NINTH EDITION

ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

2. DESIGN LOADS

LIVE LOADS: FLOOR: 100 PSF  
MEZZANINE: 50 PSF (OFFICE)  
ROOF: 20 PSF

ULTIMATE DESIGN WIND SPEED: 116 MPH (RISK CATEGORY II)

GROUND SNOW LOAD: 15 PSF

SITE CLASS D

Ss = 0.170

S1 = 0.082

SEE PRE-ENGINEERING METAL BUILDING DRAWINGS BY OTHERS FOR FULL STRUCTURAL DESIGN LOAD SUMMARY USED FOR BUILDING DESIGN.

3. ALL ELEVATIONS ARE REFERENCED FROM FINISHED FLOOR ELEVATION OF 0'-0".

4. BUILDING DESIGN AND MAXIMUM FOUNDATION REACTIONS PROVIDED BY CHIEF BUILDINGS, ORDER NUMBER B3020492, DATED 13 MAY 2021. FOUNDATION DESIGN IS BASED ON MAXIMUM AND MINIMUM LOADING CONDITIONS PROVIDED BY THE BUILDING DESIGNER.

5. SEE BUILDING DRAWINGS FOR COLUMN AND BASE PLATE SIZES AND LOCATIONS.

6. ANCHOR BOLT DESIGN PROVIDED BY BUILDING DESIGNER. ANCHOR BOLT EMBEDMENT ONLY IS PROVIDED ON DRAWING S2.

7. ENGINEER'S SEAL APPLIES TO STRUCTURAL COMPONENTS ONLY AND DOES NOT CERTIFY ARCHITECTURAL LAYOUT OR DIMENSIONAL ACCURACY.

8. ROSS LINDEN ENGINEERS PC ASSUMES NO LIABILITY FOR CHANGES OR MODIFICATIONS MADE TO THESE DRAWINGS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THESE DRAWINGS.

II. CONCRETE

1. UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL HAVE THE FOLLOWING STRENGTH AND SLUMP REQUIREMENTS:  
3,500 PSI 28-DAY COMPRESSIVE STRENGTH, MAX. 5" SLUMP.

2. ALL CONCRETE SHALL BE MOIST CURED PER ACI 301 OR CURED WITH AN APPROVED CURING COMPOUND. CONTRACTOR SHALL VERIFY THAT THE CURING COMPOUND IS COMPATIBLE WITH FLOOR COVERING ADHESIVES, COATINGS, OR TOPPING TO BE USED. CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS.

3. UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60, DEFORMED.

4. UNLESS OTHERWISE NOTED, ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. (ACI 315)

5. ALL BAR SPLICES SHALL BE CLASS "B" TENSION SPLICES PER ACI 318-14, UNLESS OTHERWISE SHOWN.

6. ANCHOR BOLTS TO BE ASTM A36 OR A307.

7. CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS.

8. ALL SPREAD FOOTINGS BEARING ON NATIVE SOIL OR STRUCTURAL FILL ARE DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 1,500 PSF. A GEOTECHNICAL REPRESENTATIVE SHALL INSPECT ALL FOOTING EXCAVATIONS TO CONFIRM ALLOWABLE BEARING PRESSURES.

9. PROVIDE TWO (2) #5 x 4'-0" LONG DIAGONAL BARS IN TOP FACE OF ALL SLABS (1" CLEAR) AT ALL RE-ENTRANT CORNERS. SEE PLAN FOR LOCATIONS.

10. CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE.

11. CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS OF ALL MECHANICAL AND ELECTRICAL OPENINGS AND EQUIPMENT PADS WITH THE MECHANICAL AND ELECTRICAL DETAILS AND SHOP DRAWINGS BY OTHERS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION FOR ALL UTILITIES THROUGHOUT THE BUILDING.

12. ALL DOWELS WHICH ARE TO BE DRILLED AND GROUTED INTO EXISTING CONCRETE SHALL BE DONE WITH AN EPOXY GROUT. DRILL HOLE WITH DIAMETER 1/8" LARGER THAN DOWEL OR AS RECOMMENDED BY GROUT SUPPLIER. USE HIT-RE 500 V3 BY HILTI OR APPROVED EQUAL.

IV. STRUCTURAL STEEL

1. SEE FRAMING PLANS FOR BOTTOM OF BASE PLATE ELEVATIONS.

2. ALL STRUCTURAL STEEL WIDE FLANGE BEAMS AND COLUMNS, UNLESS NOTED, SHALL CONFORM TO THE REQUIREMENTS OF ASTM A992 OR ASTM A572, GRADE 50. ANGLES AND CHANNELS SHALL CONFORM TO ASTM A36. TUBES SHALL CONFORM TO ASTM A500, GRADE B.

3. ALL DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL, UNLESS OTHERWISE NOTED, SHALL CONFORM TO THE REQUIREMENTS OF THE AISC SPECIFICATIONS FOR BUILDINGS, LATEST EDITION.

4. UNLESS OTHERWISE NOTED, ALL SHOP CONNECTIONS SHALL BE MADE BY WELDING OR HIGH STRENGTH BOLTING. (3/4" DIAMETER BOLTS, MINIMUM)

5. WELDS SHALL BE MADE WITH E-70XX ELECTRODES BY CERTIFIED WELDERS.

6. UNLESS OTHERWISE NOTED, ALL FIELD CONNECTIONS SHALL BE MADE WITH 3/4" DIAMETER HIGH STRENGTH BOLTS (ASTM A-325). CONNECTIONS SHALL BE DESIGNED AS BEARING TYPE WITH THREADS IN SHEAR PLANE. BOLTS SHALL BE TIGHTENED TO THE SNUG TIGHT CONDITION PER "AISC" UNLESS NOTED OTHERWISE ON THE DRAWINGS.

7. UNLESS OTHERWISE SHOWN, ALL BEAM CONNECTIONS SHALL BE STANDARD FRAMED OR SEATED CONNECTIONS AS SHOWN IN PART 10 OF THE AISC MANUAL OF STEEL CONSTRUCTION. UNLESS REACTIONS ARE INDICATED ON THE DRAWINGS, CONNECTIONS SHALL DEVELOP AT LEAST ONE-HALF OF THE TOTAL UNIFORM LOAD CAPACITY TABULATED IN THE TABLES OF THE MANUAL FOR THE GIVEN SHAPE AND SPAN OF THE BEAM IN QUESTION. IN NO CASE, HOWEVER, SHALL THE LENGTH OF THE FRAMED CONNECTIONS BE LESS THAN ONE-HALF OF THE "T" DISTANCE OF THE BEAM WEB.

8. GUSSET PLATES SHALL BE 3/8" THICK MINIMUM.

9. ALL COLUMN ANCHOR BOLT HOLES TO BE OVERSIZED IN ACCORDANCE WITH RECOMMENDATIONS OF "AISC" MANUAL FOR "DETAILING FOR STEEL CONSTRUCTION."

10. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL BRACING CONNECTIONS SHALL BE DESIGNED AND DETAILED SO THAT ALL FORCE COMPONENTS CAN BE DELIVERED DIRECTLY TO THE CENTERLINE OF INTERSECTING MEMBERS. ALTERNATELY, CONNECTIONS SHALL BE DESIGNED TO ACCOUNT FOR RESULTING ECCENTRICITIES.

11. CONTRACTOR TO PROVIDE ADEQUATE BRACING FOR STRUCTURE SO THAT IT WILL BE STABLE DURING ALL STAGES OF CONSTRUCTION. THE STRUCTURE AND FOUNDATIONS ARE DESIGNED FOR A COMPLETED CONDITION ONLY AND THEREFORE REQUIRES ADDITIONAL SUPPORT TO MAINTAIN STABILITY BEFORE COMPLETION.

V. METAL FLOOR DECK

1. COMPOSITE METAL FLOOR DECK SHALL BE 1 1/2" DEEP x 20 GAGE (EQUAL TO 1.5VL20 BY VULCRAFT) FOR FLOOR SLABS. THREE-SPAN CONDITION IS ASSUMED FOR CONSTRUCTION. CONCRETE UNIT WEIGHT IS 145 PCF (NORMAL WEIGHT CONCRETE). THE TOTAL SLAB DEPTH SHALL BE 4". PROVIDE 5/8" PUDDLE WELDS IN A 36/4 PATTERN WITH MIN. (2) SIDELAP FASTENERS PER SPAN.

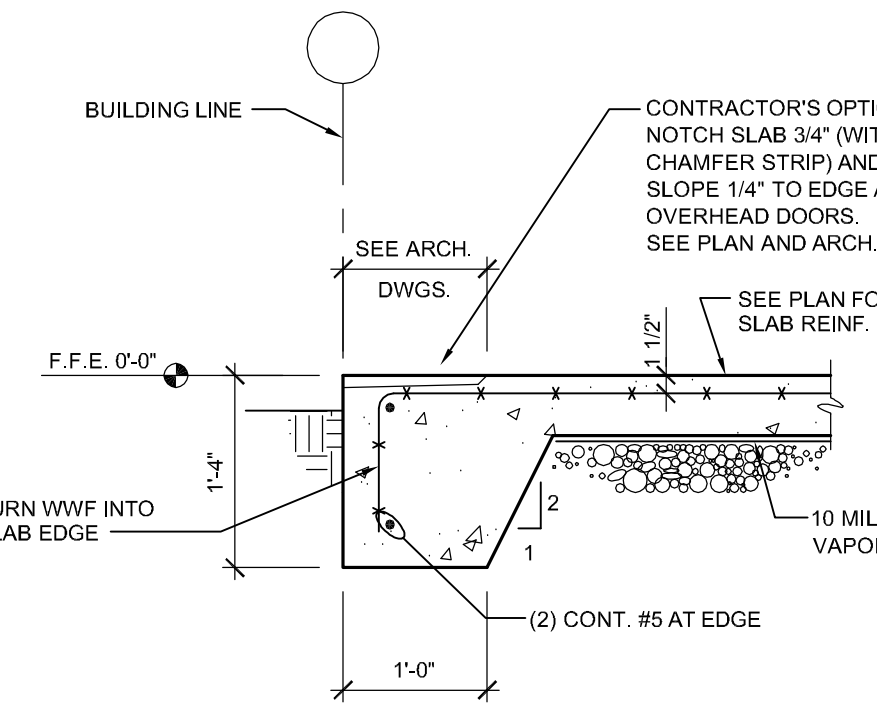
VI. LIGHT GAUGE STEEL FRAMING

1. INSTALLATION OF LIGHT GAUGE STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

2. WALL STUDS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:  
16" MAX. SPACING  
STUD DEPTH = 8" (SEE ARCH. DWGS.)  
FLANGE WIDTH = 1 5/8" MIN.  
18 GAUGE STEEL

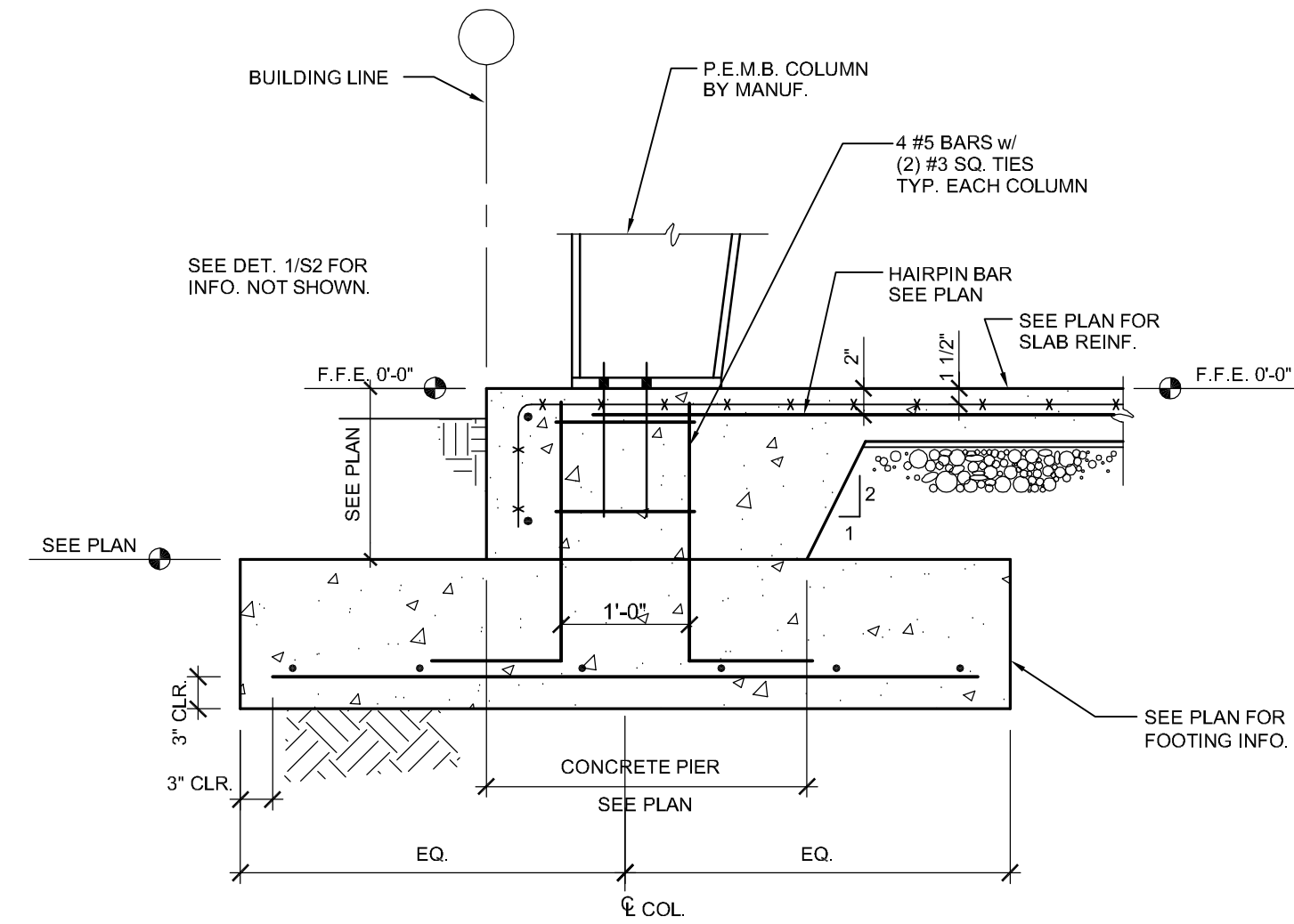
3. PROVIDE MIN. 18 GA. BOTTOM TRACK AND ANCHOR TO SLAB WITH POWDER ACTUATED FASTENERS AT 16" O.C. USE HILTI DS FASTENERS WITH 0.177" SHANK DIAMETER AND 1 7/16" EMBEDMENT. WELD STUDS TO TRACK EACH SIDE -OR- PROVIDE (2) NO. 10 SCREWS (ONE EACH SIDE OF TRACK).

4. DETAILED SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.



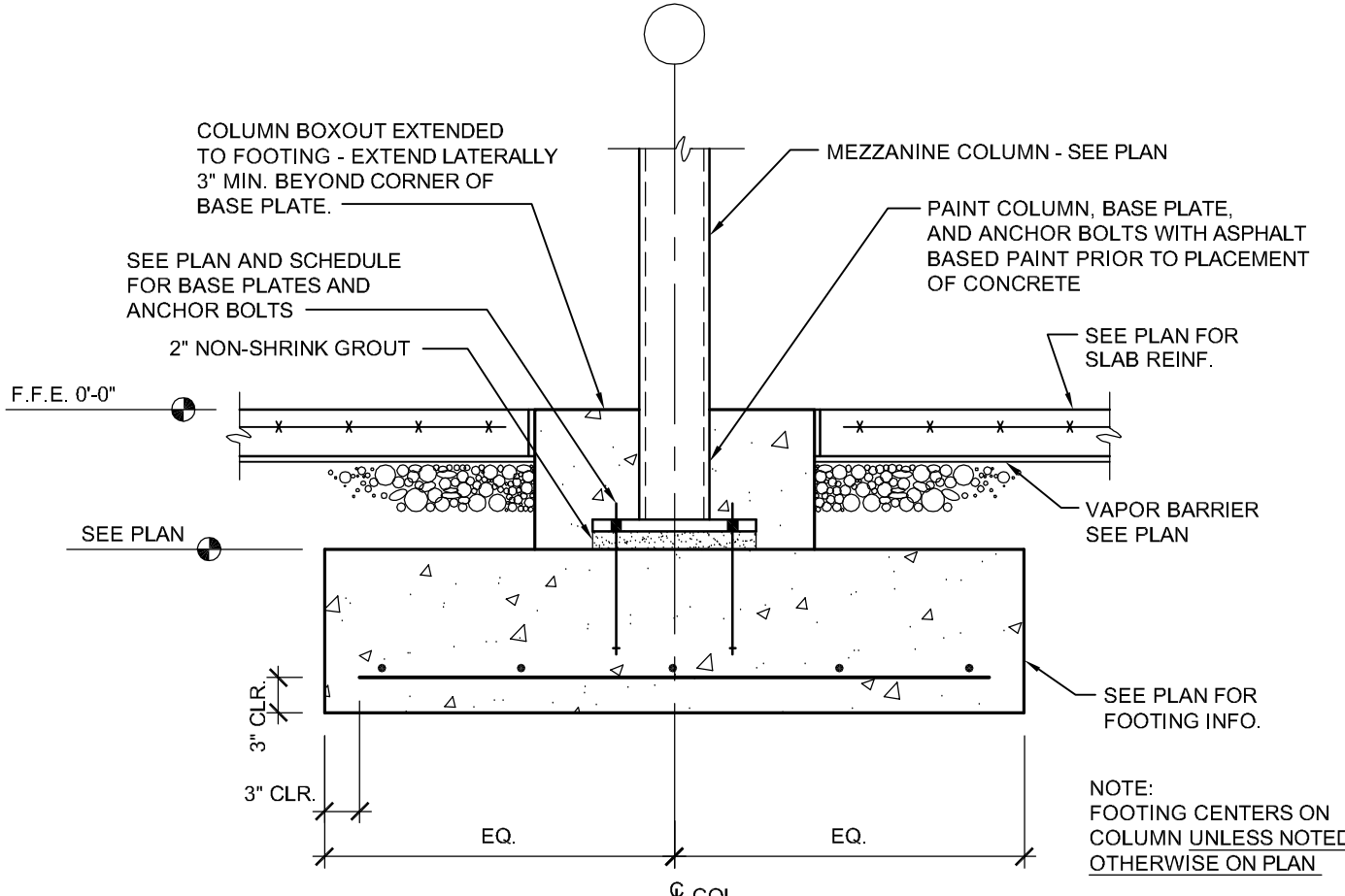
1 DETAIL - SLAB EDGE

S2 3/4" = 1'-0"



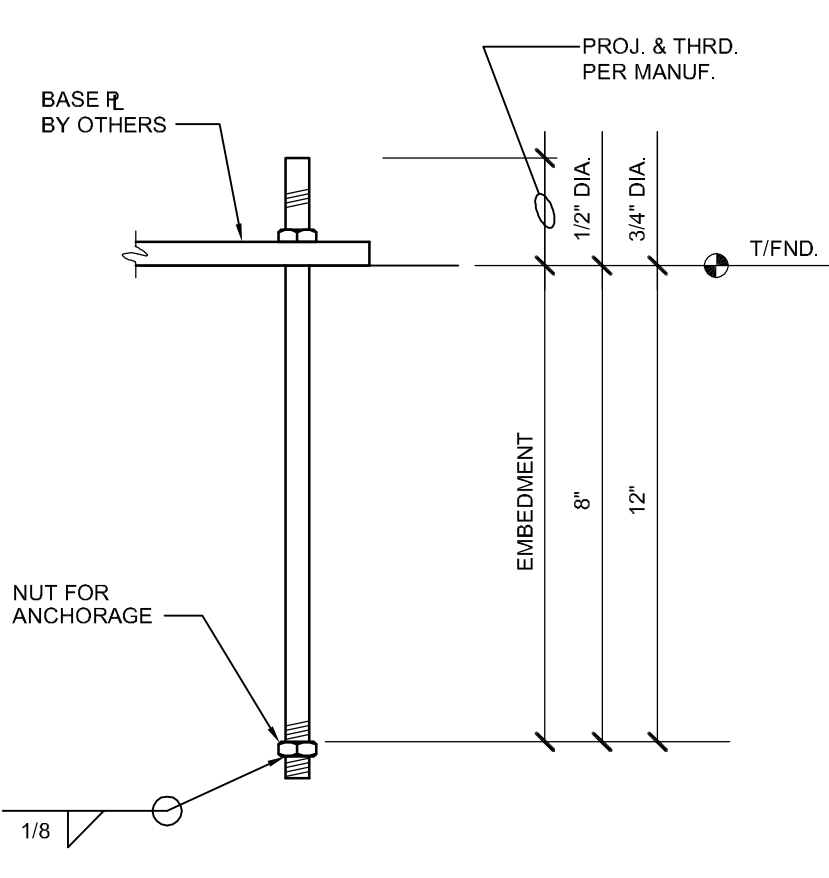
2 SECTION - COLUMN FOOTING

S2 3/4" = 1'-0"



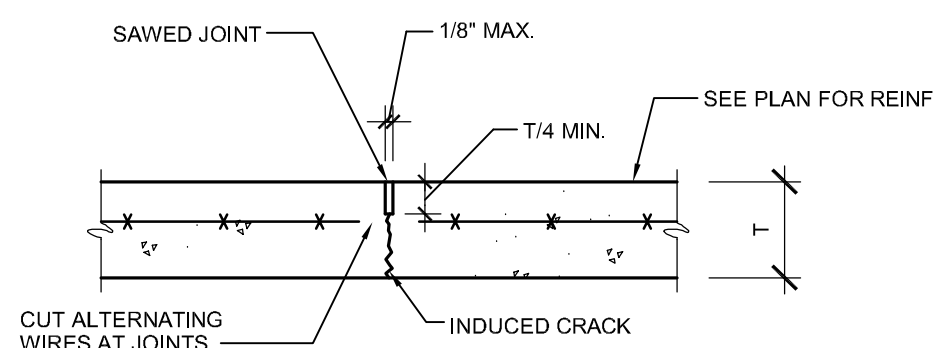
3 SECTION - MEZZ. COLUMN FOOTING

S2 3/4" = 1'-0"



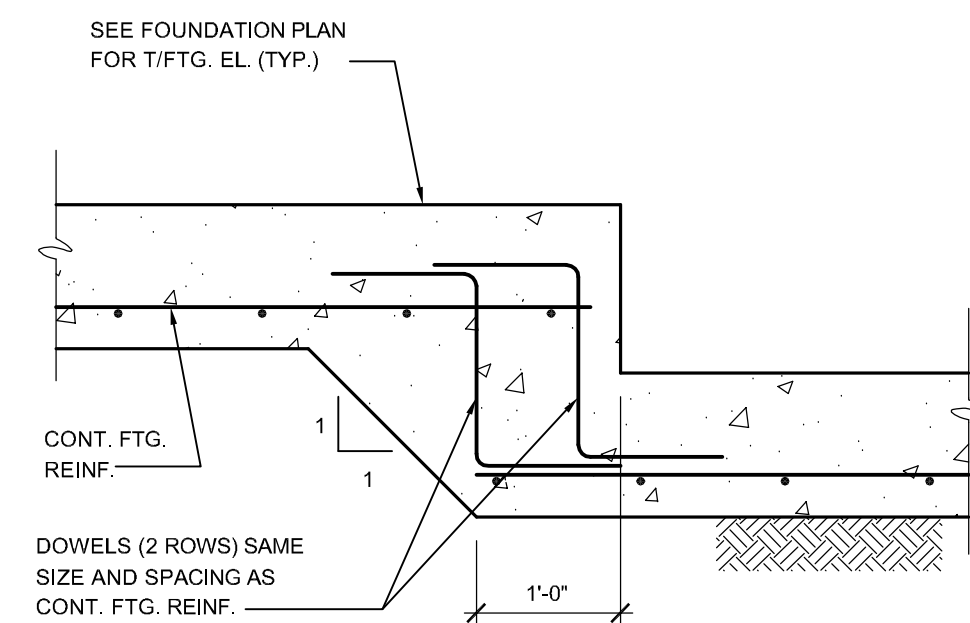
4 TYP. ANCHOR BOLT DETAIL

S2 NO SCALE



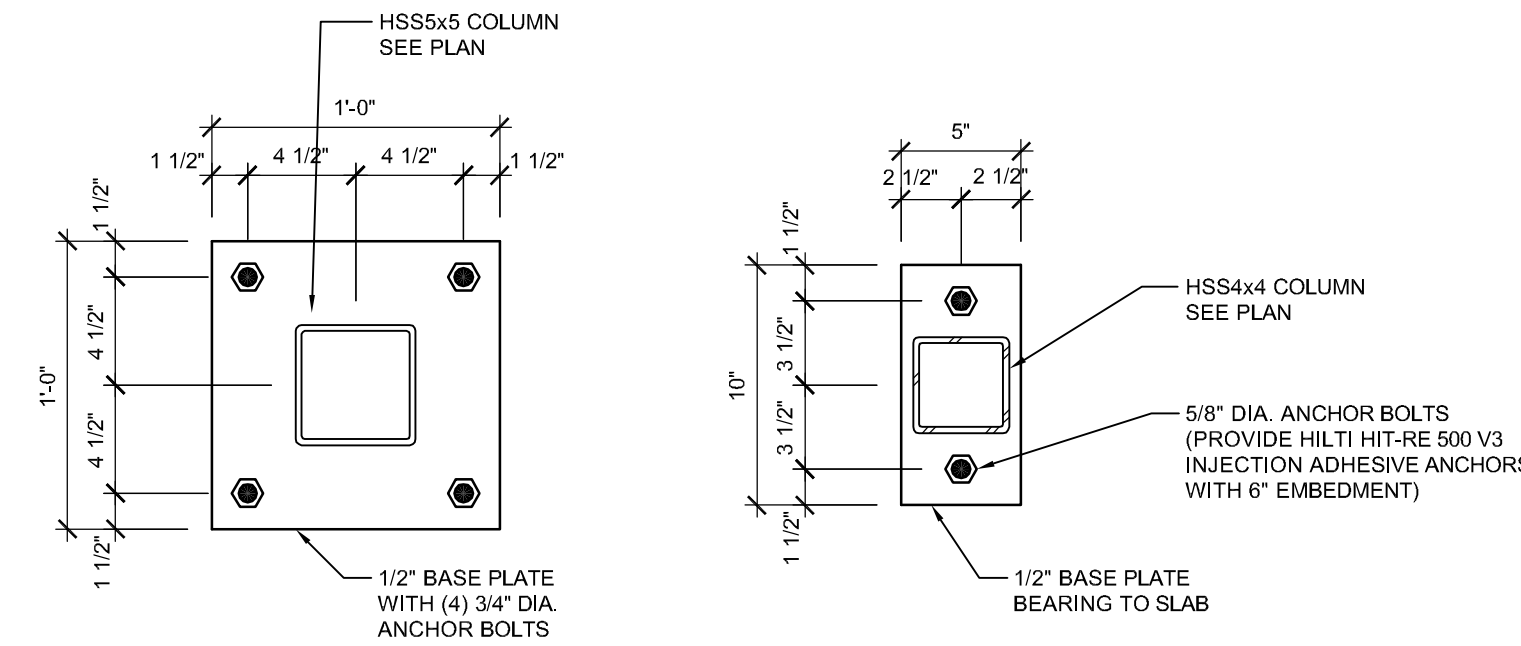
5 DETAIL - TYP. SLAB CONTROL JOINT

S2 1" = 1'-0"



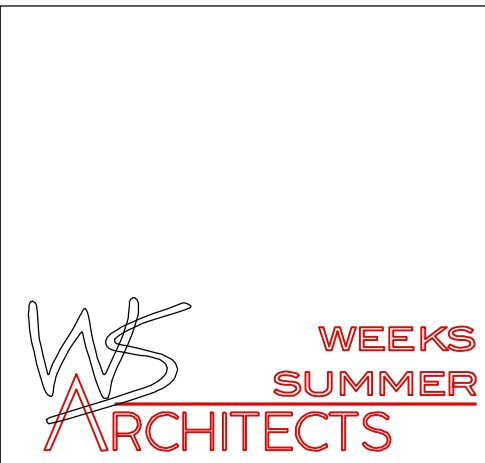
6 DETAIL - TYP. STEPPED FOOTING

S2 3/4" = 1'-0"



7 MEZZANINE BASE PLATE DETAILS

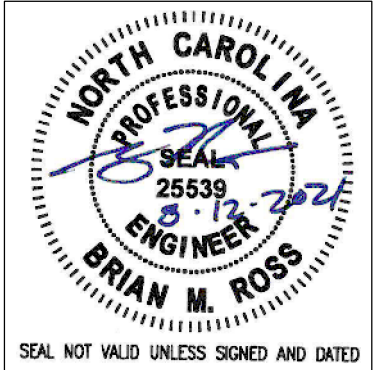
S2 1 1/2" = 1'-0"



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709 W. JONES STREET RALEIGH, NC 27603  
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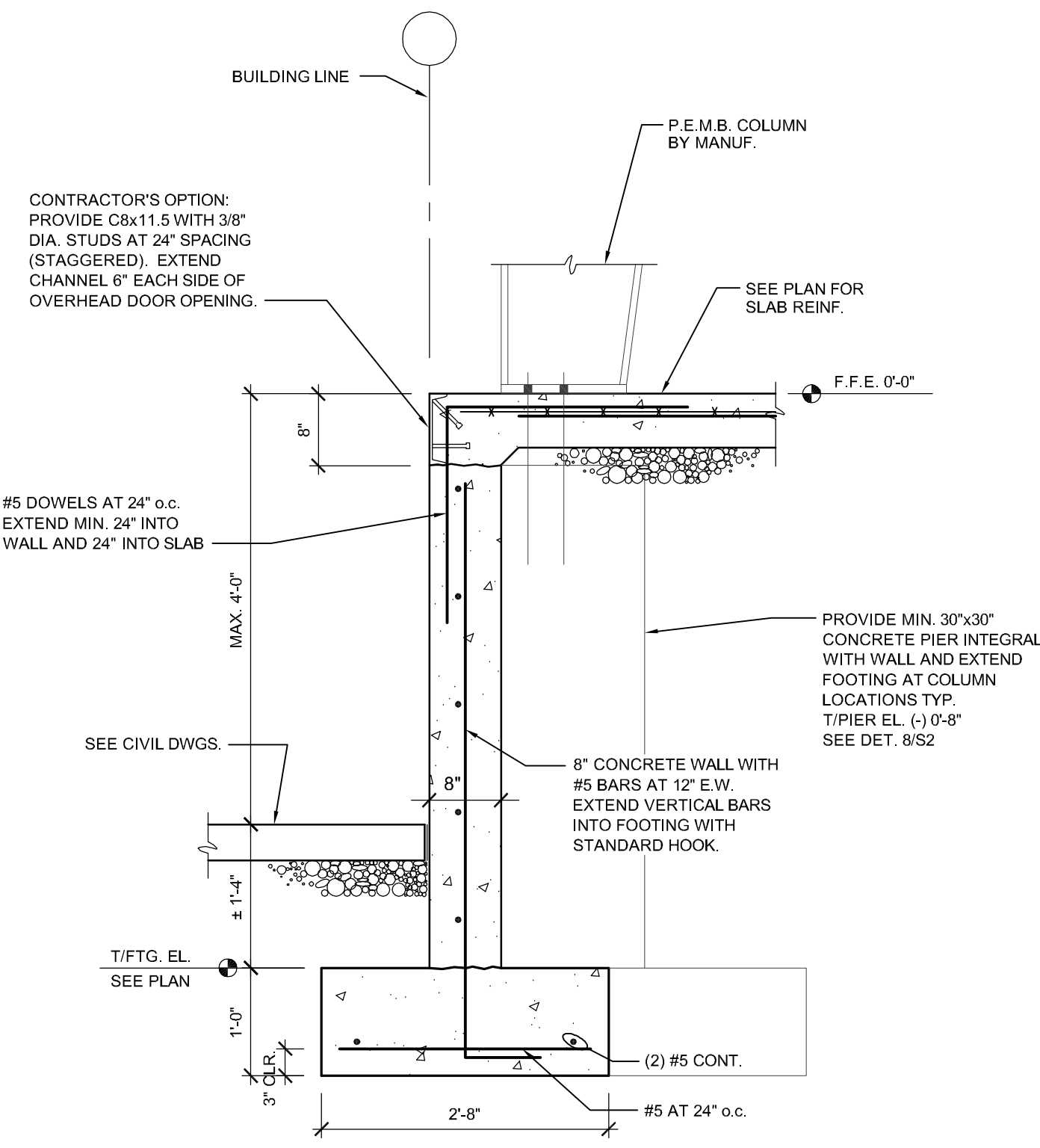
PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**C210507**  
DRAWING TITLE  
**STRUCTURAL NOTES AND DETAILS**

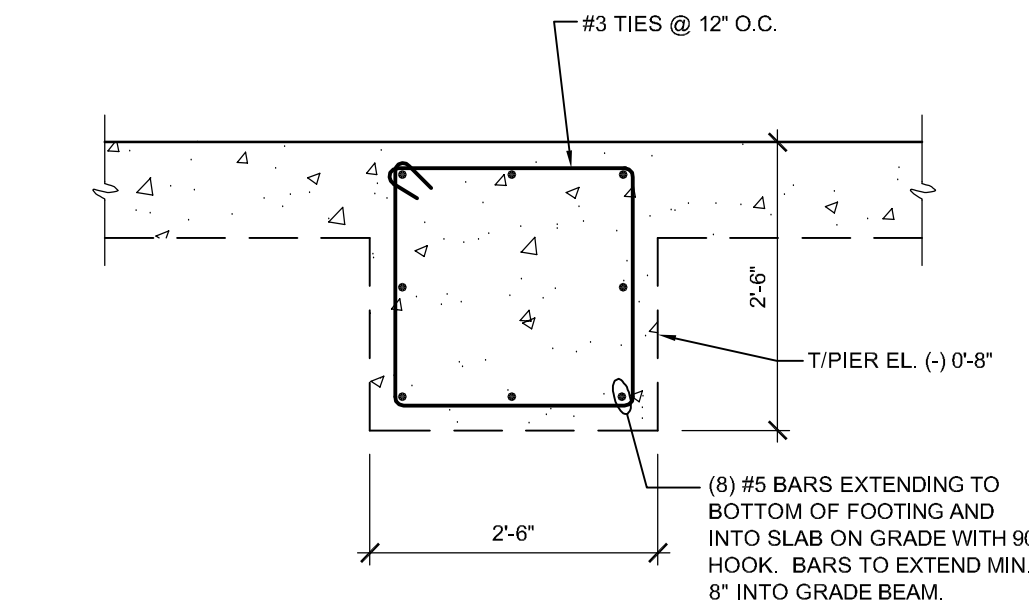
SHEET 0 OF 0

**S2**

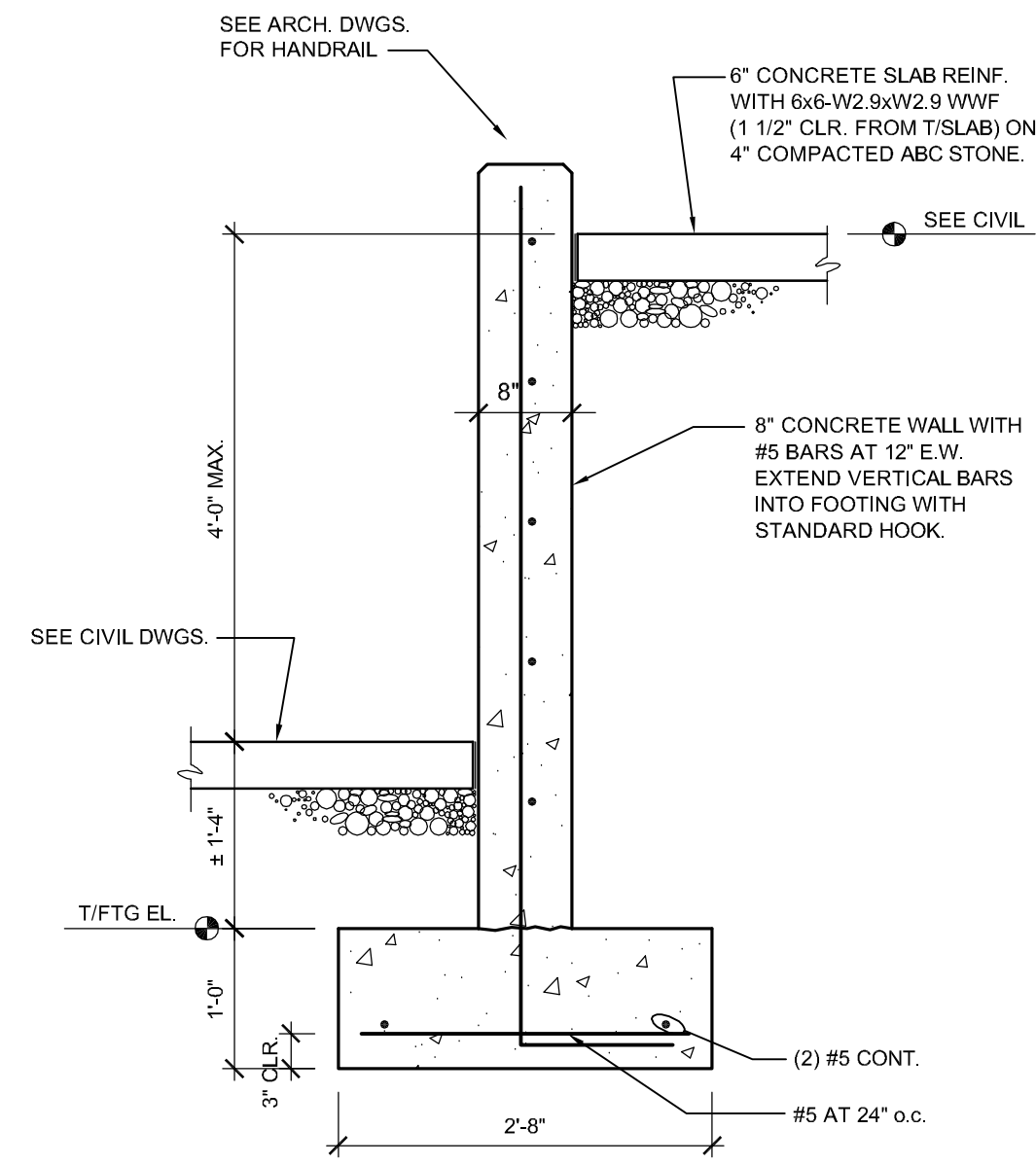
PLOT DATE 8/12/2021  
REVISION



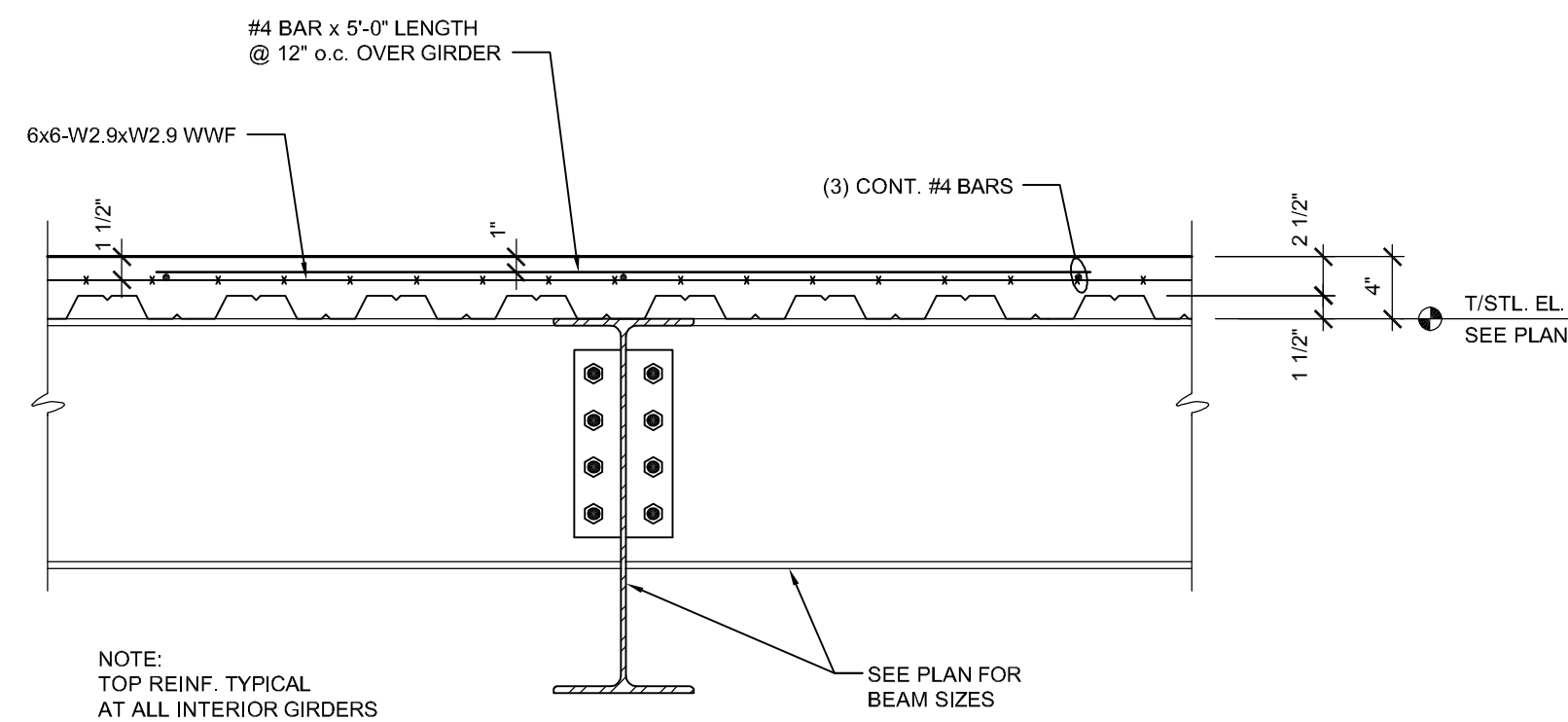
**1 SECTION - FOUNDATION WALL**  
S3 3/4" = 1'-0"



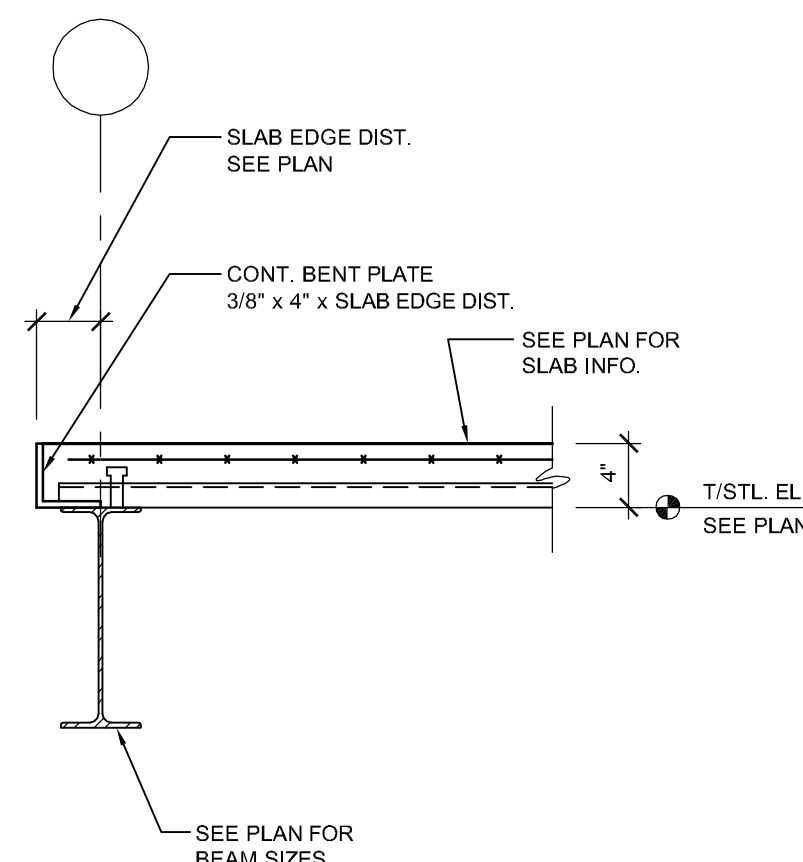
**2 SECTION AT PIER**  
S3 3/4" = 1'-0"



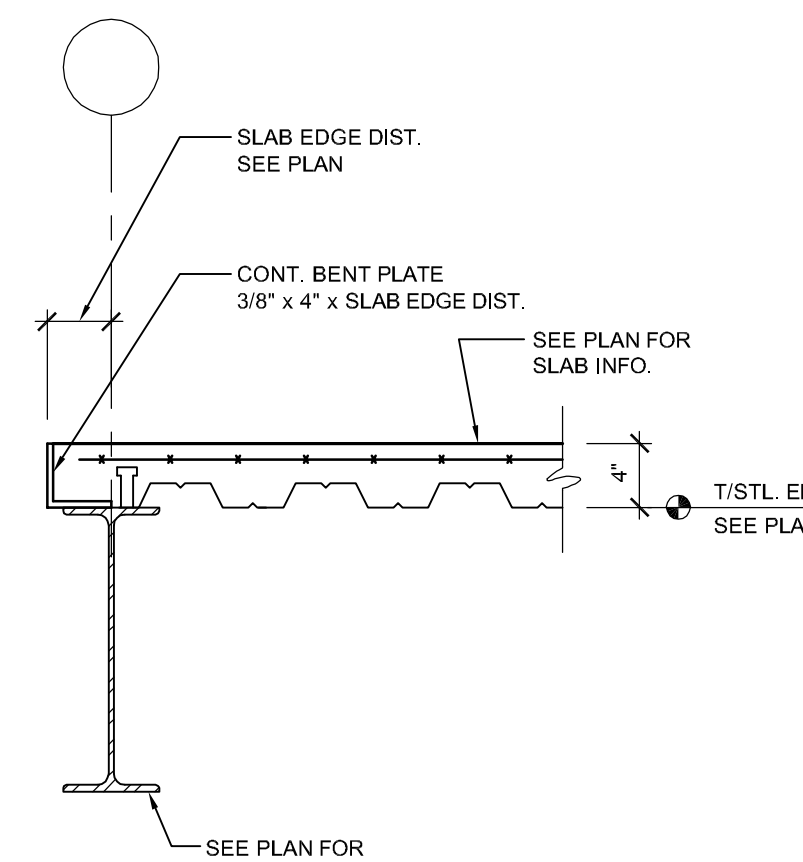
**3 DETAIL - RETAINING WALL**  
S3 3/4" = 1'-0"



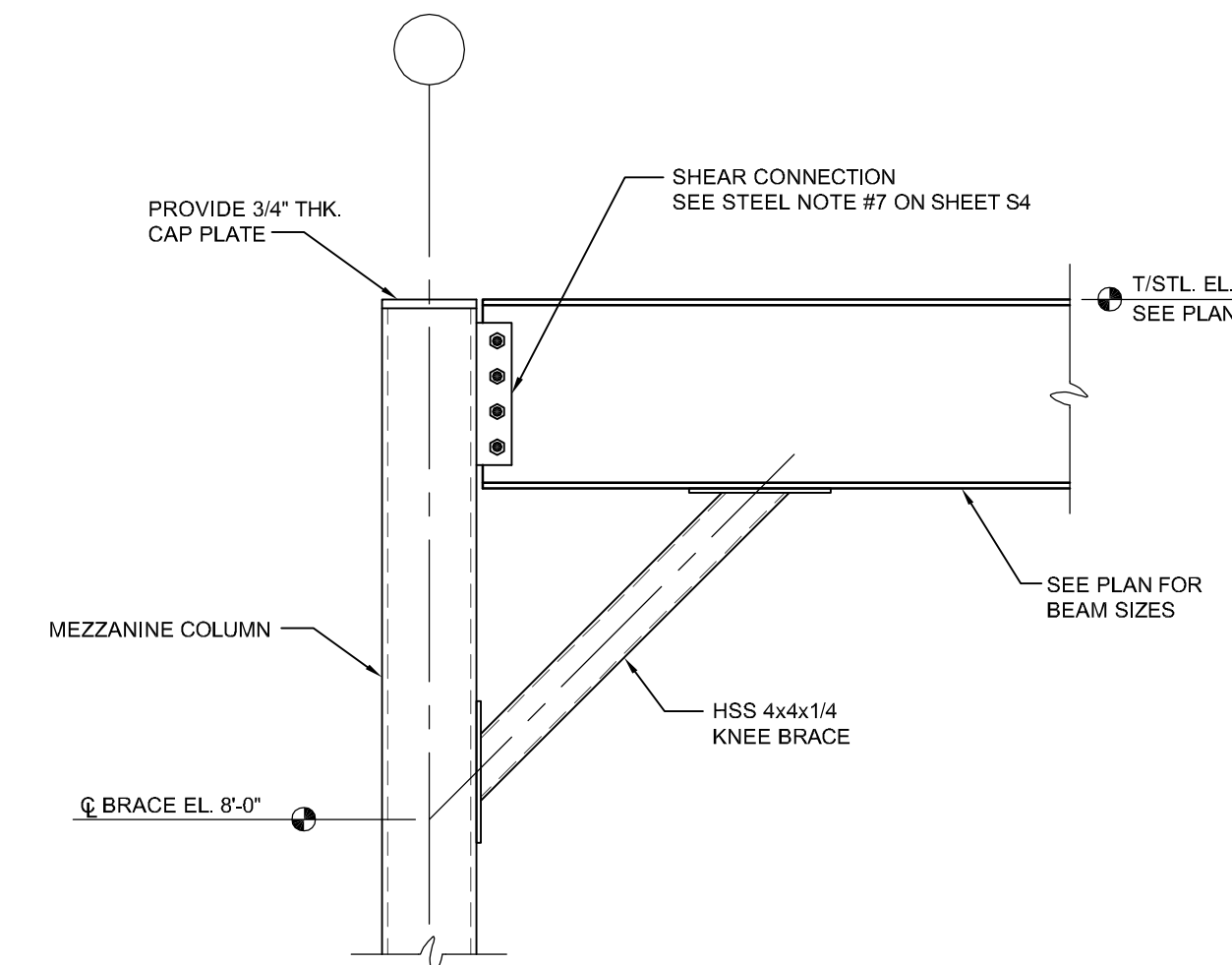
**4 TYP. SLAB SECTION AT GIRDER**  
S3 1" = 1'-0"



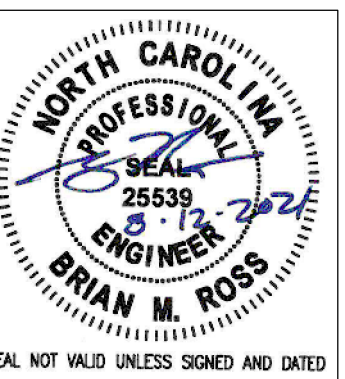
**5 FRAMING SECTION**  
S3 1" = 1'-0"



**6 FRAMING SECTION**  
S3 1" = 1'-0"



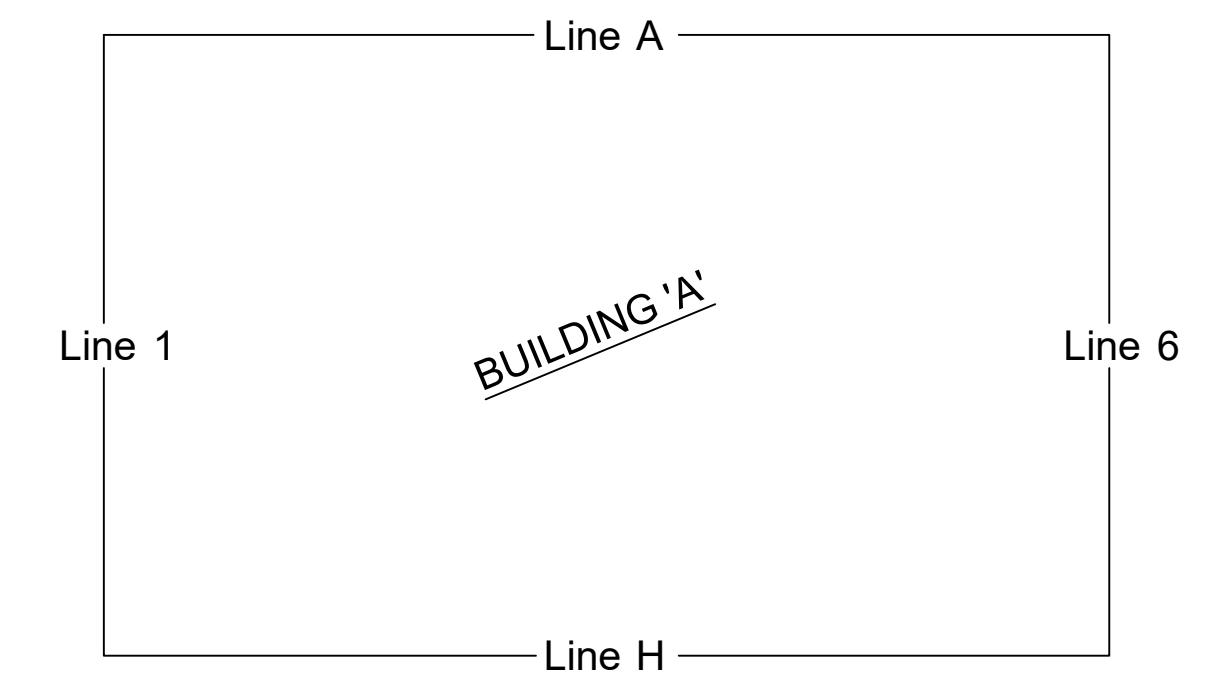
**7 DETAIL - TYP. KNEE BRACE**  
S3 3/4" = 1'-0"



BLDG. "A"	Line H	Line A	Line H	Line A	Downspout	Downspout
Width	Height	Height	Roof Pitch	Roof Pitch	Drops Line H	Drops Line A
80'-0"	24'-0"	24'-0"	2.0:12	2.0:12	4	4

**TABLE OF CONTENTS**

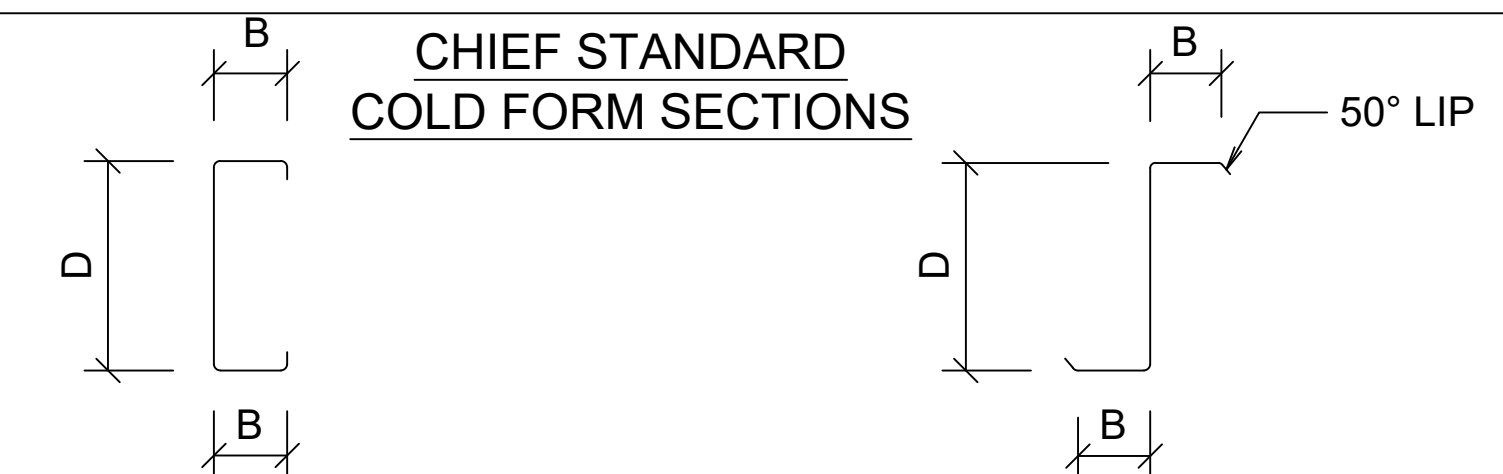
COVER PAGE C1-C1  
GENERAL INFORMATION G1-G4  
ANCHOR ROD PLAN A1-A3  
PROJECT NOTES N1-N1  
CROSS SECTION CS1-CS2  
ROOF FRAMING RF1-RF2  
ROOF PANEL RP1-RP1  
SIDEWALL S1-S4  
ENDWALL E1-E4  
DETAILS \_\_\_\_\_  
GENERAL DETAILS \_\_\_\_\_



**KEY PLAN**

<b>Roof Panel:</b>	<b>Ordered Options:</b>	<b>Accessories</b>
Type: MSC	Base Condition: Base Cee- Base Trim /Drip Edge	5 3070 Pre-Assembled Solid Walkdoor
Gage: 24	Base Trim Color: Royale Blue	5 Panic Hardware for 3070 Pre-Assembled Door
Color: Galvalume	Wall Mastic: No	5 Door Closer for Pre-Assembled Door
	UL Rating: Yes, UL90	<b>Wall Openings</b>
	Sidewall Eave Trim Type: Standard Profile Gutter	See drawings for additional info.
<b>Wall Panel:</b>	Eave Trim Color: Royale Blue	
Type: CS	Gable Trim Color: Royale Blue	
Gage: 26	Downspout Type: Corrugated	
Color: Parchment	Downspout Color: Royale Blue	
	Elbows at Bottom of Drops: Yes	
	Corner Trim Color: Parchment	
	Framed Opening Trim Color: Royale Blue	
	Light Transmitting Panels: Roof = None	
	Wall = None	

QUAN	DESCRIPTION
4	3'-4" W x 3'-4" H Louver
3	14'-0" W x 14'-0" H Overhead Door
5	3'-4" W x 7'-2" H Walkdoor
1	6'-4" W x 7'-2" H Walkdoor
14	4'-0" W x 4'-2" H Window



**CHIEF STANDARD COLD FORM SECTIONS**

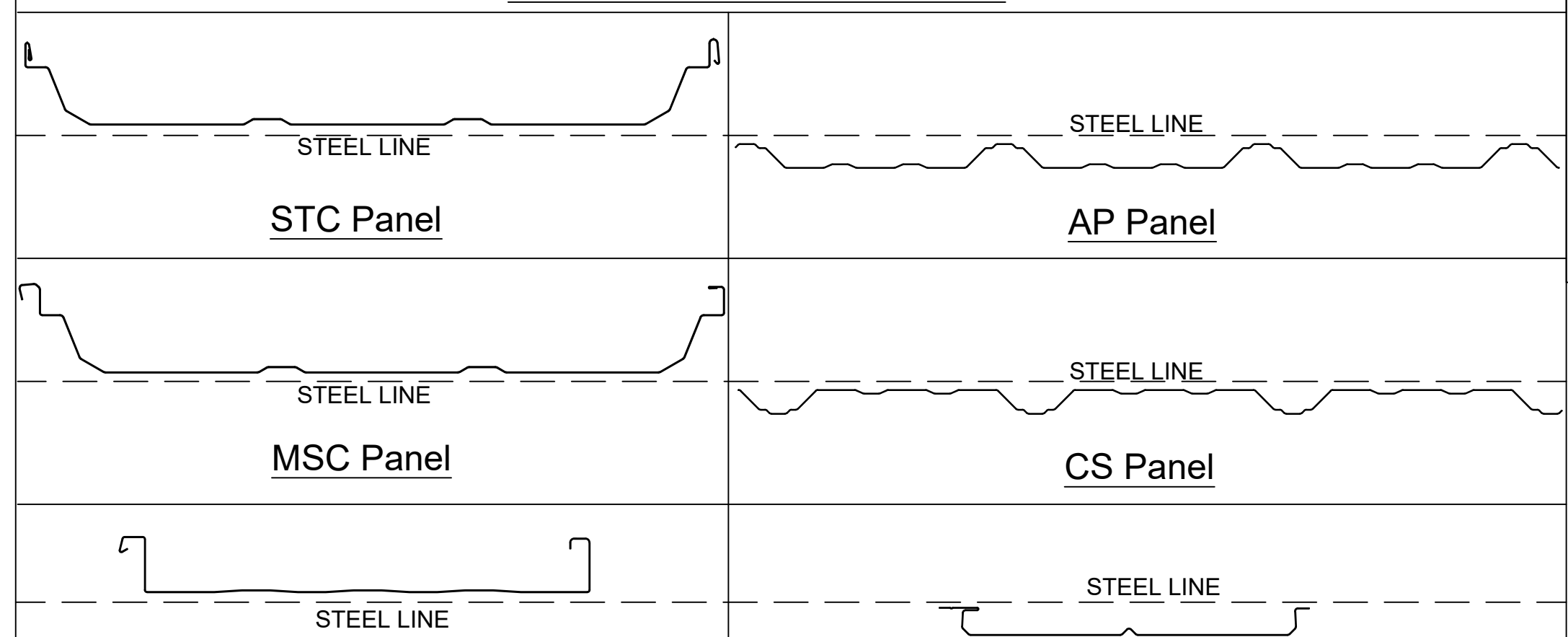
DESIGNATION	D	B
816	8.00	3.00
814	8.00	3.00
812	8.00	3.00
1014	10.00	3.50
1012	10.00	3.50

DESIGNATION	D	B
816	8.00	2.50
814	8.00	2.50
812	8.00	2.50
1014	10.00	2.75
1012	10.00	2.75

<b>Framing:</b>
Purlin Type: ZEE
Girt Type: ZEE CEE

CHIEF BUILDINGS  
DETAIL GUIDE:  
  
ROOF PANEL  
ERECTION MANUAL:

**CHIEF STANDARD PROFILES**



<b>Eave / Gable Soffit Panel:</b>
Type: FSP
Gage: 24
Color: Royale Blue

**FINAL DESIGN DRAWINGS FOR PERMIT USE ONLY**

Chief Buildings, a Division of Chief Industries, Inc., is certified as an Approved Fabricator recognized under section 1704.2.5.1 of the 2015 and 2018 IBC, section 1704.2.5.2 of the 2012 IBC and section 1704.2.2 of earlier code editions in accordance with the International Accreditation Service, Inc., Accreditation Criteria for Inspection Programs, AC472 (Certificates of Accreditation: MB-123 & MB-124).

REVISIONS
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3
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1

Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.

Chief Buildings  
P.O. Box 2078, Grand Island, NE 68802-2078  
(308) 389-7289 cs@chiefind.com

Drawing	COVER PAGE			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	C1
	DAR	xxx	B3020492	
	5/20/21	xx/xx/xx		C1

## Quality Assurance Policy

The following Quality Assurance Policy is comprised of a list of guidelines and procedures to expedite customer service requirements in the field. Chief's objective is to produce a first-class product and back it up with the best customer service in the industry.

The Quality Assurance Policy has been developed over the last fifty years and is based on handling customer service in the field. These guidelines will simplify the communication process and expedite any special requirements needed to make your project run as smooth as possible.

### Common Industry Practices:

The correction of minor misfits by the use of drift pins to draw the components into line, shimming, moderate amounts of reaming, chipping and cutting, and the replacement of minor shortages of material are a normal part of erection and are not subject to claim.

Chief will not pay claims unless the following claim and authorization procedure is strictly followed by the Builder, or if the correction work is started prior to receipt by Builder of Chief's written "Authorization of Corrective Work". If erection is not by the Builder, the Erector is responsible for providing the Builder with the information necessary to make the claim to Chief as provided below.

Chief is not responsible for any claim resulting from the use of any drawings or literature not specifically released for the components purchased for the project.

Chief is not responsible for any claim resulting from the use by the Erector of any improper material or material containing defects that can be detected by visual inspection. Claims for disassembling such improper or defective material and costs of erecting replacement material are not allowed.

### Before you contact Chief:

Please have the following information ready before you call, or provided in an e-mail.

1. Chief's order number for your project. This information is available from the drawings or the Shipping Papers.
2. Page numbers and detail callouts from the drawings.
3. Part marks.
4. Line numbers.
5. Contact Information (Name, Company, return Phone Number and e-mail address):

Questions?  
Our Customer Service team is here to help!  
Contact us at 308-389-7289  
You can also contact us via e-mail at  
[cs@chiefind.com](mailto:cs@chiefind.com)  
or use the QR code to start an e-mail.



Brett Neilson    Natalie Jansen  
Lyle Miller

## Shortage and Damage Claims

Chief personnel checks off all components on the order prior to shipment. However, it is imperative that the Builder checks each shipment against the Shipment Delivery Note to ensure that the shipment is complete and no damage has occurred. A Shipment Delivery Note and Bill of Lading will be provided with each load.

A full set of Shipping Papers, Erection Drawings, CHIEF BUILDINGS DETAILS GUIDE, Safety Data Sheets (SDSs) and other important documents that will aid you in erecting your project are located in a Resale Box that says "DOCUMENTS ENCLOSED".

### Checking the Shipment Delivery Note:

The Shipment Delivery Note will contain the contents of each load delivered to the jobsite. Each individual item or bundle should be checked against the Shipment Delivery Note. Each bundle will have a packing list or bundle tag that lists the mark numbers, quantities and weight of the bundle. The packing list should remain with each bundle to identify individual pieces.

- Columns, rafters, posts, beams and other structural members are individually marked.
- Angle flange braces are individually marked and bundled with a packing list. The part description on the Shipping Papers contains the size and length of the angle along with the bolt-up standard for that piece mark.
- Sag angles are individually marked and bundled with a packing list. If there is a bundle of the all the same mark number, only the top angles are marked and common piece marks are color coded on one end. The part description on the Shipping Papers contains the angle size and length in inches.
- Cable and Rod bracing are individually marked (CB) and bundled with a packing list. The part description on the Shipping Papers contains the cable or rod diameter and length in inches.
- Girts and purlins are individually marked and bundled with a packing list. The part description on the Shipping Papers contains the member size and length in inches.
- Panel is only identified with a packing list. The piece mark on the packing list includes the length of the panels in inches. The part description on the Shipping Papers contains the color and panel type - "CS" or "AP".
- Bolting clips are individually marked and packaged in boxes with a packing list. Standard bolting clips can also be identified with dimensioned drawings found in the "Building Components" section of the CHIEF BUILDINGS DETAILS GUIDE. Special plates will have a part drawing included with the erection drawings.
- Trims are individually marked and packaged in boxes with a packing list. Standard Trims can also be identified with dimensioned drawings found in the "Building Components" section of the CHIEF BUILDINGS DETAILS GUIDE. Special Trims will have a part drawing included with the erection drawings. The part description on the Shipping Papers contains the length and colors of trim pieces.
- Bolts, nuts, screws, mastics and other miscellaneous items are packaged in resale boxes. A packing list is attached to each box that describes the contents.

## Shortage and Damage Claims (Continued)

### Missing or Damaged Parts:

Any missing or damaged items are to be noted on the carrier's Bill of Lading. Chief is to be notified immediately.

Concealed shortages must be reported to Chief during the following period dating from receipt of the first load:

One load job = 2 weeks	Four load job = 5 weeks	Seven or more load job = 8 weeks
Two load job = 3 weeks	Five load job = 6 weeks	
Three load job = 4 weeks	Six load job = 7 weeks	

Chief's responsibility for shortages expires at the end of these notification periods.

### Replacement Shipment:

Maximum effort will be made by Chief to ship replacement components as quickly as possible. Chief will attempt to ship standard components fabricated in its building plants within 48 hours and stock items will be ready to ship in 24 hours.

When a shortage is determined, the Builder needs to notify Chief's Customer Service Department of the issue. Chief's Order Number and complete information describing the parts required must be conveyed at this time.

Chief will act immediately to get the parts to the Builder and responsibility for the problem will be determined later.

After the problem has been corrected, Chief will determine where the responsibility lies. If it is Chief's error, Chief will provide the replacement material at no cost. Otherwise, Chief will invoice accordingly.

### Transit Damage:

Nominal damage can occur during transit. Chief supplies touch-up paint for such cases. However, if excessive damage occurs, the following procedure will be observed:

Material damage (transit or otherwise) should be noted on the carrier's Bill Of Lading. Failure to note the damage on the Bill Of Lading will result in the Builder having to file the freight claim and Chief may charge the Builder for the replacement material.

### White Rust:

All panels shipped from Chief's building plants are in good condition.

Chief bundles and/or boxes of components are only for protection during transit. This packaging is not intended for protection during storage.

Panels must be stored so air can circulate freely. Trapped moisture may cause discoloration or white rust. Refer to the "Unloading Procedures" in the General Information section of the CHIEF BUILDINGS DETAILS GUIDE.

### Primer:

Chief's shop primer is a rust inhibiting gray modified acrylic primer. This primer is intended to protect the steel only for short periods of exposure to ordinary atmospheric conditions. In addition, shop primer does not provide the uniformity of appearance, or the durability of a field applied finish coat of paint over a shop primer.

The Builder must ensure that the primed material is stored in such a manner that water, snow, ice and other debris are not allowed to pond in the members. If primed material is to be top coated with other paint, compatibility tests must be performed by the Builder to ensure acceptable results. These compatibility tests should cover a cross-section of members (clips, angles, purlins, girts, columns, rafters, beams, flange braces, etc.) as different primers may be used on different members.

Ice and snow melt chemicals that DOTs use are extremely corrosive to the steel and should be cleaned off at the earliest convenience.

### Panel Bundles:

Chief's standing seam panels will be sent at a maximum length of 52' unless otherwise directed. Any bundles over 30' in length MUST be unloaded with a spreader bar. Additional handling and storage recommendations are included in the erection manuals.

## Authorization for Returning Merchandise

The authorization must be obtained from Chief's Customer Service Department before merchandise may be returned for credit. Returned merchandise shall be limited to resale type items (i.e. fasteners, closures, etc.) at Chief's sole discretion. Chief retains the prerogative to allow or disallow the return of merchandise.

Builder must contact Chief's Customer Service Department with a description of the merchandise and the reason for their request.

When authorization has been granted, an authorization form will be sent to the Builder along with a pre-numbered tag to attach to the merchandise being returned. A 15% re-stock charge may be assessed on all merchandise which is authorized to be returned.

### Special Order Merchandise:

Special merchandise ordered, such as special doors, windows, vents, fasteners, etc., may not be returned for credit.

### Replacement Items:

All merchandise shipped will be invoiced to the Builder. This includes parts sent to replace merchandise which has been authorized for return to Chief.

Credit will be issued to the Builder's account when the returned merchandise has been accepted by Chief. Chief may refuse to credit your account if the returned merchandise is not in good condition.

## Field Modifications

### Notification of Field Problems:

The initial claim must be made promptly by either written or verbal notification to Chief's Customer Service Department. Any verbal notification must be followed up in writing within 7 days. The initial claim must include:

1. Description of nature and the extent of the errors, including quantities.
2. Description of nature and the extent of proposed corrective work, including estimated man-hours and costs.
3. Material to be purchased from other than Chief, including estimated quantities and costs.
4. Maximum total cost of proposed corrective work and material to be purchased from other than Chief.

If necessary, Chief may request pictures, field measurements, or other information that will aid in helping to solve the problem.

Authorization MUST be obtained from Chief's Customer Service Department in writing before field modification is made. Authorization identifies the problem and allows Chief to participate in arriving at a solution, it does not assign fault or liability.

Chief cannot be responsible for structures which have been modified without specific authorization. Any such action may void warranties.

### Backcharge Procedure:

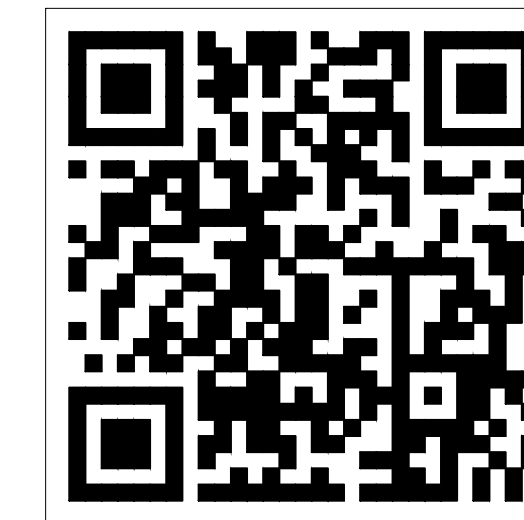
All backcharges must be submitted within 14 (fourteen) days after completion of the corrective work for which prior approved authorization has been given. Failure to submit the backcharge within this time limit will negate Chief's obligation to pay said charges.

### Information Required for Submitting the Final Claim:

1. Chief's Order Number.
2. Actual man-hours by date of direct labor use on corrective work and hourly rates of pay.
3. Cost of material (not minor supplies) authorized by Chief to be purchased from other than Chief, including copies of paid invoices.
4. Total actual direct cost of corrective work (sum of 2 and 3).  
The final claim shall be signed and certified true and correct by the Builder. Final claims are paid to the Builder in an amount of the lesser of:
  - Cost set forth in the initial report and subsequent "Authorization for Field Modification", or
  - The total actual direct cost of corrective work.
5. The cost of equipment (rental or depreciation), small tools, supervision, overhead and profit are not subject to claim. This includes crane and lift charges.

## Looking For Jobsite Resources?

# Dave's Toolbox



Snap QR code above  
or  
use web address below

**FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY**

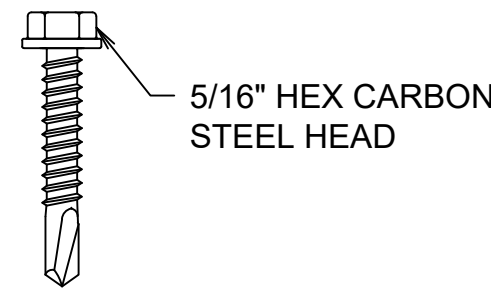
<https://secure.chiefind.com/mychief/>

Username: [information@chiefind.com](mailto:information@chiefind.com)  
Password: gbr2021

Drawing	QUALITY ASSURANCE POLICY			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	G1
	DAR	xxx	B3020492	
	5/19/2021	xx/xx/xx		

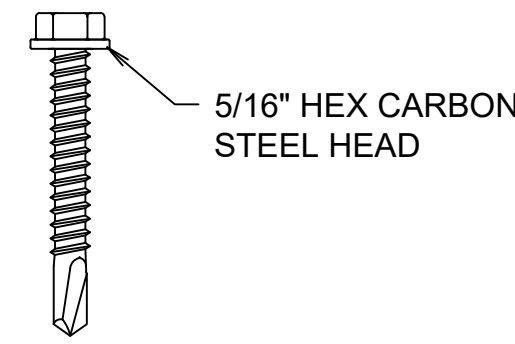
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SUPERSEDES	11-05-20





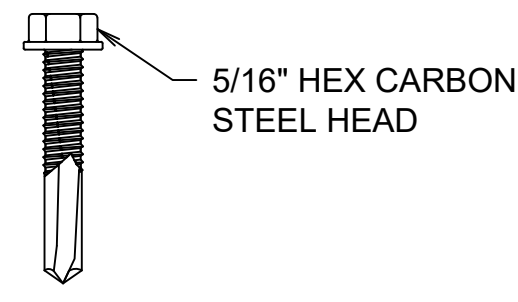
#12 - 14 X 1 1/4" W/O

- MVF/MVP CLIP TO PURLIN WITH UP TO 4" THICK INSULATION
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS-MVF / MVP ROOF



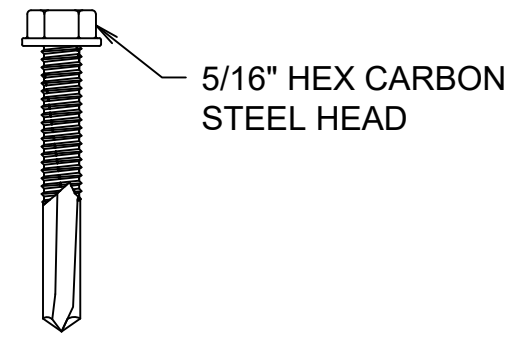
#12 - 14 X 1 1/2" W/O

- MVF/MVP CLIP TO PURLIN WITH OVER 4" THICK INSULATION
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS-MVF / MVP ROOF



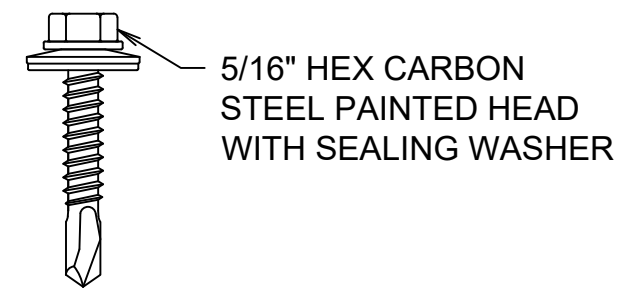
#12 - 24 X 1 1/4" W/O

- MVF/MVP CLIP TO BAR JOIST WITH UP TO 4" THICK INSULATION.
- MEZZANINE DECKING TO BAR JOIST.



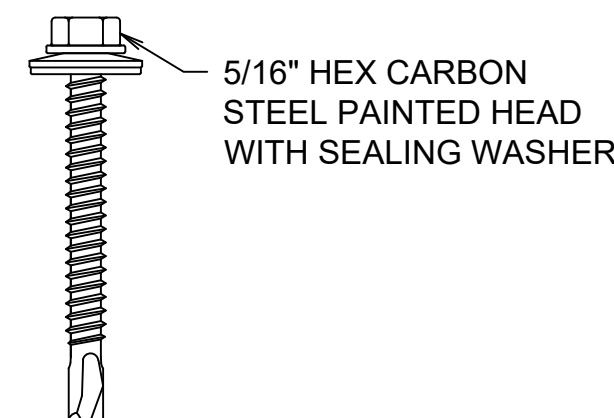
#12 - 24 X 1 1/2" W/O

- MVF/MVP CLIP TO BAR JOIST WITH OVER 4" THICK INSULATION



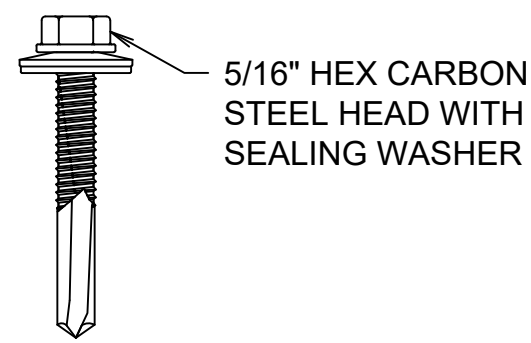
#12 - 14 X 1 1/4"

- WALL PANEL TO STEEL
- CS / AP SOFFIT PANEL TO STEEL
- DECKING TO PURLIN
- RAKE ANGLE TO PURLINS-MVF/MVP/CS ROOF



#12 - 14 X 2"

- FASTENER USED IN BUILDINGS WITH BLANKET INSULATION OVER WALL GIRTS GREATER THAN 4 INCHES. THIS FASTENER REPLACES THE #12-14 X 1 1/4" FASTENER SHOWN IN THE ERECTION DRAWINGS AND SECTIONS.



#12 - 24 x 1 1/2"

- WALL PANEL TO STEEL GREATER THAN 12 GAGE
- TRIM TO STEEL GREATER THAN 12 GAGE
- MSC/STC CLIP SCREW FOR BAR JOIST
- DECKING ATTACHMENT TO BAR JOIST AND BEAMS



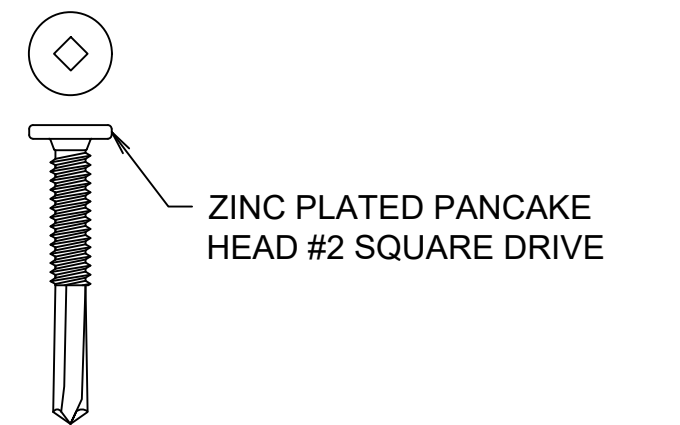
#12 - 24 X 2"

- WALL PANEL TO STEEL GREATER THAN 12 GAGE. FASTENER USED IN BUILDINGS WITH BLANKET INSULATION OVER WALL GIRTS GREATER THAN 4 INCHES. THIS FASTENER REPLACES THE #12-14 X 1 1/4" FASTENER SHOWN IN THE ERECTION DRAWINGS AND SECTIONS.



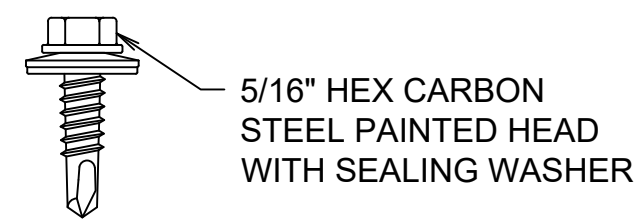
#12-14 X 1" PANCAKE HEAD

- RAKE ANGLE TO PURLINS - MSC/STC ROOF
- CORNER ANGLE TO GIRTS
- FLAT STRAPS TO PURLINS
- FLAT SOFFIT TO SUPPORTS
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS - CS ROOF



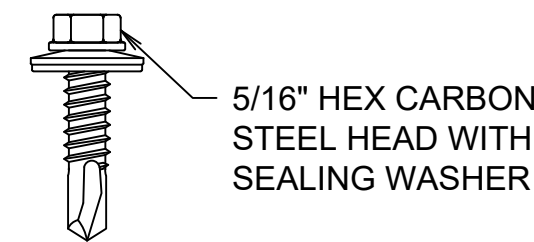
#12-24 X 1 1/2" PANCAKE HEAD

- RAKE ANGLE TO PURLINS > 12ga. - MSC/STC ROOF
- CORNER ANGLE TO GIRTS > 12ga.
- FLAT STRAPS TO PURLINS > 12ga.
- FLAT SOFFIT TO SUPPORTS > 12ga.
- SUPPORT PLATE TO PURLINS > 12ga. AT HIP OR VALLEY CONDITIONS - CS ROOF



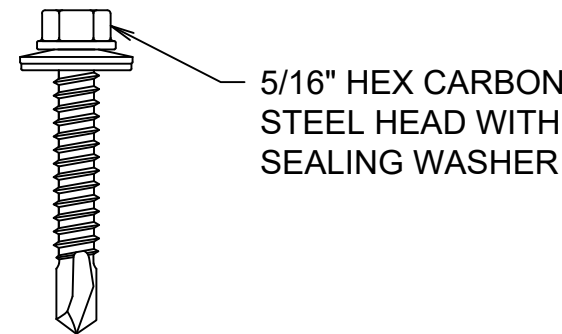
1/4 - 14 X 7/8"

- WALL OR SOFFIT PANEL: TRIM TO PANEL OR PANEL
- TO PANEL
- MEZZANINE DECKING AT SIDE LAPS.
- WALL OR SOFFIT PANEL: TRIM TO TRIM



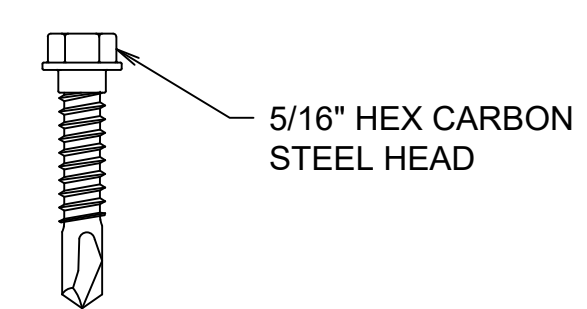
1/4 - 14 X 1"

- MSC-STC-CLIP TO PURLIN (WITH UP TO 4" THICK INSULATION)
- EAVE PLATE TO PURLIN
- INSIDE CLOSURE TO EAVE PLATE OR EAVE STRUT
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS-MSC / STC ROOF



1/4 - 14 X 1 1/2"

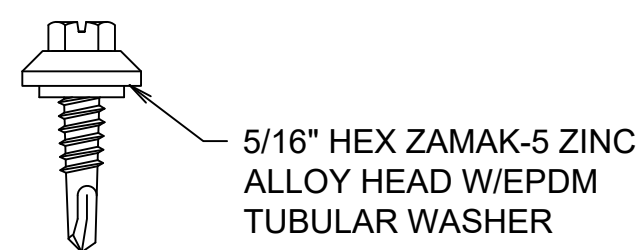
- MSC/STC-CLIP TO PURLIN WITH OVER 4" THICK INSULATION
- SUPPORT PLATE TO PURLINS AT HIP OR VALLEY CONDITIONS-MSC / STC ROOF



1/4 - 14 X 1 1/4" SHOULDER

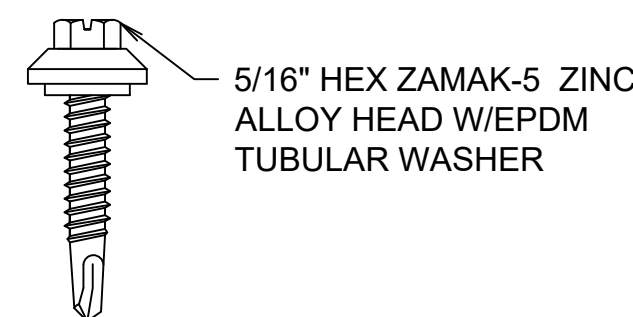
- MSC/STC-RAKE SUPPORT TO RAKE ANGLE
- FLOATING EAVE PLATE TO EAVE STRUT
- FLOATING EAVE PLATE TO JOIST

FINAL DESIGN DRAWINGS FOR PERMIT USE ONLY



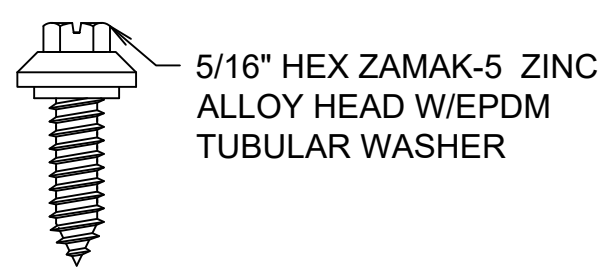
1/4 - 14 X 7/8" WT

- ROOF: SHEETING TO SHEETING, TRIM TO SHEETING AND RIDGE FLASHING TO RIDGE CLOSURE



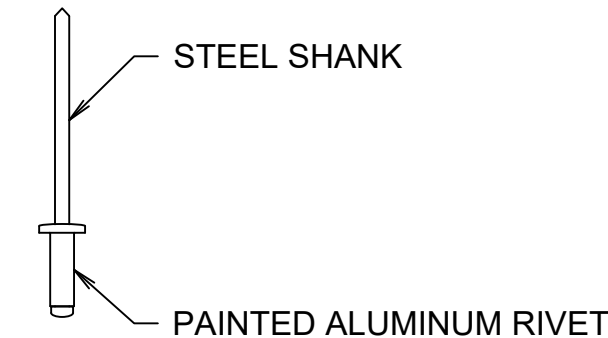
1/4 - 14 X 1 1/4" WT

- ROOF PANEL TO STEEL
- BACK-UP PANEL TO STEEL
- ROOF TRIM TO STEEL



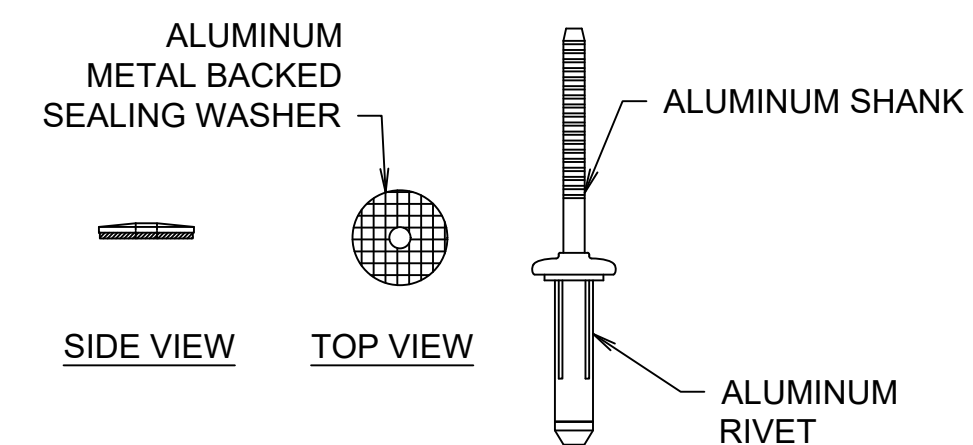
#17 X 1" WT

- "STRIP OUT" REPLACEMENT FASTENER FOR ROOF, WALLS, BACK-UP PANEL AND TRIM



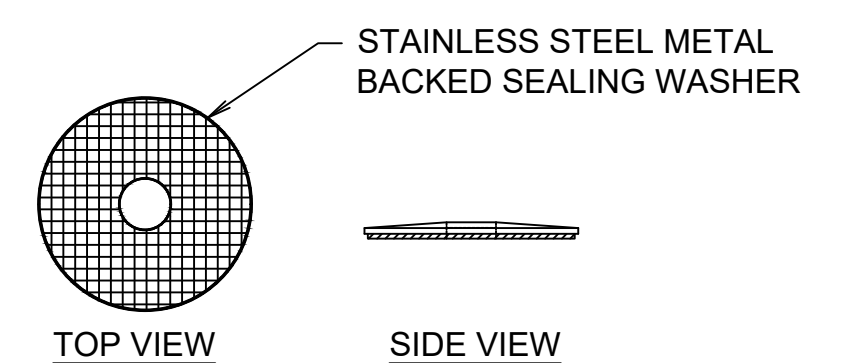
1/8" X 3/8" BLIND RIVET

- MSC / STC / MVF / MVP OUTSIDE CLOSURE TO BACK-UP ANGLE AT HIP CONDITION
- TRIM TO TRIM
- TRIM TO STEEL



3/16" BULBTITE RIVET AND WASHER

- LIGHT TRANSMITTING PANEL TO LIGHT TRANSMITTING PANEL SIDE LAP
- WINDOWS BY CHIEF TO WINDOW JAMBS



#14 X 1 1/8" BONDED WASHER

- MSC/STC-LOW SIDE OF LIGHT TRANSMITTING PANELS

NOTE: THE DETAILS ON THIS PAGE OVERRIDE DETAILS IN THE ERECTION MANUALS.

REVISIONS

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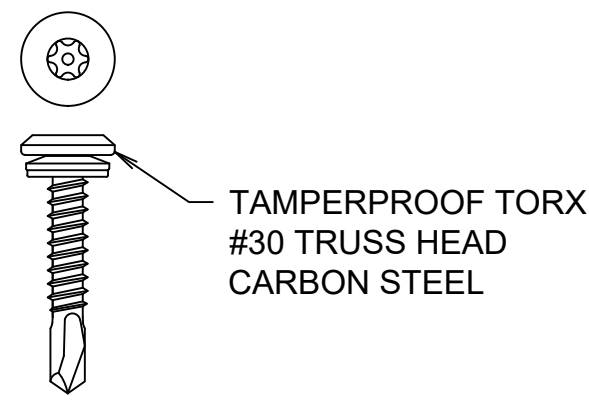
Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.

Chief Buildings  
PO Box 2078, Grand Island, NE 68802-2078  
(308) 389-7289 cs@chiefind.com



05 20 21

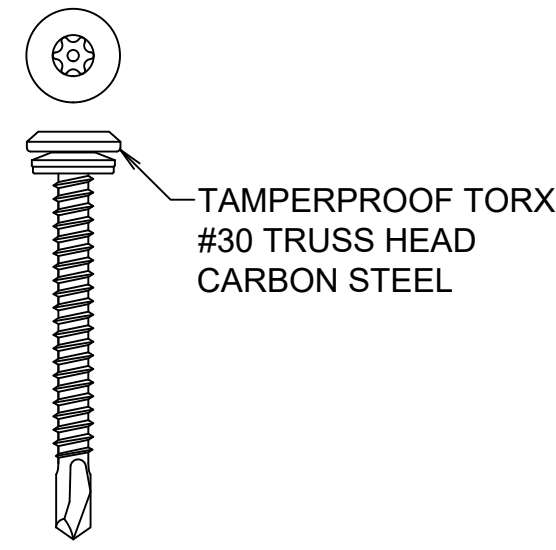
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Buyer	Powermaster Electric, Inc		
Customer	PowerMaster Electric Fuquay-Varina, NC 27526		
Project Name	New Office/Warehouse		
CHIEF BUILDINGS	DRAWN	CHECK	ORDER NO.
	DAR	xxx	B3020492
	5/19/2021	xx/xx/xx	G2
			G4



TAMPERPROOF TORX  
#30 TRUSS HEAD  
CARBON STEEL

**#12 - 14 X 1 1/4"**  
**TAMPERPROOF**

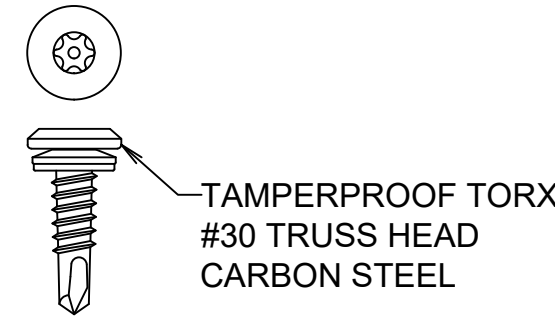
- PANEL TO STEEL
- TRIM TO STEEL



TAMPERPROOF TORX  
#30 TRUSS HEAD  
CARBON STEEL

**#12 - 14 X 2"**  
**TAMPERPROOF**

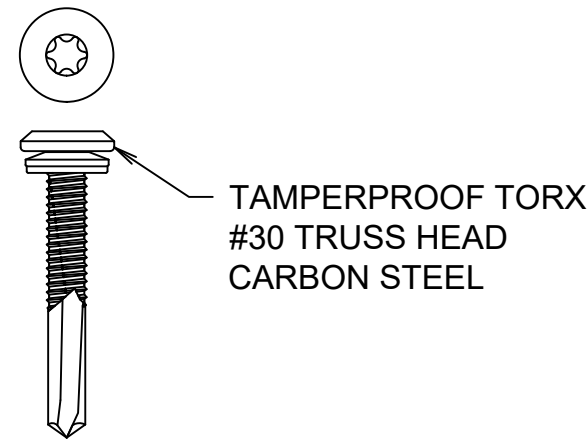
- GREATER THAN 4" INSULATION
- PANEL TO STEEL
- TRIM TO STEEL



TAMPERPROOF TORX  
#30 TRUSS HEAD  
CARBON STEEL

**1/4 - 14 X 7/8"**  
**TAMPERPROOF**

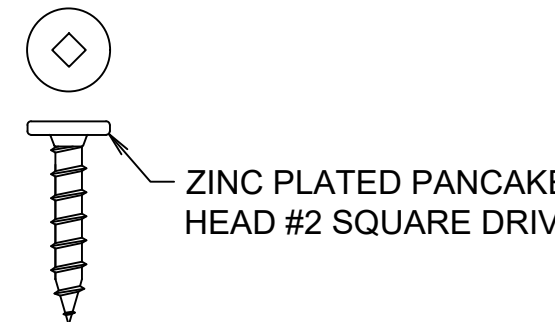
- TRIM TO TRIM
- TRIM TO PANEL
- PANEL TO PANEL



TAMPERPROOF TORX  
#30 TRUSS HEAD  
CARBON STEEL

**#12 - 24 X 1 1/2"**  
**TORX DRIVE**

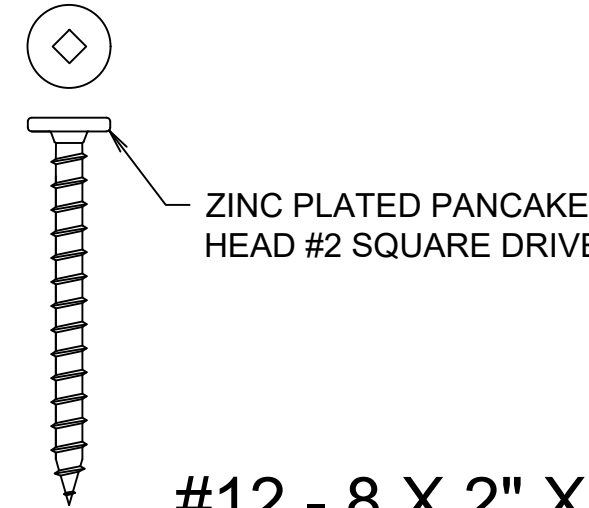
- PANEL TO STEEL GREATER THAN 12 GAGE
- TRIM TO STEEL GREATER THAN 12 GAGE



ZINC PLATED PANCAKE  
HEAD #2 SQUARE DRIVE

**#12 - 8 X 1" XG**  
**PANCAKE HEAD**

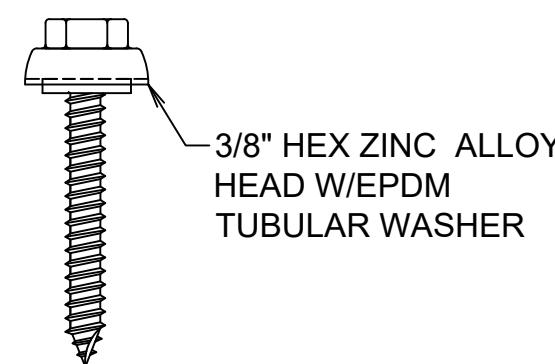
- MVF / MVP UTILITY CLIP TO WOOD
- MVF / MVP CLIP ALTERNATE FASTENER TO WOOD
- RAKE AND CORNER ANGLE TO WOOD
- PARAPET CAP CLEAT TO WOOD



ZINC PLATED PANCAKE  
HEAD #2 SQUARE DRIVE

**#12 - 8 X 2" XG**  
**PANCAKE HEAD**

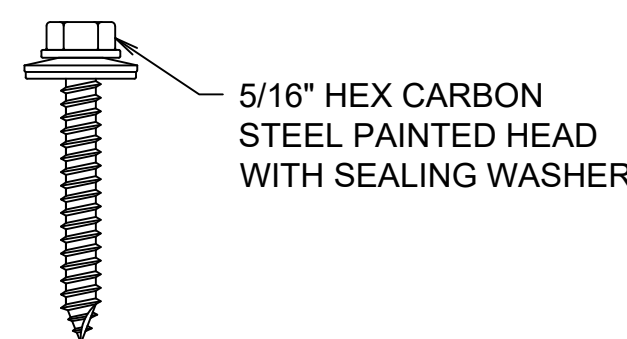
- MVF / MVP UTILITY CLIP TO WOOD
- MVF / MVP CLIP ALTERNATE FASTENER TO WOOD
- RAKE AND CORNER ANGLE TO WOOD
- PARAPET CAP CLEAT TO WOOD



3/8" HEX ZINC ALLOY  
HEAD W/EPDM  
TUBULAR WASHER

**1/4 - 14 X 1 1/2" WT TYPE AB**  
**MILLED POINT**

- STANDING SEAM ROOF AT EAVE TO WOOD
- CS ROOF TO WOOD
- TRIM ON ROOF TO WOOD



5/16" HEX CARBON  
STEEL PAINTED HEAD  
WITH SEALING WASHER

**#14 X 1 1/2" TYPE A**  
**MILLED POINT**

- STANDING SEAM ROOF CLIP TO WOOD
- PANEL TO WOOD
- TRIM TO WOOD

**BOLT TIGHTENING INFORMATION**

**Snug Tight**

1. Snug Tightened Joints are used. Tightening of bolts shall be in accordance with the "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS" latest edition published by Research Council on Structural Connections (RCSC).
  - a. All bolt holes shall be aligned to permit insertion of the bolts without undue damage to the threads.
  - b. Bolts shall be placed in all holes and nuts threaded to complete the assembly.
  - c. Compacting the joint to the snug-tight condition shall progress systematically from the most rigid part of the joint. Snug tight is the condition that exists when all of the plies in a connection have been pulled into firm contact by the bolts in the joint and all of the bolts in the joint have been tightened sufficiently to prevent the removal of the nuts without the use of a wrench.
    - i. The snug tightened condition is typically achieved with a few impacts of an impact wrench or the full effort of a worker on an ordinary spud wrench. More than one cycle through the bolt pattern may be required to achieve the snug tightened joint.
2. Special Inspection - Inspection that installation achieved snug tightened condition is after bolt installation. Unless local authorities require otherwise, inspection before or during bolt installation/tightening is not required.
3. Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.

FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY

NOTE: THE DETAILS ON THIS PAGE OVERRIDE DETAILS IN THE ERECTION MANUALS.

RELEASED	04-16-21
SUPERSEDES	09-28-20

**REVISIONS**

4	
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Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.  
Chief Buildings  
PO Box 2078, Grand Island, NE 68802-2078  
(308) 389-7289 cs@chiefind.com



05 20 21

Drawing	FASTENER ID & BOLT TIGHTENING INFO			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	G3
	DAR	xxx	B3020492	G4
	5/19/2021	xx/xx/xx		



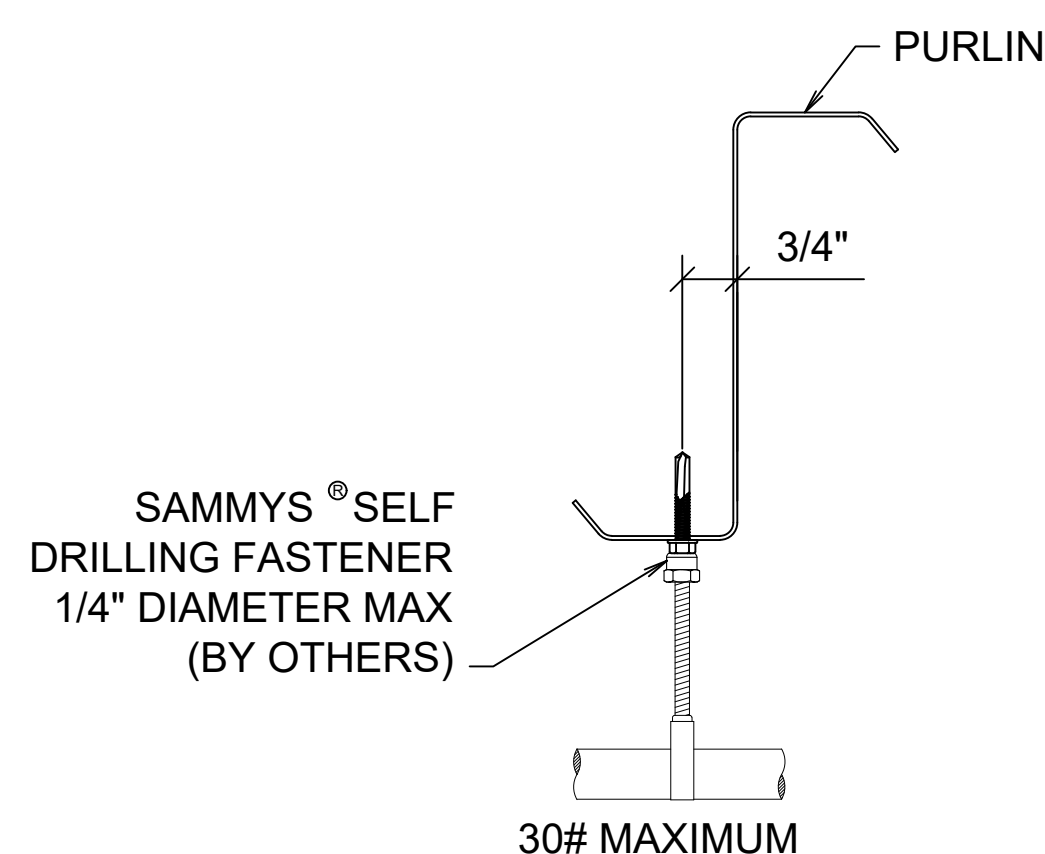


**COLLATERAL LOADS (see Building Design Criteria):**  
 Chief Buildings neither assumes nor accepts any responsibility for the design of hangers, bracing of suspended members, transverse support members, nor connections to roof purlins to support collateral loads. It is the responsibility of the Buyer/Contractor and/or End Owner to have this design performed by a registered design professional. All loads suspended from purlins shall have the load introduced through the web and not the flange of the purlin other than what is shown on this page.

**TYPE I CONNECTION NOTE:**

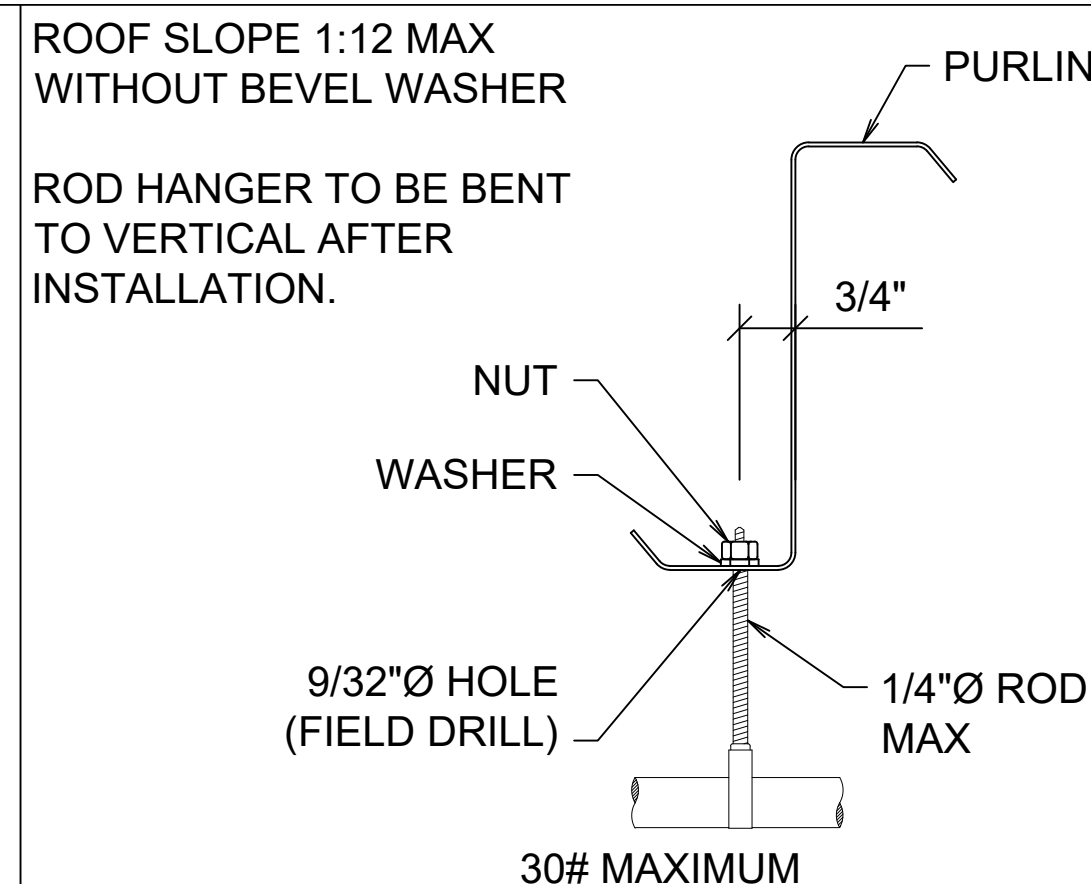
Lightweight loads may be hung from the bottom flange of the purlin ONLY as shown at right within the following limitations:

1. Individual point loads cannot exceed 30#.
2. Attachment points cannot be closer than 12" c-c along an individual purlin.
3. The total number of 30# loads cannot exceed (0.2 x bay length in feet). See note 4 for further limitations.
4. More points can be attached to a purlin if the individual loads are less than 30#, but in no case shall the total load hung on a purlin exceed the collateral load times the purlin spacing (ft.) times one-half the purlin span (ft.). Point of attachment must be within 3/4" of the purlin web.
5. The hole diameter shall not exceed what is shown.



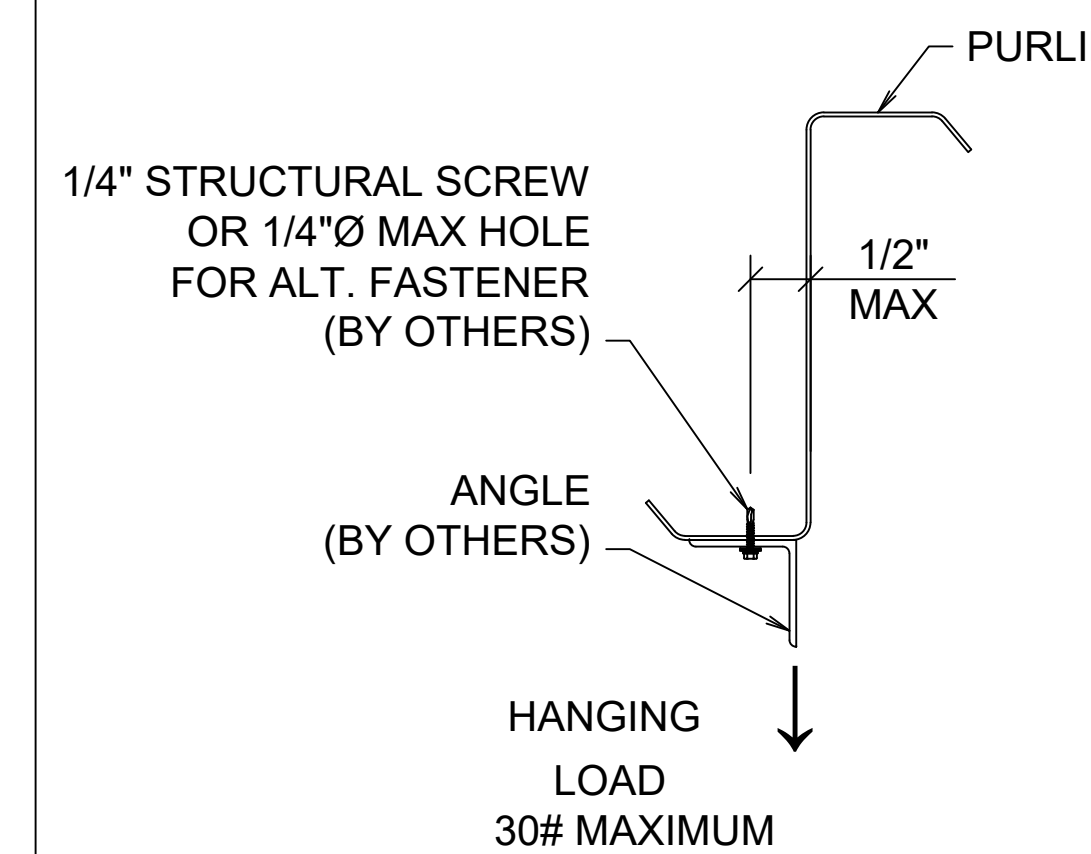
HANGER DETAIL AT PURLINS  
 SAMMYS® CONNECTION

TYPE I



HANGER DETAIL AT PURLINS  
 NUT/WASHER CONNECTION

TYPE I

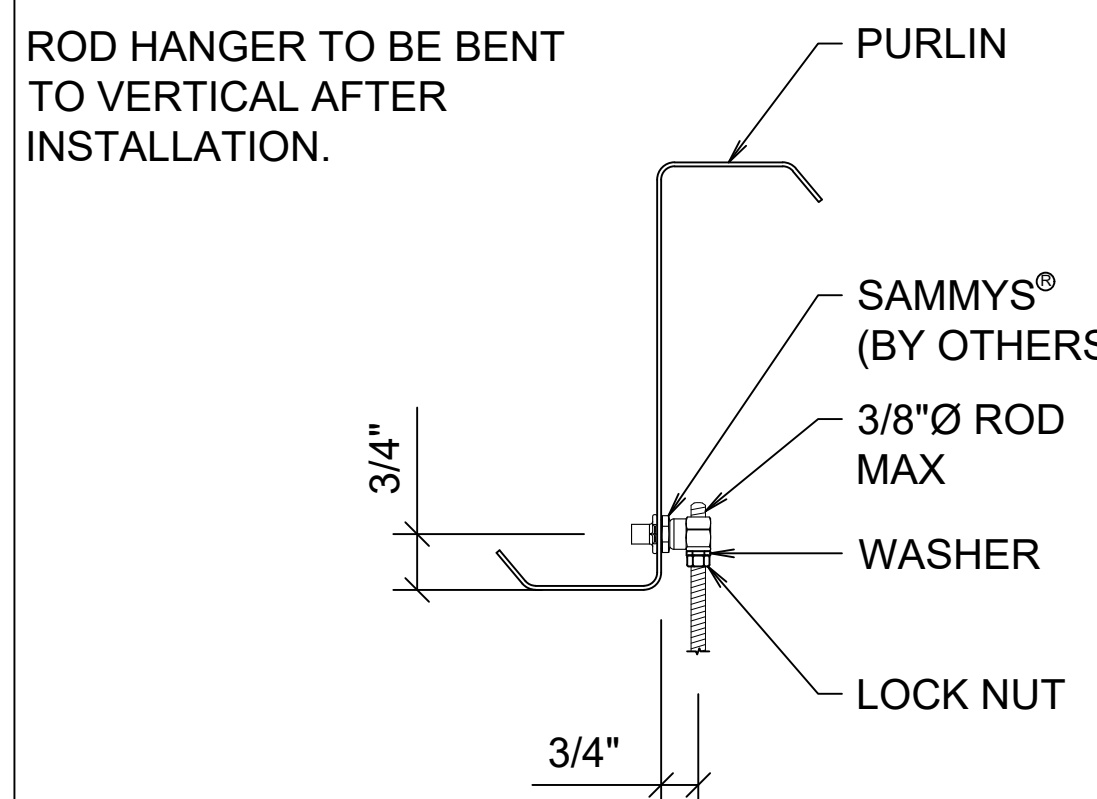


HANGER DETAIL AT PURLINS  
 CONNECTION

TYPE I

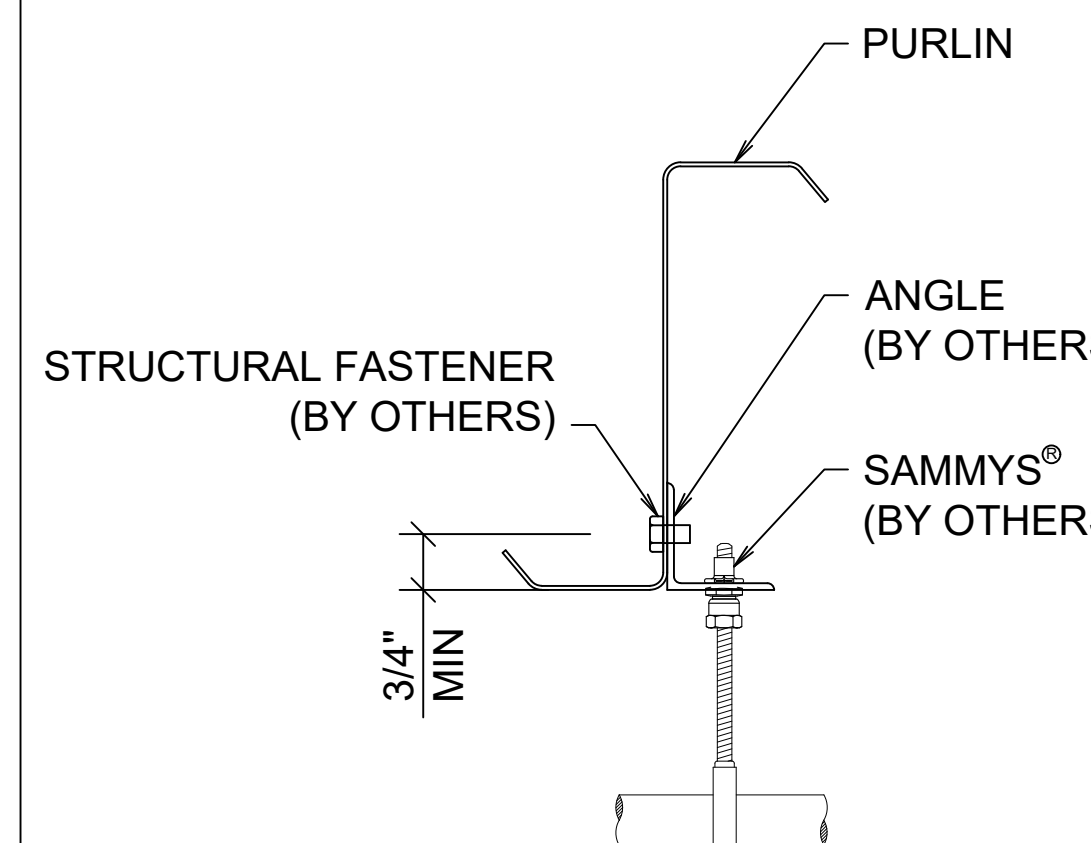
**TYPE II CONNECTION NOTE:**

For loads exceeding the limits of Type I connections, utilize one of the Type II methods shown at right or a similar method provided by the Registered Design Professional. All loads suspended from purlins shall have the load introduced through the web and not the flange of the purlin other than what are shown on this page. Hangers cannot be supported from the lip at the edge of the flange.



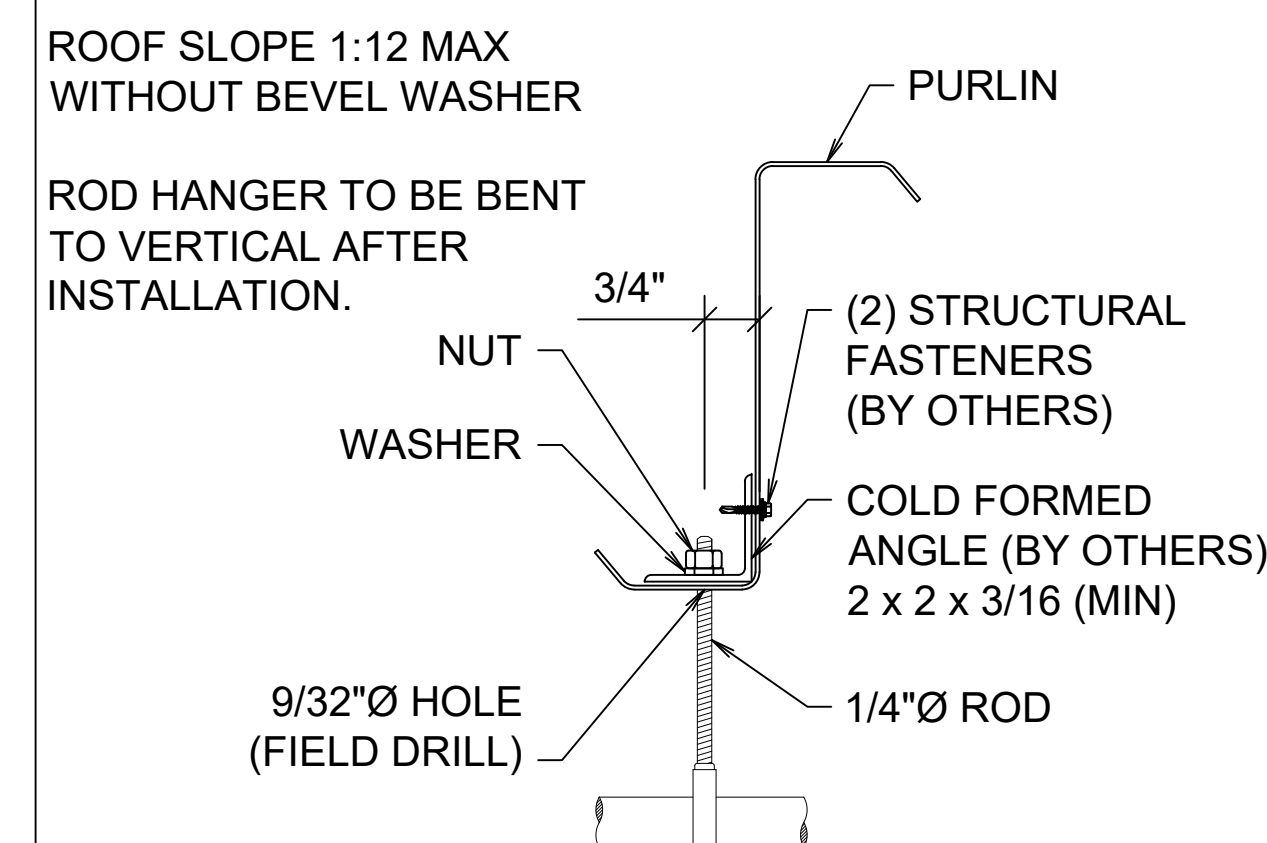
HANGER DETAIL AT PURLINS  
 SAMMYS® CONNECTION

TYPE II



HANGER DETAIL AT PURLINS  
 SAMMYS® CONNECTION

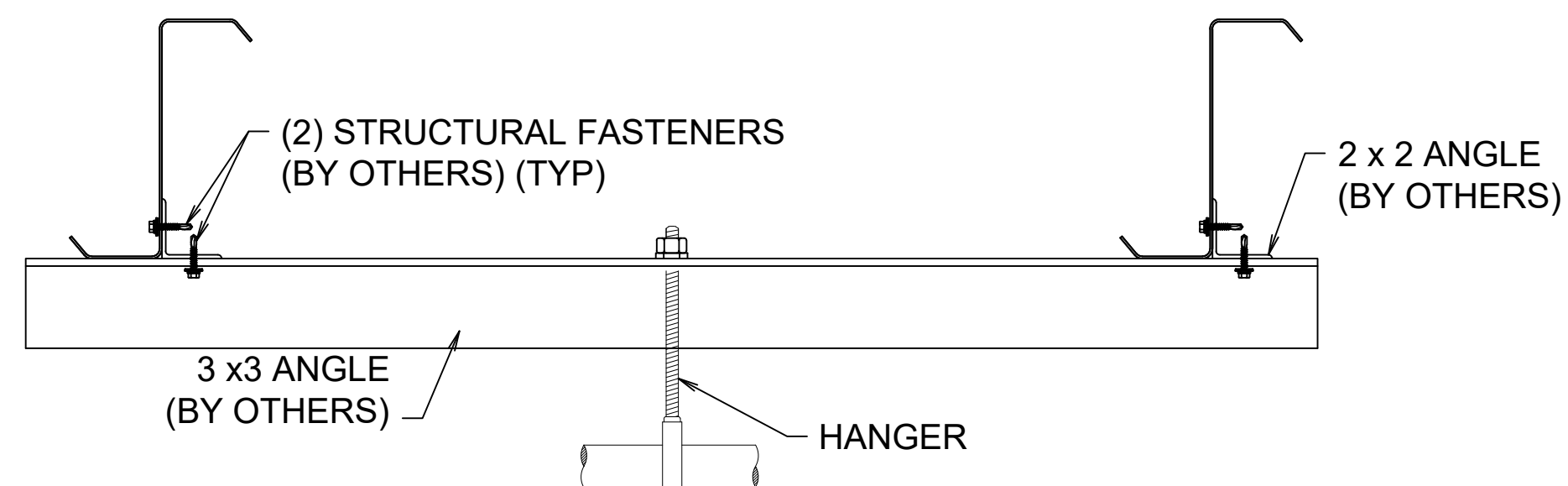
TYPE II



HANGER DETAIL AT PURLINS  
 NUT/WASHER CONNECTION

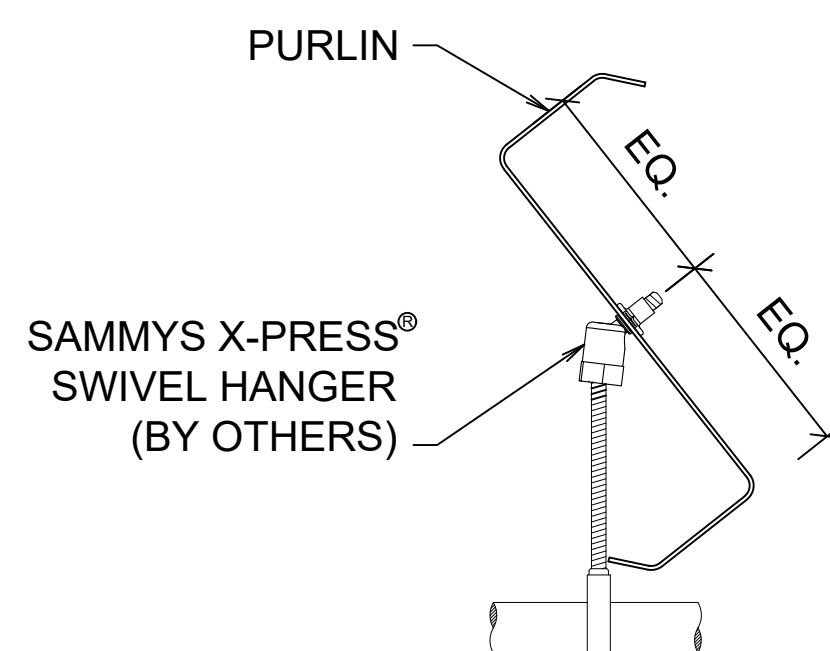
TYPE II

DO NOT ATTACH ANGLES TO PURLIN FLANGES.



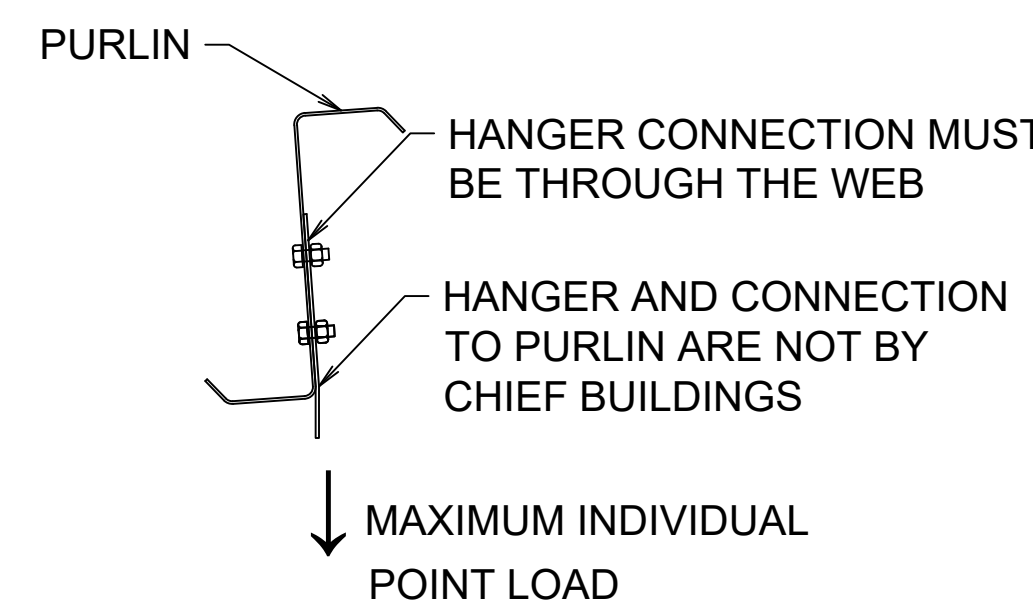
HANGER DETAIL AT PURLINS  
 ANGLE ATTACHMENT

TYPE II



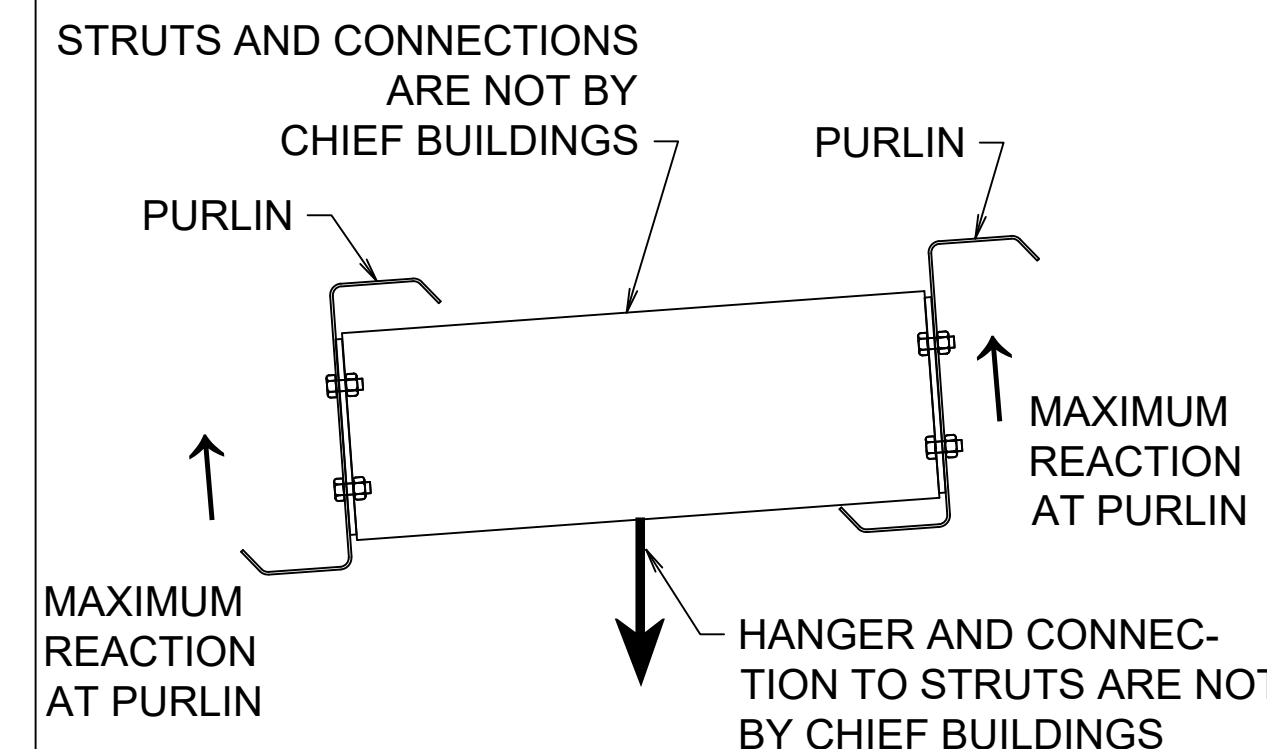
HANGER DETAIL AT PURLINS  
 SWIVEL CONNECTION

TYPE II



HANGER DETAIL AT  
 INDIVIDUAL ZEE PURLIN

TYPE II



HANGER DETAIL  
 BETWEEN ZEE PURLINS

TYPE II

**NOTE:**  
 CHIEF BUILDINGS IS NOT RESPONSIBLE FOR THE DESIGN OR ADEQUACY OF THE ROD OR ANGLE AND ITS ATTACHMENTS.

RELEASED	09-28-20
SUPERSEDES	10-24-19

**REVISIONS**

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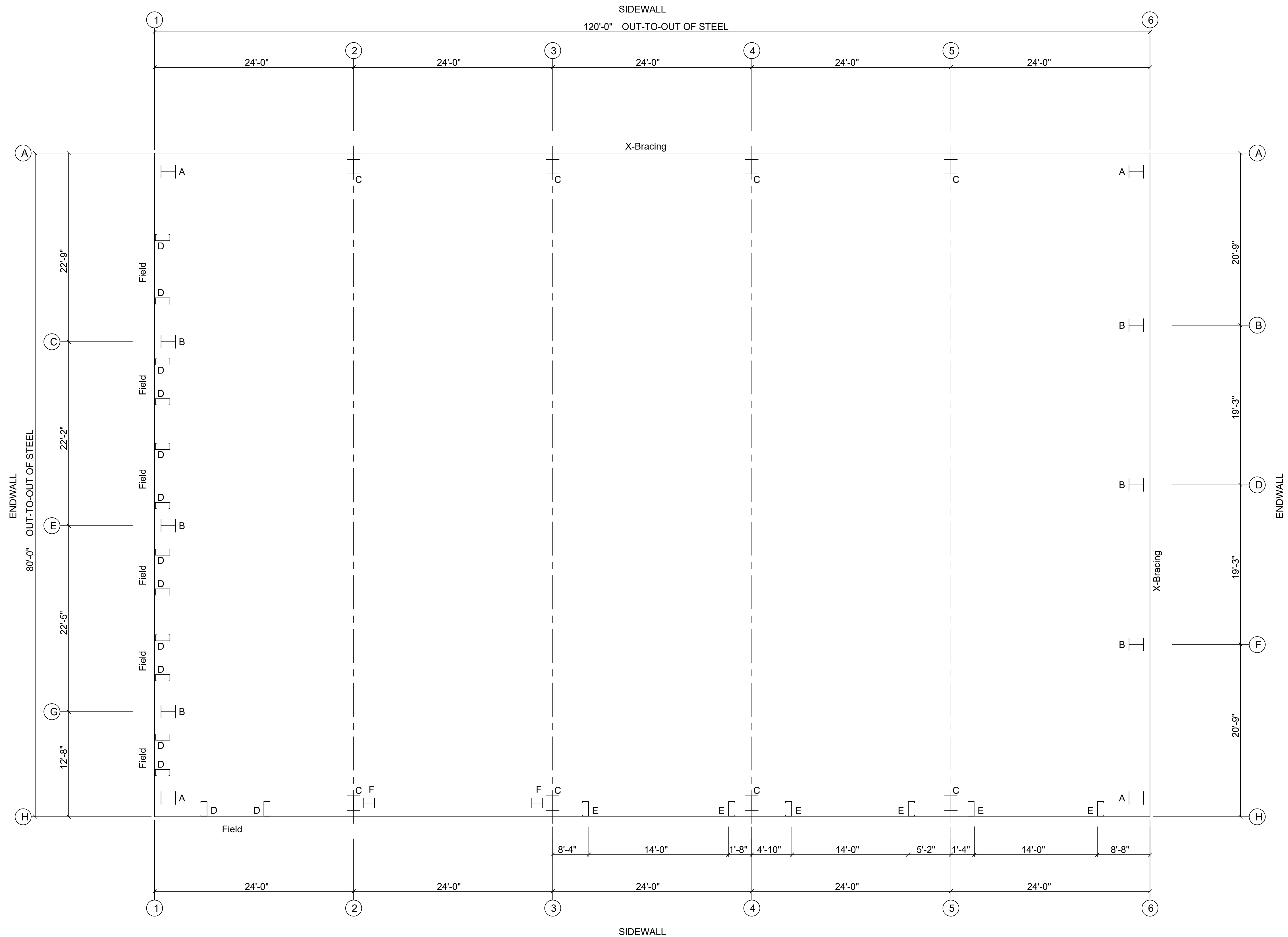
Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.  
 Chief Buildings  
 PO Box 2078, Grand Island, NE 68802-2078  
 (308) 389-7289 cs@chiefind.com



05 20 21

Drawing	COLLATERAL LOADING AND ATTACHMENTS		
Buyer	Powermaster Electric, Inc		
Customer	PowerMaster Electric Fuquay-Varina, NC 27526		
Project Name	New Office/Warehouse		
DRAWN	CHECK	ORDER NO.	G4
	DAR	xxx	
5/19/2021	xx/xx/xx	B3020492	G4





**TO BE  
USED FOR  
CONSTRUCTION**

**ANCHOR ROD PLAN**

NOTE: All Base Plates @ 100'-0" (U.N.)

- REFERENCE NOTES:**
- All Anchor Rods including nuts and washers for same are not furnished by CHIEF BUILDINGS.
  - Anchor Rod material shall conform to ASTM F1554 having a yield of 36 KSI or greater.
  - Rod projections are recommended minimums based on the base plate bearing directly on the concrete pier. If the base plate is to bear on grout, the rod projection must be increased accordingly.
  - Concrete shall have a minimum strength of 3000 PSI.
  - ALL DRAWINGS ARE NOT TO SCALE.

NOTE: Finish Floor @ 100'-0"

ANCHOR ROD SUMMARY				
Qty	Locate	Dia (in)	Type	Proj (in)
40	Jamb	1/2"	F1554	1.50
40	Endwall	3/4"	F1554	2.00
32	Frame	3/4"	F1554	2.00
12	WindCol	3/4"	F1554	2.00

REVISIONS	
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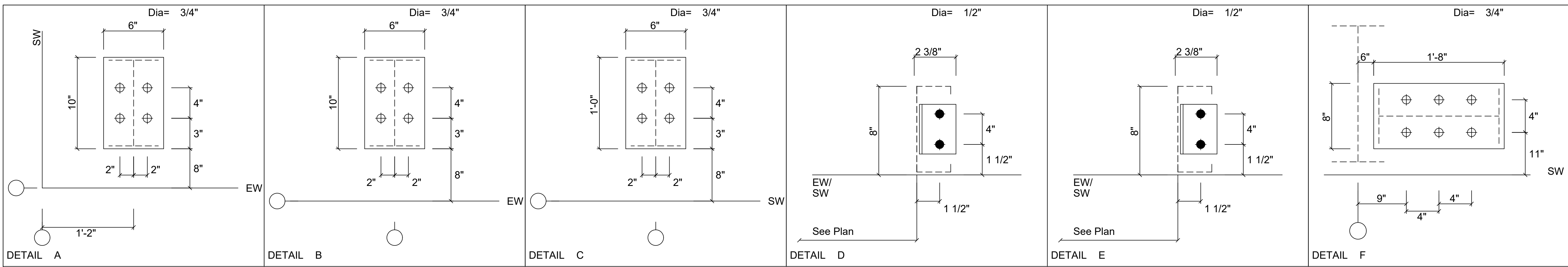
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(308) 389-7289 cs@chiefind.com



05 20 21

Drawing	ANCHOR ROD			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
<b>CHIEF BUILDINGS</b>	DRAWN	CHECK	ORDER NO.	A1 A3
	DAR	ME	B3020492	
	5/19/21	5/20/21		

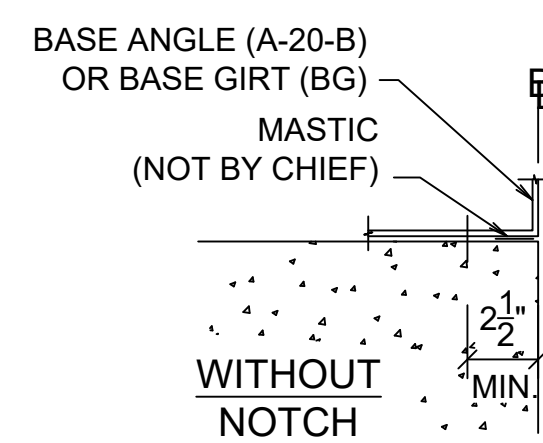


BASE ANCHORAGE SPACING FOR STANDARD BASE ANGLE, BASE GIRT OR ONE PIECE BASE WITH CS OR AP WALLS		
FASTENER TYPE & DIAMETER	MINIMUM EMBEDMENT	MAXIMUM SPACING
1/4" WEDGE ANCHOR ①	1 1/4"	3'-0"
1/4" SCREW TYPE ANCHOR ②	1 1/2"	3'-0"
3/8" CAST-IN ANCHOR	4" WITH HOOK OR HEAD	3'-0"
1/4" HAMMER-IN ③	1 3/8"	2'-0"
0.14 POWDER ACTUATED ④	1 1/4"	1'-6"

① HILTI KWIK BOLT®, RAMSET TRUBOLT®, POWERS POWERSTUD®, OR EQUAL  
 ② CFS TAPCON®, HILTI KWIK-CON II®, POWERS WEDGE-BOLT®, OR EQUAL  
 ③ POWERS ZAMAC HAMMER SCREW®, HILTI METAL HIT ANCHOR®, OR EQUAL  
 ④ POWERS BALLISTIC POINT PIN, RAMSET 1500/1600 SERIES, HILTI UNIVERSAL NAIL OR EQUAL

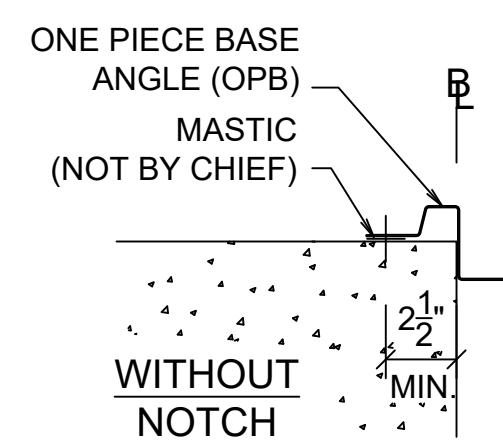
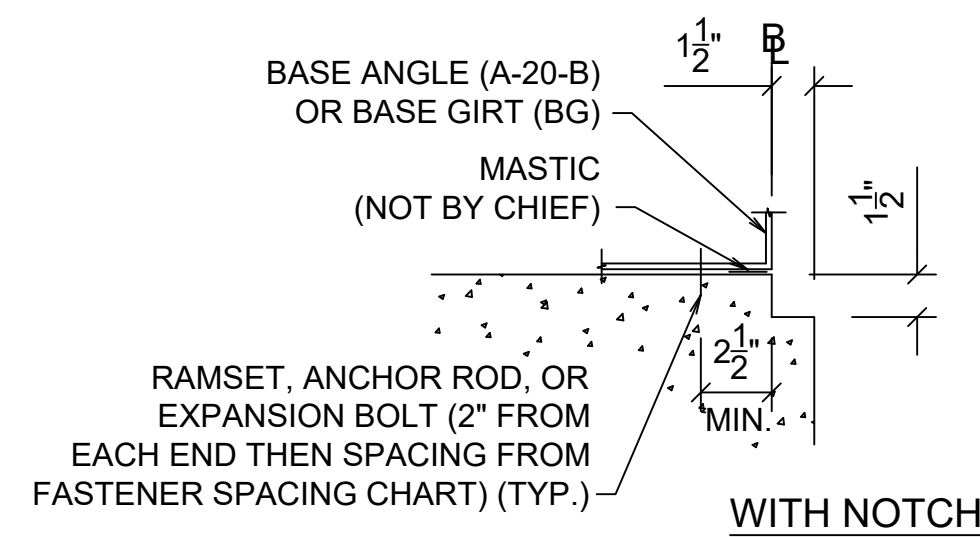
**FASTENER SPACING CHART**

REFERENCE NOTES:  
 1. ACTUAL BASE PLATE DIMENSIONS MAY BE SMALLER THAN BASE PLATE DIMENSIONS SHOWN.



**BASE MEMBER DETAILS**

CONTRACTOR IS RESPONSIBLE FOR ANCHORING BASE MEMBER TO CONCRETE.



REVISIONS	
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 (308) 389-7289 cs@chiefind.com



05 20 21

**TO BE USED FOR CONSTRUCTION**

Drawing	ANCHOR ROD			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
<b>CHIEF BUILDINGS</b>	DRAWN	CHECK	ORDER NO.	A2 A3
	DAR	ME	B3020492	
	5/19/21	5/20/21		

1. Column footings and piers must be designed to withstand horizontal and vertical reactions as shown on the anchor rod plan. Chief Buildings is not responsible for design of concrete foundation. Chief Buildings recommends that the services of a qualified engineer be obtained by the contractor / builder to design the foundations for the indicated reactions.

2. Reactions are given in kips. (1 kip = 1000 lbs.) moments, if any, are given in kip-ft.

3. Anchor rod design is based on shear, tension, and combined tension and shear. Chief Buildings is not responsible for anchor rod size recommendations when anchor rod configuration places the rods in a bending mode. When the column base plate bears on grout, the contractor / builder or foundation engineer shall investigate bending in the anchor rods and provide a shear key for the column base to the pier when the anchor rods are not adequate in bending about the pier.

**ENDWALL COLUMN: BASIC COLUMN REACTIONS (k)**

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind Left1 Vert	Wind Right1 Vert	Wind Left2 Vert	Wind Right2 Vert	Wind Press Horiz	Wind Suct Horiz	Wind Long1 Vert	Wind Long2 Vert
1	A	1.0	0.7	3.5	1.9	-5.8	-3.1	-4.2	-1.6	0.0	0.0	-4.9	-3.2
1	C	1.8	1.8	7.2	3.8	-12.4	-7.3	-8.9	-3.7	-7.0	7.7	-12.3	-6.4
1	E	1.6	1.6	6.3	3.3	-7.1	-9.8	-4.4	-7.0	-7.6	8.4	-6.2	-9.0
1	G	1.5	1.5	5.7	3.0	-5.8	-9.7	-2.8	-6.8	-5.1	5.6	-5.6	-10.2
1	H	0.7	0.3	1.9	1.0	-1.8	-3.0	-1.1	-2.3	0.0	0.0	-1.5	-1.7

Frm Line	Col Line	Seis Left Vert	Seis Right Vert	-MIN_SNOW-- Horiz	E1UNB_SL_L- Vert	E1UNB_SL_R- Vert
1	A	0.0	0.1	0.0	2.7	0.0
1	C	0.0	-0.1	0.0	5.4	0.0
1	E	-0.1	0.0	0.0	4.7	0.0
1	G	0.0	0.0	0.0	4.3	0.0
1	H	0.1	0.0	0.0	1.4	0.0

Frm Line	Col Line	Dead Vert	Collat Vert	Live Vert	Snow Vert	Wind_Left1 Horiz	Wind_Right1 Horiz	Wind_Left2 Horiz	Wind_Right2 Horiz	Wind Press Horiz
6	H	0.9	0.6	2.9	1.6	0.0	-5.4	0.0	-3.6	0.0
6	F	1.7	1.7	6.1	3.5	-3.2	-16.1	0.0	-1.3	-3.2
6	D	1.5	1.3	4.9	2.8	0.0	-1.2	3.2	-11.4	0.0
6	B	1.7	1.7	6.1	3.5	0.0	-6.7	0.0	-11.3	0.0
6	A	0.9	0.6	2.9	1.6	0.0	-3.6	0.0	-5.4	0.0

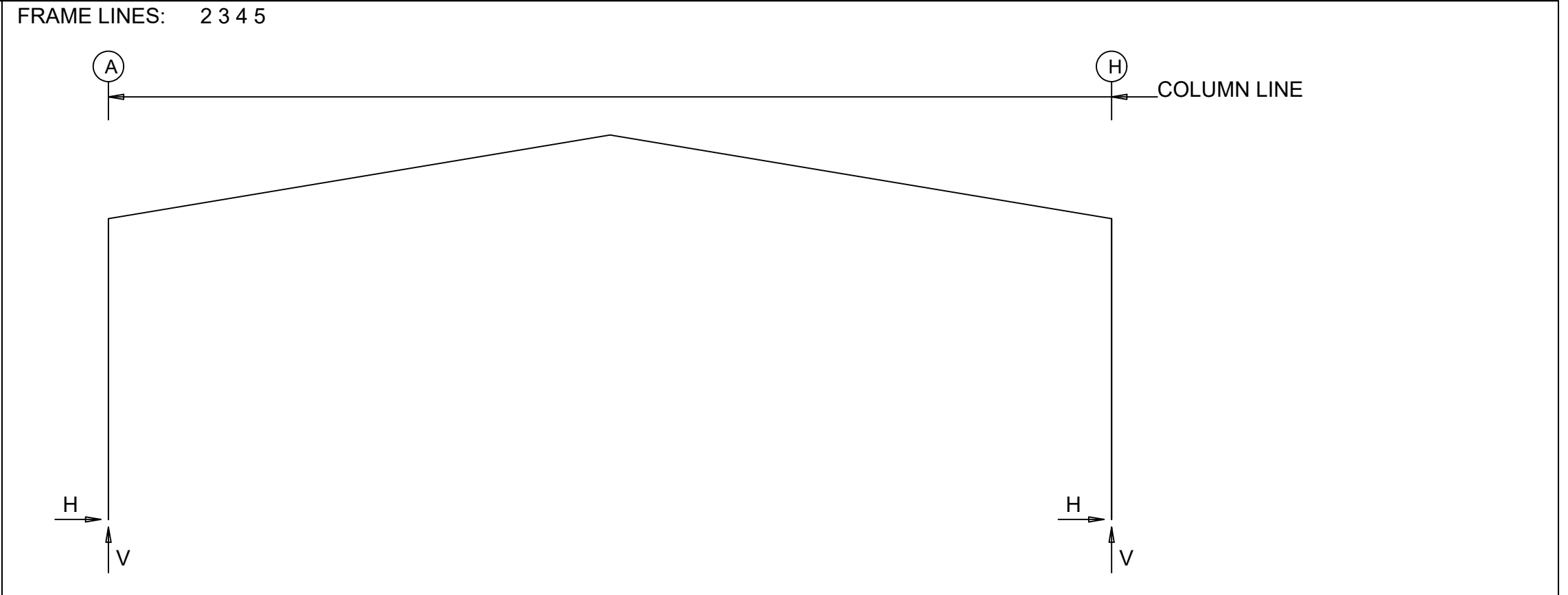
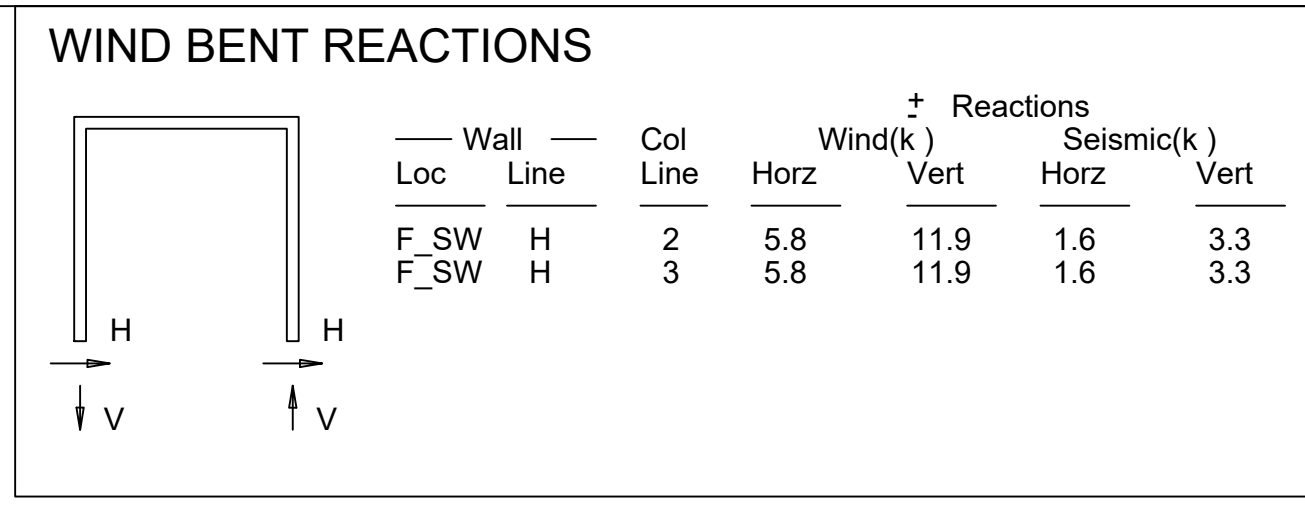
Frm Line	Col Line	Wind Suct Horiz	Wind_Long1 Horiz	Wind_Long2 Horiz	Seis_Left Vert	Seis_Right Vert	-MIN_SNOW-- Horiz	E2UNB_SL_L- Horiz	E2UNB_SL_R- Horiz
6	H	0.0	0.0	-4.7	0.0	-2.9	0.0	0.0	0.0
6	F	6.8	0.0	-9.2	-1.4	-8.3	-0.7	-1.1	0.0
6	D	7.4	1.4	-7.5	0.0	-3.1	0.0	1.1	0.8
6	B	6.8	0.0	-6.2	0.0	-11.5	0.0	0.0	0.0
6	A	0.0	0.0	-2.9	0.0	-4.7	0.0	0.0	0.0

Frm Line	Col Line	E2PAT_SL_R- Horiz	E2PAT_LL_1- Horiz	E2PAT_LL_2- Horiz	E2PAT_LL_3- Horiz	E2PAT_LL_4- Horiz	E2PAT_LL_5- Horiz
6	H	0.0	0.5	0.0	2.3	0.0	-0.2
6	F	0.0	0.7	0.0	6.5	0.0	2.4
6	D	0.0	3.5	0.0	2.4	0.0	6.1
6	B	0.0	4.2	0.0	-0.3	0.0	2.4
6	A	0.0	1.5	0.0	0.0	-0.2	0.0

**ENDWALL COLUMN: MAXIMUM REACTIONS**

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin
1	A	2	0.0	-2.9	2	0.0	-2.9
1	C	6	4.6	-6.4	7	-4.2	-6.3
1	E	8	5.0	-4.9	9	-4.5	-4.4
1	G	10	3.4	-5.2	9	-3.0	-5.2
1	H	3	0.0	-1.4	3	0.0	-1.4
6	H	2	0.0	-2.7	2	0.0	-2.7
6	F	6	4.1	-8.7	7	-3.7	-4.5
6	D	8	4.5	-6.0	7	-4.0	-3.6
6	B	10	4.1	-5.9	8	-3.7	-5.9
6	A	3	0.0	-2.7	3	0.0	-2.7



**RIGID FRAME: MAXIMUM REACTIONS**

Frm Line	Col Line	Load Id	Hmax H	V Vmax	Load Id	Hmin H	V Vmin
2*	A	5	12.8	24.6	2	-8.4	-12.3
2*	H	3	8.4	-12.3	5	-12.8	24.6

2\* Frame lines: 2 3 4 5

**RIGID FRAME: BASIC COLUMN REACTIONS (k)**

Frame Line	Column Line	Dead Horiz	Collateral- Horiz	Live Horiz	Snow Horiz	Wind_Left1 Horiz	Wind_Right1 Horiz
2*	A	2.1	4.6	2.7	4.9	6.3	12.5
2*	H	-2.1	4.6	-2.7	4.9	-6.3	12.5

Frame Line	Column Line	Wind_Left2 Horiz	Wind_Right2 Horiz	Wind_Long1 Horiz	Wind_Long2 Horiz	Seismic_Left Horiz	Seismic_Right Horiz
2*	A	-14.0	-15.6	-0.2	-5.8	-4.1	-31.0
2*	H	0.2	-5.8	14.0	-15.6	5.5	-16.9

Frame Line	Column Line	Seismic_Long Horiz	-MIN_SNOW-- Horiz	F1UNB_SL_L- Horiz	F1UNB_SL_R- Horiz
2*	A	0.0	-3.0	8.0	15.1
2*	H	0.0	0.0	-8.0	15.1

2\* Frame lines: 2 3 4 5

- CONTROLLING LOAD CASES**
- 1 Dead+Collateral+Live
  - 2 0.6Dead+0.6Wind\_Left1
  - 3 0.6Dead+0.6Wind\_Right1
  - 4 0.6Dead+0.6Wind\_Long1L
  - 5 Dead+Collateral+MIN\_SNOW
  - 6 0.6Dead+0.6Wind\_Left1+0.6Wind\_Suction
  - 7 0.6Dead+0.6Wind\_Pressure+0.6Wind\_Long1L
  - 8 0.6Dead+0.6Wind\_Right1+0.6Wind\_Suction
  - 9 0.6Dead+0.6Wind\_Pressure+0.6Wind\_Long2L
  - 10 0.6Dead+0.6Wind\_Suction+0.6Wind\_Long2L
  - 11 Dead+Collateral+E2PAT\_LL\_1
  - 12 Dead+Collateral+E2PAT\_LL\_2
  - 13 Dead+Collateral+E2PAT\_LL\_3

**BUILDING BRACING REACTIONS**

Wall Loc	Col Line	Wind Horiz	Wind Vert	Seismic Horiz	Seismic Vert	Panel Shear (lb/ft) Wind	Panel Shear (lb/ft) Seis	Note
L_EW	1							(i)
F_SW	H	2,3						(a)
R_EW	6	F,D	3.2	4.8	0.8	1.1		
B_SW	A	4,3	11.6	10.8	3.2	3.0		

(a) Wind bent in bay  
(i) Bracing in roof to rigid frame

Building Code	North Carolina Building Code 2018
IBC Risk Category	II - Standard Buildings
Roof Live Load	20 psf
Tributary Area Reduction Allowed	Yes
Collateral Load	5 psf
Ground Snow Load (Pg)	15 psf
Exposure Factor (Ce)	1.0
Thermal Factor (Ct)	1.0
Importance Factor (I)	1.00
Flat Roof Snow Load (Pf)	10.50 psf
Minimum Roof Snow Load (Pm)	15 psf - Not used with drift, sliding, unbalanced, or partial loads.
Drift Surcharge Load, Pd and Snow Drift	None
Width, w	
Building Enclosure	Closed
Ultimate Design Wind Speed (Vult)	116 mph (GCpi ± 0.18)
Nominal Design Wind Speed (Vasd)	90 mph
Exposure Category	C
Wind Pressure (q)	27.3 psf
Seismic	
Spectral Response Short Periods (Ss)	17.00%
Spectral Response 1 s Period (S1)	8.20%
Seismic Importance Factor	1
Seismic Design Category	B
Site Class	D
Seismic Resisting System	
Longitudinal Direction	Steel System (R=3.00)
Lateral Direction	Steel System (R=3.00)
Seismic Response Coefficient (Cs)	0.060
Spectral Response Parameter Short Period (SDS)	0.181
Spectral Response Parameter 1 s Period (SD1)	0.131
Analysis Procedure:	ELF
Base Shear	6.46 kips
Other Loads:	None

**REVISIONS**

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05 20 21



Drawing	ANCHOR ROD			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
CHIEF BUILDINGS	DRAWN	CHECK	ORDER NO.	A3
	DAR	ME	B3020492	
	5/19/21	5/20/21		

**TO BE USED FOR CONSTRUCTION**

**INDEPENDENT MEZZANINE**

**Mezzanine loading information:**

The building provided by Chief Buildings does not include structural support for the mezzanine, which is furnished by others.

Chief Buildings neither assumes nor accepts any responsibility for the design of the mezzanine. The mezzanine must be designed to resist all vertical and lateral loads without relying on the building provided by Chief Buildings for any support. It is the responsibility of the Buyer/Contractor and/or End Owner to have the mezzanine design performed by a registered design professional.

**FINAL DESIGN DRAWINGS  
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**REVISIONS**

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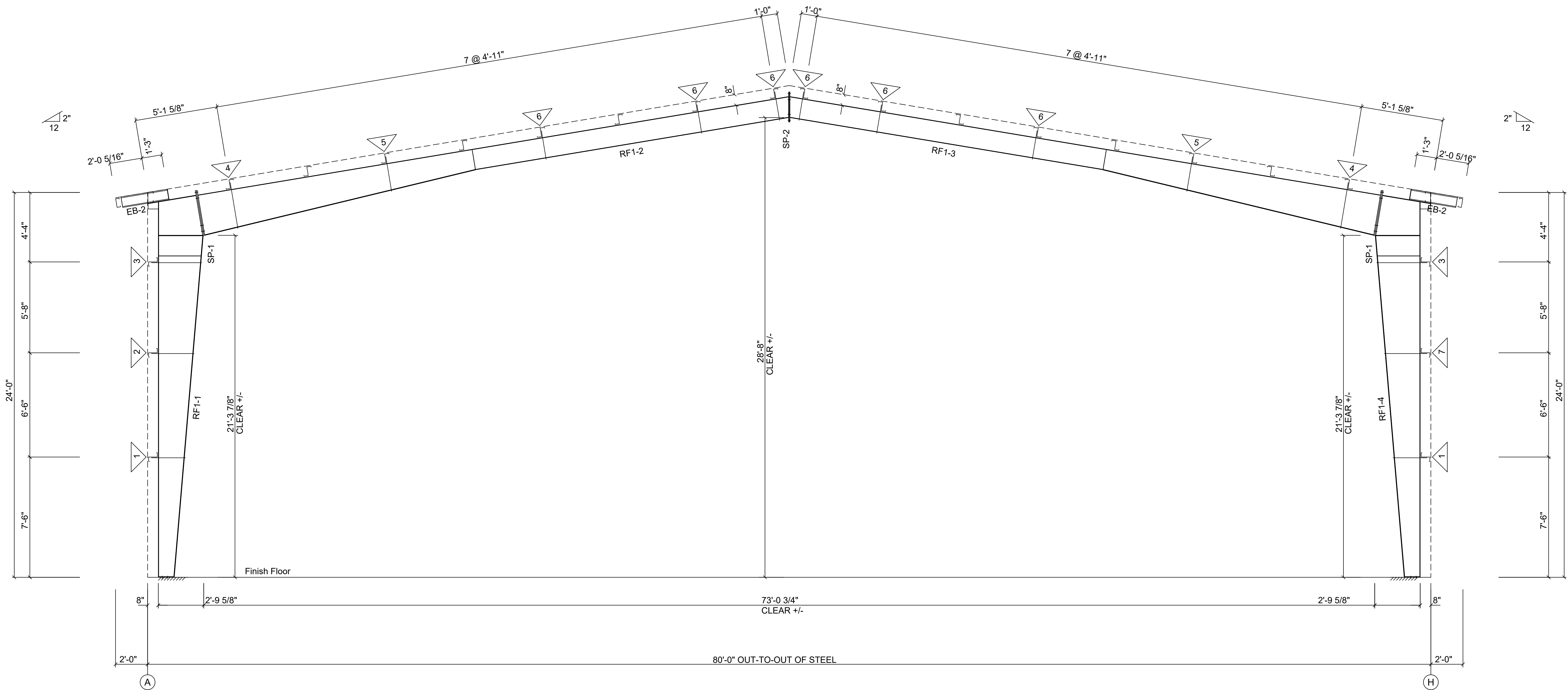
05 20 21

Drawing	PROJECT NOTES			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	N1
	DAR	xxx	B3020492	N1
	5/19/21	xx/xx/xx		



SPLICE BOLT TABLE						
Mark	Qty Top	Qty Bot	Int	Type	Dia	Length
SP-1	4	4	0	A325	1"	3 1/4"
SP-2	4	4	0	A325	5/8"	2"

FLANGE BRACE TABLE					
FRAME LINE 2 3 4 5					
▽ ID	#	MARK	BRACE DIST.	DETAIL	CLIP
1	1	FB4	2'-0"	1-4	XSST1
2	1	FB6	2'-0"	1-4	XSST1
3	1	FB9	3'-0"	1-8	XFBP8
4	1	FB7	2'-0"	1-4	XSST1
5	1	FB5	2'-0"	1-4	XSST1
6	1	FB3	1'-0"	1-4	XSST1
7	1	FB8	3'-0"	1-8	XFBP8



RIGID FRAME ELEVATION: FRAME LINE 2 3 4 5

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REFERENCE NOTES:

- Snug Tight:** Snug Tightened Joints are used. See General Information Snug Tight Sheet for bolt tightening information.
- Storage:** Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.
- Bolt and Nut Specifications:** Bolts are high strength bolts conforming to ASTM F3125 Grade A325 or Grade A490. Nuts are high strength nuts conforming to ASTM A194 Grade 2 or 2H or ASTM A563 Grade C, D, or DH nut specifications. Substitution of mild steel bolts or nuts is not allowed and any field substitution will void the design warranty.
- Eave Height:** Eave height dimension is not always to the top of the eave strut. Due to thermal block situations, eave height dimension and top girt space dimension may be to the intersection of the top of the purlins. Refer to the eave details for more information.

REVISIONS	
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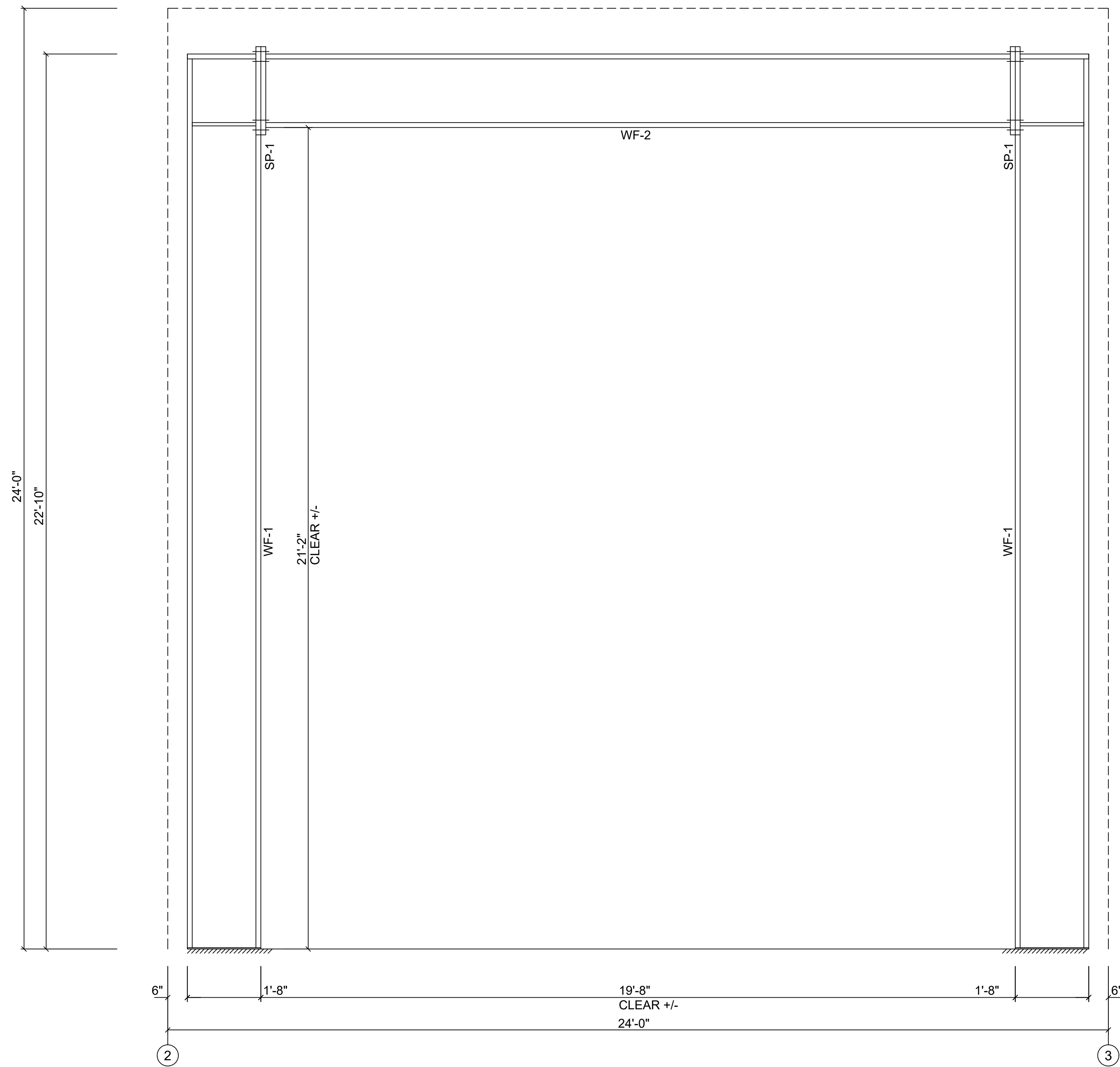
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05 20 21

Drawing	CROSS SECTION			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	CS1
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		

SPLICE BOLTS					
Splice Mark	Quan		----Bolt----		
	Top/	Bot	Type	Dia	Length
SP- 1	4	4	A325	5/8"	2"



PORTAL FRAME: FRAME LINE H

FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY

REFERENCE NOTES:

- Snug Tight:** Snug Tightened Joints are used. See General Information Snug Tight Sheet for bolt tightening information.
- Storage:** Fastener components shall be protected from dirt and moisture in closed containers at the site of installation. Only as many fastener components as are anticipated to be installed during the work shift shall be taken from protected storage. Fastener components that are not incorporated into the work shall be returned to protected storage at the end of the work shift.
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REVISIONS	
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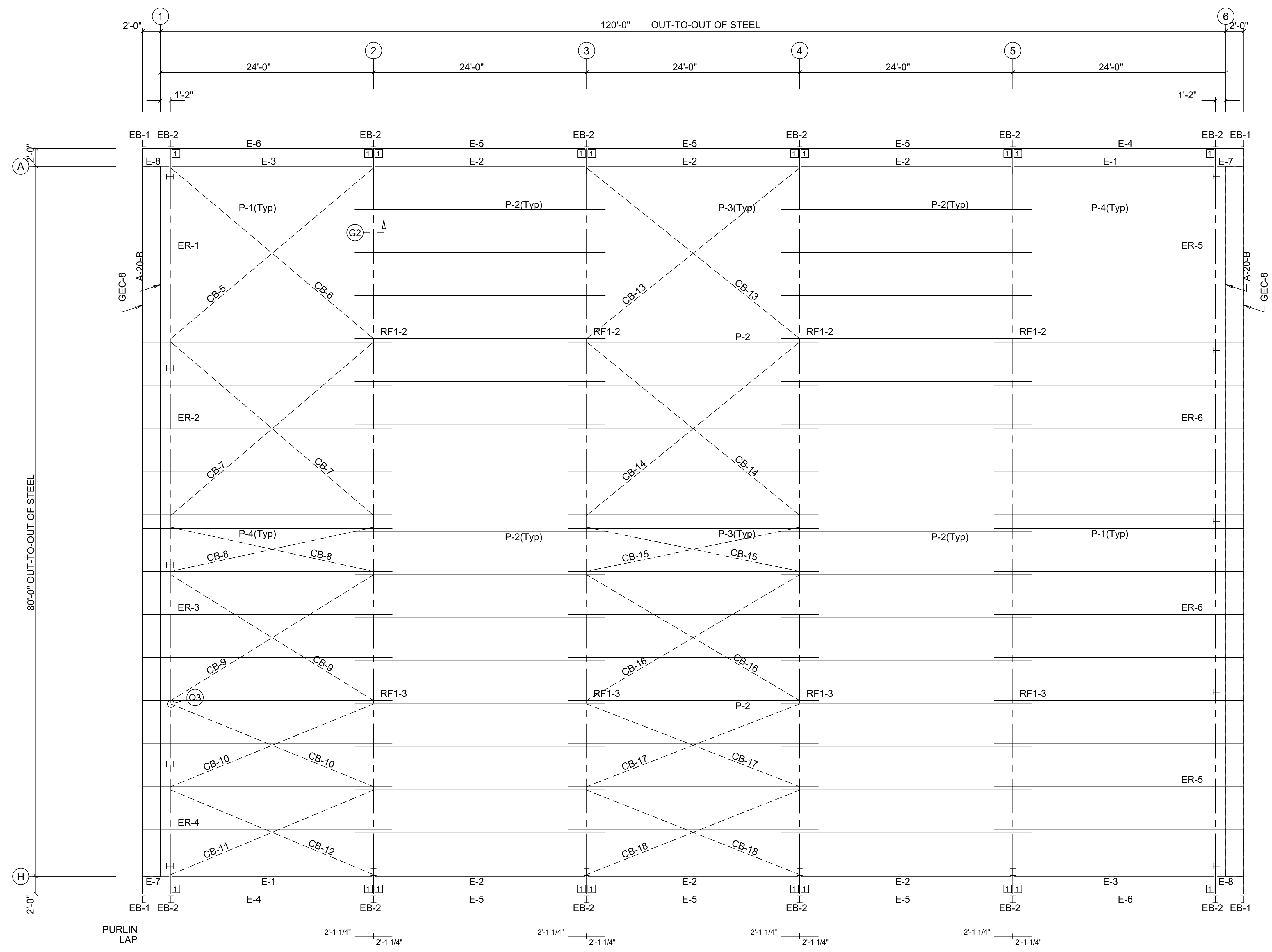
05 20 21

Drawing	CROSS SECTION			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
<b>CHIEF BUILDINGS</b>	DRAWN	CHECK	ORDER NO.	CS2
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		
				CS2

EXTENSION/CANOPY BOLTS				
ROOF PLAN				
MARK	QUAN	TYPE	DIA	LENGTH
EB-2	4	A325	3/4"	2"

CONNECTION PLATES		
ROOF PLAN		
ID	QUAN	MARK/PART
1	20	XBC33



FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY

ROOF FRAMING PLAN

PURLIN DEPTH: 8.00

- REFERENCE NOTES
- All purlins attach to framing using "STD" attachment unless noted. Refer to DETAILS GUIDE, Section 4 for bolt locations.
  - "T" = TOP SAG ANGLE.  
"B" = BOTTOM SAG ANGLE.

REVISIONS	
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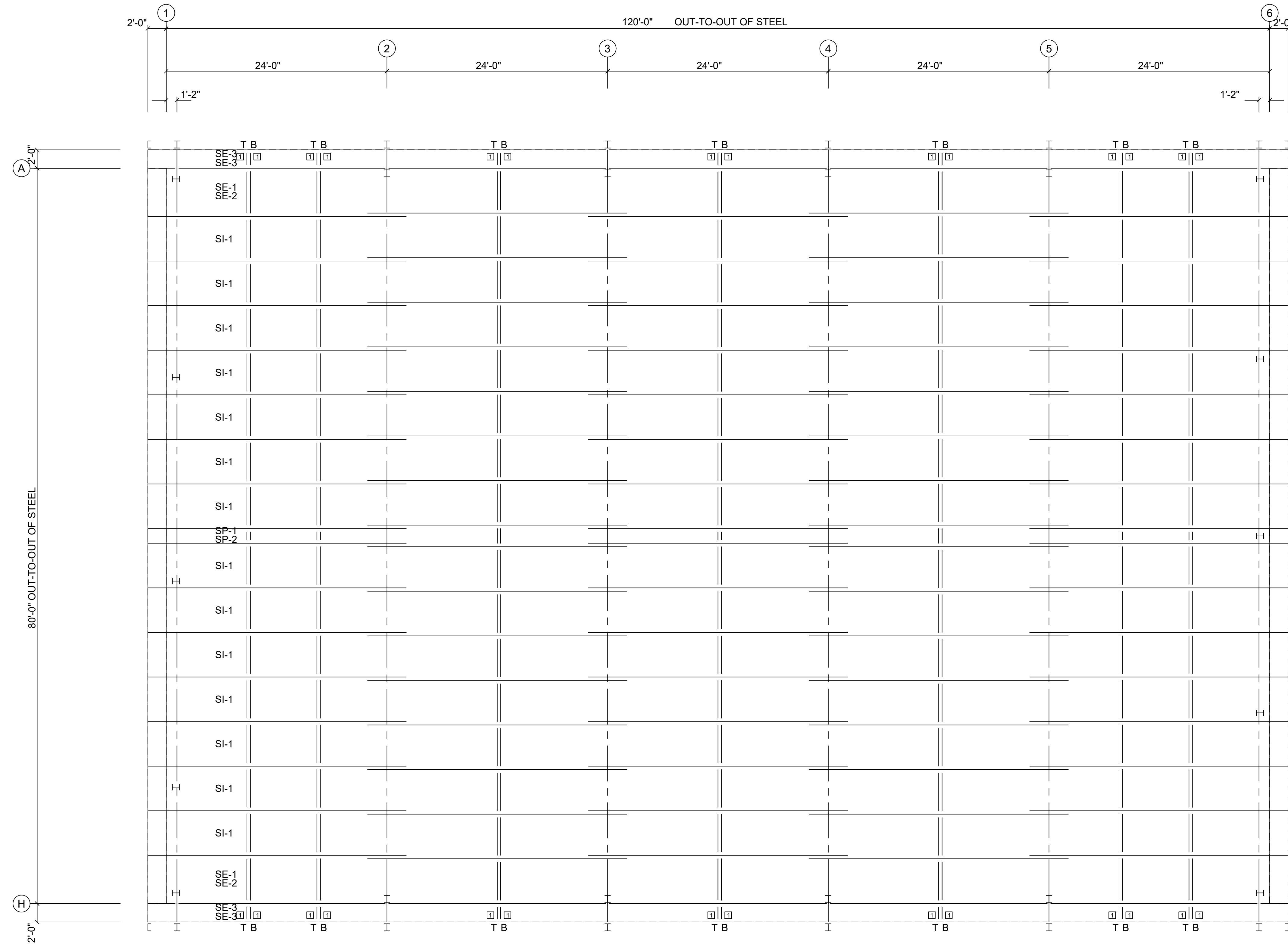


05 20 21

Drawing	ROOF FRAMING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	RF1
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		
				RF2



CONNECTION PLATES		
ID	QUAN	MARK/PART
1	-	XBC1



FINAL DESIGN DRAWINGS  
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ROOF FRAMING PLAN

PURLIN DEPTH: 8.00

- REFERENCE NOTES
- All purlins attach to framing using "STD" attachment unless noted. Refer to DETAILS GUIDE, Section 4 for bolt locations.
  - "T" = TOP SAG ANGLE.  
"B" = BOTTOM SAG ANGLE.

REVISIONS	
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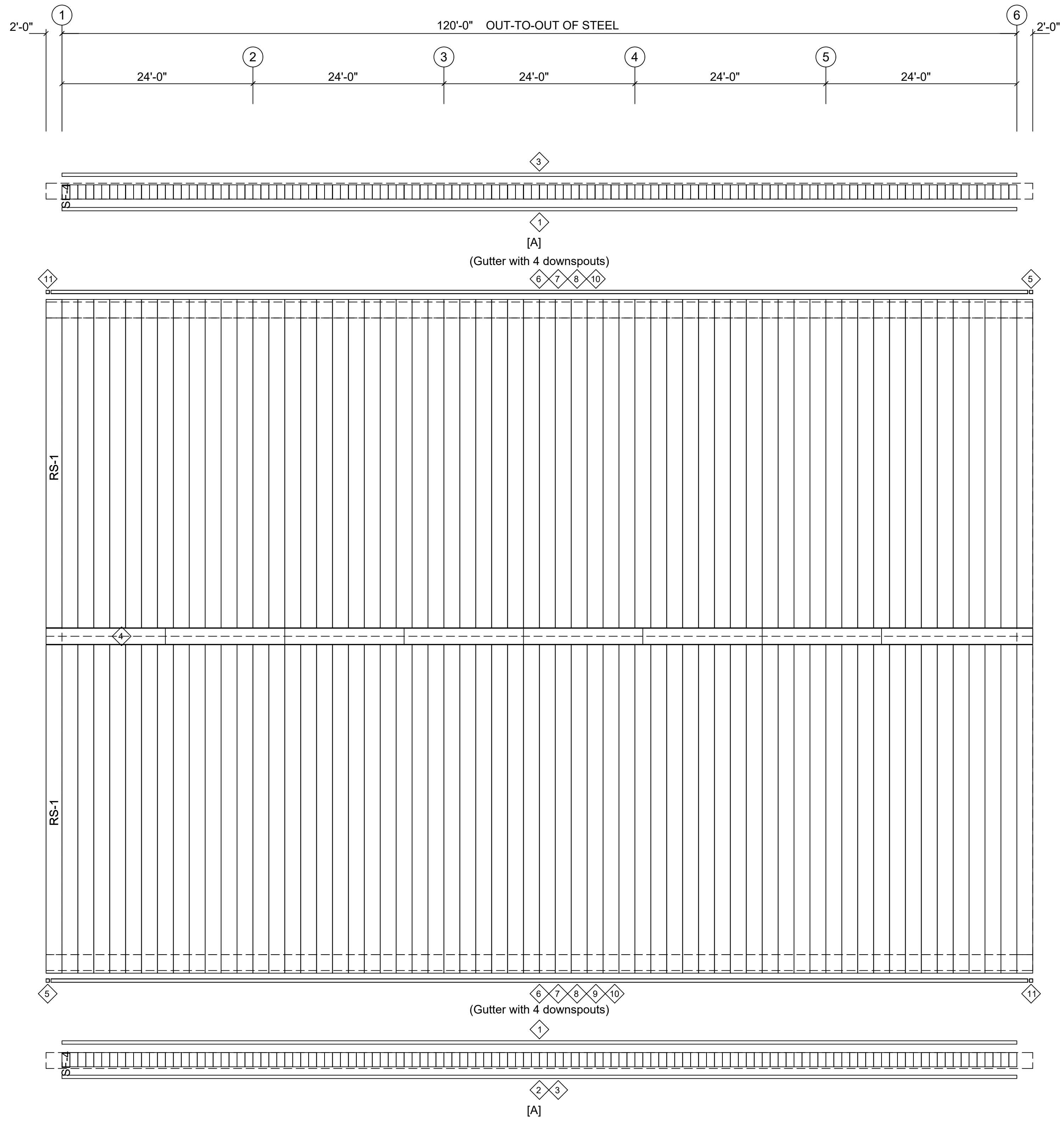
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Drawing	ROOF FRAMING		
Buyer	Powermaster Electric, Inc		
Customer	PowerMaster Electric Fuquay-Varina, NC 27526		
Project Name	New Office/Warehouse		
	DRAWN	CHECK	ORDER NO.
	DAR	xxx	B3020492
	5/19/21	xx/xx/xx	
			RF2



TRIM TABLE ROOF PLAN				
ID	QUAN.	PART	COLOR	LENGTH
1	20	SBLTO6	RB	146"
2	5	EF6B	RB	146"
3	12	EF6A	RB	206"
4	8	RCL26A	GM	201"
5	2	ECLM26	RB	9"
6	2	EGLM26C	RB	74"
7	14	EGLM26A	RB	206"
8	124	GSMA	GM	12 13/16"
9	1	EEFA6B	RB	146"
10	14	EEFA6A	RB	206"
11	2	ECRM26	RB	9"
12	4	JTS6B	RB	74"
13	12	JTS6A	RB	146"
14	12	SCT6A	PA	206"

PANEL TABLE ROOF PLAN		
QUAN	MARK	LENGTH
126	RS-1	511"
240	SF-4	21 1/2"

FINAL DESIGN DRAWINGS  
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**ROOF PANEL PLAN**

PANELS: 24 Ga. MSC - Galvalume  
[A] SOFFIT PANELS: 24 Ga. FSP - Royale Blue

REVISIONS	
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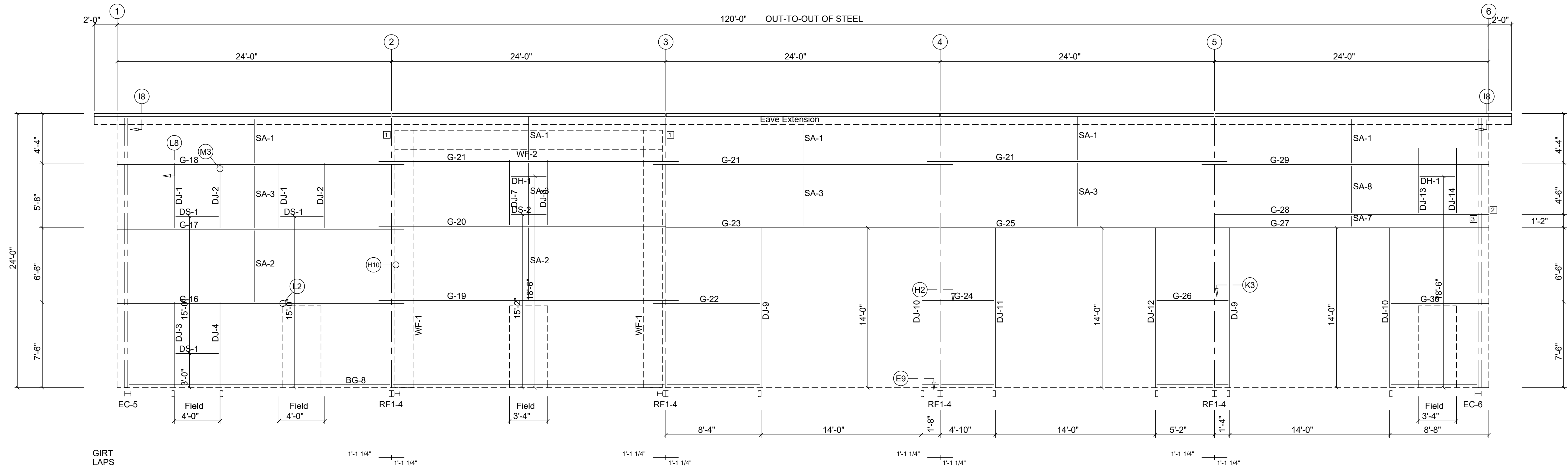
05 20 21

Drawing	ROOF PANEL			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	RP1
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		

Reference Note:  
Roof Panel system is based on the following

- 1) MSC High system (Clip offset = 1 3/8" ; Bottom of roof panel to top of purlin)
- 2) A clip MUST be installed on ALL purlins unless noted otherwise.
- 3) (2) 1/4-14 x 1" fasteners per clip unless otherwise noted.
- 4) 1" Thermal Spacers

CONNECTION PLATES		
FRAME LINE H		
ID	QUAN	MARK/PART
1	2	XPF2
2	1	XGA24
3	1	XBC87



SIDEWALL FRAMING: FRAME LINE H

FINAL DESIGN DRAWINGS  
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GIRT DEPTH: 8.00

REVISIONS	
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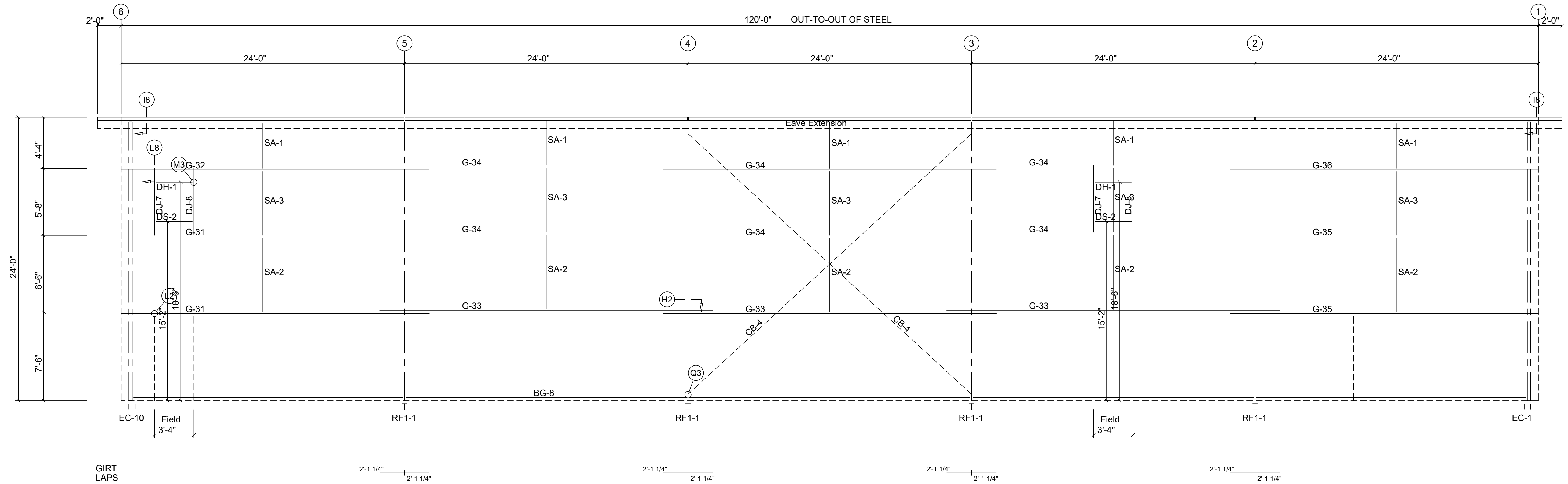
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Drawing	SIDEWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	S1
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		
				S4



SIDEWALL FRAMING: FRAME LINE A

FINAL DESIGN DRAWINGS  
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GIRT DEPTH: 8.00

REVISIONS	
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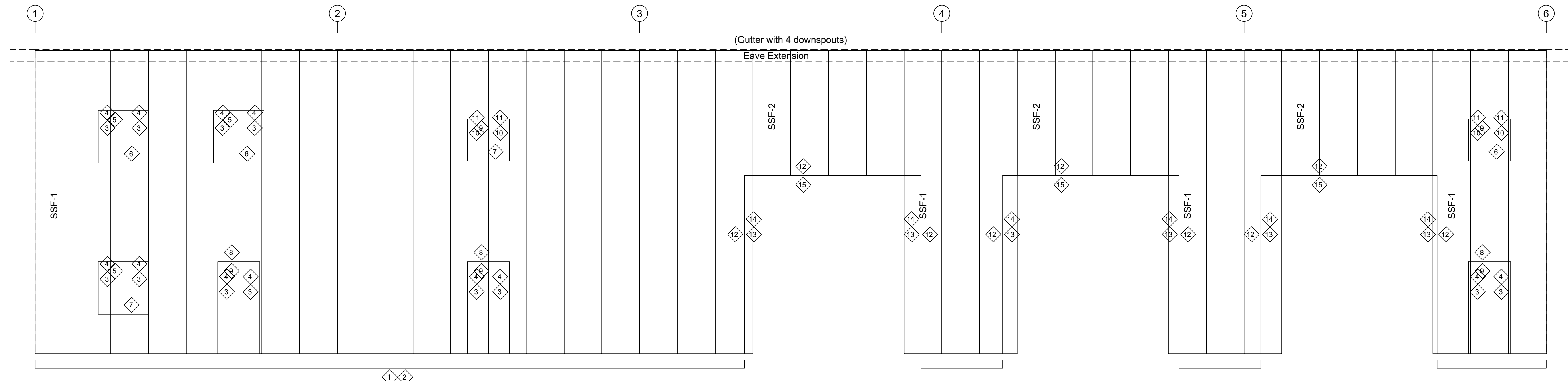


05 20 21

Drawing	SIDEWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	S2 S4
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		

TRIM TABLE				
LINE: H				
ID	QUAN.	MARK	COLOR	LENGTH
1	4	BTN6B	RB	146"
2	3	BTN6A	RB	206"
3	12	JT6C	RB	90"
4	12	COT6C	RB	90"
5	3	HT6C	RB	90"
6		WFS6B	RB	SCRAP
7	2	WFS6B	RB	146"
8	3	WL86B	CG	42"
9	5	HT6D	RB	52"
10		JT6C	RB	SCRAP
11		COT6C	RB	SCRAP
12	9	DT86A	RB	206"
13	6	JT6A	RB	206"
14	6	COT6A	RB	206"
15	3	HT6A	RB	206"

PANEL TABLE		
FRAME LINE H		
QUAN	MARK	LENGTH
28	SSF-1	288 1/2"
12	SSF-2	119"



**SIDEWALL PANEL & TRIM: FRAME LINE H**  
PANELS: 26 Ga. CS - Parchment

**FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY**

NOTE: Building " 0 ", Column Line " 0 "  
(STANDARD GUTTER) (SINGLE DOWNSPOUT DROP)  
( 0 ) Downspout drops provided for this wall  
Each drop consists of:  
(0) 12'-0" Downspout(s) (0) "A" Elbow(s)

**GENERAL NOTES:**  
1. For opening trim, Refer to General Details Manual.

REVISIONS	
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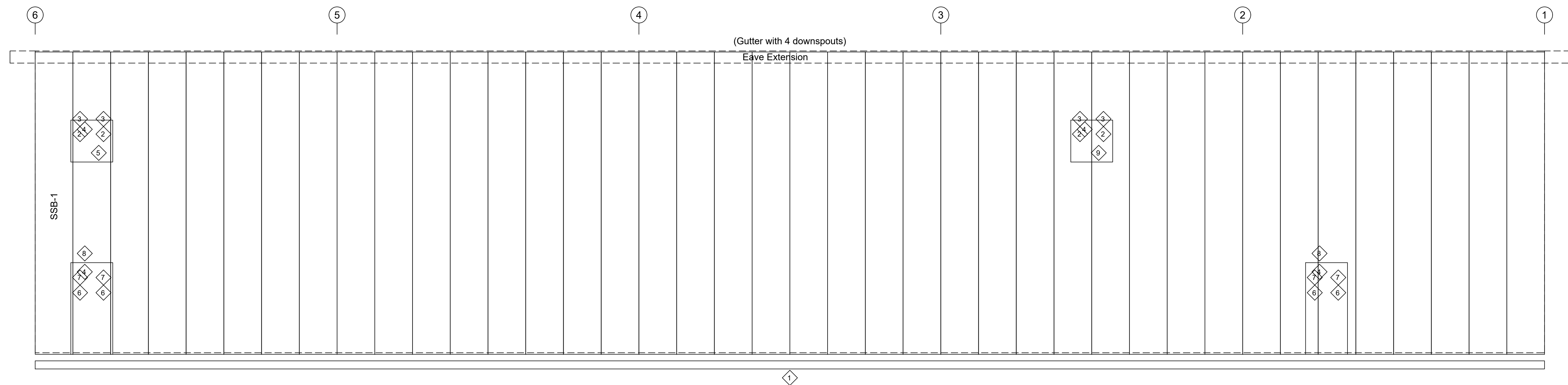


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Drawing	SIDEWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
<b>CHIEF BUILDINGS</b>	DRAWN	CHECK	ORDER NO.	S3 S4
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		

TRIM TABLE				
LINE: A				
ID	QUAN.	MARK	COLOR	LENGTH
1	7	BTN6A	RB	206"
2		JT6C	RB	SCRAP
3		COT6C	RB	SCRAP
4	4	HT6D	RB	52"
5		WFS6B	RB	SCRAP
6	4	JT6C	RB	90"
7	4	COT6C	RB	90"
8	2	WL86B	CG	42"
9	1	WFS6B	RB	146"

PANEL TABLE		
FRAME LINE A		
QUAN	MARK	LENGTH
40	SSB-1	288 1/2"



**SIDEWALL PANEL & TRIM: FRAME LINE A**

PANELS: 26 Ga. CS - Parchment

**FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY**

NOTE: Building " 0 ", Column Line " 0 "  
(STANDARD GUTTER) (SINGLE DOWNSPOUT DROP)  
( 0 ) Downspout drops provided for this wall  
Each drop consists of:  
(0) 12'-0" Downspout(s) (0) "A" Elbow(s)

**GENERAL NOTES:**  
1. For opening trim, Refer to General Details Manual.

REVISIONS	
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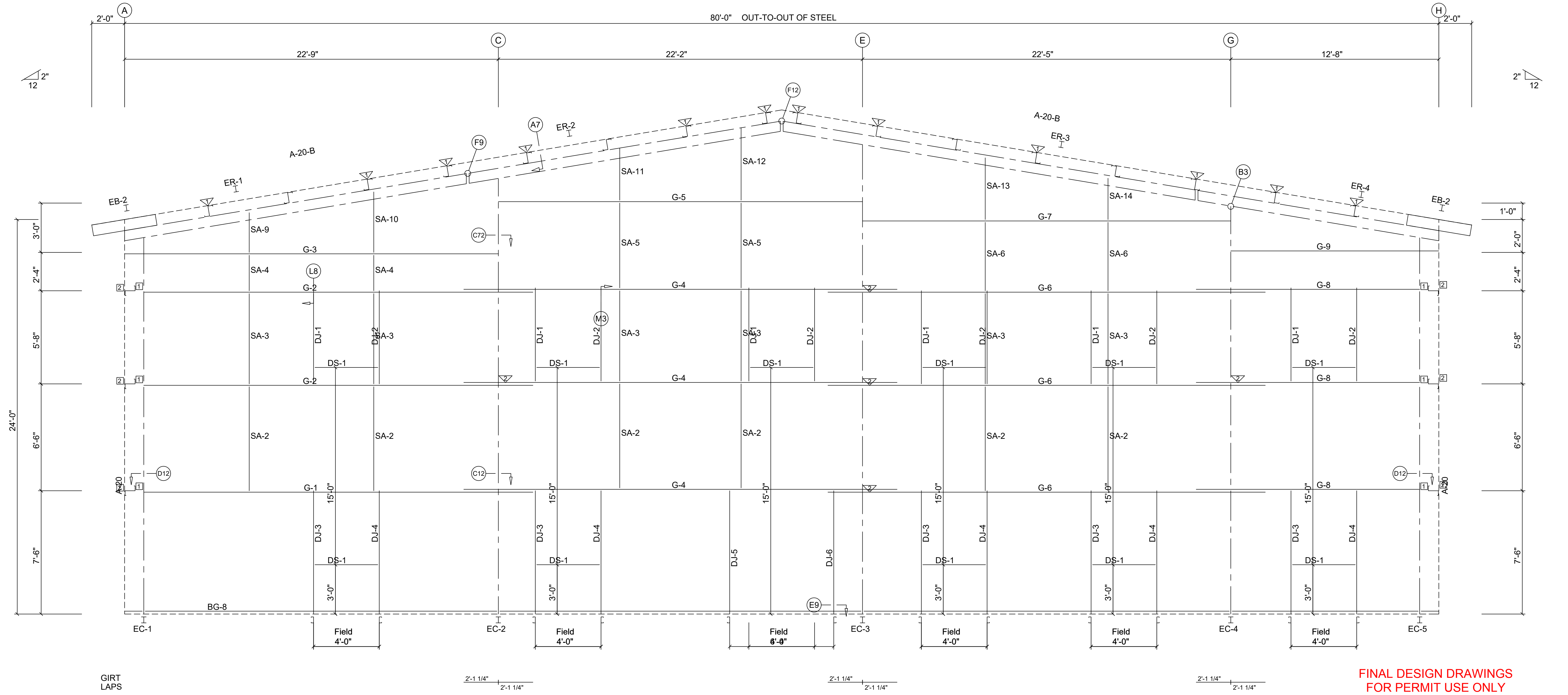
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Drawing	SIDEWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
<b>CHIEF BUILDINGS</b>	DRAWN	CHECK	ORDER NO.	S4
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		

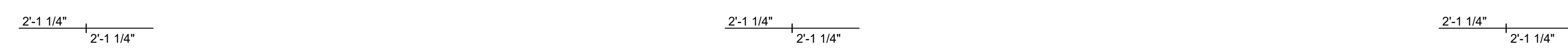
CONNECTION PLATES FRAME LINE 1			
ID	QUAN	MARK	PART
1	6	XBC38	
2	6	XGA24	

FLANGE BRACE TABLE FRAME LINE 1						
▽ ID	#	MARK	BRACE DIST.	DETAIL	CLIP	PART
1	1	FB1	1'-0"	1-4	XSST1	L15151/8
2	1	FB2	1'-0"	1-4	XSST1	L15151/8

BOLT TABLE FRAME LINE 1				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-1/ER-2	8	A325	5/8"	2"
ER-2/ER-3	8	A325	5/8"	2"
ER-3/ER-4	8	A325	5/8"	2"
Columns/Raf	4	A325	1/2"	1 1/4"



GIRT LAPS



ENDWALL FRAMING: FRAME LINE 1

FINAL DESIGN DRAWINGS FOR PERMIT USE ONLY

GIRT DEPTH: 8.00

REVISIONS	
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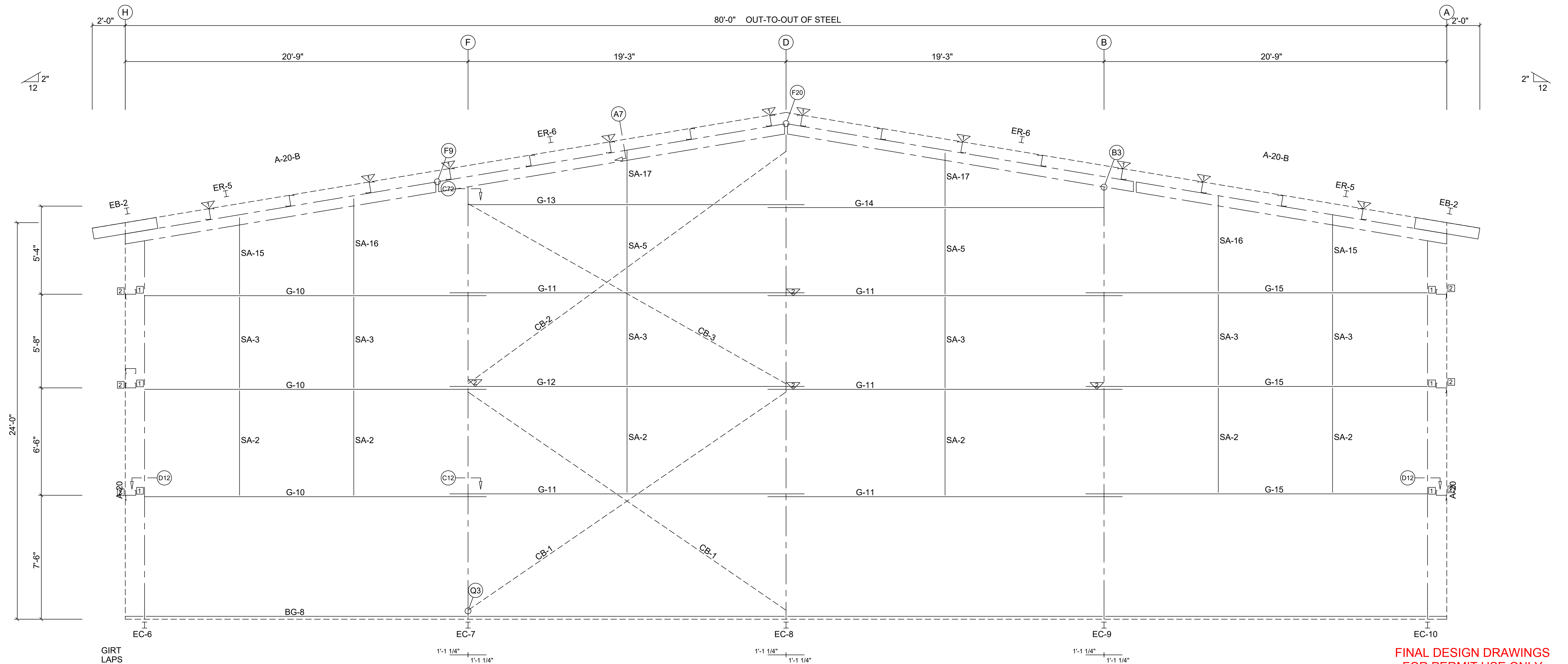
05 20 21

Drawing	ENDWALL DRAWING		
Buyer	Powermaster Electric, Inc		
Customer	PowerMaster Electric Fuquay-Varina, NC 27526		
Project Name	New Office/Warehouse		
	DRAWN	CHECK	ORDER NO.
	DAR	xxx	B3020492
	5/19/21	xx/xx/xx	
	E1		
	E4		

CONNECTION PLATES FRAME LINE 6		
ID	QUAN	MARK/PART
1	6	XBC38
2	6	XGA24

FLANGE BRACE TABLE FRAME LINE 6						
▽ ID	#	MARK	BRACE DIST.	DETAIL	CLIP	PART
1	1	FB1	1'-0"	1-4	XSST1	L15151/8
2	1	FB2	1'-0"	1-4	XSST1	L15151/8

BOLT TABLE FRAME LINE 6				
LOCATION	QUAN	TYPE	DIA	LENGTH
ER-5/ER-6	8	A325	5/8"	2"
ER-6/ER-6	6	A325	5/8"	2"
Columns/Raf	4	A325	1/2"	1 1/4"



ENDWALL FRAMING: FRAME LINE 6

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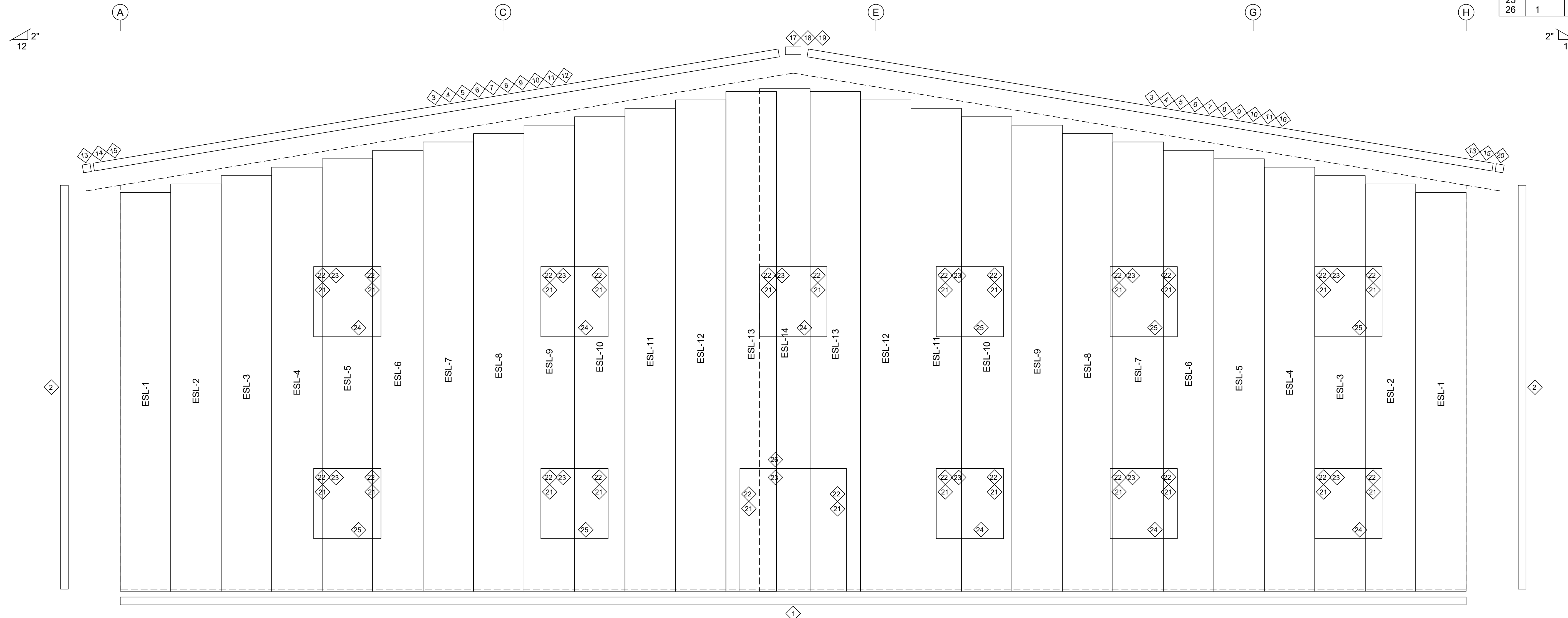
05 20 21

Drawing	ENDWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	E2
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		
				E4



PANEL TABLE FRAME LINE 1		
QUAN	MARK	LENGTH
2	ESL-1	284 3/8"
2	ESL-2	290 3/8"
2	ESL-3	296 3/8"
2	ESL-4	302 3/8"
2	ESL-5	308 3/8"
2	ESL-6	314 3/8"
2	ESL-7	320 3/8"
2	ESL-8	326 3/8"
2	ESL-9	332 3/8"
2	ESL-10	338 3/8"
2	ESL-11	344 3/8"
2	ESL-12	350 3/8"
2	ESL-13	356 3/8"
1	ESL-14	358 3/8"

TRIM TABLE LINE: 1				
QID	QUAN.	MARK	COLOR	LENGTH
1	5	BTN6A	RB	206"
2	4	CT6B	PA	146"
3	2	GTM6B	RB	146"
4	4	GTM6A	RB	206"
5	2	GET6B	RB	146"
6	4	GET6A	RB	206"
7	10	GTS6A	PA	30"
8	2	EF6B	RB	146"
9	4	EF6A	RB	206"
10	2	JTS6B	RB	74"
11	6	JTS6A	RB	146"
12	3	SCT6A	PA	206"
13	2	GCTM6	RB	13"
14	1	TPLM6	RB	11"
15	4	GTS6A	PA	30"
16	2	SCT6A	PA	206"
17	1	GRTM6	RB	22 1/2"
18	1	GRTSM4A	GM	13 5/8"
19	2	JTS6B	RB	74"
20	1	TPRM6	RB	11"
21	24	JT6C	RB	90"
22	24	COT6C	RB	90"
23	12	HT6C	RB	90"
24	6	WFS6B	RB	146"
25		WFS6B	RB	SCRAP
26	1	WL86A	CG	90"



ENDWALL PANEL & TRIM: FRAME LINE 1

PANELS: 26 Ga. CS - Parchment

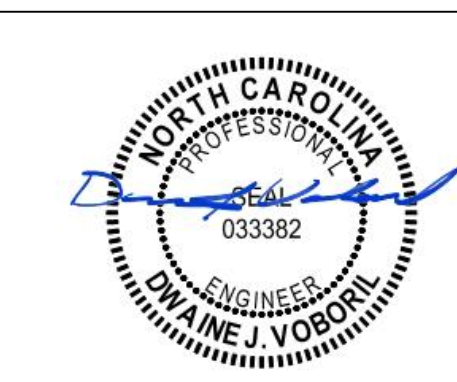
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GENERAL NOTES:  
1. For opening trim, Refer to General Details Manual.

REVISIONS	
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(308) 389-7289 cs@chiefind.com

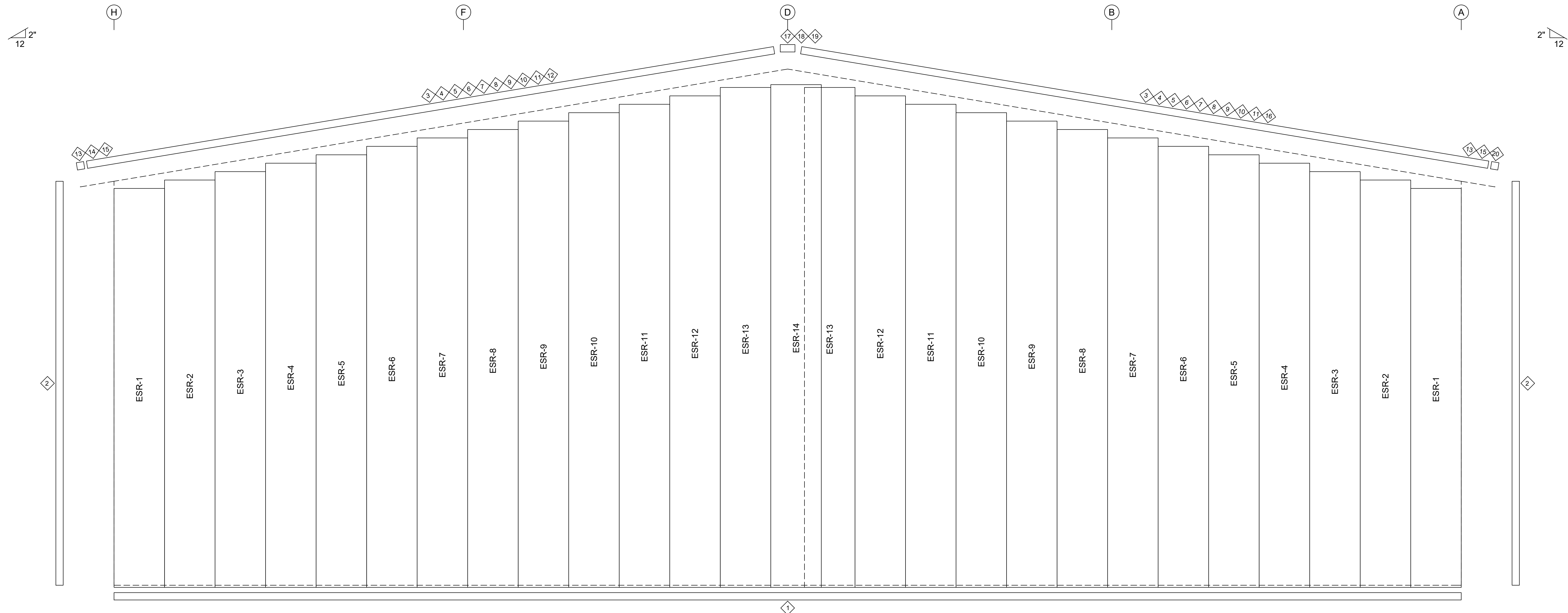


05 20 21

Drawing	ENDWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
	DRAWN	CHECK	ORDER NO.	E3 E4
	DAR	xxx	B3020492	
	5/20/21	xx/xx/xx		

PANEL TABLE FRAME LINE 6		
QUAN	MARK	LENGTH
2	ESR-1	284 3/8"
2	ESR-2	290 3/8"
2	ESR-3	296 3/8"
2	ESR-4	302 3/8"
2	ESR-5	308 3/8"
2	ESR-6	314 3/8"
2	ESR-7	320 3/8"
2	ESR-8	326 3/8"
2	ESR-9	332 3/8"
2	ESR-10	338 3/8"
2	ESR-11	344 3/8"
2	ESR-12	350 3/8"
2	ESR-13	356 3/8"
1	ESR-14	358 3/8"

TRIM TABLE LINE: 6				
QID	QUAN.	MARK	COLOR	LENGTH
1	5	BTN6A	RB	206"
2	4	CT6B	PA	146"
3	2	GTM6B	RB	146"
4	4	GTM6A	RB	206"
5	2	GET6B	RB	146"
6	4	GET6A	RB	206"
7	10	GTS6A	PA	30"
8	2	EF6B	RB	146"
9	4	EF6A	RB	206"
10	2	JTS6B	RB	74"
11	6	JTS6A	RB	146"
12	3	SCT6A	PA	206"
13	2	GCTM6	RB	13"
14	1	TPLM6	RB	11"
15	4	GTS6A	PA	30"
16	2	SCT6A	PA	206"
17	1	GRTM6	RB	22 1/2"
18	1	GRTSM4A	GM	13 5/8"
19	2	JTS6B	RB	74"
20	1	TPRM6	RB	11"



**ENDWALL PANEL & TRIM: FRAME LINE 6**  
PANELS: 26 Ga. CS - Parchment

**FINAL DESIGN DRAWINGS  
FOR PERMIT USE ONLY**

**GENERAL NOTES:**  
1. For opening trim, Refer to General Details Manual.

REVISIONS	
4	
3	
2	
1	

Notwithstanding the adjacent seal, neither the Engineer named nor Chief Buildings is acting as The Engineer of Record. The Engineer named and Chief Buildings responsibility is limited to the structural performance of the pre-engineered components designed by Chief Buildings.

Chief Buildings  
PO Box 2078, Grand Island, NE 68802-2078  
(308) 389-7289 cs@chiefind.com



05 20 21

Drawing	ENDWALL DRAWING			
Buyer	Powermaster Electric, Inc			
Customer	PowerMaster Electric Fuquay-Varina, NC 27526			
Project Name	New Office/Warehouse			
<b>CHIEF BUILDINGS</b>	DRAWN	CHECK	ORDER NO.	E4
	DAR	xxx	B3020492	
	5/19/21	xx/xx/xx		
				E4

**DIVISION 15A – PLUMBING**

**1.1 DESCRIPTION OF THE WORK**

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
  1. Plumbing fixtures, water heaters, and any other equipment necessary.
  2. Cold and hot water piping and insulation.
  3. DWV piping.
  4. Connection of all equipment; drain, vent, water.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply.
  1. The National Electrical Code.
  2. 2018 N.C. Building Code: Plumbing, and all applicable category codes.
  3. American Society of Sanitary Engineering Standard 1010.
  4. All local codes and ordinances.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The Plumbing Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.
- E. Obtain all permits, licenses, inspections, etc., required for the work, and pay for the same.

**1.2 INTENT**

- A. The intent of these specifications and accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Plumbing Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.
- B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
- C. Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rims are below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru bld. Notify engineer of backwater valve requirement, any issue prior to bid.

**1.3 COORDINATION**

- A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.
  - B. Locations shown are approximate. The Plumbing Contractor shall refer to the architectural drawings for placement of equipment, fixtures, etc. Where locations are not clear, the Contractor shall obtain the exact locations from the Architect.
  - C. Coordinate all exterior piping connections w/Architect, site contractor/plans. Verify manhole elevations and provide backwater valves as required if flood level rims are below next upstream manhole cover elevation. Fixtures with flood level rims above upstream manhole shall not discharge thru bld. Notify engineer of backwater valve requirement, any issue prior to bid.
- 1.4 SHOP DRAWINGS**
- A. Shop drawings shall be submitted for plumbing fixtures and for pipe. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.
- PART 2 – PRODUCTS**
- 2.1 FIXTURES**
- A. Each fixture shall be properly supported from the building structure as required to the end effect that all fixtures and accessories will be held rigidly in place. Water pipes supplying the fixtures must also be held rigidly in place.
  - B. Provide loose key angle stops and chrome plated supply pipe water supplies to fixtures.
  - C. All exposed piping traps and accessories for fixtures shall be chrome plated. Provide chrome plated escutcheon plates where pipes enter walls.
  - D. Provide shutoff valves for all sinks, water heaters, toilets, washing machines, refrigerator ice-maker, exterior hose bibbs and all other plumbing fixtures.
  - E. Provide trap primers for all floor drains in areas not served by hose bibbs.

**2.2 PIPING**

- A. Drain waste: All waste piping shall be Schedule 40 PVC-DWV with the following exceptions: Use cast iron piping in all return air plenums and penetrations of rated walls/floors/ceilings. Review Arch. and Mech. drawings. Use ABS or cast iron piping for drainage of fluid temperature greater than 140 deg. F for a minimum distance of 10'-0".
- B. Hot and cold water piping above grade: Type "L" copper w/solder joints (ASTM-B88), hard drawn with wrought copper fittings (ANSI B16.22) PEX piping with copper fittings may be used with owner/tenant approval, and as allowed per code.
- C. Cold water piping below grade: Type "K" copper (ASTM-B8A) soft drawn.
- D. Hangers: Use pipe hangers where required on 8-foot centers with saddles to avoid crushing insulation.
- E. Solder: 95/5. Lead free.
- F. Unions: Provide unions where indicated on drawings, in long runs of piping (except drainage) and at equipment to provide convenient disassembly. Provide dielectric unions when connecting copper tubing to equipment and piping made of ferrous materials.

**2.3 CLEANOUTS**

- A. Hex plugs in rough areas: Recessed plugs with cover plates in exposed locations.
- B. Provide shock arresters as required by codes, manufacturer's recommendations and accepted industry standards for quality construction. Provide for all quick closing valves.

**PART 3 – EXECUTION**

**3.1 CONNECTIONS**

- A. This contract includes complete connection of cold water, hot water, drainage, and vent piping as required. All fittings, valves, accessories, cutoffs, drains, etc., required to complete such connections shall be included.
  - B. The connection to water closets shall be made watertight with gasket and wax ring. Floor flanges shall be caulked into position. Plastic caps shall be provided on the tie down bolts, and shall be secured in place by screwing down on threaded brass washers.
  - C. Where water pipes connect to exposed chrome plated trim, use proper chrome plated escutcheons.
- 3.2 SERVICE ACCESS**
- A. All valves and accessories shall be insulated so that they can be properly serviced. In no case shall the Plumbing Contractor install equipment or other components in situations that do not meet code requirements or manufacturer's requirements. Provide access doors as required to access valves, etc.

**3.3 ROUTING OF PIPING**

- A. Coordinate routing of piping with others, line up work true to or at right angle to adjacent surfaces and in a workmanlike manner. Support all interior piping from building structure by means of hanger or inserts to maintain pitch of lines, to prevent vibration, and to secure piping place.

**B. Space pipe hangers 8'-0" on center for one inch and smaller pipe, 4'-0" on center for 1-1/4 inch and larger pipe. Provide expansion loops as required.**

**C. Pipe hangers for insulated lines shall have suitable saddles to protect insulation.**

**3.4 INSULATION**

- A. All H/W and C/W piping shall be insulated with a min. of 1" inch elastomeric insulation (R=5.5 min.) in unconditioned areas. See NCSCB-Plumbing Sect. 305 for all protection requirements. All H/W piping of circulating systems shall be insulated with 1" insulation per Sect. C404.4 of the NCSCB 2018 Energy Conservation Code.
- B. Provide pre-fabricated insulation kits for all sink and lavatory exposed drain and supply piping.

**3.5 INSPECTIONS AND TESTS**

- A. Before being concealed, all water, soil and vent piping shall be tested to determine if they are water- and air-tight.
- B. Prior to placing into service, entire system shall be tested for leaks in strict accordance with state and local codes.

**3.6 STERILIZATION OF PIPING**

- A. Sterilize the new water piping thoroughly with a solution containing not less than 50 parts per million of available chlorine, using liquid chlorine, or sodium hydrochloride solution, introduced into the system in an approved manner. The sterilizing solution shall remain in the system in an approved manner. The sterilizing solution shall remain in the system for a period of 24 hours. After sterilization, flush the solution from the system with clean water until the residual chlorine content is not greater than 0.2 parts per million, unless otherwise directed.

**3.7 SERVICE PRESSURE**

- A. Provide approved water-pressure reducing valve (PRV) if service pressure exceeds 80 psi to reduce pressure to 80 psi static or less and as required per NCSCB-Plumbing Sect. 604.8.

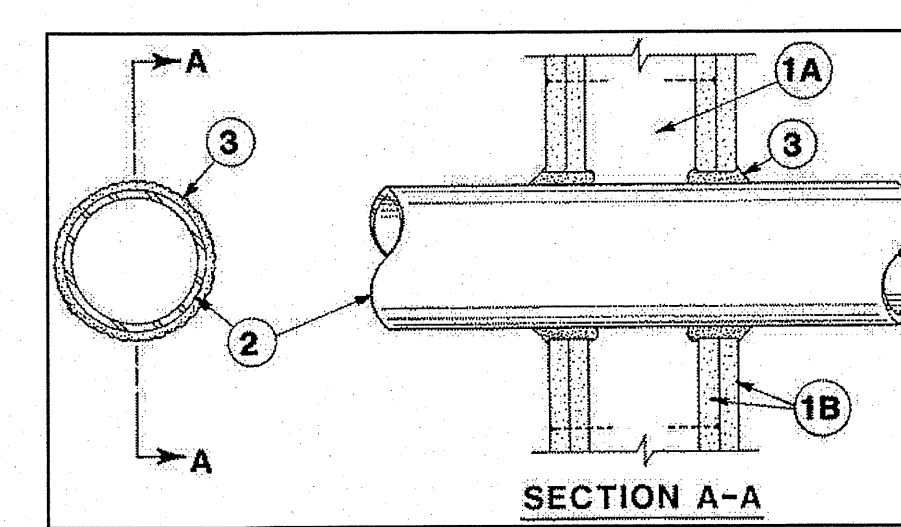
**3.8 DRAINDOWN**

- A. Contractor to provide for complete plumbing system drain down.
- B. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.

**3.9 CLEAN UP**

- A. During construction, keep the site clear of debris and upon completion, and before final inspection, clean up the premises to remove all evidence of his work. In addition, upon completion of construction, clean, wash, and/or polish all fixtures, equipment and exposed material and leave them bright and clean.
- 3.10 GUARANTEES**
- A. Guarantee all materials and labor included in the plumbing work for a period of one year from date of final acceptance by the Owner.
  - B. Any defects in the system which become evident during the guarantee period shall be corrected without cost to the Owner. This shall include the replacing of defective materials where required, and the repair of damage caused by leaking pipes, etc., and damage to building surfaces caused in making repairs.

System No. W-L-1001  
 March 28, 2003  
 (Formerly System No. 147)  
 F Ratings -- 1, 2, 3 and 4 Hr (See Items 2 and 3)  
 T Ratings -- 0, 1, 2, 3, and 4 Hr (See Item 3)  
 L Rating At Ambient - less than 1 CFM/sq ft  
 L Rating At 400 F - less than 1 CFM/sq ft



1. Wall Assembly -- The 1,2,3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

- A. Studs -- Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.
- B. Gypsum Board\* -- Nom 1/2 or 5/8 in. thick, 4 ft wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in.

2. Through-Penetrant-- One metallic pipe, conduit or tubing installed either concentrically or eccentrically with the firestop system. The annular space between pipe, conduit, or tubing and periphery of opening shall be min of 0 in. (point contact) to max 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

- A. Steel Pipe -- Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
- B. Iron Pipe -- Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.
- C. Conduit -- Nom 6 in. diam (or smaller) steel conduit or nom 4 in diam (or smaller) steel electrical metallic tubing.
- D. Copper Tubing -- Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.
- E. Copper Pipe -- Nom 6 in. diam (or smaller) Regular (or heavier) copper tubing.
- F. through Penetrating Product\* -- Flexible Metal Piping The following types of steel flexible metal gas piping may be used:
  1. Nom 2 in diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.
  2. Nom 1 in diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

- 3. Fill, Void or Cavity Material\* -- Caulk -- Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. thickness for caulk for 1,2,3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. dia bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam in	F RATING Hr	T RATING Hr
1	1 or 2	0+, 1 or 2
1	3 or 4	3 or 4
4	1 or 2	0
6	3 or 4	0
12	1 or 2	0

+When copper pipe is used, T Rating is 0 h.  
 3M COMPANY-- CP 25WB+.

\*Bearing the UL Classification Mark

**SYMBOL LEGEND – PLUMBING**

SYMBOL	DESCRIPTION (U.O.N.)
---	WASTE PIPING (W)
---	VENT PIPING (V)
---	COLD WATER PIPING (CW)
---	HOT WATER PIPING (HW)
---	HIGH TEMPERATURE HW PIPING (HTHW) 120 DEG. F
---	MEDIUM TEMPERATURE HW PIPING (MTHW) 110 DEG. F
---	LOW TEMPERATURE HW PIPING (LTHW) 85 DEG. F
○ COFF	CLEANOUT FINISH FLOOR
⊥ WCO/HCO	WALL/HORIZONTAL CLEANOUT
□ COFG	CLEANOUT FINISH GRADE
⊕	DIELECTRIC UNION
⊗	SHUT-OFF VALVE
⊕	VENT THRU ROOF (VTR)
⊕	FREEZE PROOF, HOSE BIBB (FPHB/HB)
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
---	1 HOUR FIRE BARRIER
---	2 HOUR FIRE BARRIER

**LOAD SUMMARY – PLUMBING**

WASTE DEMAND (FL)	WATER DEMAND (FL)	WATER DEMAND (GPM)
35.0	39.5	26.1

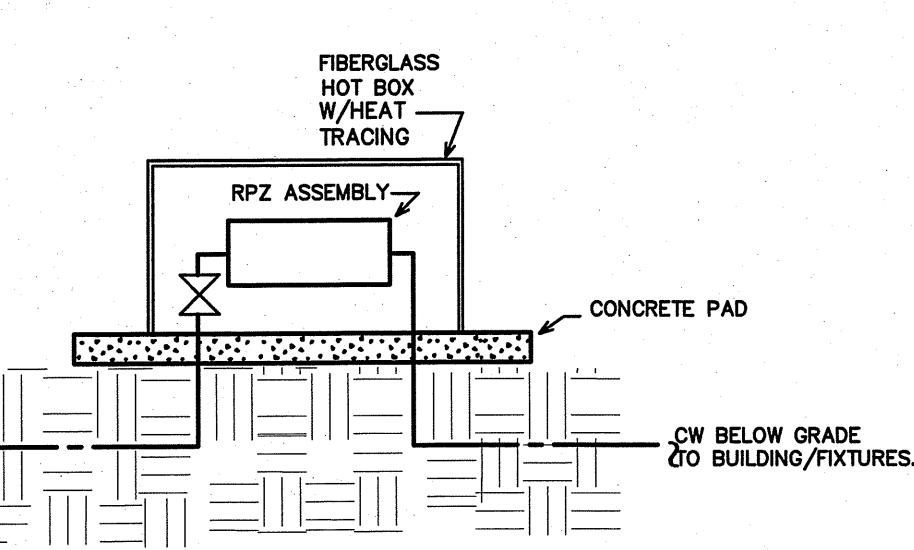
**FIXTURE SCHEDULE – PLUMBING \***

- EW\* EYEWASH  
BRADLEY BARRIER-FREE WALL MOUNT EYEWASH S19-220AB. COORDINATE EXACT MODEL/MOUNTING LOCATION WITH OWNER. PROVIDE BRADLEY NAVIGATOR EMERGENCY S19-2000 EPX MIXING VALVE. INSTALL IN ACCESSIBLE LOCATION. SET OUTFLOW TO SPECIFIED LTHW TEMPERATURE (85 DEG. F).
- EWG\* HIGH/LOW ELECTRIC WATER COOLER  
HALSEY TAYLOR DUAL LEVEL ELECTRIC WATER COOLER. MODEL # HACBFSBL-Q ADA COMPLIANT. PIPE TO SINGLE DRAIN AND SUPPLY LINE.
- EWH\* ELECTRIC WATER HEATER  
A.O. SMITH MODEL DEL-30, 30 GALLON, 4,500 WATT, 18 GPH RECOVERY AT 100 DEGREE TEMPERATURE RISE. 3/4" INLET AND OUTLET, 208 V, 1 PH. PROVIDE DRAIN PAN, EXPANSION TANK AND PRESSURE RELIEF VALVE.
- HB\* WALL HOSE BIBB  
WOODFORD MODEL #24 ANTI-SIPHON HOSE BIBB W/TEE KEY. COORDINATE MOUNTING W/TENANT. PROVIDE STEM LOCK SL-24 IF REQUIRED.
- FPHB\* FREEZE PROOF HOSE BIBB  
WOODFORD MODEL #19, FREEZE PROOF HOSE BIBB WITH BACKFLOW PREVENTER. COORDINATE MOUNTING W/TENANT. PROVIDE TEE KEY OR LOCK SL-17 IF REQUIRED. VERIFY MOUNTING LOCATION, COORDINATE STEM LENGTH PER WALL THICKNESS.
- IWH\* INSTANTANEOUS (POINT OF USE) ELECTRIC WATER HEATER  
EBAK TANKLESS WATER HEATER #EX3512T-ML, 120 V, 3,500 W, 29.2 A. 49 DEGREE TEMPERATURE RISE AT 0.5 GPM. PROVIDE FLEX CONNECTOR BRIDLED STAINLESS STEEL ML MODEL IS FACTORY PRESET TO 110 DEG. F MAX. INSTALL UNIT BELOW SINK/LAV.
- LAV\* LAVATORY (WALL MOUNT)  
KOHLER HUDSON LAVATORY, K-2881, VITREOUS CHINA, 4" CENTERS. ADA COMPLIANT. PROVIDE DELTA MODEL 522LF-HIGHDEF FAUCET. 0.5 GPM MAX WITH GRID STRAINER. PROVIDE P-TRAP AND SHUT-OFF VALVES.
- RPZ\* REDUCED PRESSURE BACKFLOW PREVENTER WITH FIBERGLASS ENCLOSURE  
WATTS MODEL #LF009M3QT 1" REDUCED PRESSURE BACKFLOW PREVENTER, "LEAD FREE" CONSTRUCTION. PROVIDE WATTSBOX WB-1 INSULATED ENCLOSURE WITH SOW HEATER ON CONCRETE PAD. INSTALL PAD PER UNIT REQUIREMENTS. COORDINATE PAD, HEATER CIRCUITING W/G.C.
- SI\* COUNTER SINK  
ELKAY LR2521 SINGLE BASIN STAINLESS STEEL SINK (MODEL LRAD2521 IF ADA COMPLIANCE REQUIRED), 18 GA., SELF-RIMMING, FURNISHED WITH THREE FAUCET HOLES AND CENTER DRAIN. PROVIDE ELKAY COMMERCIAL FAUCET MODEL LK1010A02L WITH TWO LEVER HANDLES, CHROME PLATED BRASS P-TRAP AND SHUT-OFF VALVES. COORDINATE EXACT UNIT WITH OWNER AND GENERAL CONTRACTOR. COORDINATE SIZE WITH CABINETS PRIOR TO ORDERING.
- US\* UTILITY SINK  
FLORESTONE MODEL FM-1, FLOOR MOUNTED SINK TO COME WITH A HEAVY DUTY MOLDED LEGS, WITH 1 1/2" DRAIN OPENING, 20 GALLON CAPACITY. PROVIDE FAUCET, P-TRAP, AND SHUT-OFF VALVES.
- VB\* ICE MAKER VALVE BOX  
OATEY VALVE BOX WITH 3/8" BRONZE SHUT-OFF VALVE. FLUSH TO WALL.
- WC\* WATER CLOSET (FLUSH TANK)  
KOHLER HIGHLINE WATER CLOSET, K-3979, ADA COMPLIANT 1.6 GPF. PROVIDE WITH K-4731 ADA SEAT, K-7637 SUPPLY AND STOP, WAX SEAL, CROSET BOLT KIT. PROVIDE MODEL WITH FLUSH CONTROL ON SIDE OPPOSITE GRAB BAR. USE KOHLER MELLOWORTH #K-3978 WHERE ADA COMPLIANCE MODEL NOT REQUIRED.
- YH\* FREEZE PROOF YARD HYDRANT  
WOODFORD MODEL #Y34, FREEZELESS YARD HYDRANT WITH 3/4" INLET. VERIFY BURY DEPTH REQUIREMENT, COORDINATE LOCATION WITH OWNER/SITE. VERIFY FROST LINE DEPTH FOR DRAIN HOLE DEPTH/INSTALL REQUIREMENT.

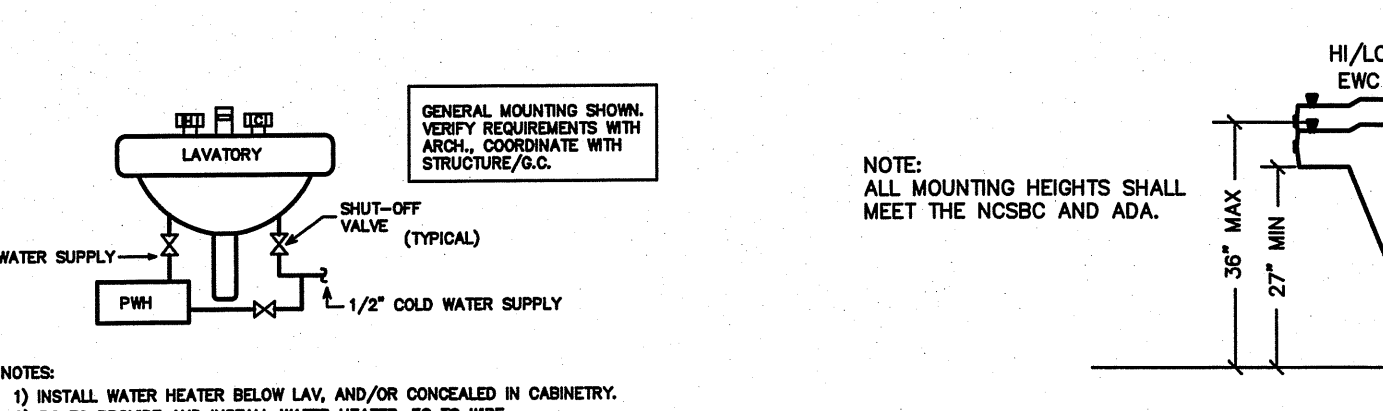
\* OR APPROVED EQUAL. SUBMIT ALL ITEMS FOR APPROVAL BY TENANT AND ARCHITECT PRIOR TO ORDERING.  
 ALL OTHER PLUMBING FIXTURES SHOWN ARE PROVIDED BY THE TENANT AND INSTALLED BY THE PLUMBING CONTRACTOR. SEE PLANS FOR NUMBER AND LOCATION. COORDINATE ALL REQUIREMENTS WITH EQUIPMENT SUPPLIER.

**GENERAL NOTES – PLUMBING**

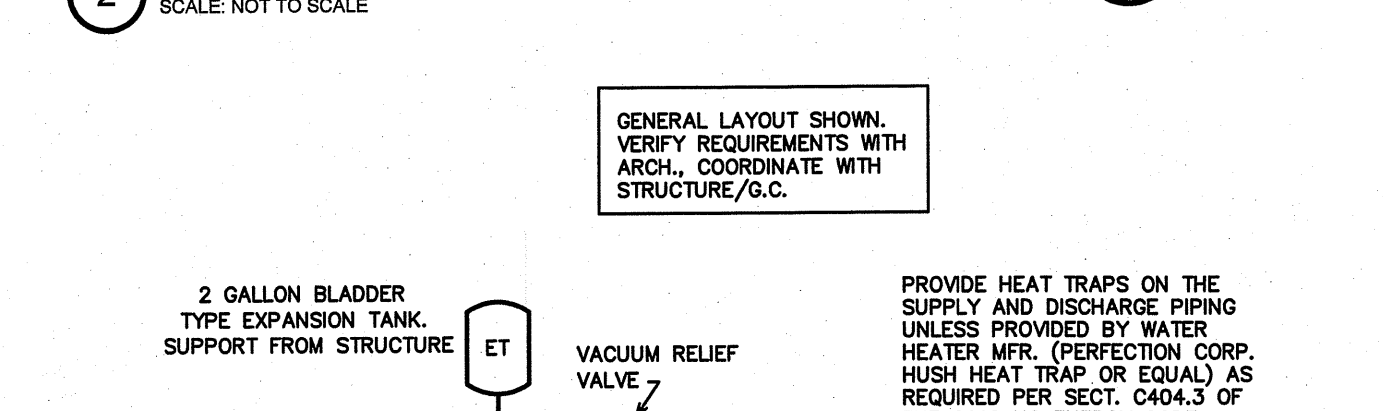
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE, ALL LOCAL AND OTHER APPLICABLE CODES.
2. ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE PLUMBING CONTRACTOR (PC) SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC).
3. THE PLUMBING PLANS AND SPECIFICATIONS SHALL BE THOROUGHLY REVIEWED PRIOR TO PURCHASING MATERIALS AND INSTALLATION AND ALL DISCREPANCIES OR INTERFERENCES BROUGHT TO THE ENGINEERS ATTENTION.
4. THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. THE PC SHALL PROVIDE ALL MISC. ITEMS NEEDED FOR A COMPLETE SYSTEM REGARDLESS IF NOTED ON THE DRAWINGS OR NOT. FOR DIMENSIONS REFER TO ARCHITECTURAL PLANS.
5. THE GC SHALL PROVIDE ALL WALL, FLOOR AND ROOF OPENINGS OF THE SIZE AND LOCATION REQUIRED BY THE PC AND SHALL BE RESPONSIBLE FOR PAINTING AND FLOOR FINISHES. THE PC SHALL PROPERLY SEAL ALL PENETRATIONS AND PROVIDE ESCUTCHEON PLATES AT ALL FINISHED LOCATIONS.
6. ALL NEW WATER PIPING SHALL BE INSTALLED TIGHT TO STRUCTURE, ADEQUATELY SUPPORTED AND PROTECTED AND PROPERLY PITCHED TO ALLOW TOTAL DRAINAGE.
7. ALL WATER PIPING SHALL BE HYDROSTATICALLY TESTED FOR 2 – HOURS AT 150 PSIG BEFORE COVERING AND ALL LEAKS CORRECTED. THE ENTIRE WATER DISTRIBUTION SYSTEM SHALL BE DISINFECTED PRIOR TO PLACING IN SERVICE.
8. PROVIDE MIN. 18" SHOCK ABSORBERS WITH STOPS ON ALL HOT AND COLD WATER FIXTURE RUNS AS REQUIRED BY CODE.
9. VENT LINES SHALL SLOPE UP TO ALL STACKS AND TERMINATE A MIN. OF 12" ABOVE ROOF LINE.
10. PROVIDE CUT SHEETS ON ALL PLUMBING FIXTURES FOR ARCHITECT AND OWNER APPROVAL PRIOR TO ORDERING ANY FIXTURES.
11. PROVIDE/VERIFY HIGH TEMPERATURE HOT WATER (HTHW) AT 140 DEGREES F (MAX). PROVIDE/VERIFY MEDIUM TEMPERATURE HOT WATER (MTHW) AT 110 DEGREES F (MAX). PROVIDE/VERIFY LOW TEMPERATURE HOT WATER (LTHW) AT 85 DEGREES F (MAX). VERIFY MTHW FROM ALL LAVATORY FAUCETS. PROVIDE THERMOSTATIC MIXING VALVES (TMV) AS REQUIRED. VERIFY LTHW FROM EYEWASH (TMV INCLUDED W/UNIT). PROVIDE ASSE 1070 THERMOSTATIC MIXING VALVE (TMV) WHERE REQUIRED, ASSE 1017 TMV WHERE REQUIRED, AND PER CODE WHETHER OR NOT SHOWN ON PLANS.
12. PROVIDE CLEANOUTS AS REQUIRED BY CODE. NOT MORE THAN 100 FEET FOR 4" DRAIN.
13. PROPERLY SEAL ALL PIPING PENETRATIONS PER APPLICABLE PENETRATION SYSTEM DETAIL (THIS SHEET) THROUGH FIRE BARRIER WALLS/FLOORS/CEILINGS. PROVIDE CAST IRON PIPING FOR ALL DWV PIPING THROUGH FIRE BARRIERS.



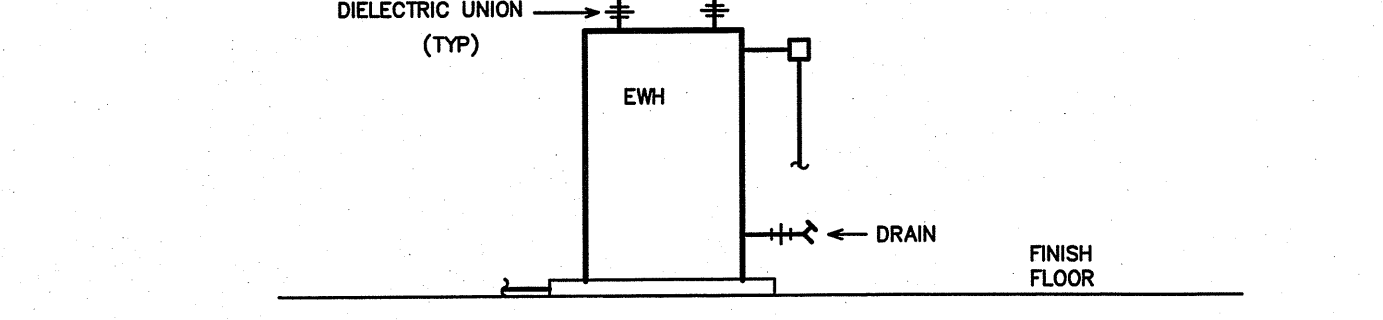
**1 RPZ/HOT BOX DETAIL**  
SCALE: NOT TO SCALE



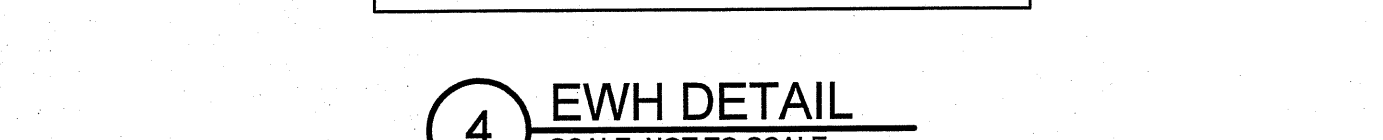
**2 PWH DETAIL**  
SCALE: NOT TO SCALE



**3 EWC DETAIL**  
SCALE: NOT TO SCALE



**4 EWH DETAIL**  
SCALE: NOT TO SCALE

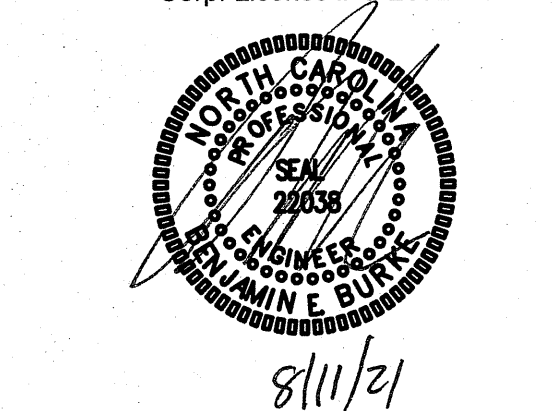


**5 PENETRATION DETAIL**  
SCALE: NOT TO SCALE



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 Corp. License # C-2652



PROJECT TITLE  
**POWERMASTER ELECTRIC**

311 JARCO DRIVE  
 FUYUQA-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**

DRAWING TITLE  
**PLUMBING SPECIFICATIONS**



PLOT DATE **8/6/2021**

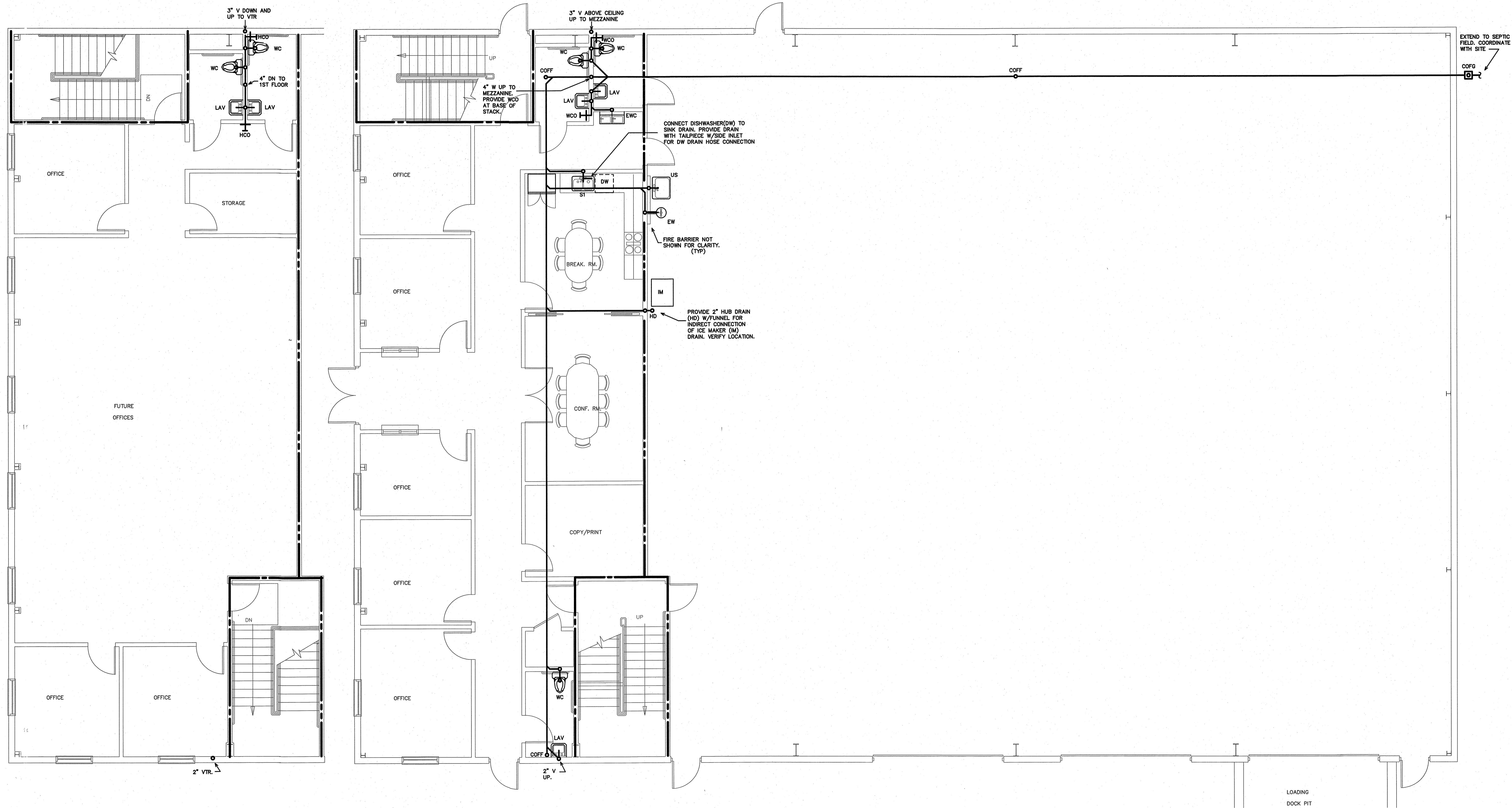
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ENGINEER

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8/11/21



**2** MEZZANINE DRAIN PLAN  
SCALE: 3/16" = 1'-0"

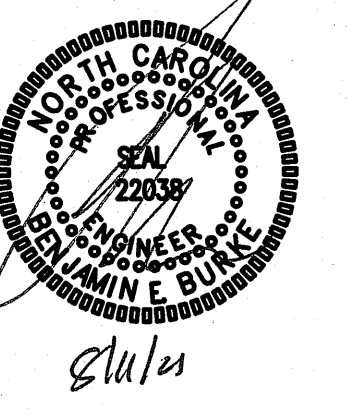
**1** 1ST FLOOR DRAIN PLAN  
SCALE: 3/16" = 1'-0"

PROJECT TITLE  
**POWERMASTER  
ELECTRIC**  
311 JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**  
DRAWING TITLE  
**DWV PLAN**

**P2**

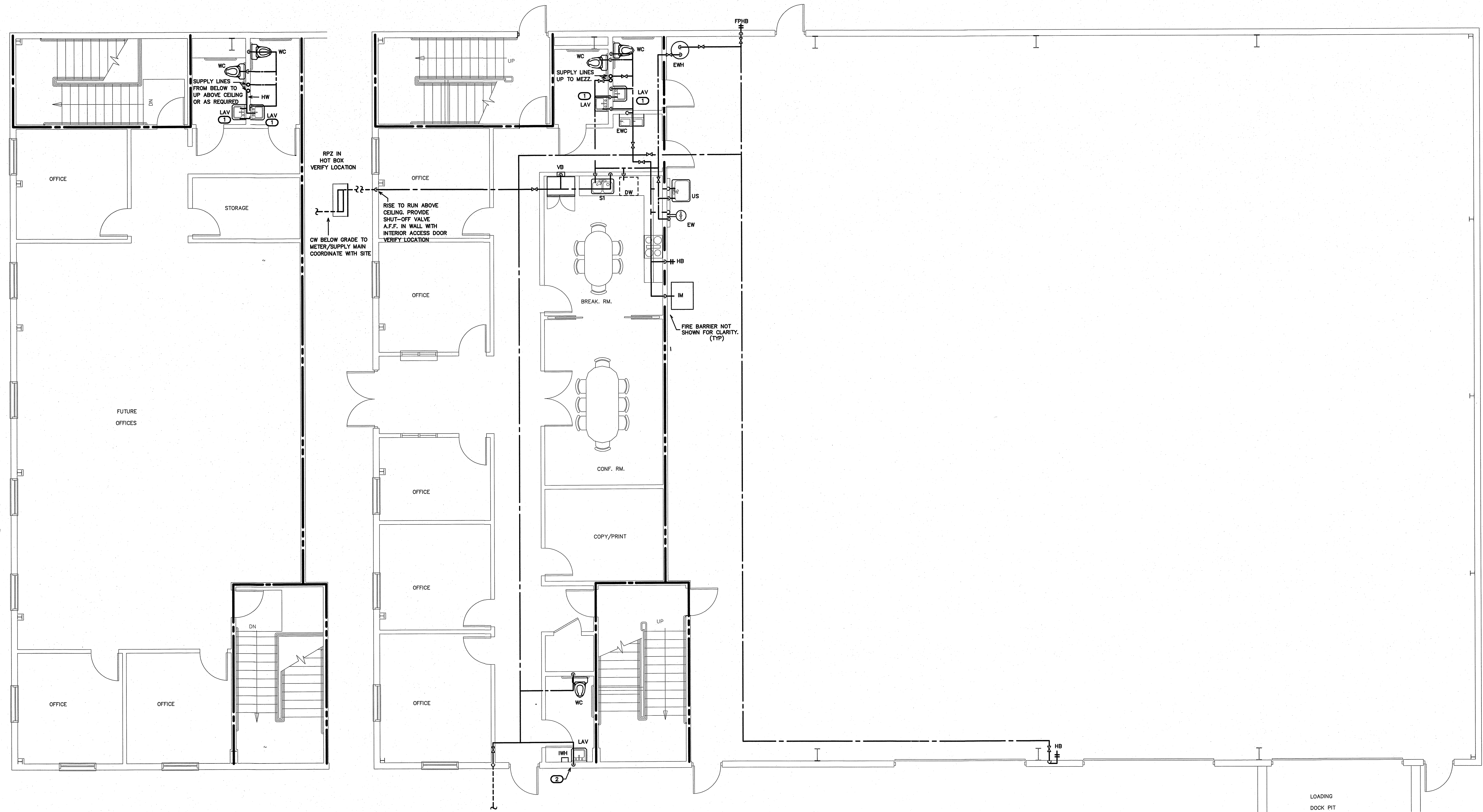
PLOT DATE 8/6/2021



KEY NOTE FOR SHEET P3

- 1 PROVIDE TMV AT LAVATORY FOR CW AND 110 DEG. F (MAX) LTHW TO FAUCET. LOCATE TMV (NOT SHOWN) IN PROPER MAINTENANCE ACCESSIBLE AREA BELOW FIXTURE, OR AS REQUIRED.
- 2 DROP CW TO LAV. EXTEND TO IWH. PROVIDE LTHW (NOT SHOWN) TO LAV FROM IWH. VERIFY IWH LOCATION.

NOTE:  
VERIFY QUANTITY AND MOUNTING LOCATION OF HB, FPHB WITH OWNER. ARCH. VERIFY ROUTING OF ALL SUPPLY LINES (TYP)



**2** MEZZANINE SUPPLY PLAN  
SCALE: 3/16" = 1'-0"

VERIFY YH LOCATION. COORDINATE WITH ARCH. DRAWING AG.2.

**1** 1ST FLOOR SUPPLY PLAN  
SCALE: 3/16" = 1'-0"

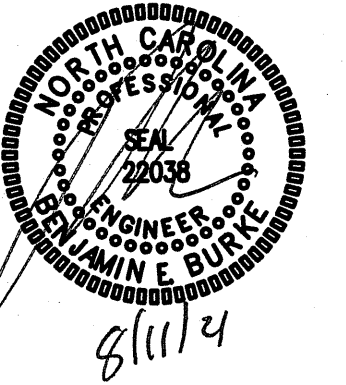
PROJECT TITLE  
**POWERMASTER ELECTRIC**  
311 JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**  
DRAWING TITLE  
**WATER PLAN**

**P3**

PLOT DATE 8/6/2021

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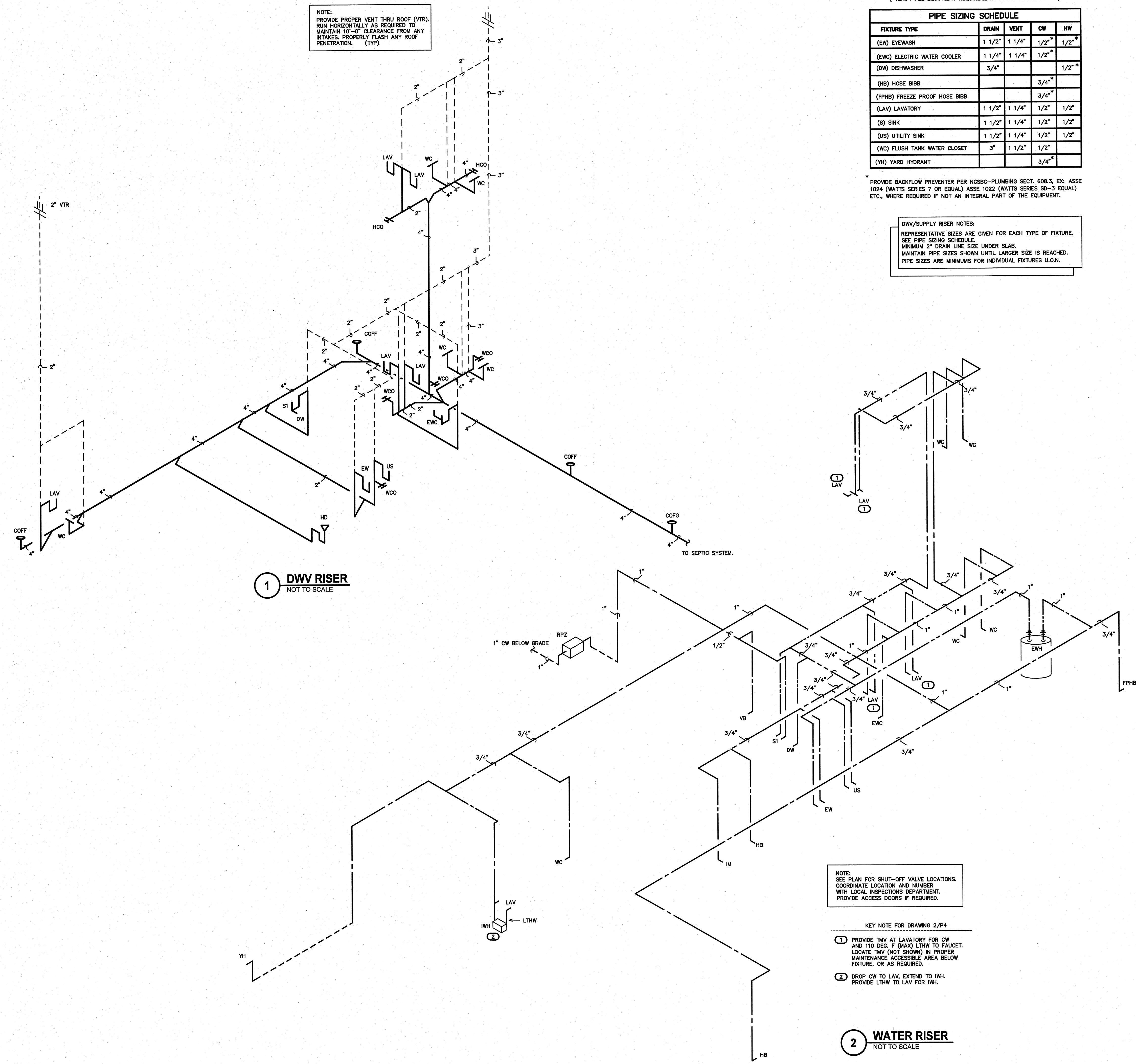
( VERIFY ALL EQUIPMENT REQUIREMENTS PRIOR TO ROUGH-IN )

PIPE SIZING SCHEDULE				
FIXTURE TYPE	DRAIN	VENT	CW	HW
(EW) EYEWASH	1 1/2"	1 1/4"	1/2"	1/2"
(EWC) ELECTRIC WATER COOLER	1 1/4"	1 1/4"	1/2"	1/2"
(DW) DISHWASHER	3/4"			1/2"
(HB) HOSE BIBB			3/4"	
(FPHB) FREEZE PROOF HOSE BIBB			3/4"	
(LAV) LAVATORY	1 1/2"	1 1/4"	1/2"	1/2"
(S) SINK	1 1/2"	1 1/4"	1/2"	1/2"
(US) UTILITY SINK	1 1/2"	1 1/4"	1/2"	1/2"
(WC) FLUSH TANK WATER CLOSET	3"	1 1/2"	1/2"	
(YH) YARD HYDRANT			3/4"	

\* PROVIDE BACKFLOW PREVENTER PER NCSB0-PLUMBING SECT. 608.3, EX. ASSE 1024 (WATTS SERIES 7 OR EQUAL) ASSE 1022 (WATTS SERIES SD-3 EQUAL) ETC., WHERE REQUIRED IF NOT AN INTEGRAL PART OF THE EQUIPMENT.

DWV/SUPPLY RISER NOTES:  
 REPRESENTATIVE SIZES ARE GIVEN FOR EACH TYPE OF FIXTURE. SEE PIPE SIZING SCHEDULE.  
 MINIMUM 2" DRAIN LINE SIZE UNDER SLAB.  
 MAINTAIN PIPE SIZES SHOWN UNTIL LARGER SIZE IS REACHED.  
 PIPE SIZES ARE MINIMUMS FOR INDIVIDUAL FIXTURES U.O.N.

NOTE:  
 PROVIDE PROPER VENT THRU ROOF (VTR).  
 RUN HORIZONTALLY AS REQUIRED TO  
 MAINTAIN 10"-0" CLEARANCE FROM ANY  
 INTAKES. PROPERLY FLASH ANY ROOF  
 PENETRATION. (TYP)



**1 DWV RISER**  
 NOT TO SCALE

NOTE:  
 SEE PLAN FOR SHUT-OFF VALVE LOCATIONS.  
 COORDINATE LOCATION AND NUMBER  
 WITH LOCAL INSPECTIONS DEPARTMENT.  
 PROVIDE ACCESS DOORS IF REQUIRED.

- KEY NOTE FOR DRAWING 2/P4
- 1 PROVIDE TMV AT LAVATORY FOR CW AND 110 DEG. F (MAX) LTHW TO FAUCET. LOCATE TMV (NOT SHOWN) IN PROPER MAINTENANCE ACCESSIBLE AREA BELOW FIXTURE, OR AS REQUIRED.
  - 2 DROP CW TO LAV. EXTEND TO IWH. PROVIDE LTHW TO LAV FOR IWH.

**2 WATER RISER**  
 NOT TO SCALE

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
 311 JARCO DRIVE  
 FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**

DRAWING TITLE  
**RISERS**

**P4**

PLOT DATE 8/6/2021

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HVAC EQUIPMENT SCHEDULE	
HVAC SYSTEM #1	
AHU #1 DIRECT EXPANSION FAN COIL UNIT	* CARRIER MODEL #FX4DNF043, 4 WAY, MULTIPOISE FAN COIL UNIT, 6 KW HEATER, NOMINAL CAPACITY = 42,000 BTUH, 1400 CFM NOMINAL, PROVIDE HARD SHUT-OFF TXV VALVE, 3.5 TON NOMINAL, PROVIDE PROGRAMMABLE THERMOSTAT AND FILTER RACK WITH HINGED DOOR, 1/2HP, 4.1A MOTOR FLA, 28.9A HEAT FLA, 208V, 1 PH, 44.7A MCA, 45A MOCP AHU & HEAT.
HP #1 OUTDOOR HEAT PUMP UNIT	* CARRIER MODEL #25HC0542A0030, 3.5 TON OUTDOOR HEAT PUMP UNIT, 15 SEER, PROVIDE CYCLE PROTECTOR, LOW PRESSURE SWITCH, CRANKCASE HEATER, 208 VOLT, 1 PHASE, COMP 21.1A RLA, FAN 1.2A FLA, OUTDOOR HEAT PUMP 28.5A MCA, 40A MOCP.
HVAC SYSTEM #2	
AHU #2 DIRECT EXPANSION FAN COIL UNIT	* CARRIER MODEL #FX4DNF043, 4 WAY, MULTIPOISE FAN COIL UNIT, 6 KW HEATER, NOMINAL CAPACITY = 42,000 BTUH, 1400 CFM NOMINAL, PROVIDE HARD SHUT-OFF TXV VALVE, 3.5 TON NOMINAL, PROVIDE PROGRAMMABLE THERMOSTAT AND FILTER RACK WITH HINGED DOOR, 1/2HP, 4.1A MOTOR FLA, 28.9A HEAT FLA, 208V, 1 PH, 44.7A MCA, 45A MOCP AHU & HEAT.
HP #2 OUTDOOR HEAT PUMP UNIT	* CARRIER MODEL #25HC0542A0030, 3.5 TON OUTDOOR HEAT PUMP UNIT, 15 SEER, PROVIDE CYCLE PROTECTOR, LOW PRESSURE SWITCH, CRANKCASE HEATER, 208 VOLT, 1 PHASE, COMP 21.1A RLA, FAN 1.2A FLA, OUTDOOR HEAT PUMP 28.5A MCA, 40A MOCP.

\* OR APPROVED EQUAL

**AHU CONTROL NOTE:**

FOR EACH SYSTEM PROVIDE "SIMPLE ENGINEERED SOLUTIONS" MODEL #PDM-XX HEAT PUMP DEHUMIDIFICATION CONTROL MODULE, PROVIDE PROGRAMMABLE ELECTRONIC THERMOSTAT WITH AUTO CHANGEOVER AND HUMIDISTAT FUNCTION, THERMOSTAT SHALL BE COMPATIBLE WITH DEHUMIDIFICATION CONTROL MODULE. PURPOSE OF DEHUMIDIFICATION CONTROL MODULE IS TO INITIATE COOLING MODE WHEN HUMIDISTAT SENSES HUMIDITY OVER SETPOINT AND ENERGIZE AND CONTROL ELECTRIC HEAT TO MAINTAIN SPACE TEMPERATURE. CONTACT SIMPLE ENGINEERED SOLUTIONS FOR INFORMATION ON DEHUMIDIFICATION CONTROL MODULE: (910) 231-9929, email: jmaugg@shoo.com.

EXHAUST FAN SCHEDULE	
EXHAUST FAN #1 (EF-1)	* CARNES MODEL# VCDD010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #2 (EF-2)	* CARNES MODEL# VCDD010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #3 (EF-3)	* CARNES MODEL# VCDD010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #4 (EF-4)	* CARNES MODEL# VCDD010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #5 (EF-5)	* CARNES MODEL# VCDD010C EXHAUST FAN, 93 CFM @ 1/4" SP, 640 RPM, 1.1 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #6 (EF-6)	* CARNES MODEL# VCDD020C EXHAUST FAN, 195 CFM @ 1/4" SP, 740 RPM, 1.8 AMPS, 120V. THE ELECTRICAL CONTRACTOR SHALL PROVIDE THE SWITCH AND WIRE THE UNIT. THE HVAC CONTRACTOR SHALL PROVIDE UNIT, 6" RIGID DUCT TO WALL CAP. LOCATE EXHAUST TERMINATION A MINIMUM OF 10'-0" FROM ANY INTAKES.
EXHAUST FAN #7 (EF-6)	* CARNES MODEL# LMBL-38S2 SIDEWALL PROPELLER EXHAUST FAN, 1HP, 600 RPM, 7,500 CFM AT 0.25" SP, PROVIDE WALL BOX WITH MOTORISIDE GUARD, PROVIDE MOTORIZED BACKDRAFT DAMPER ON EXTERIOR SIDE OF FAN, PROVIDE INTERLOCK WITH WALL INTAKE DAMPER ON OPPOSITE END OF FACILITY. BELT DRIVE, 208 VOLT, 1 PH.
EXHAUST FAN #8 (EF-7)	* CARNES MODEL# LMBL-38S2 SIDEWALL PROPELLER EXHAUST FAN, 1HP, 600 RPM, 7,500 CFM AT 0.25" SP, PROVIDE WALL BOX WITH MOTORISIDE GUARD, PROVIDE MOTORIZED BACKDRAFT DAMPER ON EXTERIOR SIDE OF FAN, PROVIDE INTERLOCK WITH WALL INTAKE DAMPER ON OPPOSITE END OF FACILITY. BELT DRIVE, 208 VOLT, 1 PH.

\* OR APPROVED EQUAL

NOTE: RUN EXHAUST DUCTS HORIZONTALLY AS REQUIRED TO MAINTAIN 10'-0" MINIMUM SEPARATION FROM ANY INTAKES.

WASTE OIL HEATER SCHEDULE	
UNIT HEATER 350,000 BTUH (WCH-1)	* ENERGY LOGIC# ELF350H, NATURAL WAST OIL FIRED HEATER, AND 250 GAL. FLOOR MOUNTED OIL TANK, 350,000 BTUH INPUT, 2800 CFM, 6" FLUE, 1/3 HP, 120 VOLT, PROVIDE 25 AMP DEDICATED CIRCUIT, PROVIDE 8" DIA. TYPE "B" EXHAUST VENT THROUGH THE ROOF. PROVIDE ALL FLASHING AS REQUIRED.

\* OR APPROVED EQUAL

AIR DISTRIBUTION SCHEDULE							
MARK	* MANUFACTURER	MODEL NO.	NECK SIZE	FACE SIZE	MATERIAL	SERVICE	NOTES
A	CARNES	SPAB224	SEE FLEXIBLE DUCT SCHEDULE	24" X 24"	STEEL	SUPPLY	LAY-IN CEILING, WHITE 4-WAY BLOW
RA	CARNES	SPRB22	SEE FLEXIBLE DUCT SCHEDULE	24" X 24"	STEEL	RETURN	LAY-IN CEILING, WHITE

\* OR APPROVED EQUAL

COORDINATE BORDER TYPE WITH THE CEILING TYPE. SEE ARCH SHEETS PROVIDE CUT SHEETS TO OWNER/ARCH. PRIOR TO ORDERING.

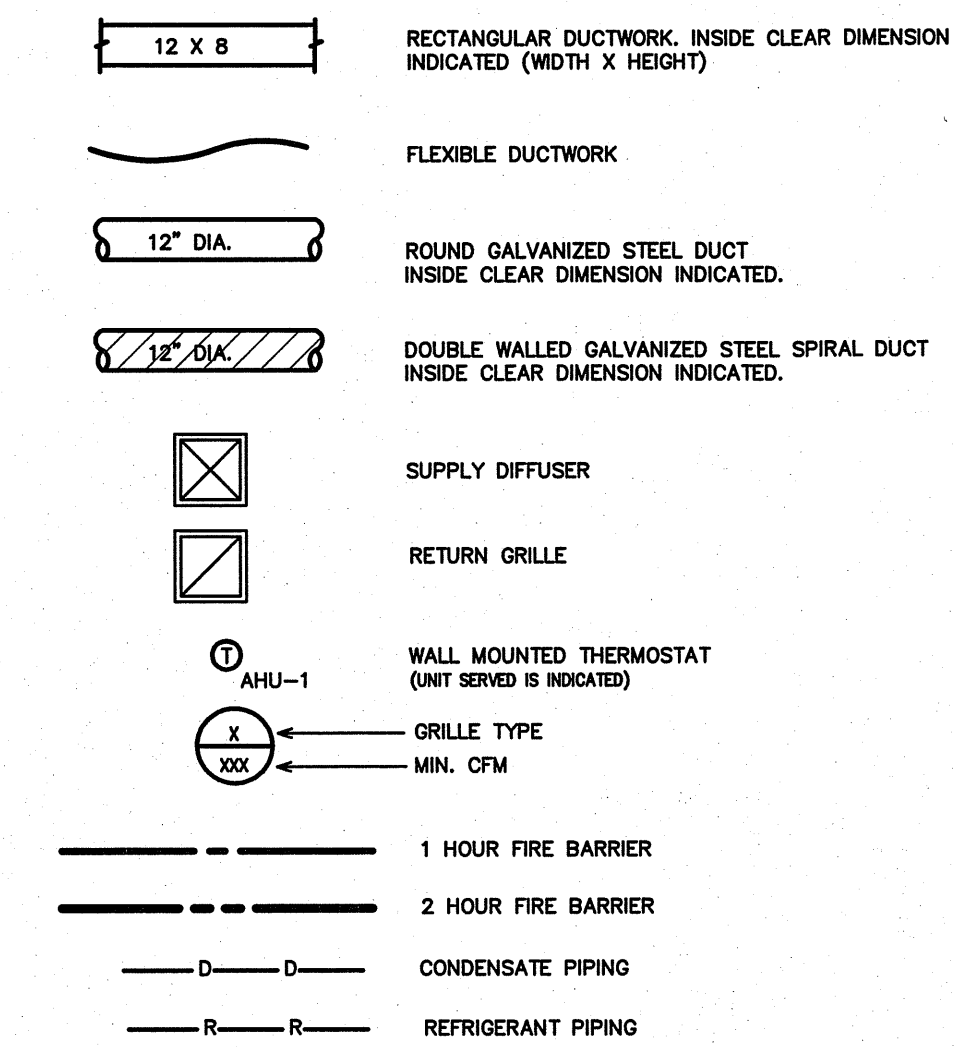
MAKE-UP AIR LOUVER SCHEDULE	
LOUVER/DAMPER (LD-1)	* CARNES MODEL FKDC 48" X 48" WALL INTAKE LOUVER, PROVIDE MOTORIZED DAMPER BEHIND LOUVER. DAMPER CONTROLS SHALL BE INTERLOCKED WITH EXHAUST FAN EF-7 & EF-8 SO THAT LOUVER OPENS WHEN EITHER EXHAUST FAN FAN IS ENERGIZED AND DAMPER SHALL CLOSE WHEN BOTH FANS ARE DE-ENERGIZED. COORDINATE EXACT SIZE OF LOUVER WITH GENERAL CONTRACTOR PRIOR TO ORDERING.

\* OR APPROVED EQUAL BY RUSKIN OR GREENHECK.

**GENERAL NOTES - MECHANICAL**

- ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE CODE AND ALL LOCAL AND OTHER APPLICABLE CODES.
- ANY PERMITS AND INSPECTION FEES SHALL BE SECURED AND PAID FOR BY THE MECHANICAL CONTRACTOR (MC).
- ALL WORK SHALL BE PERFORMED BY EXPERIENCED AND SKILLED CRAFTSMEN. THE MC SHALL COORDINATE ALL OF HIS WORK WITH THE GENERAL CONTRACTOR (GC) AND OTHER TRADES.
- THE LOCATION OF ALL DUCT, PIPING AND EQUIPMENT SHALL BE ADJUSTED TO ACCOMMODATE ANTICIPATED OR ENCOUNTERED INTERFERENCES.
- THESE PLANS ARE DIAGRAMMATIC AND MAY NOT SHOW MINOR DETAILS AND LOCATIONS. FOR DIMENSIONS REFER TO THE ARCHITECTURAL PLANS.
- THE MC SHALL BE RESPONSIBLE FOR ALL ELECTRICAL STARTERS INTERLOCKS, CONTROL WIRING CONDUIT AND POWER WIRING FROM DISCONNECTS TO HIS EQUIPMENT, USING A LICENSED ELECTRICIAN.
- THE MC SHALL USE FIRE DAMPERS FOR PROTECTION OF THE OPENING IN RATED WALLS AND FLOORS OCCUR. SEE ARCHITECTURAL PLANS FOR RATED WALL AND FLOOR LOCATIONS. PROVIDE ACCESS DOORS AT ALL DAMPER LOCATIONS. LOCATE DOORS FOR EASY ACCESS.
- INSTALL FLEXIBLE CONNECTORS ON SUPPLY AND RETURN DUCTWORK AHU. ALL MECHANICAL EQUIPMENT SHALL OPERATE FREE OF OBJECTIONAL NOISE AND VIBRATION.
- INSTALL TURNING VANES IN SUPPLY DUCTS AT ALL ELBOWS AND SPLITTER DAMPERS. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE SHOWN OR REQUIRED FOR SYSTEM BALANCING.
- DUCT DIMENSIONS ARE SHOWN INSIDE CLEAR.
- THE MC SHALL KEEP THE PREMISES CLEAR OF DEBRIS FROM HIS WORK DURING CONSTRUCTION AND LEAVE THE AREA AND BUILDING CLEAN AT THE COMPLETION OF HIS WORK. HE SHALL ALSO LEAVE CLEAN ALL EXPOSED EQUIPMENT IN HIS CONTRACT.
- PROVIDE ALL REQUIRED ROOF PENETRATIONS FOR THE INSTALLATION OF THE NEW EQUIPMENT. ALL FLASHINGS ARE BY THE MECHANICAL CONTRACTOR. ALL ROOFING WORK SHALL BE DONE BY A LICENSED ROOFING CONTRACTOR SO AS TO MAINTAIN ORIGINAL WARRANTY.
- THE M.C. SHALL COORDINATE WITH AND PROVIDE EQUIPMENT SPEC. SHEETS TO THE GENERAL AND ELECTRICAL CONTRACTORS FOR REVIEW PRIOR TO ORDERING EQUIPMENT.
- PROPERLY SUPPORT ALL DUCT WORK, AND EQUIP FROM STRUCTURE. PROVIDE ALL STRUCTURAL SUPPORTS FOR THE LOADS AS REQUIRED AT NO ADDITIONAL COST TO THE OWNER.

**LEGEND - MECHANICAL**



**APPENDIX B**

**2018 BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS**

**MECHANICAL SYSTEMS, SERVICE SYSTEM AND EQUIPMENT**

(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL DESIGN	MECHANICAL SHEETS IF APPLICABLE
Thermal Zone	
winter dry bulb	18F
summer dry bulb	93F
Interior Design Conditions	
winter dry bulb	72F
summer dry bulb	75F
relative humidity	50%
Building Heating Load (Office space only)	42,400 BTU/hr
Building Cooling Load (Office space only)	68,000 BTU/hr
Building Cooling Load (Shop area only)	145,000 BTU/hr
Mechanical Spacing Conditioning System	
Unitary -	The office space is served the following systems: (2) 3.5 Ton split system heat pump units. The shop space is served the following system: (1) 350,000 btuh waste oil heater.
Boiler -	Not applicable to this project.
Chiller -	Not applicable to this project.
Equipment efficiencies	Efficiencies and outputs are listed on equipment schedules - See drawings.

OA SCHEDULE OUTDOOR VENTILATION AIR PROVIDED PER TABLE 403.3 NCSCB MECHANICAL CODE									
APPLICATION	SQUARE FOOTAGE (SF)	AREA OUTDOOR AIR FLOW RATE (CFM/SF)	PEOPLE OUTDOOR AIR FLOW RATE (CFM/PERSON)	OCCUPANCY DENSITY RATE (# PEOPLE/1000SF)	OCCUPANCY (# PEOPLE)	AREA OUTDOOR AIR FLOW (CFM)	PEOPLE OUTDOOR AIR FLOW (CFM)	TOTAL (CFM)	
OFFICE	2752	0.06	5	5	14	165	70	235	
CORRIDOR	700	0.06	-	-	-	42	-	42	
CONFERENCE	231	0.06	5	50	12	14	60	74	
STORAGE	78	0.12	-	-	-	9	-	9	
TOTAL REQUIRED								360	
OUTDOOR AIR PROVIDED FROM EACH HVAC UNIT *									
HVAC UNIT		OUTDOOR AIR (CFM)							
AHU-1		180 - 8" DIA. O.A. DUCT							
AHU-2		180 - 8" DIA. O.A. DUCT							
TOTAL PROVIDED		360							
APPLICATION							CFM		
TOILETS							70 CFM/FLUSHING FIXTURE		
5 FLUSHING FIXTURE X 70 CFM = 350 CFM									
EXHAUST PROVIDED BY FIVE EXHAUST FANS, MAKE UP AIR BY TRANSFER AIR									

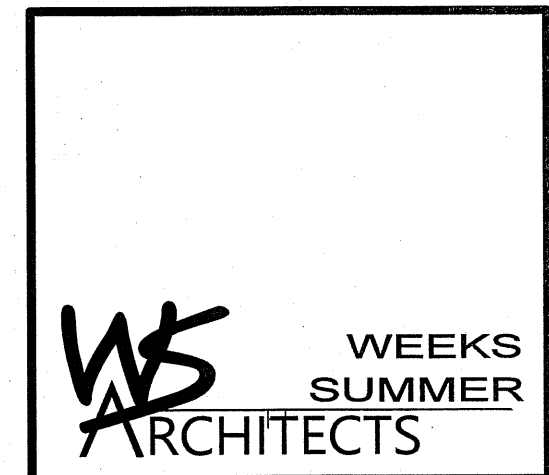
\* SET OUTDOOR AIR DAMPER CONTROLS TO PROVIDE OUTDOOR AIR AS INDICATED IN THIS SCHEDULE.

OUTDOOR AIR CALCULATIONS	
OUTDOOR VENTILATION AIR PROVIDED PER TABLE 403.3 NCSCB MECHANICAL CODE (SHOP AREA ONLY)	
APPLICATION	CFM/SQ.FT.
SHOP AREA	0.75 CFM/SQ.FT.
6900 SQ. FT. X 0.75 CFM/SQ.FT. =	5175 CFM
TOTAL EXHAUST REQUIRED =	5175 CFM
15,000 CFM EXHAUST PROVIDED BY (2) ONE SIDEWALL PROPELLER EXHAUST FANS.	

FLEXIBLE DUCTWORK SIZES		
MAXIMUM CFM'S		
SIZES	SUPPLY	RETURN
4"	100	100
6"	175	175
10"	250	250
12"	400	350
14"	550	500
16"	NA	900

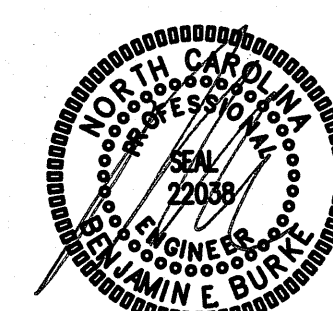
(CHANGE OUT EXISTING FLEX DUCTS AND COLLARS AS REQUIRED TO GET NEW CFM'S SHOWN)

FLEXIBLE DUCTWORK NOTES	
1)	INSTALL FLEXIBLE DUCTWORK RUNS AS STRAIGHT AS POSSIBLE.
2)	DO NOT ALLOW FLEXIBLE DUCT TO SAG BETWEEN SUPPORTS.
3)	DO NOT STRETCH A SHORT SECTION TO FIT A SLIGHTLY LONGER SECTION. THIS DISTORTS THE DUCT SHAPE AND IMPEDS AIR FLOW.
4)	DO NOT CRUSH DUCTWORK TO FIT IN A SPACE SMALLER THAN ITS ORIGINAL OUTSIDE DIAMETER. MAXIMUM ALLOWABLE DEFORMATION IS 15% OF ORIGINAL VOLUME.
5)	USE RIGID 90 DEGREE ELBOWS AT ANY LOCATION WHERE THE DUCTWORK BECOMES DISTORTED.
6)	EXTREME CARE SHALL BE TAKEN TO ELIMINATE ANY REDUCTION IN FLOW WITHIN THE FLEXIBLE DUCTS. THE MECH. CONTRACTOR WILL BE REQUIRED TO REPLACE THE FLEXIBLE DUCT WITH RIGID IF PROPER FLOW IS NOT OBTAINED.
7)	SIZE ALL FLEXIBLE DUCT SO AS NOT TO EXCEED MAXIMUM CFM'S GIVEN IN TABLE.



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*gmk*

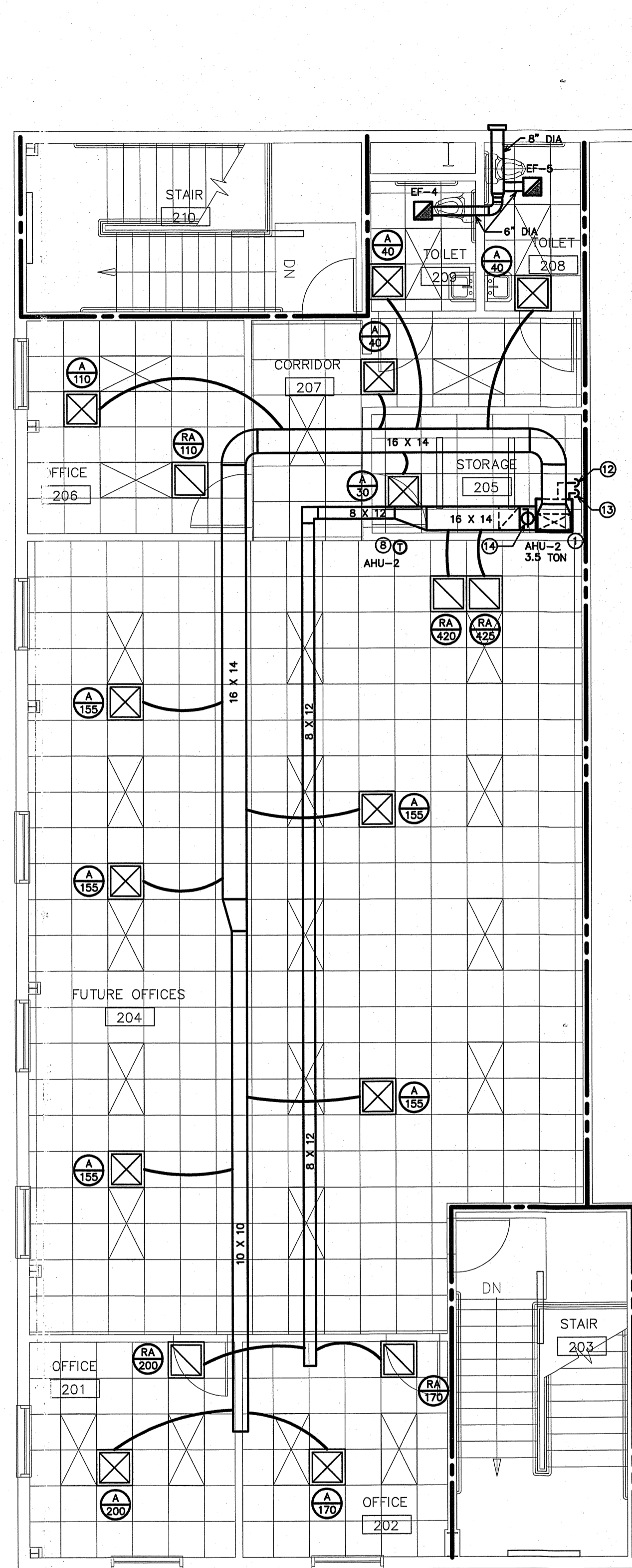
PROJECT TITLE  
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311 JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**  
DRAWING TITLE  
**HVAC SCHEDULES**

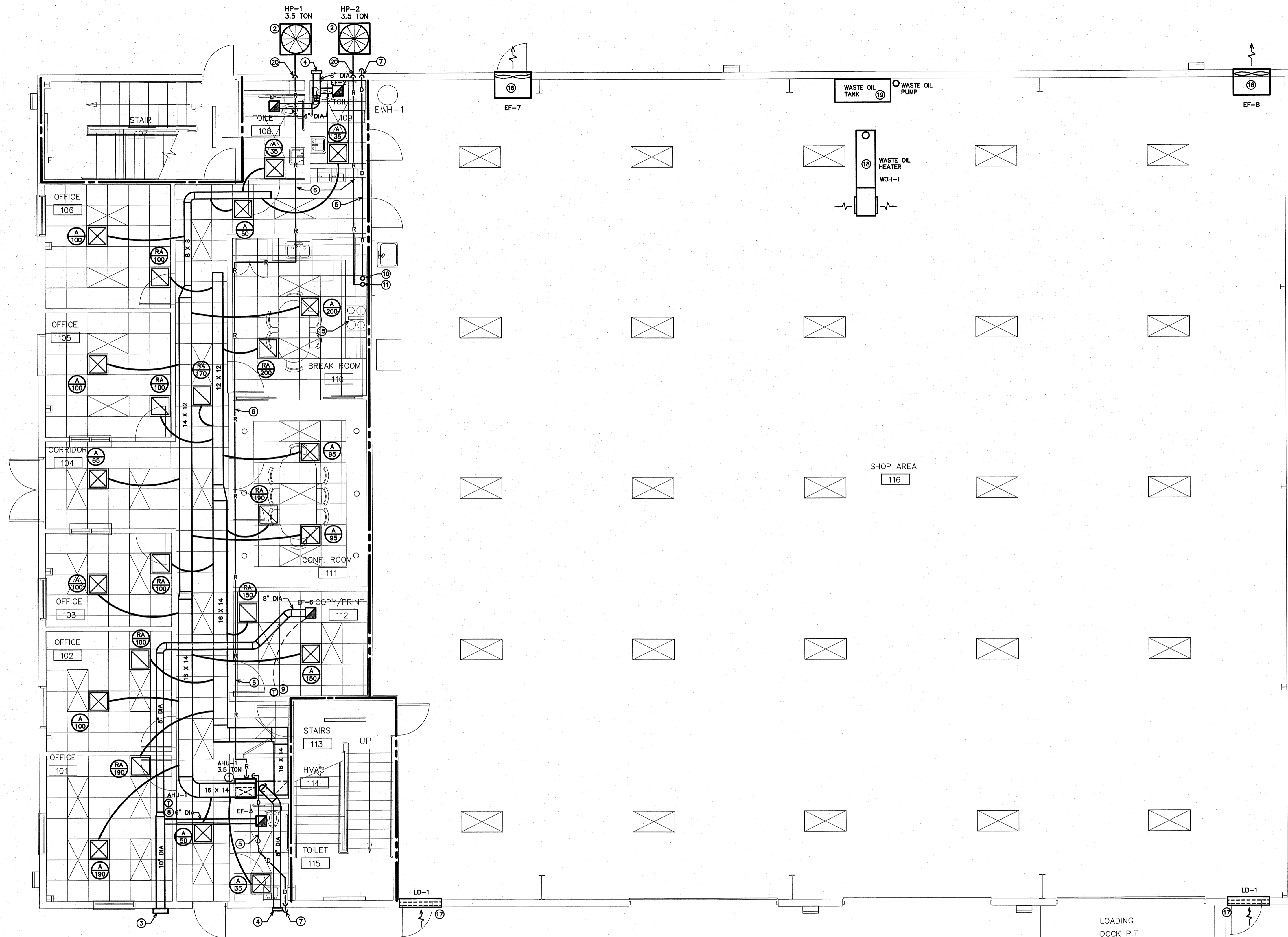
**M1**

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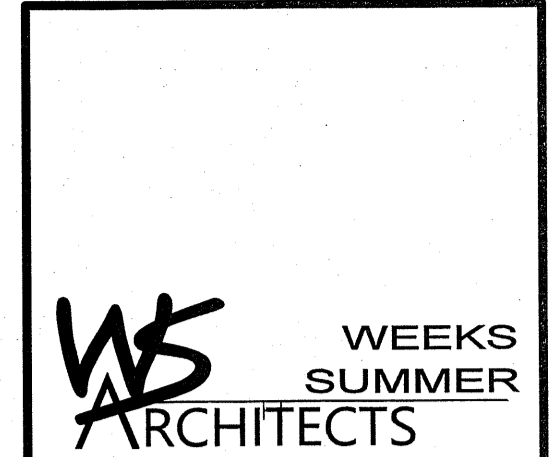
**2 MEZZANINE HVAC PLAN**  
SCALE: 3/16" = 1'-0"



**1 1ST FLOOR HVAC PLAN**  
SCALE: 3/16" = 1'-0"

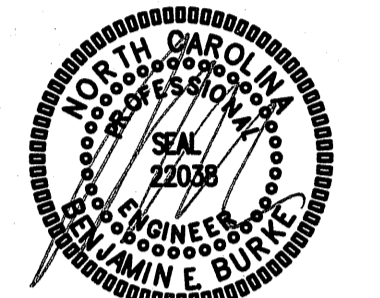
KEY NOTES FOR M2

- ① VERTICAL AIR HANDLING UNIT MOUNTED ON FLOOR. SEE DETAIL 1/M3.
- ② OUTDOOR HEAT PUMP UNIT MOUNTED ON 4" THICK CONCRETE PAD. PROVIDE ALL MANUFACTURER'S REQUIRED CLEARANCES AROUND UNIT.
- ③ WALL MOUNTED OUTSIDE AIR INTAKE HOOD. INTAKE SHALL BE 10'-0" MIN. FROM ANY EXHAUST DISCHARGE.
- ④ WALL MOUNTED EXHAUST CAP. EXHAUST DISCHARGE SHALL BE 10'-0" MIN. FROM ANY OUTSIDE AIR INTAKE.
- ⑤ RUN PUMPED CONDENSATE CONCEALED ABOVE CEILING.
- ⑥ RUN REFRIGERANT PIPING CONCEALED ABOVE CEILING.
- ⑦ RUN CONDENSATE PIPING DOWN CONCEALED IN WALL. STUB-OUT AT 6" ABOVE FINISH GRADE IN PLANTED AREA.
- ⑧ MOUNT THERMOSTAT AT 48" AFF.
- ⑨ THERMOSTAT TO CONTROL EXHAUST FAN. MOUNT AT 48" AFF.
- ⑩ CONDENSATE PIPE UP TO MEZZANINE LEVEL.
- ⑪ REFRIGERANT PIPING UP TO MEZZANINE LEVEL.
- ⑫ CONDENSATE PIPE DOWN TO FIRST FLOOR.
- ⑬ REFRIGERANT PIPING DOWN TO FIRST FLOOR.
- ⑭ 8" DIA. RIGID OUTSIDE AIR DUCT UP TO ROOF MOUNTED OUTSIDE AIR INTAKE HOOD. INTAKE SHALL BE 10'-0" MIN. FROM ANY EXHAUST DISCHARGE OR PLUMBING VENT.
- ⑮ KITCHEN RANGE HOOD IS RECIRCULATING TYPE AND DOES NOT REQUIRE A VENT DUCT TO THE EXTERIOR.
- ⑯ SIDE WALL MOUNTED EXHAUST FAN. SEE BUILDING ELEVATIONS IN ARCHITECTURAL PLANS FOR FAN LOCATION/MOUNTING HEIGHT.
- ⑰ SIDE WALL MOUNTED OUTSIDE AIR INTAKE LOUVER. PROVIDE MOTORIZED DAMPER BEHIND LOUVER. THE DAMPER SHALL OPEN WHEN EXHAUST FAN EF-7 OR EF-8 IS ENERGIZED AND CLOSE WHEN THE FANS ARE DE-ENERGIZED. SEE BUILDING ELEVATIONS IN ARCHITECTURAL PLANS FOR LOUVER LOCATION/MOUNTING HEIGHTS.
- ⑱ WASTE OIL HEATING UNIT SUSPENDED FROM ROOF STRUCTURE. PROVIDE 18" VENT. SIZE AS REQUIRED BY THE UNIT MANUFACTURER THROUGH THE ROOF. ENTIRE UNIT INSTALLATION SHALL BE PER UNIT MANUFACTURER'S REQUIREMENT.
- ⑲ WASTE OIL TANK MOUNTED ON FLOOR.
- ⑳ RUN REFRIGERANT PIPING DOWN CONCEALED IN WALL.



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g/huter

PROJECT TITLE  
**POWERMASTER  
ELECTRIC**  
311 JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

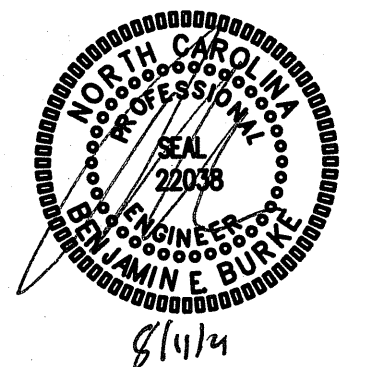
PROJECT NO.  
2019  
DRAWING TITLE  
**HVAC PLAN**

**M2**

PLOT DATE 8/6/2021

This original sheet is 24" x 36"; other dimensions indicate it has been altered.  
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8/1/21

**DIVISION 15 B - HEATING, VENTILATING AND AIR CONDITIONING**

- 1.1 DESCRIPTION OF THE WORK**
- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
1. Heating, ventilation, and air conditioning equipment.
  2. Ductwork.
  3. Grilles and diffusers.
  4. Controls and control wiring.
  5. Condensate piping.
- B. All work under this contract shall be installed in compliance with the latest edition of the following codes and standards insofar as they apply:
1. ASHRAE Guide
  2. National Electric Code.
  3. 2018 NC State Building Code: Mech Code.
  4. The Electrical Specifications for this project.
  5. SMACNA HVAC Duct Construction Standards.
  6. All local codes and ordinances.
  7. ARI rating.
  8. 2018 NC State Building Code: Energy Conservation Code.
- C. These codes are minimum standards. If codes require a more stringent method of construction than the specifications require, the codes shall govern.
- D. The HVAC Contractor shall be licensed in North Carolina and have all local licenses required for the work.

- 1.2 INTENT**
- A. The intent of these specifications and the accompanying drawing is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The HVAC Contractor shall take this into consideration and include in his bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

- 1.3 COORDINATION**
- A. Coordinate work with other contractors. Notify Owner of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Owner for a decision before resuming operations.
- B. Locations shown are approximate. The HVAC Contractor shall verify with owner, the placement of equipment, fixtures, outlets, etc. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required.
- C. Changes in duct or piping design caused by obstructions shall be submitted to Engineer in sketch form for study and comment prior to execution. Additional cost will not be allowed for this type of work.

- 1.4 SHOP DRAWINGS**
- A. Shop drawings shall be submitted for all major items of equipment. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified. Shop drawings shall include but are not limited to the following:
1. All equipment and accessories.
  2. Grilles and diffusers.
  3. Unit sizes and requirements.

**PART 2 - PRODUCTS**

- 2.1 EQUIPMENT**
- A. All air handling devices must have the manufacturer's recommended filter rack, for 1" thick filters.

- 2.2 PIPING**
- A. Condensate drain piping shall be PVC pipe. Provide tee and plug at changes in direction. Route pipe to proper termination point. All condensate piping shall be insulated with flexible elastomeric insulation. Provide copper piping in plenum areas.

**2.3 DUCTWORK**

- A. Ductwork shall be built in accordance with SMACNA HVAC Duct construction standards. Furnish and install all supply, return, and ventilation ductwork shown, together with splitters, deflectors, dampers, etc. This work shall be constructed of new galvanized prime grade steel sheets. The gauges of metal to be used and the construction and brooding of joints shall be in accordance with the SMACNA recommendations.
- B. Seal all sheet metal joints with fiber impregnated mastic.
- C. Support from building structure on strap hangers not over 8 feet apart.
- D. Use manufactured turning vanes in each elbow where required or where indicated on drawings.
- E. Flexible connectors shall be 3 inches wide, of fireproof material and used to isolate noise between equipment and ductwork on supply and return side of all units.
- F. Round runouts, where used, shall be built in accordance with the above standards, and each runout shall also have manufactured slide take off, adjustable quadrant damper at all accessible locations and shall be of Owens Corning NL-25 flexible duct with UL label. Flex duct lengths allowed up to 14 feet. Duct must be supported with sufficient hangers in order to prevent sag. Serpentine routing will not be permitted. Quadrant damper to be 22 gauge easily adjustable manually with exterior handle (similar to H&C Kwik-see) and is not to be mounted in side take-off.

**2.4 DUCT INSULATION (LOW PRESSURE)**

- A. All insulation, linings, coverings and adhesives shall have a flame spread classification of 25 or less and a smoke developed rating of not more than 50, exposed exterior piping.
- B. All duct insulation shall comply with Section 804, of the N. C. Building Code: Mechanical Code
- C. All supply and return ductwork shall be completely insulated, either internally or externally.
- D. Rectangular ductwork shall be lined with two-inch thick, 1.5 lb. per cubic foot density, duct liner, Armstrong, CSO Ultraliner, Johns Manville or approved equal.
- E. As an alternative to duct liner, rectangular duct may be wrapped with Class 1 - 2", 3/4 lb. density (R-5.5) thick reinforced foil back fiberglass insulation, Owens-Corning Series ED or equal. Tape shall be Kraft reinforced foil tape or equal.
- F. Exhaust air duct does not require insulation, unless otherwise noted on the plans.
- G. Insulation shall be held in place with adhesive and welding pins 16" on center.
- H. Duct dimensions shown on the drawings are Net Inside Dimensions

- 2.5 THERMOSTATS**
- A. Provide programmable electronic thermostats.
- B. Submit proposed thermostats for approval.

- 2.6 ROOF PENETRATIONS**
- A. Provide pre-manufactured roof flashings compatible with equipment served.
- B. Coordinate roof work with roof system used. Provide proper flashing as required.
- C. Provide 1 year warranty on all roof work performed.

- 2.7 DUCT SMOKE DETECTORS**
- A. Duct detectors are not required since unit air flows are 2000 cfm or less per NCSCC: Mechanical Code, Section 606.2.

**PART 3 - EXECUTION**

- 3.1 PIPING**
- A. The HVAC Contractor shall coordinate such routing with others, to line his work true to adjacent spaces and in a workmanlike manner and to use only short radius 90 degree elbows. Where required, piping to be sturdily supported and separated in a manner satisfactory to the Engineer.
- B. The HVAC Contractor shall paint all exterior refrigerant piping with UV resistant paint as recommended by the closed cell insulation manufacturer.
- C. Insulate all condensate lines for their entire length with 1/2" closed cell insulation. Install insulation per the manufacturer's recommendations.

- 3.2 ELECTRICAL WORK**
- A. The electrical contractor shall provide all switches, starters, wire conduit for the air conditioning, heating and ventilation equipment. Control wiring shall be by the heating and air conditioning contractor.
- B. HVAC Contractor is responsible for verifying that power terminals have been properly grounded prior to operating equipment and must find connections to all equipment including control wiring.
- C. All materials and workmanship shall be in accordance with the electrical specifications for the project. All wiring shall be color coded, and as-built wiring diagram prepared showing all connections and colors of wiring and delivered to the Owner.
- D. Furnish certification for acceptance of control wiring from local electrical inspector prior to acceptance.

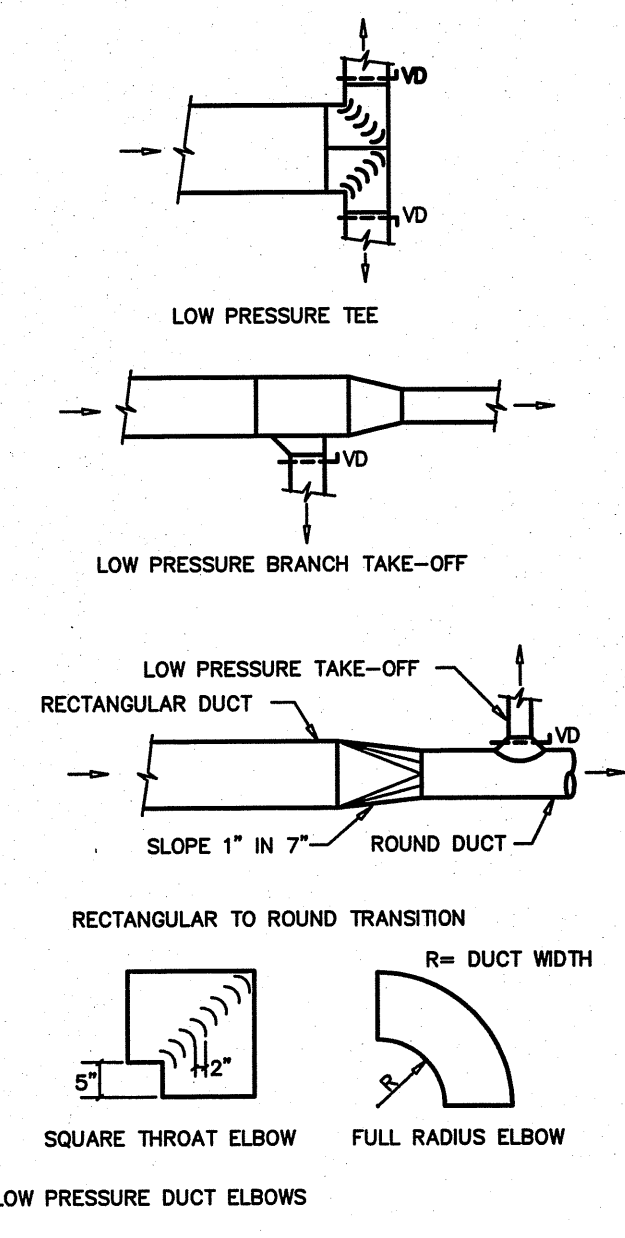
- 3.3 CLEAN UP**
- A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.
- B. Furnish one box of clean filters, for each size required, at the time of final inspection to the owner.

**3.4 OPERATOR'S MANUAL AND DIAGRAM**

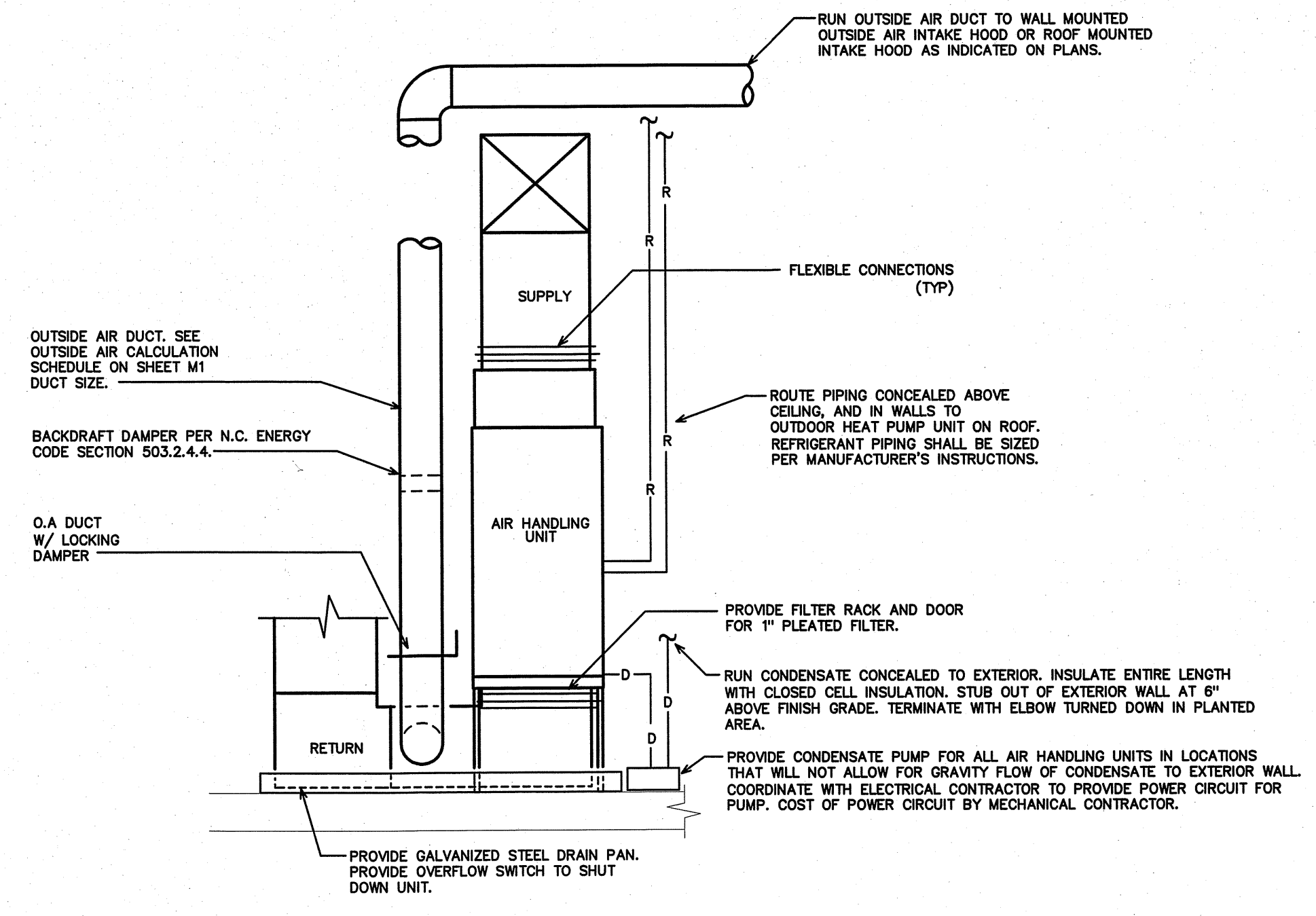
- A. The HVAC Contractor shall prepare in one copy a manual describing the proper maintenance and operation of the systems. This manual shall not consist of standard factory instructions (although these may be included) but shall be prepared to describe this particular job.
- B. The manual shall be bound, indexed, dated and signed by the HVAC Contractor.
- C. Qualified representative of the HVAC contractor shall meet with the designated representatives of the Owner and the Owner's representative shall be instructed in the proper operation and maintenance of the control system and other systems.

**3.5 GUARANTEE**

- A. Guarantee all materials and labor included in the HVAC work for a period of one year from date of final acceptance by the owner. In addition, motor compressors shall be a nonprorated five year warranty. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the owner or tenant.
- B. All air flows must be measured and balanced to within 10% of design airflows. All equipment used must have a current certification. Provide two copies of the balance report to the owner at closeout. The HVAC contractor shall return and re-balance to occupant comfort after 90 days from close-out. Provide all balance dampers needed for satisfactory operation regardless if shown on the drawings or not, and shift location of thermostats if required for occupancy comfort.



**2 DUCT CONSTRUCTION DETAIL**  
SCALE: NOT TO SCALE



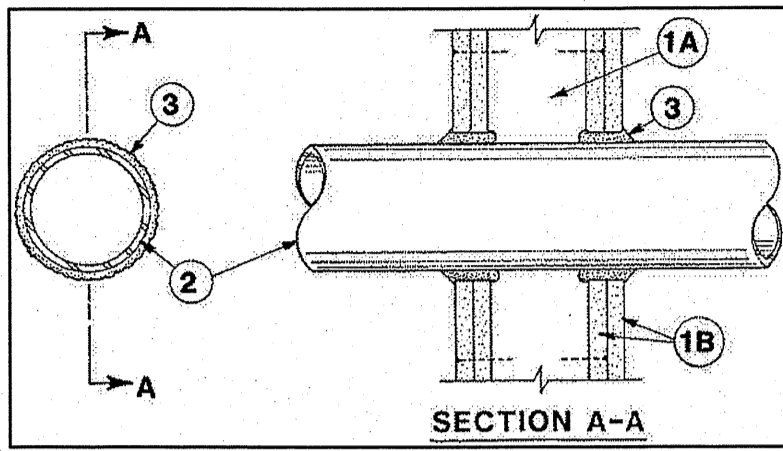
**1 TYPICAL VERTICAL AIR HANDLING UNIT DETAIL**  
SCALE: NOT TO SCALE

F Ratings --- 1, 2, 3 and 4 Hr (See Items 2 and 3)

T Ratings --- 0, 1, 2, 3, and 4 Hr (See Item 3)

L Rating At Ambient - less than 1 CFM/sq ft

L Rating At 400 F - less than 1 CFM/sq ft



1. Wall Assembly --- The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the Individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs --- Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC with nom 2 by 4 in. lumber end plates and cross braces. Steel studs to be min 3-5/8 in. wide by 1-3/8 in. deep channels spaced max 24 in. OC.

B. Gypsum Board --- Nom 1/2 or 5/8 in. thick, 4 ft. wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the Individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in.

2. Through-Penetrant --- One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit, or tubing and periphery of opening shall be min of 0 in. (point contact) to max. 2 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

A. Steel Pipe --- Nom 24 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.

B. Iron Pipe --- Nom 24 in. diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in. diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

C. Conduit --- Nom 6 in. diam (or smaller) steel conduit or nom 4 in. diam (or smaller) steel electrical metallic tubing.

D. Copper Tubing --- Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing.

E. Copper Pipe --- Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe.

F. Through Penetrating Products --- Flexible Metal Piping --- The following types of steel flexible metal gas piping may be used:

1. Nom 2 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

OMEGA FLEX INC

2. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

GASTITE, DIV OF TITEX

3. Nom 1 in. diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

WARD MFG LLC

Fill, Void or Cavity Materials --- Caulk or Sealant --- Min 5/8, 1-1/4, 1-7/8 and 2-1/2 in. thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

Max Pipe or Conduit Diam In	F RATING Hr	T RATING Hr
1	1 or 2	0+, 1 or 2
1	3 or 4	3 or 4
2	1 or 2	0
4	3 or 4	0
6	1 or 2	0

+When copper pipe is used, T Rating is 0 hr.

3M COMPANY --- CP 25WB+ or FB-3000 WT.

+Bearing the UL Classification Mark

**DIVISION 16 - ELECTRICAL**

**PART 1 - GENERAL**

**1.1 DESCRIPTION OF THE WORK**

- A. Work under this section includes, but is not necessarily limited to, furnishing and installing the following:
  1. Electrical service and service equipment.
  2. Lighting and power distribution system.
  3. Provide lighting fixtures selected by owner with lamps to match.
  4. Wiring devices, boxes, cover plates, etc.
  5. Source of power for all items of equipment.
  6. Grounding.
  7. Other requirements and/or systems where shown.
- B. All work shall be complete and items, equipment, etc., shall be electrically connected for proper and correct operation.

C. All work under this contract shall be installed in accordance with the latest edition of the following codes and standards insofar as they apply:

1. The 2017 National Electrical Code.
2. The National Electrical Safety Code.
3. Underwriter's Laboratories, Inc., Standards and approved listings.
4. Electrical Testing Laboratories standards.
5. North Carolina Building Code, Latest Edition and Revisions.
6. All local codes and ordinances.

D. The Electrical Contractor shall be licensed in the State of North Carolina and have all local licenses required for the work.

E. Obtain all permits, licenses, inspections, etc., required for the work and pay for the same. Furnish final certificate of inspection and approval from the electrical inspector having jurisdiction prior to acceptance of the work.

F. All work shall be done by skilled mechanics and shall present a neat, trim, workmanlike condition when complete.

**1.2 INTENT**

A. The intent of these specifications and the accompanying drawings is to convey as reasonably as possible the requirements for a complete job ready for the building to operate. The Electrical Contractor shall take this into consideration and include in his base bid allowance for contingencies as will allow him to provide minor pieces of equipment and labor not specifically indicated but required for the job to operate properly, at no additional cost to the Owner.

**1.3 COORDINATION**

A. Coordinate work with other contractors. Notify Architect of apparent conflicts early to expedite construction. If structural damage appears imminent, stop work and notify Architect for a decision before resuming operations.

B. Locations shown are approximate. The drawings do not give exact details as to elevations and locations of various pipes, fittings, ducts, conduit, etc., and do not show all offsets and other installation details which may be required. Coordinate all locations with architect before any rough-in.

**1.4 SHOP DRAWINGS**

A. Shop drawings shall be submitted for panels and service equipment, lighting, wiring devices, and cover plates. These may consist of the manufacturer's standard catalog or tear sheets and shall have the exact items being offered clearly identified.

**PART 2 - PRODUCTS AND MATERIALS**

**2.1 GENERAL**

A. All material shall be new and shall bear the manufacturer's name, trade name, and UL label where such standard has been established for the particular material. Materials shall be the standard products of manufacturer's regularly engaged in the manufacturer of the required type of equipment and the manufacturer's latest approved design.

1. Boxes installed in concealed locations shall be set flush with the finished surfaces.
2. Provide rated boxes in all fire barriers & walls installed per code.

**2.2 NOT USED**

**2.3 CONDUCTORS**

- A. Conductors shall be color coded, sizes #8 and larger may be color taped on the job. Color coding shall be: Standard Practice.
- B. Conductors shall be manufactured by Dodge, Southwire or approved equal. Conductors shall meet the latest requirements of NEMA and IPCEA and shall be UL approved.
- C. Metallic sheathed "MC" cable may be used where allowed by N.E.C.
- D. Conductors shall be spliced and taped as follows:
  1. Size #10 and #12, use Ideal "Wing Nuts" or Tab "Pigs" connectors. Connectors shall be rated for 150 degrees C for use in recessed lighting fixtures.
  2. Size #8 and larger shall be solderless screw and screw-clamping type, smoothly covered and shod with rubber gum type with final cover vinyl plastic electrical type. In lieu of rubber gum and vinyl plastic type, factory fabricated approved preformed insulating covers may be used. All connectors shall be UL approved.
  3. No split-bolt type connectors may be used.

E. All branch wire and connections shall be copper and sized per National Electric Code.

F. All conductors shall be continuous without splice between junction, outlet, device boxes, etc. No splicing will be permitted in panelboard cabinets, safety switches, etc.

G. All wiring in mechanical spaces shall be plenum rated.

H. Provide GFI protection within 6'-0" of any sink.

I. All multi-wire branch circuits shall comply with 2017 NEC, 210.4(B).

J. All wiring at medical facilities shall comply with 2017 NEC, 517.1.

**2.4 PANELBOARDS, SAFETY SWITCHES**

A. Panelboards shall comply with NEMA Standard PB 1 - Latest Edition and as manufactured by Square D or ITE-Siemens.

B. The contractor shall be responsible for correctly phasing the circuits in the panelboards.

C. Safety switches shall be general duty type, size and rating as required for load service. Safety switches shall be fused or unfused as shown and/or as required. Safety switches serving motor loads shall be horsepower rated for load served.

**2.5 NOT USED**

**2.6 WIRING DEVICES**

- A. Wiring devices shall be commercial grade by Bryant, Leviton, or approved equal. With matching cover. Color by Architect.
- B. Wiring devices installed under a Kitchen Hood shall have stainless steel covers.
- C. Wiring devices installed over counters shall comply with ANSI A117.1.

**2.7 NOT USED**

**2.8 CONDUIT**

- A. PVC conduit will be allowed where N.E.C. approved.
- B. All service conduit shall be rigid where exposed below 6'-0" AFF or exposed to the elements or hazardous conditions.

**PART 3 - EXECUTION**

**3.1 CIRCUIT GROUNDING**

A. All circuits shall contain an insulated, green, copper grounding conductor, sized in accordance with Table 250-95 of the NEC. Grounding conductors shall be connected to equipment grounding bus in panelboard and securely attached and grounded to the device or enclosure at the other end.

**3.2 GROUNDING TYPE CONVENIENCE OUTLETS AND SWITCHES**

A. Outlets and switches shall be solidly grounded to equipment grounding system with a green colored insulated conductor. Electrical connections shall be continuous from equipment ground bus in panelboard to the hex nut on the convenience outlet or switch.

**3.3 MOTORS**

A. All motors shall be connected to conduit system with short length (minimum length 24" and maximum length 36") of flexible liquidtight conduit.

**3.4 NOT USED**

**3.5 EQUIPMENT LABELING**

- A. Provide permanent name plates for all panelboards, safety switches, wiring troughs, etc., for identification of equipment controlled, services, etc. Nameplates shall be securely and permanently attached to equipment with stainless steel screws. Nameplates shall include the name of the equipment and where it is fed from.
- B. All switch plates, receptacle plates and outlet covers shall be labeled with machine printed vinyl labels identifying the circuit(s) within.
- C. All empty conduit runs shall be identified and indicated where they terminate.
- D. Provide typewritten directory in each panelboard to clearly identify each circuit, service, etc.

**3.6 NOT USED**

**3.7 NOT USED**

3.8 JUNCTION AND/OR PULL BOXES

A. Boxes shall be installed where necessary to avoid excessive runs and/or too many bends between outlets.

**3.9 PULL WIRE**

A. Leave pull wire in each empty conduit run.

**3.10 NOT USED**

**3.11 GROUNDING**

A. All grounding shall be in accordance with Article 250 of the NEC. In addition, the following requirements shall be met:

1. Grounding conductors shall be installed as to permit the shortest and most direct path from equipment to ground. All connections to grounding conductors shall be accessible.
2. Equipment ground continuity shall be maintained through flexible metal conduit.
3. All wiring devices equipped with grounding connection shall be solidly grounded to ground system with grounding conductors.
4. The frame of all lighting fixtures shall be securely grounded to the equipment ground system with grounding conductors.
5. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.
6. All equipment enclosures, and non-current-carrying metallic parts of electrical equipment, raceway systems, etc., shall be effectively and adequately bonded to ground.

**3.12 ELECTRICAL WORK IN CONNECTION WITH OTHER WORK**

A. PLUMBING WORK: The Electrical Contractor shall furnish and install switches and devices as shown and electrically connect electric water heaters, etc. All other electrical work required will be performed by the PLUMBING CONTRACTOR.

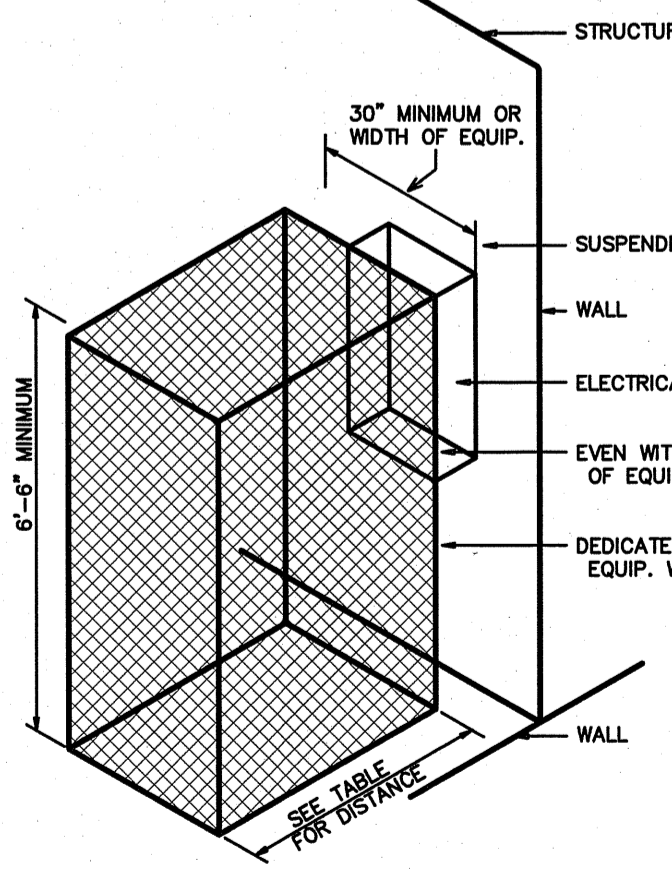
B. HEATING AND AIR CONDITIONING WORK: The Electrical Contractor shall provide all disconnect switches, starters, and associated hardware for the equipment furnished including all line and load side wiring and conduit. Final connections to the equipment will be by the HVAC contractor. All control wiring will be accomplished by the HVAC contractor. Coordinate all work associated with the HVAC contractor.

**3.13 CLEAN UP**

A. During construction, keep the site clean of debris. Upon completion, and before final inspection, clean up the premises to remove all evidence of work. In addition upon completion of construction leave equipment clean.

**3.14 GUARANTEE**

A. Guarantee all materials and labor included in the electrical work for a period of one year from date of final acceptance by the Owner. Any part or parts of the work or equipment which prove to be defective during the guarantee period shall be replaced at no additional cost to the Owner.



**ELECTRICAL EQUIPMENT WORKING CLEARANCE PER ARTICLE 110-26 OF N.E.C.**

VOLTAGE TO GROUND NOMINAL	WORKING CLEARANCES		
	CONDITION 1	2	3
0-150	3	3	3
151-600	3	3-1/2	4

**GENERAL NOTES**

1 ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES HAVING JURISDICTION.

2 ALL BRANCH CIRCUIT CONDUCTORS TO BE COPPER (SERVICE CONDUCTORS MAY BE ALUMINUM WITH SAME AMPACITY AS COPPER CONDUCTORS. RE-SIZE CONDUCTORS AND CONDUIT PER NEC.)

3 ALL CIRCUITS TO BE 2 #12, 1 #12 GND IN 1/2" EMT CONDUIT AS A MINIMUM. PROVIDE WIRING FOR LARGER CIRCUITS AS REQUIRED BY NEC. RIGID CONDUIT IS REQUIRED WHERE EXPOSED BELOW 8'-0" A.F.F.

4 ALL EMPTY CONDUIT RUNS IN EXCESS OF 10 FEET SHALL BE PROVIDED WITH A PULL WIRE OR FISH TAPE/CORD.

5 CONTRACTOR SHALL VERIFY THAT ALL DOOR SWINGS ARE CORRECT BEFORE INSTALLING LIGHT SWITCH OUTLETS.

6 ALL BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST OUTLET SHALL BE INCREASED TO THE NEXT LARGER SIZE WHERE THE LENGTH OF THE HOME RUN EXCEEDS 120 FEET ON 120V AND 208V CIRCUITS.

7 THE CORRECT NUMBER OF WIRES MAY NOT BE INDICATED FOR ALL CIRCUITS, ONLY THOSE WHERE CLARIFICATION IS NECESSARY. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL WIRES NECESSARY FOR THE PROPER FUNCTION OF THE SYSTEM WHETHER INDICATED ON DRAWINGS OR NOT.

8 THE CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECTLY PHASING THE CIRCUITS IN THE PANELBOARDS.

9 THE ELECTRICAL CONTRACTOR SHALL VERIFY THE TYPE OF CEILING SYSTEM WITH THE GENERAL CONTRACTOR TO INSURE THAT ALL LIGHTING FIXTURES ARE COMPATIBLE WITH THE CEILING SYSTEM BEING INSTALLED. LIGHTING FIXTURES SHOULD NOT BE ORDERED UNTIL TYPE OF CEILING HAS BEEN VERIFIED.

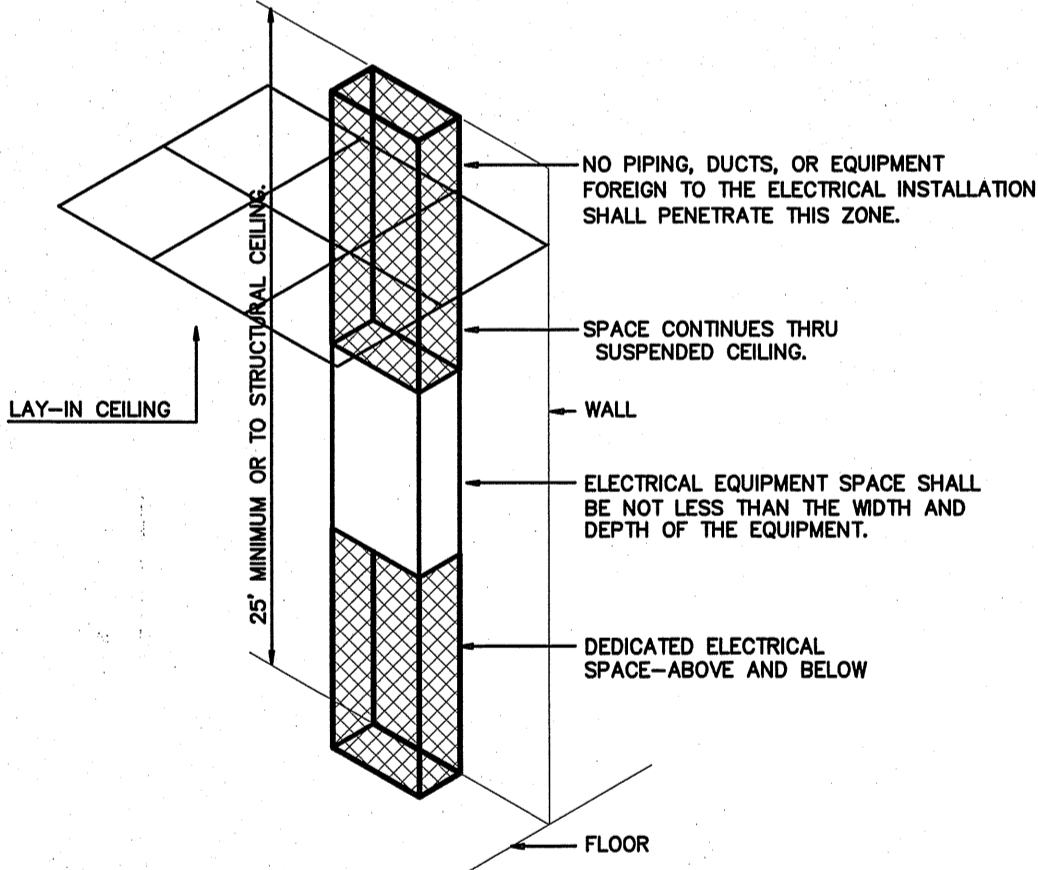
10 ELECTRICAL REQUIREMENTS INDICATED ON DRAWINGS MAY DIFFER FROM ACTUAL EQUIPMENT FURNISHED. IF FURNISHED EQUIPMENT DIFFERS FROM RATINGS ON DRAWINGS CONTRACTOR SHALL NOTIFY ARCHITECT/ENGINEER FOR APPROPRIATE ACTION TO BE TAKEN.

11 IT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO COORDINATE EXACT BREAKER REQUIREMENTS FOR ALL EQUIPMENT PRIOR TO ORDERING PANEL. ADJUST BREAKER AND WIRE SIZES AS REQUIRED.

12 PROVIDE BOXES, JACKS, WIRING AND CONDUIT FROM LOCATIONS SHOWN TO MTP LOCATION. VERIFY EXACT REQUIREMENTS WITH OWNER.

13 ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECTS FOR MECHANICAL & PLUMBING EQUIPMENT. DISCONNECTS SHALL BE PER MANUFACTURER'S RECOMMENDATIONS AND FUSED PER NAME PLATE. PROVIDE NEMA 3R ENCLOSURES ON EXTERIOR. COORDINATE FUSE SIZES.

14 THE EC SHALL MEET WITH THE ARCHITECT AND TENANT PRIOR TO INSTALLING OUTLET BOXES TO VERIFY LOCATIONS AND MOUNTING HEIGHTS OF RECEPTACLES AND TELEPHONE OUTLETS.



**ELECTRICAL EQUIPMENT DEDICATED SPACE PER ARTICLE 110.26.F.1 OF N.E.C.**

2 DEDICATED SPACE  
SCALE: NTS

THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF THE ELECTRICAL EQUIPMENT REQUIRED BY SECTION 110-16 OF THE N.E.C.

**WHERE THE CONDITIONS ARE AS FOLLOWS:**

- 1 EXPOSED LIVE PARTS ON ONE SIDE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES EFFECTIVELY GUARDED BY SUITABLE WOOD OR INSULATED BUSBARS OPERATING AT NOT OVER 300V SHALL NOT BE CONSIDERED LIVE PARTS.
- 2 EXPOSED LIVE PARTS ON ONE SIDE AND GROUNDED PARTS ON THE OTHER SIDE.
- 3 EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORK SPACE (NOT GUARDED AS PROVIDED IN CONDITION 1) WITH THE OPERATOR BETWEEN.

**ELECTRICAL LEGEND**

- X LIGHT FIXTURE: LETTER DENOTES FIXTURE TYPE (REFER TO LIGHTING PLAN AND FIXTURE SCHEDULE). NL = NIGHT LIGHT (NOT SWITCHED/ALWAYS ON)
- U DUPLX RECEPTACLE - 120V; MOUNT 18" TO CENTER AFF UNLESS NOTED OTHERWISE; "WP" INDICATES WEATHER PROOF, "GFI" INDICATES GROUND FAULT CURRENT INTERRUPT PROTECTED. "U" INDICATES RECEPTACLE WITH (2) USB PORTS.
- WP/GFI
- QUADRAPLEX RECEPTACLE - 120V
- FLOOR BOX- POWER/DATA-120V PROVIDE LEGRAND RFB2 OR APPROVED EQUAL RECESSED FLOOR BOX. PROVIDE MINIMUM 20A DUPLX AND (2) CAT 6E DATA
- SPECIAL PURPOSE RECEPTACLE - REFER TO POWER PLAN AND PANEL SCHEDULE
- S LIGHT SWITCH
- S\_M SWITCH WITH INTEGRAL PIR/US MOTION SENSOR FOR AUTOMATIC SHUT-OFF WITH UP TO 2 HOUR ADJUSTABLE DELAY.
- S\_D DIMMABLE LIGHT SWITCH
- M MOTOR RATED SWITCH
- JUNCTION BOX
- TELE/DATA OUTLET - PROVIDE JUNCTION BOX WITH CONDUIT BACK TO MTP. PROVIDE (1) TELEPHONE JACK AND (1) CAT 5 DATA JACK
- SINGLE-POLE HOMERUN TO PANELBOARD
- TWO-POLE OR 3-POLE HOMERUN TO PANELBOARD
- EXIT LIGHT
- EMERGENCY EGRESS FIXTURE
- PHOTOCELL (LED COMPLIANT)
- BRANCH CIRCUIT WIRING
- SWITCH LEG
- GROUND CONNECTION
- DISTRIBUTION PANELBOARD
- DISCONNECTING MEANS AS REQUIRED BY CODE
- 1 HR FIREWALL
- 2-HR FIREWALL

**APPENDIX B  
2018 BUILDING CODE SUMMARY  
FOR ALL COMMERCIAL PROJECTS**

ELECTRICAL DESIGN (PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)  
ELECTRICAL SUMMARY

**ELECTRICAL SYSTEM AND EQUIPMENT**

Method of Compliance

Energy Code: Prescriptive  Energy Cost Budget

ASHRAE 90.1: Prescriptive  Energy Cost Budget

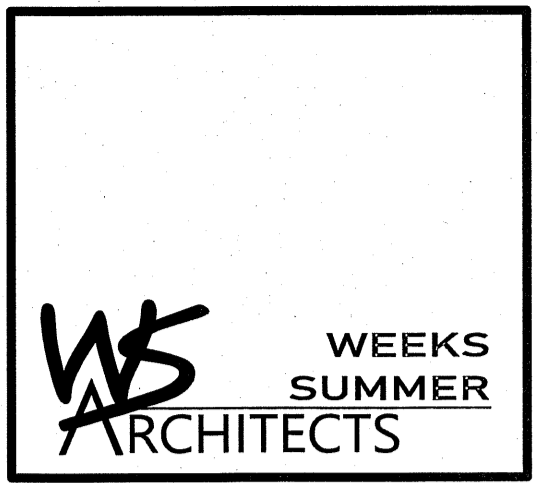
**Lighting Schedule**

lamp type required in fixture  
number of lamps in fixture  
ballast type used in fixture  
number of ballasts in fixture  
total wattage in fixture  
total interior wattage specified vs. allowed  
total exterior wattage specified vs. allowed

4955VA / 12544VA  
462VA / 500VA

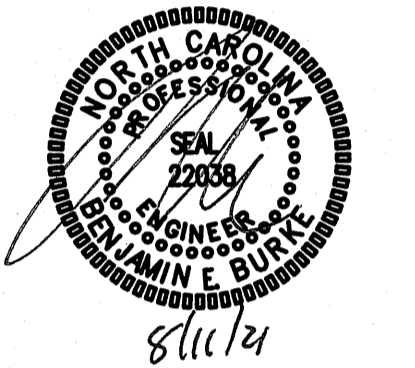
**Additional Prescriptive Compliance**

- 506.2.1 More Efficient Mechanical Equipment
- 506.2.2 Reduced Lighting Power Density
- 506.2.3 Energy Recovery Ventilation Systems
- 506.2.4 Higher Efficiency Service Water Heater
- 506.2.5 On-Site Supply of Renewable Energy
- 506.2.6 automatic Daylighting Control System



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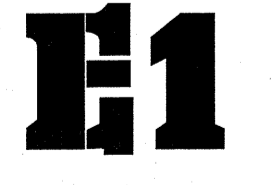
PROJECT TITLE  
**POWERMASTER ELECTRIC**

311 JARCO DR  
FUQUAY VARINA, NC 27526

PROJECT NO.  
**2019**

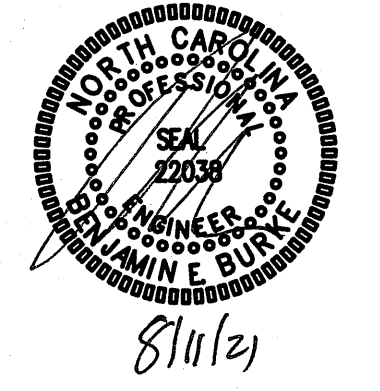
DRAWING TITLE  
**ELECTRICAL SPECIFICATIONS**

PLOT DATE  
8/11/21



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**1 ELECTRICAL CLEARANCES**  
SCALE: NTS



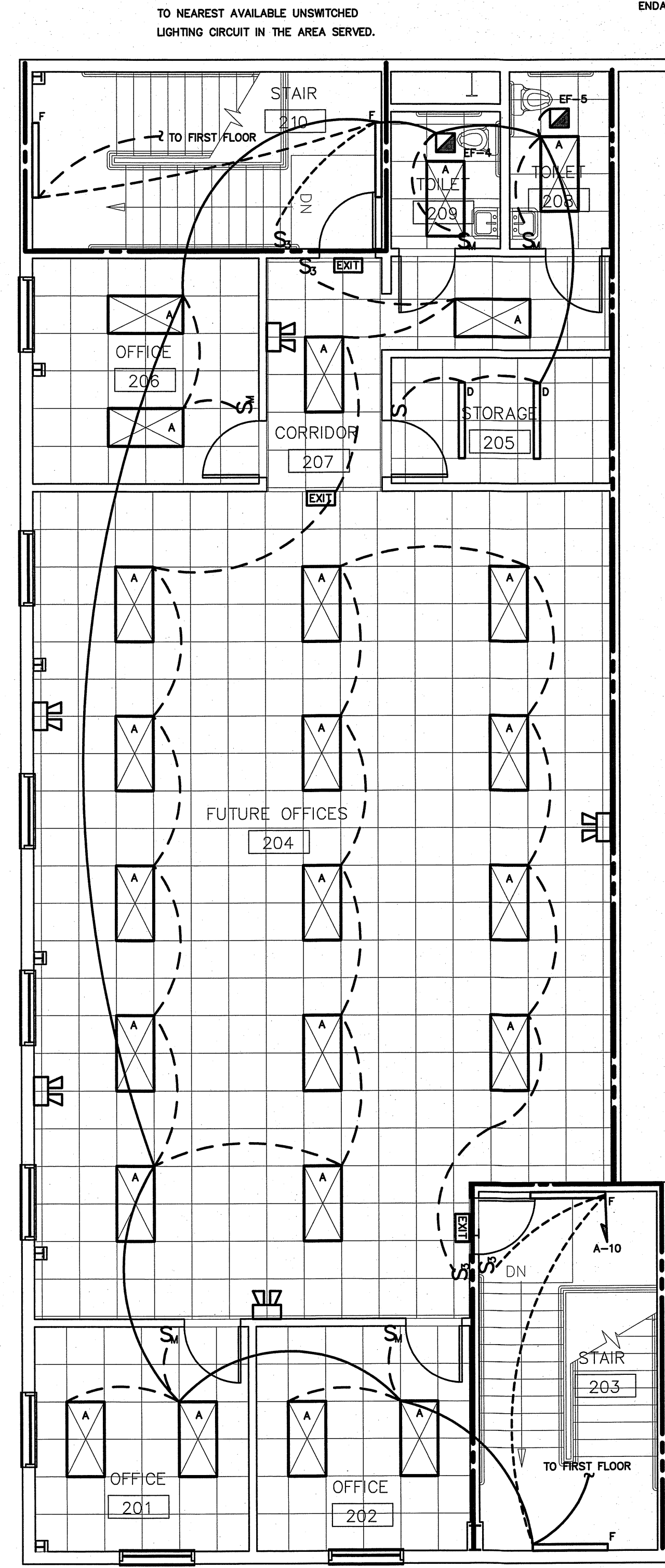
Powermaster E2 LIGHTING SCHEDULE *									
MARK	MANUFACTURER	CATALOG NO.	VOLT.	LAMPS NO.	LAMP TYPE	BALLAST W.	W/ TYPE	FIXTURE	REMARKS
A	COLUMBIA	LCAT24-35LWG-EDU	277	-	LED	-	-	40	2X4 LAY-IN LED FIXTURE
B	COLUMBIA	LCAT22-35MWG-EDU	277	-	LED	-	-	25	2X2 LAY-IN LED FIXTURE
C	JUNO	IC22LED-04-14LM-35K	277	-	LED	-	-	30	6" LED RECESSED CAN FIXTURE
D	COLUMBIA	LCL4-35ML-EU	277	-	LED	-	-	42	4" LED STRIP FIXTURE
E	COLUMBIA	LLHV4-35LW-WST-EU	277	-	LED	-	-	90	2X4 HIGHBAY LIGHTS
EE	COLUMBIA	LLHV4-35LW-WST-EU-ELL14	277	-	LED	-	-	90	2X4 HIGHBAY LIGHTS W/ EMERGENCY BATTERY PACK, 1400 LUMENS
H	COLED	COLED4W-20W-500-930-K	277	-	LED	-	-	20	4" EXTERIOR SCENCE
U	ULTRABRIGHT	UB-AT1-30K97C	277	-	LED	-	-	3.5W/FT	LED LINEAR STRIP LIGHTING (UNDERCOUNTER)
F	COLUMBIA	MPS4-35ML-CN-EU-NXS	277	-	LED	-	-	38	FLUORESCENT WALL MOUNT STAIRWAY FIXTURE, BI-LEVEL W/ EMERG BALLAST, MOUNT AT 70" AFF
W	HUBBELL	SG1-40-3K7-FT-277-BLT	277	-	LED	-	-	40	EXTERIOR WALL PACK
G	COMPASS	CUSO	277	-	LED	-	-	17	EXTERIOR NORMAL/EMERGENCY LIGHT FIXTURE- COLOR BY ARCH
EXIT	COMPASS	CELR	277	-	LED	-	-	2	EXIT LIGHT, EMERGENCY BATTERY
EXIT	COMPASS	CU2	277	2	LED	-	-	2	EMERGENCY LIGHT

\* OR APPROVED EQUAL, PROVIDE CUT SHEETS FOR OWNER APPROVAL PRIOR TO ORDERING FIXTURES. CATALOG NUMBERS ARE FOR REFERENCE ONLY, ACTUAL NUMBERS MAY VARY. THE EMERGENCY LIGHTS AND EXIT SIGNS MUST HAVE INTEGRAL BATTERIES, CHARGERS AND TEST SWITCHES.

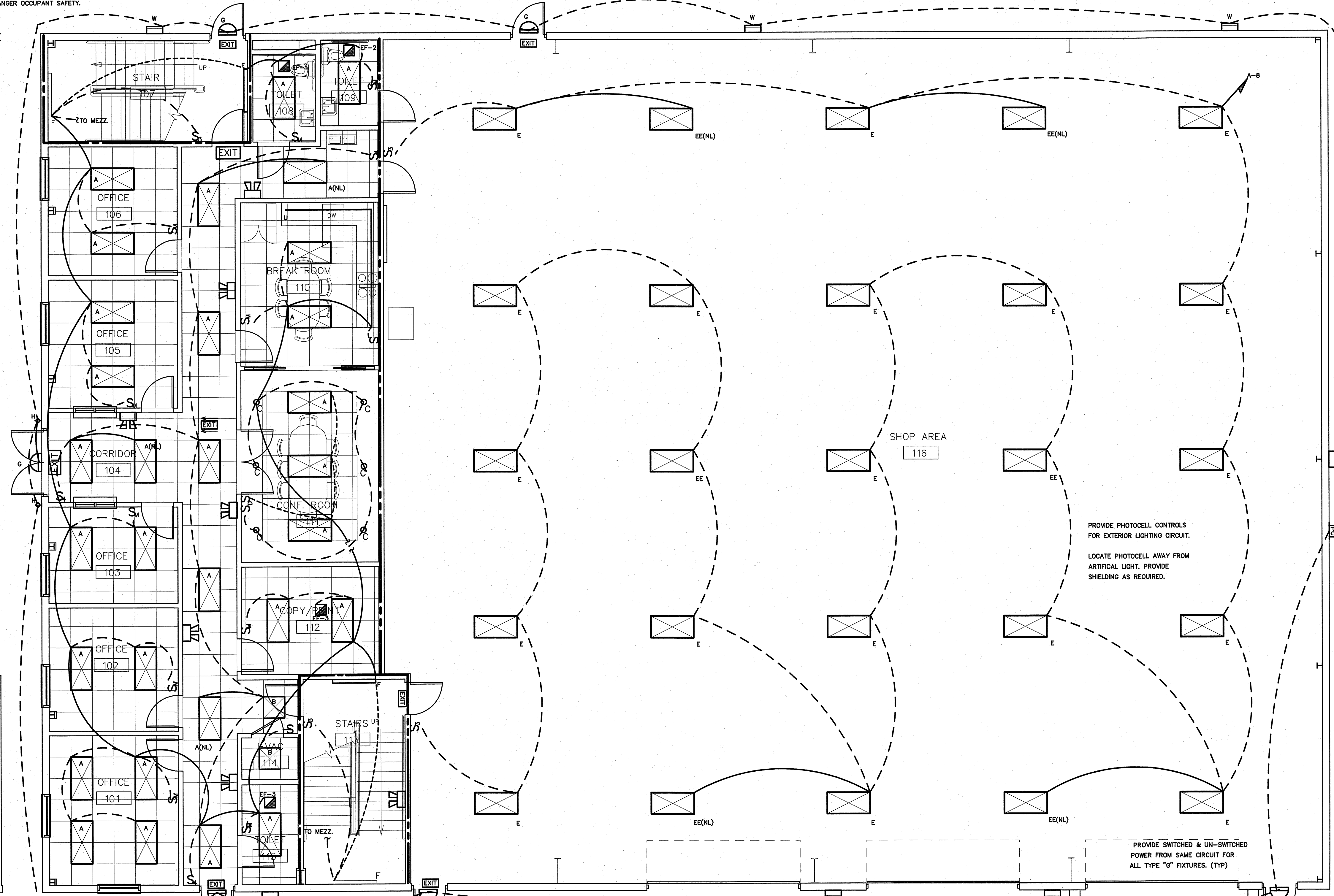
NOTE:  
 PROVIDE LABELING ON EACH SWITCH NOTING CIRCUIT SERVED.

TIE ALL EXIT AND EMERGENCY LIGHTS TO NEAREST AVAILABLE UNSWITCHED LIGHTING CIRCUIT IN THE AREA SERVED.

AUTOMATIC LIGHTING SHUTOFF IS NOT SHOWN IN THE EGRESS PATH LIGHTING AS ALLOWED PER 408.2.1-3 EXCEPTION #3, WHERE AUTOMATIC SHUTOFF WOULD ENDANGER OCCUPANT SAFETY.



**2 MEZZANINE LIGHTING PLAN**  
 SCALE: 3/16" = 1'-0"



**1 1ST FLOOR LIGHTING PLAN**  
 SCALE: 3/16" = 1'-0"

PROVIDE PHOTOCELL CONTROLS FOR EXTERIOR LIGHTING CIRCUIT.  
 LOCATE PHOTOCELL AWAY FROM ARTIFICIAL LIGHT. PROVIDE SHIELDING AS REQUIRED.

PROVIDE SWITCHED & UN-SWITCHED POWER FROM SAME CIRCUIT FOR ALL TYPE "O" FIXTURES. (TYP)

PROVIDE PHOTOCELL CONTROLS FOR EXTERIOR LIGHTING CIRCUIT.  
 LOCATE PHOTOCELL AWAY FROM ARTIFICIAL LIGHT. PROVIDE SHIELDING AS REQUIRED.

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
 311 JARCO DR  
 FUQUAY VARINA, NC 27526

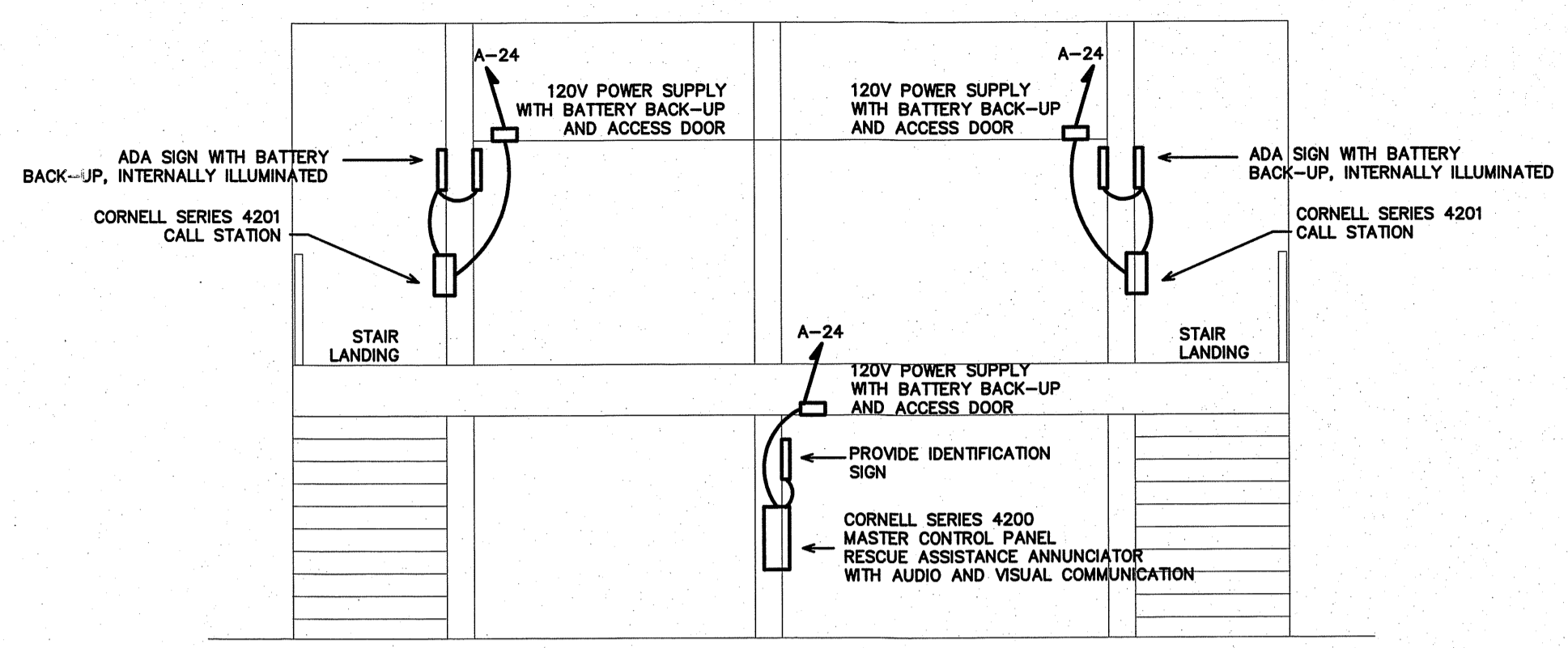
PROJECT NO.  
 2019  
 DRAWING TITLE  
**LIGHTING PLAN**



PLOT DATE 8/11/21

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NOTE:  
 PROVIDE ALL WORK FOR A COMPLETE OPERATING AREA SYSTEM MEETING ALL LOCAL CODES AND ORDINANCES. ALL WORK SHALL MEET NFPA 72 AND THE NCSBC. PROVIDE ALL POWER AND CONTROL WIRING. ALL CONDUIT AND WIRING MUST BE RUN CONCEALED IF POSSIBLE. COORDINATE ALL WORK WITH THE A.H.J. PRIOR TO THE START OF WORK.



NOTE:  
 COORDINATE ACTUAL LOCATION WITH LOCAL INSPECTIONS DEPARTMENT

4 ARA DETAIL  
 SCALE: NTS

PROVIDE KEYPAD SYSTEM AT EACH DOOR ENTERING THE TENANT SPACE AND AS NOTED ELSEWHERE. COORDINATE EXACT SYSTEM REQUIREMENTS WITH INSTALLER PRIOR TO ROUGH-IN.

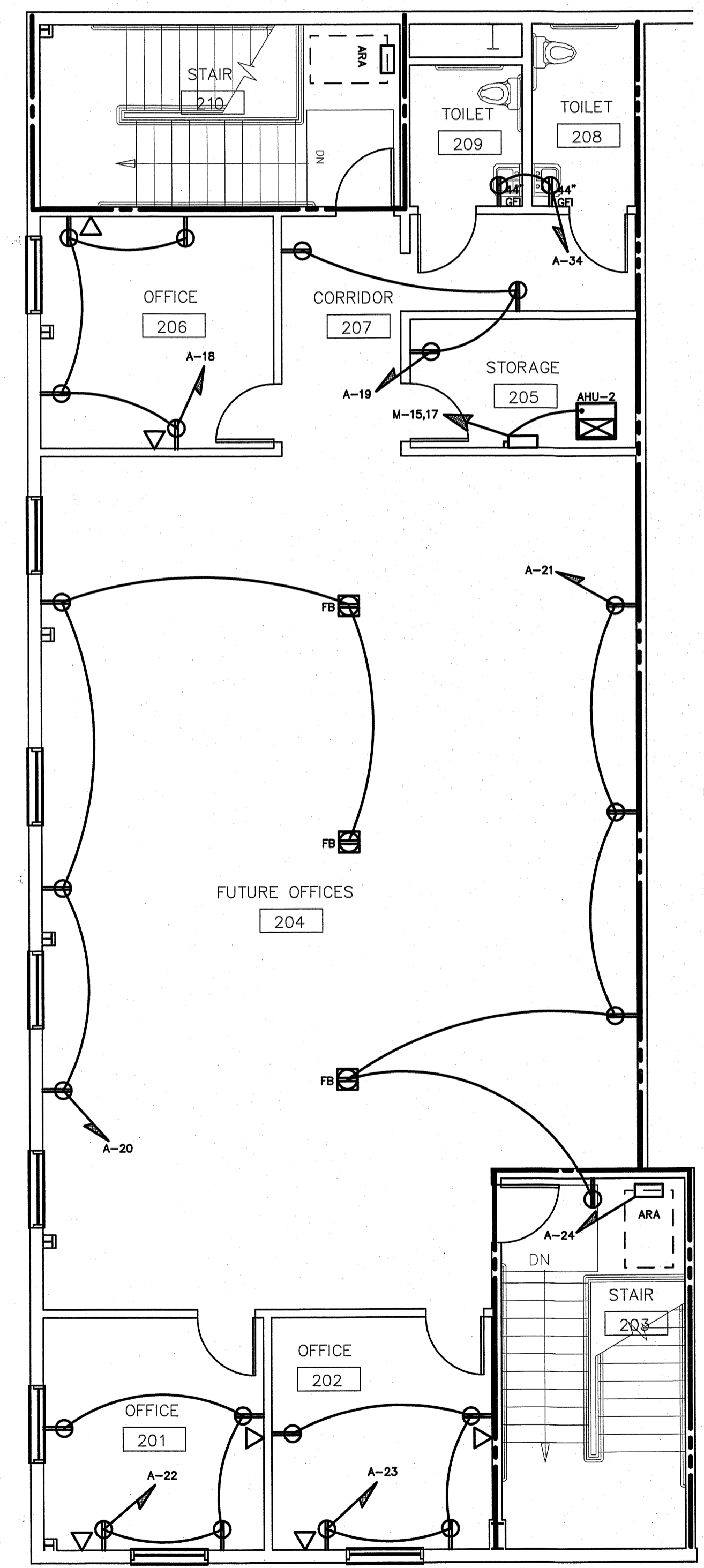
J-BOX FOR KEYPAD. READER BY OTHERS. COORDINATE INSTALLATION NEXT TO DOOR.  
 ELECTRIC STRIKE BY OTHERS. PROVIDE 3/4" CONDUIT TO STRIKE LOCATION.

PROVIDE KEYPAD SYSTEM AT DOORS AS NOTED ON POWER PLAN. COORDINATE EXACT REQUIREMENTS WITH GC AND EQUIPMENT SUPPLIER/INSTALLER PRIOR TO ROUGH-IN.

NOTE:  
 THE SHOP AREA IS CLASSIFIED AS A MINOR REPAIR GARAGE PER 2017 NEC 511.2. NATURAL GAS OR HYDROGEN FUELED VEHICLES WILL NOT BE REPAIRED IN THIS FACILITY. THE AREA 18" ABOVE THE FLOOR IS CLASSIFIED AS A CLASS 1, DIVISION 2 AREA. ALL ELECTRICAL OR MECHANICAL EQUIPMENT SHALL BE LOCATED OUTSIDE OF THIS AREA. THE OWNER SHALL PROVIDE STANDS FOR ALL EQUIPMENT, WITH OPEN MOTORS, ETC. TO LOCATE HIGHER THAN 18" A.F.F.

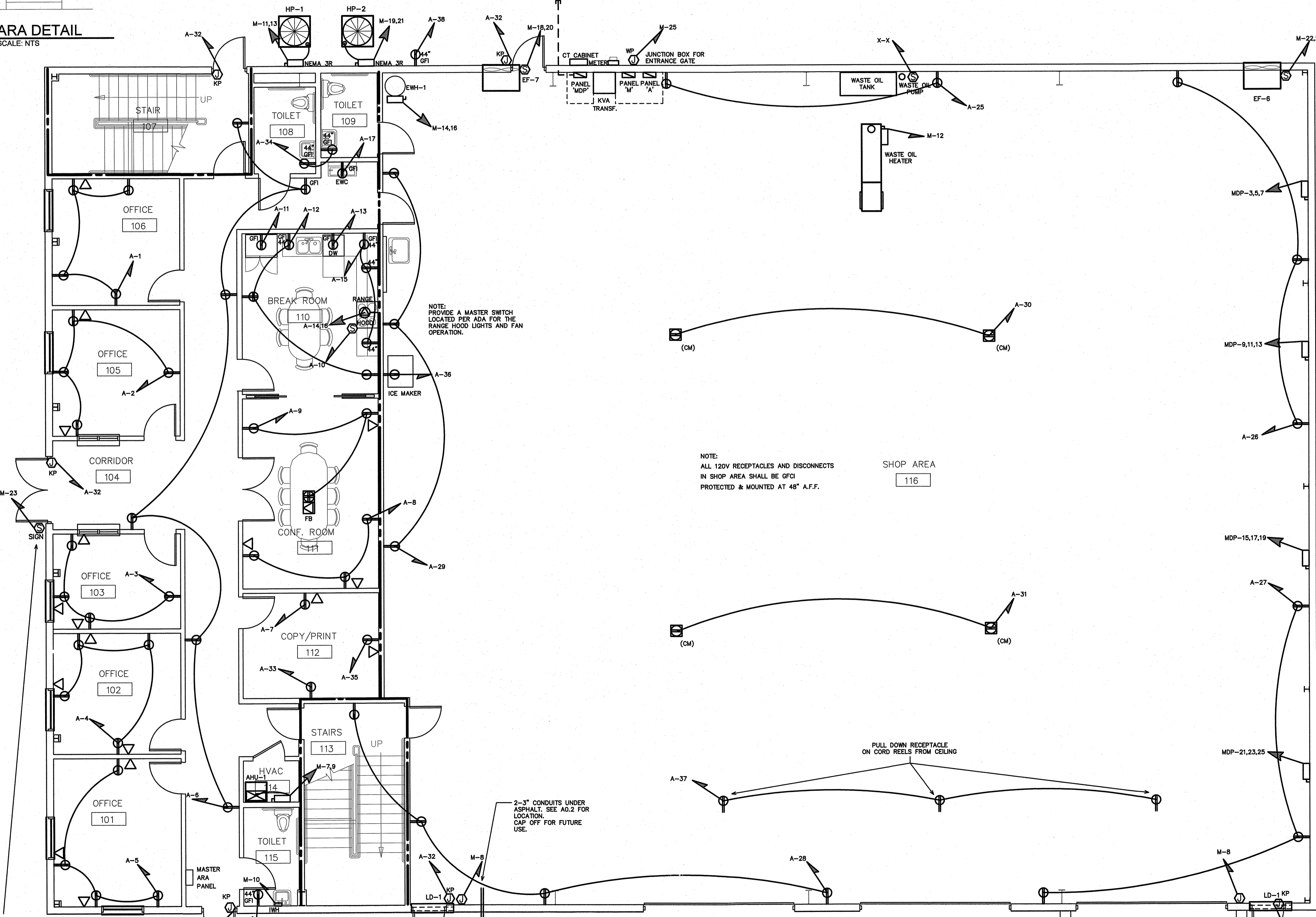
3 KEYPAD SYSTEM  
 SCALE: NTS

NOTE:  
 PROVIDE LABELING ON EACH RECEPTACLE NOTING CIRCUIT SERVED.

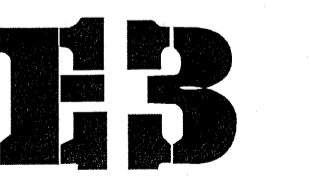
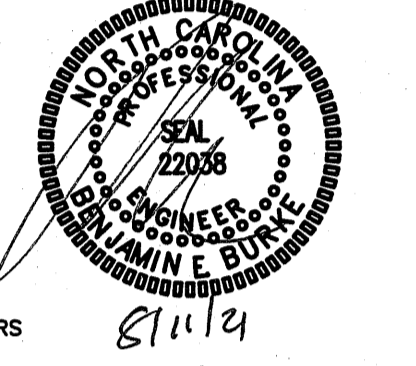


2 MEZZANINE POWER PLAN  
 SCALE: 3/16" = 1'-0"

PROVIDE TIME CLOCK, JUNCTION BOX AND SWITCH FOR SIGN CIRCUIT. SWITCH SHALL BE LOCATED WITHIN SIGHT OF SIGN OR BE CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 600.6. COORDINATE LOCATION WITH TENANT.



1 1ST FLOOR POWER PLAN  
 SCALE: 3/16" = 1'-0"



LOAD SERVICE		CKT BRKR	WATTS PER PHASE	CKT NO	NEUTRAL A B C	CKT NO	WATTS PER PHASE	CKT BRKR	LOAD SERVICE	
SPARE	20A			1		2	24102		PANEL 'M'	
DISCONNECT	60A		13000	3		4	28742			
			13000	7		8	2250		20A LIGHTS-WAREHOUSE	
			13000	9		10	2745		20A LIGHTS-OFFICES	
			13000	11		12	482		20A LIGHTS-EXTERIOR	
			13000	13		14			30A SPARE (SITE)	
			13000	15		16			SPACE	
			13000	17		18			SPACE	
			13000	19		20			SPACE	
			13000	21		22			SPACE	
			13000	23		24			SPACE	
			13000	25		26			SPACE	
			13000	27		28			SPACE	
			13000	29		30			SPACE	
			13000	31		32			SPACE	
			13000	33		34			SPACE	
			13000	35		36			SPACE	
			13000	37		38			SPACE	
			13000	39		40			SPACE	
			13000	41		42			SPACE	
NOTES		SUB-TOTALS 'B'		52000	52000	600A BUS	26352	31487	21018	SUB-TOTALS 'A'
						600A LUGS	52000	52000	52000	SUB-TOTALS 'B'
						600A FEED	78352	83487	73018	GRAND TOTAL
						VERIFY SIZE	283A	301A	284A	AMPS/PHASE
NEC ALLOWABLE DEMAND FACTORS		DIVERSIFIED LOAD SUMMARY								
① DEMAND FACTORS PER NEC 220		LOAD TYPE								
② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD		DEMAND FACTOR								
③ NEC TABLE 220.56		GENERAL LIGHTING								
④ NEC 220.51		TRACK LIGHTING								
⑤ NEC 220.43A, 200 VA/LINEAR FT		GENERAL USE								
⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED		RECEPTACLES								
		MOTORS AND EQUIPMENT								
		WATER HEATERS								
		KITCHEN EQUIPMENT								
		FIX. ELEC. SPACE HEAT.								
		SHOW WINDOW LIGHTS								
		SIGN								
		MISC								
		PHASE (TOTAL VA)								
		TOTAL AMPS								
		VOLT AMPS = 286A TOTAL AMPS								

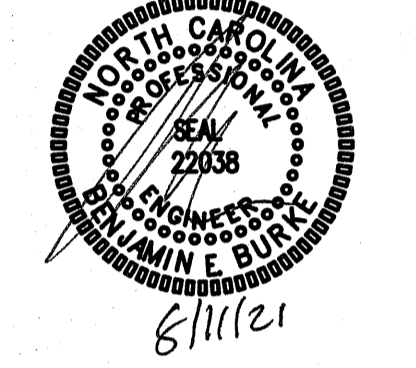
LOAD SERVICE		CKT BRKR	WATTS PER PHASE	CKT NO	NEUTRAL A B C	CKT NO	WATTS PER PHASE	CKT BRKR	LOAD SERVICE		
SPARE	150A		11180	1		2			SPARE (FUTURE PANEL)		
DISCONNECT	60A		11896	3		4					
			9320	5		6			20A LOUVERS		
			3980	7		8	360		40A IWH		
			3980	9		10	3500		25A WASTE OIL HEATER		
			2876	11		12	2400		30A EWH		
			3980	13		14	2250		20A EF-6		
			3980	15		16	2250		20A EF-7		
			3980	17		18	500		20A SPARE		
			2876	19		20	500		20A SPARE		
			2876	21		22	500		20A SPARE		
			1200	23		24			20A SPARE		
			500	25		26			20A SPARE		
			500	27		28			20A SPARE		
			500	29		30			20A SPARE		
			500	31		32			20A SPARE		
			500	33		34			20A SPARE		
			500	35		36			20A SPARE		
			500	37		38			20A SPARE		
			500	39		40			20A SPARE		
			500	41		42			20A SPARE		
NOTES		SUB-TOTALS 'B'		20992	22492	17156	400A BUS	3110	6250	3400	SUB-TOTALS 'A'
							400A LUGS	20992	22492	17156	SUB-TOTALS 'B'
							400A FEED	24102	28742	20556	GRAND TOTAL
							VERIFY SIZE	201A	240A	171A	AMPS/PHASE
NEC ALLOWABLE DEMAND FACTORS		DIVERSIFIED LOAD SUMMARY									
① DEMAND FACTORS PER NEC 220		LOAD TYPE									
② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD		DEMAND FACTOR									
③ NEC TABLE 220.56		GENERAL LIGHTING									
④ NEC 220.51		TRACK LIGHTING									
⑤ NEC 220.43A, 200 VA/LINEAR FT		GENERAL USE									
⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED		RECEPTACLES									
		MOTORS AND EQUIPMENT									
		WATER HEATERS									
		KITCHEN EQUIPMENT									
		FIX. ELEC. SPACE HEAT.									
		SHOW WINDOW LIGHTS									
		SIGN									
		MISC									
		PHASE (TOTAL VA)									
		TOTAL AMPS									
		VOLT AMPS = 207A TOTAL AMPS									

LOAD SERVICE		CKT BRKR	WATTS PER PHASE	CKT NO	NEUTRAL A B C	CKT NO	WATTS PER PHASE	CKT BRKR	LOAD SERVICE		
RECEP-1ST FLOOR OFFICE	20A		720	1		2	720		20A RECEP-1ST FLOOR OFFICE		
RECEP-1ST FLOOR OFFICE	20A		720	3		4	720		20A RECEP-1ST FLOOR OFFICE		
RECEP-1ST FLOOR OFFICE	20A		720	5		6	1080		20A RECEP-HALL		
RECEP-COPY/PRINT RM	20A		540	7		8	540		20A RECEP-CONFERENCE RM		
RECEP-CONFERENCE RM	20A		720	9		10	896		20A MOTORIZED SWITCH		
REFRIGERATOR	20A		1800	11		12	720		20A RECEP-KITCHEN		
DISHWASHER	20A		1500	13		14	4000		50A RANGE		
RECEP-KITCHEN	20A		540	15		16	4000		20A RECEP-MEZZ OFFICE		
EW	20A		180	17		18	720		20A RECEP-OPEN OFFICE		
RECEP-MEZZ HALL/STORAGE	20A		720	19		20	900		20A RECEP-OPEN OFFICE		
RECEP-OPEN OFFICE	20A		900	21		22	720		20A ARA SYSTEM		
RECEP-MEZZ OFFICE	20A		720	23		24	500		20A RECEP-WAREHOUSE		
RECEP-WAREHOUSE	20A		360	25		26	540		20A RECEP-WAREHOUSE		
RECEP-WAREHOUSE	20A		540	27		28	540		20A RECEP-WAREHOUSE		
RECEP-WAREHOUSE	20A		540	29		30	360		20A RECEP-WAREHOUSE		
RECEP-WAREHOUSE	20A		360	31		32	100		20A KEYPAD		
PRINTER	20A		1440	33		34	360		20A REC-BATHROOM GFI		
COPY/PRINT	20A		180	35		36	1800		20A ICE MAKER		
REC-OVERHEAD	20A		180	37		38	180		20A REC-EXTERIOR		
SPACE	20A			39		40			SPACE		
SPACE	20A			41		42			SPACE		
NOTES		SUB-TOTALS 'B'		4380	4860	4140	150A BUS	6800	7036	5180	SUB-TOTALS 'A'
							150A LUGS	4380	4860	4140	SUB-TOTALS 'B'
							150A FEED	11180	11896	9320	GRAND TOTAL
							VERIFY SIZE	93A	99A	78A	AMPS/PHASE
NEC ALLOWABLE DEMAND FACTORS		DIVERSIFIED LOAD SUMMARY									
① DEMAND FACTORS PER NEC 220		LOAD TYPE									
② LARGEST OF: NEC TABLE 220.12 OR CONNECTED LOAD		DEMAND FACTOR									
③ NEC TABLE 220.56		GENERAL LIGHTING									
④ NEC 220.51		TRACK LIGHTING									
⑤ NEC 220.43A, 200 VA/LINEAR FT		GENERAL USE									
⑥ NON-COINCIDENT LOADS, LARGEST OF THE TWO LOADS IS COUNTED		RECEPTACLES									
		MOTORS AND EQUIPMENT									
		WATER HEATERS									
		KITCHEN EQUIPMENT									
		FIX. ELEC. SPACE HEAT.									
		SHOW WINDOW LIGHTS									
		SIGN									
		MISC									
		PHASE (TOTAL VA)									
		TOTAL AMPS									
		VOLT AMPS = 85A TOTAL AMPS									

**WEEKS TURNER ARCHITECTURE**

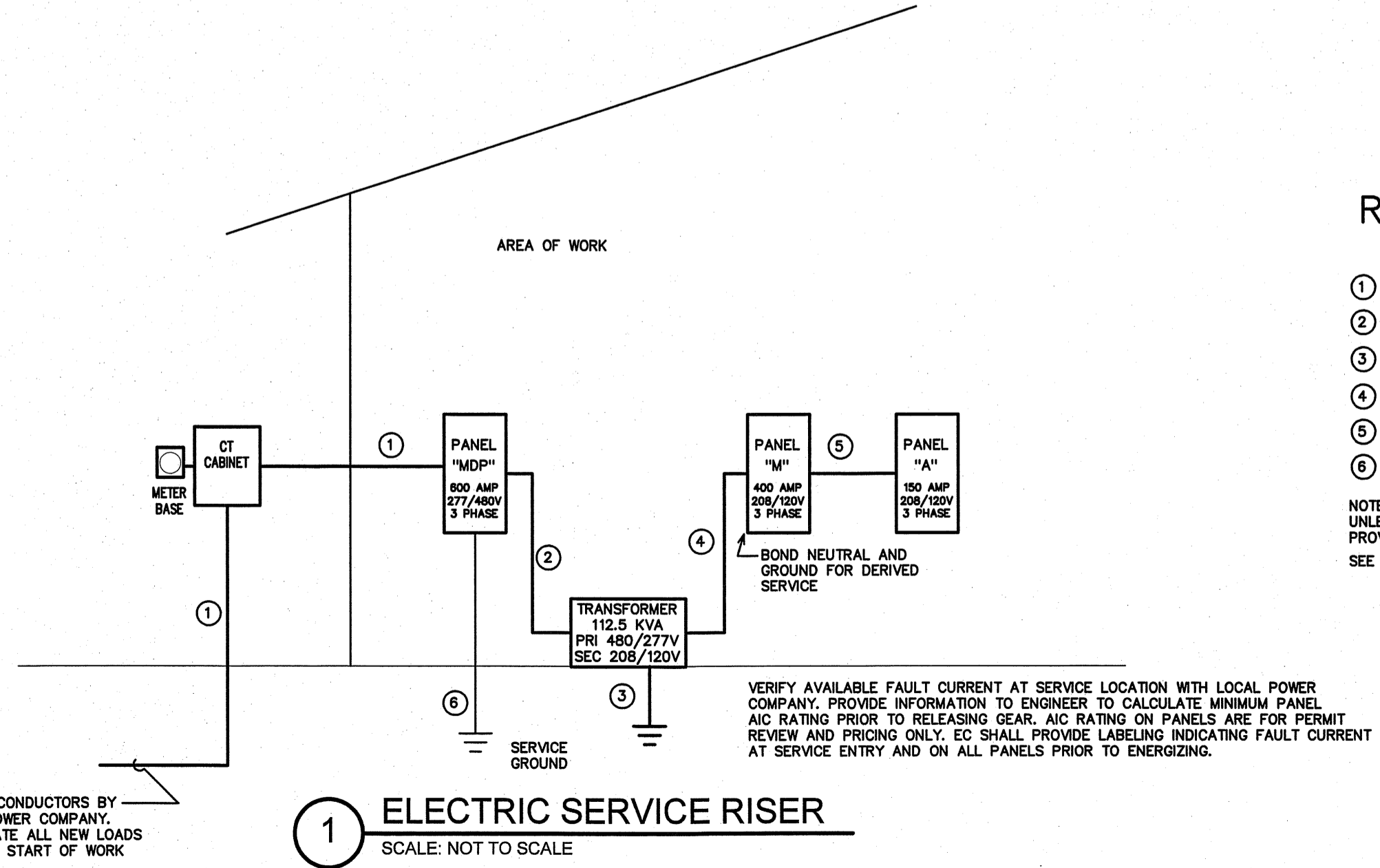
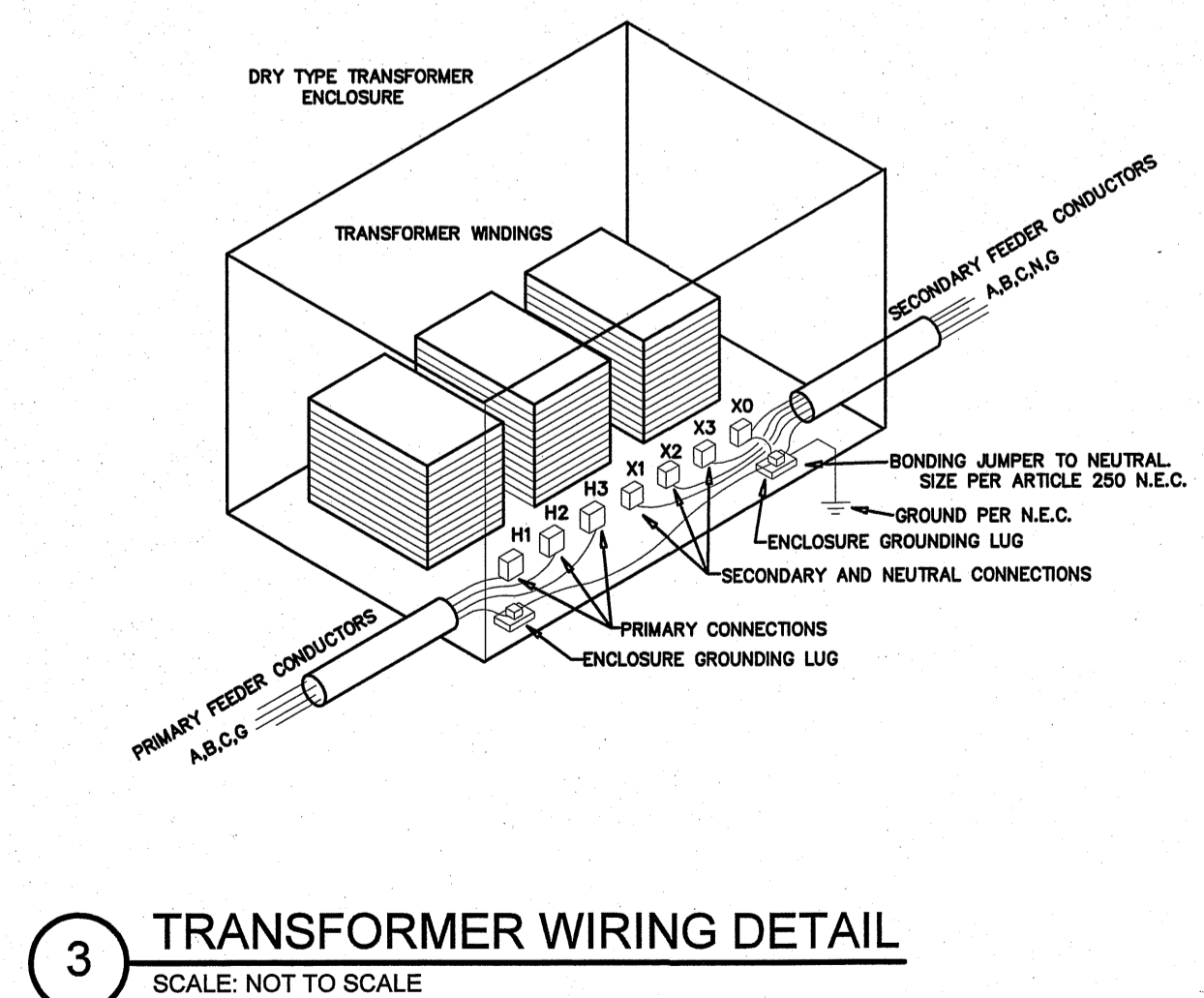
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EQUIPMENT	MCA	MOCP	VOLTS	PH	WIRE SIZE
AHU-1	44.7A	45A	208V	1	2-#6, 1-#10 GND IN 1" CONDUIT
HP-1	28.5A	40A	208V	1	2-#8, 1-#10 GND IN 3/4" CONDUIT
AHU-2	44.7A	45A	208V	1	2-#6, 1-#10 GND IN 3/4" CONDUIT
HP-2	28.5A	40A	208V	1	2-#8, 1-#10 GND IN 3/4" CONDUIT
IWH (3.5KW)	40A	120V	1	2-#8, 1-#10 GND IN 3/4" CONDUIT	
EWH (4.5KW)	30A	208V	1	2-#10, 1-#10 GND IN 3/4" CONDUIT	
EF-6	16A	20A	208V	1	2-#12, 1-#12 GND IN 1/2" CONDUIT
EF-7	16A	20A	208V	1	2-#12, 1-#12 GND IN 1/2" CONDUIT
WASTE OIL HEATER	20A	25A	120V	1	2-#10, 1-#10 GND IN 3/4" CONDUIT
RANGE (8KW)	50A	208V	1	3-#8, 1-#10 GND IN 3/4" CONDUIT	
EQ TESTING DISCONNECT (X4)	48A	60A	480V	3	4-#6, 1-#10 GND IN 1" CONDUIT

NOTE:  
THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL EQUIPMENT ELECTRICAL REQUIREMENTS PRIOR TO ROUGH-IN AND RELEASING GEAR. ADJUST BREAKER, WIRE SIZES, ETC. AS REQUIRED.

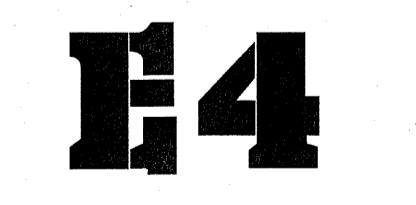


**RISER WIRING SCHEDULE**

- ① 600A: (2 SETS) 4-#500MCM, 1-#1 CU GND, IN (2) 3" CONDUIT
  - ② 150A: 3-#1/0, 1-#6 CU GND, IN 2" CONDUIT
  - ③ FOR XFMR: SIZE PER DERIVED PHASE CONDUCTORS USING TABLE 250.66; CONNECT TO NEAREST GROUNDING ELECTRODE PER NEC 250.30 (7) 2008
  - ④ 400A: 4-#500MCM, 1-#3/0 CU GND, IN 3 1/2" CONDUIT
  - ⑤ 150A: 4-#1/0, 1-#6 CU GND, IN 2" CONDUIT
  - ⑥ #5/0 CU GND TO BUILDING STEEL, FOUNDATION STEEL AND METALLIC WATER MAIN AND #6 CU GND TO 10' X 5/8" DRIVEN GROUND ROD
- NOTE:  
UNLESS OTHERWISE NOTED ALL OTHER CIRCUITS ARE 20A, 120VOLT. PROVIDE 2-#12, 1-#12 CU GND IN 1/2" CONDUIT. SEE EQUIPMENT SCHEDULES FOR ADDITIONAL WIRE SIZES.

PROJECT TITLE  
**POWERMASTER ELECTRIC**  
JARCO DRIVE  
FUQUAY-VARINA, NORTH CAROLINA

PROJECT NO.  
**2019**  
DRAWING TITLE  
**PANELS & RISER**



PLOT DATE 8/11/21

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