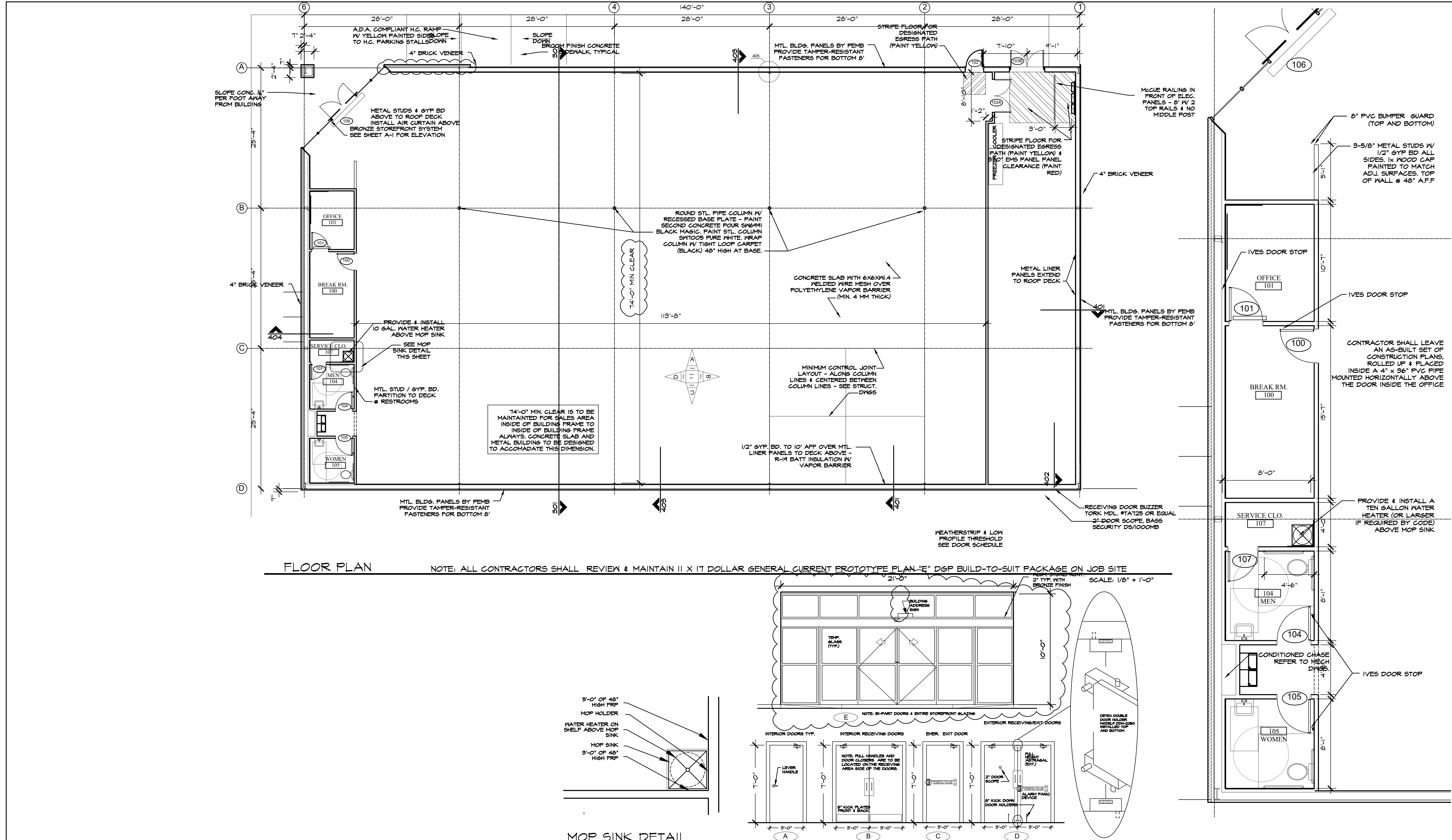


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ROOM FINISH SCHEDULE										
NO	ROOM NAME	FLOOR	FINISH	BAS	A WALL	B WALL	C WALL	D WALL	CEILING	REMARKS
100	BREAK RM.	CONCRETE FLOOR SEALED	CONCRETE IV SEALER	4" RUBBER / VINYL BASE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	EXPOSED TO STRUCTURE ABOVE	N/A
101	OFFICE	CONCRETE FLOOR SEALED	CONCRETE IV SEALER	4" RUBBER / VINYL BASE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	EXPOSED TO STRUCTURE ABOVE	N/A
102	SALES AREA	CONC. FLOOR POLISHED (STEPS 1-4)	CONCRETE IV SEALER	4" RUBBER / VINYL BASE	GYPSUM BD. ON WHITE METAL LINER PANELS. SEE ELEV. - SHT A-3	GYPSUM BD. ON WHITE METAL LINER PANELS. SEE ELEV. - SHT A-3	GYPSUM BD. ON WHITE METAL LINER PANELS. SEE ELEV. - SHT A-3	GYPSUM BD. ON WHITE METAL LINER PANELS. SEE ELEV. - SHT A-3	EXPOSED TO STRUCTURE ABOVE	N/A
103	RECEIVING AREA	CONCRETE FLOOR SEALED	CONCRETE SEALER	N/A	METAL LINER PANEL FROM FLOOR TO ROOF DECK	METAL LINER PANEL FROM FLOOR TO ROOF DECK	METAL LINER PANEL FROM FLOOR TO ROOF DECK	METAL LINER PANEL FROM FLOOR TO ROOF DECK	EXPOSED TO STRUCTURE ABOVE	N/A
104	MEN	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE RES GRAY F1078	4" RUBBER / VINYL BASE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BD. CEILING @ 8'-0" AFF.	WHITE
105	WOMEN	CONCRETE FLOOR SEALED	SHERWIN WILLIAMS ACRYLIC SILICONE RES GRAY F1078	4" RUBBER / VINYL BASE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	8" HIGH FIBERGLASS-REINFORCED PANEL - WHITE	GYPSUM BD. CEILING @ 8'-0" AFF.	WHITE
106	HALL	CONC. FLOOR POLISHED (STEPS 1-4)	CONCRETE IV SEALER	4" RUBBER / VINYL BASE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	GYPSUM BOARD TO 10'-0" AFF. WHITE METAL LINER PANELS ABOVE	EXPOSED TO STRUCTURE ABOVE	N/A

DOOR SCHEDULE				DOOR HARDWARE		REMARKS	
NO.	Type	W	H	DOOR HARDWARE	REMARKS	DOOR HARDWARE	REMARKS
100	A	3'-0"	7'-0"	1 3/4"	(1) 1-1/2" PAIR HINGES, (2) FALCON PASSAGE LEVERSET #V581P-DANE-626 - NO KEY REQ'D, (3) HAGER DOOR CLOSER #5400, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
101	B	3'-0"	7'-0"	1 3/4"	(1) 1-1/2" PAIR HINGES, (2) VON DUPON GUARD-Y EXIT ALARM LOCK #8570-B, (3) HAGER DOOR CLOSER #5400, (4) DOOR SWEEP, WEATHERSTRIPPING, (5) 7015SCB-260 RIM CYLINDER, (6) HAGER BN PULL.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
102	E	3'-0"	7'-0"	1 3/4"	(3) PAIR HINGES, (2) BURNS PULL PLATES #5410-32P-260-GRIP, (3) BURNS PUSH PLATES #5410-32P-260-GRIP, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
103A	C	6'-0"	7'-0"	1 3/4"	(1) 1-1/2" PAIR HINGES, (2) VON DUPON GUARD-Y EXIT ALARM LOCK #8570-B, (3) HAGER DOOR CLOSER #5400, (4) DOOR SWEEP, WEATHERSTRIPPING, (5) 7015SCB-260 RIM CYLINDER, (6) HAGER BN PULL.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
103B	D	6'-0"	7'-0"	1 3/4"	(3) PAIR HINGES, (2) BURNS PULL PLATES #5410-32P-260-GRIP, (3) BURNS PUSH PLATES #5410-32P-260-GRIP, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
104	A	3'-0"	7'-0"	1 3/4"	(1) 1-1/2" PAIR HINGES, (2) FALCON PASSAGE LEVERSET #V581P-DANE-626 - NO KEY REQ'D, (3) HAGER DOOR CLOSER #5400, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
105	A	3'-0"	7'-0"	1 3/4"	(1) 1-1/2" PAIR HINGES, (2) FALCON PASSAGE LEVERSET #V581P-DANE-626 - NO KEY REQ'D, (3) HAGER DOOR CLOSER #5400, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
106	E	6'-0"	7'-0"	1 3/4"	(3) PAIR HINGES, (2) BURNS PULL PLATES #5410-32P-260-GRIP, (3) BURNS PUSH PLATES #5410-32P-260-GRIP, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	
107	A	2'-8"	7'-0"	1 3/4"	(1) 1-1/2" PAIR HINGES, (2) FALCON PASSAGE LEVERSET #V581P-DANE-626 - NO KEY REQ'D, (3) HAGER DOOR CLOSER #5400, (4) IVES VALL STOP #402-1/2B-260, (5) TACO DOOR VIEWER #TA3310PC.	SOLID CORE WOOD DOOR OR HOLLOW METAL DOOR. PAINTED.	

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REGISTERED ARCHITECT
4872
WILSON, NC

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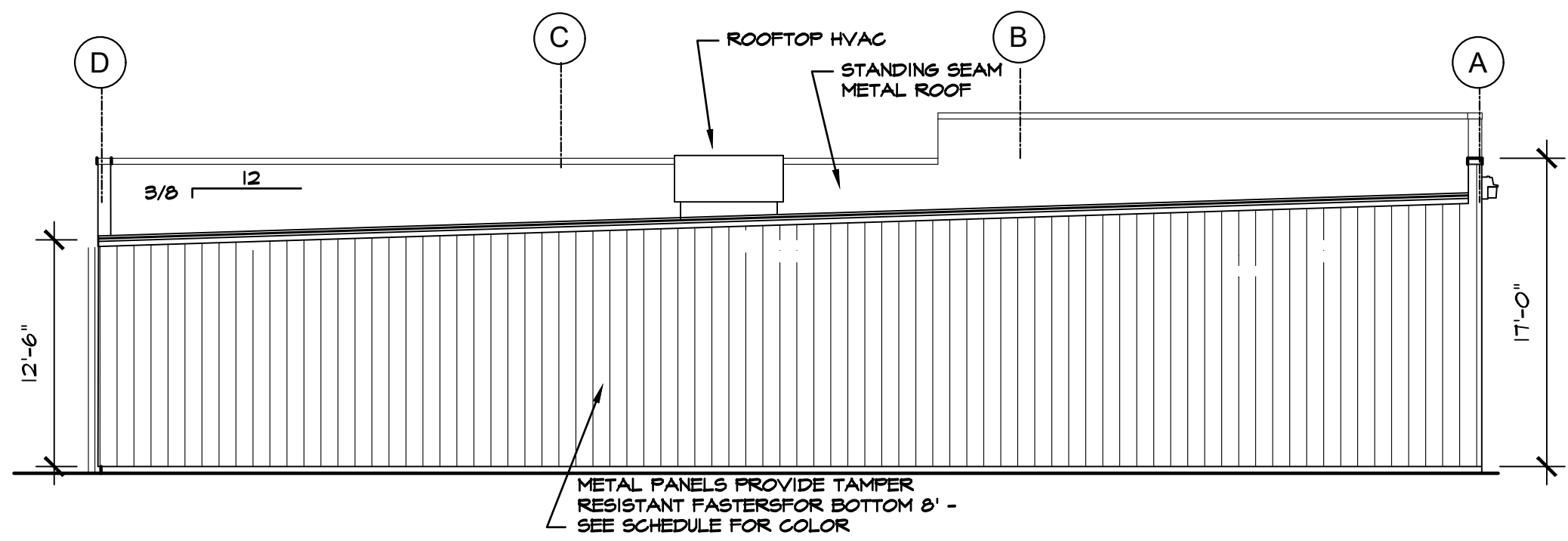
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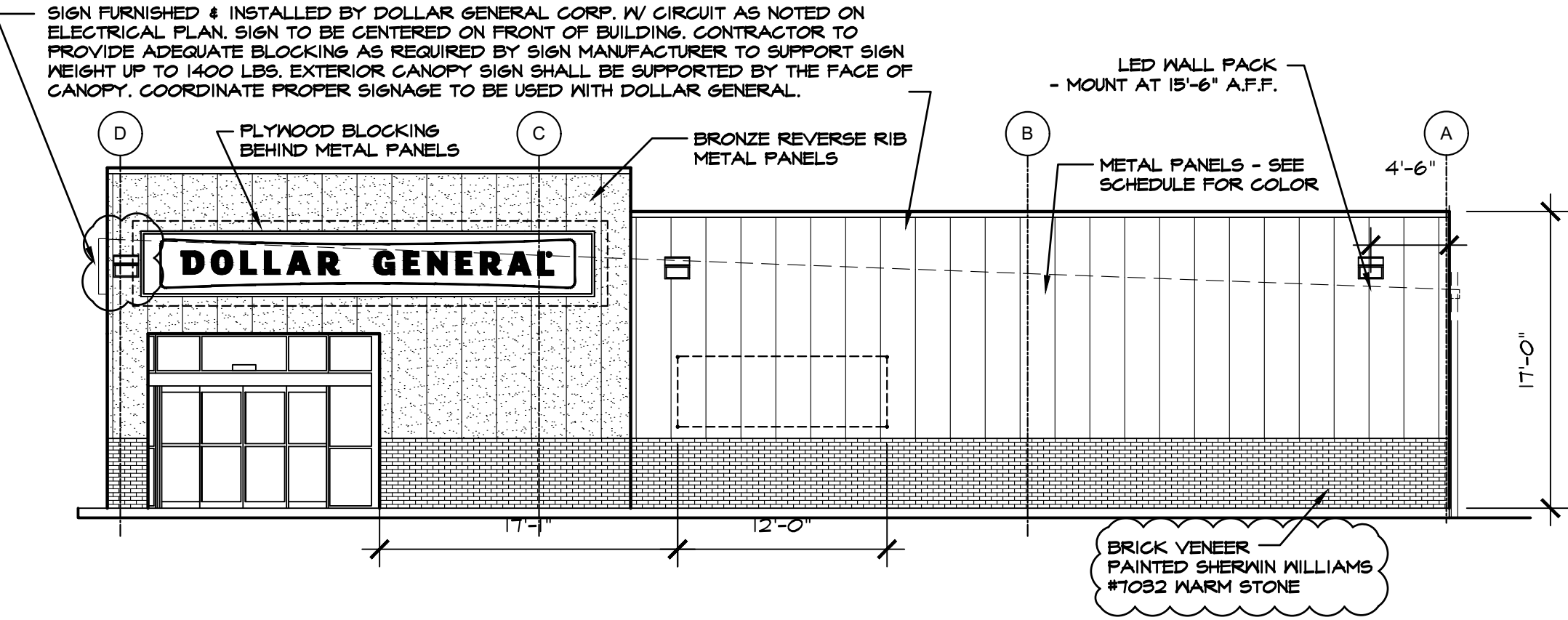
JOB NUMBER
DRAWN BY
MMH
DATE
03/13/25
REVISIONS
03/19/25 - DOOR
SIZE & FINISHES
5/25 - MULLION

SHEET NUMBER
A-1
OF



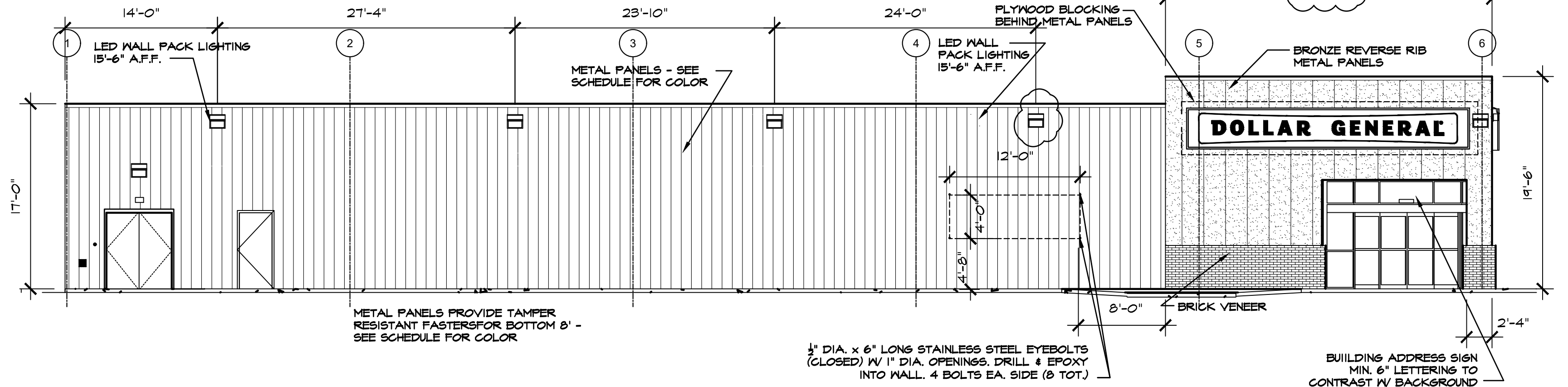
REAR ELEVATION

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



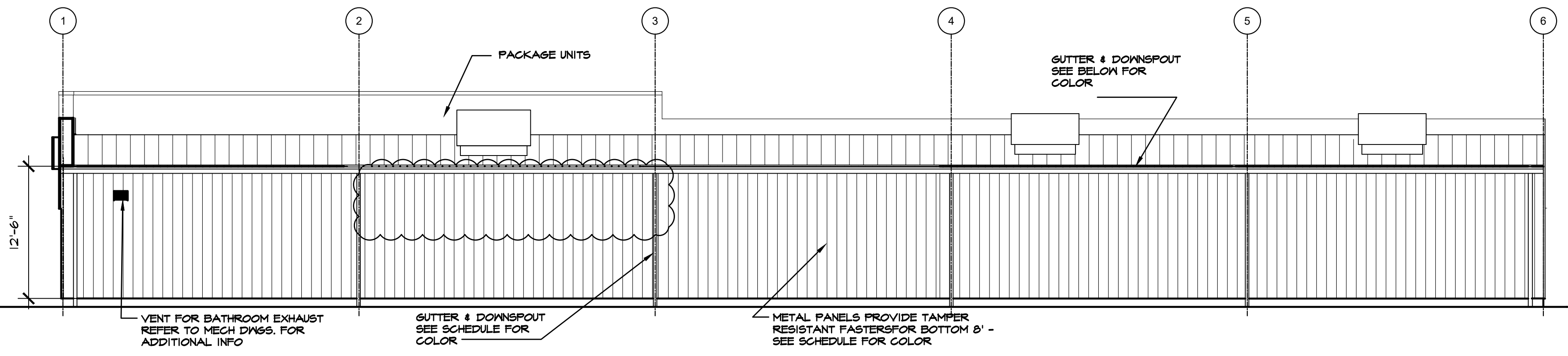
FRONT ELEVATION

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



LEFT SIDE ELEVATION

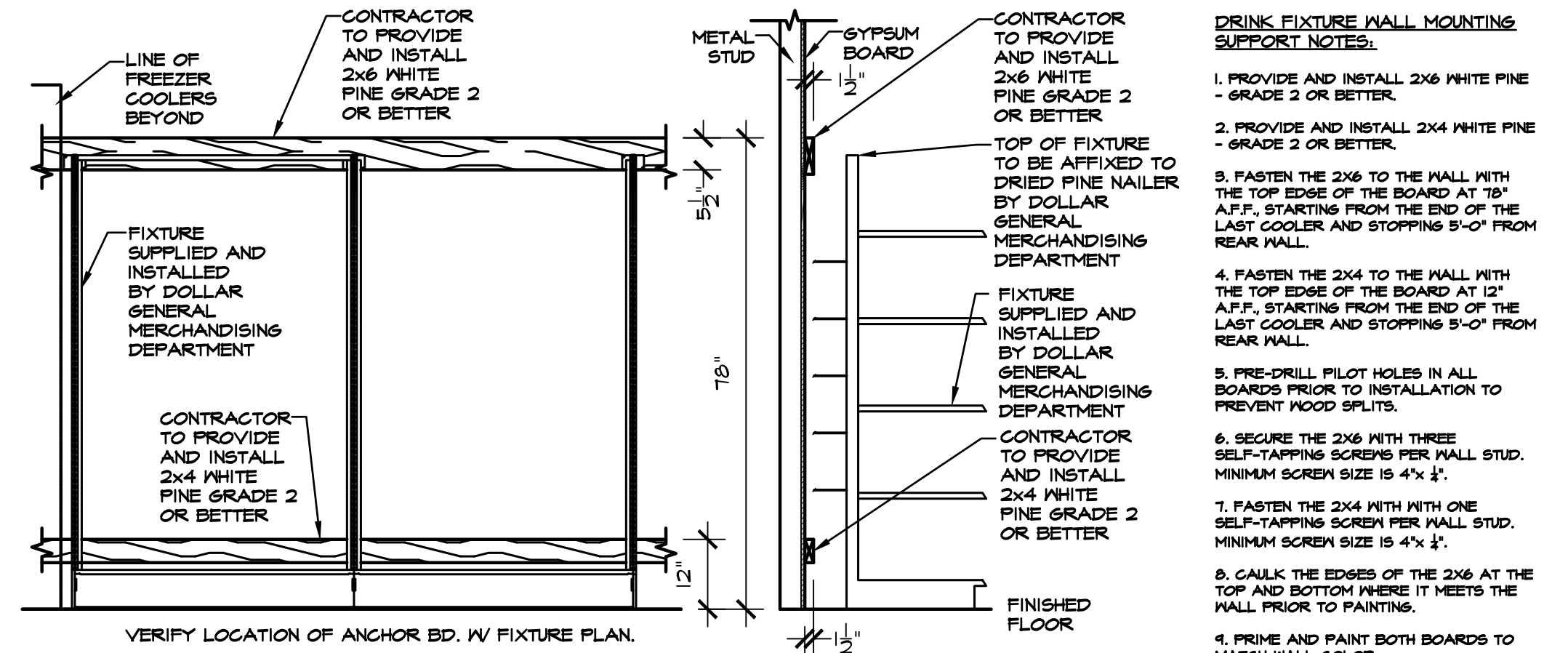
SCALE: 1/8" = 1'-0"



RIGHT SIDE ELEVATION

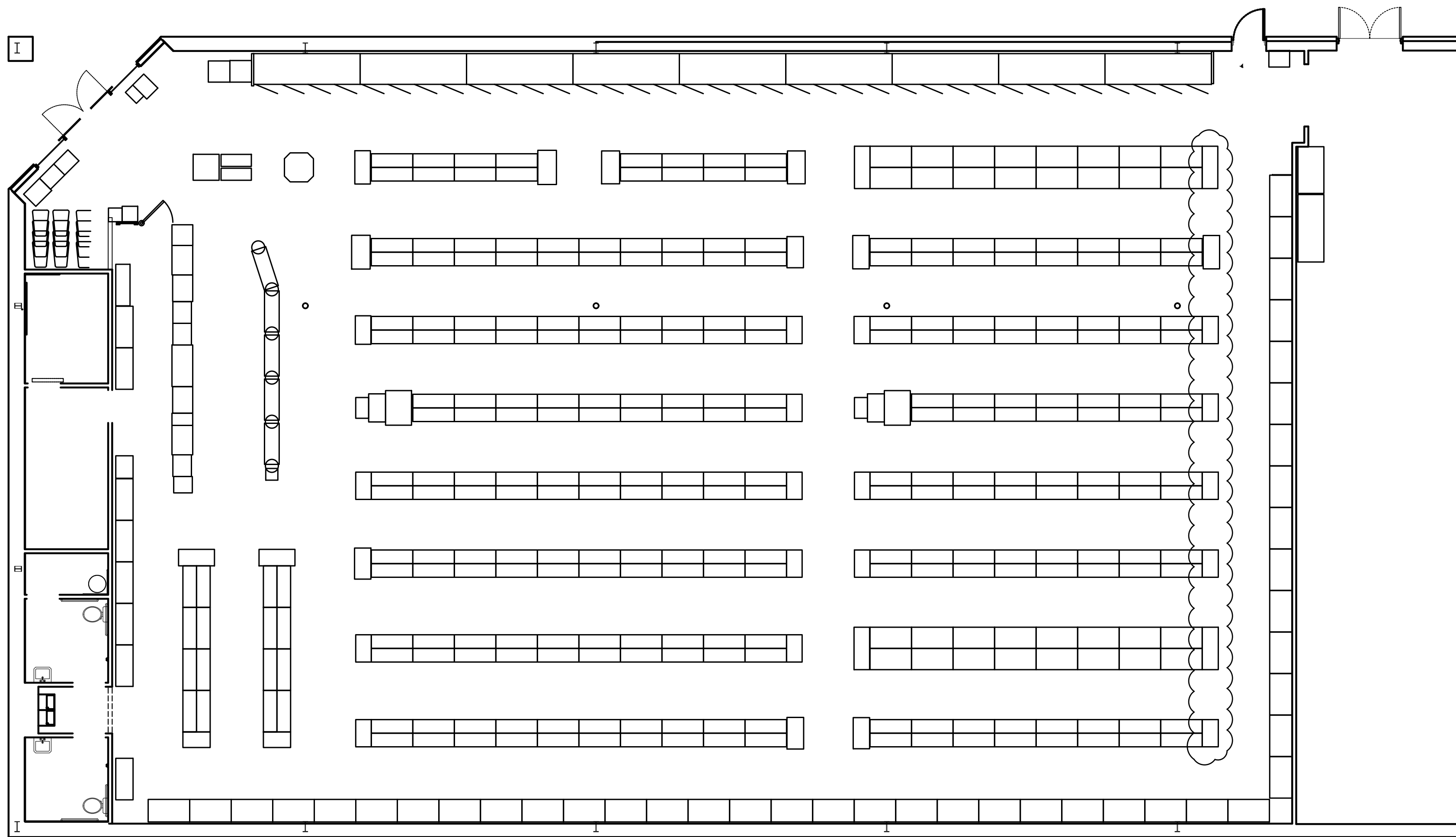
SCALE: 1/8" = 1'-0"

FINISHES	VP BUILDINGS		STAR BUILDING SYSTEMS		NUCOR BUILDING SYSTEMS		BIG BEE STEEL BUILDINGS		CHIEF BUILDINGS		PREFERRED COLORS IF ALTERNATE EXTERIOR MATERIALS ARE USED
	ATTN RANDY SPEARS 205-907-8176		ATTN JEFF HORN 866-664-8899		ATTN BOB BARRY 315-622-4440		ATTN KEVIN BUSLER 800-633-3378		ATTN ERIN SULLIVAN 800-845-1767		
COOR. EXTERIOR											
COOR. INTERIOR											
COOR. ROOF											
COOR. FLOOR											
COOR. WALL											
COOR. CEILING											
COOR. DOORS											
COOR. WINDOWS											
COOR. SIGNAGE											
COOR. LIGHTING											
COOR. VENTILATION											
COOR. EXTERIOR FINISHES											
COOR. INTERIOR FINISHES											
COOR. ROOF FINISHES											
COOR. FLOOR FINISHES											
COOR. WALL FINISHES											
COOR. CEILING FINISHES											
COOR. DOOR FINISHES											
COOR. WINDOW FINISHES											
COOR. SIGNAGE FINISHES											
COOR. LIGHTING FINISHES											
COOR. VENTILATION FINISHES											
COOR. EXTERIOR FINISHES											
COOR. INTERIOR FINISHES											
COOR. ROOF FINISHES											
COOR. FLOOR FINISHES											
COOR. WALL FINISHES											
COOR. CEILING FINISHES											
COOR. DOOR FINISHES											
COOR. WINDOW FINISHES											
COOR. SIGNAGE FINISHES											
COOR. LIGHTING FINISHES											
COOR. VENTILATION FINISHES											



DRINK FIXTURE SUPPORT DETAIL

SCALE: 1/2" = 1'-0"



FIXTURE LAYOUT (CONFIRM W/ DOLLAR GENERAL PLANS) DGP

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

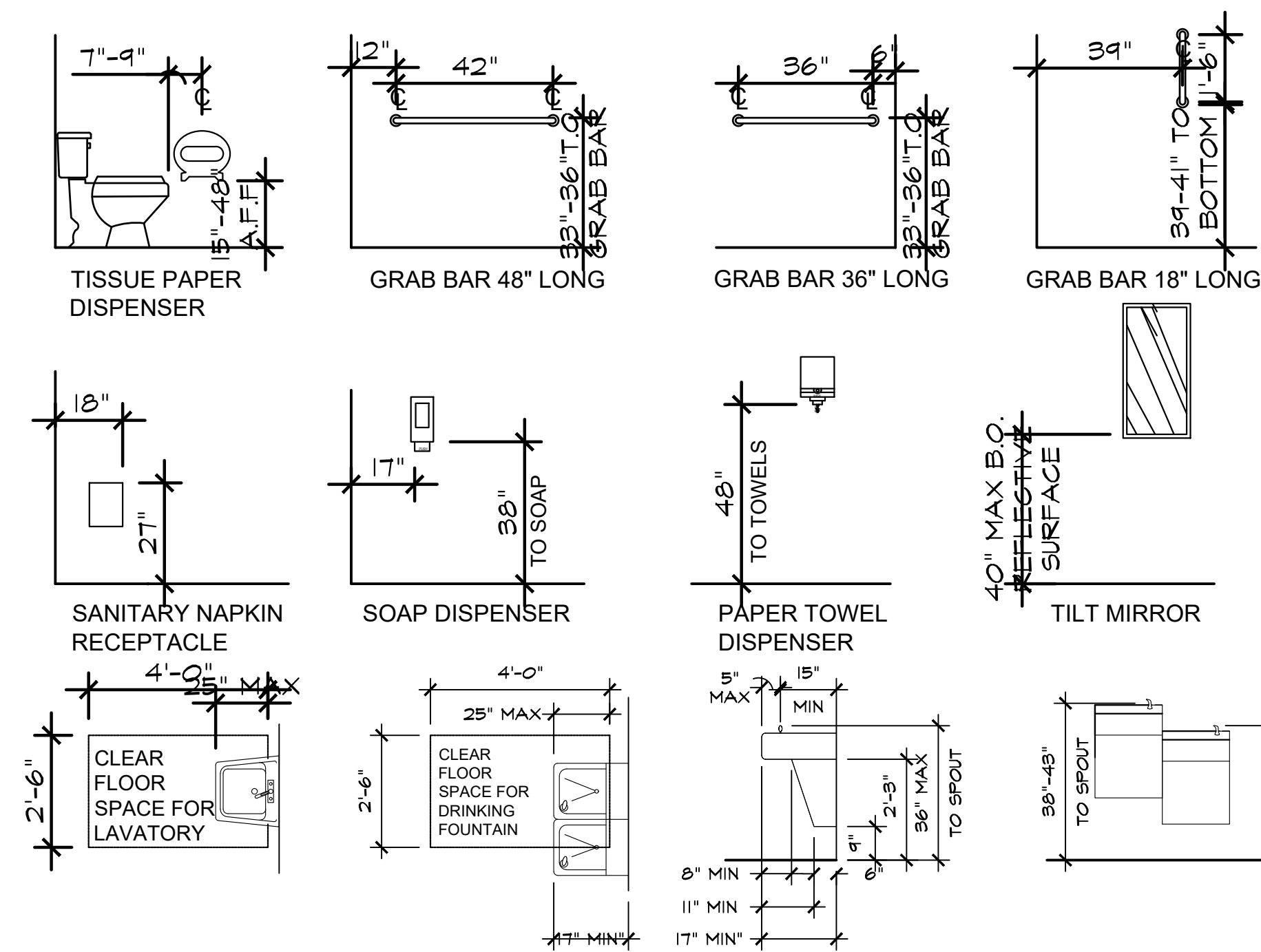
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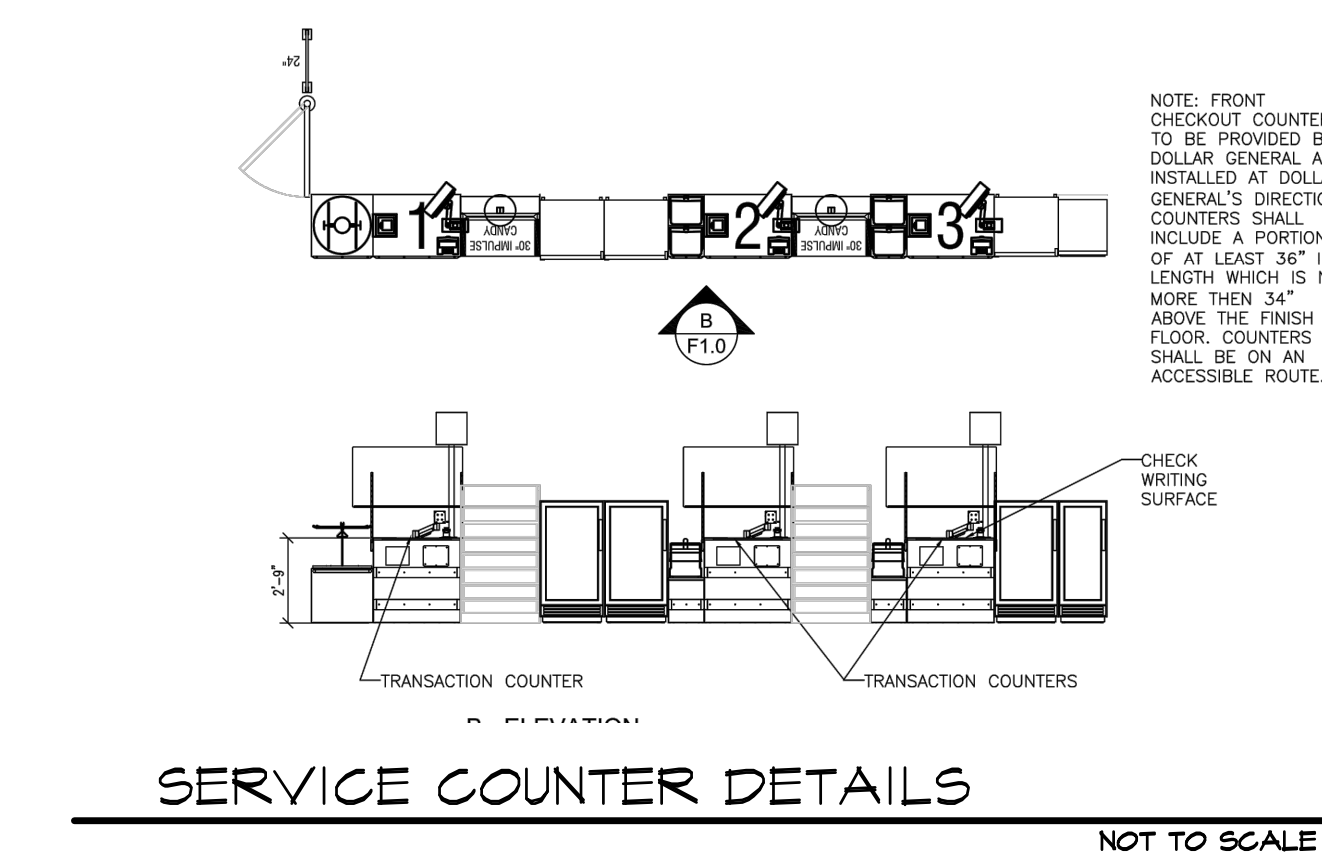
JOB NUMBER
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MMH
DATE
03/13/25
REVISIONS
03/14/25 - ADDITIONAL SIGN
& END CAPS
05/01/25 - SIGN, LEFT SIDE,
LIGHTS

SHEET NUMBER
A-2
OF



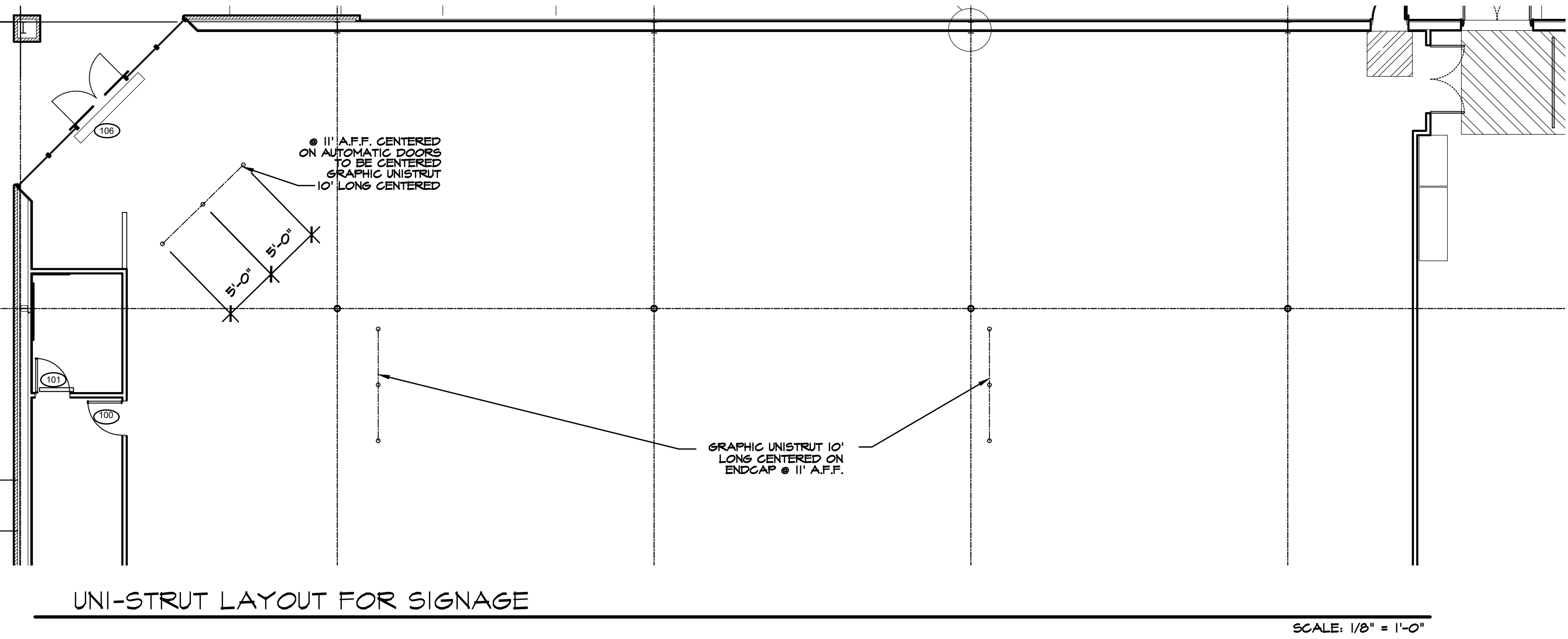
301 BUILDING SECTION

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



OFFICE WALL EQUIPMENT PANELS

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

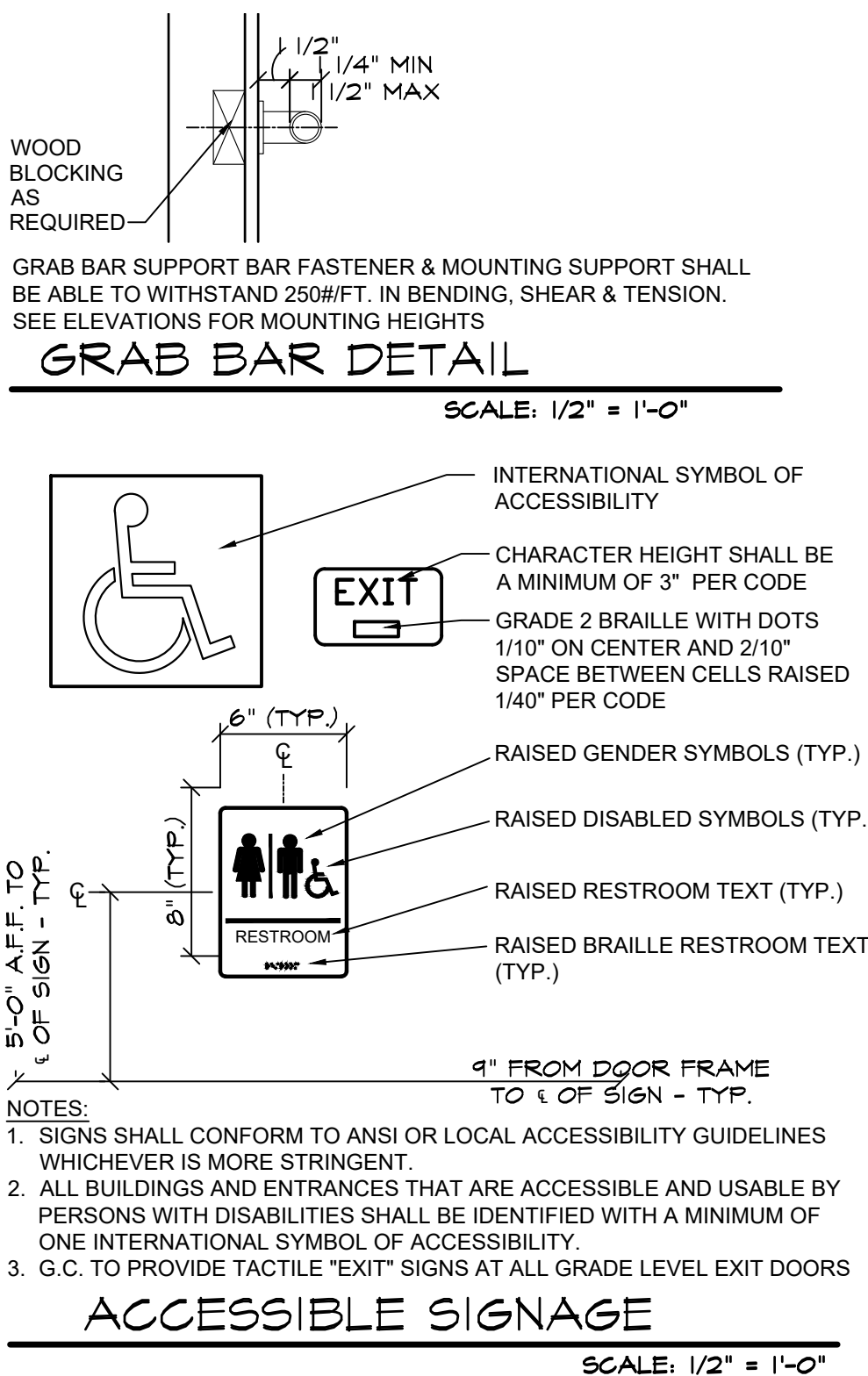


RESTROOM ELEVATIONS

SCALE: 3/8" = 1'-0"

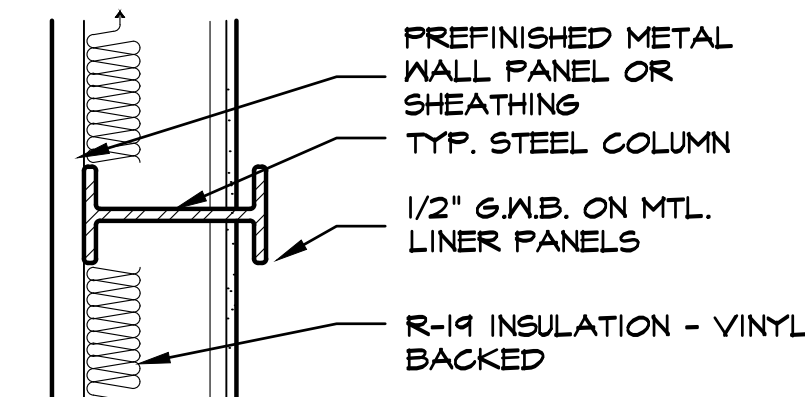
TOILET ACCESSORIES	
B2740	BOBRICK DOUBLE TOILET TISSUE DISPENSER
TA-ABS-SB	THIN AIR HAND DRYER (INSTALL SO DOESN'T PROTRUDE MORE THAN 4" FROM WALL)
54-US32D	BURNS PUSH PLATE
5410-32D-26D-GRIP	BURNS PULL PLATE
DDH-2250 **	DETEX DOUBLE DOOR HOLDER
DS/1000MB	DOOR SCOPE (FOR RECEIVING EXIT DOOR)
608Z	8" DOOR HOLDER
770SAV-3FT	3 FT DOOR SWEEP
770SAV-4FT	4 FT DOOR SWEEP
W101S-DANE-626	FALCON PASSAGE LEVERSET
W581PD-DANE-626	FALCON STOREROOM LEVERSET
A-24x36	GAMCO 24" x 36" ANGLE FRAME MIRROR
150Sx36	GAMCO 1 1/2" X 36" GRAB BAR
150Sx42	GAMCO 1 1/2" X 42" GRAB BAR
150Sx18	GAMCO 1 1/2" X 18" GRAB BAR
MS-1	GAMCO MOP HOLDER
5400	HAGER DOOR CLOSER
7015SC8-26D *	ILCO RIM CYLINDER
402-1/2B-26D	IVES WALL STOP
452B26D-4	IVES 4" DOOR HOLDER
8400-S32D-8X34	IVES KICK PLATE
425 HD - 6 FT.	NATIONAL GUARD HD THRESHOLD (FOR RECEIVING EXIT DOOR)
TA3310PC	TACO DOOR VIEWER
2670-28	VON DUPRIN GUARD-X EXIT ALARM LOCK
2609 **	VON DUPRIN GUARD-X DOUBLE DOOR STRIKE
892SAV-84INCH	WEATHERSTRIPPING
BY SUPPLIER	FEMININE DISPENSERS

* MUST HAVE ONE RIM PER EXIT DEVICE.
** MUST HAVE DOUBLE DOOR STRIKE AND TWO DOUBLE DOOR
HOLDERS FOR ALL DOUBLE EXIT DOORS.



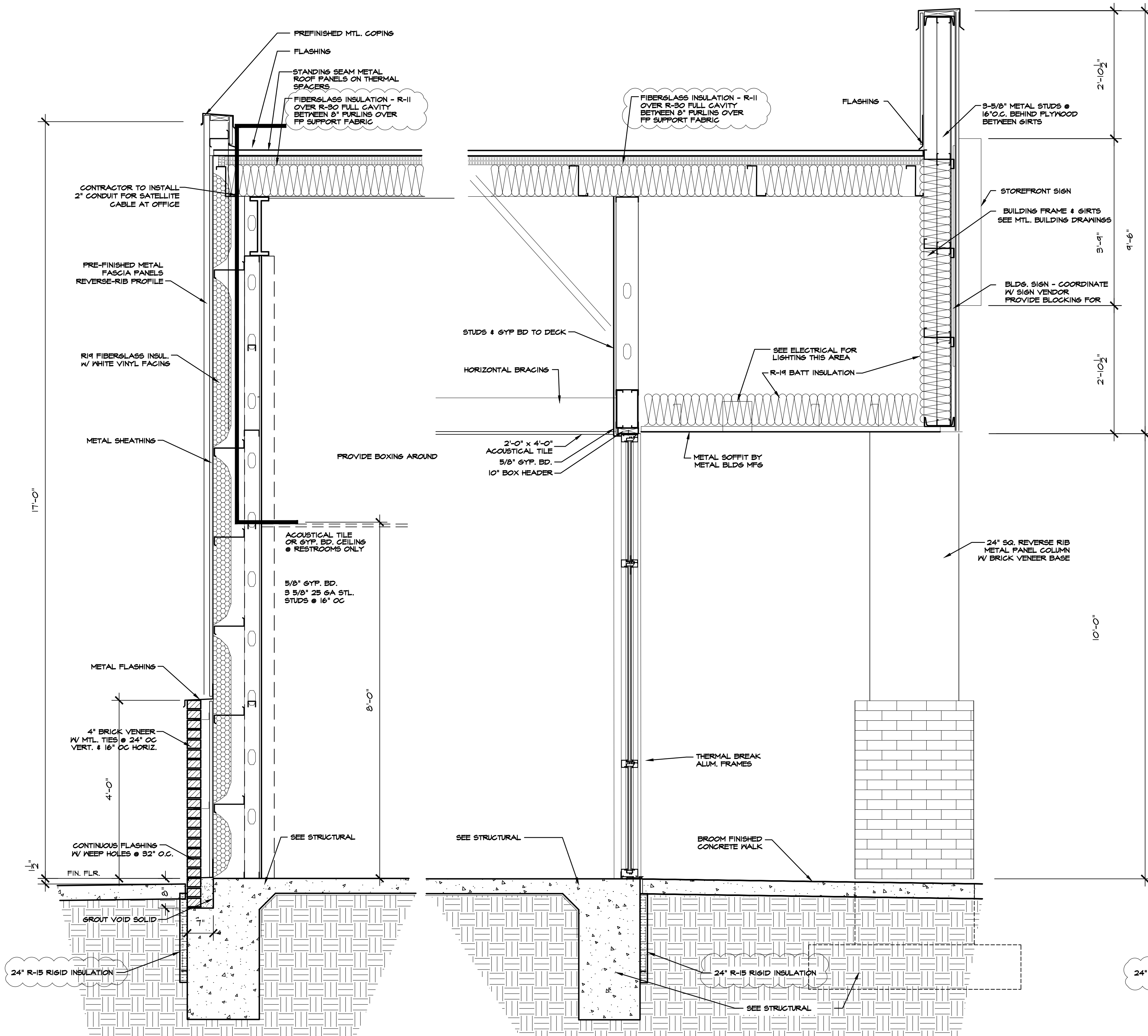
ACCESSIBLE SIGNAGE

SCALE: 1/2" = 1'-0"



405 DETAIL @ COLUMN

SCALE: 1" = 1'-0"

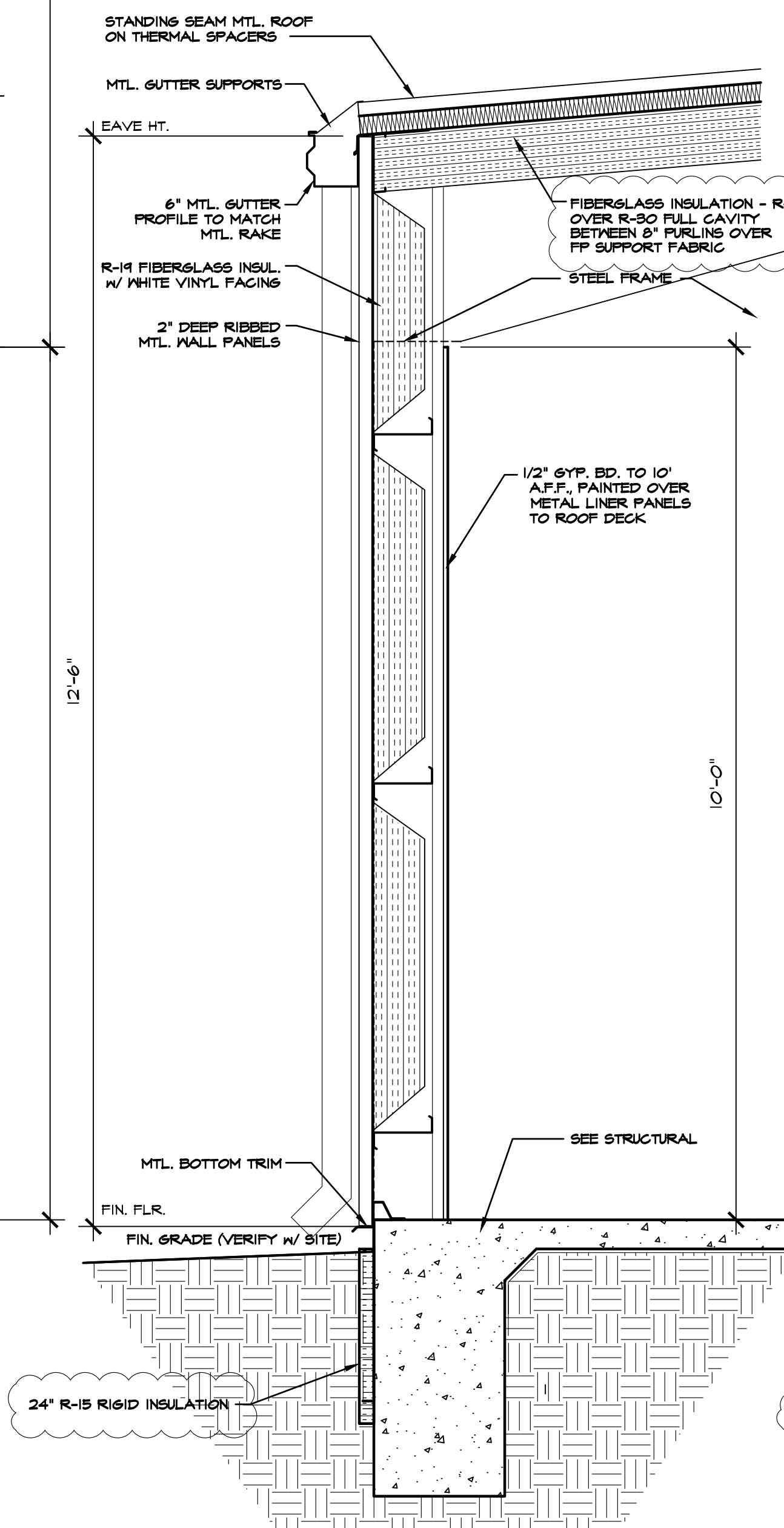


401 WALL SECTION @ LEFT WALL

SCALE: 3/4" = 1'-0"

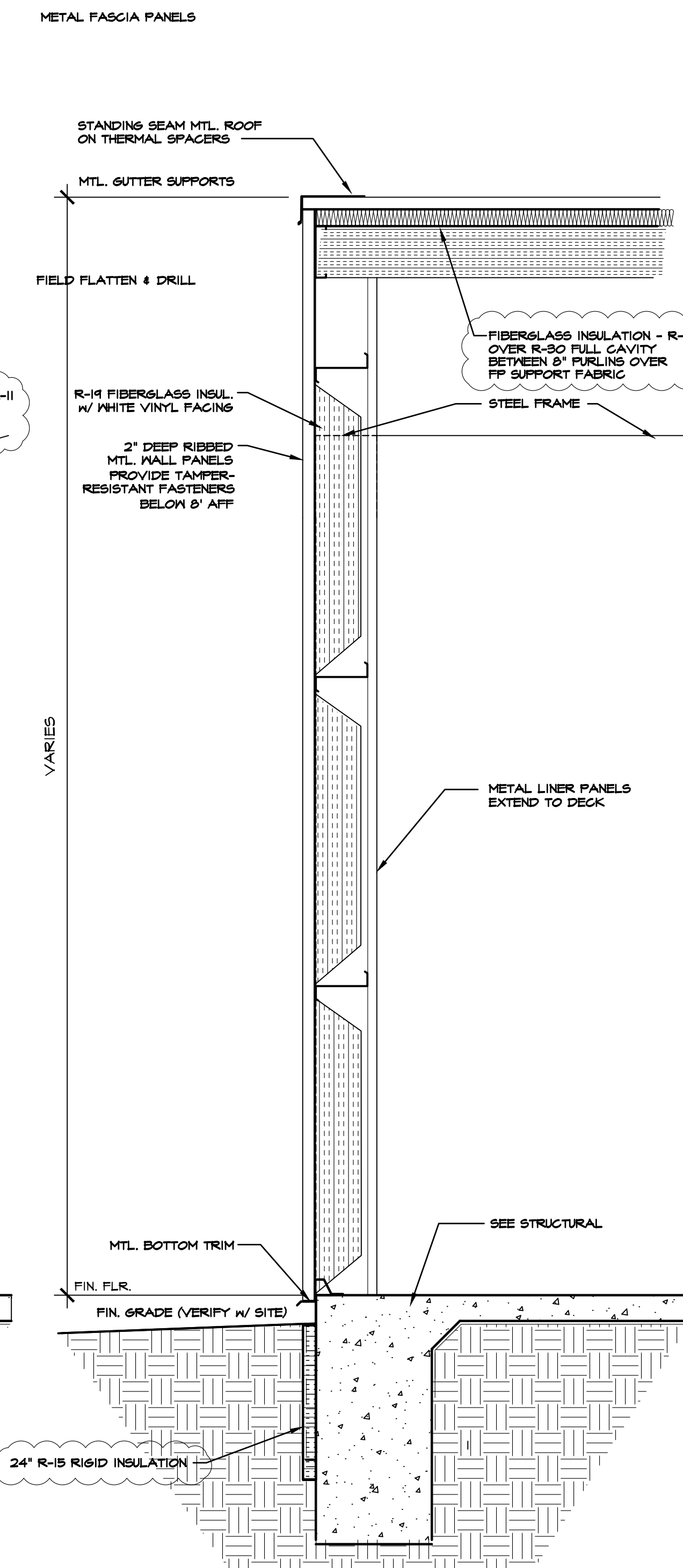
402 WALL SECTION @ ENTRY

SCALE: 3/4" = 1'-0"



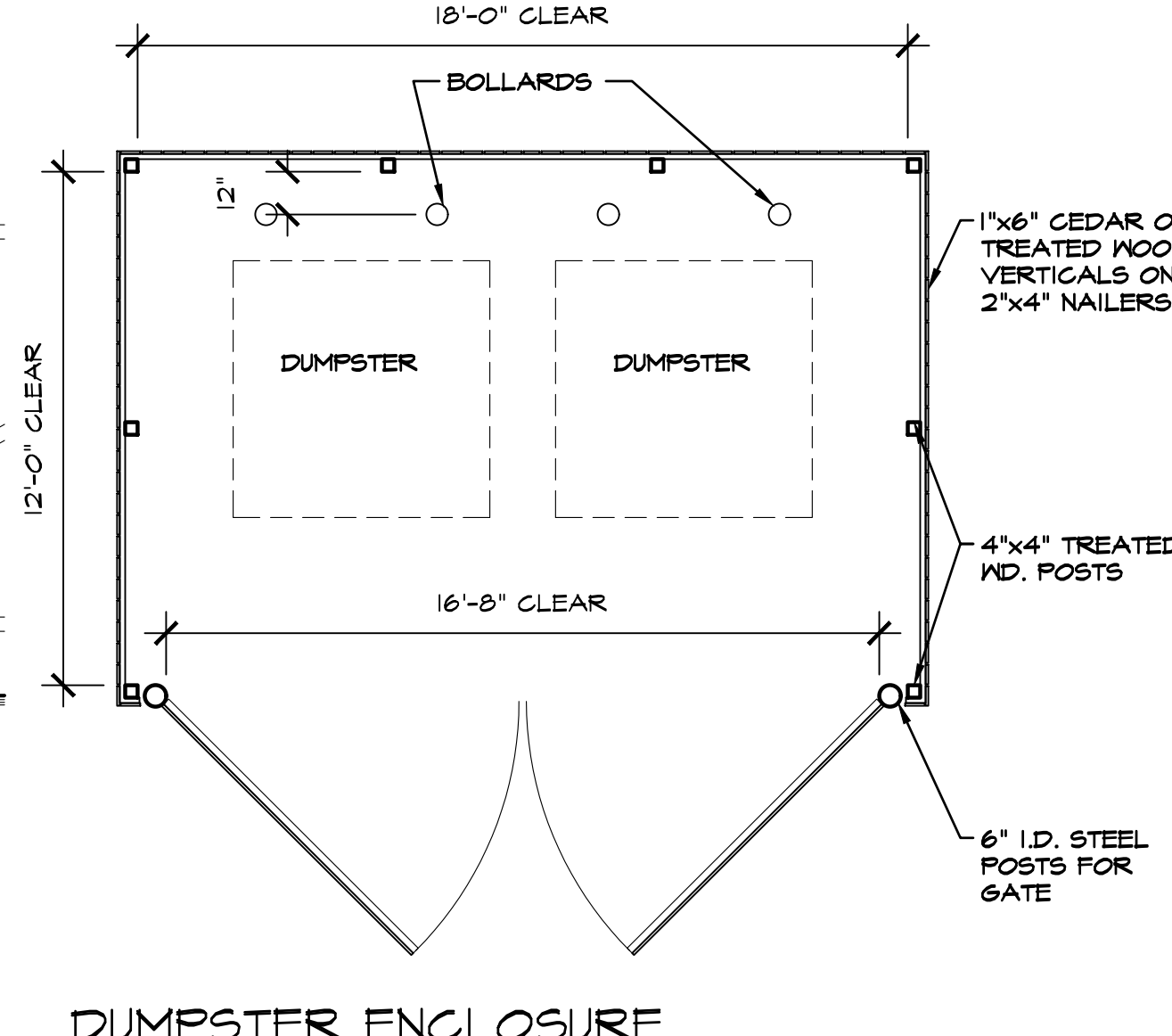
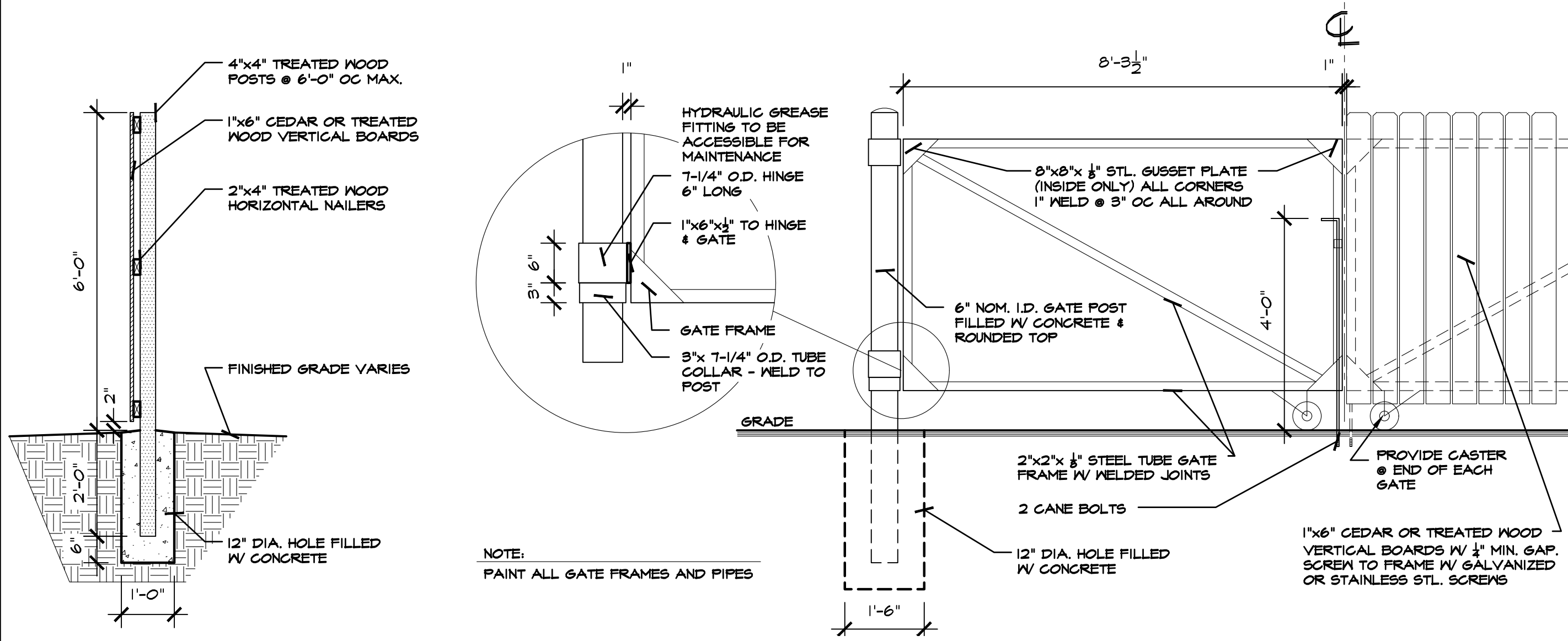
403 WALL SECTION RIGHT WALL

SCALE: 3/4" = 1'-0"



404 WALL SECTION REAR WALL

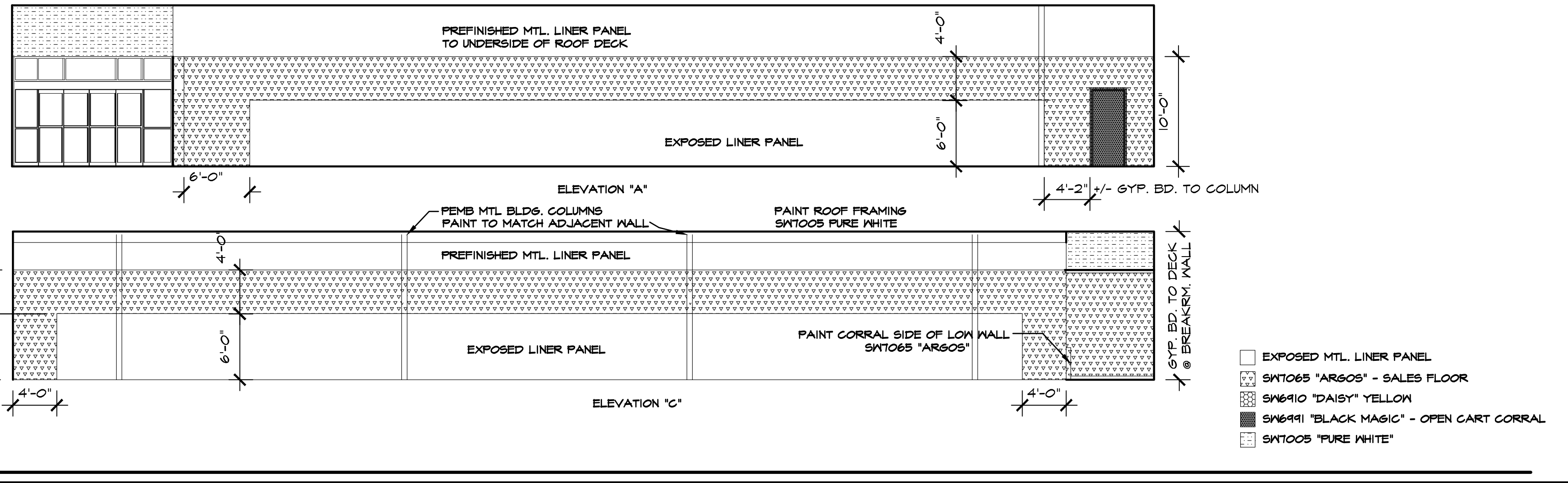
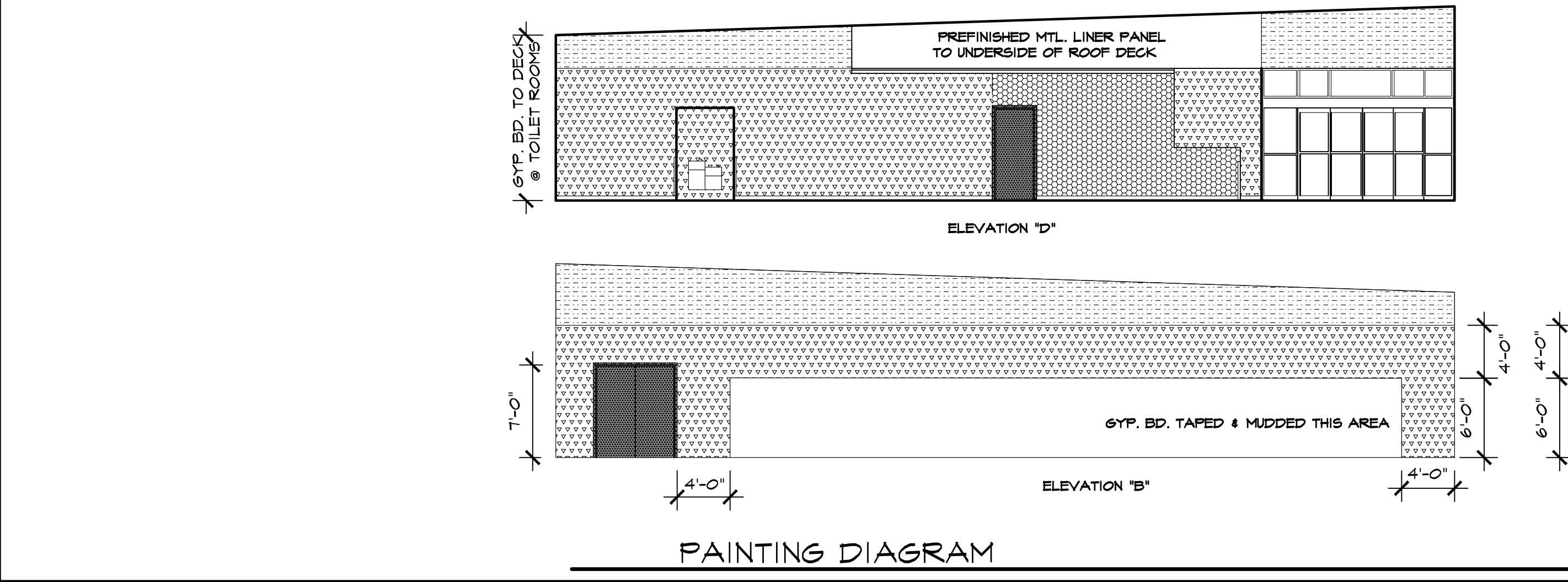
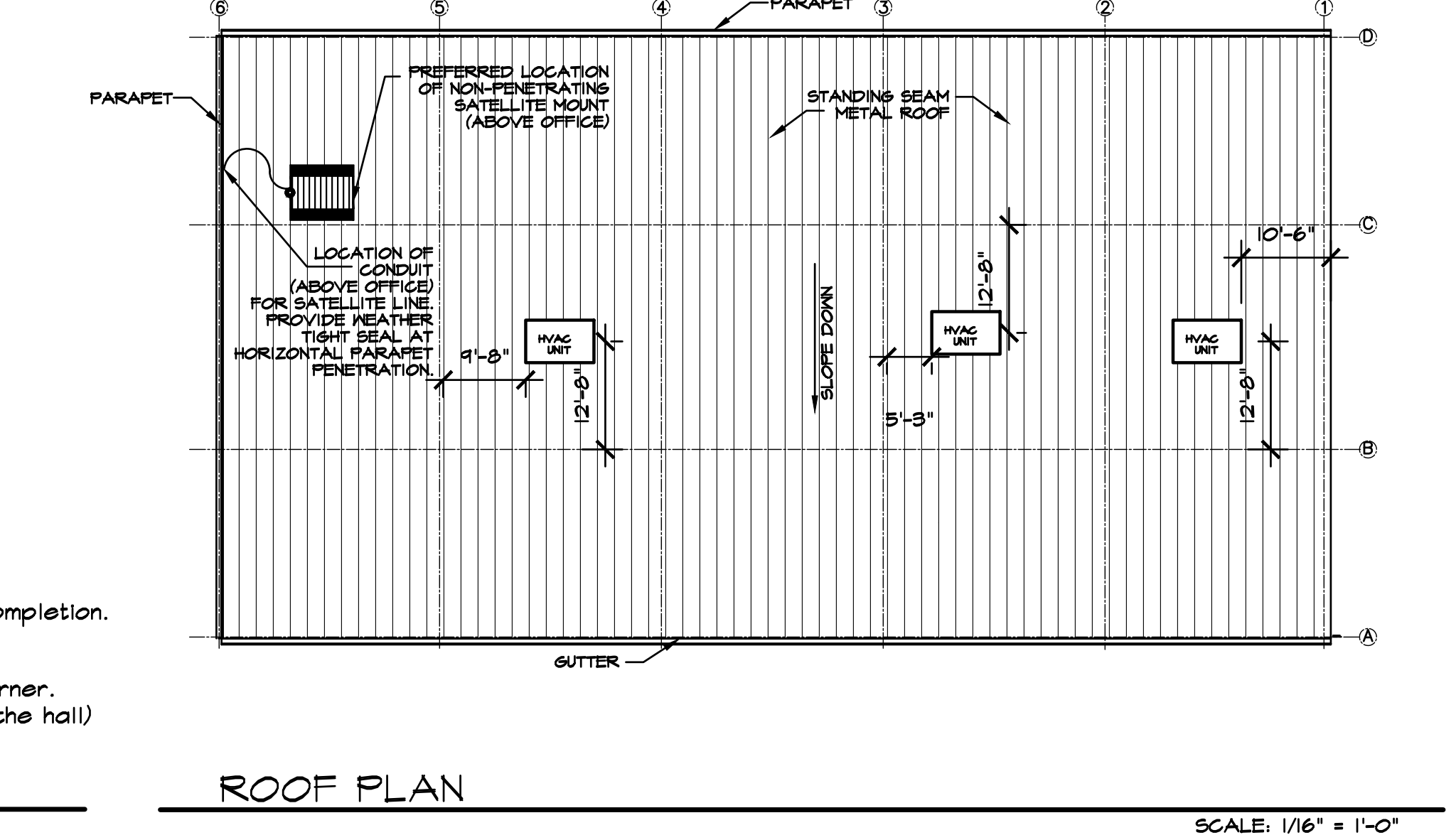
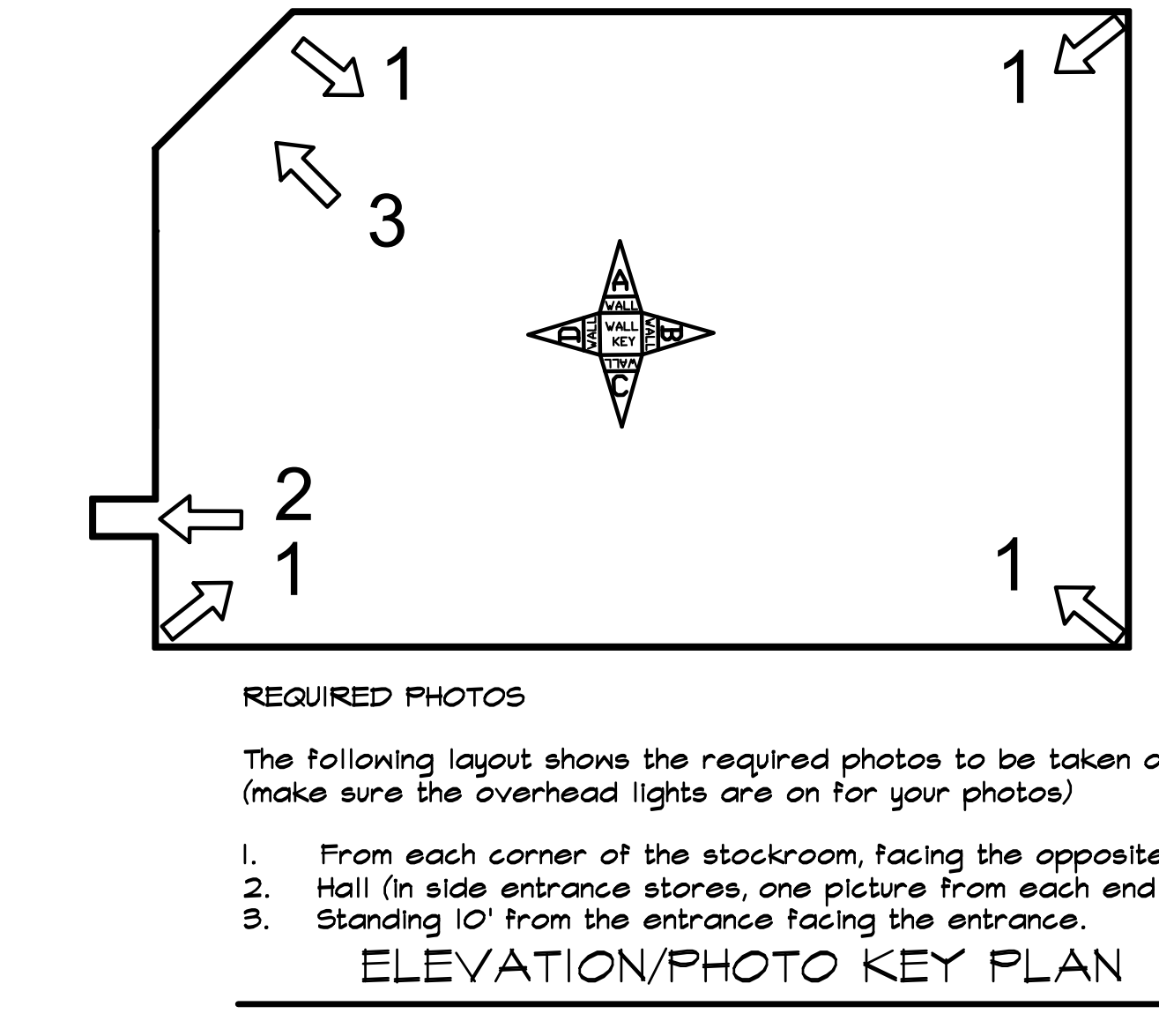
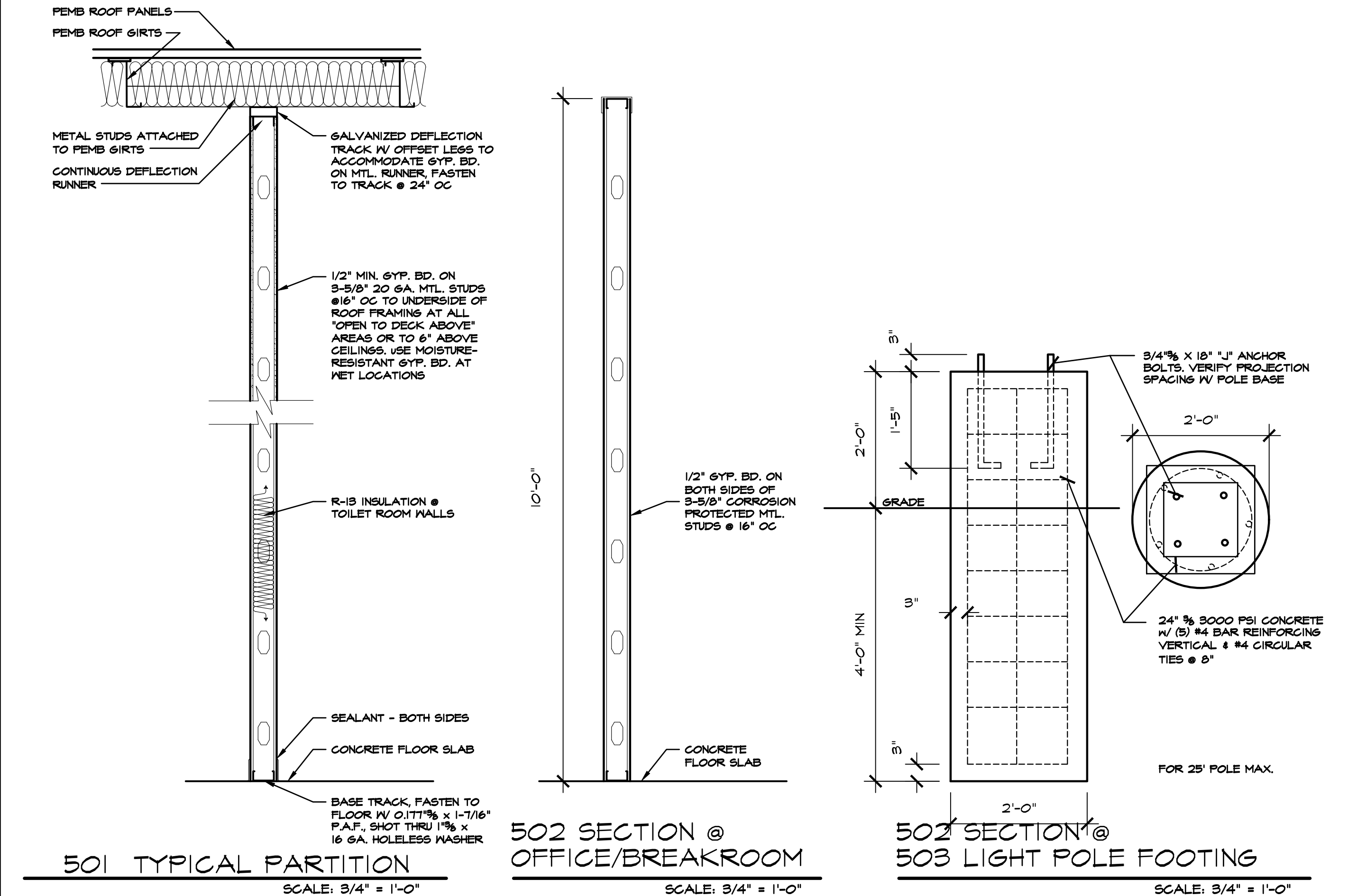
SCALE: 3/4" = 1'-0"



REQUIRED NATIONAL ACCOUNT VENDORS:			
COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
RAINBIRD IRRIGATION	LOCAL RAINBIRD DISTRIBUTOR	877-458-5526 www.rainbird.com	IRRIGATION SYSTEMS
EUCRID CHEMICAL COMPANY	PHIL BRANDT	807-641-6746 pbrandt@eucridchemical.com	CONCRETE POLISHING SYSTEMS
RETROPLATE SYSTEMS	SCOTT MAXFIELD	807-641-6746 smaxfield@retroplate.com	CONCRETE POLISHING SYSTEMS
ASSA ABLOY ENTRANCE SYSTEMS	ROSS MERKEL	804-828-2880 dallasgeneral@assabloy.com	AUTOMATIC DOORS & STORE FRONT GLAZING SYSTEM
COOK & BOARDMAN GROUP	JOE HARRELL	886-887-0675 national@cookandboardman.com	INTERIOR DOORS & FRAMES & RESTROOM ACCESSORIES
SHERVIN WILLIAMS	LOCAL SHERVIN WILLIAMS STORE	978-214-5510 rhoademc@sherwinwilliams.com	PAINT, PRIMER, CONCRETE SEALER AND BLOCK FILLER
MC CUE CORPORATION	MALISSA HOOD	978-222-4743 mhood@mc-cue.com	TRIM KIT, BUMPER GUARDS, CART STOP
CARRIER	BOB ECKNEILER	800-689-3840 bobeckneiler@carrier.com	HVAC UNITS
ROOF CURB SYSTEMS	CLIFTON REASOR	800-689-3840 dollargeneral@roofcurb.com	RTU CURB
CURBS PLUS INC.	ALLAN THRAILKILL	800-689-3840 allan.thrailkill@curbs-plus.com	RTU CURB
KCC INTERNATIONAL INC.	GREG CONRAD	800-382-2872 gconrad@kccurbs.com	RTU CURB
MESCO	ANN-MARIE SHIAVITTI-SMITH	800-244-6480 dollargeneral@mesco.com	ELECTRICAL SWITCH GEAR
NLES	KYLE KNAPP	420-415-4010 orders@nles.com	ELECTRICAL LIGHTING SUPPLIES
DIP CUSTOM LIGHTING	NATIONAL ACCOUNT SALES	800-251-2200	CUSTOM POWER POLES
ASD	KENNY ONDESKO	828-624-1046 dollargeneral@asd-usa.com	LOW VOLTAGE & VOICE/DATA
GRAYBAR	JEROME BANNISTER	615-148-8202 ext. 615-424-2155 cell dollargeneral@graybar.com	CABLE TRAY
COPELAND (FORMERLY EMERSON CLIMATE TECHNOLOGIES)	BRAD STILE	414-218-1675 ussr@emerson.com	EMS SUPPLIER NOTE: CUSTOMIZED DOLLAR GENERAL EMS PANEL REQUIRES STORE & CITY, STATE, ZIP CODE & CITY OF HVAC UNITS OF THE INSTALL SITE WHEN ORDERING.
STANLEY CONVERSANT SECURITY SOLUTIONS	NATIONAL ACCOUNT EXECUTIVE	850-752-1821 http://dollargeneralbid.emerson.com al.maler@stanley.com	INTERIOR FIRE ALARM PANELS

REQUIRED NATIONAL ACCOUNTS FOR ENGINEERING & CONSTRUCTION MATERIAL TESTING			
COMPANY	CONTACTS	PHONE #	REQUIRED ITEMS
ATC ASSOCIATES, INC.	LESLIE GREENWOOD	208-788-6775 dollargeneral@atcasociates.com	www.atcasociates.com
BUILDINGS AND EARTH SCIENCES, INC.	MATT ADAMS	208-836-6500 dollargeneral@buildingandearth.com	www.buildingandearth.com
EAS PROFESSIONALS, INC.	JERRY MARRONE	864-234-1860 dollargeneral@eas-pro.com	www.eas-pro.com
PROFESSIONAL SERVICE INDUSTRIES, INC. (PSI)	TERESA HEINER	770-424-6200 t@psia.com	www.psi.com
TERRACON	JOHN MEADOW	770-623-0755 dollargeneral@terracon.com	www.terracon.com

NATIONAL ACCOUNT & CONTACT INFORMATION SUBJECT TO CHANGE



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DOLLAR GENERAL
STORE # 31414
NC HIGHWAY 55
ERWIN, NORTH CAROLINA

JOB NUMBER
DRAWN BY
MMH
DATE
03/13/25
REVISIONS

SHEET NUMBER
A-5
OF

- 1) GENERAL
- A. The building shall be designed such that there is maintained an absolute minimum of 68'-1" from face-of-column to face-of-column on the sales floor .
- 2) FOUNDATIONS
- A. The concrete foundations shall be designed, detailed and constructed to provide for the safe, serviceable support of the pre-manufactured metal building structure and all prescribed loads applied thereto. The foundations shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements.
- B. The soils supporting the foundation shall be prepared and compacted in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located.
- C. The slab on grade shall not be utilized to resist horizontal thrust forces at the base of the pre-engineered building frames. Tie beams below and separate from the building slab may be utilized.
- D. The bearing materials shall be free of organic, expansive or corrosive material, and shall support the foundation in accordance with the following twenty five year criteria:
1. Maximum differential movement due to either settlement or heave shall not exceed 1/2" over a distance of 50 feet.
 2. Maximum total movement due to either settlement or heave shall not exceed 1".

E. The foundations shall be of sufficient depth to bear below local frost depth where exposed, attain minimum design bearing pressure, achieve sufficient protection from settlement or heave, and where adjacent to existing construction, avoid application of lateral earth pressure to adjacent construction.

- 3) SLAB ON GRADE
- A. The subgrade for the slab on grade shall be compacted and prepared in accordance with a geotechnical testing based investigation and site specific recommendations provided by a Professional Engineer registered to practice in the State where the project is located. The subgrade shall provide a minimum of 100 pounds per cubic inch (pci) modulus of sub-grade reaction and shall be proof-rolled to ensure that there are no pumping or soft zones greater than 1/2" (ACI 302, "Guide for Concrete Floor Slab Construction").
- B. The slab on grade shall conform to the latest editions of all applicable standards of the American Concrete Institute (ACI), the Building Code(s) enforced by the Authority Having Jurisdiction and these requirements. The slab on grade shall be a minimum of 4" thick and reinforced with a minimum 6" x 6" x W1.4 x W1.4 welded wire fabric located in the center of the slab.
- C. Except at doors at the perimeter of the facility, the slab on grade shall be isolated from the building columns and any perimeter grade beams or walls. The slab on grade shall receive a hard steel trowel finish. Saw-cut contraction joints a minimum of 1/4 the depth of the slab shall be provided in both principal directions across the entire floor slab, spaced no further than 13 feet on center and providing panels with an aspect ratio no greater than 1.5:1. Refer to Joint Spacing Plan on Sheet S3. The slab shall be protected from the effects of heat or wind as necessary to avoid any curling of the slab segments.

- 4) CONCRETE SALES FLOOR PRE-INSTALLATION CONFERENCE:
- A. At least 30 days prior to the start of the concrete slab construction, the general contractor shall conduct a meeting to review the proposed concrete mix designs and to discuss the required methods and procedures to achieve the requirements of this specification. The general contractor shall send a pre-concrete conference agenda to all attendees 20 days prior to the scheduled date of the conference.
- B. The general contractor shall require responsible representatives of every party concerned with the concrete work to attend the conference, including, but not limited to, the following:
General contractor's superintendent

1. Laboratory responsible for concrete mixes, field quality control and floor tolerance testing
 2. Ready-mix concrete producer
 3. Concrete contractor
 4. Chemical admixture manufacturer
 5. Liquid densifier and sealer manufacturer
 6. Liquid densifier and sealer applicator
 7. Joint filling manufacturer
 8. Joint filling applicator
- C. Minutes of the meeting shall be recorded, typed and printed by the general contractor and distributed to all concerned parties, including the owner's representative, the architect and the structural engineer, within five days of the meeting.

D. The minutes shall include a statement by the concrete supplier stating that the proposed concrete mix design will produce the concrete quality required by these specifications.

E. The minutes shall include a statement by the concrete contractor that the proposed concrete mix design will provide appropriate workability and setting times, to ensure that the concrete contractor can achieve the requirements of this specification.

- 5) CONCRETE CONTRACTOR QUALIFICATION:
- A. The concrete contractor shall include in their bid package to the general contractor, sufficient data, including a minimum of three similar and successful projects that clearly indicates the concrete contractor's ability to successfully perform the work and to achieve the interior sales floor slab tolerances required in this specification. The concrete contractor's team shall have participated in the majority of these projects, and that team shall remain the same through the duration of this project.

- 6) CONCRETE MATERIALS:
- A. Portland Cement: ASTM C 150, Type 1. Use one brand of cement throughout the project.
- B. Coarse and fine aggregates: ASTM C 33. Combined aggregate gradation for slabs on grade and other designated concrete shall be 8% - 18% for large top size aggregates (1½") or 8% - 22% for smaller top size aggregates (1" or ¾") retained on each sieve below the top size and above the no. 100 sieve. Slabs on grade shall have a maximum aggregate size of 1½" footings and piers 1" and beams ¾".
- C. Water: complying with ASTM C 94.
- D. Air-entraining admixtures: Shall conform to ASTM C-260. Admixture manufacturer shall provide written certification that the air-entraining admixture is compatible with other required admixtures. All exterior slabs shall be air-entrained (4% - 6%). Acceptable products: Euclid Chemical AEA-92 or Air 40; BASF Micro Air; W.R. Grace Daravair 1000 or Darex-
1. 1. Note: Air-entraining admixture shall not be used on interior concrete.

E. Water-reducing admixture: Shall conform to ASTM C494, Type A and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Eucon series; BASF Pozzolith series; W.R. Grace WRDA or Daracem series.

F. Water-reducing, retarding admixture: Shall conform to ASTM C494, Type D, and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Retarder 75; BASF Pozzolith series; W.R. Grace Daratard 17.

G. High range water-reducing admixture (superplasticizer): Shall conform to ASTM C494, Type F or Type G and contain no more than 0.05% chloride ions. Acceptable products: Euclid Chemical Eucon 37; BASF Rheobuild 1000; W.R. Grace daracem-100.

H. Water-reducing, non-corrosive accelerating admixture: Shall conform to ASTM C494, Type C or E, and contain no more chloride ions than are present in municipal drinking water. The admixture manufacturer must have long-term, non-corrosive test data from an independent testing laboratory (of at least a year's duration) using an acceptable accelerated corrosion test method such as that using electrical potential measures. Acceptable products: Euclid Chemical Accelguard 80/90 or Accelguard NCA; BASF NC534 or Pozzutec 20; W.R. Grace Polarset.

- I. Prohibited admixtures:
1. Calcium chloride or admixtures containing more than 0.05% chloride ions are not permitted.
 2. Flyash is not permitted.

- 7) EVAPORATION RETARDER:
- A. Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
1. Acceptable products:
 - a. "Eucobar" by Euclid Chemical - Phil Brandt 877-438-3826

- 8) CURING MATERIALS:
- A. Exterior curing: All exterior concrete slabs shall be cured using a liquid membrane-forming curing compound. The liquid membrane-forming curing compound shall meet the requirements of ASTM C1315 with a maximum V.O.C. Content of 700 g/l.
1. Acceptable products:
 - a. "Super Rez Seal" or "Super Aqua Cure" by Euclid Chemical - Phil Brandt 877-438- 3826

B. Interior curing (building not enclosed/sales floor slab is placed first): The interior sales floor slab shall be cured using a reduced odor, dissipating liquid membrane forming curing compound that is formulated from hydrocarbon resins. The dissipating liquid membrane forming curing compound shall meet the requirements of ASTM C309 and V.O.C. contents in accordance to EPA 40 CFR, part 59, table 1, subpart D for concrete curing compounds with a maximum V.O.C. content of 350g/l.

1. Acceptable product:
 - a. "Kurez DR VOX" by Euclid Chemical - Phil Brandt 877-438-3826

C. Interior curing (building enclosed/sales floor slab is placed last): The interior sales floor slab shall be cured using a removable, low odor, fast drying liquid membrane forming curing compound. The removable liquid membrane forming curing compound shall meet the requirements of ASTM C309, AASHTO M 148, USDA compliance and V.O.C. contents in accordance to EPA 40 CFR, part 59, Table 1, subpart D for concrete curing compounds with a maximum V.O.C. Content of 350g/l.

1. Acceptable product:
 - a. "Kurez RC" by Euclid Chemical - Phil Brandt 877-438-3826

- 9) LIQUID DENSIFIER / SEALER FOR INTERIOR SALES FLOOR:
- A. Liquid densifier / sealer shall be a sodium silicate / silicate blend. Manufacturer of liquid densifier and sealer must be contacted prior to bidding for pricing and application requirements.
1. Acceptable liquid densifier and sealer manufacturer:
 - a. "Euco Diamond Hard" by Euclid Chemical - Phil Brandt 877-438-3826
 - b. "RetroPlate 99" by RetroPlate Systems - Curtis Turnbull 888-942-3144

B. Approval: All general contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer and polishing process. Within ten days after completion of work, the approved applicator shall furnish Euclid Chemical or RetroPlate a copy of the invoice, as well as square footage and coverage rate data confirming that the specified application rates were achieved.

C. Project service: at least 10 days prior to application of liquid densifier and sealer, the general contractor shall notify the Euclid Chemical or RetroPlate representative for jobsite service. The representative will be on the project site during the first application of liquid densifier / sealer and will follow the project through to completion.

- 10) SEMI-RIGID POLYUREA JOINT FILLER:
- A. UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with minimum Shore "A" hardness of 80. Joint filler color shall match the adjacent concrete surface.
1. Acceptable semi-rigid polyurea joint filler manufacturer:
 - a. "Euco QWIKJoint UVR" by Euclid Chemical - Phil Brandt 877-438-3826
- B. Non-UV Resistant, semi-rigid polyurea joint filler shall be a two (2) component, 100% solids compound, with a minimum Shore "A" hardness of 75. Joint filler color shall match the adjacent concrete surface.
1. Acceptable semi-rigid polyurea joint filler:
 - a. "CreteFill Pro 75" by CureCrete - Curtis Turnbull 888-942-3144

C. Approval: All general contractors bidding or negotiating a Dollar General project shall contact the Euclid Chemical company or Retroplate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer and polishing process.

- 11) CONCRETE MIXES:
- A. Comply with ACI 301 requirements for concrete mixtures.

B. Concrete mix design(s) shall be proportioned according to ACI 301, for normal-weight concrete determined by either laboratory trial mix or field test data as follows:

1. Compressive strength (28 days): 4000psi (27.6mpa), with a maximum water/cement ratio of .53, unless otherwise indicated on the drawings. Concrete materials included in the mix design shall be the same materials provided to the project, and shall be prepared by an independent testing laboratory approved by the owner. If sufficient backup data is not available, the laboratory mix design shall exceed the desired job strength of concrete by 1,200psi. Four copies of the mix design shall be submitted to the owner before concrete work begins.

2. Slump: Concrete containing mid or high range water reducer shall have a maximum slump of 5½" for the interior sales floor slab and 8" (200 mm) for other areas. All other concrete shall not exceed 4 inches (100 mm) unless otherwise indicated on the drawings.

3. Adjustment to concrete mixes: Mix design adjustments may be requested by General Contractor when characteristics of materials, job conditions, weather, test results or other circumstances warrant; at no additional cost to owner and as accepted by owner. Laboratory test data for revised mix design and strength results must be submitted to and accepted by owner before using in work. Both the concrete testing and inspection agency and the concrete contractor shall satisfy themselves that the concrete mix design will produce a concrete which will meet the specifications for this project. In addition, the General Contractor and Concrete Contractor shall verify that the workability, finishability and setting times are appropriate for slab installations. Placement shall be made directly from concrete trucks by chute. If pumping of the concrete is contemplated for any special locations, the proportions established above shall not be altered to suit the capabilities of the pumping equipment. For concrete containing macro-synthetic fibers, adjustments required to provide required placement conditions may warrant use of additional water reducer. No additional water is permitted into concrete mixture after addition of macro-synthetic fibers.

4 Interior concrete sales floor: Concrete shall be designed to meet 4000 psi compressive strength @ 28 days and exhibit ≤0.04% shrinkage @ 28 days. The mix shall contain approximately 12 cubic feet of #467 aggregate (1-1/2" top size), the specified water reducing admixture and achieve a w/cm ratio of 0.53 (max.). Concrete shall be non air-entrained and in no case shall the concrete be designed for less than 4000 psi (27.6mpa) @ 28 days. Proposed mix design shall be similar to the following

Prototype mix:	
Materials	Prototype mix
Cement	517-564lbs.
Fly ash/slag	Prohibited
Coarse aggregate	12 cubic feet +/- .50 (#467 stone)
Fine aggregate	7 cubic feet +/- (adjust as necessary)
Water content	250 - 300lbs.
Air content (Entrapped Air Only)3.0% (max.)	
Water Reducer (type a/f)	3oz.-10oz./100wt +/- (mid range preferred)
W/cm	0.53 (max.)
Initial slump (water)	3"
Final Slump (with water reducer)5.5" (max)	
Shrinkage	≤0.04% @ 28 days

- 12) FLOOR SLAB FINISH AND TOLERANCES:
- A. General: Unless otherwise noted by owner, concrete sales floor slab shall be cast in one continuous placement. Concrete shall be placed, screeded, re-straightened, and finished as necessary to meet the FF and FL tolerance requirements. Do not wet concrete surfaces during finishing operations.

- B. Trowel finish (sales floor): Apply a hard trowel finish to surfaces as follows:
1. Laser screeds, vibratory screeds, highway straightedges and wood bull floats shall be used to initiate screeding and floating process to form a uniform and open-textured surface plane before excess moisture or bleed water appears on the surface. A back-up laser screed is required during concrete placement of the interior sales floor slab. Remove excess water before starting floating operations. Do not further disturb surfaces before starting finishing operations
 2. Highway straightedge operations shall continue before, during and after troweling operation, until specified floor tolerances are achieved.
 3. Trowel finish with gas operated troweling machine with adjustable blades on all finishing equipment. Use steel-reinforced blades on ride-on power trowels. Trowel the surface sufficiently to produce a smooth, tight, abrasion resistant surface. Care shall be taken not to overwork or burn the surface. Use 6" wide finish style steel-reinforced blades on final passes. Finishing blades shall be in new condition and completely clean of any deleterious materials. Interior machine trowel finish shall be achieved within a 3" tolerance of all walls, columns and partitions.
 4. Protection: Care shall be taken to protect the interior sales floor. Entrances shall include clean floor mats to prevent mud stains and all equipment on the floor shall be diapered to prevent spills. Cutting oils, etc, are not allowed on the sales floor slab at any time during the construction process.

C. Comply with ACI 117, "Specifications For Tolerances For Concrete Construction and Materials." Interior sales floor slab shall meet the requirements of a type 5, single course, hard steel-troweled finish as described in ACI 302.

1. All perimeter areas and edges of the concrete floor shall exhibit the same finish as the sales floor, including but not limited to, hallways, offices, restrooms, etc.
2. The general contractor is responsible for contracting with the testing laboratory for all costs associated with floor tolerance testing. A copy of the final floor tolerance report shall be provided by the general contractor to the owner within 24 hours of receiving the report from the testing laboratory. The sales floor slab shall conform to the following flatness and levelness criteria:

Flatness	Overall Floor Flatness rating of at least 35
Levelness	Overall Floor Levelness rating of at least 30
Tolerance Band for Entire Floor	+/- 0.375 inch
- D. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.
- E. Trowel finish (other than sales floor): Apply a hard trowel finish to surfaces indicated and to floor and slab surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin film-finish coating system.

F. Heavy broom finish: As noted on drawings.

- 13) CONCRETE PROTECTION AND CURING:
- A. General: Normalize concrete set time and protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 305 for hot-weather protection and ACI 306 for cold-weather protection during curing. During concrete placement operations, ventilate and exhaust all fumes from construction equipment and heaters to avoid potential early concrete carbonation. Apply the specified curing compound as quickly as possible for maximum protection. For concrete placement during hot, dry and windy conditions, concrete contractor shall use evaporation retarder as per manufacturer's instructions to maintain a moist condition and to minimize plastic drying shrinkage cracking at the surface of the freshly placed concrete.

1. Curing - Exterior Slabs:
All exterior concrete slabs shall be cured using the specified liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing. Surface shall be clean and damp, but not wet and can no longer be marred by walking workmen. All applications shall be made by an approved applicator of the manufacturer, and when surface and air temperature is above 50° F Apply "Super Rez Seal" or "Super Aqua Cure" at an application rate of 400sf/gallon. Begin curing immediately after finishing concrete, but not before free water has disappeared from concrete surface.

2. Curing - Interior slabs:
The interior sales floor slab shall be cured using the specified dissipating or removable liquid membrane-forming curing compound. Per manufacturer's instructions, application shall be applied evenly and uniformly as soon as possible after final finishing. Surface shall be damp, but not wet and can no longer be marred by walking workmen. All applications shall be made by an approved applicator of the manufacturer, and when surface and air temperature is above 50° f Apply "Kurez DR VOX" (slab first) or "Kurez RC" (slab last) at an application rate of 350sf/gallon. Begin curing immediately after finishing concrete, but not before free water has disappeared from concrete surface.

- 14) CONTRACTION JOINTS IN SLABS-ON-GRADE:
- A. Form weakened-plane contraction joints, sectioning concrete into areas as indicated on drawings. Contraction joints shall be sawn to a depth equal to at least one-fourth of the concrete thickness, as follows:

B. Sawn joints: All saw cutting shall be accomplished with a "Soft-Cut" saw and vacuum system equipped with a new blade and plate, as soon as the slab will support the weight of the saw and operator. Note: Concrete dust shall be removed completely and immediately. If chalk lines are used for sawcuts, all chalk remaining on the slab shall be removed completely and immediately after sawing.

- 15) INTERIOR SALES FLOOR SLAB PROTECTION:
- A. Take the following measures to protect the interior sales floor slab:
1. Wrap or "diaper" all motorized and hydraulic equipment to prevent fluid leaks
 2. Provide non-marking tires on rubber tired vehicles or equip rubber tires with tire boots made of nylon fabric.
 3. Provide mats at all entrances to prevent mud stains

- 16) TIMING OF JOINT FILLER, LIQUID DENSIFIER AND POLISHING PROCESS:
- A. Do not commence installation of semi-rigid polyurea joint filler, liquid densifier and sealer or polishing processes until the building is completely enclosed, permanent power and lighting is operating and the building is thermostatically controlled. Installation of these materials shall commence approximately two weeks prior to "fixture date."

- 17) INSTALLATION OF SEMI-RIGID POLYUREA JOINT FILLER:
- A. All General Contractors bidding or negotiating a Dollar General project shall contact Euclid Chemical or RetroPlate to obtain a list of approved applicators located within the geographic region of the project. General contractors shall solicit and accept pricing only from those applicators as provided by Euclid Chemical or RetroPlate. The approved applicator selected for the initial application of liquid densifier / sealer shall be the same as for the joint filling and additional application of liquid densifier / sealer.

B. Joint filler installation: Comply with recommendations in ACI 302 for use of joint filler as applicable to materials, applications, and conditions indicated.

C. Surface cleaning of joints: Clean out joints immediately before installing joint filler. Remove foreign material from joint substrates that could interfere with adhesion of joint filler by brushing, grinding, blast cleaning, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint filler. Remove loose particles remaining from above cleaning operations by vacuuming or blowing out joints with oil-free compressed air. Also remove all laltance and form-release agents from concrete surface. Clean nonporous surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues could interfere with adhesion of joint sealants. All surfaces to be filled shall be clean and dry.

D. For proper load transfer, joints must be filled full depth, but in no case should the joint filler be any less than 1" deep in the joint.

E. Mixing: Joint filler is a two part product requiring machine mixing and placing. Premix part b separately before using. Follow pump manufacturer's equipment instructions.

F. Placement: Joint filler shall be filled full depth. No backer rod is allowed. Joints should be overfilled and shaved even with the surrounding joint edge giving the floor joints a flat, smooth appearance. Shaving of excess joint filler can be approximately 30 minutes after placement, and up to 24 hours later, depending on jobsite conditions such as concrete and ambient temperatures.

G. Joint filler separation: The approved joint filling applicator shall include in their bid a cost per linear foot to make one return trip to refill joints if joint filler sidewall separation or splitting exceeds 1/16", or if surface profile is concave, chattered or if voids occur. This shall take place one week prior to grand opening.

- 18) INITIAL CLEANING FOR LIQUID DENSIFIER AND SEALER APPLICATION:
- A. Interior sales floor slab: Thoroughly clean the interior sales floor slab prior to initial application of liquid densifier and sealer by completely removing the specified dissipating or removable curing compound from the floor surface. The following floor stripper or removal solution shall be applied to the floor to thoroughly strip, clean and remove all curing compound residue:

1. If Kurez DR VOX (slab first) was used to cure the slab, use "Euco Clean & Strip" by Euclid Chemical, applied at the proper water to floor stripper ratio and coverage rate that will completely remove the Kurez DR VOX. Contact: Phil Brandt (877) 438-3826

2. If Kurez RC (slab last) was used to cure the slab, use "Kurez OFF" by Euclid Chemical, applied at the proper water to floor cleaner ratio and coverage rate that will completely remove the Kurez RC. Contact: Phil Brandt (877) 438-3826

- 19) POLISHING PROCESS AND APPLICATION OF LIQUID DENSIFIER / SEALER:
- A. All Applicators must be certified by Euclid Chemical or Retro-Plate.

- B. The revised process can be used in both "Wet" and "Dry" applications.
- C. This process assumes a quality concrete finish (meets and/or exceeds the specified floor tolerances) by the floor finisher. Failure to achieve the above criteria shall be cause for replacement of the offending segments or grinding/polishing at no cost to the Owner or Tenant.
- D. Only the Sales Floor will receive the full 8 step process outlined below under item K.
- E. All other areas will only receive steps 1 through 3, no additional work is necessary. The yellow safety striping will remain.
- F. The Black painted border will not be required in areas behind fixtures, etc...it will only be installed at the main entry door, office doors, egress doors and doorways into the receiving area and transitions that can be seen by the customers.
- G. Steps 2 & 4 are combo steps using different grits of resin bond diamonds on each pass.
- H. This is a "Resin" only grind that does not tear away as much of the surface area. The Resin grind will remove a minimal top layer of the concrete surface and should greatly reduce the amount of Waste Product created when compared to the old Metal grind process.
- I. If a Cure-n-Seal product is required at the time of slab placement only Water Based Dissipating Sealers are allowed. NO Acrylic Cure-N-Seals are allowed.

- J. Prior to application, inspect interior sales floor slab to ensure that slab is clean and free of dust, grease, oils, or other contaminants that might prohibit the proper application and penetration of the liquid densifier and sealer.
- K. Process Steps
1. Cut, clean out, prep and fill the concrete floor joints with the Euclid QWIKjoint UVR polyurea joint filler or "CreteFill Pro 75 by CureCrete.

2. Grind concrete floor with a combo set of 40/50 grit resin bond diamonds.

3. Depending on the final finish of the floor, this step may or may not be required. Grind concrete floor with a combo set of SASE metal bond gold series 80 and 150 grit segments or HTC EZ BB brown 4 series (60 grit diamonds) and HTC EZ BB Black 5 series (100 Grit Diamonds).

4. Thoroughly clean the concrete floor and apply Euclid Diamond Hard liquid densifier and sealer at 225 square feet per gallon or ("RetroPlate 99 liquid densifier at 200 square feet per gallon").

5. Polish concrete floor with a combo set of SASE Triton 100 grit black resin diamonds, SASE Triton 200 grit blue resin diamonds or HTC EZ MR black series (100 Grit Diamonds) and HTC EZ MR blue series (200 Grit Diamonds).

6. Polish concrete floor with SASE Triton 400 grit red resin diamonds or HTC EZ SR red series (400 grit diamonds).

7. Thoroughly clean concrete floor and then apply Euclid Diamond Hard liquid densifier and sealer at 700 square feet per gallon (spiff coat). Or ("RetroPlate 99 liquid densifier at 700 square feet per gallon as a spiff coat").

8. Burnish / Polish concrete floor with SASE Sure Shine white 800 grit diamond impregnated pads or HTC White Twister pads (800 grit diamond impregnated pads).

9. Burnish / Polish concrete floor with 1500 Grit Diamond Impregnated twister pads (H.T.C. Yellow TWISTERS or equivalent)

- L. All edges must be polished to match concrete floor with coinciding SASE 5" resin Polishing pads or HTC EZ Grind polishing 5" diamond tools.

M. Polish results: Perform polishing process to attain an overall gloss reading of ≥35 specified overall gloss value (SGOV) as measured using a Horiba IG-320, and a specified minimum gloss reading of ≥30 minimum local gloss value (MGLV). A minimum of 75 readings shall be taken throughout the interior sales floor. The approved applicator shall take four gloss measurement readings at 90° from each other, and then averaged for one reading at each location. The overall measurement shall be reported to Dollar General within 24 hours of the polishing process. Gloss shall be considered as a quantitative value that expresses the degree of reflection when light hits the concrete floor surface. Gloss measurements will be taken independent of ambient lighting and will be taken within a sealed measurement window located beneath the test unit.

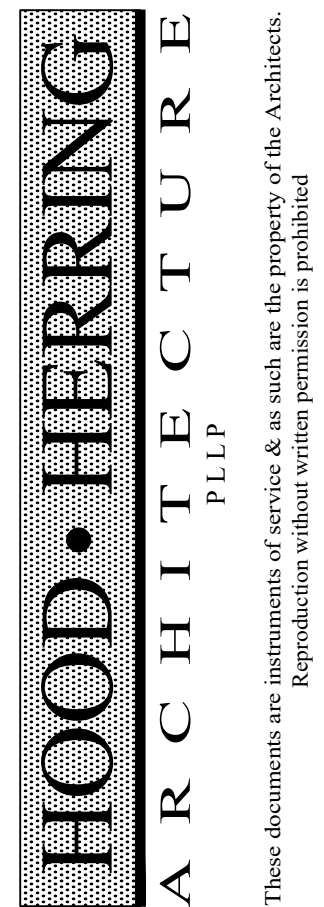
GENERAL NOTES

1. BUILDING MUST COMPLY WITH ALL BUILDING (FEDERAL, STATE, AND LOCAL), FIRE, ADA, AND HEALTH DEPARTMENT CODES.
2. WALLS: FINISHED GYPSUM BOARD WITH ALL JOINTS TAPED, MUDDED, SANDED, AND PAINTED.
3. PROVIDE DOUBLE STUDS AND BLOCKING TO SUPPORT EQUIPMENT AND/OR MISCELLANEOUS ITEMS WHERE INSTALLED. I.e.-TYPICAL CASEWORK, TOILET PAPER HOLDERS, GRAB BARS, ETC.
4. GULK AND SEAL EXTERIOR JOINT BETWEEN METAL PANELS AND CONCRETE SLAB, AND ALL UNLIKE MATERIALS.
5. TRIM - DOORS, DOOR FRAMES, WINDOW FRAMES, COLUMNS: PAINTED TO MATCH ADJACENT WALLS.
6. ALL PENETRATIONS THROUGH ROOF MUST COMPLY WITH ROOF WARRANTY REQUIREMENTS.
7. DOORS: ALL EXTERIOR DOORS HAVE WEATHER STRIPPING AND A SNUG SEAL AROUND DOOR. ALL EXTERIOR DOORS WILL HAVE CYLINDER REPLACED BY DOLLAR GENERAL AREA MANAGER WITH INSTAKEY SYSTEM.
8. THE SALES FLOOR SHALL CONTAIN NO INTERIOR COLUMNS. 12" MAXIMUM THICKNESS ON ALL EXTERIOR COLUMNS. THE USE OF INTERIOR COLUMNS, LARGER EXTERIOR COLUMNS, OR TAPERED COLUMNS REQUIRE WRITTEN APPROVAL FROM DOLLAR GENERAL CONSTRUCTION DEPARTMENT.
9. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND COORDINATE ALL TRADES.
10. CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOCATIONS AND DIMENSIONS OF EQUIPMENT. ANY EQUIPMENT FURNISHED BY THE OWNER OR TENANT SHALL BE RECEIVED, STORED, AND INSTALLED BY THE CONTRACTOR. CONTRACTOR SHALL COORDINATE WITH OWNER FOR INSTALLATION.
11. IF DIMENSIONS ARE IN QUESTION - THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE DOLLAR GENERAL CONSTRUCTION DEPARTMENT BEFORE CONTINUING WITH CONSTRUCTION.
12. MAINTAIN CLEAN WORK SITE ON A DAILY BASIS.



ISSUED FROM:
WILMINGTON OFFICE
805 North Fourth Street
Fayetteville, NC 28401
Phone: 910.251.8899
Facsimile: 910.251.9889

WILSON OFFICE
1000 West 10th Street
Wilson, NC 27893
Phone: 252.399.2700
Facsimile: 252.399.2701



DOLLAR GENERAL
STORE # 31414
NC HIGHWAY 55
ERWIN, NORTH CAROLINA

JOB NUMBER

DRAWN BY
MMH
DATE
03/13/25
REVISIONS

SHEET NUMBER

A-6
OF

FOUNDATION NOTES

- FOUNDATION DESIGN BASED ON FIELD TESTED SOIL BEARING PRESSURE OF 1500 PSF.
- MINIMUM COMPRESSIVE STRENGTH f'_c OF CONCRETE TO BE 4000 PSI.
- STEEL REINFORCEMENT BARS TO BE A615, GRADE 60. REINFORCEMENT BARS TO BE SUPPORTED BY CHAIRS OR SPACERS. CONCRETE BLOCK OR BRICKS SHALL NOT BE USED AS SPACERS. WELDED WIRE FABRIC (MESH) SHALL CONFORM TO ASTM A185 AND BE PROVIDED IN FLAT SHEETS (ROLLS NOT PERMITTED). SUPPORT WIRE FABRIC WITH CHAIRS OR LIFTS DURING CONCRETE PLACEMENT TO INSURE PROPER POSITION IN SLAB. CONCRETE BLOCK OR BRICKS SHALL NOT BE USED AS SPACERS. MINIMUM COVER SHALL BE AS FOLLOWS:
A. SLABS.....3/4"
B. ALL CONCRETE CAST AGAINST EARTH.....3"
- ANCHOR RODS SHALL HAVE WITH HEAVY HEX NUTS AND WASHERS (SEE DETAIL). ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 36, UNLESS OTHERWISE NOTED. SEE MANUFACTURER'S DRAWING FOR ANCHOR BOLT SIZE AND LOCATION.
- PERIMETER INSULATION, WHEN REQUIRED SHALL BE INSTALLED IN ACCORDANCE WITH STATE AND LOCAL CODES.
- A 6 MIL POLYETHYLENE VAPOR RETARDER SHALL BE INSTALLED BELOW SLAB.
- BOTTOM OF FOOTING SHALL BE 12" BELOW FINISHED GRADE MINIMUM.
- ALL WORK SHALL CONFORM TO THE APPLICABLE SECTIONS OF THE NORTH CAROLINA BUILDING CODE, 2018 EDITION.
- CONTRACTOR SHALL PROVIDE ANCHOR ROD REACTIONS FOR REVIEW PRIOR TO CONSTRUCTION OF BUILDING FOUNDATION.

STRUCTURAL DESIGN

DESIGN LOADS

Importance Factors:	Wind	(I_p)	I
	Snow	(I_s)	I
	Seismic	(I_g)	I
Live Loads:	Roof		20 psf
	Mezzanine		psf
	Floor		100 psf
Snow Loads:			10 psf
Wind Loads:	Basic Wind Speed	119 mph (ASCE-7)	
	Exposure Category	C	

SEISMIC DESIGN CATEGORY: ☐ A ☐ B ☒ C ☐ D

Provide the following Seismic Design Parameters:

Occupancy Category (Table 1604.5) ☐ I ☒ II ☐ III ☐ IV

Seismic Use Group _____

Spectral Response Acceleration S_s 1.32 g S_1 0.5 g

Site Classification (ASCE 7) ☐ A ☐ B ☐ C ☐ D ☒ E ☐ F

Data Source: ☒ Field Test ☐ Presumptive ☐ Historical Data

Basic structural system (check one)

☒ Bearing Wall ☐ Dual w/Special Moment Steel

☒ Building Frame ☐ Dual w/Intermediate R/C or Special Steel

☐ Moment Frame ☐ Inverted Pendulum

Analysis Procedure ☐ Simplified ☒ Equivalent Lateral Force ☐ Dynamic

Architectural, Mechanical, Components anchored? ☐ Yes ☒ No

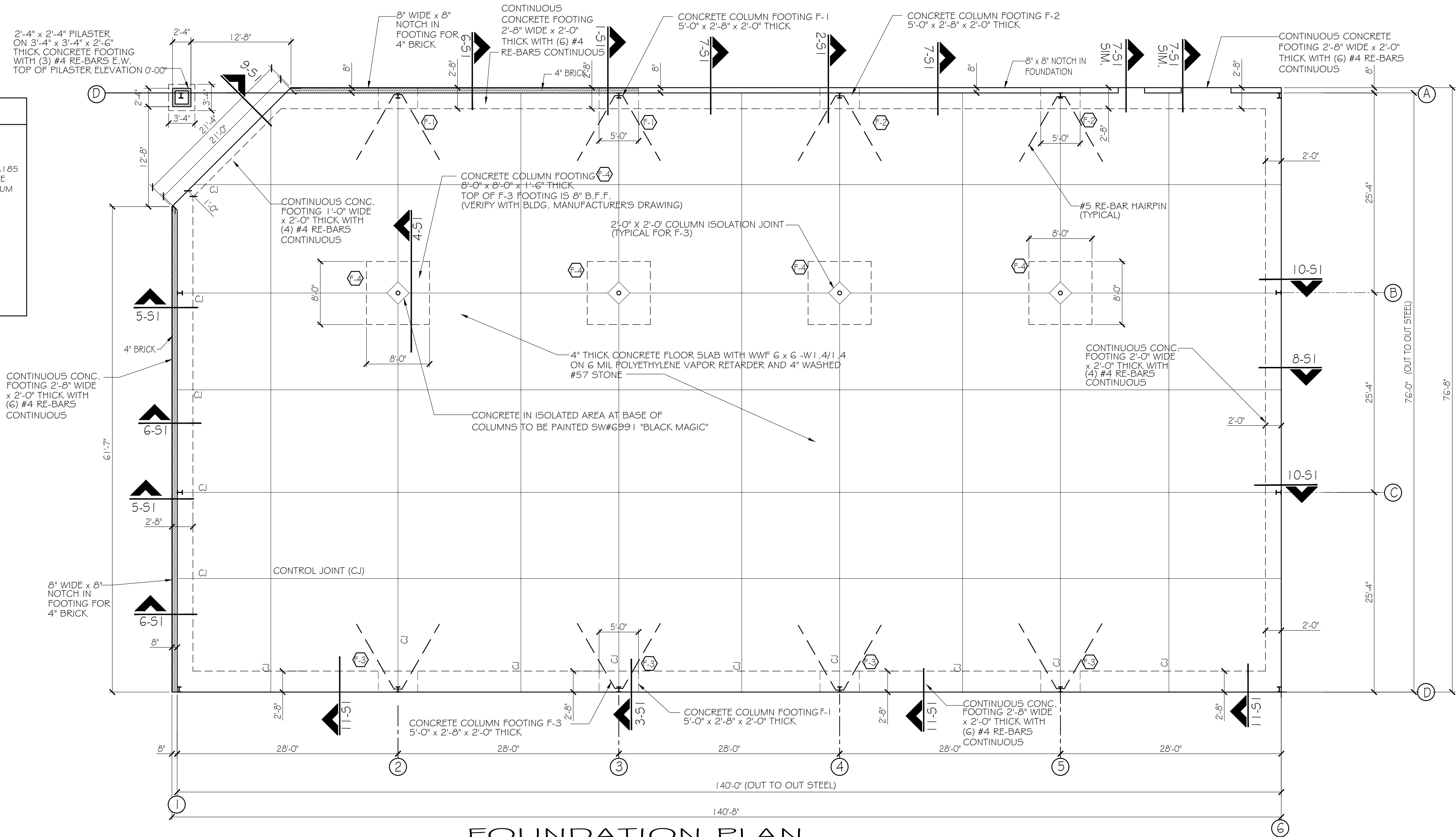
LATERAL DESIGN CONTROL: ☐ Earthquake ☒ Wind

SOIL BEARING CAPACITIES:

Field Test (provide copy of test report) 1500 psf

Presumptive Bearing capacity _____ psf

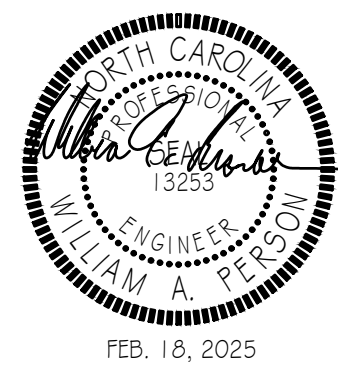
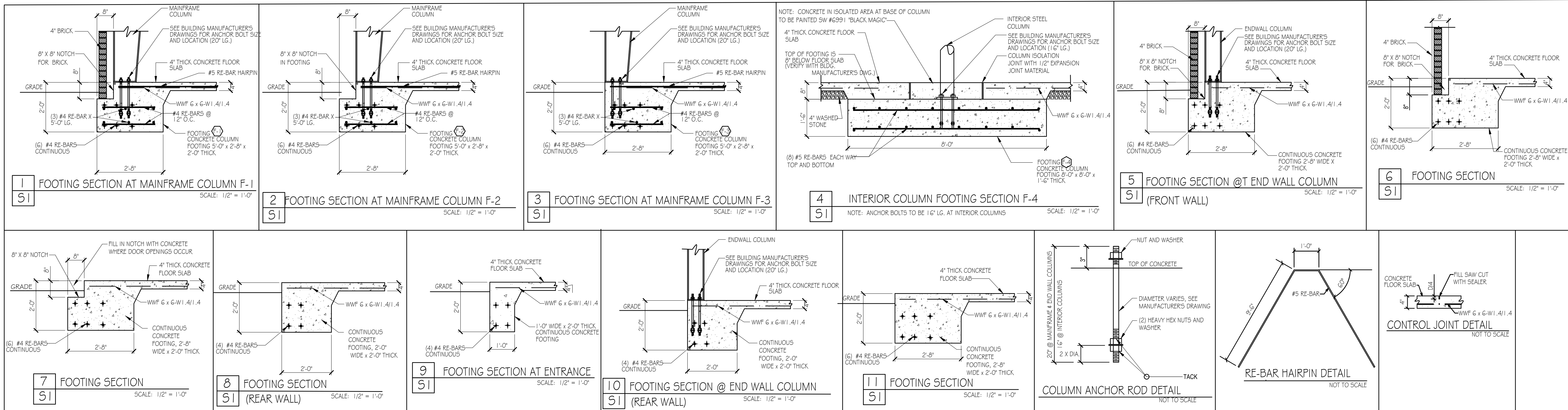
Pile size, type, and capacity _____



FOUNDATION PLAN

NOTE: COORDINATE COLUMN LOCATIONS WITH BUILDING MANUFACTURER'S PLAN

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



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ERWIN, NORTH CAROLINA

JOB NUMBER
DG.ERWIN.2.25
DRAWN BY
WTG
DATE
FEB. 17, 2025
REVISIONS

SHEET NUMBER
S-1

OF ONE

GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

1.

THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR,
EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR,
GC - GENERAL CONTRACTOR,
FASC - FIRE ALARM SYSTEM CONTRACTOR.
SPC- CURRENT STATE PLUMBING CODE (2018 NORTH CAROLINA PLUMBING CODE)
2.

"PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
3.

THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4.

ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5.

ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD-PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
6.

THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE SPC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
7.

THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
8.

DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
9.

THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
10.

THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
11.

ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
12.

TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE SPC. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
13.

THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
14.

SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH SPC, SECTIONS 312.2, 312.3, AND 312.5.
15.

PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
16.

AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
17.

PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.
18.

ALL PLUMBING SCOPE IS WITHIN FIVE (5) FEET OF EXTERIOR OF BUILDING OR AS SHOWN ON PLANS.

METHODS:

1.

EXTEND DOMESTIC WATER PIPE AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2 SPC. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
2.

ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
3.

IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE SPC. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
4.

SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW
- CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
5.

THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
6.

HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3.
7.

INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
8.

POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.16 SPC. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
9.

THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
10.

THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
11.

ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
12.

BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER AS SHOWN AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
13.

ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.4 SPC. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
14.

SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
15.

FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
16.

FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAINPIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
17.

BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
18.

HORIZONTAL DRAINPIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.1 SPC. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
19.

DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
20.

AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3 OF THE SPC. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE SPC. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
21.

INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
22.

THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
23.

THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
24.

ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATERTIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
25.

INSTALL FULL OPEN VALVES PER SPC 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL SHUTOFF VALVES PER SPC 606.2.

MATERIALS:

1.

BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO,

WATTS, OR STOCKHAM.

2.

COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
3.

ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
4.

FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT-HAND SIDE OF THE FIXTURE FITTING.
5.

BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.14 OF THE SPC AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER.
6.

FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2" SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTEWATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
7.

FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE. EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
8.

ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 0.25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS. 8.1. PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 439) MAY ALSO BE USED WHERE NOT LOCATED IN PLENUMS. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD-PARTY CERTIFIED AS CONFORMING TO NSF 14.
9.

PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE SPC. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
10.

ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

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03/19/2025

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SEAL

03/19/2025

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SEAL

DOLLAR GENERAL

STORE #31414

NC HWY 55

ERWIN, NC

JOB NUMBER

250110

DRAWN BY

REW/TD

DATE

03/13/2025

REVISIONS

SHEET NUMBER

PO.1

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P1H	TWO PIECE TANK TYPE ADA WATER CLOSET	AMERICAN STANDARD CHAMPION 4 "RIGHT HEIGHT" #211AA.104 OR EQUAL	FLOOR MOUNTED ADA VITREOUS CHINA ELONGATED FLUSH TANK, 1.28 GPF CLOSED COUPLED TWO PIECE SIPHON JET WATER CLOSET, FLUSH TANK WITH 12" ROUGH IN. PROVIDE AMERICAN STANDARD #211AA.104 OR EQUAL. PROVIDE STOP VALVE, FLEXIBLE SUPPLY LINE AND OPEN FRONT SEAT, NO LID. ADA REQUIREMENT MOUNT SO SEAT IS 17"-19" AFF. ORDER WITH FLUSH LEVER ON OPEN SIDE OF TOILET. INSTALL WITH TRUEBRO INSULATION KIT #102.	-	1/2"	4"
P2	WALL MOUNT LAVATORY	AMERICAN STANDARD 0355.012O OR EQUAL	20"X18" WALL HUNG ADA LAVATORY WITH FRONT OVERFLOW. CONCEALED HANGERS AND 4" CENTERS. AMERICAN STANDARD LUCERNE #0355.012 OR EQUAL. FAUCET SHALL CHROME PLATED CAST BRASS BODY WITH 4" SPOUT, 4" BRASS WRIST BLADE, 0.5 GPM SPRAY AND GRID STRAINER DRAIN. USE AMERICAN STANDARD MONTERREY #5502.175 WITH WATTS MODEL USG-B-M1 TEMPERING VALVE OR EQUAL. ADA REQUIREMENT, MOUNT RIM 34" AFF - INSULATE EXPOSED DRAIN AND WATER PIPES WITH TRUEBRO LAV GUARD KIT #102 E-Z. PROVIDE SUPPLY LINES, STOP VALVES & P-TRAP.	1/2"	1/2"	2"
P3	DRINKING FOUNTAIN	ELKAY #EZTLDDLC OR EQUAL	ELKAY "WATERSENTRY" TWO-STATION, WALL MOUNTED ELECTRIC DRINKING FOUNTAIN, ADA, FRONT ONLY EASY TOUCH CONTROL, HIGH UNIT ON RIGHT. PROVIDE SUPPLY, STOP VALVE & TRAP. PROVIDE CANE APRON AS REQUIRED.CANE FINISH	-	3/8"	2"
P4	WATER HAMEMR ARRESTOR	ZURN Z1700 SHOCKTROL 100	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	VARIES	2"
P5	FREEZEPROOF WALL HYDRANT	AO SMITH DEL-10 OR EQUAL	FREEZE PROOF WALL HYDRANT, ENCASED WALL HYDRANT, WITH BRONZE BODY, ANTI-SIPHON VACUUM BREAKER, HOSE CONNECTION, BOX AND LOCKING COVER.MOUNT AT 24" ABOVE FINISHED GRADE. FLUSH MOUNT AND TAMPER RESISTANT. CONTRACTOR TO SUBMIT SPEC. FOR OWNER APPROVAL FOR ALL STORES.	-	3/4"	-
P6	ELECTRIC WATER HEATER	TOTO UT447E OR EQUAL BY AMERICAN STANDARD OR KOHLER	10 GALLON, 1.65KW, 120V. PROVIDE DRAIN PAN UNDER SHELF-MOUNTED WATER HEATER. TERMINATE DRAIN LINE IN MOP SINK. PROVIDE FULL T&P RELIEF LINE, TERMINATE 2" ABOVE RIM LEVEL OF MOP SINK. INSTALL PER MANUFACTURER'S INSTRUCTIONS.	3/4"	3/4"	-
P7	EXPANSION TANK	AMTROL ST-5	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
P8	MOP SINK	FIAT MSB2424	USE 830 AA,889 CC, 1453 BB, AND 832 AA SERVICE FAUCET, PROVIDE WITH WALL GUARD AND MOP HANGER 2" P-TRAP	1/2"	1/2"	-
WCO	WALL CLEANOUT	ZURN Z-1441	ZURN WALL CLEANOUT WITH ACCESS COVER.	-	-	-
YCO	2-WAY YARD CLEANOUT	TYLER PIPE #003519 OR EQUAL	TRAFFIC RATED	-	-	-

1

FIXTURE SCHEDULE

FIXTURE TYPE	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
		EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET, PUBLIC, FLUSH TANK	2	4.0	8.0	5.0	0.0	5.0	0.0	10.0
LAVATORY, PUBLIC	2	1.0	2.0	1.5	1.5	2.00	3.0	4.00
DRINKING FOUNTAIN	1	0.5	0.5	0.25	0.0	0.25	0.0	0.25
SERVICE SINK, OFFICES, ETC.	1	2.0	2.0	2.25	2.25	3.0	2.25	3.0
DEMAND FIXTURE						TOTAL DFU	12.5	
HOSE BIBS	5	1	5			TOTAL WSFU	5.25	17.25
						GPM	9.8	18.5
						OTHER FIXTURES' GPM	0	5
						TOTAL GPM	9.80	23.50
MINIMUM BUILDING DRAIN SIZE	4"							
MINIMUM WATER LINE SIZE	1"							

2

LINE SIZING TABLE

ISSUED FROM:

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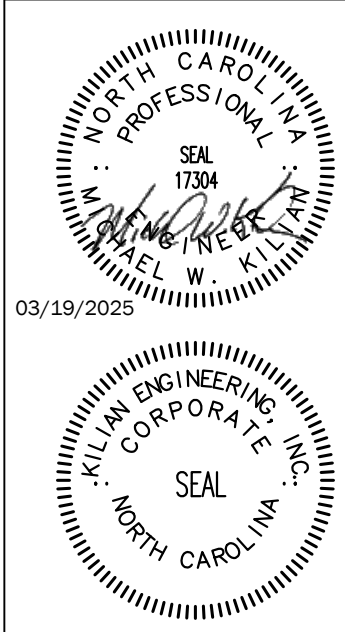
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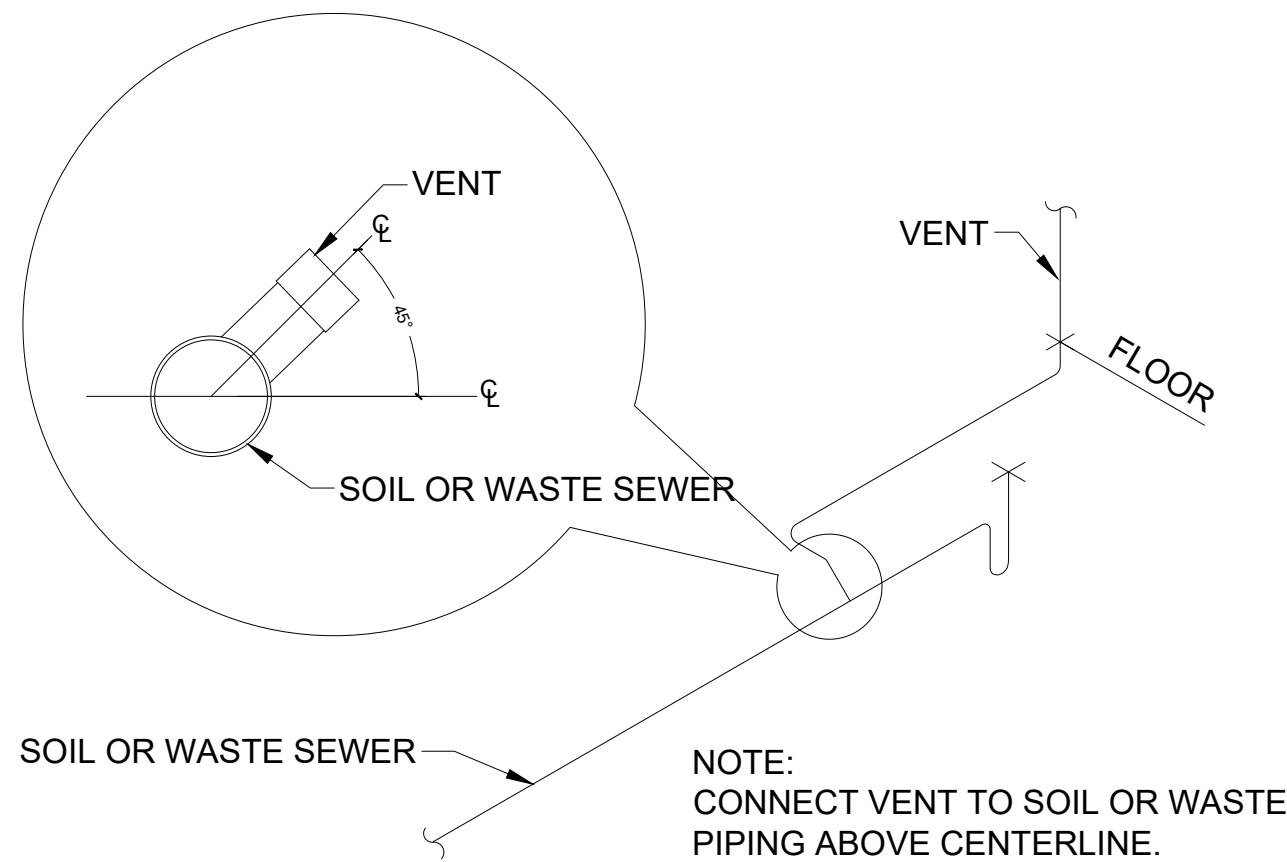
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03/13/2025

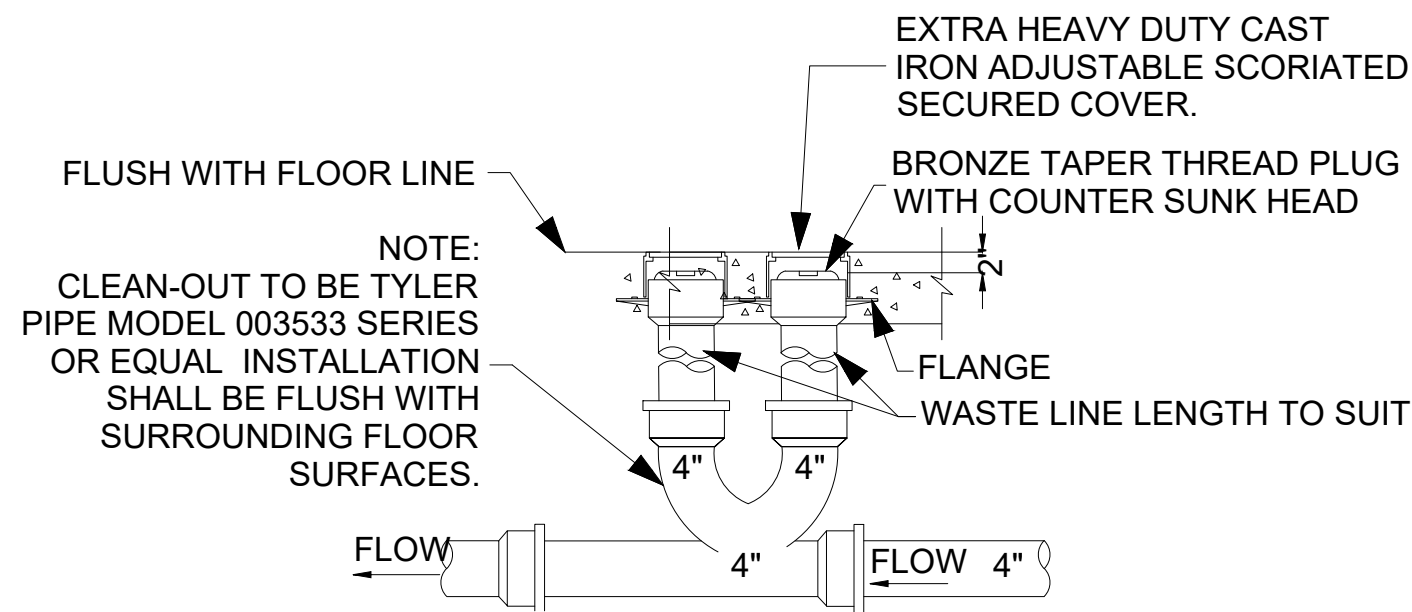
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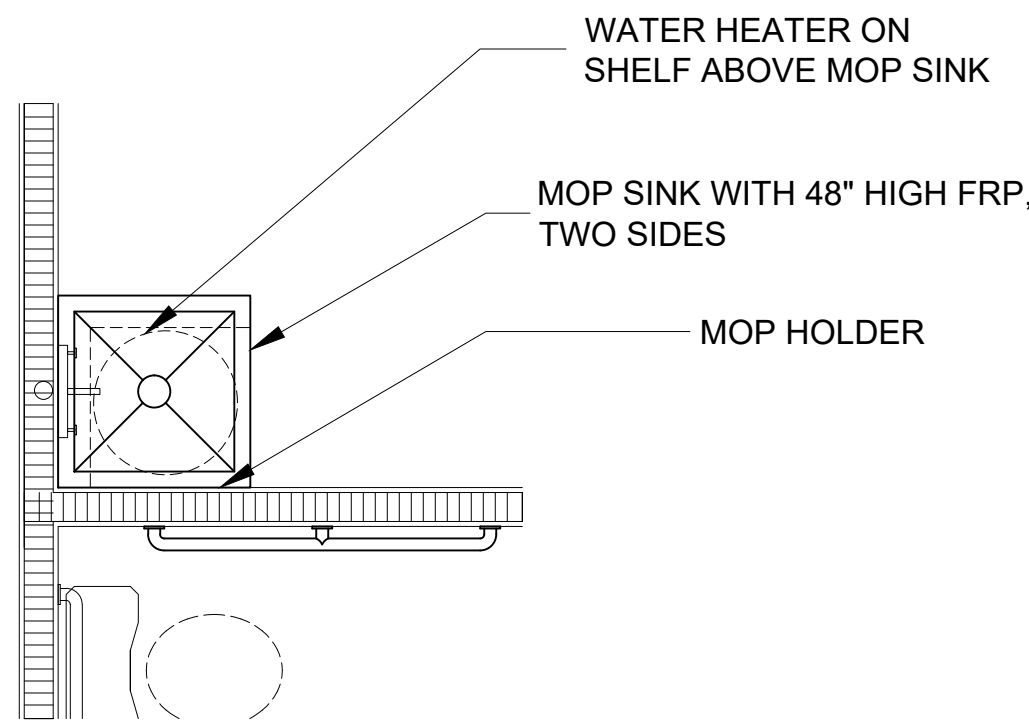
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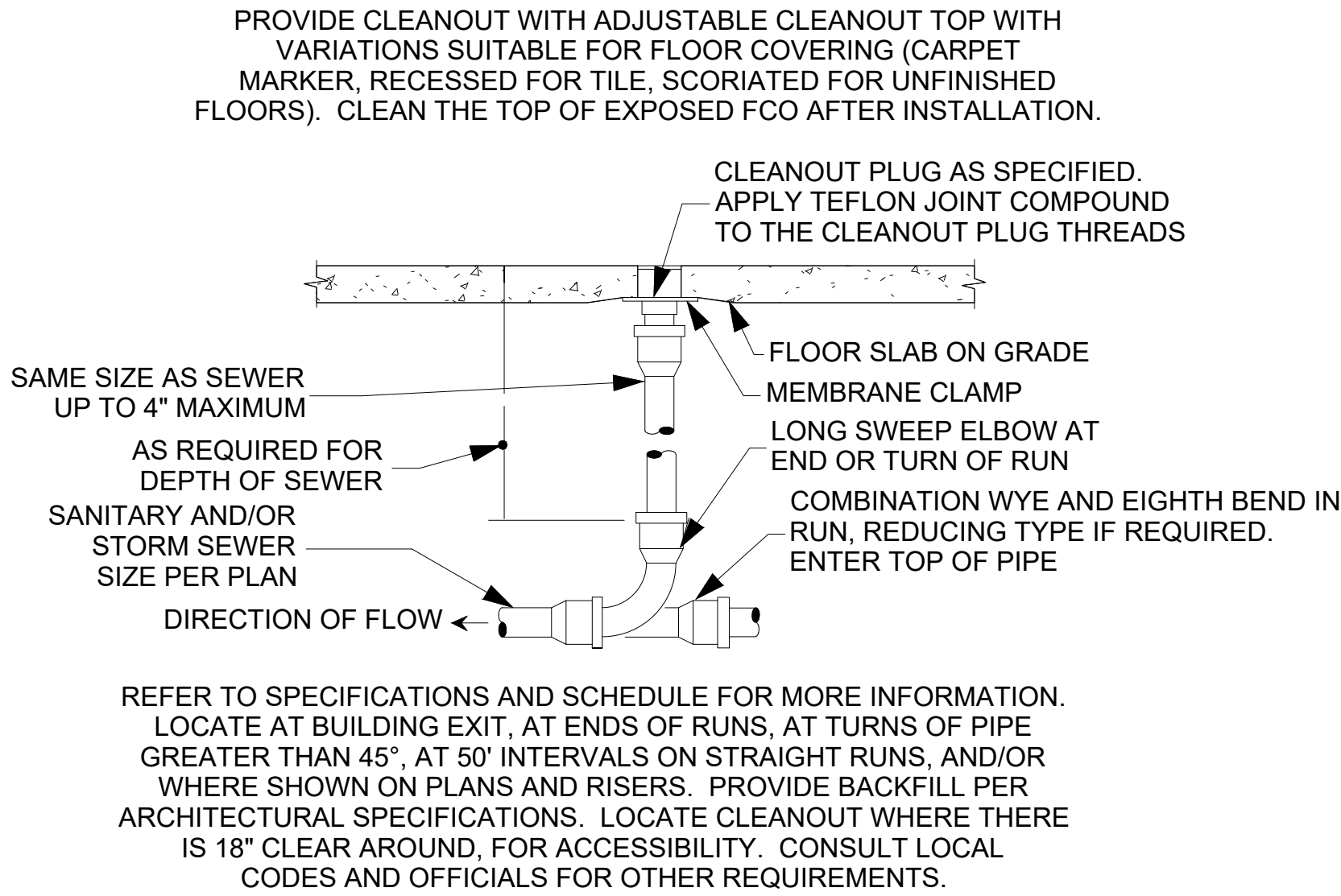
1 VENT PIPE INSTALLATION DETAIL
NO SCALE



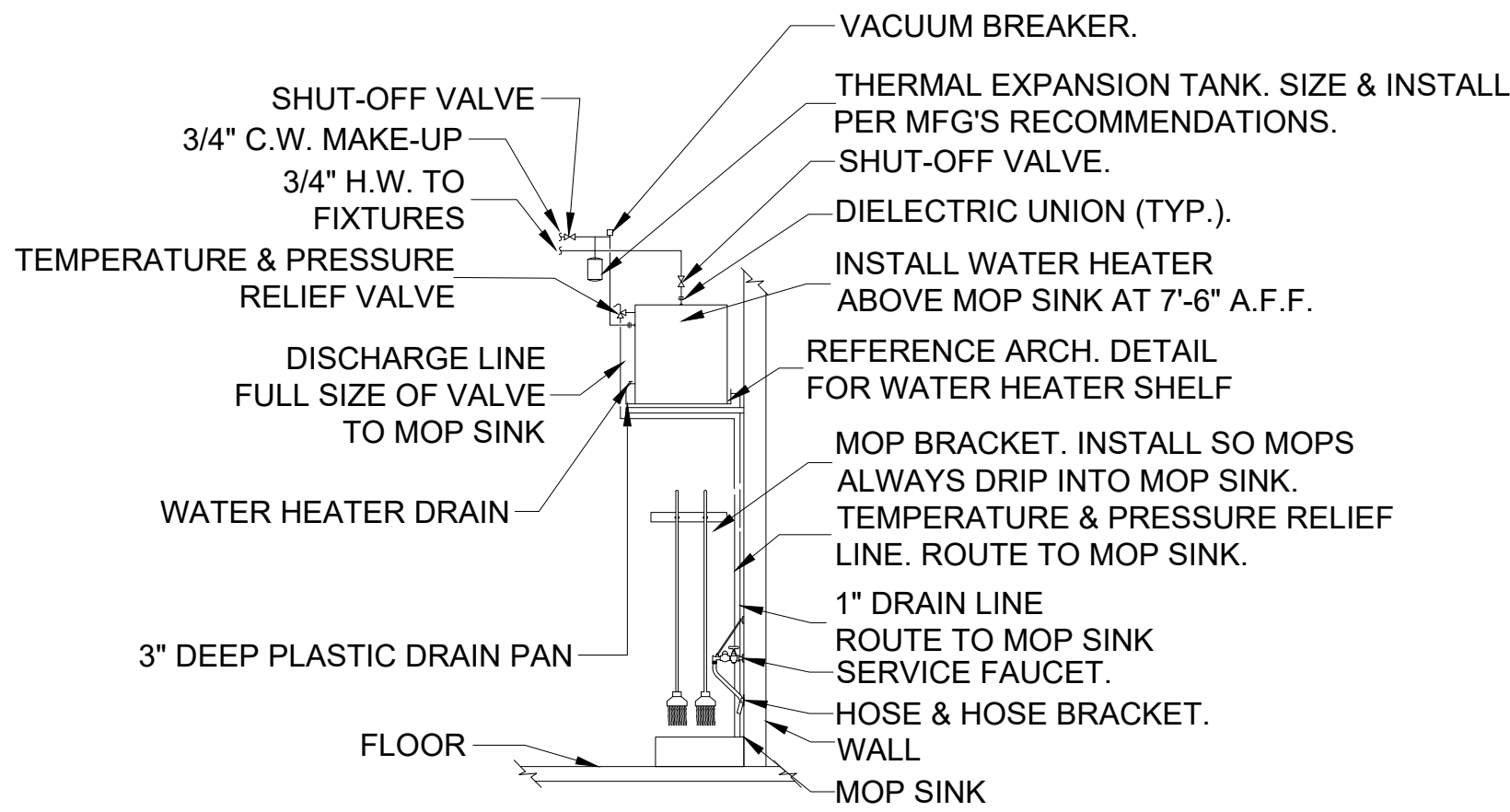
2 2-WAY YCO DETAIL
NO SCALE



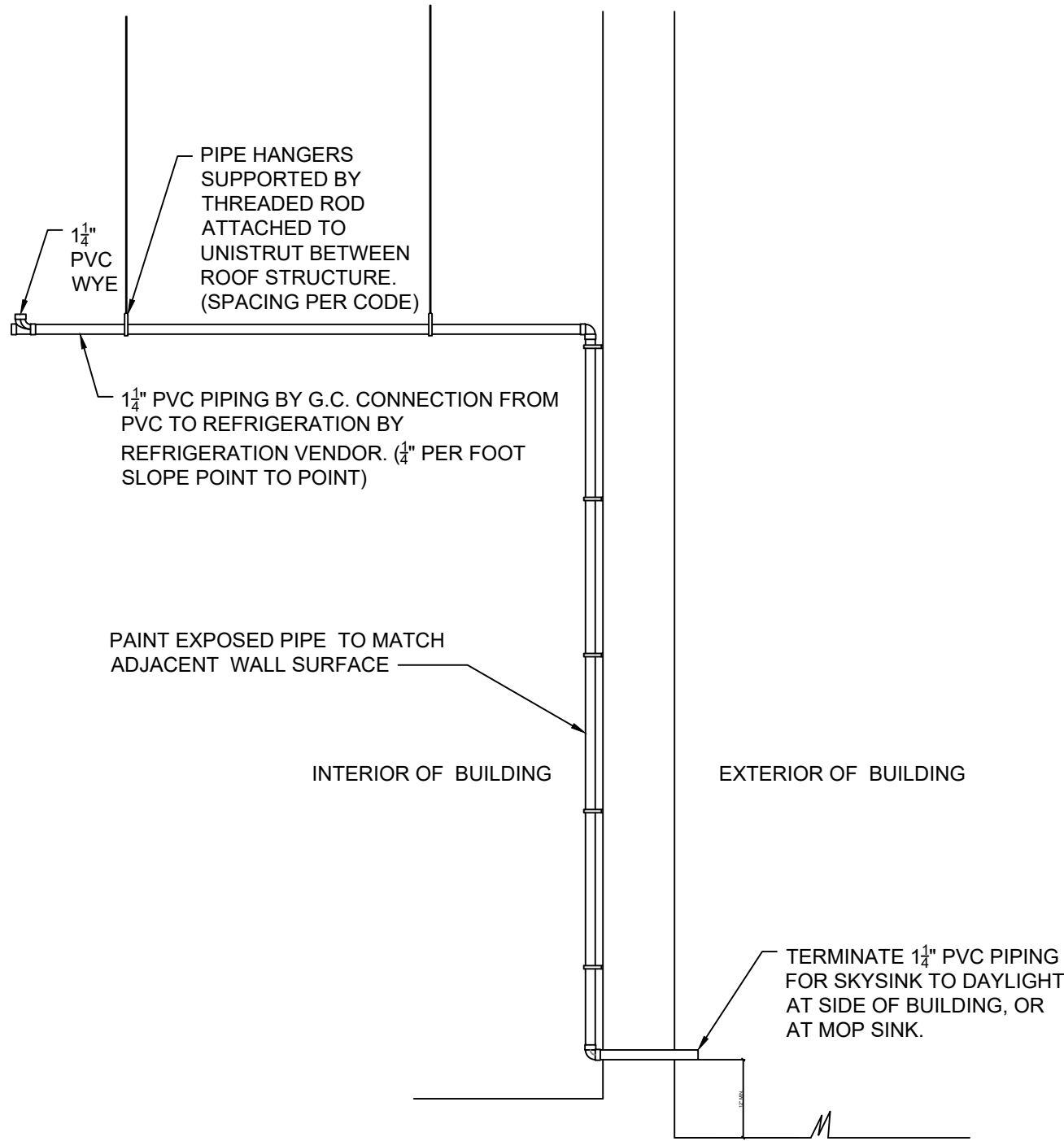
4 MOP SINK LOCATION DETAIL
NO SCALE



3 FLOOR CLEANOUT DETAIL
NO SCALE



5 MOP SINK AND WATER HEATER DETAIL
NO SCALE



6 SKYSINK PLUMBING DETAIL
NO SCALE

LINETYPE LEGEND	
COLD WATER SUPPLY	----
HOT WATER SUPPLY	----
SANITARY SEWER LINE	----
VENT LINE	----

DO NOT TAP WATER
LINE AHEAD OF RPZ.

ISSUED FROM:
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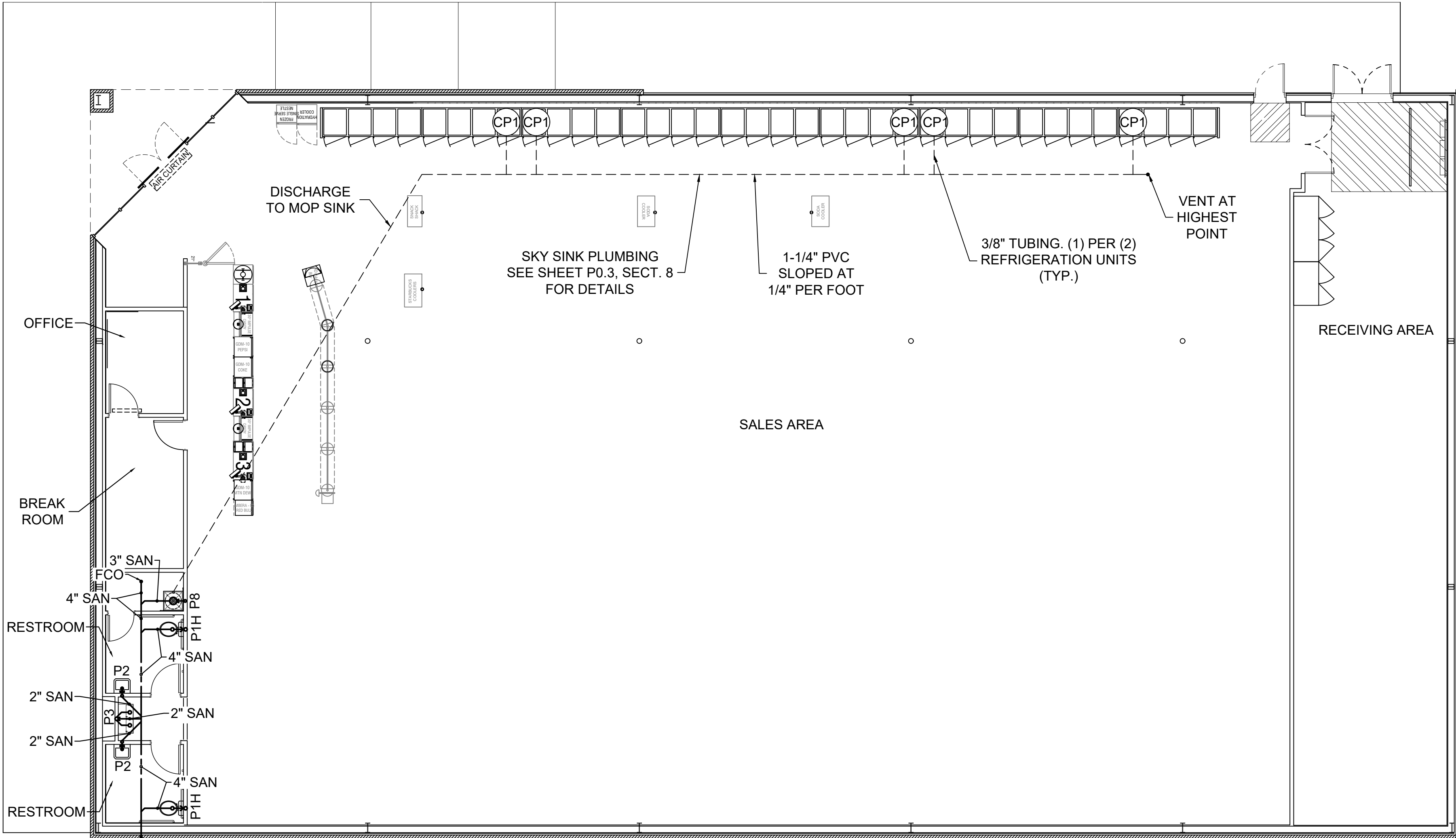
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03/19/2025
SEAL
MICHAEL W. KILIAN
NORTH CAROLINA PROFESSIONAL ENGINEER
03/19/2025
SEAL
KILIAN ENGINEERING, INC.
CORPORATE
NORTH CAROLINA

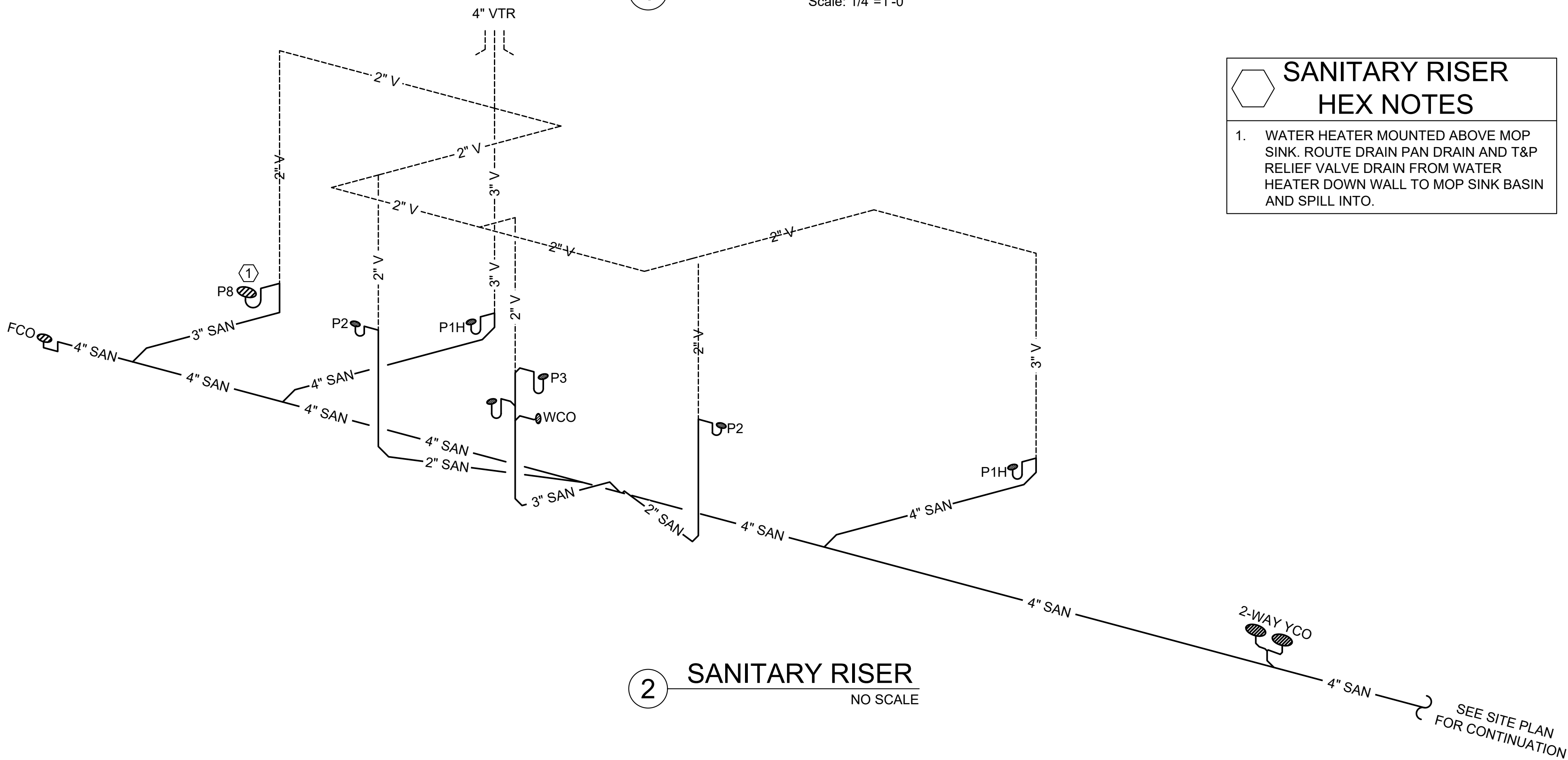
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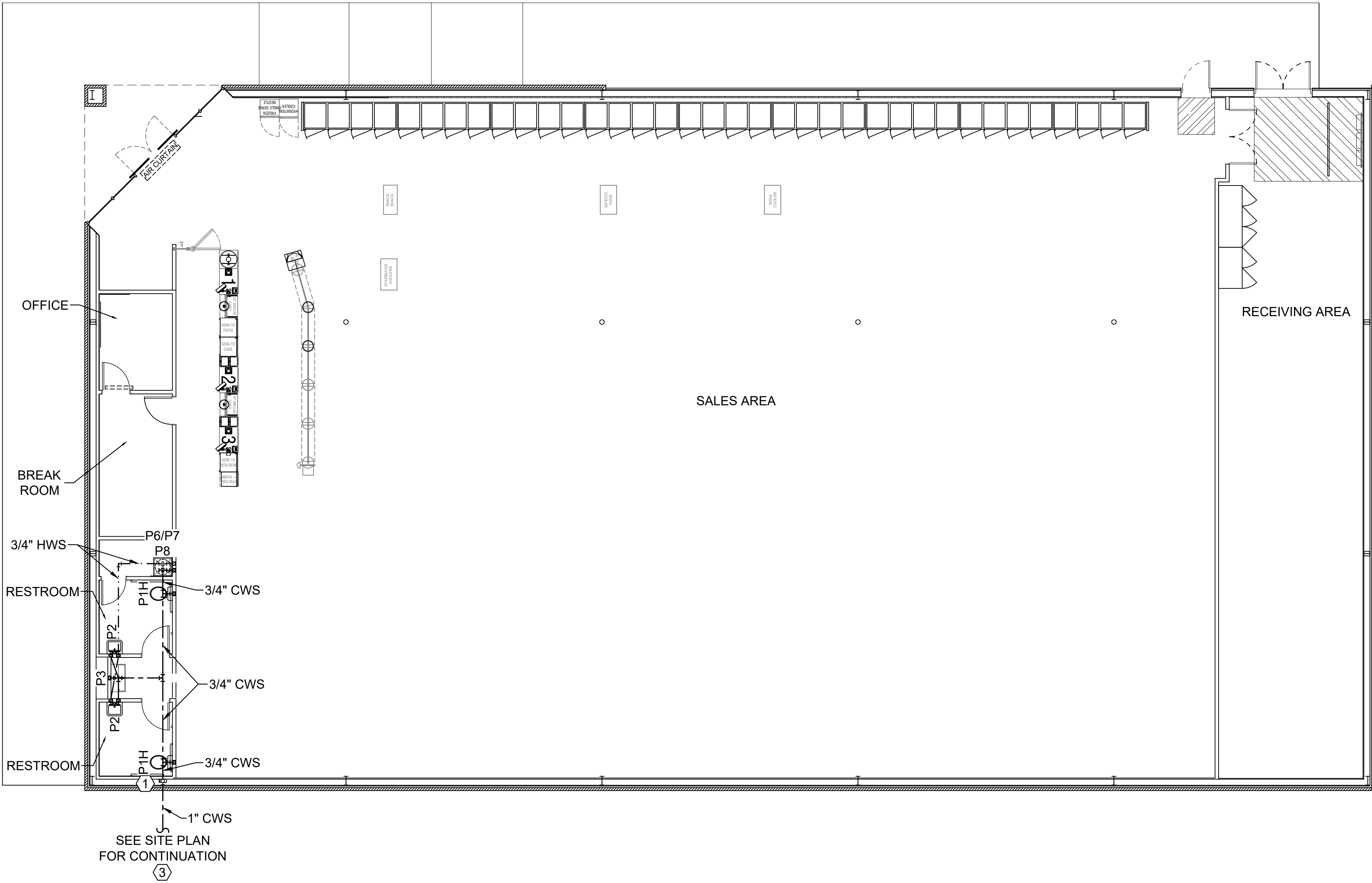
1 SANITARY PLAN
Scale: 1/4"=1'-0"

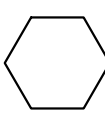


2 SANITARY RISER
NO SCALE

SANITARY RISER
HEX NOTES

1. WATER HEATER MOUNTED ABOVE MOP SINK. ROUTE DRAIN PAN DRAIN AND T&P RELIEF VALVE DRAIN FROM WATER HEATER DOWN WALL TO MOP SINK BASIN AND SPILL INTO.



DOMESTIC WATER RISER
HEX NOTES

1.

1" CWS UP IN WALL WITH VALVE AND LOCKABLE ACCESS PANEL.

2.

PLUMBING CONTRACTOR TO RUN WATER LINE IN SALES AREA AS HIGH AS POSSIBLE OVERHEAD.

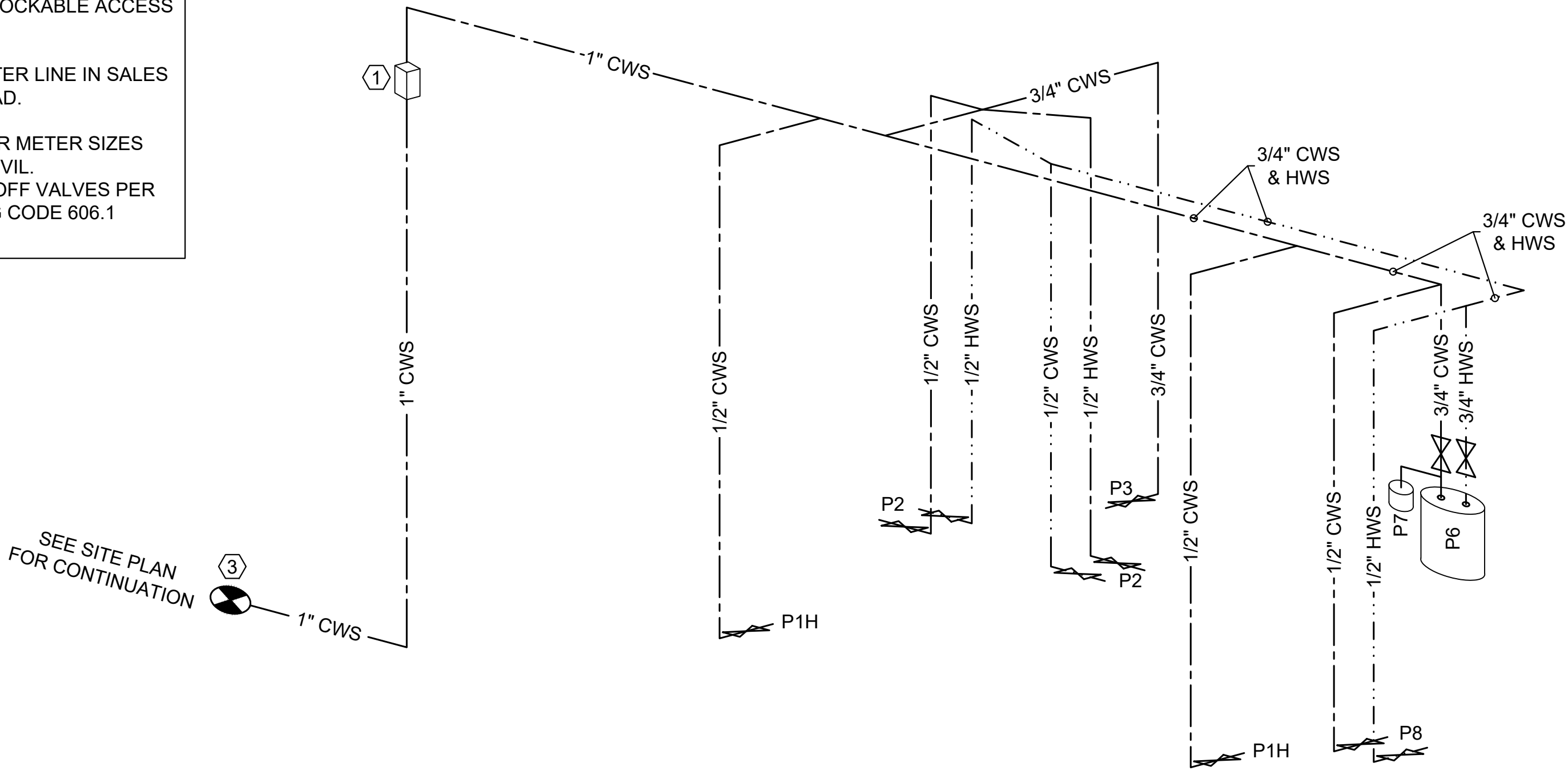
3.

CONTRACTOR TO COORDINATE WATER METER SIZES WITH LOCAL WATER COMPANY AND CIVIL.
*PROVIDE FULL-OPEN AND SHUT OFF VALVES PER 2018 NORTH CAROLINA PLUMBING CODE 606.1 THROUGH 606.3

1

DOMESTIC WATER PLAN

Scale: 1/8"=1'-0"



2

DOMESTIC WATER RISER

NO SCALE

GENERAL MECHANICAL NOTES:

ADMINISTRATIVE:

1.

THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR,
EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR,
GC - GENERAL CONTRACTOR,
FASC - FIRE ALARM SYSTEM CONTRACTOR,
AHJ - AUTHORITY HAVING JURISDICTION.
SMC - CURRENT STATE MECHANICAL CODE (NORTH CAROLINA STATE BUILDING CODE: MECHANICAL CODE)
SBC - CURRENT STATE BUILDING CODE (NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
SECC- CURRENT STATE ENERGY CONSERVATION CODE (NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE)
NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
2.

"PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
3.

THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4.

ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5.

THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE SMC AND SBC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
6.

THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7.

DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8.

THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
9.

ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD-PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
10.

THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
11.

EC SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MC SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
12.

IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
13.

MC SHALL COORDINATE WITH THE EC REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
14.

MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
15.

MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
16.

CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
17.

ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
18.

IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
19.

ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
20.

MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.
21.

THE MC SHALL VERIFY THE FUNCTIONALITY AND OPERATION OF ALL EXISTING MECHANICAL EQUIPMENT IN THE AREA OF WORK. REPLACE FILTERS, LEAK TEST AND RECHARGE REFRIGERANT LINES, REPLACE OR LUBRICATE BEARINGS, CHECK LINKAGES AND ACTUATORS, AND PERFORM OTHER MAINTENANCE SERVICE AS NECESSARY TO GET THE EQUIPMENT IN PROPER ORDER.

METHODS:

1.

INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTeed CORPORATION.
2.

VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
3.

WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
4.

PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
5.

CONSTRUCT T's, BENDS, AND ELBOWS WITH RADIi OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
6.

INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
7.

IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALlY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
8.

DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
9.

CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
10.

PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
11.

MC SHALL INSTALL PROGRAMMABLE THERMOSTATS AS SHOWN ON THE PLANS. THERMOSTAT SHALL BE MOUNTED AT 48 INCHES AFF. THERMOSTATS SHALL MEET THE REQUIREMENTS FOR THERMOSTATIC CONTROLS IN SECTION C403 OF THE SECC.
12.

FRESH AIR INTAKES SHALL BE INSTALLED ON ALL UNITS AS SHOWN ON DRAWINGS. MAINTAIN 10 FEET OF DISTANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST TERMINATIONS AND PLUMBING VENT THRU ROOFS.
13.

MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
14.

P-TRAPS MUST BE INSTALLED ON ALL UNITS. MC SHALL INSTALL AUXILIARY DRAIN PANS UNDER OVERHEAD AIR HANDLERS AND AN AUTOMATIC CUT-OFF FLOAT SWITCH FOR EACH. P-TRAPS AND CONDENSATE LINES SHALL BE 1 INCH. P-TRAPS AND CONDENSATE LINES MAY BE PVC WHERE NOT LOCATED IN PLENUMS; OTHERWISE, THEY SHALL BE TYPE M COPPER.
15.

INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER SECC C402.5.5
16.

DUCTS CONNECTING TO A FURNACE SHALL HAVE A CLEARANCE TO COMBUSTIBLES IN ACCORDANCE WITH THE FURNACE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
17.

FOR STRUCTURES IN FLOOD HAZARD AREAS, DUCTS SHALL BE LOCATED ABOVE THE DESIGN FLOOD ELEVATION. DUCT SHALL NOT BE INSTALLED IN OR WITHIN 4 INCHES OF THE EARTH.
18.

MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE SMC. PROVIDE

ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.

19.

MC SHALL INSTALL A SMOKE DETECTOR-UL LISTED FOR DUCT INSTALLATION (UL 268A) IN EACH UNIT'S RETURN UPSTREAM OF ANY FILTERS, OUTSIDE AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT. DUCT SMOKE DETECTORS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72. DUCT SMOKE DETECTOR SUPERVISION SHALL COMPLY WITH 606.4.1 OF THE SMC. IF THE BUILDING IS (TO BE) EQUIPPED WITH A FIRE ALARM SYSTEM, THE FIRE ALARM SYSTEM CONTRACTOR SHALL FURNISH AND WIRE ALL DUCT SMOKE DETECTORS. IF THE BUILDING IS NOT PROVIDED WITH A FIRE ALARM SYSTEM, THE MC SHALL FURNISH AND WIRE THE DUCT SMOKE DETECTORS AND A/V DEVICE. IT SHALL BE THE RESPONSIBILITY OF THE MC TO INSTALL ALL SMOKE DUCT DETECTORS PER NFPA AND MFG'S INSTALLATION INSTRUCTIONS REGARDLESS OF WHO FURNISHES THE DEVICES.
20.

UNITS PROVIDED WITH ECONOMIZERS SHALL ALSO BE PROVIDED WITH POWERED EXHAUST AND COMPARATIVE ENTHALPY CONTROLS.

MATERIALS:

1.

THE MC SHALL PROVIDE ALL HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. ALTERNATES SHALL BE FROM MANUFACTURERS LISTED IN SCHEDULES. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
2.

THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED OR BY EQUALS LISTED.
3.

DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
4.

EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75°F MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
5.

ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
6.

MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
7.

ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
8.

FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181.
9.

FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
10.

THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE AS SCHEDULE OR ALTERNATES LISTED.
11.

AIR FILTERS SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 605 OF THE SMC
12.

THE MC SHALL PROVIDE ALL REFRIGERATION PIPING. ALL PIPE AND FITTINGS SHALL BE TYPE ACR HARD COPPER TUBING WITH SWEAT FITTINGS. REFRIGERATION LINES SHALL BE RUN NEATLY. WHERE A GROUP OF LINES ARE RUN, TRAPEZE HANGERS MAY BE USED. DO NOT USE CHAIN OR WIRE HANGERS. WRAP TUBING WITH RUBBER TAPE AT EACH CLAMP OR HANGER. FOR COVERED PIPES, HANGERS SHALL FIT AROUND THE OUTSIDE OF THE COVERING WITH 12 GAUGE GALVANIZED

STEEL SHIELDS OF A LENGTH EQUAL TO THE OUTSIDE DIAMETER OF THE INSULATION AND COVERING 3/4 OF THE CIRCUMFERENCE OF THE INSULATION. SAGS SHALL NOT BE PERMISSIBLE. HORIZONTAL LINES SHALL PITCH DOWN NOT LESS THAN 1 INCH IN 40 FEET. INSULATE WITH 1 INCH CLOSED CELL ARMAFLEX TYPE INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50. ALL JOINTS AND SPLICES IN INSULATION SHALL BE TAPED AND AIRTIGHT. SOLDER REFRIGERATION LINES USING 15 PERCENT SILVER SOLDER AND EVACUATE LINES TO 300 MICRONS. PROVIDE MOISTURE INDICATING SIGHT GLASS AND FILTER DRYER IN LIQUID LINE. PROVIDE OIL TRAPS AND DOUBLE RISERS IN REFRIGERANT SUCTION AND HOT GAS LINES WHERE REQUIRED TO PREVENT OIL SLUGGING AT THE COMPRESSOR AND INSURE PROPER LUBRICATION. MC SHALL BE RESPONSIBLE FOR SEALING LINE SET PENETRATIONS OF ANY RATED ASSEMBLIES IN ACCORDANCE WITH A SYSTEM LISTED IN THE UL DIRECTORY FOR THE SPECIFIC ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR A LIST OF ALL UL FIRE RATED ASSEMBLIES.

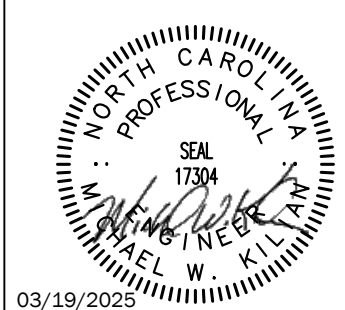
13.

DUCT LINER MAY BE SUBSTITUTED FOR EXTERIOR DUCT WRAP. DUCT LINER INSULATION MATERIALS SHALL MEET THE REQUIREMENTS OF ASTM C 1071, AND ASTM G 21. EXTERIOR DUCT R-VALUE AND INTERIOR R-VALUE SHALL BE IN ACCORDANCE WITH THE SECC. NOMINAL DUCT SIZES SHALL BE ADJUSTED AS NECESSARY SO THAT FREE AREA DIMENSIONS ARE PRESERVED AS SHOWN ON THE PLANS. FABRICATION AND INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S INSTALLATION RECOMMENDATIONS AND TO THE REQUIREMENTS OF THE LATEST EDITION OF THE NORTH AMERICAN INSULATION MANUFACTURERS ASSOCIATION FIBROUS GLASS DUCT LINER STANDARDS AND/OR SMACNA HVAC DUCT CONSTRUCTION STANDARDS. DUCT LINER SHALL HAVE A BLACK PIGMENTED MAT ON THE AIRSTREAM SIDE TO RESIST DAMAGE DURING INSTALLATION AND SERVICE. EDGES SHALL BE FACTORY COATED WITH BLACK PIGMENTED COATING TO COMPLY WITH SMACNA DCS REQUIREMENTS. ALL PORTIONS OF DUCT DESIGNATED TO RECEIVE DUCT LINER SHALL BE COMPLETELY COVERED WITH DUCT LINER. TRANSVERSE JOINTS SHALL BE NEATLY BUTTED AND THERE SHALL BE NO INTERRUPTIONS OR GAPS. THE BLACK PIGMENTED OR MAT FACED SURFACES SHALL FACE THE AIRSTREAM. DUCT LINER SHALL BE ADHERED TO THE SHEET METAL WITH 90 PERCENT COVERAGE OF ADHESIVE COMPLYING WITH REQUIREMENTS OF ASTM C 916. ALL EXPOSED LEADING EDGES AND TRANSVERSE JOINTS SHALL BE FACTORY COATED OR COATED WITH ADHESIVE DURING FABRICATION. DUCT LINER SHALL BE ADDITIONALLY SECURED WITH MECHANICAL FASTENERS, EITHER WELD-SECURED OR IMPACT DRIVEN, WHICH SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL.

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MO.1

ROOFTOP PACKAGE HEAT PUMP SCHEDULE																		
MARK	MFG/MODEL #	NOMINAL CAPACITY	AIR FLOW		COMPRESSORS	AUX ELEC HEAT		COOLING CAPACITY			EFFICIENCIES		ELECTRICAL			WEIGHT	Remarks	
			NOMINAL SUPPLY	MIN. OA		EAT	WB/DB	TOTAL	SENSIBLE	LATENT	EER	HSPF	V/PH	MCA	MOCP			LB
		TONS	CFM	CFM	NO.	KW	Stages	°F	MBH	MBH	LOAD							
RTU-1,2	CARRIER 50TC-D12A2A5-A0AG0 CRHEATER 112A00	10	4000	840 EA	2	32	2	67/80	124.1	96.2	27.9	11.2	8	208/3	103	110	1294	1-13
RTU-3	CARRIER 50FC-A06A2A3-0A0A0	5	2000	180	2	16	1	67/80	59.31	44.73	14.58	14	8	208/3	60	60	531	1-13

1. PROVIDE WITH ROOF CURB
2. CONNECTIONS THRU BASE
3. VARIABLE FREQUENCY DRIVE
4. PROVIDE WITH SINGLE INPUT ENTHALPY ECONOMIZERS WITH BAROMETRIC RELIEF DAMPERS
5. ENTHALPY ACCESSORY CONTROL KIT TO CONVERT SINGLE ENTHALPY ECONOMIZER TO DUAL ENTHALPY ECONOMIZERS
6. TWO (2) ADDITIONAL SETS OF FILTERS (POST CONSTRUCTION/PRE TEST AND BALANCE AND ONE SET TO OWNER FOR FUTURE USE
7. ANY EQUIPMENT SUBSTITUTIONS MUST EQUAL OR EXCEED EFFICIENCIES LISTED (RATINGS PER ARI)
8. MAINTAIN MANUFACTURER'S RECOMMENDED CLEARANCES
9. PROVIDE DUCT DETECTOR IN RETURN DUCT. PROVIDE RELAY FOR KILLING POWER TO UNIT'S FAN (EC TO PROVIDE AND MC TO INSTALL)
10. PROVIDE HAIL GUARDS
11. 4-WAY DIFFUSER
12. DRAIN CONDENSATE TO GRASSY AREAS AND NOT PAVED AREAS
13. PROVIDE WITH HURRICANE CLIPS FOR WIND ZONE

WITHIN THE FIRST THIRTY (30) DAYS POST TURN-OVER DATE, THE DEVELOPER/GC IS RESPONSIBLE FOR REPLACING THE AIR FILTERS IN ALL HVAC UNITS TO "LIKE NEW" CONDITION TO MEET OR EXCEED ORIGINAL EQUIPMENT MANUFACTURER'S SPECIFICATIONS.

1

RTU SCHEDULE

Ventilation Calculation (For Unit RTU-1,2)									
Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)	
	Retail Sales	8835	7.5	0.12	15	132.53	0.8	8000	
	N/A	0	0	0	0	0.00	0.8	0	
	N/A		0	0	0	0.00	0.8	0	
	N/A		0	0	0	0.00	0.8	0	
	N/A		0	0	0	0.00	0.8	0	
			Maximum Zp:	0.320959					
K-12 School?	No		Ev:	0.8					
			Actual System Population:	40					
Uncorrected Intake	1360 cfm								
Outdoor Air Intake	1700 cfm								
Percent of Unit Air	21%								

Ventilation Calculation (For Unit RTU-3)									
Room Name(s)	Zone Type	Area (sq.ft.)	Rp	Ra	Default Occupancy	Pz	Ez	Airflow to Zone (cfm)	
	Shipping/Receiving	1450	0	0.12	0	0.00	0.8	2000	
	N/A		0	0	0	0.00	0.8	0	
	N/A		0	0	0	0.00	0.8	0	
	N/A		0	0	0	0.00	0.8	0	
	N/A		0	0	0	0.00	0.8	0	
			Maximum Zp:	0.10875					
K-12 School?	No		Ev:	1					
			Actual System Population:	2					
Uncorrected Intake	174 cfm								
Outdoor Air Intake	174 cfm								
Percent of Unit Air	9%								

2

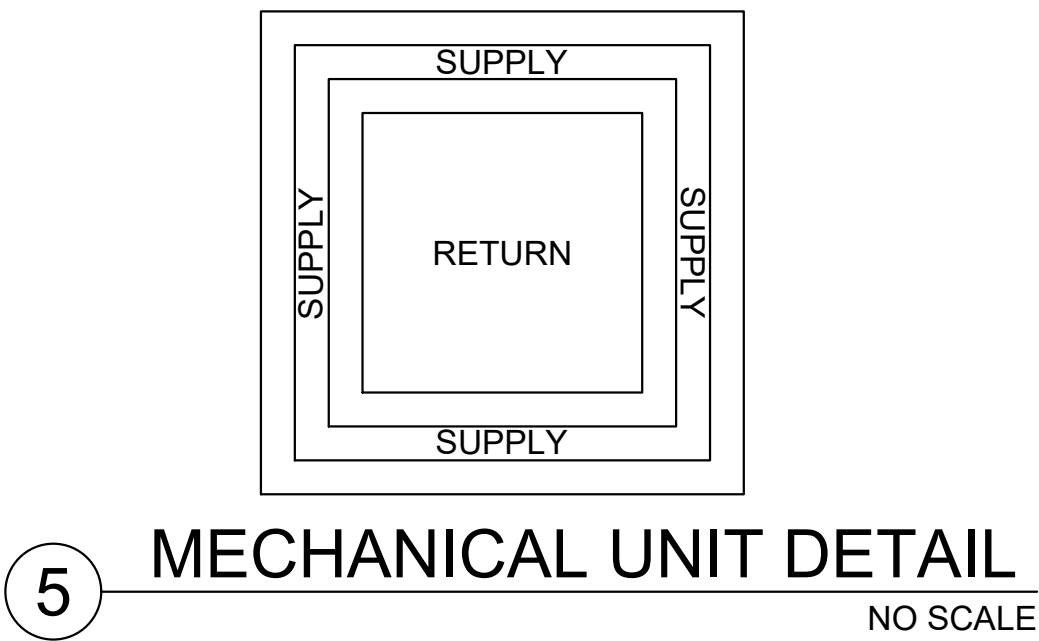
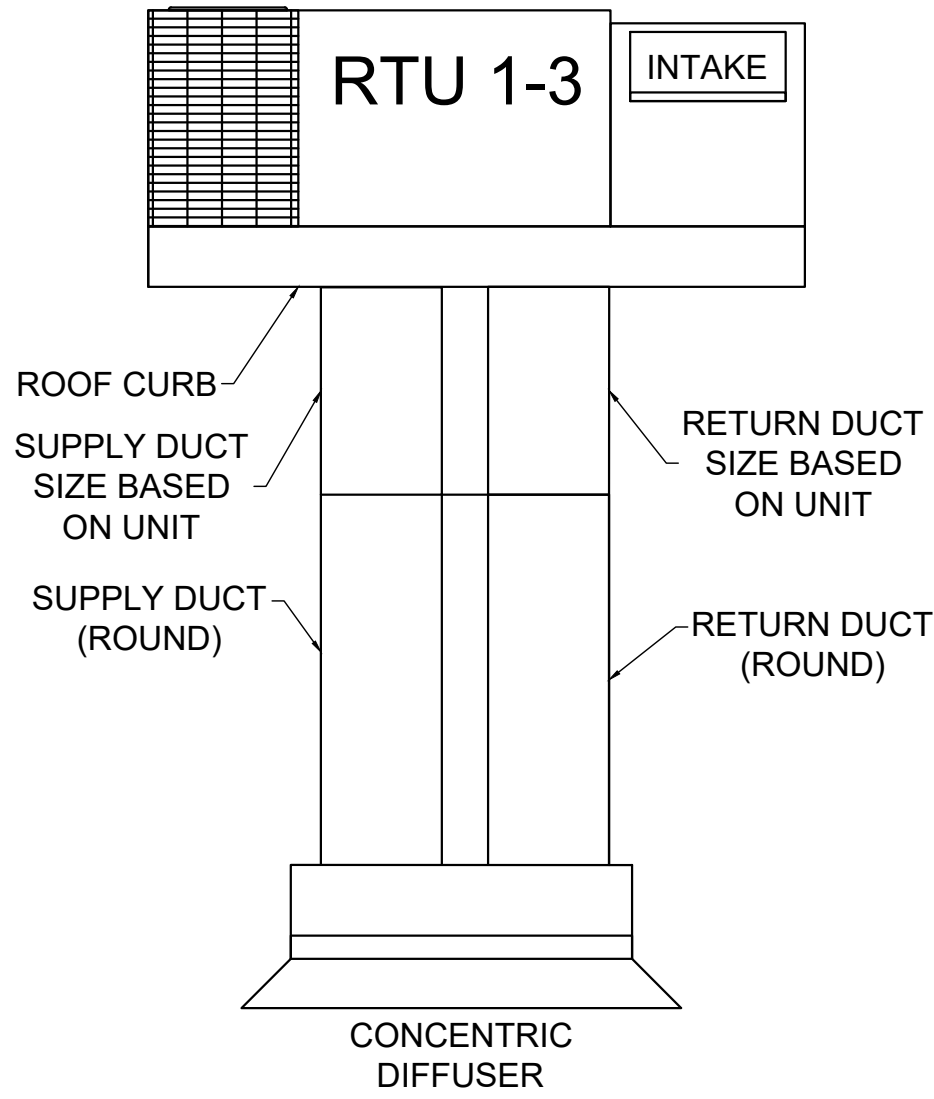
VENTILATION CALCULATION

EXHAUST FAN SCHEDULE								
MARK	MFG/MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1-2	GREENHECK SP-A125	CEILING	0.25	105	120/1	1	1.8	1-3

1. PROVIDE WITH PITCHED ROOF CURB & CAP FOR FLAT OR SLOPED ROOF, OR HOODED WALL WITH BACKDRAFT DAMPER CAP AS APPLICABLE
2. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
3. OR EQUAL BY LOREN COOK OR PENNBARRY OR TWIN CITY

3

EXHAUST FAN SCHEDULE



MECHANICAL SYSTEM, SERVICE SYSTEMS, AND EQUIPMENT

METHOD OF COMPLIANCE THERMAL ZONE	PREScriptive ZONE 4A
EXTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	26.5°F
COOLING DESIGN DRY BULB	94.1°F
COOLING DESIGN WET BULB	75.4°F
INTERIOR DESIGN CONDITIONS	
HEATING DESIGN DRY BULB	70°F
COOLING DESIGN DRY BULB	75°F
COOLING RELATIVE HUMIDITY	50%
HEATING LOAD:	161,168 BTU/H
SENSIBLE COOLING LOAD:	165,940 BTU/H
LATENT COOLING LOAD:	63,731 BTU/H
MECHANICAL SPACING CONDITIONING SYSTEM:	
UNITARY	AIR COOLED DX
DESCRIPTION OF UNIT(S)	2x 10-TON AC WITH 32 KW ELEC HEAT EA 1x 5-TON AC WITH 13 KW ELEC HEAT
BOILER	N/A
TOTAL BOILER OUTPUT	N/A
CHILLER	N/A
TOTAL CHILLER CAPACITY	N/A

EQUIPMENT EFFICIENCIES: SEE SCHEDULES

EQUIPMENT SCHEDULES WITH MOTORS (MECHANICAL SYSTEMS): SEE SCHEDULES

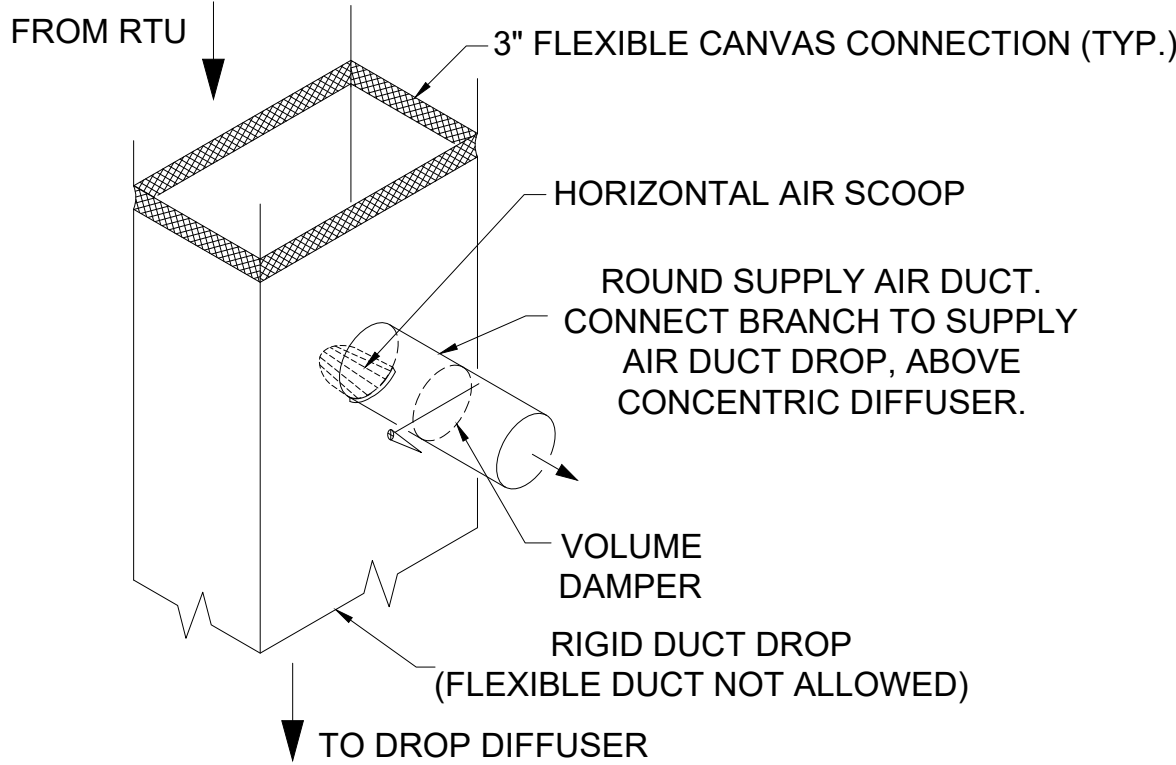
DESIGNER STATEMENT:

TO THE BEST OF MY KNOWLEDGE, THE MECHANICAL DESIGN FOR THIS BUILDING COMPLIES WITH MECHANICAL AND EQUIPMENT REQUIREMENTS OF THE 2018 NORTH CAROLINA BUILDING CODE AND 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.

THE SELECTED UNITS WILL NOT COVER LATENT LOAD AT MAXIMUM OCCUPANT LOAD ON DESIGN DAY

4

MECHANICAL DESIGNER'S STATEMENT



NOTE:
INSTALL HORIZONTAL AIR SCOOP HAVING A CONTINUOUSLY CURVED CROSS SECTION AND BALANCING DAMPER AT DUCT CONNECTION TO DIVERT SUPPLY AIR INTO THE CONNECTED DUCTWORK. LENGTH OF SCOOP SHALL BE LIMITED TO THE WIDTH OF THE SUPPLY AIR ANNULAR SPACE.

USE APPROPRIATE SIZE AIR FILTER, NO FILTER MEDIA

6

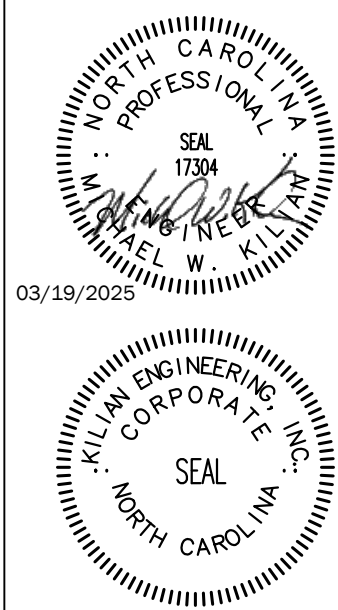
HVAC DUCT DETAIL

NO SCALE

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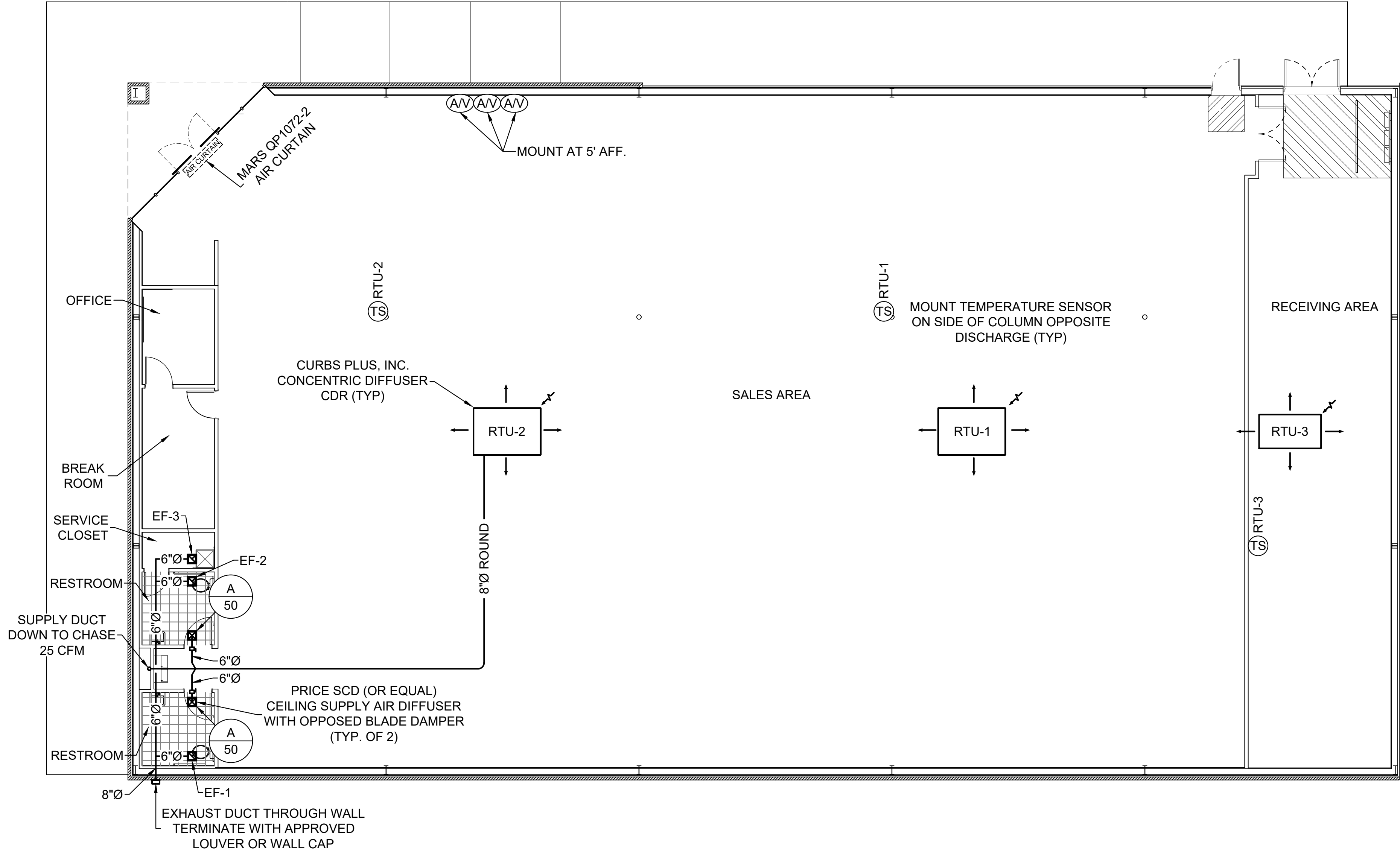


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1 MECHANICAL PLAN
Scale: 1/8"=1'-0"

- ALL MECHANICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS AND ORDINANCES AND IN A MANNER SATISFACTORY TO THE AUTHORITY HAVING JURISDICTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL APPLICABLE FEES.
- DUCTWORK AND HVAC SYSTEMS ARE NOT DIMENSIONED. DO NOT SCALE FROM DRAWING(S.) MECHANICAL CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND ENSURE THERE IS AVAILABLE SPACE FOR DUCTWORK BEFORE FABRICATION.
- UNLESS OTHERWISE NOTED ON DRAWINGS, ANY REQUIRED DUCTWORK SHALL BE INSTALLED TIGHT TO STRUCTURE.
- DESIGN ENGINEER TO INDICATE FIRE DAMPERS IN ALL RATED CONSTRUCTION ASSEMBLIES. COORDINATE PLACEMENT OF ALL FIRE DAMPERS WITH RATED ASSEMBLIES ON ARCHITECTURAL DRAWINGS.
- COORDINATE ALL DIFFUSER, GRILLE & REGISTER LOCATIONS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
- NECK SIZE OF LAY-IN DIFFUSERS SHALL BE EQUAL IN DIAMETER TO DUCT RUNOUT.
- THE MECHANICAL CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND INCIDENTALS TO THE WORK INVOLVED FOR A COMPLETE AND OPERATING FACILITY.
- ALL EQUIPMENT SHALL BE PROVIDED COMPLETE WITH ELECTRICAL STARTER, PROTECTIVE DEVICES AND INTERLOCKS, ECT. REQUIRED FOR COMPLETE OPERABLE SYSTEM.
- ALL HVAC EQUIPMENT LOCATIONS SHALL BE COORDINATED TO ENSURE CLEAR ACCESS TO ALL AREAS. EQUIPMENT SHALL BE ORIENTED IN SUCH A MANNER AS TO ALLOW FOR FULL SERVICE/MAINTENANCE.
- COLOR AND FINISH FOR ALL EXTERIOR LOUVER/WALL CAP SHALL BE COORDINATED WITH THE ARCHITECT/OWNER.
- THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR TEST, ADJUST AND BALANCE OF THE AIR DISTRIBUTION SYSTEM.
- ALL SUPPLY AND RETURN DUCT SHALL BE CONNECTED TO THE HVAC UNIT WITH FLEXIBLE UL LISTED CANVAS.
- DUCTWORK DIMENSIONS SHOWN ON MECHANICAL PLANS ARE NET CLEAR INSIDE DIMENSIONS.
- OUTDOOR AIR INTAKE OPENINGS SHALL BE LOCATED IN ACCORDANCE WITH THE INTERNATIONAL MECHANICAL CODE, SECTION 401.4.
- MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ASSEMBLING ANY EQUIPMENT SHIPPED IN SECTIONS, IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
- UNITS GREATER THAN 2,000 CFM REQUIRE A DUCT MOUNTED SMOKE DETECTOR IN THE RETURN DUCT. UNITS BELOW 2,000 CFM ARE TO BE EQUIPPED WITH A FIRESTAT. LOCAL ORDINANCES MAY HAVE MORE STRINGENT REQUIREMENTS. COORDINATE WITH ELECTRICAL CONTRACTOR.
- SEE ARCHITECTURAL PLANS FOR TYPE OF CONSTRUCTION, OCCUPANCY, AND THE INTENDED USE OF EACH SPACE.
- SEE ARCHITECTURAL PLANS FOR 'R' VALUES OF CONSTRUCTION COMPONENTS (SUCH AS WALLS, FLOORS, CEILING & PERIMETER INSULATION.)
- INSULATING MATERIALS SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT EXCEEDING 450 IN ACCORDANCE WITH ASTM E 84.
- ALL HVAC EQUIPMENT SHALL BE INSTALLED IN SUCH A WAY AS TO REDUCE VIBRATION TRANSMISSION TO STRUCTURAL MEMBERS.

- HVAC SPECIFICATIONS:
- SEE SHEET M0 FOR GENERAL MECHANICAL PROJECT NOTES
 - ROOF MOUNTED SYSTEM WITH ANY REQUIRED DUCTWORK, CONFORMING TO ASHRAE SPECIFICATIONS IN SALES FLOOR, OFFICES, REST ROOM, AND RECEIVING AREAS.
 - ANY DUCTWORK MUST BE INSTALLED ABOVE 11'-6" A.F.F. NO HVAC DUCT TRUNKLINE TO BE INSTALLED WITHIN 48" RADIUS OF REGISTER/ICE CREAM POWER POLES. REFER TO SHEET E1.1 FOR EXACT LOCATION OF POWER POLES.
 - FOR HVAC SENSOR LOCATIONS SEE EMS1 SHEET.
 - CARRIER PACKAGED HVAC SYSTEMS ARE REQUIRED.
 - PROVIDE CEILING EXHAUST FANS FOR RESTROOMS, INTERLOCK WITH RESTROOM LIGHTS. VENT EXHAUST FANS THRU SIDE WALL, NOT THRU THE ROOF. INSTALL BACKDRAFT DAMPERS AT EACH FAN.
 - REFER TO S3 FOR ROOF CURB INFORMATION AND DESIGN INTENT.

SYMBOL LEGEND	
	EXHAUST FAN
	SUPPLY AIR DIFFUSER
	TEMPERATURE SENSOR
	RETURN/EXHAUST AIRFLOW
	SUPPLY AIRFLOW
	VOLUME DAMPER

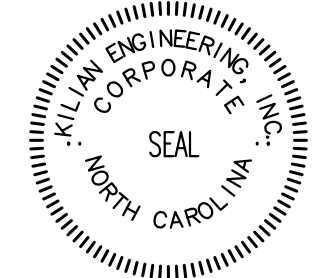
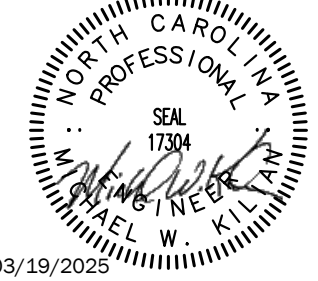
3 MECHANICAL SPECIFICATIONS & LEGEND

2 MECHANICAL PROJECT NOTES

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GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
PC - PLUMBING CONTRACTOR,
EC - ELECTRICAL CONTRACTOR,
MC - MECHANICAL CONTRACTOR,
GC - GENERAL CONTRACTOR,
FASC - FIRE ALARM SYSTEM CONTRACTOR,
AHJ - AUTHORITY HAVING JURISDICTION
NECA- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
NEC- NATIONAL ELECTRICAL CODE (2020)
SBC- CURRENT STATE BUILDING CODE (2018 NORTH CAROLINA BUILDING CODE)
SFC- CURRENT STATE BUILDING CODE: FIRE CODE (2018 NORTH CAROLINA FIRE CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE EC SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE EC.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE EC AT AN APPROVED LOCATION. THE EC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE EC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
6. THE EC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
9. THE EC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE EC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE EC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH NEC 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
11. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
12. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE EC SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
13. THE EC SHALL COORDINATE WITH THE GC TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
14. ALL WORK SHALL CONFORM TO NEC, SBC, AND ALL APPLICABLE LOCAL CODES.
15. THE EC SHALL ALSO COORDINATE WITH THE GC REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.

METHODS:

1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER NEC 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
3. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
4. MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, Ivory PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
5. EC SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
6. EC SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.

7. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
8. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. *** TYPE NM CABLE MAY BE USED FOR INTERIOR BRANCH CIRCUITS IN NORMALLY DRY LOCATIONS SUBJECT TO THE RESTRICTIONS OF NEC 334.10 AND 334.12. TYPE NM CABLE CONDUCTORS SHALL BE DERATED PER NEC 334.80. *** FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH ARTICLES 300.5(G), 300.7(A), AND 300.50(F) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
9. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 in MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL-CORRUGATED, SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E)
10. THE EC SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE EC. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH SBC 714.4.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
11. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 in EMT CONDUIT MAXIMUM AND 4 in JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE SBC.
12. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
13. EC SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX, WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
14. EC SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
15. EC SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. EC SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
16. IN ACCORDANCE WITH SECTION 510 OF THE SFC, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER COMMUNICATION COVERAGE INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.
17. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
18. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.10(G).
19. PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. EC SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
20. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.

MATERIALS:

1. THE EC SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC. UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
2. EC SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. EC SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. *PRIOR TO ORDERING EQUIPMENT, THE EC SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED. * PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. EC SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. EC SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
3. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN.
4. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
5. CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
6. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE EC. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
7. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
8. JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
9. ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE EC. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED
11. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
12. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

ISSUED FROM:
WILMINGTON OFFICE
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ARCHITECTURE
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Kilian
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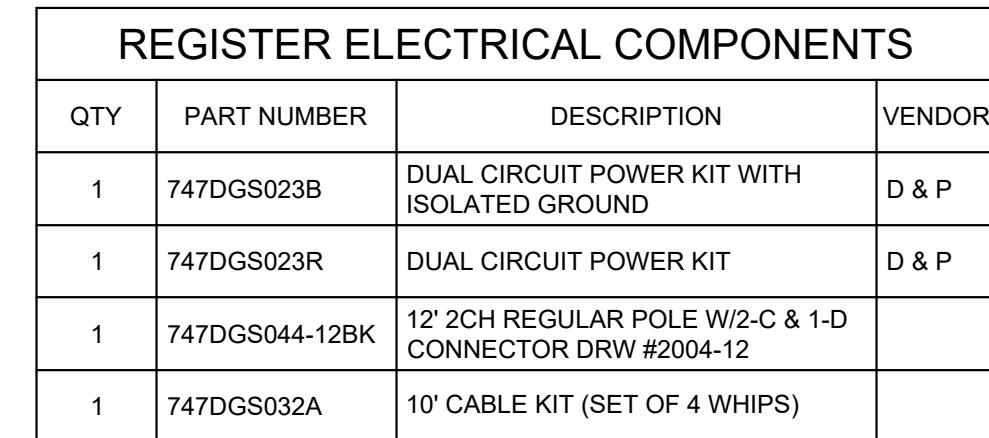


DOLLAR GENERAL
STORE #31414
NC HWY 55
ERWIN, NC

JOB NUMBER
250110
DRAWN BY
REW/TD
DATE
03/19/2025
REVISIONS

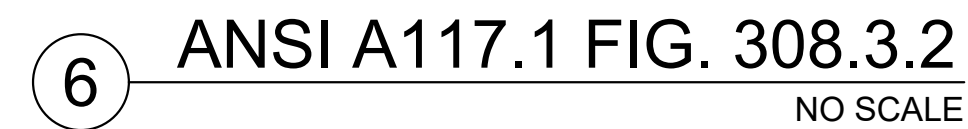
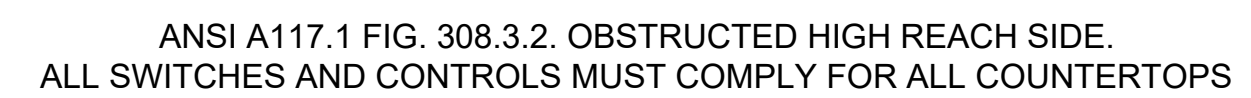
SHEET NUMBER
EO.1

SEISMIC RESTRAINT NOTES	
A.	OVERHEAD CONDUITS 2.5 INCHES AND GREATER REQUIRE SEISMIC RESTRAINT.
B.	LIGHTING FIXTURE SUPPORTS SHOULD CONFORM TO UL 1570 OR 1571, IN ADDITION TO THE REQUIREMENTS OF FEMA 302 AND 303.
C.	SUSPENDED TRANSFORMERS TO BE PROVIDED WITH SWAY BRACING.
D.	WALL MOUNTED EMERGENCY LIGHTING FIXTURES TO BE SECURED TO STRUCTURE WITH REDUNDANT FASTENERS.



MAXIMUM CIRCUITS FOR REGISTERS:

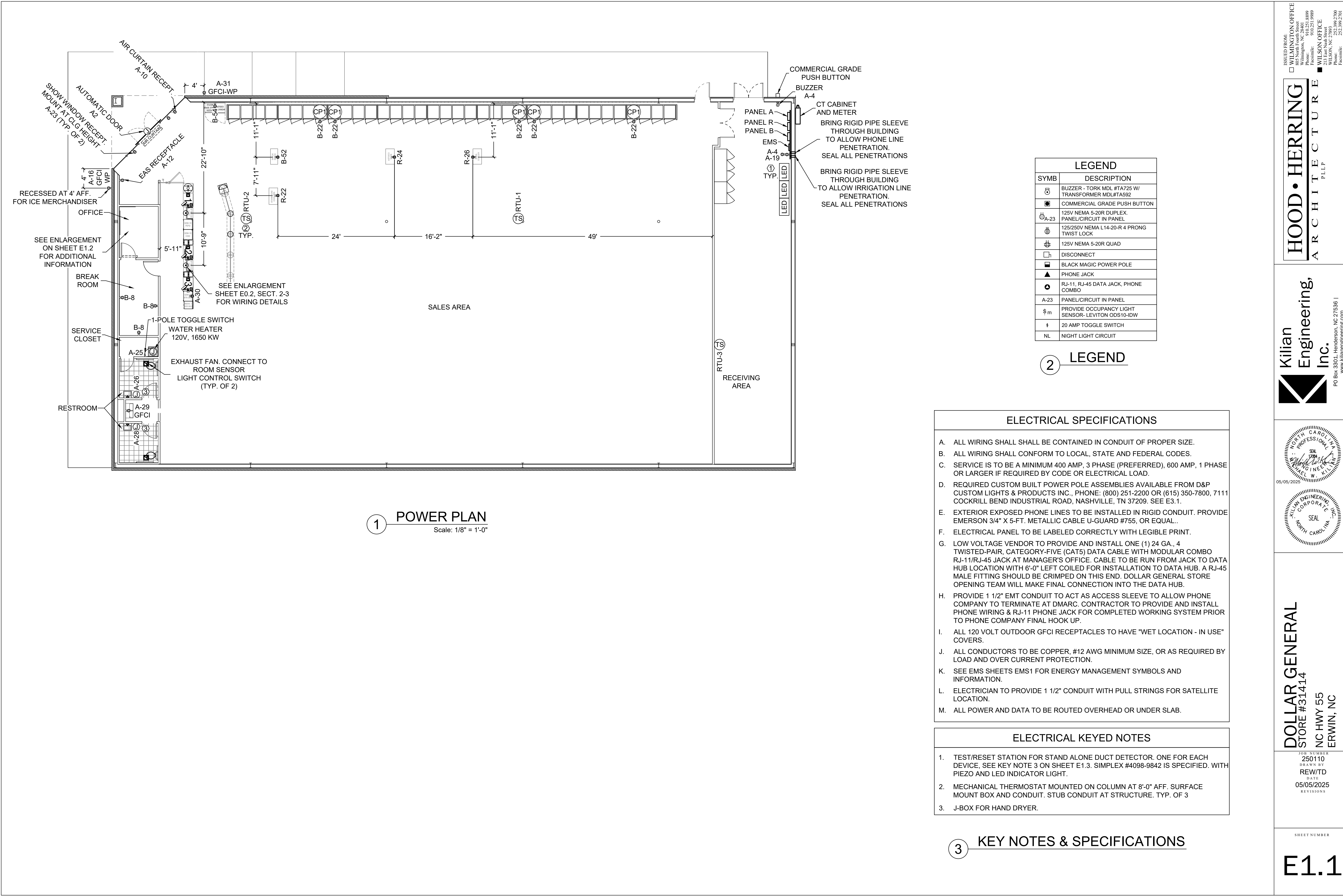
- CIRCUITS AT MAIN REGISTER - (9) 110V
- CIRCUITS AT ISLAND REGISTER - (3) 110V



HOOD • HERRING
ARCHITECTURE
PLLP

OB NUMBER
250110
DRAWN BY
REW/TD
DATE
3/19/2025
REVISIONS

E0.2



1 POWER PLAN
Scale: 1/8" = 1'-0"

LEGEND	
SYMB	DESCRIPTION
	BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592
	COMMERCIAL GRADE PUSH BUTTON
	125V NEMA 5-20R DUPLEX. PANEL/CIRCUIT IN PANEL
	125/250V NEMA L14-20-R 4 PRONG TWIST LOCK
	125V NEMA 5-20R QUAD
	DISCONNECT
	BLACK MAGIC POWER POLE
	PHONE JACK
	RJ-11, RJ-45 DATA JACK, PHONE COMBO
	PANEL/CIRCUIT IN PANEL
	PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW
	20 AMP TOGGLE SWITCH
	NIGHT LIGHT CIRCUIT

2 LEGEND

ELECTRICAL SPECIFICATIONS

- A. ALL WIRING SHALL SHALL BE CONTAINED IN CONDUIT OF PROPER SIZE.
- B. ALL WIRING SHALL CONFORM TO LOCAL, STATE AND FEDERAL CODES.
- C. SERVICE IS TO BE A MINIMUM 400 AMP, 3 PHASE (PREFERRED), 600 AMP, 1 PHASE OR LARGER IF REQUIRED BY CODE OR ELECTRICAL LOAD.
- D. REQUIRED CUSTOM BUILT POWER POLE ASSEMBLIES AVAILABLE FROM D&P CUSTOM LIGHTS & PRODUCTS INC., PHONE: (800) 251-2200 OR (615) 350-7800, 7111 COCKRILL BEND INDUSTRIAL ROAD, NASHVILLE, TN 37209. SEE E3.1.
- E. EXTERIOR EXPOSED PHONE LINES TO BE INSTALLED IN RIGID CONDUIT. PROVIDE EMERSON 3/4" X 5-FT. METALLIC CABLE U-GUARD #755, OR EQUAL..
- F. ELECTRICAL PANEL TO BE LABELED CORRECTLY WITH LEGIBLE PRINT.
- G. LOW VOLTAGE VENDOR TO PROVIDE AND INSTALL ONE (1) 24 GA., 4 TWISTED-PAIR, CATEGORY-FIVE (CAT5) DATA CABLE WITH MODULAR COMBO RJ-11/RJ-45 JACK AT MANAGER'S OFFICE. CABLE TO BE RUN FROM JACK TO DATA HUB LOCATION WITH 6'-0" LEFT COILED FOR INSTALLATION TO DATA HUB. A RJ-45 MALE FITTING SHOULD BE CRIMPED ON THIS END. DOLLAR GENERAL STORE OPENING TEAM WILL MAKE FINAL CONNECTION INTO THE DATA HUB.
- H. PROVIDE 1 1/2" EMT CONDUIT TO ACT AS ACCESS SLEEVE TO ALLOW PHONE COMPANY TO TERMINATE AT DMARC. CONTRACTOR TO PROVIDE AND INSTALL PHONE WIRING & RJ-11 PHONE JACK FOR COMPLETED WORKING SYSTEM PRIOR TO PHONE COMPANY FINAL HOOK UP.
- I. ALL 120 VOLT OUTDOOR GFCI RECEPTACLES TO HAVE "WET LOCATION - IN USE" COVERS.
- J. ALL CONDUCTORS TO BE COPPER, #12 AWG MINIMUM SIZE, OR AS REQUIRED BY LOAD AND OVER CURRENT PROTECTION.
- K. SEE EMS SHEETS EMS1 FOR ENERGY MANAGEMENT SYMBOLS AND INFORMATION.
- L. ELECTRICIAN TO PROVIDE 1 1/2" CONDUIT WITH PULL STRINGS FOR SATELLITE LOCATION.
- M. ALL POWER AND DATA TO BE ROUTED OVERHEAD OR UNDER SLAB.

ELECTRICAL KEYED NOTES

- 1. TEST/RESET STATION FOR STAND ALONE DUCT DETECTOR. ONE FOR EACH DEVICE, SEE KEY NOTE 3 ON SHEET E1.3. SIMPLEX #4098-9842 IS SPECIFIED. WITH PIEZO AND LED INDICATOR LIGHT.
- 2. MECHANICAL THERMOSTAT MOUNTED ON COLUMN AT 8'-0" AFF. SURFACE MOUNT BOX AND CONDUIT. STUB CONDUIT AT STRUCTURE. TYP. OF 3
- 3. J-BOX FOR HAND DRYER.

3 KEY NOTES & SPECIFICATIONS

ISSUED FROM:
WILMINGTON OFFICE
910.531.8899
Wilmington, NC 28401
Phone: 910.531.8899
Fax: 910.531.8899
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211 East Nash Street
WILSON, NC 27893
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Facsimile: 252.389.2700

HOOD•HERRING

ARCHITECTURE

PLLP

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05/05/2025

SEAL

PROFESSIONAL ENGINEER
MICHAEL W. KILIAN
NORTH CAROLINA

DOLLAR GENERAL

STORE #31414

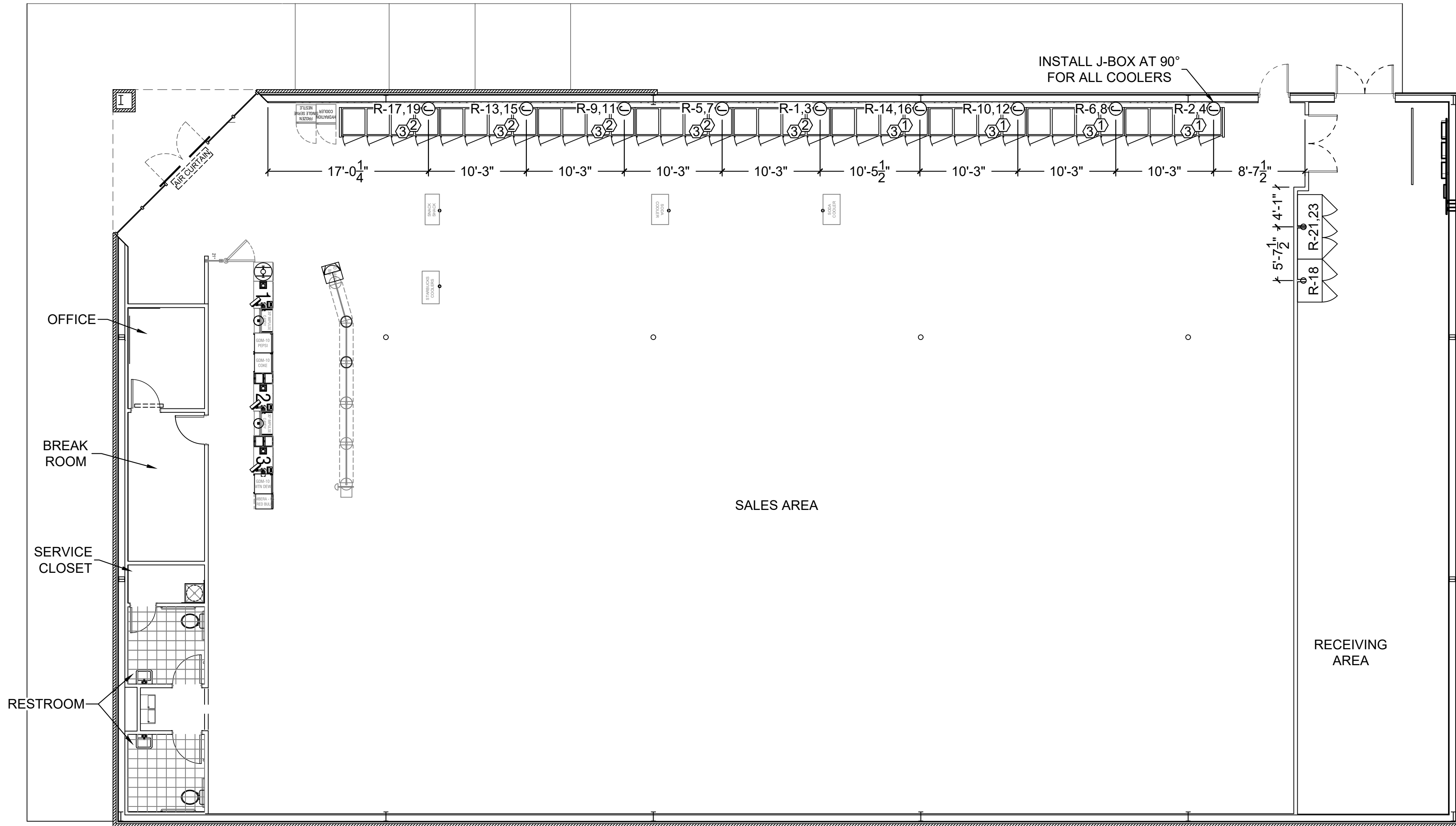
NC HWY 55

ERWIN, NC

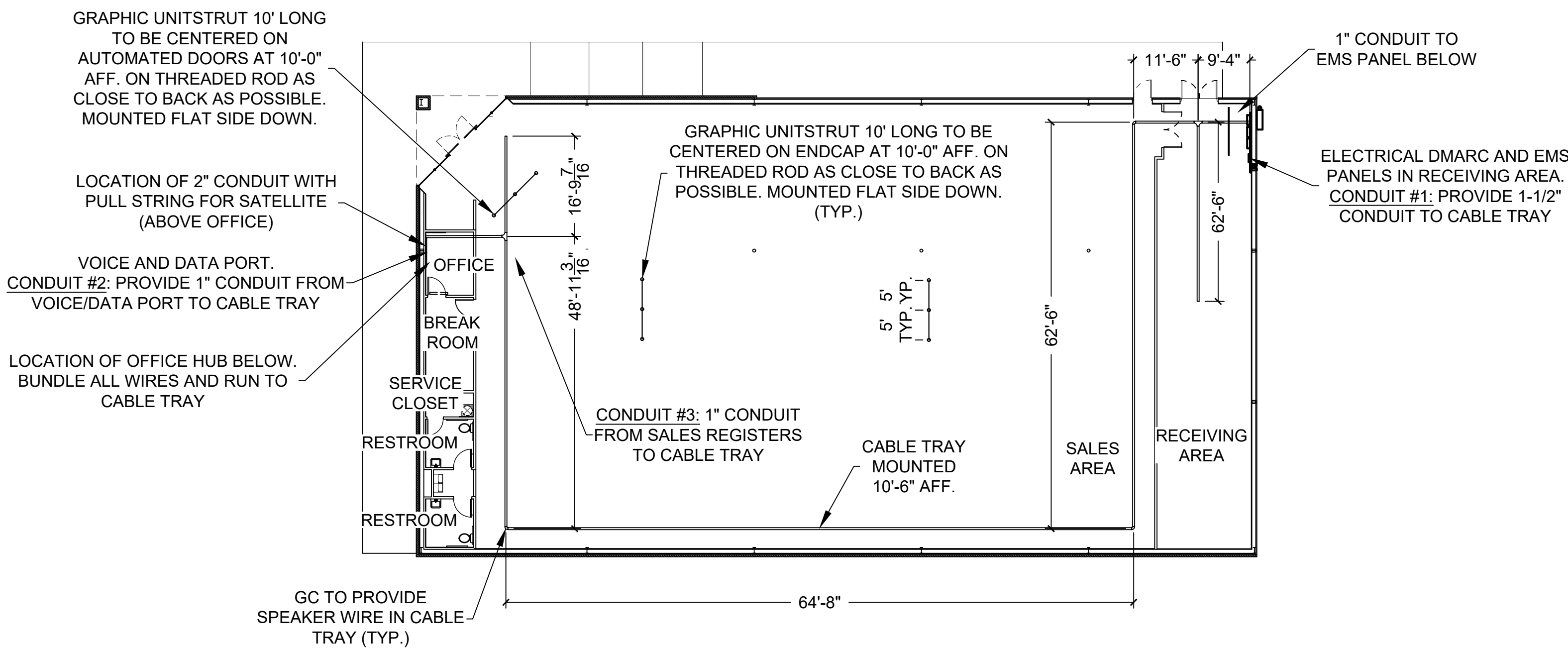
JOB NUMBER
250110
DRAWN BY
REW/TD
DATE
05/05/2025
REVISIONS

SHEET NUMBER

E1.1



1 REFRIGERATION POWER PLAN
Scale: 1/8"=1'-0"



5 CABLE TRAY PLAN
Scale: 1/16"=1'-0"

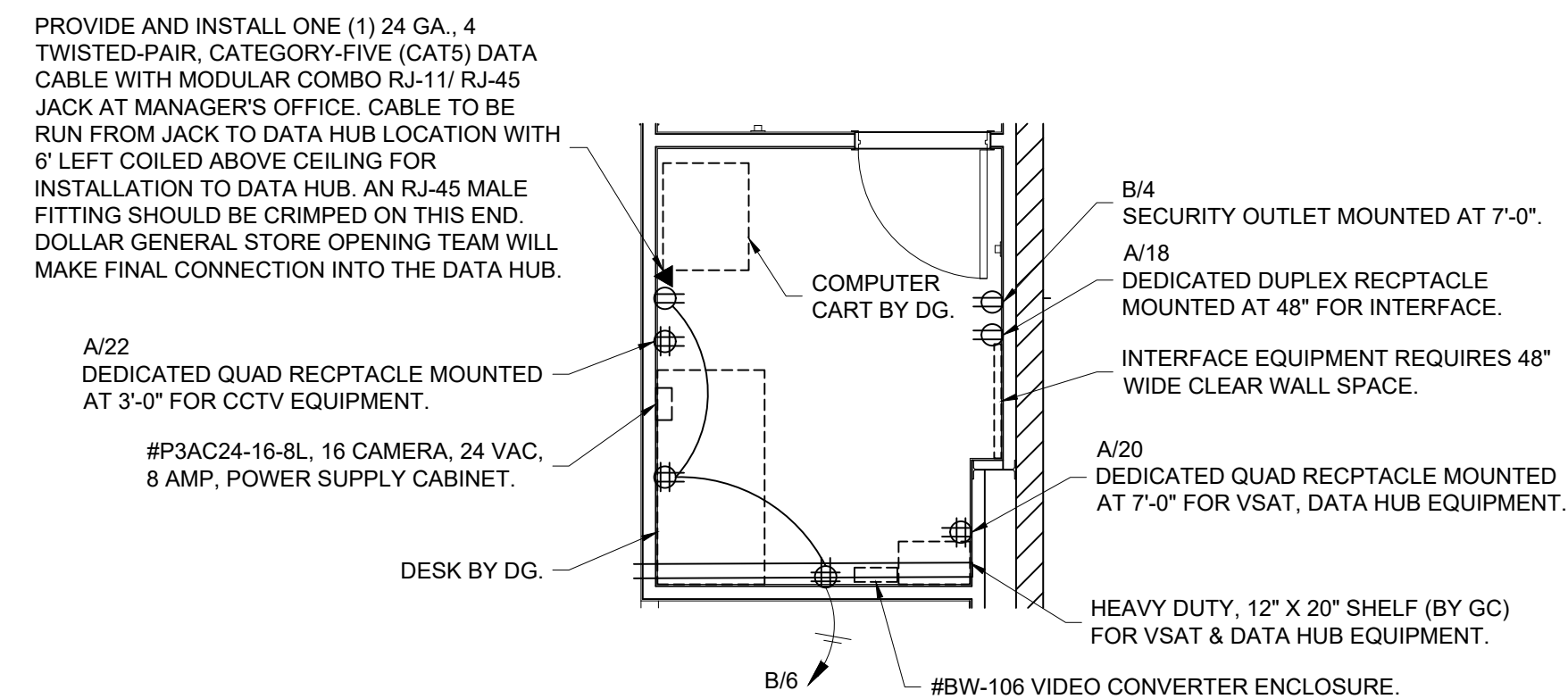
LEGEND	
SYMB	DESCRIPTION
	BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592
	COMMERCIAL GRADE PUSH BUTTON
	125V NEMA 5-20R DUPLEX. PANEL/CIRCUIT IN PANEL
	125/250V NEMA L14-20-R 4 PRONG TWIST LOCK
	125V NEMA 5-20R QUAD
	DISCONNECT
	BLACK MAGIC POWER POLE
	PHONE JACK
	RJ-11, RJ-45 DATA JACK, PHONE COMBO
A-23	PANEL/CIRCUIT IN PANEL
\$m	PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW
\$	20 AMP TOGGLE SWITCH
NL	NIGHT LIGHT CIRCUIT

2 LEGEND
NO SCALE

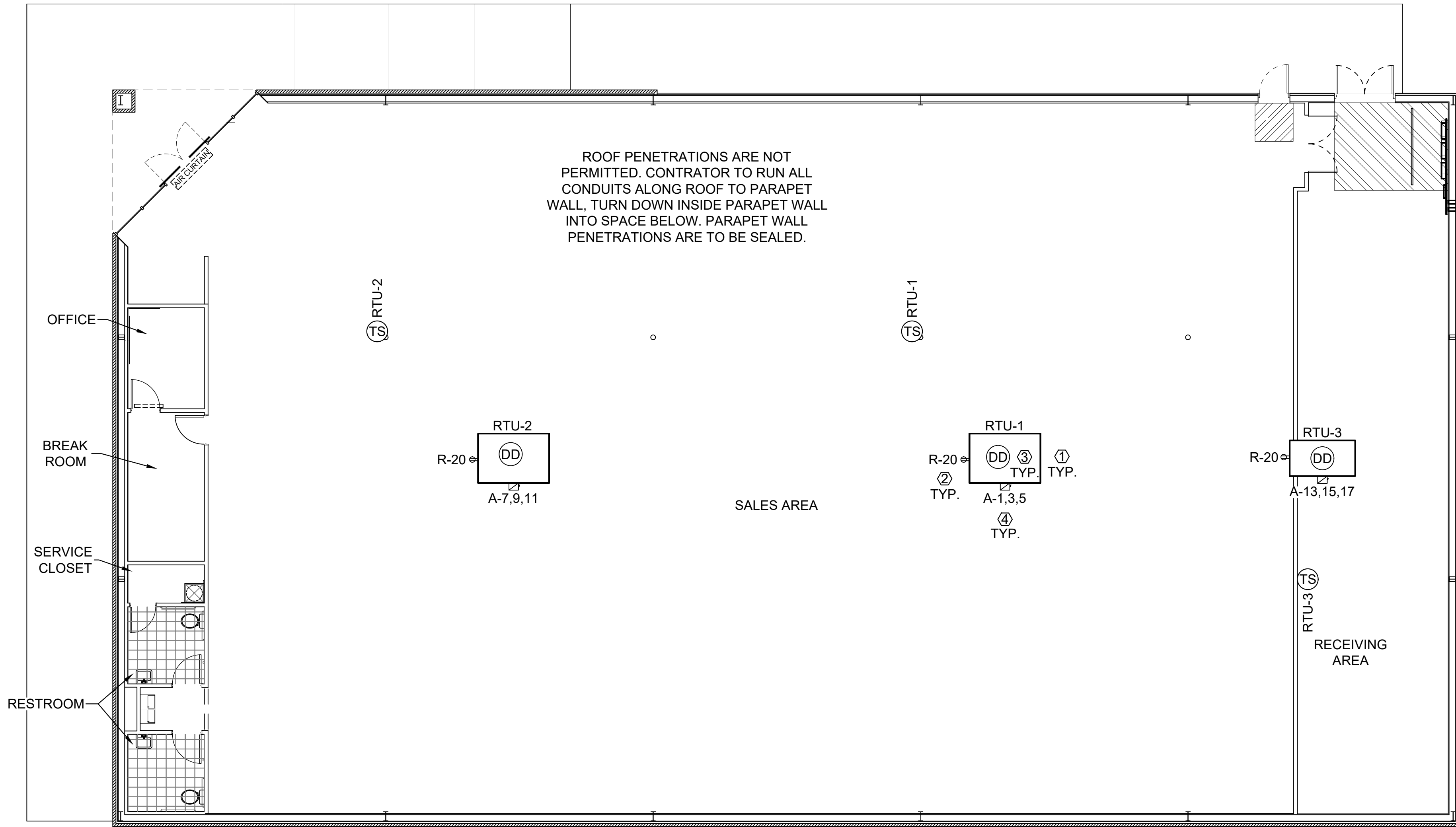
GENERAL NOTES	
A.	MOUNT ALL REFRIGERATOR OUTLETS AT 12" AFF.
B.	MOUNT ALL REFRIGERATION JUNCTION BOXES WITH BOTTOM OF BOX AT LEAST 105" AFF.

ELECTRICAL KEYED NOTES	
1.	PROVIDE 208V, 1 PHASE CONNECTION TO A J-BOX WITH BOTTOM AT LEAST 105" AFF. WITH (3)#12 CU. & #12 GROUND IN 3/4"C. R.C. TO PROVIDE AND INSTALL 30A/2NF DISCONNECT SWITCH AND WIRE FROM DISCONNECT SWITCH TO EQUIPMENT CONNECTIONS
2.	PROVIDE 208V, 1 PHASE CONNECTION TO A J-BOX WITH BOTTOM AT LEAST 105" AFF. WITH (3)#8 CU. & #10 GROUND IN 1"C. R.C. TO PROVIDE AND INSTALL 60A/2NF DISCONNECT SWITCH AND WIRE FROM DISCONNECT SWITCH TO EQUIPMENT CONNECTIONS
3.	MOUNT J-BOX 11" FROM THE RIGHT SIDE OF EACH UNIT. CONFIRM EXACT LOCATION WITH REFRIGERATION VENDOR PRIOR TO WORK (TYP).
4.	GROUP AND ROUTE RELATED COOLER/FREEZER CONDUITS OVERHEAD TO A SINGLE DROP LOCATION FOR DISTRIBUTION. SUPPORT CONDUITS USING CONDUIT RACK. RUN EXPOSED CONDUIT PARALLEL AND PERPENDICULAR TO WALLS.

3 REFRIGERATION NOTES
NO SCALE



4 OFFICE ENLARGEMENT PLAN
NO SCALE



1 ROOFTOP POWER PLAN

Scale: 1/8"=1'-0"

HVAC UNIT WIRING TABLE												
UNIT	WIRE	COND	DISC	FUSE	ENCL	PH	VOLT	GND	BRKR	LOAD	CFM	TONS
RTU-1	#2	1-1/2"	200A-3P	100A	NEMA 3R	3ϕ	208	#6	110A-3P	33,465	4,000	10.0
RTU-2	#2	1-1/2"	200A-3P	100A	NEMA 3R	3ϕ	208	#6	110A-3P	33,465	4,000	10.0
RTU-3	#6	1-1/4"	60A-3P	60A	NEMA 3R	3ϕ	208	#10	60A-3P	24,109	2,000	5.0
EF-1	#12	3/4"	MOTOR RATED SWITCH		NEMA 1	3ϕ	120	#12	W/ LIGHTS	50	75	--
EF-2	#12	3/4"	MOTOR RATED SWITCH		NEMA 1	1ϕ	120	#12	W/ LIGHTS	50	75	--
TABLE NOTES:												
1.	THE ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH THE MECHANICAL CONTRACTOR CONCERNING THE ELECTRICAL INFO OF ALL MECHANICAL DEVICES REQUIRING AN ELECTRICAL CONNECTION PRIOR TO DOING ANY WORK. ANY DISCREPANCIES BETWEEN THE FIELD OBTAINED INFORMATION AND THE INFORMATION SHOWN ON THE ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DOING ANY WORK.											
2.	PROVIDE NEUTRALS ON AS REQUIRED BASIS, FIELD VERIFY.											
3.	ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, SUBMIT SHOP DRAWINGS. BUSSMAN FRN-R-(AMP) IS SPECIFIED.											

4 HVAC WIRING TABLE

LEGEND	
SYMB	DESCRIPTION
	BUZZER - TORK MDL #TA725 W/ TRANSFORMER MDL#TA592
	COMMERCIAL GRADE PUSH BUTTON
	125V NEMA 5-20R DUPLEX. PANEL/CIRCUIT IN PANEL
	125/250V NEMA L14-20-R 4 PRONG TWIST LOCK
	125V NEMA 5-20R QUAD
	DISCONNECT
	BLACK MAGIC POWER POLE
	PHONE JACK
	RJ-11, RJ-45 DATA JACK, PHONE COMBO
A-23	PANEL/CIRCUIT IN PANEL
\$m	PROVIDE OCCUPANCY LIGHT SENSOR- LEVITON ODS10-IDW
\$	20 AMP TOGGLE SWITCH
NL	NIGHT LIGHT CIRCUIT

2 LEGEND

ELECTRICAL KEYED NOTES	
1.	LOCATIONS SHOWN FOR MECHANICAL UNITS ARE ONLY APPROXIMATE. CONTRACTOR MUST CONSULT MECHANICAL OR STRUCTURAL DRAWINGS TO DETERMINE ACTUAL UNIT LOCATIONS. PROVIDE 1/2"C. PENETRATION THRU ROOF WITHIN FOOTPRINT OF UNIT FOR USE WITH CONTROL WIRING TO UNIT BY OTHERS. PROVIDE PROPER WATERSEAL. (TYPICAL)
2.	FACORY MOUNTED POWERED CONVENIENCE OUTLET. FIELD VERIFY THAT OUTLET IS POWERED, WIRE ALL WITH THIS NOTE TO CIRCUIT R-20 IF THEY ARE NOT POWERED.
3.	PHOTOELECTRIC DUCT DETECTOR WITH HOUSING. TIE TO LED READOUT. STAND ALONE DEVICE, 120V. SIMPLEX #4098-9687 IS SPECIFIED WITH 4098-9842 CONTROL STATION. PROVIDE ONE DEVICE PER UNIT. MOUNT DEVICE IN SUPPLY AIR DUCTWORK. DEVICE SHALL BE PROVIDED AND WIRED TO THE CONTROL STATION BY THE ELECTRICAL CONTRACTOR. HIRE THE MECHANICAL CONTRACTOR FOR INSTALLATION IN DUCTWORK & CONNECTION TO SHUTDOWN CONTROLS. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL REQUIRED RELAYS AND 120V POWER. <u>DO NOT</u> POWER DUCT DETECTORS FROM HVAC UNIT LOW VOLATGE. PLACE ANY REQUIRED LABELING ON CEILING TILE DIRECTLY BELOW UNIT. RUN CONDUIT & WIRE UNDERGROUND FROM UNIT TO INSIDE OF SPACE.
4.	MOUNT DISCONNECT SWITCH AT UNIT AS DESCRIBED IN GENERAL NOTE 1 ON THIS SHEET.

3 KEYED NOTES & SPECIFICATIONS

ISSUED FROM:
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HOOD•HERRING
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PROFESSIONAL
SEAL
MICHAEL W. KILIAN
03/19/2025

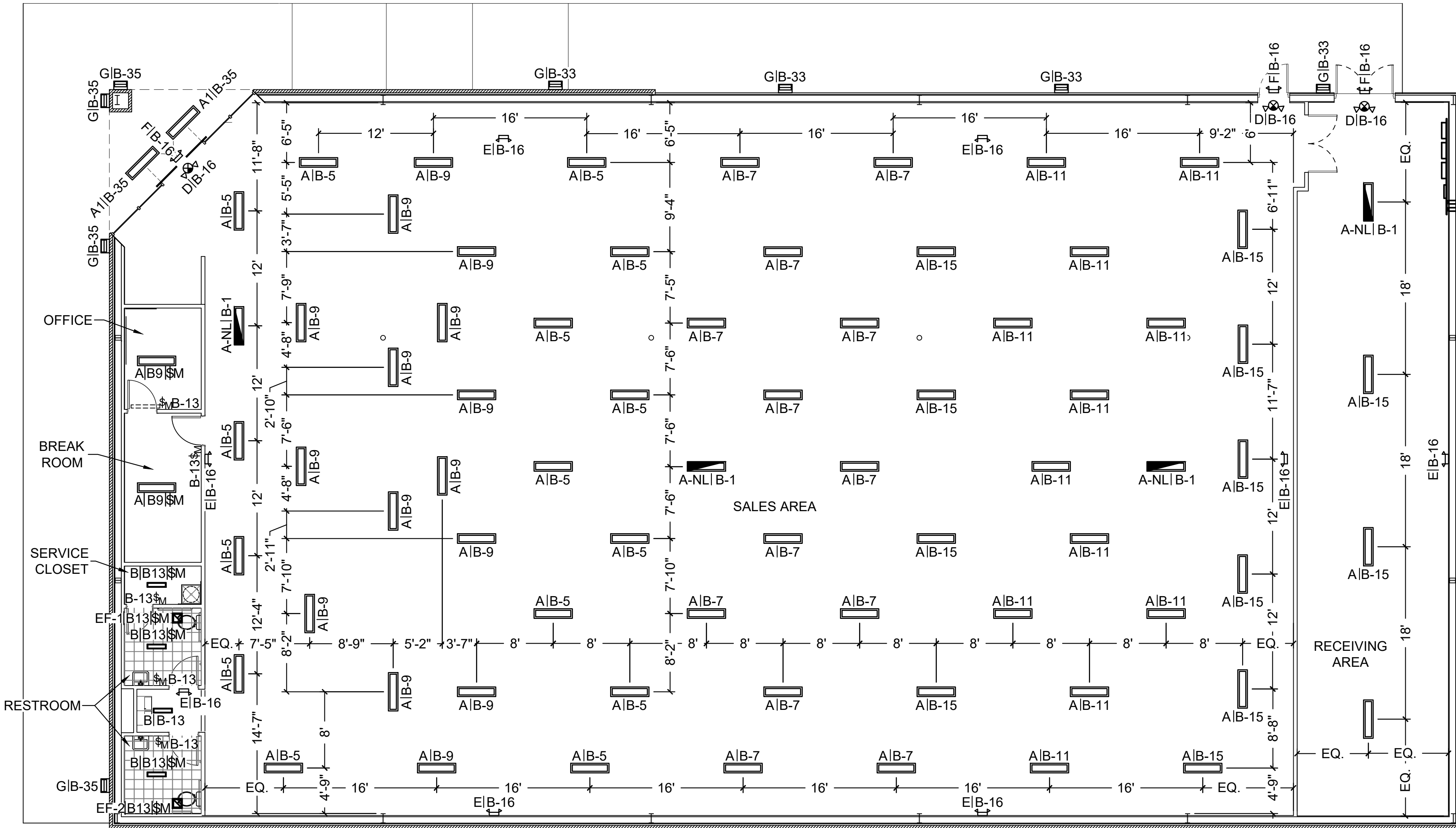
KILIAN ENGINEERING, INC.
CORPORATE
SEAL
NORTH CAROLINA

DOLLAR GENERAL
STORE #31414
NC HWY 55
ERWIN, NC

JOB NUMBER
250110
DRAWN BY
REW/TD
DATE
03/19/2025
REVISIONS

SHEET NUMBER

E1.3



1 LIGHTING PLAN
Scale: 1/8"=1'-0"

LIGHT FIXTURE SCHEDULE												
SYMBOL	MARK	DESCRIPTION	LAMPS			VLT	INPUT WATTAGE	MTG.	QTY.	NOTES	MFG	MODEL
			TYP E	WATT.	CCT							
	A	4' LED STRIP INCLUDES (2) - 8 FT CABLES	LED	33	5000K	120	33	SUSPENDED	70	5,6	LEDS	ST5000
	A1	4' LED STRIP INCLUDES (2) - 8 FT CABLES	LED	33	5000K	120	33	SUSPENDED	2	2,6	LEDS	ST5000
	A-NL	4' BBU COMPATIBLE LED FIXTURE	LED	33	5000K	120	33	SUSPENDED	4	2,6	ETI	54583361
	B	2' LED STRIP SURFACE MOUNT	LED	20	5000K	120	20	SURFACE	4	6	LEDS	ST2000
	D	EMERGENCY LIGHT/EXIT COMBO 2 HEADS	LED	20	-	120	-	SUSPENDED	3	1	LEDS	EM2505
	E	LED EMERGENCY LIGHT 2 HEADS	LED	20	-	120	-	SUSPENDED	8	1	LEDS	EL2500
	F	EMERGENCY EGRESS LIGHT 2 HEADS	LED	20	-	120	-	SUSPENDED	3	1,2	LEDS	EL2502
	G	WALL PACK	LED	42	5000K	120	42	WALL	8	2-4	LEDS	WP4053

4 LIGHT FIXTURE SCHEDULE
NO SCALE

1. FIXTURES LABELED FOR EMERGENCY USE SHALL HAVE BATTERY FOR 90 MINUTE ILLUMINATION OF TWO (2) LAMPS
2. WET LOCATION LISTED
3. PHOTOCELL CONTROLLED
4. FULL CUT OFF
5. NL - NIGHT LIGHT
6. MOUNT PER MANUFACTURER'S RECOMMENDATIONS. SEE ARCHITECTURAL FOR HEIGHTS

- LIGHTING PLAN HEX NOTES
1. EMERGENCY/EXIT SIGNS AND LIGHT: INSTALL EMERGENCY LIGHTS AND EXIT SIGNS (CENTERED AT 10'-6" AFF TO BE ABOVE FIXTURES AND MERCHANDISE). SALES FLOOR LIGHTS ARE 10' AFF.
 2. COORDINATE BUILDING SIGN SIZE WITH DOLLAR GENERAL SIGN DEPARTMENT BY EMAILING TO SIGNAGE@DOLLARGENERAL.COM WIRE ON CIRCUIT B-23. LOCATE BOX HIGH ON WALL 12' LEFT FROM CENTER OF BUILDING FOR 26' SIGNS AND 16' LEFT FROM CENTER OF BUILDING FOR 33' SIGNS. SEE ELEVATIONS.
 3. 1" PVC SCH. 40 UNDERGROUND CIRCUITS TO SITE LIGHTING; B-27,B-29.
 4. 1" PVC SCH. 40 UNDERGROUND TO PYLON SIGN; B-25.
 5. RECEIVING AREA LIGHTS ARE MOUNTED 10' AFF. AND MOTION-CONTROLLED. EMERGENCY LIGHTS ARE 8' AFF.
 6. SALES AREA LIGHTS ARE MOUNTED 10' AFF.

2 LIGHTING PLAN HEX NOTES

ELECTRICAL DESIGNER'S STATEMENT				
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE				
PRESCRIPTIVE <u> X </u> PERFORMANCE <u> </u> ENERGY COST BUDGET <u> </u>				
LIGHTING SCHEDULE:				
LAMP TYPE REQUIRED IN FIXTURE:		SEE LIGHTING LEGEND		
NUMBER OF LAMPS PER FIXTURE:		SEE LIGHTING LEGEND		
BALLAST TYPE USED IN FIXTURE:		SEE LIGHTING LEGEND		
NUMBER OF BALLASTS IN FIXTURE:		SEE LIGHTING LEGEND		
TOTAL WATTAGE PER FIXTURE:		SEE LIGHTING LEGEND		
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:		WATTS SPECIFIED	WATTS ALLOWED	
		2588	11704	
OCCUPANCY		AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
RETAIL		10640	1.1	11704
TOTAL		10640		11704
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)				
MOTOR HORSEPOWER: N/A				
NUMBER OF PHASES: N/A				
MINIMUM EFFICIENCY: N/A				
MOTOR TYPE: N/A				
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2021 INTERNATIONAL ENERGY CONSERVATION CODE.				

FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2021 INTERNATIONAL ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.

2588W SPECIFIED <= 10533.6W 11704W ALLOWED X 90%

5 ELECTRICAL DESIGNER'S STATEMENT

PANEL A									
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT	
1	RTU-1	110/3	11.16	A	0.10	20/1	AUTOMATIC BUZZER	2	
3			11.16	B	0.36	20/1	TELEPHONE BOARD/BUZZER	4	
5			11.16	C	0.18	20/1	EMERGENCY MANAGEMENT	6	
7	RTU-2	110/3	11.16	A	0.00	20/1	SPARE	8	
9			11.16	B	1.35	20/1	AIR CURTAIN	10	
11			11.16	C	0.18	20/1	EAS RECEPT.	12	
13	RTU-3	60/3	6.36	A	0.00	20/1	SPARE	14	
15			6.36	B	0.18	20/1	OUTDOOR CONVENIENCE RECEPT.	16	
17			6.36	C	0.50	20/1	INTERFACE EQUIP.	18	
19	IRRIGATION CTRL PANEL RECEPT.	20/1	0.18	A	0.50	20/1	VSAT/DATA HUB EQUIPMENT	20	
21	HOT BOX CIRCUIT	20/1	0.50	B	0.96	20/1	CCTV EQUIPMENT	22	
23	SHOW WINDOW	20/1	0.36	C	0.00	20/1	SPARE	24	
25	WATER HEATER	20/1	1.65	A	0.18	20/1	HAND DRYER	26	
27	SPARE	20/1	0.00	B	0.18	20/1	HAND DRYER	28	
29	DRINKING FOUNTAIN-GFCI BREAKER	20/1	0.50	C	0.00	20/1	SPARE	30	
31**	OUTDOOR ICE MERCHANDISER	20/1	1.20	A	0.00	20/1	SPARE	32	
33	SPARE	20/1	0.00	B	0.00	20/1	SPARE	34	
35	SPARE	20/1	0.00	C	0.00	20/1	SPARE	36	
37	SPARE	20/2	0.00	A	0.00	20/2	SPARE	38	
39	SPARE	20/3	0.00	B	0.00	20/3	SPARE	40	
41	SPARE	20/4	0.00	C	0.00	20/4	SPARE	42	
			PH	kVA	AMPS				
			A	32.5	271				
			B	32.2	268				
			C	30.4	253				
VOLTAGE/PHASE				208Y/120V, 3P, 4W					
BUS RATING				400A					
MAIN CIRCUIT BREAKER RATING				MCB					
AIC RATING				22K					
SERVICE ENTRANCE RATED				YES					
ENCLOSURE				NEMA 1					
MOUNTING				SURFACE					

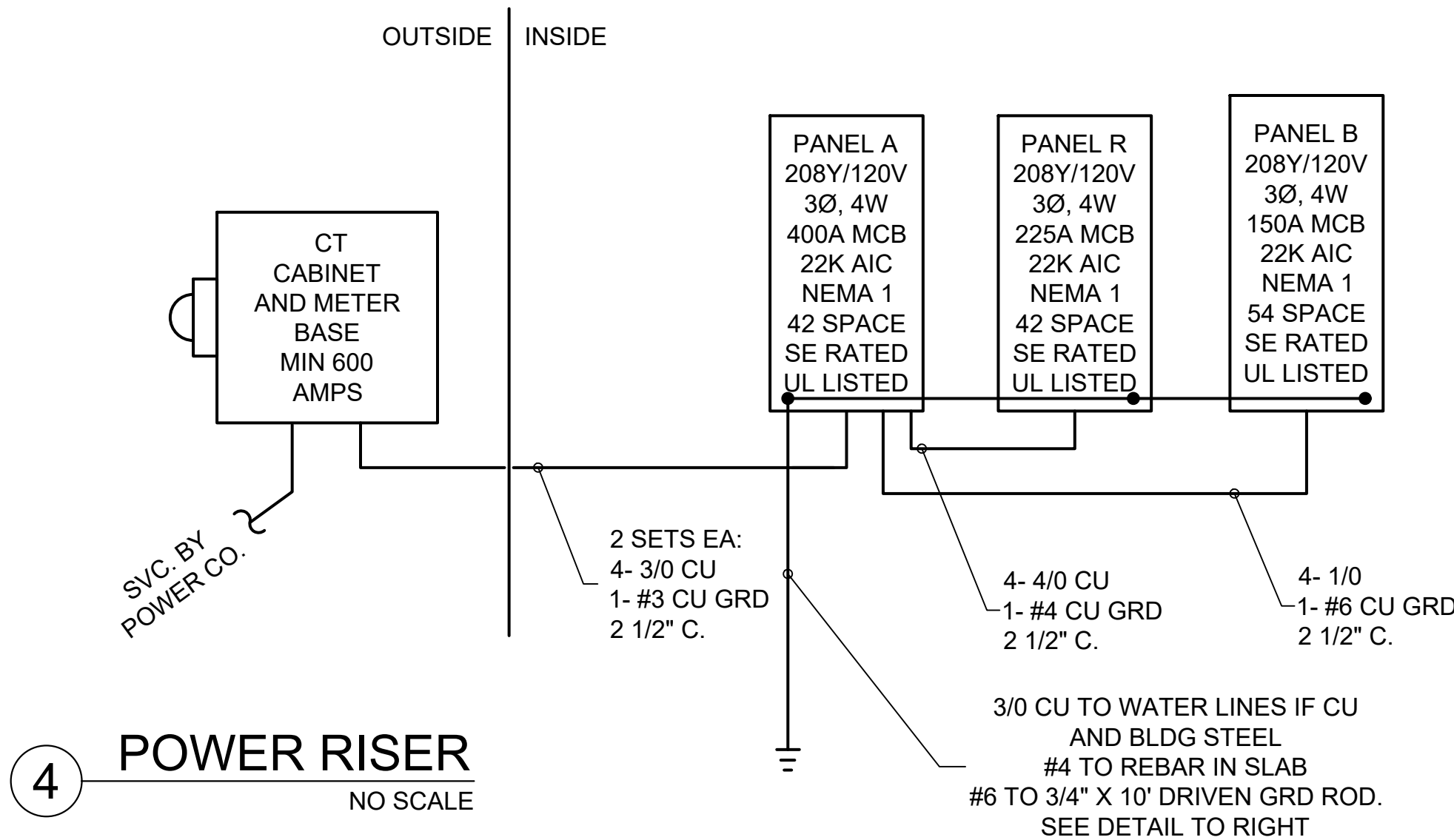
NOTE: ** INDICATES BREAKER LOCKS

1 PANEL SCHEDULES

NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W							
EQUIPMENT	DEMAND FACTOR	KVA			LOAD KVA	NEC REFERENCE	NOTES/CALCULATIONS
		A	B	C			
LIGHTING	125%	5.60	5.60	5.60	16.79	220.12	8835 SF X 1.9 VA/SF
LIGHTING	125%	0.58	0.58	0.58	1.74	220.12	1450 SF X 1.2 VA/SF
RECEPTACLES < 10 KVA	100%	0.78	0.78	0.78	2.34	220.44	
RECEPTACLES > 10 KVA	50%	0.00	0.00	0.00	0.00	220.44	
HVAC	100%	28.68	28.68	28.68	86.04	--	BASED ON MCA
WATER HEATER	125%	1.65	0.00	0.00	1.65	422.13	STORAGE TANK < 120 GAL @ 125%
SHOW WINDOW	100%	0.00	0.00	0.36	0.36	220.43(A)	
SIGN	100%	0.00	0.00	0.90	0.90	220.14(G)	
REFRIGERATION	100%	16.90	16.30	15.70	48.90	--	210.62
REGISTERS	100%	3.60	2.40	3.60	9.60	--	
SEPTIC PUMP	100%	2.88	2.88	1.00	6.76	--	
DEMAND KVA PER PHASE		60.67	57.22	57.20			
DEMAND AMPS PER PHASE		505	477	476			

**THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

2 NEC DEMAND SUMMARY



4 POWER RISER

NO SCALE

PANEL R									
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT	
1**	DELI CASE	15/2	1.48	A	2.89	40/2	ICE CREAM FREEZER	2**	
3**			1.48	B	2.89			4**	
5**	DAIRY COOLER #1	15/2	1.48	C	2.89	40/2	FROZEN FOOD #1	6**	
7**			1.48	A	2.89			8**	
9**	DAIRY COOLER #2	15/2	1.48	B	2.89	40/2	FROZEN FOOD #2	10**	
11**			1.48	C	2.89			12**	
13**	DRINKS COOLER	15/2	1.48	A	2.89	40/2	FROZEN FOOD #3	14**	
15**			1.48	B	2.89			16**	
17**	NON-CARB COOLER	15/2	1.48	C	1.60	20/1	STOCKROOM COOLER	18**	
19**			1.48	A	0.72		20/1	HVAC SERVICE RECEPTS.	20
21**	STOCKROOM FREEZER	25/2	2.27	B	0.96	20/1	STARBUCKS COOLER	22**	
23**			2.27	C	1.60		20/1	SODA COOLER	24**
25	SPARE	20/1	0.00	A	1.60	20/1	SODA COOLER	26**	
27	SPARE	20/1	0.00	B	0.00	20/1	SPARE	28	
29	SPARE	20/1	0.00	C	1.60	20/1	PEPSI/MTN DEW COOLER	30**	
31	SPARE	20/1	0.00	A	0.00	20/1	SPARE	32	
33	SPARE	20/1	0.00	B	0.00	20/1	SPARE	34	
35	SPARE	20/1	0.00	C	0.00	20/1	SPARE	36	
37	SPARE	20/1	0.00	A	0.00	20/1	SPARE	38	
39	SPARE	20/1	0.00	B	0.00	20/1	SPARE	40	
41	SPARE	20/1	0.00	C	0.00	20/1	SPARE	42	
			PH	kVA	AMPS				
			A	16.9	141				
			B	16.3	136				
			C	17.3	144				
VOLTAGE/PHASE					208Y/120V, 3P, 4W				
BUS RATING					225A				
MAIN CIRCUIT BREAKER RATING					MCB				
AIC RATING					22K				
SERVICE ENTRANCE RATED					YES				
ENCLOSURE					NEMA 1				
MOUNTING					SURFACE				

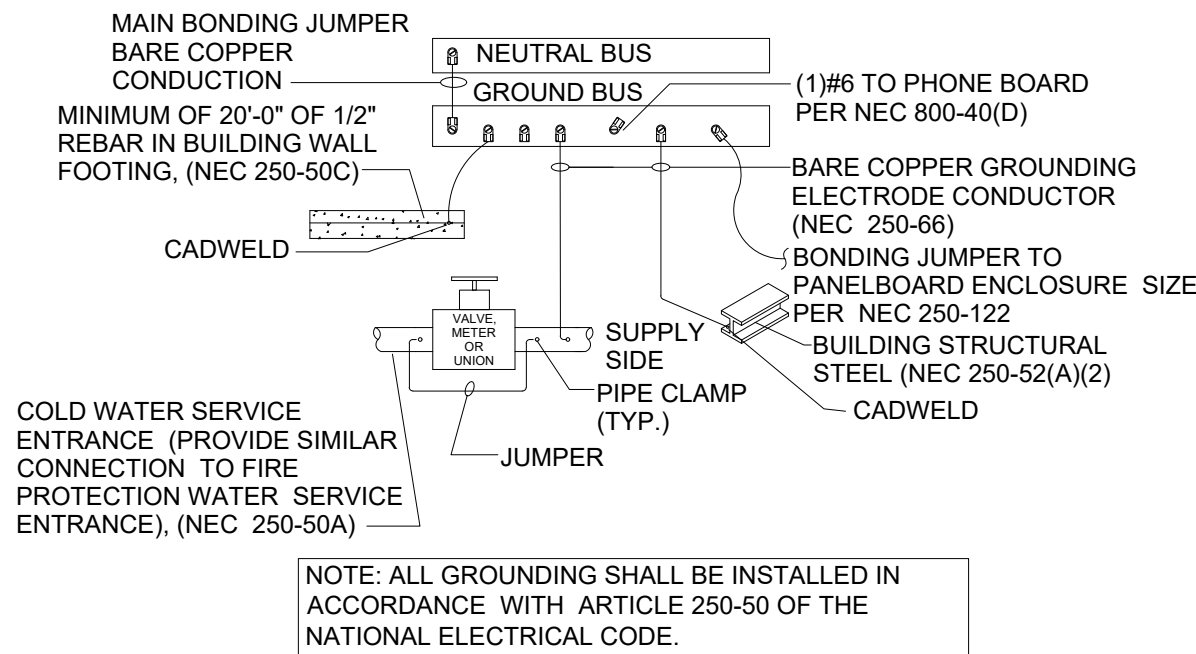
NOTE: ** INDICATES BREAKER LOCKS

EQUIPMENT CONNECTION SCHEDULE (SEE SHEET E 1.2 FOR COOLERS/FREEZERS)												
MARK	DESCRIPTION	FURN. BY	kVA	VOLT	PH	MCA	MOCP	DISC.	AWG	ECG	COND.	NOTES
RTU-1,2	10-TON ROOFTOP UNITS	MC	33.47	208	3	93	110	200	#2	#6	2"	1,2,3
RTU-3	5-TON ROOFTOP UNIT	MC	21.59	208	3	60	60	60	#6	#10	1 1/4"	1,2,3
P-6	WATER HEATER	PC	1.95	120	1	13	20	30	#12	#12	3/4"	1,2,3
C1	CONDENSATE PUMPS	PC	0.23	120	1	1.9	20	NEMA 5-15	#12	#12	3/14"	4

NOTES:

- THE ELECTRICAL CONTRACTOR SHALL FIELD COORDINATE WITH THE MECHANICAL CONTRACTOR CONCERNING THE ELECTRICAL INFO OF ALL MECHANICAL DEVICES REQUIRING AN ELECTRICAL CONNECTION PRIOR TO DOING ANY WORK. ANY DISCREPANCIES BETWEEN THE FIELD OBTAINED INFORMATION AND THE INFORMATION SHOWN ON THE ELECTRICAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO DOING ANY WORK.
- PROVIDE NEUTRALS ON AS REQUIRED BASIS, FIELD VERIFY.
- ALL DISCONNECTS TO BE HEAVY DUTY. FUSES TO BE RK-5 TYPE, SUBMIT SHOP DRAWINGS. BUSSMAN FRN-R-(AMP) IS SPECIFIED.
- EC TO VERIFY PUMPS PRIOR TO INSTALLATION.

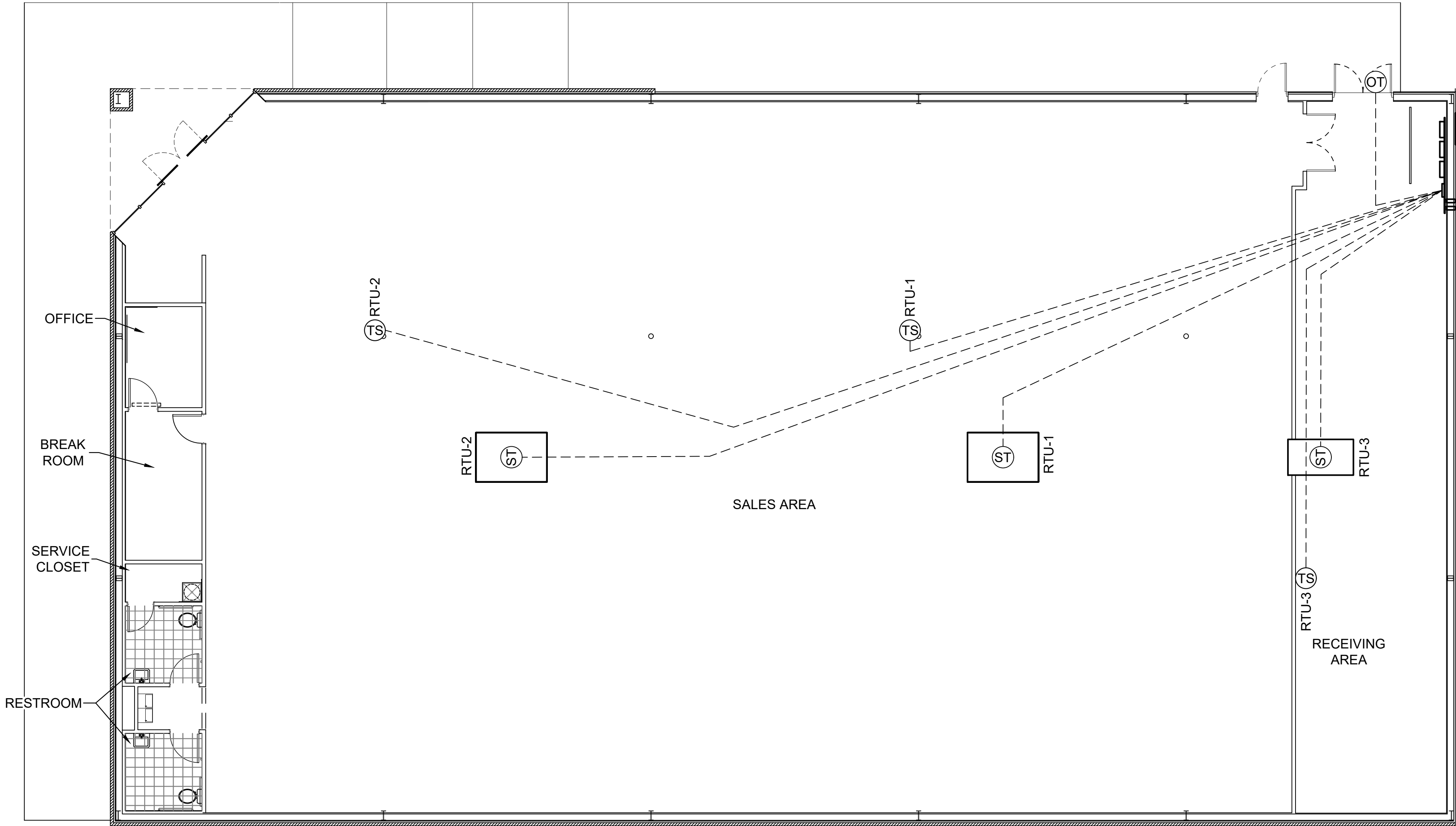
3 EQUIPMENT CONNECTION SCHEDULE



5 GROUNDING DETAIL

NO SCALE

PANEL B									
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT	
1**	NIGHT LIGHTS	20/1	0.18	A	0.00	20/1	SPARE	2	
3	SPARE	20/1	0.00	B	0.50	20/1	SECURITY RECEPT.	4**	
5	70% SALES LIGHTS ROWS 2&3	20/1	0.63	C	0.54	20/1	OFFICE RECEPTS.	6**	
7	70% SALES LIGHTS ROWS 2&3	20/1	0.27	A	0.54	20/1	BREAKROOM RECEPTS.	8**	
9	70% SALES LIGHTS ROWS 2&3	20/1	0.54	B	0.00	20/1	SPARE	10	
11	70% SALES LIGHTS ROWS 2&3	20/1	0.45	C	0.00	20/1	SPARE	12	
13	BREAKROOM/OFFICE/RESTROOM LIGHTS	20/1	0.15	A	1.08	20/1	BULKHEAD RECEPT.	14**	
15	30%SALES LIGHTS ROWS 7&10	20/1	0.45	B	0.05	20/1	EMERGENCY EXIT LIGHTS	16**	
17	70% SALES LIGHTS ROWS 12&15	20/1	0.59	C	0.00	20/1	SPARE	18	
19	SPARE	20/1	0.59	A	0.00	20/1	SPARE	20	
21	BUILDING SIGN	20/1	0.90	B	0.91	20/1	CONDENSATE PUMPS	22	
23	SPARE	20/1	0.00	C	0.00	20/1	SPARE	24	
25	PYLON SIGN	20/1	0.90	A	0.00	20/1	SPARE	26	
27	SITE LIGHTING	20/1	0.30	B	0.00	20/1	SPARE	28	
29	SITE LIGHTING	20/1	1.40	C	1.20	20/1	POWER TERMINAL BROWN	30**	
31	SPARE	20/1	0.00	A	1.20	20/1	POWER TERMINAL BROWN	32**	
33	SIDE EXT. WALL LIGHTS	20/1	0.14	B	1.20	20/1	POWER TERMINAL GREEN	34**	
35	FRONT CANOPY/WALL LIGHTS	20/1	0.58	C	1.20	20/1	POWER TERMINAL GREEN	36**	
37	SPARE	20/1	0.00	A	1.20	20/1	POWER TERMINAL GREEN	38**	
39	SPARE	20/1	0.00	B	1.20	20/1	POWER TERMINAL GREEN	40**	
41	EXTERIOR DUSK/DAWN	20/1	0.05	C	1.20	20/1	POWER TERMINAL BROWN	42**	
43	SPARE	20/1	0.00	A	1.20	20/1	POWER TERMINAL BROWN	44**	
45	SPARE	20/1	0.00	B	0.00	20/1	SPARE	46	
47	SEPTIC PUMP CONTROLS	20/1	1.00	C	0.00	20/1	SPARE	48	
49	SEPTIC PUMP STATION	30/2	2.88	A	0.00	20/1	SPARE	50	
51			2.88	B	0.18	20/1	DISPLAY LIGHT	52	
53	SPARE	20/1	0.00	C	0.85	20/1	GATORADE	54**	
			PH	kVA	AMPS				
			A	10.2	85				
			B	9.3	77				
			C	9.7	81				
	VOLTAGE/PHASE					208Y/			



1 EMS LOW VOLTAGE PLAN
Scale: 1/8"=1'-0"

GENERAL NOTES

- A. REFER TO E1 FOR GENERAL CONTRACTOR RESPONSIBILITIES. E.C. MAY USE CABLE TRAY FOR LOW VOLTAGE CABLES, SEE 2/E2.
- B. RUN CONDUIT FROM SENSORS TO BOTTOM OF STRUCTURE.
- C. REFRIGERATION UNITS TO BE CONNECTED TO EMS PANEL BY DOLLAR GENERAL REFRIGERATION CONTRACTOR.

SENSOR PLAN KEYED NOTES

- 1. ALWAYS INSTALL THESE SENSORS AT 8'-0" AFF IF ADDITIONAL HVAC UNITS ARE USED, ADD ADDITIONAL TEMPERATURE SENSORS "TS".
- 2. PHONE LINE #1 - TWO RJ-11 PORTS. ONE (1) LOCATED IN OFFICE W/RJ-45 DATA JACK COMBO AND ONE (1) AT REGISTER. 24 GA. CAT 5, 4-PAIR TWISTED WIRE ONLY. USE BLUE AND BLUE & WHITE WIRES. HOOK TO LINE #1 TERMINAL IN RJ-11 JACK EACH PHONE JACK TO HAVE DEDICATED, SEPARATE HOME RUN TO DMARC. LABEL AS "PHONE" AT THE DESTINATION AND AT DMARC. PHONE COMPANY PROVIDES FINAL HOOK UP TO DMARC ONLY.PHONE LINE #2 - RJ-11 PHONE JACK SUPPLIED AND WIRED BY CONTRACTOR.
- 3. EMS REFRIGERATION PANEL CX E2 400. PANEL BY OTHERS. CONNECTION FROM THIS PANEL TO HVAC AND LIGHTING PANEL BY OTHERS. ELECTRICAL CONTRACTOR TO RUN AN EMPTY 1-1/2". WITH PULL ROPE BETWEEN THE TWO PANELS.

DEVICE SCHEDULE					
SYMB	DESCRIPTION	CABLE TYPE	SUPPLIER	INSTALLER	NOTES
OT	OUTDOOR AIR TEMP MOUNTED 8'-0" A.F.F.	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	(1) PER RECEIVING ENTRY
ST	SUPPLY TEMP (501-1121) IN SUPPLY DUCT	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	(1) PER HVAC UNIT
TS	TEMP SPACE SENSOR (809-6590) 8'-0" A.F.F.	BELDEN 8761 OR EQUIVALENT (22AWG, 2C, STRANDED, SHIELDED)	EMS SUPPLIER	GENERAL CONTRACTOR	(1) PER HVAC UNIT ZONE
o	RJ-11/RJ-45 DATA JACK PHONE COMBO	CAT-5 DATA CABLE (24AWG, 4 TWISTED PAIR)	GENERAL CONTRACTOR	GENERAL CONTRACTOR	(1) AT OFFICE COMPUTER CART
\$ m	MOTION SENSOR SWITCH	LEVITON EZ-FIND ODS-10-IDW	GENERAL CONTRACTOR	GENERAL CONTRACTOR	(1) PER RESTROOM (1) PER BREAK ROOM (1) PER OFFICE

2 LOW VOLTAGE NOTES & SCHEDULE
NO SCALE

EMS CONTACT

BRAD KYLE, NATIONAL ACCOUNT EXECUTIVE, COPELAND
PHONE: 414-218-1675

EMS GENERAL NOTES

- 1. EMS SUPPLIER NOTE: CUSTOMIZED DOLLAR GENERAL EMS PANEL REQUIRES STORE #, CITY, STATE, ZIP CODE & QTY. OF HVAC UNITS OF THE INSTALL SITE WHEN ORDERING. EMS SYSTEMS INSTALLATION GUIDE WITH PHOTOS IS AVAILABLE ON NATIONAL ACCOUNT WEBSITE. ALL QUESTIONS PERTAINING TO THE EMS PANEL, SYSTEM INSTALLATION & SETUP SHOULD BE DIRECTED TO EMERSON'S DOLLAR GENERAL SUPPORT TEAM AT 770-425-2724.
- 2. ALL SIGN & LIGHTING CIRCUITS MUST BE FED THROUGH THE DESIGNATED CONTACTORS AS NOTED ON THIS PAGE.
- 3. ALL LOW VOLTAGE HVAC & DOOR SENSORS MUST BE CONNECTED TO THE PROPER TERMINAL. 24 GA. SHIELDED (SHIELD MUST BE GROUNDED) CABLE, BELDEN #8641, 2 CONDUCTOR WIRE OR IT'S EQUIVALENT IS REQUIRED.
- 4. COOLER & FREEZER HOME RUNS WILL BE TERMINATED AT ALL POINTS BY DOLLAR GENERAL REFRIGERATION DEPARTMENT.

TESTING NOTES

- 1. TESTING OF HVAC UNITS THRU EMS PANEL IS ACCOMPLISHED BY SIMPLY WARMING UP OR COOLING DOWN A SPACE TEMPERATURE SENSOR (USING A BLOW DRYER OR ELECTRONIC EQUIPMENT DUSTER AEROSOL) AND WATCH THE FAN, HEAT AND COOL STAGES CYCLE ON AND OFF. THIS REQUIRES TWO PEOPLE AT ALL TIMES....ONE TO WATCH THE SCREEN AND THE OTHER TO WATCH OPERATION OF THE AHU. WHEN COMPLETE, PRESS THE HOME BUTTON TO RETURN TO THE MAIN SCREEN.

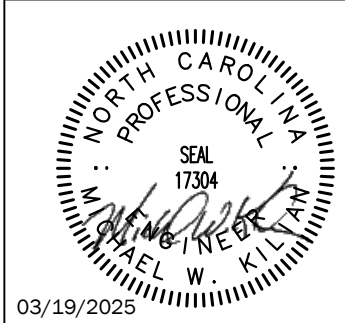
CONTROL PANEL NOTES

- 1. EMS SYSTEM SHOULD BE TESTED FOR HVAC OPERATION, INTERIOR LIGHTING, EXTERIOR LIGHTING AND SIGN LIGHTING PRIOR TO CONTRACTOR'S ELECTRICAL POSSESSION DATE. USE OUTSIDE LIGHT AND SIGN LIGHT OVERRIDE FOR EXTERIOR TESTING.

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DOLLAR GENERAL
STORE #31414
NC HWY 55
ERWIN, NC

JOB NUMBER
250110
DRAWN BY
REW/TD
DATE
03/19/2025
REVISIONS

SHEET NUMBER

EMS1