

2018 APPENDIX B BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS (EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)

Name of Project: Northwest Harnett Volunteer Fire Station 3
Address: US 401 North, Fuquay Varina, North Carolina
Zip Code: 27526
Proposed Use: Volunteer Fire Department w/ Sleeping Quarters
Owner/Authorized Agent: Leland Adams
Phone #: 919-851-1980
E-Mail: LADAMS@BOBBITT.COM

LEAD DESIGN PROFESSIONAL: BOBBITT A&E, PLLC
DESIGNER FIRM NAME LICENSE# TELEPHONE# E-MAIL
Architectural Bobbitt A&E, PLLC BRIAN D. GRIFFITH, AIA 9811 919-851-2196 BGRIFITH@BOBBITT.COM

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

2018 NC EXISTING BUILDING CODE: Prescriptive Alteration Level I Historic Property
Repair Alteration Level II Change of Use
Chapter 14 Alteration-Level III
CURRENT OCCUPANCY(S) (Ch.3):
RENOVATED: (date) PROPOSED OCCUPANCY(S) (Ch.3):
OCCUPANCY CATEGORY (Table 1604.5): Current: Proposed:

BASIC BUILDING DATA
Construction Type: I-A I-B II-A II-B III-A III-B IV V-A V-B
Sprinklers: No Partial Yes NFPA 13 NFPA 13R NFPA 13D
Standpipes: No Yes Class I II III Wet Dry
Primary Fire District: No Yes Flood Hazard Area: No Yes
Special Inspections Required: No Yes

Gross Building Area Table
FLOOR EXISTING (SQ FT) New (SQ FT) SUB-TOTAL
3rd Floor - - -
2nd Floor - - -
Mezzanine 0 714 714
1st Floor 0 11,090 11,090
Basement - - -
TOTAL 0 11,090 w/ Entry Canopy (+ Mezz & Awnings) 11,090 (+ Mezz & Awnings)
Awnings = 251 sf

Primary Occupancy Classification(s):
Assembly A-1 A-2 A-3 A-4 A-5
Business B-1 B-2 B-3 B-4 B-5
Educational E-1 E-2 E-3 E-4 E-5
Factory F-1 Moderate F-2 Low
Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
Institutional I-1 Condition: 1 2 I-3 Condition: 1 2 3 4 5
I-2 Condition: 1 2 I-4
Mercantile M-1 M-2 M-3 M-4
Residential R-1 R-2 R-3 R-4
Storage S-1 Moderate S-2 Low High-piled
Parking Garage Open Enclosed Repair Garage
Utility and Miscellaneous

Accessory Occupancy Classification(s):
Assembly A-1 A-2 A-3 A-4 A-5
Business B-1 B-2 B-3 B-4 B-5
Educational E-1 E-2 E-3 E-4 E-5
Factory F-1 Moderate F-2 Low
Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
Institutional I-1 Condition: 1 2 I-3 Condition: 1 2 3 4 5
I-2 Condition: 1 2 I-4
Mercantile M-1 M-2 M-3 M-4
Residential R-1 R-2 R-3 R-4
Storage S-1 Moderate S-2 Low High-piled
Parking Garage Open Enclosed Repair Garage
Utility and Miscellaneous

Incidental Uses (Table 509):
Furnace room where any piece of equipment is over 400,000 Btu per hour input
Rooms with boilers where the largest piece of equipment is over 15 psi and 10 horsepower
Refrigerant machinery room
Hydrogen fuel gas rooms, not classified as Group H
Incinerator rooms
Paint shops, not classified as Group H, located in occupancies other than Group F
In Group E occupancies, laboratories and vocational shops not classified as Group H
In Group I-2 occupancies, laboratories not classified as Group H
In ambulatory care facilities, laboratories not classified as Group H
Laundry rooms over 100 square feet (Sprinkler system provided)
In Group I-2, laundry rooms over 100 square feet
In Group I-2, laundries equal to or less than 100 square feet
In Group I-2, commercial kitchens
In Group I-2, rooms or spaces that contain fuel-fired heating equipment
Group I-3 cells and Group I-2 patient rooms equipped with padded surfaces
Group I-2, physical plant maintenance shops
In ambulatory care facilities or Group I-2 occupancies, waste and linen collection rooms with containers that have an aggregate volume of 10 cu. ft. or greater
In other than ambulatory care facilities and Group I-2 occupancies, waste and linen collection rooms over 100 square feet
In ambulatory care facilities or Group I-2 occupancies, storage rooms greater than 100 square feet
Stationary storage battery systems having a liquid electrolyte capacity of more than 50 gallons for flooded lead-acid, nickel cadmium or VRLA, or more than 1,000 pounds for lithium-ion and lithium metal polymer used for facility standby power, emergency power or uninterruptible power supplies
Fuel Storage rooms in public schools and boiler rooms in public schools
Storage rooms underneath grandstands or bleacher seats containing combustible or flammable materials

Special Uses (Chapter 4 - List Code Sections):
402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417
418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433

Northwest Harnett Volunteer Fire Station 3

Special Provisions: (Chapter 5):
510.2 510.3 510.4 510.5 510.6 510.7 510.8 510.9
Mixed Occupancy: No Separation: 0 Hr. Exception: non-separated
Incidental Use Separation (509.4.1)
Non-Separated Use (508.3)
Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

Actual Area of Occupancy A + Actual Area of Occupancy B
Allowable Area of Occupancy A Allowable Area of Occupancy B <= 1
- + - + ..... = - <= 1.00

STORY NO. DESCRIPTION AND USE (A) BLDG AREA PER STORY (ACTUAL) (B) TABLE 506.2.1 AREA (C) AREA FOR FRONTAGE INCREASES 1.5 (D) ALLOWABLE AREA PER STORY OR UNLIMITED 2.3
1 R2 (worst case) 11,090 64,000 (NOT USED) 64,000
2 S2 104,000

- 1. Frontage area increases from Section 506.2 are computed thus:
a. Perimeter which fronts a public way or open space having 20 feet minimum width = (F)
b. Total Building Perimeter = (P)
c. Ratio (F/P) = (F/P)
d. W = Minimum width of public way = (W)
e. Percent of frontage increase I\_f = 100(F/P - 0.25) x W/30 = (%)
2. Unlimited area applicable under conditions of Section 507.
3. Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
4. The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1
5. Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT
ALLOWABLE SHOWN ON PLANS CODE REFERENCE
Building Height in Feet (Table 504.3) 55 FT 25 FT -
Building Height in Stories (Table 504.4) 4 1 -

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

FIRE PROTECTION REQUIREMENTS

BUILDING ELEMENT FIRE SEPARATION DISTANCE (FEET) RATING REQD PROVIDED (W-REDUCTION) DETAIL AND SHEET# DESIGN FOR RATED ASSEMBLY SHEET# FOR PENETRATION RATED JOINTS SHEET# FOR RATED JOINTS
Structural Frame, including columns, girders, trusses - 0 0 - - - -
Bearing Walls N/A - - - - - -
Exterior - North - - - - - -
East - - - - - -
West - - - - - -
South - - - - - -
Interior - 0 0 - - - -
Nonbearing Walls and Partitions - 0 0 - - - -
Exterior walls - North 28' 0 0 - - - -
East >30' 0 0 - - - -
West >30' 0 0 - - - -
South >30' 0 0 - - - -
Interior walls and partitions - 0 0 - - - -
Floor Construction including supporting beams and joists 0 0 - - - -
Floor Ceiling Assembly 0 0 - - - -
Columns Supporting Floors - - - - - -
Roof Construction, including supporting beams and joists 0 0 - - - -
Roof Ceiling Assembly 0 0 - - - -
Columns Supporting Roof 0 - - - - - -
Shaft Enclosures-Exit - - - - - -
Shaft Enclosures-Other (under stair protection) 1HR 1HR CDWA 60-01T1.3 CDWA 60-01 N/A SEE SECTIONS
Corridor Separation - - - - - -
Occupancy/Fire Barrier Separation - - - - - -
Party/Fire Wall Separation - - - - - -
Smoke Barrier Separation - - - - - -
Smoke Partition - - - - - -
Tenant/Dwelling Unit/Sleeping Unit Separation 1/2HR 1HR U419& U905/T1.3 U419 & U905 SEE PME SEE SECTIONS
Incidental Use Separation - - - - - -

\* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES DEGREE OF OPENINGS PROTECTION (TABLE 705.9) ALLOWABLE AREA (%) ACTUAL SHOWN ON PLANS (%)
28 FT+ UP, S No Limit No Limit

LIFE SAFETY SYSTEM REQUIREMENTS

Emergency Lighting: No Yes
Exit Signs: No Yes
Fire Alarm: No Yes (notification only)
Smoke Detection Systems: No Yes Partial @ residential
Panic Hardware: No Yes
Carbon Monoxide Detection: No Yes @ residential

LIFE SAFETY PLAN REQUIREMENTS

Life Safety Plan Sheet #: T1.2

- Fire and/or smoke rated wall locations (Chapter 7)
Assumed and real property line locations (if not on the site plan)
Exterior wall opening area with respect to distance to assumed property lines (705.8)
Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
Occupant loads for each area
Exit access travel distances (1017)
Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
Dead end lengths (1020.4)

- Clear exit widths for each exit door
Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
Actual occupant load for each exit door
A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
Location of doors with panic hardware (1010.1.10)
Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
Location of doors with electromagnetic egress locks (1010.1.10)
Location of doors equipped with hold-open devices
Location of emergency escape windows (1030)
The square footage of each fire area (202)
The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS (SECTION 1107)

TOTAL UNITS ACCESSIBLE UNITS REQUIRED ACCESSIBLE UNITS PROVIDED TYPE A UNITS PROVIDED TYPE B UNITS PROVIDED TYPE B UNITS REQUIRED TYPE B UNITS PROVIDED TOTAL ACCESSIBLE UNITS PROVIDED
1 1 1 1 1 0 0 1

ACCESSIBLE PARKING (SECTION 1106)

LOT OR PARKING AREA TOTAL # OF PARKING SPACES REQUIRED PROVIDED # OF ACCESSIBLE SPACES PROVIDED REGULAR WITH 5' ACCESS AISLE 132" ACCESS AISLE VAN SPACES WITH 8' ACCESS AISLE TOTAL # ACCESSIBLE PROVIDED
Entire Lot 20 20 - - 1 1
TOTAL - (see Totals above) - - - -

SPECIAL APPROVALS

Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, ICC, etc., describe below)

CODE REVIEW NOTES

- Kitchen is for Residential fire station staff use only. Not designed to serve the Public.

ENERGY REQUIREMENTS

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

Existing building envelope complies with code: N/A YES
Exempt Building: NO YES (Provide code or statutory reference) 2018 NC-ECC C101.2 exception 2.

Climate Zone: 3A 4A 5A

DESIGN MINIMUM U-VALUES: (SEE EXTERIOR FINISH FORM FOR COLORS AND ADDITIONAL INFORMATION)

PEMB:
Roof: Thermal Blocks w/ R-19 (6" WMP-VR)
Walls: R-19 (6" WMP-VR)

EXTERIOR STUD WALLS: R-19 (5 1/2" FIBERGLASS UNFACED)

OPENINGS:
GLASS @ STOREFRONT & HM DOOR [VITRO 70 (2) + Clear = basis of design]:
1" IGU @ WINDOWS = U-0.28
3/4" IGU @ DOORS = U-0.40

HM EXTERIOR DOORS: R-10 Polyurethane core

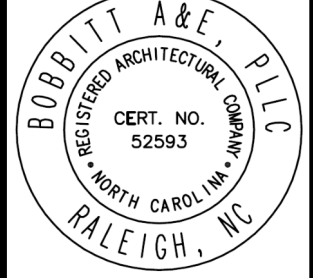
OHD's (see Exterior Finish Form)

SHEET INDEX

- T1.1 TITLE SHEET
T1.2 LIFE SAFETY PLAN
T1.3 UL DETAILS
T2.0 GENERAL NOTES
C0.0 SITE COVER SHEET
C0.1 EXISTING CONDITIONS
C1.0 STAKING PLAN
C2.0 SEDIMENT AND EROSION CONTROL (PHASE 1)
C2.1 SEDIMENT AND EROSION CONTROL (PHASE 2)
C2.2 NPDES STABILIZATION
C3.0 GRADING PLAN
C4.0 UTILITY PLAN
C5.0 LANDSCAPE PLAN
C6.0 LIGHTING PLAN
C7.0 DETAILS
C7.1 DETAILS
C7.2 DETAILS
A1.1 FLOOR PLAN
A3.1 REFLECTED CEILING PLAN
A4.1 ELEVATIONS
A6.1 EXTERIOR WALL SECTIONS @ OFFICE
A6.2 EXTERIOR WALL SECTIONS @ APPARATUS
A6.3 ENTRY SECTIONS
A7.1 DOOR AND WINDOW DETAILS AND SCHEDULES
A7.2 DETAILS
A8.1 FLOORING PLAN
A8.2 FINISH SCHEDULE
A8.3 MILLWORK
A8.4 INTERIOR ELEVATIONS
A9.1 MEZZANINE AND STAIR SECTIONS
S1 FOUNDATION PLAN
S2 STRUCTURAL NOTES AND MEZZANINE
S3 SECTIONS & DETAILS
S4 SECTIONS & DETAILS
P1.1 OVERALL PLUMBING PLAN
P2.1 ENLARGED DRAINAGE PLANS
P2.2 ENLARGED WATER PLANS
P3.1 PLUMBING RISERS
P4.1 PLUMBING DETAILS
P4.2 PLUMBING DETAILS
P4.3 PLUMBING DETAILS
P5.1 PLUMBING SCHEDULES
M1.1 MECHANICAL PLANS
M2.1 MECHANICAL DETAILS
M2.2 MECHANICAL DETAILS
M3.1 MECHANICAL SCHEDULES
E1.1 POWER PLANS
E1.2 LIGHTING PLANS
E2.1 ELECTRICAL DETAILS
E3.1 ELECTRICAL SCHEDULES
E3.2 ELECTRICAL SCHEDULES
E4.1 ELECTRICAL DETAILS
FA1.1 FIRE ALARM PLAN
FA2.1 FIRE ALARM DETAILS
FP1 FIRE PROTECTION DETAILS
FP2 FIRE PROTECTION PLAN

Revisions
# Date By Description

APPROVAL: DATE:



BOBBITT A&E, PLLC
600 Germantown Road
Raleigh, North Carolina 27607
Phone: (919) 851-1982
design@bobbitt.com



COORDINATOR: B. GRIFFITH

DRAWN BY: BDG

CHK BY: JGF 01/26/2022

NW HARNETT FIRE STATION 3
US HWY 401 N
HARNETT COUNTY, NORTH CAROLINA

24 X 36

05/05/2022

21-0337

TITLE SHEET

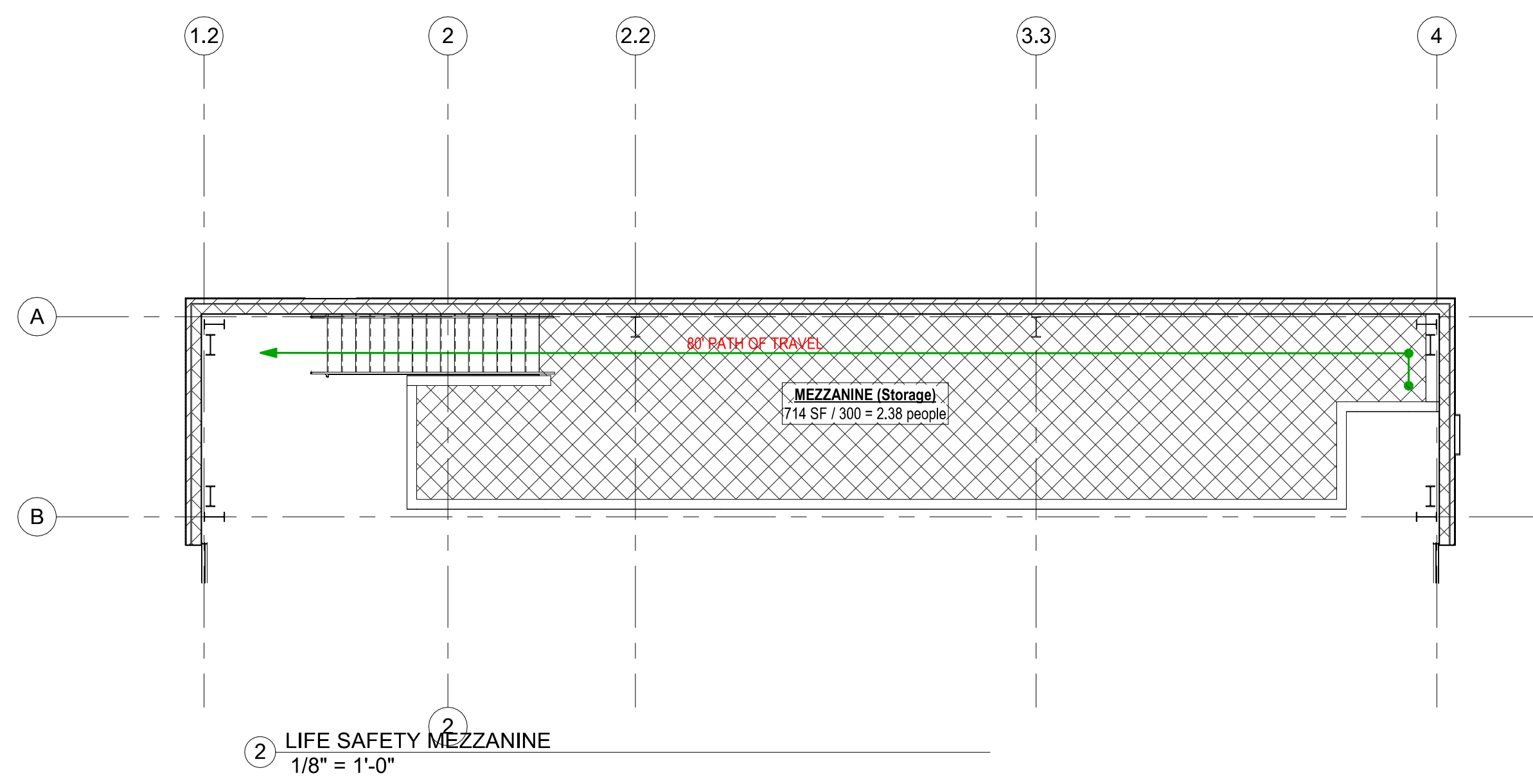
T1.1 OF 4

CONSTRUCTION DOCUMENT APPROVED FOR PERMITTING

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.



Z:\Shared\Design\1759A3158A00004AD9\1759A3158A00004AD9.dwg  
 2/28/2022 10:46:11 AM  
 1/8" = 1'-0"



**FIRE EXTINGUISHER MOUNTING**  
 - SURFACE MOUNT (EE): TO BE EXPOSED EXTINGUISHERS (No cabinet)  
 - SEMI-RECESSED (ER): TO BE IN CABINETS MEETING GUIDELINES BELOW

**Projection Requirements**  
 The federal regulations for ADA Standards for Accessible Design Section: Protruding Objects Section (28 CFR 36, 4.4.1) specify that "objects projecting from walls with their leading edges between 27" and 80" (685 mm and 2030 mm) above the finished floor (AFF) shall protrude no more than 4" (100mm) into walks, halls, corridors, passageways, or aisles. Please note that a surface-mounted cabinet installed in such a way that any part of it falls between 27" and 80" AFF would not meet ADA requirements.

**Mounting Heights**  
 The NFPA and ADA have created guidelines for the mounting of cabinets and extinguishers to provide safety and/or easy access to the equipment. ADA guidelines specify reach ranges for building occupants who require access to equipment such as fire extinguishers and other fire safety devices. According to the ADA Standards (28 CFR 36, 4.2.5 and 4.2.6 neither the extinguisher handle nor the cabinet handle can be mounted higher than 48" AFF for applications which allow for only a forward approach in a wheelchair to the object; and, no higher than 54" AFF, or those applications which allow for a parallel approach.

Typical Install:  
 center handle  
 38" above floor



DOOR TAG LEGEND		EXIT PATH LEGEND	
0 HR	DOOR RATING	---	PATH OF TRAVEL LENGTH
33"	EGRESS WIDTH	---	
220	EGRESS CAPACITY	---	
nnn	OCCUPANT LOAD	---	

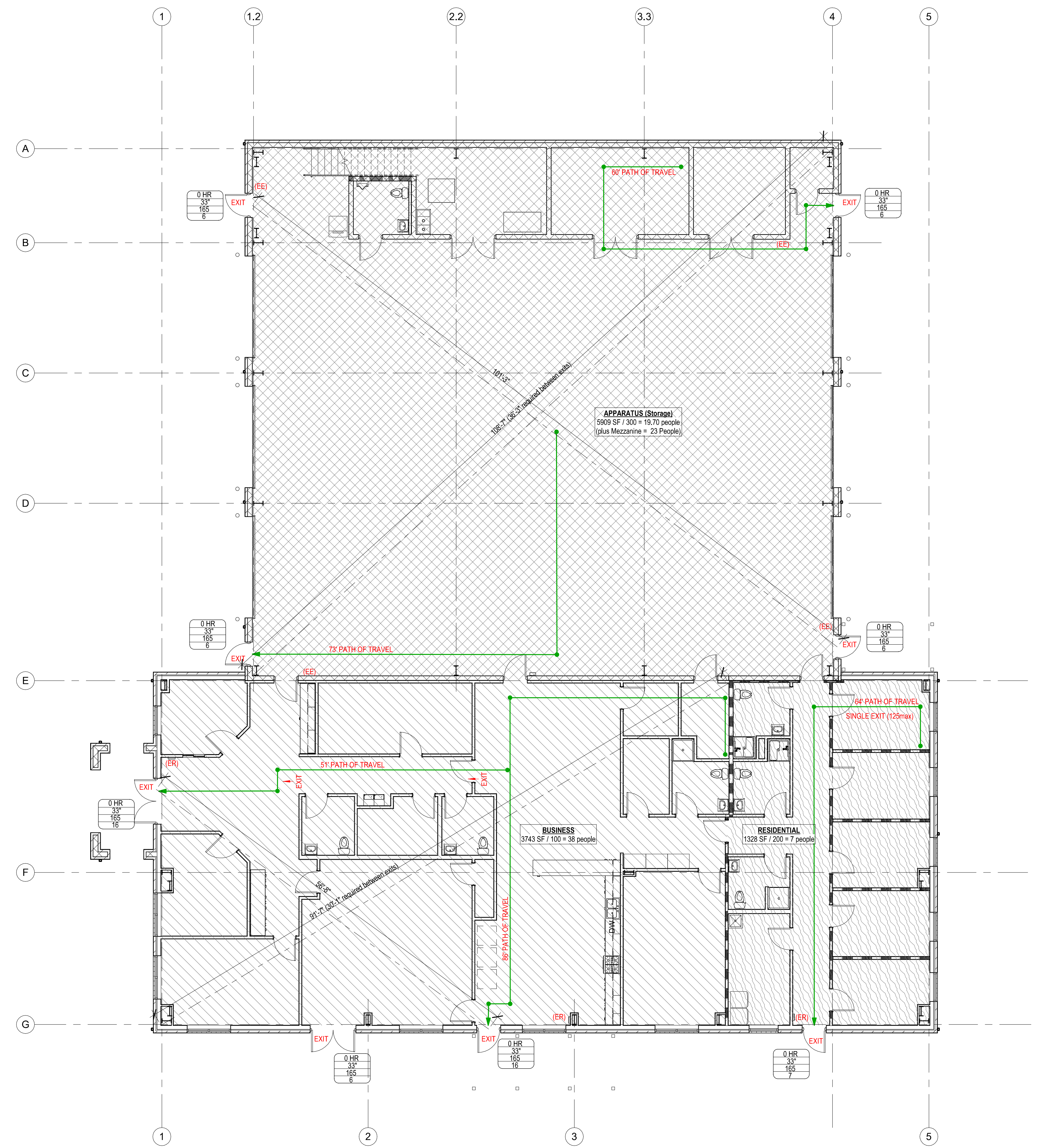
  

RATED WALL TYPE LEGEND	
---	1-HOUR FIRE BARRIER (U419/T1.2)

ABBREVIATIONS	
(ER)	= EXTINGUISHER SEMI-RECESSED CABINET
(EE)	= EXTINGUISHER EXPOSED

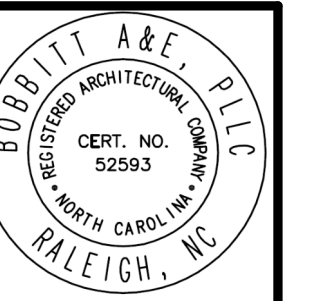
Revisions			
#	Date	By	Description



1 LIFE SAFETY PLAN  
 1/8" = 1'-0"

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**  
 COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

APPROVAL:  
 DATE:



BOBBITT A&E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 BDG

CHK BY: JGF  
 01/26/2022

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

24 X 36  
 1/8" = 1'-0"

05/05/2022

21-0337

LIFE SAFETY PLAN

**T1.2**  
 OF 4



Z:\Share\Design\CD\CDWA\CDWA\Harnett Station - 7-2-10\3D\Arch - Revit\Bobbitt\Harnett

09/20/2010 10:41 AM

Revisions			
#	Date	By	Description

APPROVAL:  
DATE:



BOBBITT A & E, PLLC  
600 Germantown Road  
Raleigh, North Carolina 27607



COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
BDG

CHK BY: JGF  
01/26/2022

**NW HARNETT FIRE STATION 3**  
US HWY 401 N  
HARNETT COUNTY, NORTH CAROLINA

24 X 36

05/05/2022

21-0337

UL DETAILS

**T1.3**  
OF 4

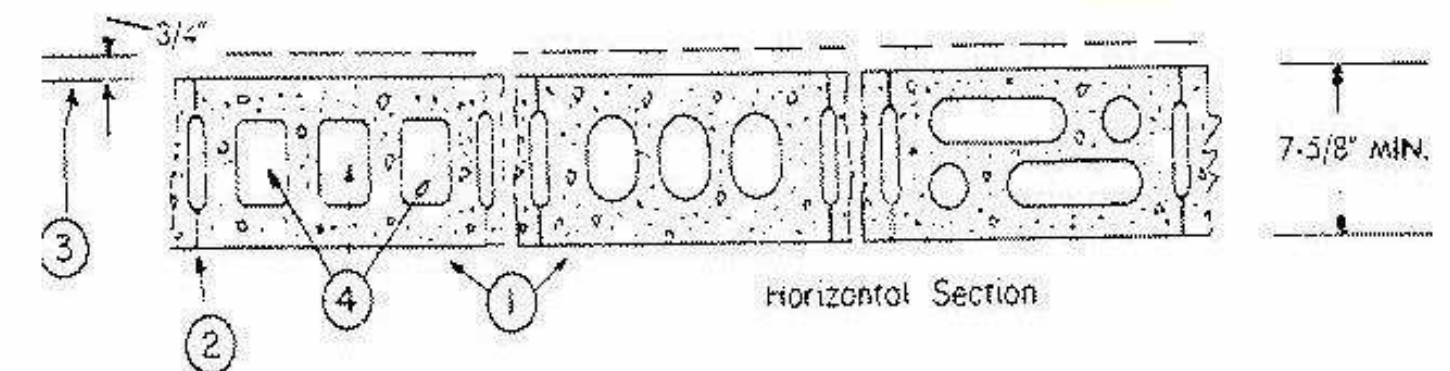
**Design No. U905**

September 30, 2010

**Bearing Wall Rating — 2 HR.**

**Nonbearing Wall Rating — 2 HR**

Load Restricted for Canadian Applications — See Guide **BXUV7**



- Concrete Blocks\*** — Various designs. Classification D-2 (2 hr).
- Mortar** — Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.
- Portland Cement Stucco or Gypsum Plaster** — Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).
- Loose Masonry Fill** — If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellent vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.
- Foamed Plastic\*** — (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).

**THE DOW CHEMICAL CO** — Type Thermax Sheathing, Thermax Light Duty Insulation, Thermax Heavy Duty Insulation, Thermax Metal Building Board, Thermax White Finish Insulation, Thermax ci Exterior Insulation, Thermax IH Insulation, Thermax Plus Liner Panel and Thermax Heavy Duty Plus (HDP)

\*Bearing the UL Classification Mark

Last Updated on 2010-09-30

**UL# U905**

Design No. U419  
October 09, 2003  
Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 3 & 4)

- Floor and Ceiling Runners** — (Not shown) — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.
- Steel Studs** — Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min width to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.
- Batts and Blankets\*** — (Required as indicated under Item 4) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 4. See **Batts and Blankets (BKW or BZJZ) Categories** for names of Classified companies.
- Batts and Blankets\*** — (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKW or BZJZ) Categories** for names of Classified companies.

**Walloard Protection on Each Side of Wall**

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

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

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

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

**4A. Gypsum Board\*** — (As an alternate to Item 4) — 5/8 in. thick, 2 1/2 wide, long and grooved edge, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 5. Joint covering (Item 7) not required.

**CANADIAN GYPSUM COMPANY** — Type SHX.

**UNITED STATES GYPSUM CO** — Type SHX.

**USG MEXICO S A DE CV** — Type SHX.

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

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

**6A. Steel Framing Members (Not Shown)\*** — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 6, furring channels and Steel Framing Members as described below.

**a. Furring Channels** — Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item 5. Gypsum board attached to furring channels as described in Item 5. Not for use with Item 4A.

**b. Steel Framing Members** — Used to attach furring channels (Item 6a) to studs (Item 2). Clips spaced max. 48 in. OC, and secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

**PAC INTERNATIONAL INC** — Type RSIC-1.

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

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

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

**UNITED STATES GYPSUM CO** — Type AS

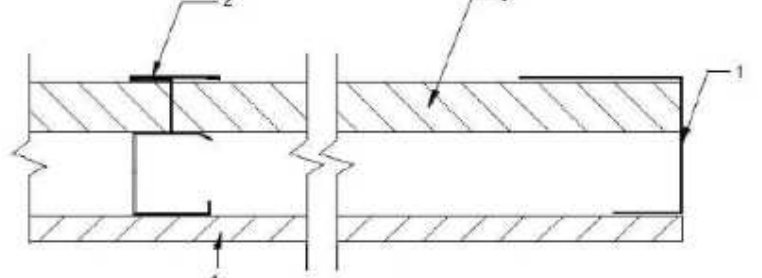
\*Bearing the UL Classification Mark

**UL# U419**

Division 09 — Finishes  
09 21 16 Gypsum Board Assemblies  
09 21 16.23 Gypsum Board Shaft Wall Assemblies

Page 1 of 2

ClarkDietrich™ Building Systems  
Design No. CDWA 60-01  
Non-Load Bearing Shaftwall Assembly  
ASTM E119 and CANULC S101  
Fire Resistance Rating: 1 Hour  
Design Weight: 6.5 pcf



STC Rating: As Shown Above: 35  
STC Rating: As Shown Above with 1 in. thick 3 pcf mineral fiber insulation in cavity: 39  
STC Rating: As Shown Above with 1-1/2 in. thick R5.8 fiberglass insulation in cavity: 43

- FLOOR, CEILING, CORNER AND INTERSECTION RUNNERS:** Tabbed "J" shaped runner with unequal legs, 2-1/2 in. min. deep, fabricated from min. 0.019 in. thick galvanized steel. Position runners with short leg towards room side of wall. Runners attached to structural members with steel fasteners coated not greater than 24 in. on center (oc). Tabbed "J" runners have tabs at 12 in. oc and are manufactured by ClarkDietrich Building Systems.
- STEEL STUDS:** "C" shaped slotted web studs, 1-1/2 in. wide by 2-1/2 in. min. deep, fabricated from min. 0.019 in. thick galvanized steel. Cut to length 1/2 in. less than the opening's height and spaced 24 in. max. oc and between 1 in. thick gypsum shaftliner panels. Studs are manufactured by ClarkDietrich Building Systems.
- GYPSUM SHAFTLINER:** 1 in. thick CertainTeed M2Tech Shaftliner Type X (complying with ASTM C1396), or 1 in. thick Continental™ Shaftliner Type X\* drywall (complying with ASTM C1396), or 1 in. thick Continental Mold Defense® Shaftliner Type X\* drywall (complying with ASTM C1396), or 1 in. thick National Gypsum Gold Bond Shaftliner (complying with ASTM C1396), or 1 in. thick United States Gypsum Shaft Wall Liner (complying with ASTM C1396), supplied in nominal 24 in. widths. The panels are inserted against the long leg of the "J" runners and into the 1 in. deep recess of the studs. Free edges of end panels are retained by bending tabbed "J" runner tabs (12 in. oc) at a 90° angle.
- GYPSUM BOARD:** 5/8 in. thick CertainTeed Type X gypsum board (complying with ASTM C1396), or 5/8 in. thick Continental Firetrack Type X gypsum board (complying with ASTM C1396), or 5/8 in. thick Georgia-Pacific Gypsum Toughrock Fireguard X gypsum board (complying with ASTM C1396), or 5/8 in. thick National Gypsum Gold Bond Fire-Shield gypsum board (complying with ASTM C1396), or 5/8 in. thick USG Sheetrock

Date Revised: July 8, 2016  
Project No. G102619004



Page 2 of 2

Division 09 — Finishes  
09 21 16 Gypsum Board Assemblies  
09 21 16.23 Gypsum Board Shaft Wall Assemblies

Firecode X gypsum board (complying with ASTM C1396), applied parallel to the studs on the room side with min. 1 in. long Type S drywall screws, 12 in. oc. Gypsum board joints are finished with paper tape and joint compound (complying with ASTM C475). Exposed screw heads are finished with joint compound (complying with ASTM C475).

Limitations: Gypsum Shaftliner and Gypsum Board must be by same manufacturer.

\*Component bearing the Warnock Hersey Certification Mark, manufacturing information of these components is proprietary to the listed component's manufacturer.

Date Revised: July 8, 2016  
Project No. G102619004



**Inertek# CD/WA 60-01**







Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT A&E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607  
 Phone (919) 851-1562  
 design@bobbitt.com



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 BDG

CHK BY: JGF  
 01/26/2022

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

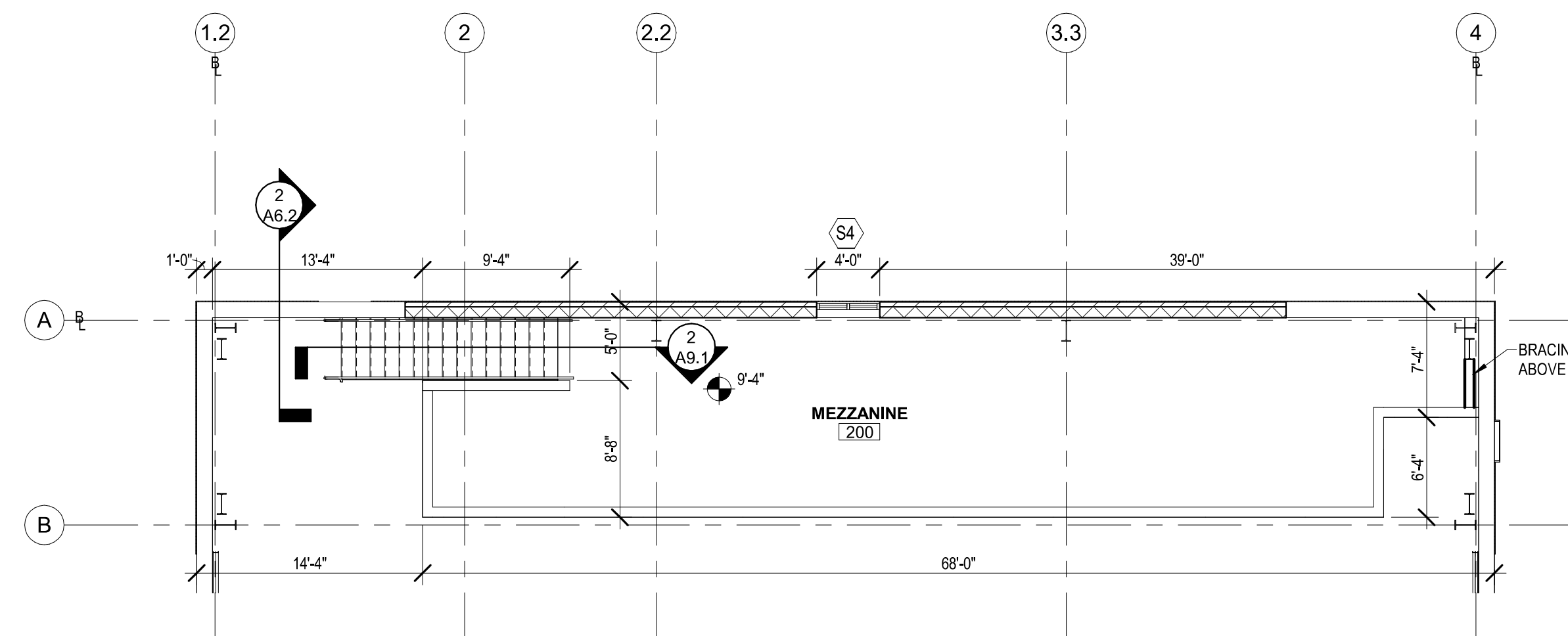
24 X 36  
 As indicated

05/05/2022

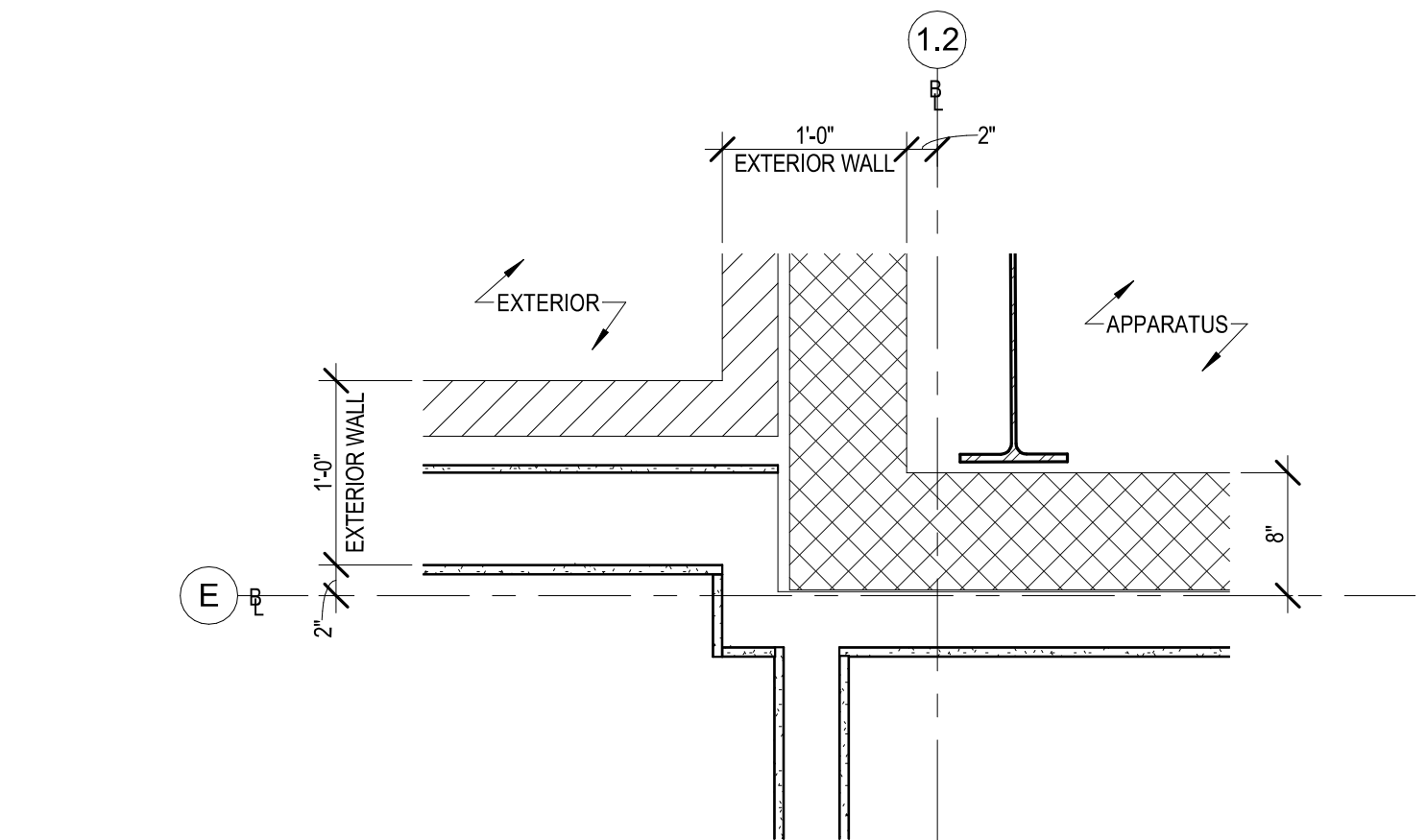
21-0337

FLOOR PLAN

**A1.1**  
 OF 13



2 MEZZANINE  
 1/8" = 1'-0"



3 APPARATUS/OFFICE CORNER  
 1" = 1'-0"

**WALL TAG LEGEND**

TYPE: S = STEEL STUD  
 SIZE: PER SCHEDULE  
 MARK: PER SCHEDULE

TYPE:  
 C = CMU  
 S = STEEL STUD  
 W = WOOD STUD  
 G = GYPSUM WALL BOARD

**RATED WALL TYPE LEGEND**

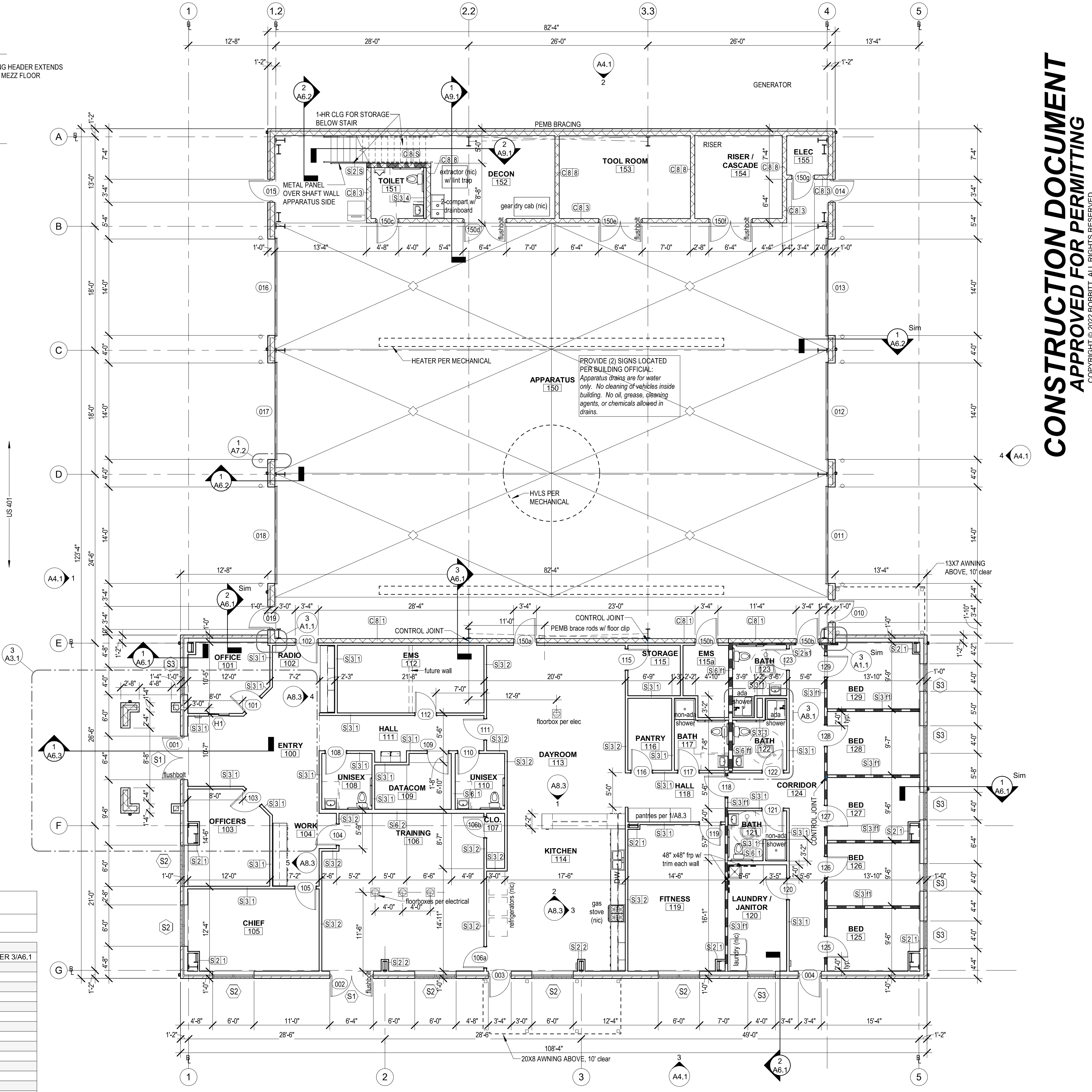
1-HOUR FIRE RATED  
 2-HOUR CMU (1-HR REQ'D)

**STUD WALL REQUIREMENTS**

- INSTALL BOX HEADERS AT INTERIOR STUD WALL OPENINGS 36" OR GREATER. MATCH STUD GAGE OF WALL. 36" - 60": 6" HEADER 60" - 84": 8" HEADER
- AT WALLS 16'-0" HIGH OR GREATER, INSTALL BRIDGING AT 4'-0" O.C.
- ALL INTERIOR WALLS TO BE INSULATED FULL HEIGHT OF THE WALL. - 3 5/8" 3 1/2" SOUND BATTS - 6": 5 1/2" SOUND BATTS
- 5/8" GWB FULL HEIGHT OF STUDS BOTH SIDES UNLESS OTHERWISE NOTED.
- INSTALL 5/8" WATER-RESISTANT GWB AT ALL TOILET ROOM, SHOWER, AND BREAK ROOM WALLS, AND WITHIN 18" OF SINKS AND DRINKING FOUNTAINS. MINIMUM 8'-0" AFF.
- BRACE INTERIOR WALLS TO STRUCTURE ABOVE PER ASCE 7-10 SECTION 13.5.8
- PROVIDE DEFLECTION TRACK SUBMITTAL.
- SEE TYPICAL PARTITION SECTIONS.
- SEE WALL SECTIONS FOR EXTERIOR WALLS.
- SILL GASKET AT EXTERIOR WALLS. SEE DETAIL.
- COORDINATE BLOCKING FOR CASEWORK AND EQUIPMENT.
- STUD WALL DIMENSIONS ARE TO FACE-OF-STUD UNLESS OTHERWISE NOTED.

**WALL TYPE SCHEDULE**

TYPE	SIZE	MARK	STUD GAUGE	STUD/CMU WIDTH	STUD SPACING	WALL HEIGHT	TOTAL WIDTH	FIRE RATING	NOTES
C	8	1		8"		10'-0"	7 5/8"		(CMU & STUDS PER WALL SECTIONS) GWB ABOVE TO OFFICE ROOF INSULATION APPARATUS SIDE PER 3/A6.1
C	8	3		8"		13'-0"	7 5/8"		(CMU PER WALL SECTIONS)
C	8	8		8"		8'-8"	7 5/8"		(CMU PER WALL SECTIONS) INFILL MEZZANINE DECK CORRUGATIONS
C	8	S		8"		13'-0"	7 5/8"		(CMU PER WALL SECTIONS, U905 TO FORM CLOSURE FOR STORAGE UNDER STAIR)
S	2	1	25ga	2 1/2"	16" OC	10'-0"	3 1/8"		5/8" GWB EXPOSED SIDE ONLY
S	2	2	25ga	2 1/2"	16" OC	12'-0"	3 1/8"		5/8" GWB EXPOSED SIDE ONLY
S	2	S	20ga	2 1/2" C-T	16" OC	10'-0"	4 1/8"		FIRE PARTITION CD/WA 60-01 W/ METAL PANEL APPLIED APPARATUS SIDE
S	2	S1	25ga	2 1/2" C-T	16" OC	18'-0"	3 1/8"		FIRE PARTITION CD/WA 60-01 TO LOWER ROOF INSULATION
S	3	1	25ga	3 5/8"	16" OC	10'-0"	4 7/8"		5/8" GWB BOTH SIDES TO HEIGHT OF STUD
S	3	2	25ga	3 5/8"	16" OC	12'-0"	4 7/8"		5/8" GWB BOTH SIDES TO HEIGHT OF STUD
S	3	3	20ga	3 5/8"	16" OC	21'-0"	4 1/4"		5/8" GWB EXPOSED SIDE ONLY TO LOWER ROOF BEAM SEE 3/A6.1
S	3	4	25ga	3 5/8"	16" OC	9'-0"	4 1/4"		5/8" MOISTURE RESISTANT GWB EXPOSED SIDE ONLY
S	3	f1	20ga	3 5/8"	16" OC	18'-0"	4 7/8"		FIRE PARTITION UL419, 5/8" GWB EACH SIDE TIGHT TO ROOF INSULATION
S	6	1	25ga	6"	16" OC	10'-0"	7 1/4"		5/8" GWB BOTH SIDES TO HEIGHT OF STUD
S	6	2	25ga	6"	16" OC	12'-0"	7 1/4"		5/8" GWB BOTH SIDES TO HEIGHT OF STUD
S	6	f1	20ga	6"	16" OC	10'-0"	7 1/4"		FIRE PARTITION UL419, 5/8" GWB EACH SIDE TIGHT TO ROOF INSULATION



1 FLOOR PLAN  
 1/8" = 1'-0"

Z:\Share\Design\2022\2022-05-10\NW Fire Station 3 - 21-0337\Plan - Rev\Bobbitt A&E.rvt

05/05/2022 10:43:56 AM

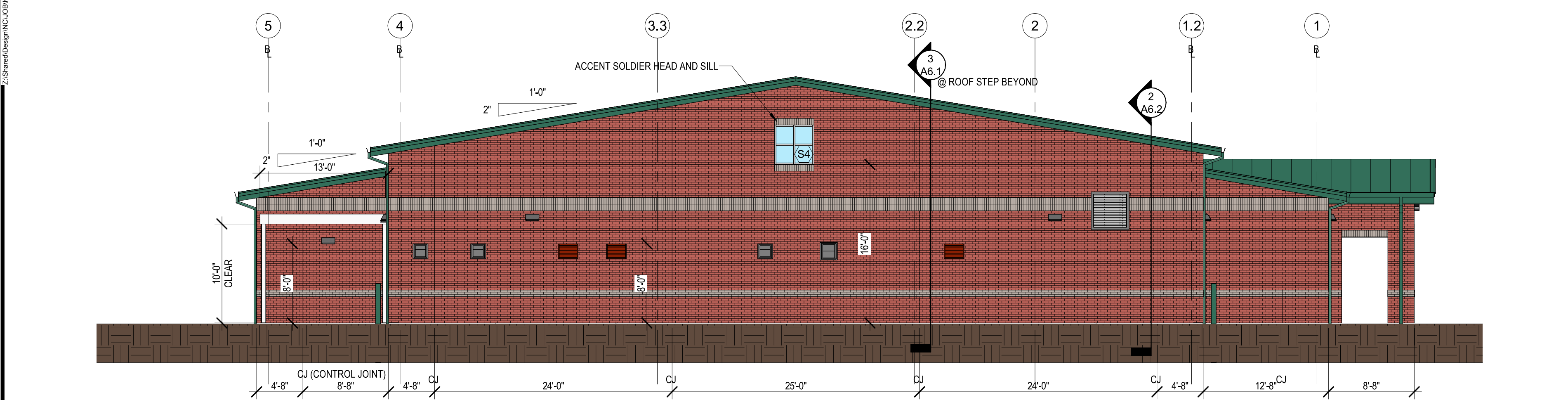




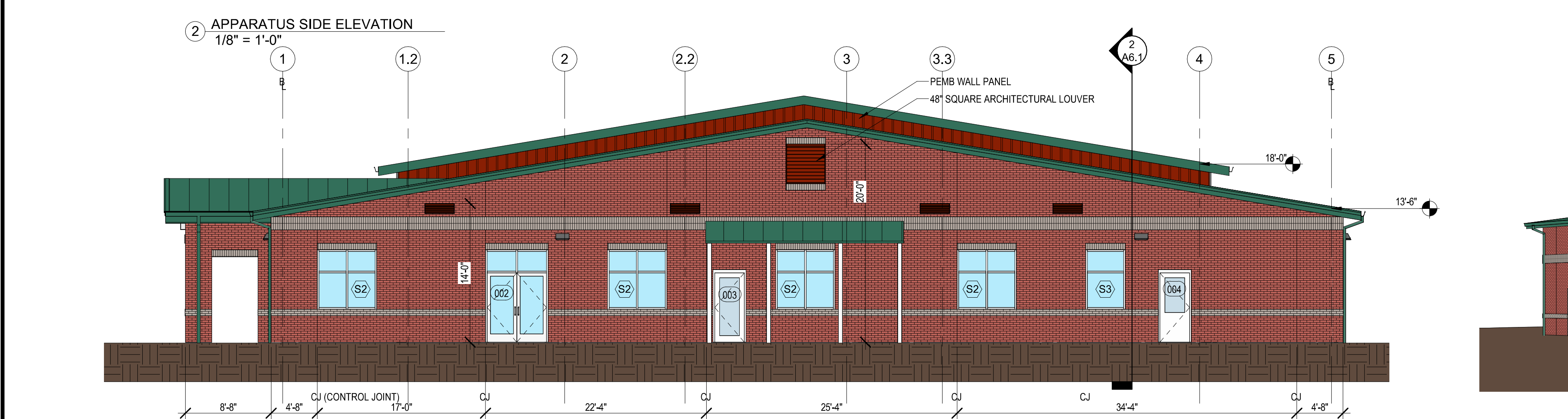




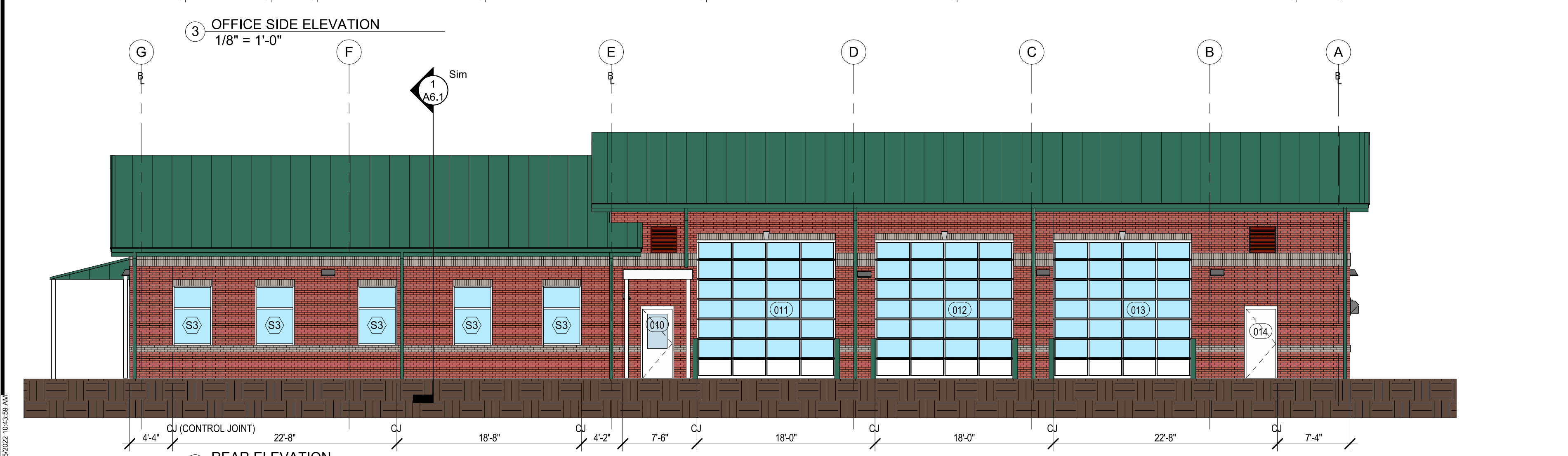
1 FRONT ELEVATION  
 1/8" = 1'-0"



2 APPARATUS SIDE ELEVATION  
 1/8" = 1'-0"



3 OFFICE SIDE ELEVATION  
 1/8" = 1'-0"



4 REAR ELEVATION  
 1/8" = 1'-0"

**BOBBITT**

Date(s) of selection: 01/14/2022  
 Job name: NW Harnett VFD Station 3  
 Job number: 21-0337  
 Project manager: Charles Hall  
 Exterior designer: Brian Griffith, AIA

**EXTERIOR FINISH SELECTIONS**  
 (Manufacturer, size/finish, model #, name)

Field Brick: Lee Brick, Modular "453 Franklin" (formerly 450 Williamsburg)  
 Mortar: Manufacturer standard gray

Accent Brick: Palmento Brick, Modular "75 Greystone"  
 Mortar: Manufacturer standard gray

Keystone: Tanterstone or equal (provide 3 samples similar to Accent Brick)

Control joint: Provide (3) field samples a shade darker than "Mortar" color

Masonry lintels: Field pain similar to material above in semi-gloss

Exterior storefront: 4" Thermally Broken, "Clear Anodized" for 1" IGU (See T1.1 for minimum performance)

Window tint: 1" IGU w/ Clear Low-E glass (see T1.1 for minimum performance)

Window sill: "Clear Anodized"

Louver/fan: Kynar mfg standard color similar to "Field Brick"

HM door and frame: Sherwin Williams, Semi-gloss "SW 7005 Pure White"

Overhead door: Basis of Design: Amarr 3552 w/ 50,000 cycle springs, Clear Anodized (AN), DSB or Tempered Clear tint 1/8" Low-E glass (w/ solid bottom panels @ 0"-24" AFF), 3" Standard lift track / electric trolley motor operated (provide 2 remotes per door), standard slide lock, Weatherstripping all sides

Exterior door hardware: BHMA Grade 1 w/ in US 26D, Satin Chrome

Steel bollards: Field Match "Chief Buildings, Emerald Green"

Awning: Manufacturer "Standard White", Emerald Green roof @ Kitchen only, Provide Engineered shop drawings

PEMB wall panel: @ Roof Step only: Chief Buildings, AP Panel in "Cherokee"

PEMB Gable trim: Chief Buildings, "Emerald Green"

PEMB Fascia: Chief Buildings, "Emerald Green"

PEMB Soffit: Chief Buildings, "Emerald Green"

PEMB Gutters: Chief Buildings, Standard Profile "Emerald Green"

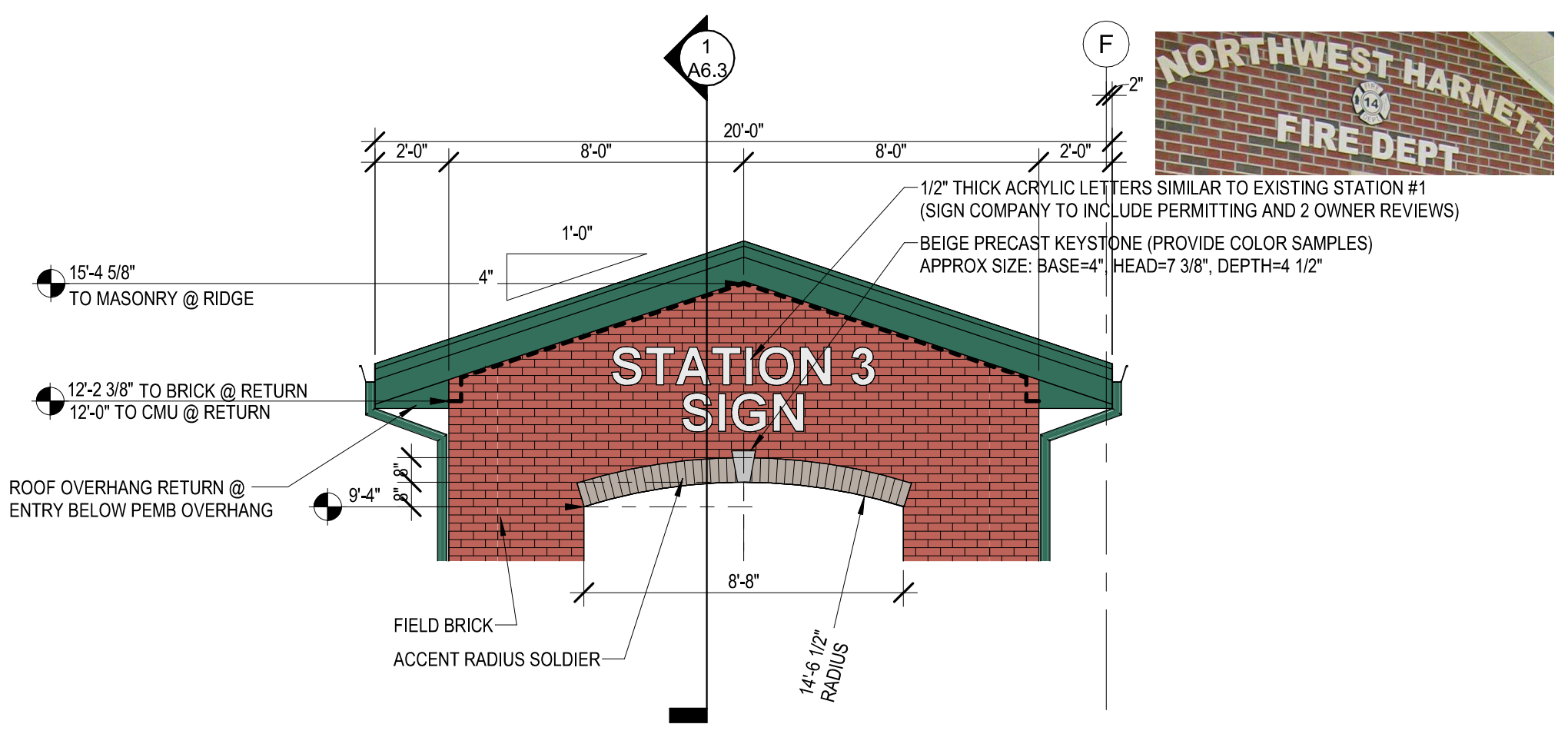
PEMB Downspouts: Chief Buildings, Corrugated "Emerald Green"

PEMB Roof panel: Chief Buildings, MSC "Emerald Green"

**Chief Prince via**  
 Phone 02/25/2022  
 Owner or Representative signature and date



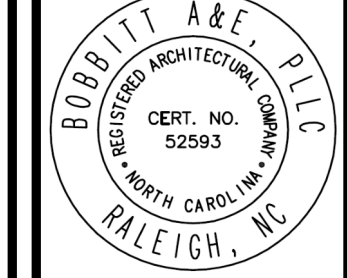
5 FRONT SKETCH



6 ENTRY ARCH  
 1/4" = 1'-0"

Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT A&E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607  
 Phone (919) 851-1862  
 design@bobbitt.com



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 BDG

CHK BY: JGF  
 01/26/2022

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**  
 COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

24 X 36  
 As indicated

05/05/2022

21-0337

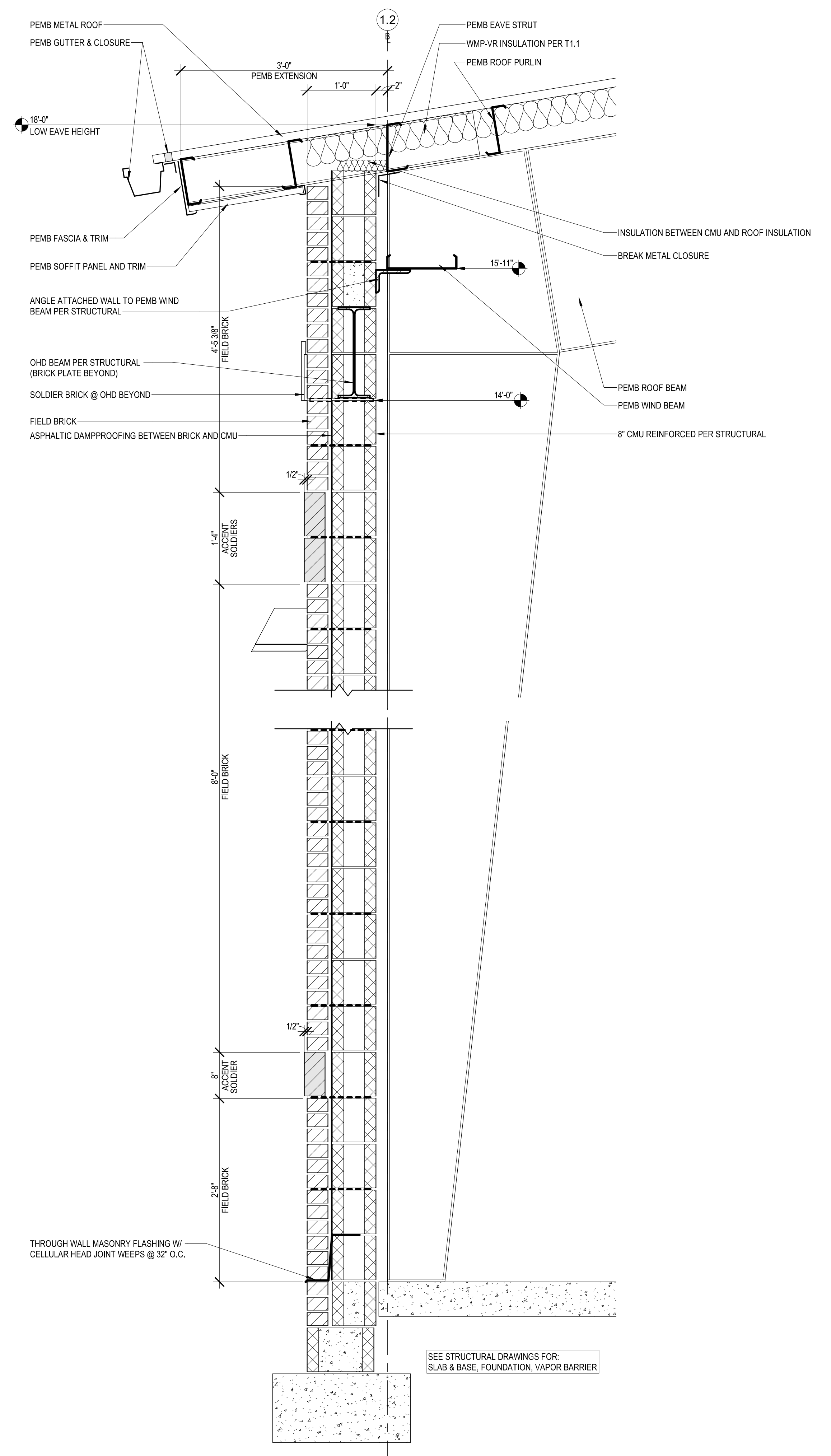
ELEVATIONS

**A4.1**  
 OF 13

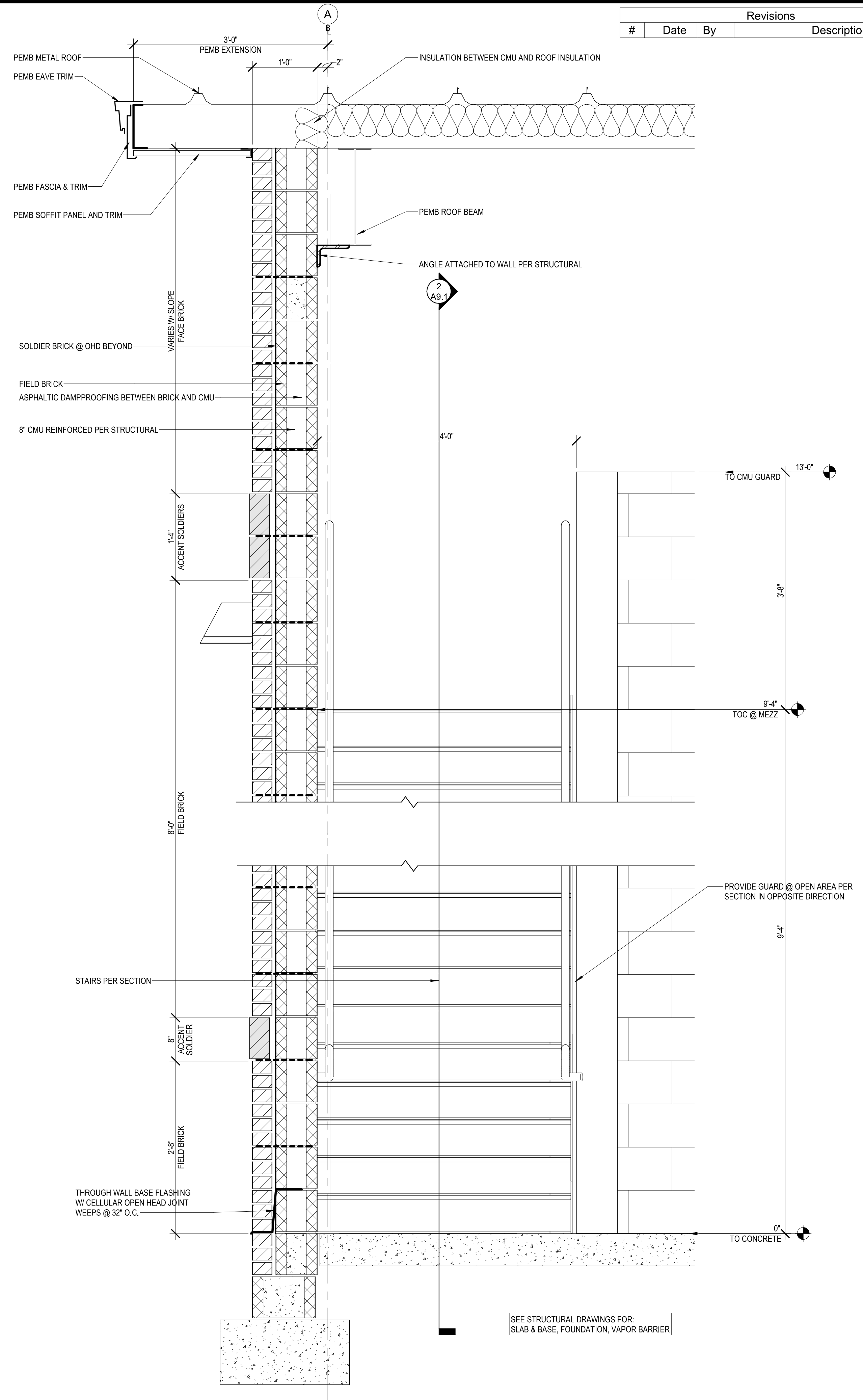








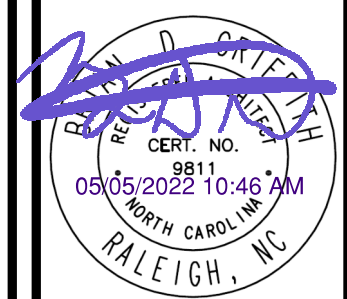
1 APPARATUS LOW EAVE  
1" = 1'-0"



2 APPARATUS GABLE  
1" = 1'-0"

Revisions			
#	Date	By	Description

APPROVAL: DATE:



BOBBITT A&E, PLLC  
600 Germantown Road  
Raleigh, North Carolina 27607



COORDINATOR: B. GRIFFITH

DRAWN BY: BDG

CHK BY: JGF  
01/26/2022

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**

**NW HARNETT FIRE STATION 3**  
US HWY 401 N  
HARNETT COUNTY, NORTH CAROLINA

24 X 36  
1" = 1'-0"

05/05/2022

21-0337

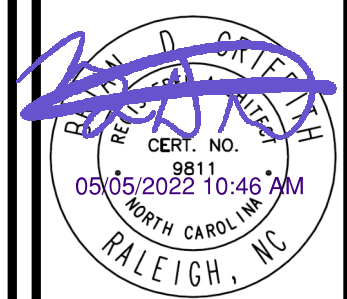
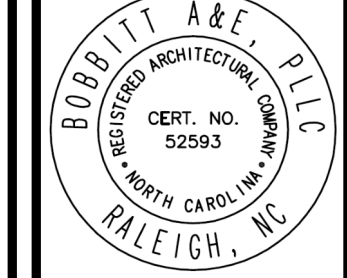
APPARATUS SECTIONS

**A6.2**  
OF 13



Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT A&E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607  
 Phone: (919) 851-1862  
 design@bobbitt.com



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 BDG

CHK BY: JGF  
 01/26/2022

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**CONSTRUCTION DOCUMENT  
 APPROVED FOR PERMITTING**

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

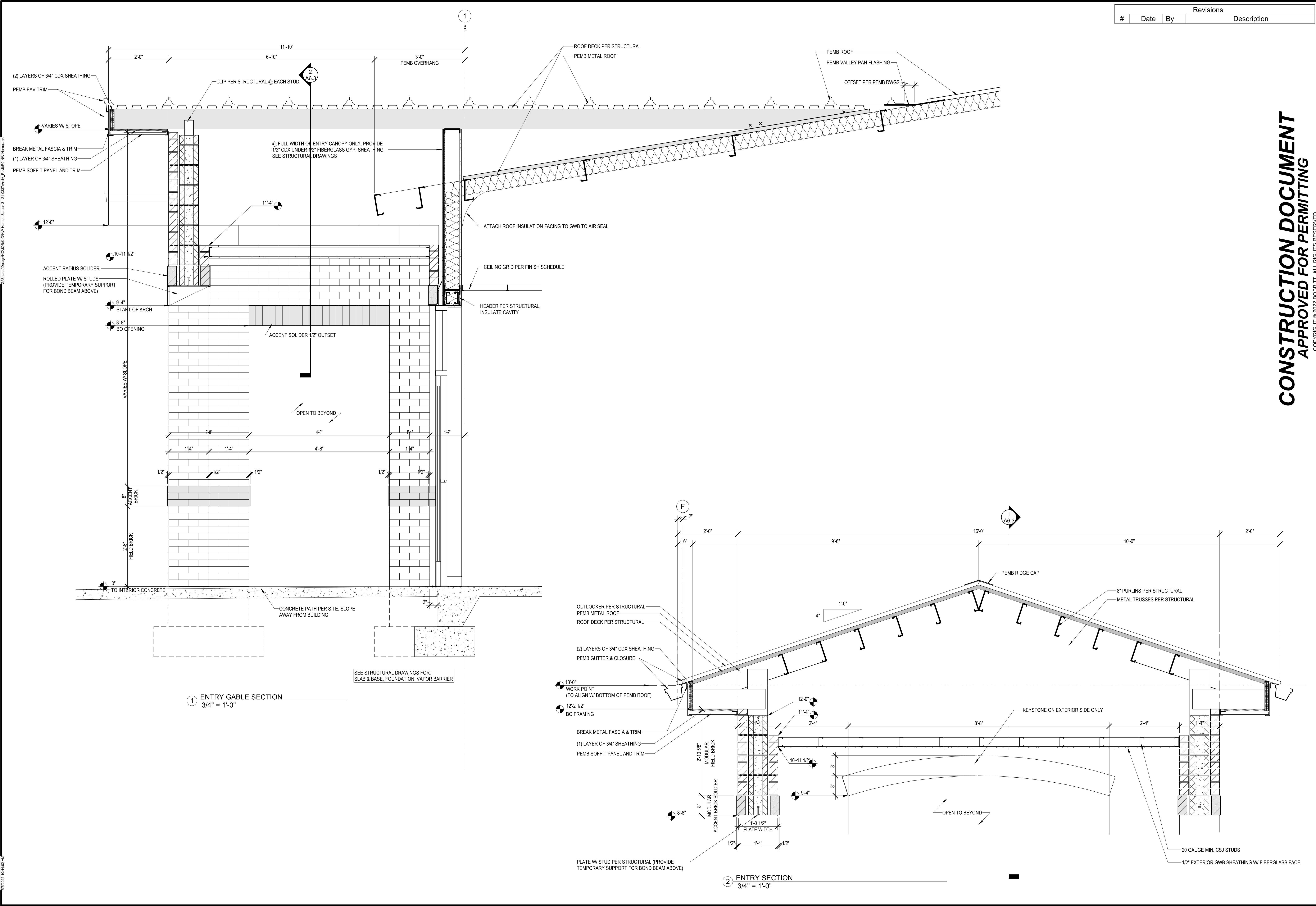
24 X 36  
 3/4" = 1'-0"

05/05/2022

21-0337

ENTRY SECTIONS

**A6.3**  
 OF 13

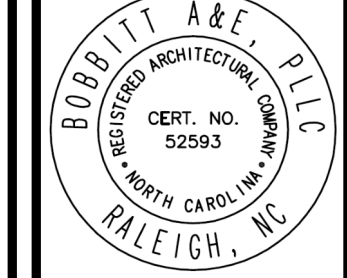


05/05/2022 15:44:52 AM  
 Z:\shared\design\2022\2022-05\NW Harnett Station 3-21-0337\Arch\Rev\Bobbitt\NW Harnett.dwg



Revisions			
#	Date	By	Description

APPROVAL:  
DATE:



BOBBITT A & E, PLLC  
600 Germantown Road  
Raleigh, North Carolina 27607  
Phone: (919) 851-1852  
design@bobbitt.com



COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
BDG

CHK BY: JGF  
01/26/2022

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**NW HARNETT FIRE STATION 3**  
US HWY 401 N  
HARNETT COUNTY, NORTH CAROLINA

24 X 36  
As indicated

05/05/2022

21-0337

DOORS AND WINDOWS

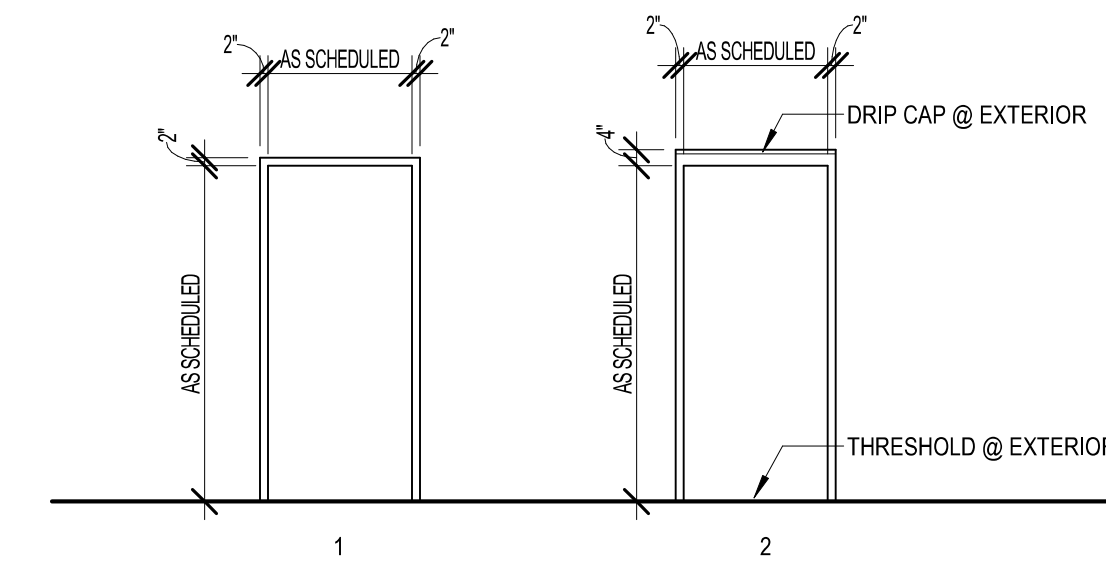
**A7.1**  
OF 13

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**

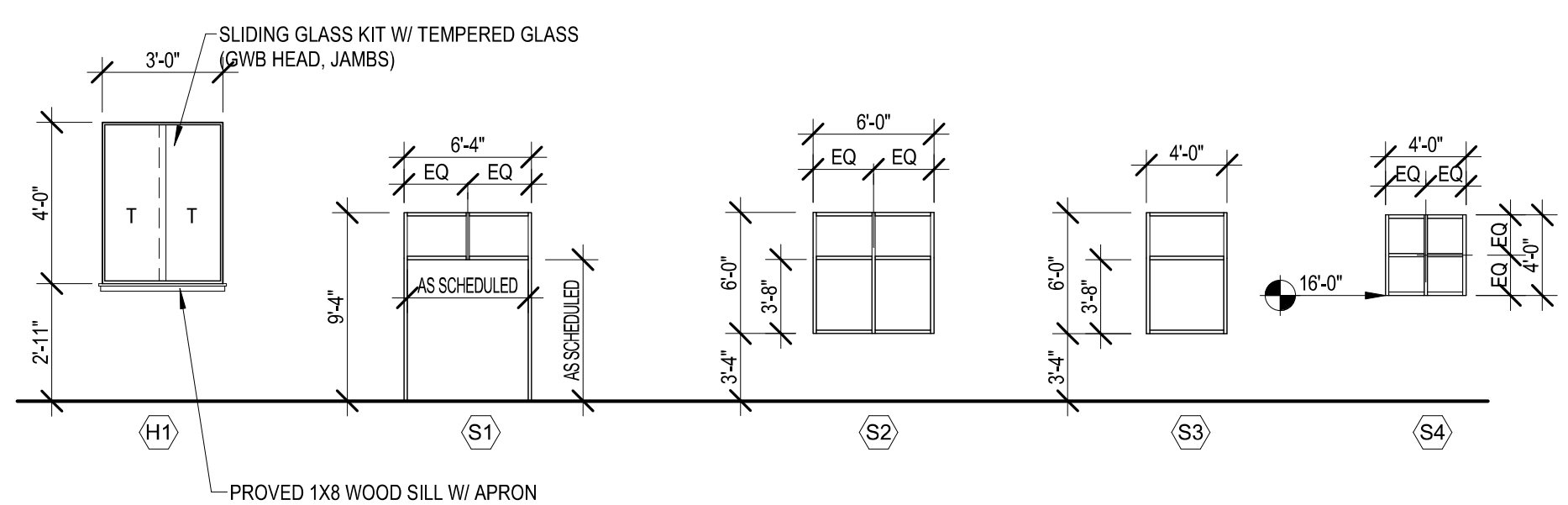
DOOR HANDLES SHALL BE "ARCHER" CURVED STYLE

DOOR AND HARDWARE SUPPLIER SHALL INCLUDE AND PROVIDE A SUBMITTAL FOR COMPLETE INSTALLATION INCLUDING INDUSTRY TYPICAL ADA HARDWARE AND ACCESSORIES.

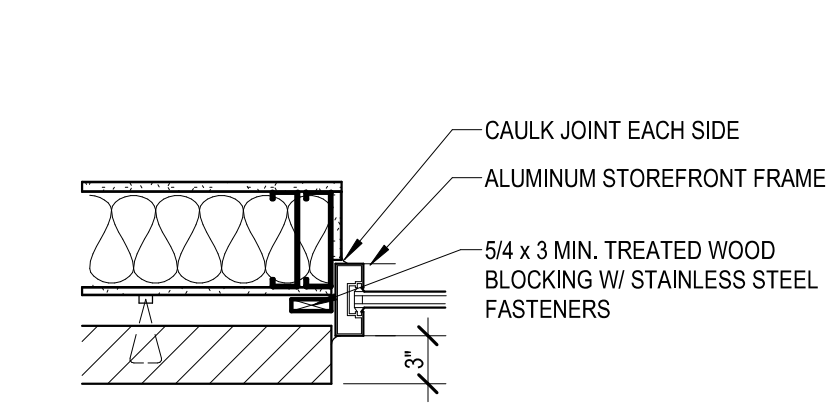
#	TYPE	WIDTH	HEIGHT	MATERIAL	FINISH	FIRE RATING	FRAME			HARDWARE/ COMMENTS	#
							TYPE	MATERIAL	FINISH		
001	(2) FL	6'-0"	7'-0"	STOREFRONT	ANODIZED ALUM		S1	SFRONT	ANODIZED ALUM	*Std Manuf. Hardware w/ paddle deadbolt release	001
002	(2) FL	6'-0"	7'-0"	STOREFRONT	ANODIZED ALUM		S1	SFRONT	ANODIZED ALUM	*Std Manuf. Hardware w/ paddle deadbolt release	002
003	FL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT		2	HM	EXT PAINT	*Simplex 5067, Closer	003
004	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT		2	HM	EXT PAINT	*Mortise Lock, Closer	004
010	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT		2	HM	EXT PAINT	*Simplex 5067, Closer	010
011	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF		MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator (See Ext Finish Form)	011
012	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF		MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator (See Ext Finish Form)	012
013	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF		MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator (See Ext Finish Form)	013
014	F	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT		2	HM	EXT PAINT	*Simplex 5067, Closer	014
015	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT		2	HM	EXT PAINT	*Simplex 5067, Closer	015
016	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF		MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	016
017	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF		MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	017
018	OH	14'-0"	14'-0"	ALUM OHD W/ LOW-E GLASS	MANUF		MANUF	METAL	MANUF	Std Lift, Weatherseal, Elec Operator	018
019	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	EXT PAINT		2	HM	EXT PAINT	*Simplex 5067, Closer	019
101	FL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-1	Office lock	101
102	HL	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Passage, Closer, Weatherstrip	102
103	FL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-1	Office lock	103
104	FL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-1	Passage, Closer, kick-down hold-open	104
105	FL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	0	1	HM	P-1	Office lock	105
106a	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Passage, Closer, kick-down hold-open	106a
106b	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Storeroom Lock	106b
108	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Privacy, Closer	108
109	L	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Storeroom Lock	109
110	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Privacy, Closer	110
111	VL	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Passage, Closer	111
112	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Passage, Closer, kick-down hold-open	112
115	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Storeroom Lock	115
116	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Passage, Closer	116
117	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Privacy, Closer	117
118	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-1	Passage, Closer	118
119	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Passage, Closer	119
120	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Passage, Closer	120
121	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Privacy, Closer	121
122	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Privacy, Closer	122
123	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1		1	HM	P-1	Privacy, Closer	123
125	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-1	Passage, Closer	125
126	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-1	Passage, Closer	126
127	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-1	Passage, Closer	127
128	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-1	Passage, Closer	128
129	F	3'-0"	7'-0"	SC WHITE BIRCH	ST-1	1/3 hr.	1	HM	P-1	Passage, Closer	129
150a	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Passage, Closer, Weatherstrip	150a
150b	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Passage, Closer, Weatherstrip	150b
150c	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Privacy, Closer	150c
150d	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Passage, Closer, Flushbolts, Weatherstrip, Sweep	150d
150e	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Passage, Closer, Flushbolts, Weatherstrip, Sweep	150e
150f	(2) F	6'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Passage, Closer, Flushbolts, Weatherstrip, Sweep	150f
150g	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Storeroom Lock	150g
150h	F	3'-0"	7'-0"	INSUL HOLLOW METAL	P-1		2	HM	P-1	Storeroom Lock, Closer, Weatherstrip	150h



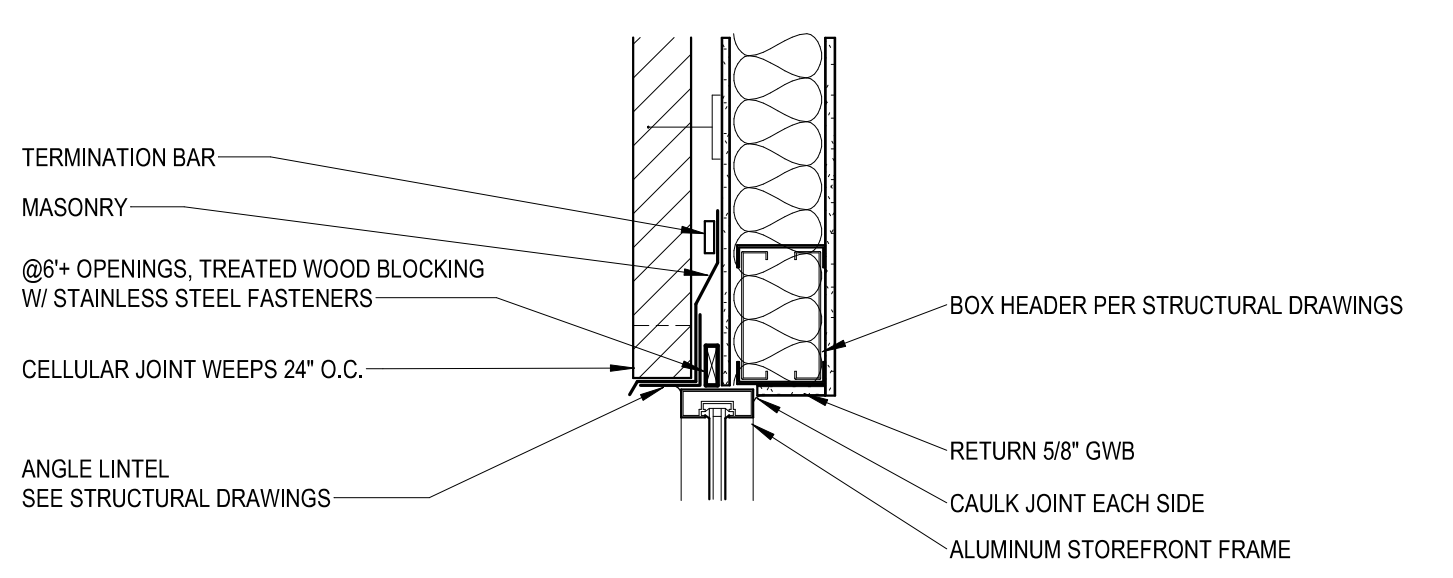
FRAME LEGEND  
1/4" = 1'-0"



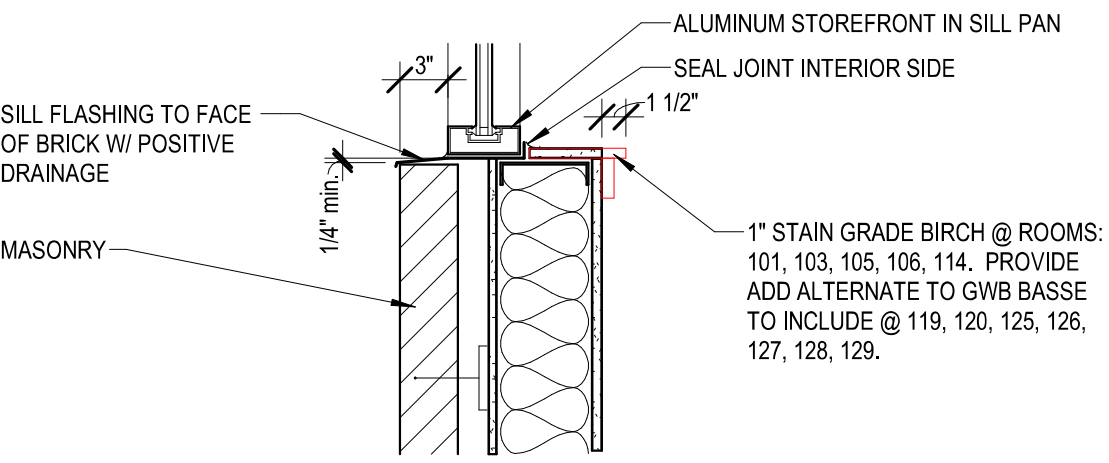
WINDOW LEGEND  
1/4" = 1'-0"



JAMB - METAL STUD FRAMING

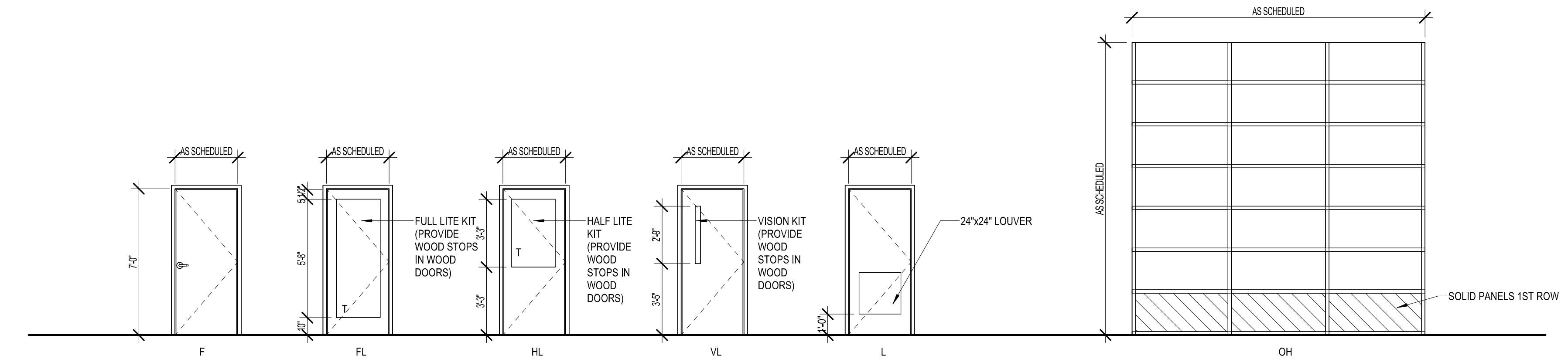


HEAD - METAL STUD FRAMING



SILL

EXTERIOR STOREFRONT OPENING DETAILS  
1" = 1'-0"



DOOR LEGEND  
1/4" = 1'-0"

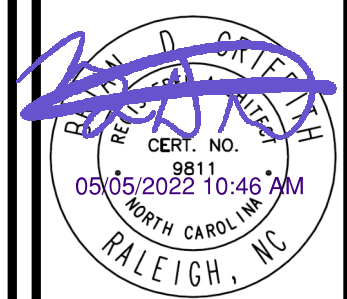
C:\Users\bdgriffith\OneDrive\Documents\2022\NW Harnett Station 3\21-0337\Arch\15\Rev\Bobbitt\Bobbitt.rvt

05/05/2022 10:43:00 AM



Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT A & E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607  
 Phone: (919) 851-1862  
 design@bobbitt.com

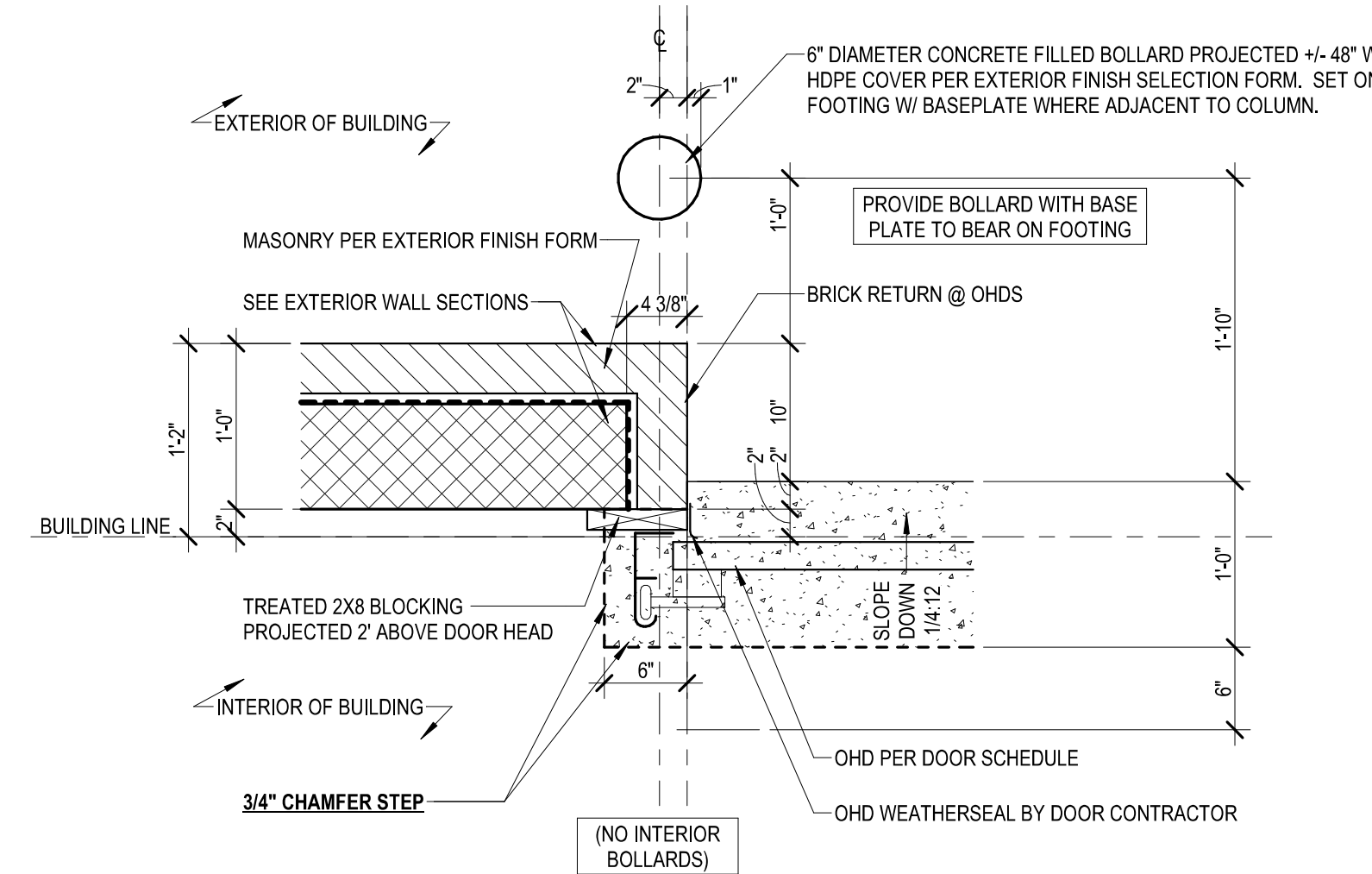


COORDINATOR:  
 B. GRIFFITH

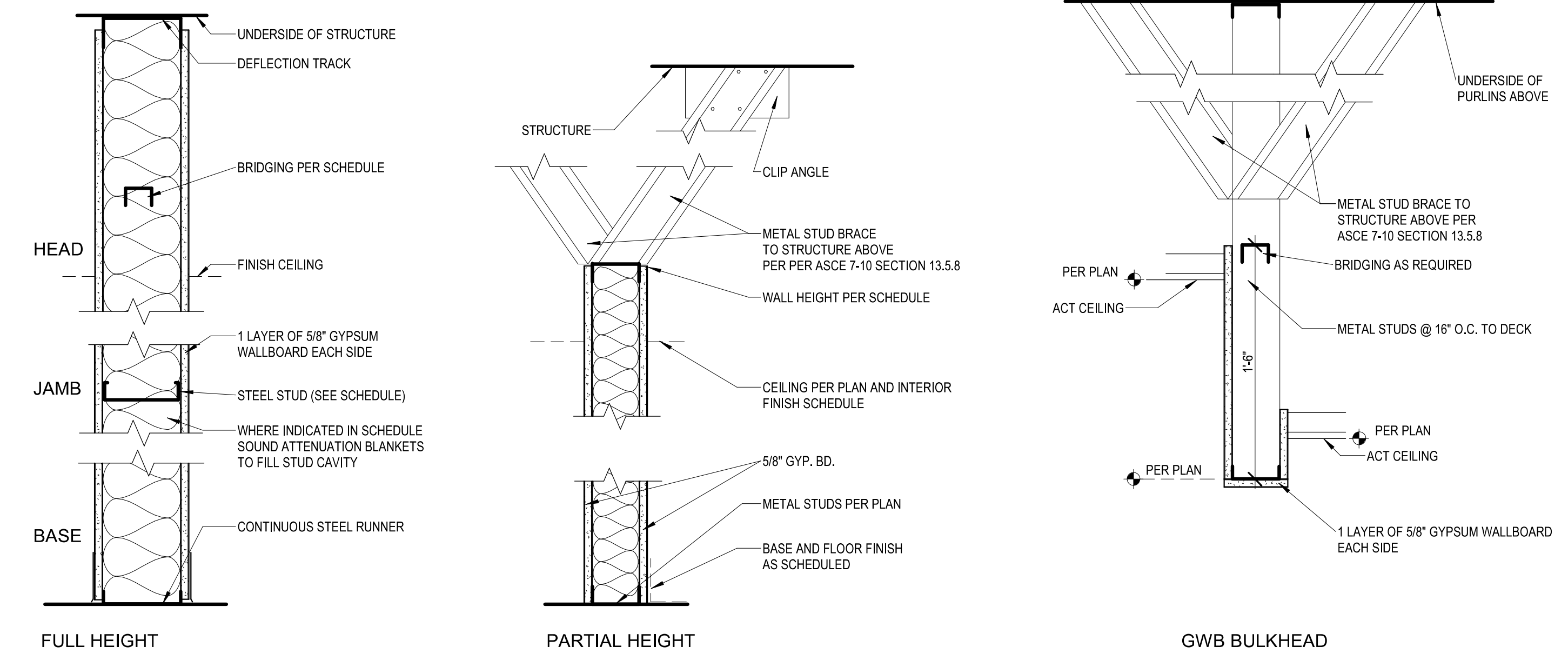
DRAWN BY:  
 BDG

CHK BY: JGF  
 01/26/2022

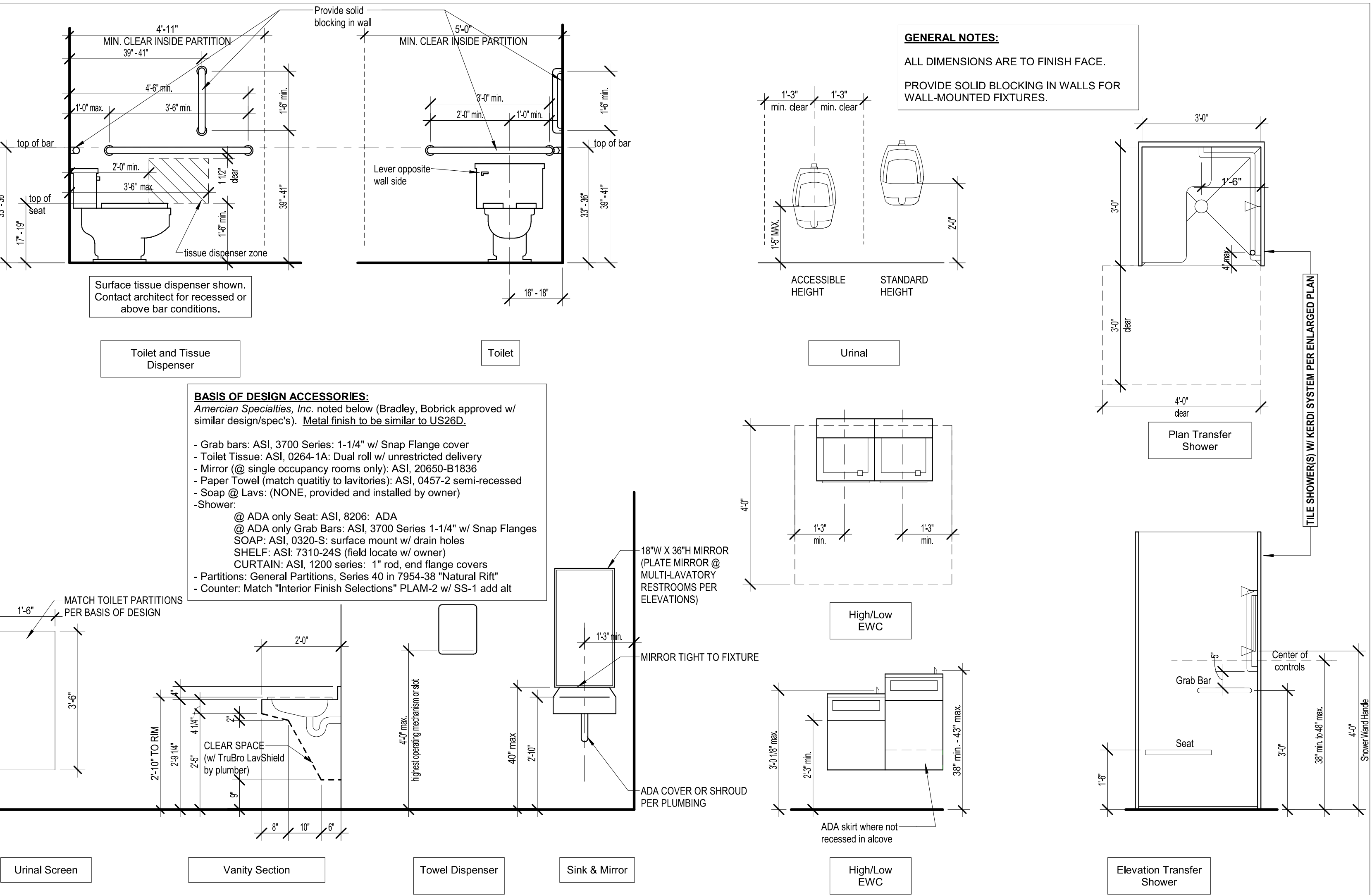
**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**  
 COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.



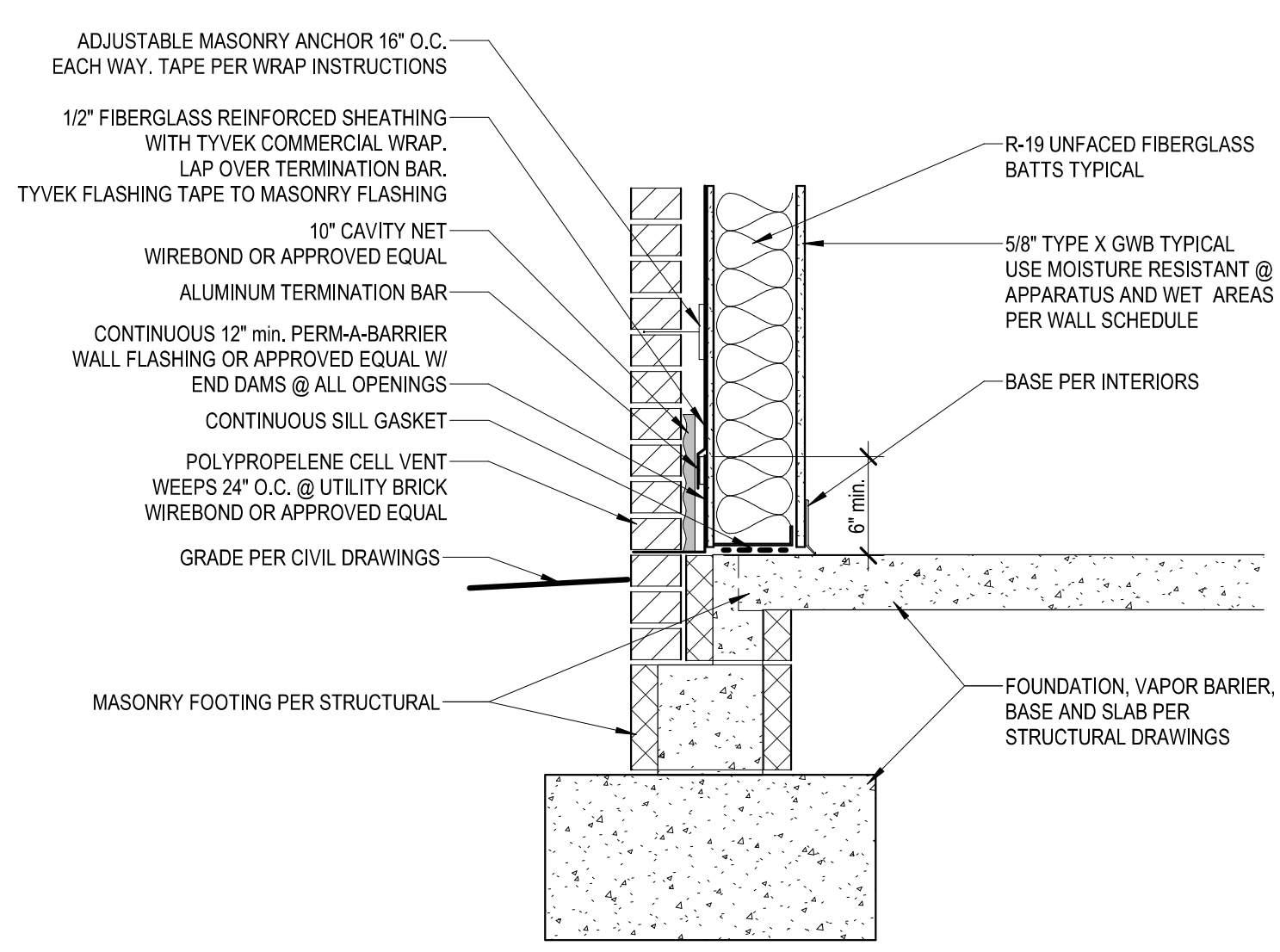
1 BOLLARDS @ MASONRY WALL  
 1/2" = 1'-0"



2 INTERIOR PARTITION SECTIONS  
 1 1/2" = 1'-0"



A ACCESSORY MOUNTING LOCATIONS  
 1/2" = 1'-0"



3 BRICK ON STUDS WALL BASE  
 1" = 1'-0"

**GENERAL NOTES:**  
 ALL DIMENSIONS ARE TO FINISH FACE.  
 PROVIDE SOLID BLOCKING IN WALLS FOR WALL-MOUNTED FIXTURES.

**NW HARNETT FIRE STATION 3**  
**US HWY 401 N**  
**HARNETT COUNTY, NORTH CAROLINA**

24 X 36  
 As indicated

05/05/2022

21-0337

DETAILS

**A7.2**  
 OF 13



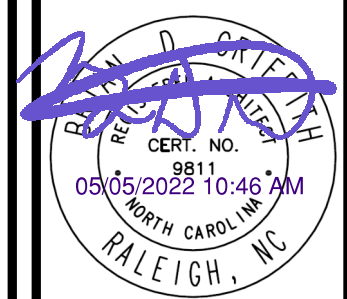
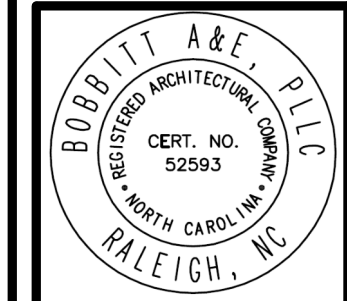




© 2022 Bobbitt & E, LLC. All rights reserved. Station 1-21-0333-Part 1 - Rev 01/21/2022

Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT & E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607  
 Phone: (919) 851-1852  
 design@bobbitt.com



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 RSR

CHK BY: JGF  
 01/26/2022

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

24 X 36  
 12" = 1'-0"

05/05/2022

21-0337

FINISH SCHEDULE

**A8.2**  
 OF 13

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**  
 COPYRIGHT © 2022 BOBBITT & E, ALL RIGHTS RESERVED.

## DETAILED INTERIOR FINISH LEGEND

**NIC = NOT IN CONTRACT**  
 1. **ADD ALTERNATE:** ST-1 WOOD WINDOW SILLS WHERE APPLICABLE  
 2. WALL FINISH - LEVEL 4 (TYP.)  
 3. \*INDICATES PRICE AS ALTERNATE  
 4. TYP. HARDWARE FOR CABINETRY & DOORS  
 5. UNDERMOUNT SINKS @ SS-1 COUNTERTOP

**ACOUSTICAL CEILING TILE (ACT):**

ACT-1: MANUFACTURER: ARMSTRONG  
 COLLECTION: FINE FISSURED  
 COLOR: WHITE  
 ITEM #: 1732 OR 1833  
 SIZE: 24"x24"  
 INSTALLATION: 15/16" ANGLED TEGULAR LAY-IN  
 GRID: WHITE  
 LOCATION: THROUGHOUT PER CEILING PLAN  
 REP: CAREY B. MCMAHAN - CBMCMAHAN@ARMSTRONGCEILING.COM - 919.201.1196

ACT-2: MANUFACTURER: ARMSTRONG  
 COLLECTION: KITCHEN ZONE  
 COLOR: WHITE  
 ITEM #: 673  
 SIZE: 24"x24"  
 INSTALLATION: 15/16" SQUARE LAY-IN  
 GRID: WHITE **ALUMINUM GRID**  
 LOCATION: SHOWERS  
 REP: CAREY B. MCMAHAN - CBMCMAHAN@ARMSTRONGCEILING.COM - 919.201.1196

**CONCRETE (CONC):**

CONC-1: MANUFACTURER: PROSOCO  
 COLLECTION: CONSOLIDECK CONCRETE PROTECTOR WB  
 COLOR: CLEAR SEALANT  
 FINISH: MATTE  
 LOCATION: THROUGHOUT PER FINISH SCHEDULE

**EPOXY (EPOXY): (ADD ALTERNATE)**

EPOXY-1: MANUFACTURER: SHERWIN WILLIAMS  
 COLLECTION: FASTOP DECO QUARTZ SL45  
 COLOR: GREY LINEN  
 LOCATION: PER FINISH SCHEDULE

**FLOOR SEALANT (SEAL):**

SEAL-1: POLYURETHANE FLOOR SEALANT  
 COLOR: FIELD MATCH WITH CONCRETE FLOOR  
 LOCATION: JOINT BETWEEN MASONRY WALL AND CONCRETE FLOOR

**CARPET (CPT):**

CPT-1: MANUFACTURER: MOHAWK  
 COLLECTION: LEARN AND LIVE  
 STYLE: INTERPLAY STRIPE  
 COLOR: 989 HEARTFELT  
 SIZE: BROADLOOM  
 LOCATION: PER FINISH SCHEDULE  
 SEE **TRAN FOR FLOOR TRANSITIONS**  
 REP: LORI ZETO - LORI\_ZETO@MOHAWKIND.COM - 919.302.6652

**LUXURY VINYL TILE (LVT):**

LVT-1: MANUFACTURER: MOHAWK  
 COLLECTION: LIVING LOCAL  
 COLOR: W851 TOO TAN  
 WEAR LAYER: 0.5MM  
 SIZE: 9"x4"  
 INSTALLATION: GLUE DOWN  
 LOCATION: PER FINISH SCHEDULE  
 SEE **TRAN FOR FLOOR TRANSITIONS**  
 REP: LORI ZETO - LORI\_ZETO@MOHAWKIND.COM - 919.302.6652

**CERAMIC TILE (CT):**

CT-1: MANUFACTURER: DALTILE  
 COLLECTION: COLOR WHEEL COLLECTION - CLASSIC  
 COLOR: 0780 MATTE CHALKBOARD  
 SIZE: 3"x6"  
 FINISH: MATTE  
 GROUT: LATICRETE - 45 RAVEN  
 LOCATION: BACKSPLASH @ KITCHEN  
 REP: MICHELE MILLER - MICHELE.MILLER@DAL TILE.COM - 919.255.3510

**PORCELAIN TILE (PT):**

PT-1: MANUFACTURER: DALTILE  
 COLLECTION: PORTFOLIO  
 COLOR: PF05 ASH GREY  
 SIZE: 2"x2"  
 FINISH: MATTE  
 GROUT: EPOXY LATICRETE - 78 STERLING SILVER  
 LOCATION: FLOOR TILE PER FINISH SCHEDULE  
 SEE **TRAN FOR FLOOR TRANSITIONS**  
 REP: MICHELE MILLER - MICHELE.MILLER@DAL TILE.COM - 919.255.3510

PT-2: MANUFACTURER: DALTILE  
 COLLECTION: PORTFOLIO  
 COLOR: PF01 ICE  
 SIZE: 6"x24"  
 FINISH: MATTE  
 GROUT: EPOXY LATICRETE - 88 SILVER SHADOW  
 INSTALLATION: VERTICAL STACK  
 LOCATION: 54" AFF PER FINISH SCHEDULE  
 REP: MICHELE MILLER - MICHELE.MILLER@DAL TILE.COM - 919.255.3510

PT-3 (BULLNOSE) MANUFACTURER: DALTILE  
 COLLECTION: PORTFOLIO  
 COLOR: PF01 ICE  
 SIZE: 3"x12"  
 FINISH: MATTE  
 GROUT: EPOXY LATICRETE - 88 SILVER SHADOW  
 LOCATION: 54" AFF PER FINISH SCHEDULE  
 REP: MICHELE MILLER - MICHELE.MILLER@DAL TILE.COM - 919.255.3510

**SCHLUTER TILE BASE (STB):**

STB-1 (COVE) MANUFACTURER: SCHLUTER SYSTEMS  
 COLLECTION: DILEX-EHK  
 COLOR: STAINLESS STEEL  
 LOCATION: COVE BASE  
 REP: PAULINE HABER - PHABER@GSTILE.COM - 843.323.5768

**SPORT FLOORING (SPORT):**

SPORT-1: MANUFACTURER: ECORE COMMERCIAL/ECOSURFACES  
 COLLECTION: ECONIGHTS  
 COLOR: 652 MR. SLATE 10  
 SIZE: 48" ROLL, 8mm THICKNESS  
 LOCATION: FITNESS  
 REP: SHAWN CAMPBELL - SCAMPBELL@SPARTANSURFACES.COM - 919.345.7230

**LAMINATE (LAM):**

LAM-1: MANUFACTURER: WILSONART  
 COLOR: 8211K-28 PHANTOM PEARL  
 FINISH: 28 GLOSS LINE  
 LOCATION: CASEWORK PER FINISH SCHEDULE  
 REP: APRIL BRICKLE - BRICKLA@WILSONART.COM - 540.537.3431

**SOLID SURFACE (SS):**

SS-1: MANUFACTURER: WILSONART  
 COLOR: 9091ML MIDNIGHT MELANGE  
 SIZE: 60"x144"  
 EDGE: EASED  
 LOCATION: COUNTERTOPS PER FINISH SCHEDULE  
 REP: APRIL BRICKLE - BRICKLA@WILSONART.COM - 540.537.3431

**RUBBER BASE (RB):**

RB-1: MANUFACTURER: ROPPE  
 COLLECTION: PINNACLE WITH STANDARD TOE  
 COLOR: 100 BLACK  
 SIZE: 4"  
 LOCATION: THROUGHOUT PER PLANS  
 REP: BLAIR BRYSON - BBRYSON@WMBIRD.COM - 980-288-9138

**WOOD STAIN (ST): Provided samples for prefinished door approval**

ST-1: MANUFACTURER: MINWAX  
 COLOR: MW211 PROVINCIAL  
 LOCATION: DOORS PER FINISH SCHEDULE

**TILE TRIM (TRIM):**

TRIM-1: MANUFACTURER: SCHLUTER SYSTEMS  
 COLLECTION: JOLLY  
 COLOR: PEWTER  
 LOCATION: BACKSPLASH TRIM @ KITCHEN  
 REP: PAULINE HABER - PHABER@GSTILE.COM - 843.323.5768

TRIM-2: MANUFACTURER: SCHLUTER SYSTEMS  
 COLLECTION: RONDEC  
 COLOR: MATTE WHITE  
 LOCATION: OUT TILE CORNERS PER FINISH SCHEDULE  
 REP: PAULINE HABER - PHABER@GSTILE.COM - 843.323.5768

**FLOOR TRANSITION (TRAN):**

TRAN-1: MANUFACTURER: MOHAWK  
 COLLECTION: UNIVERSAL TRANSITIONS  
 STYLE: CRA02  
 COLOR: 002 NIGHT SKIES  
 LOCATION: TRANSITION BETWEEN OPT AND LVT  
 TRANSITION BETWEEN LVT AND SPORTS FLOOR  
 REP: LORI ZETO - LORI\_ZETO@MOHAWKIND.COM - 919.302.6652

TRAN-2: MANUFACTURER: MOHAWK  
 COLLECTION: REDUCERS  
 STYLE: CRA07  
 COLOR: 002 NIGHT SKIES  
 LOCATION: TRANSITION BETWEEN LVT AND CONCRETE  
 REP: LORI ZETO - LORI\_ZETO@MOHAWKIND.COM - 919.302.6652

TRAN-3: MANUFACTURER: SCHLUTER SYSTEMS  
 COLLECTION: BECAL  
 COLOR: SATIN ANODIZED  
 LOCATION: TRANSITION BETWEEN LVT AND TILE  
 REP: PAULINE HABER - PHABER@GSTILE.COM - 843.323.5768

OWNER SIGNATURE, DATE

**FINISHES NOT FINAL UNTIL SIGNED OFF BY OWNER**

SEE WIA7.1 SILL FOR WOOD SILL. PROVIDE ADD ALTERNATE FOR GWB SILLS TO BE WOOD.

ROOM FINISH SCHEDULE												
#	ROOM NAME	FLOOR FINISH	WALL BASE	WALLS	SILLS	CEILING	CASEWORK	DOOR FINISH	DOOR FRAMES	SWITCH/ OUTLET PLATES	SPECIAL	#
100	ENTRY	LVT-1	RB-1	P-1		ACT-1		ST-1	EXT	WHITE		100
101	OFFICE	CPT-1	RB-1	P-1, P-3	WOOD (ST-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	101
102	RADIO	LVT-1	RB-1	P-1		ACT-1	LAM-1, SS-1	P-1 SEMI-GLOSS	P-4	WHITE	TRAN-2	102
103	OFFICERS	CPT-1	RB-1	P-1, P-3	WOOD (ST-1)	ACT-1		ST-1	P-4	WHITE	TRAN-2	103
104	WORK	LVT-1	RB-1	P-1		ACT-1	LAM-1, SS-1		P-4	WHITE		104
105	CHIEF	CPT-1	RB-1	P-1, P-3	WOOD (ST-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	105
106	TRAINING	CPT-1	RB-1	P-1	WOOD (ST-1)	ACT-1		EXT, ST-1	EXT, P-4	WHITE	TRAN-1	106
107	CLO.	CPT-1	RB-1	P-1		ACT-1			P-4	WHITE		107
108	UNISEX	LVT-1	RB-1	P-2		ACT-1		ST-1	P-4	WHITE		108
109	DATA/COM	CONC-1	RB-1	P-1		ACT-1		ST-1	P-4	WHITE	TRAN-2	109
110	UNISEX	LVT-1	RB-1	P-2		ACT-1		ST-1	P-4	WHITE		110
111	HALL	LVT-1	RB-1	P-1		ACT-1		ST-1	P-4	WHITE		111
112	EMS	CPT-1	RB-1	P-1		ACT-1		ST-1	P-4	WHITE	TRAN-1	112
113	DAYROOM	LVT-1	RB-1	P-1		ACT-1		ST-1, P-1 SEMI-GLOSS	P-4	WHITE		113
114	KITCHEN	LVT-1	RB-1	P-1, CT-1, TRIM-1	WOOD (ST-1)	ACT-1	LAM-1, SS-1	EXT, ST-1	EXT, P-4	WHITE		114
115	STORAGE	CONC-1	RB-1	P-1		ACT-1		ST-1	P-4	WHITE	TRAN-2	115
115a	EMS											115a
116	PANTRY	LVT-1	RB-1	P-1		ACT-1		ST-1	P-4	WHITE		116
117	BATH	PT-1	STB-1	P-2, PT-2, PT-3, TRIM-2		ACT-2 IN ALUM GRID		ST-1	P-4	WHITE	TRAN-3	117
118	HALL	LVT-1	RB-1	P-1		ACT-1		ST-1	P-4	WHITE		118
119	FITNESS	SPORT-1	RB-1	P-1, P-3	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	119
120	LAUNDRY / JANITOR	CONC-1	RB-1	P-2	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	48"x48" WHITE FRP @ MOP SINK	120
121	BATH	PT-1	STB-1	P-2, PT-2, PT-3, TRIM-2		ACT-2 IN ALUM GRID		ST-1	P-4	WHITE	TRAN-3	121
122	BATH	PT-1	STB-1	P-2, PT-2, PT-3, TRIM-2		ACT-2 IN ALUM GRID		ST-1	P-4	WHITE	TRAN-3	122
123	BATH	PT-1	STB-1	P-2, PT-2, PT-3, TRIM-2		ACT-2 IN ALUM GRID		ST-1	P-4	WHITE	TRAN-3	123
124	CORRIDOR	LVT-1	RB-1	P-1		ACT-1		ST-1, P-1 SEMI-GLOSS	EXT, P-4	WHITE		124
125	BED	CPT-1	RB-1	P-1	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	125
126	BED	CPT-1	RB-1	P-1	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	126
127	BED	CPT-1	RB-1	P-1	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	127
128	BED	CPT-1	RB-1	P-1	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	128
129	BED	CPT-1	RB-1	P-1	GWB (P-1)	ACT-1		ST-1	P-4	WHITE	TRAN-1	129
150	APPARATUS	CONC-1	-	P-2		OPEN, P-5		MANUF.	MANUF.	GALVANIZED	SEAL-1	150
151	TOILET	CONC-1	RB-1	P-2		ACT-2 IN ALUM GRID		P-1 SEMI-GLOSS	P-4	GALVANIZED	SEAL-1	151
152	DECON	CONC-1	-	P-2		OPEN, P-5		P-1 SEMI-GLOSS	P-4	GALVANIZED	SEAL-1	152
153	TOOL ROOM	CONC-1	-	P-2		OPEN, P-5		P-1 SEMI-GLOSS	P-4	GALVANIZED	SEAL-1	153
154	RISER / CASCADE	CONC-1	-	P-2		OPEN, P-5		P-1 SEMI-GLOSS	P-4	GALVANIZED	SEAL-1	154
155	ELEC	CONC-1	-	P-2		OPEN, P-5		P-1 SEMI-GLOSS	P-4	GALVANIZED	SEAL-1	155
200	MEZZANINE	CONC-1	-	P-2		OPEN, P-5		P-1 SEMI-GLOSS	P-4	GALVANIZED	SEAL-1	200





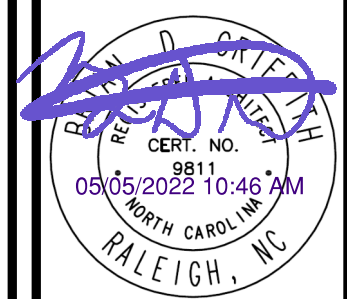
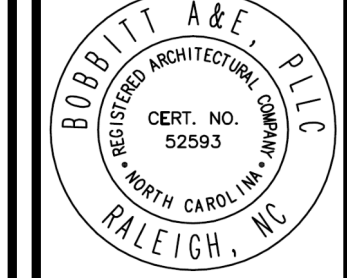


Z:\shared\design\2022\2022-05-16\122 Fire Station 3\21-0337.dwg

05/26/2022 1:44:59 AM

Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT A&E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 RSR

CHK BY: JGF  
 01/26/2022

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

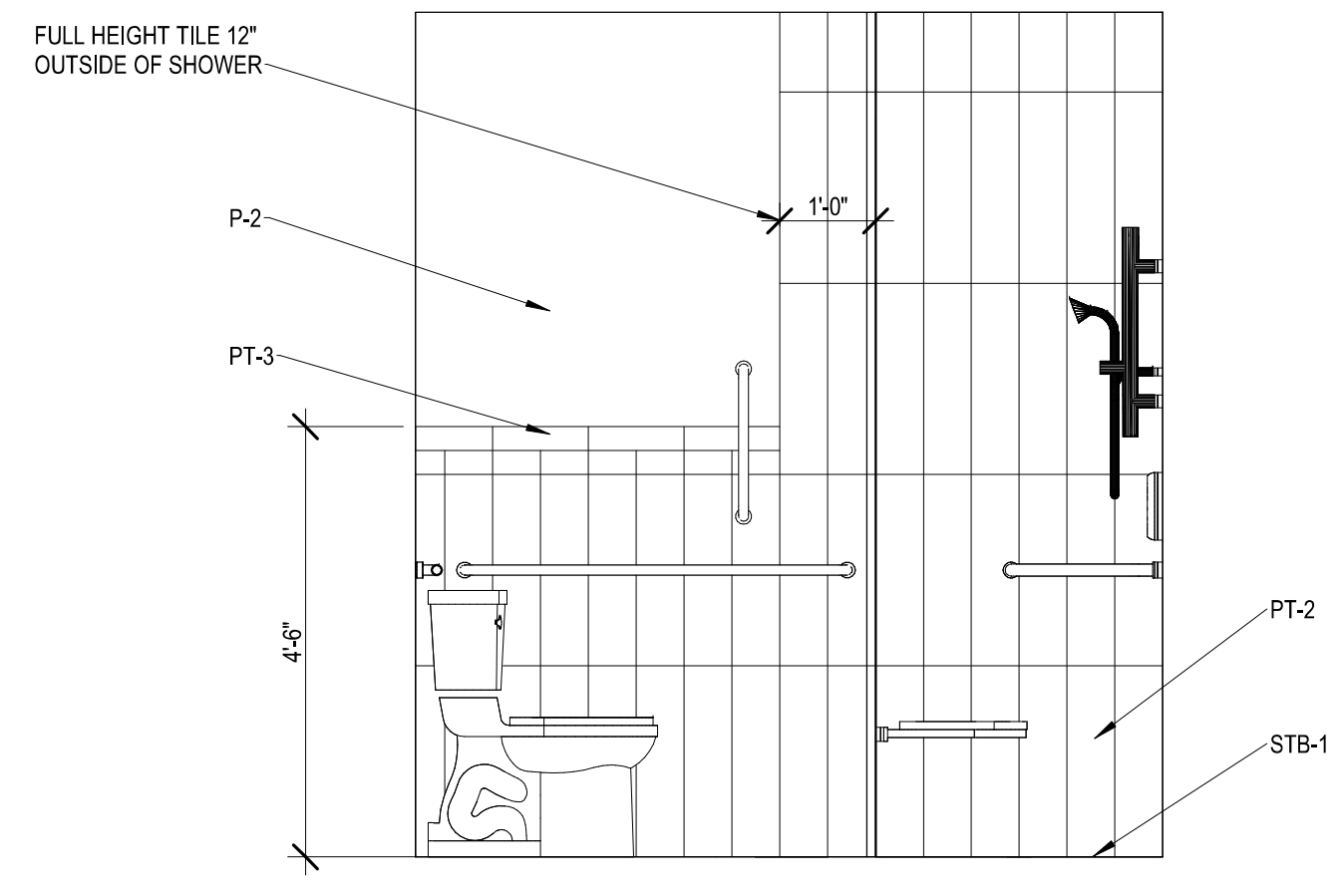
24 X 36  
 1/2" = 1'-0"

05/05/2022

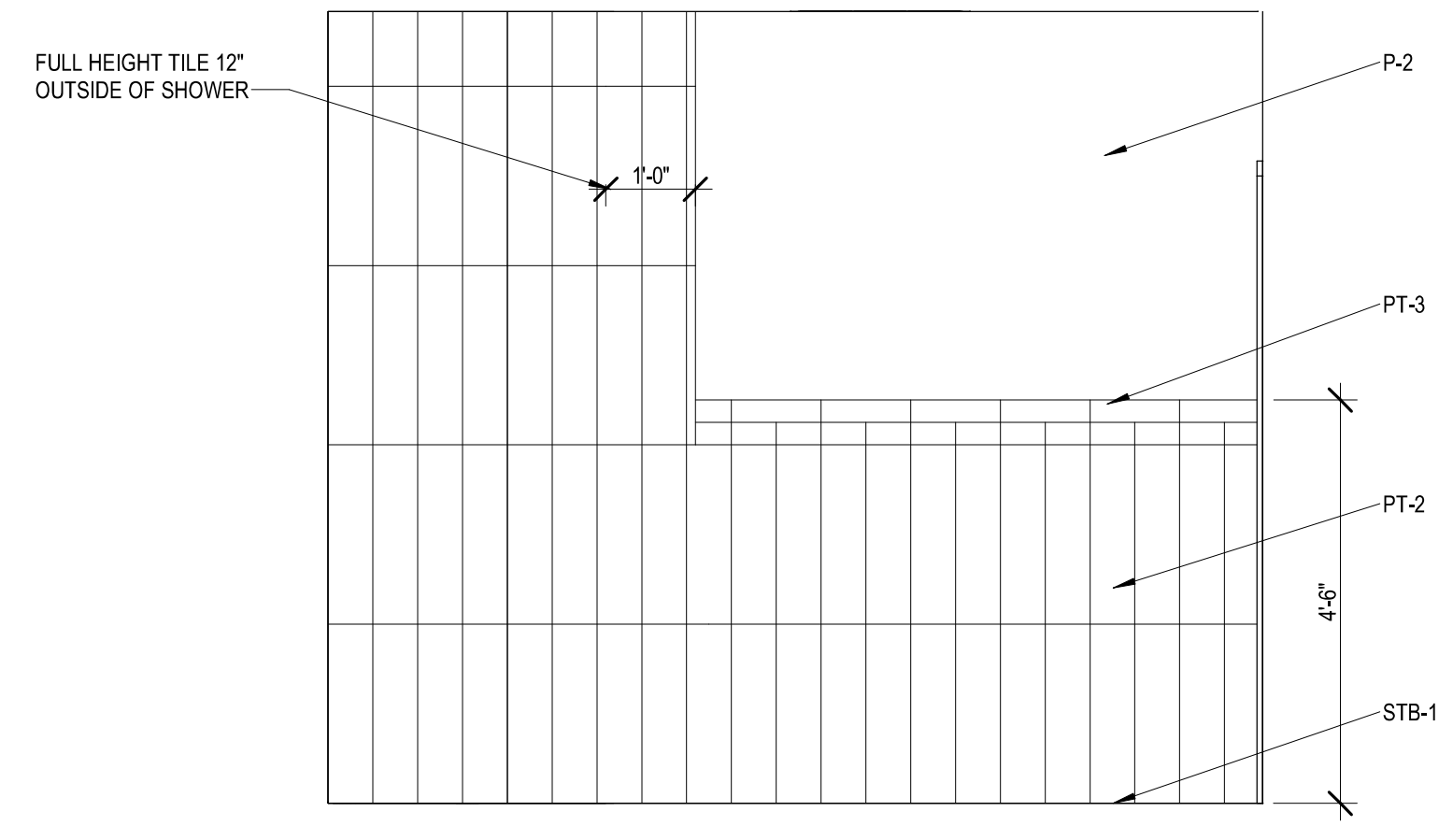
21-0337

INTERIOR  
 ELEVATIONS

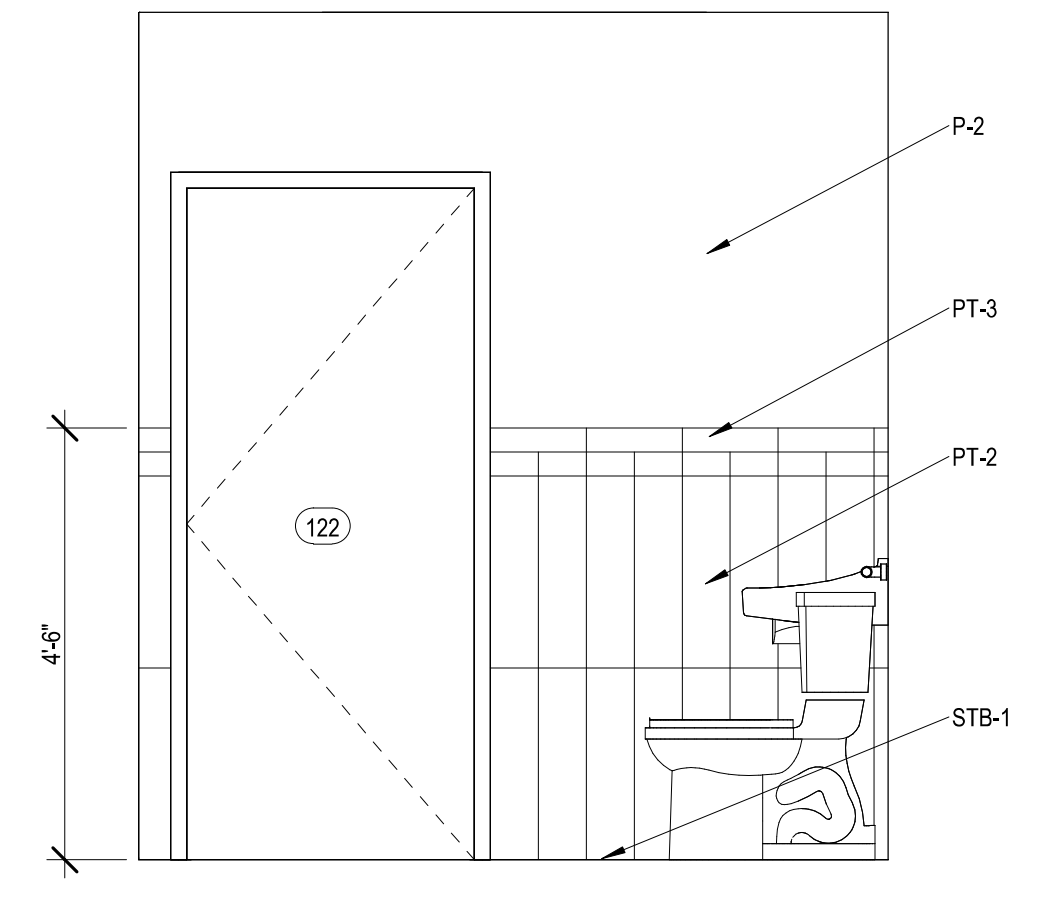
**A8.4**  
 OF 13



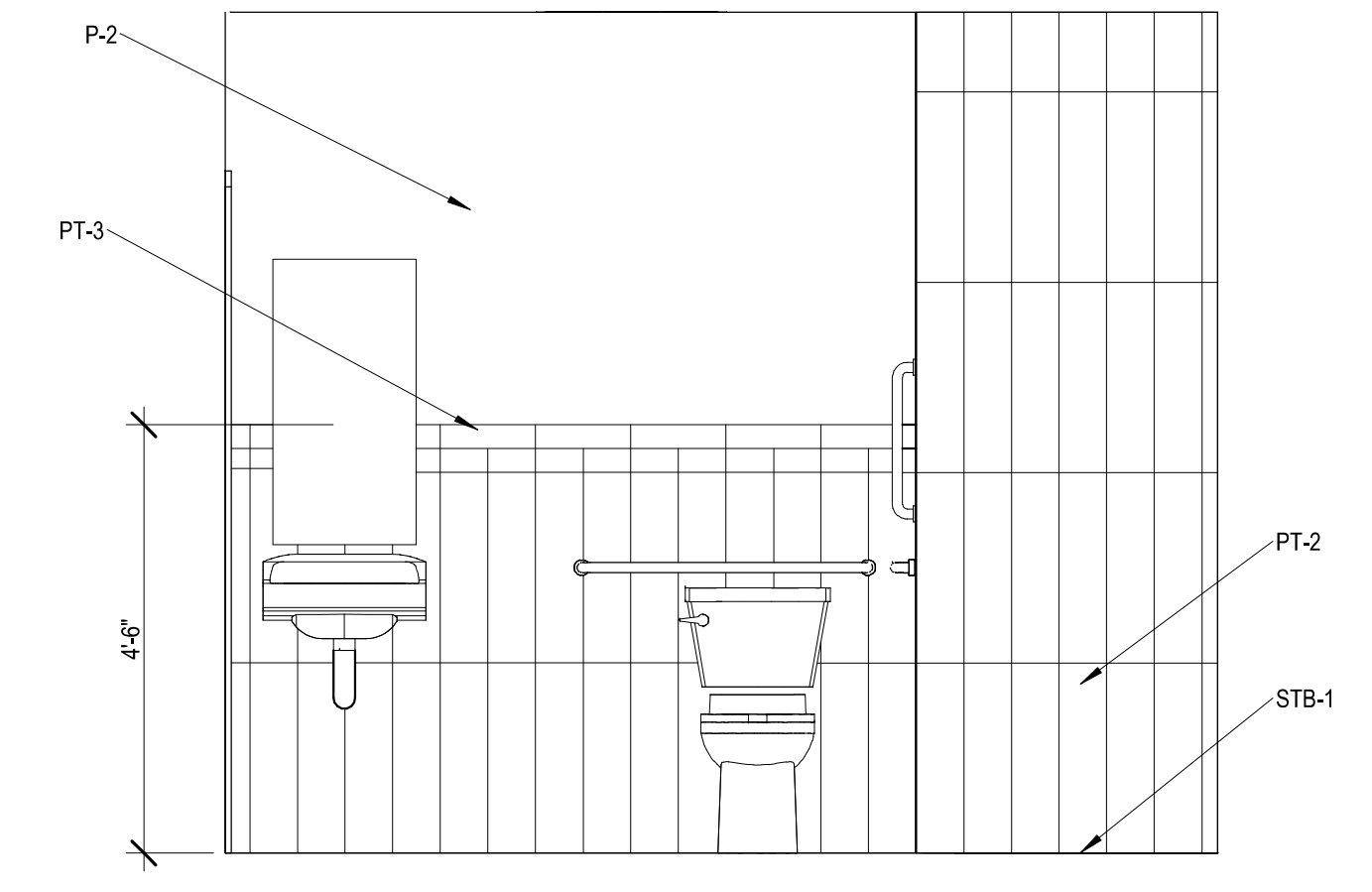
2 122 BATH - NORTH (117, 121, 123 SIM)  
 1/2" = 1'-0"



3 122 BATH - EAST (117, 121, 123 SIM)  
 1/2" = 1'-0"



4 122 BATH - SOUTH (117, 121, 123 SIM)  
 1/2" = 1'-0"



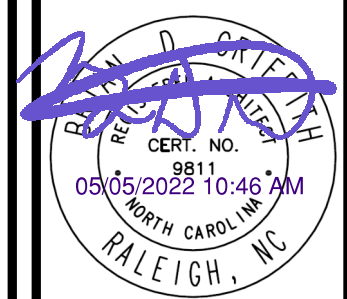
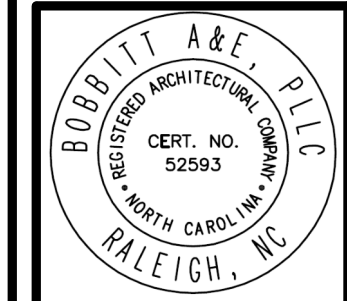
5 122 BATH - WEST (117, 121, 123 SIM)  
 1/2" = 1'-0"



Z:\shared\design\140236\140236\140236.dwg  
 05/05/2022 10:46:59 AM  
 05/05/2022 10:46:59 AM

Revisions			
#	Date	By	Description

APPROVAL:  
 DATE:



BOBBITT A&E, PLLC  
 600 Germantown Road  
 Raleigh, North Carolina 27607



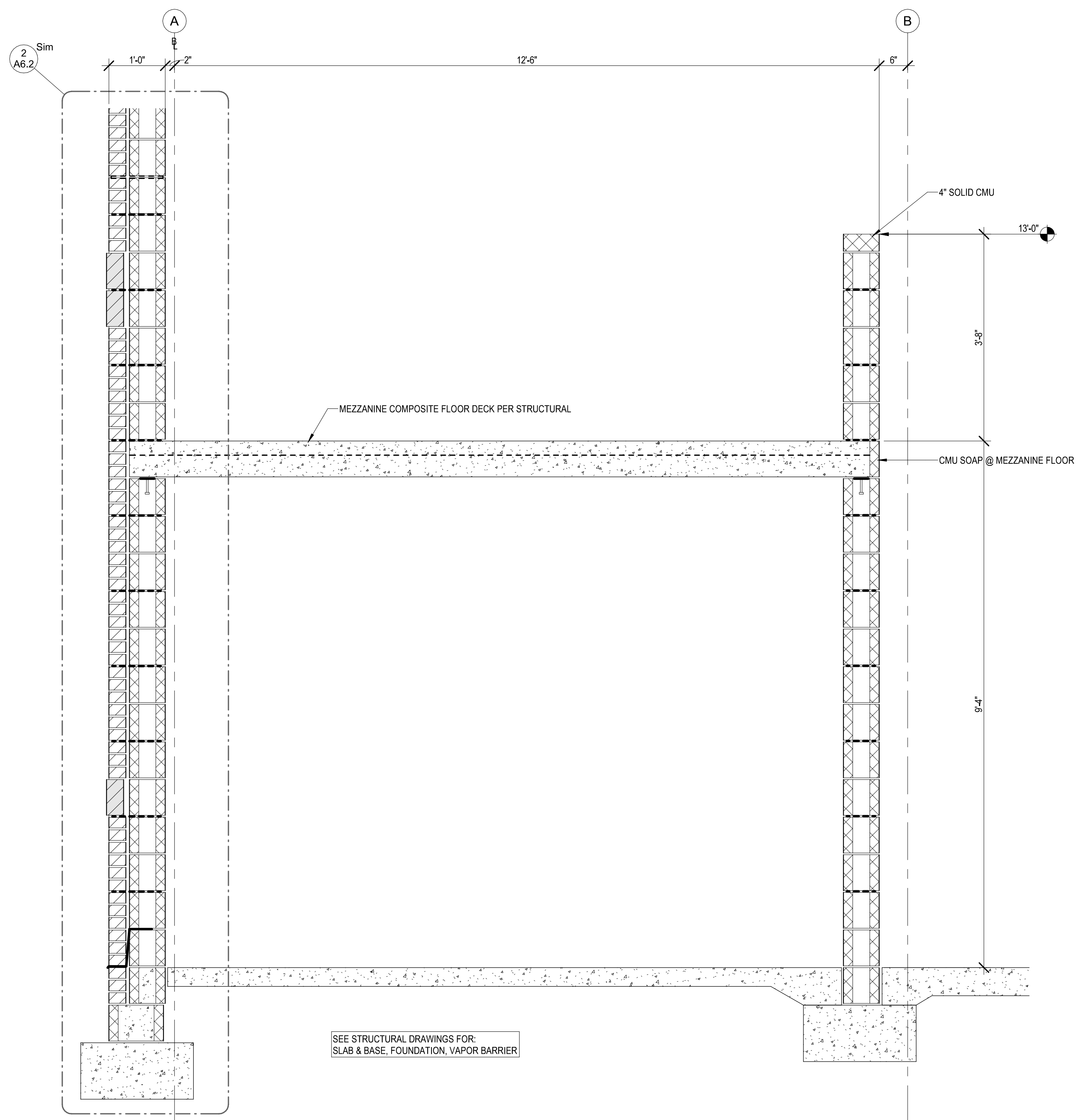
COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 BDG

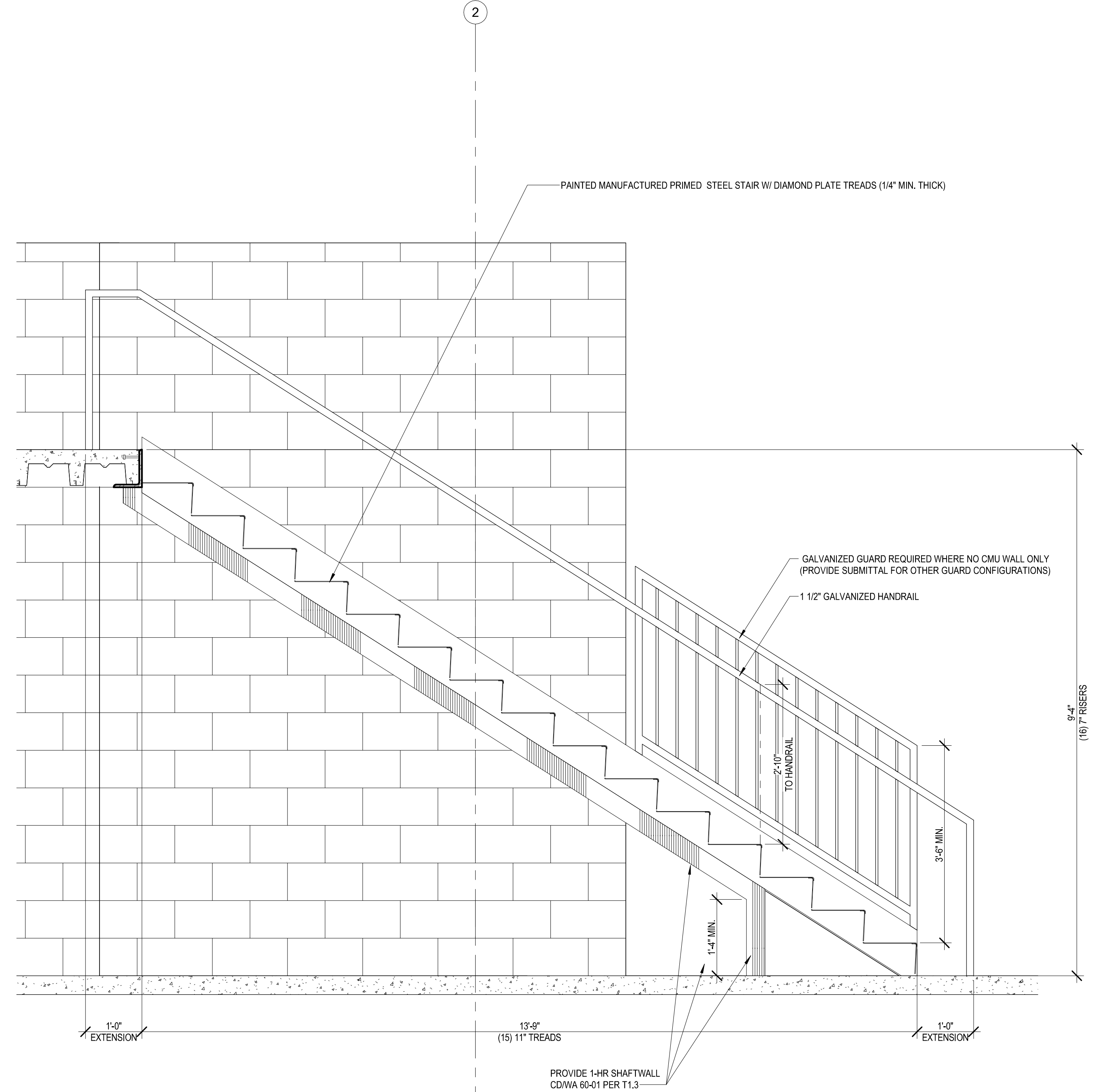
CHK BY: JGF  
 01/26/2022

COPYRIGHT © 2022 BOBBITT. ALL RIGHTS RESERVED.

**CONSTRUCTION DOCUMENT**  
**APPROVED FOR PERMITTING**



① MEZZANINE SECTION  
 3/4" = 1'-0"



② MEZZANINE STAIR  
 3/4" = 1'-0"

**NW HARNETT FIRE STATION 3**  
 US HWY 401 N  
 HARNETT COUNTY, NORTH CAROLINA

24 X 36  
 3/4" = 1'-0"

05/05/2022

21-0337

MEZZANINE AND  
 STAIR

**A9.1**  
 OF 13





DESIGN: B. ROSS



ROSS LINDEN  
ENGINEERS PC  
709 W. JONES STREET RALEIGH, NC 27603  
TEL 919.832.5680 FAX 919.832.5675  
WWW.ROSSLINDEN.COM NC LICENSE NO. C-2364

DRAWN BY:  
B. ROSS

CHK BY:

NW HARNETT FIRE STATION 3  
8300 US 401 N  
HARNETT COUNTY, NORTH CAROLINA

24 x 36

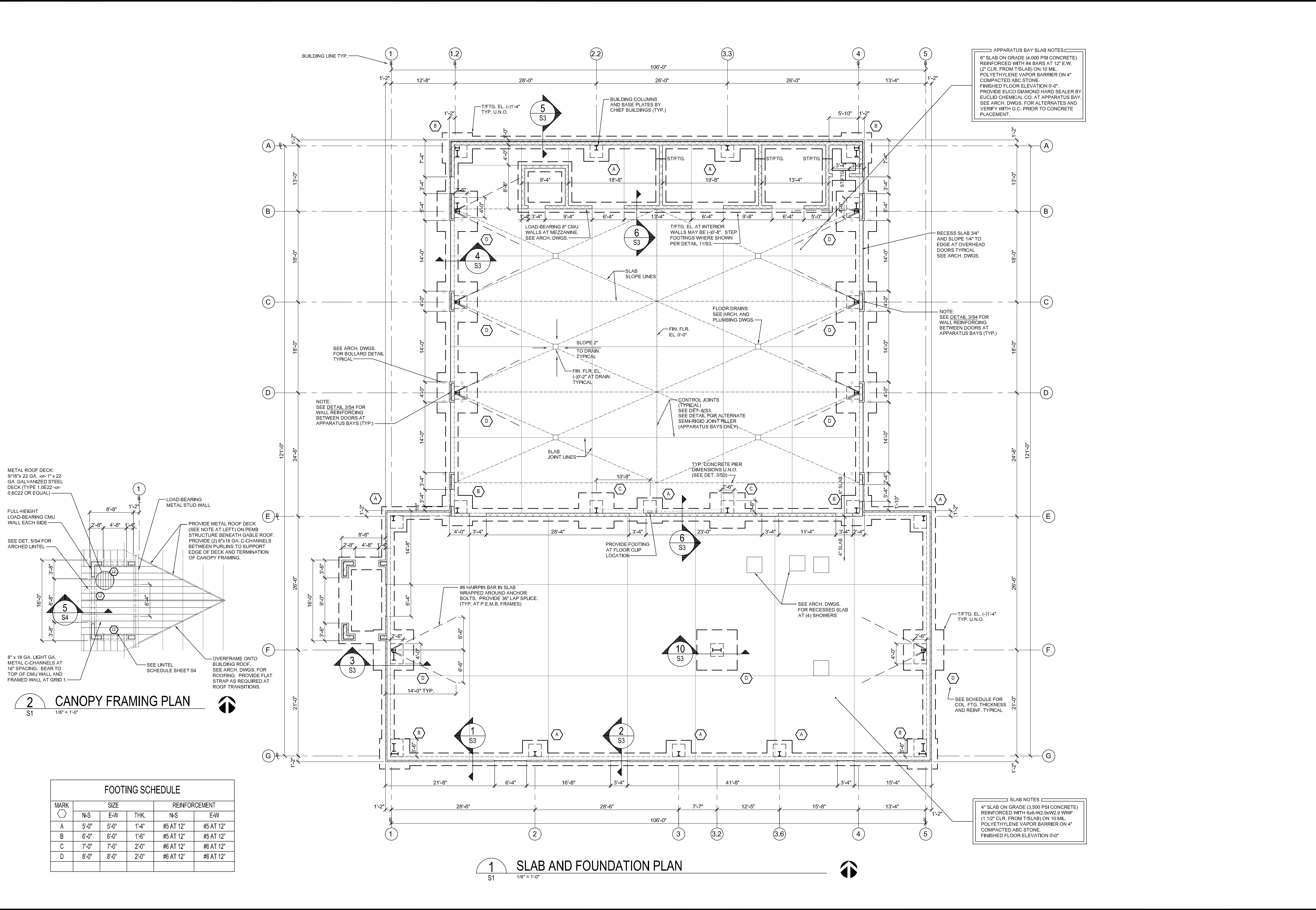
1/8" = 1'-0"

3/24/2022

C211204

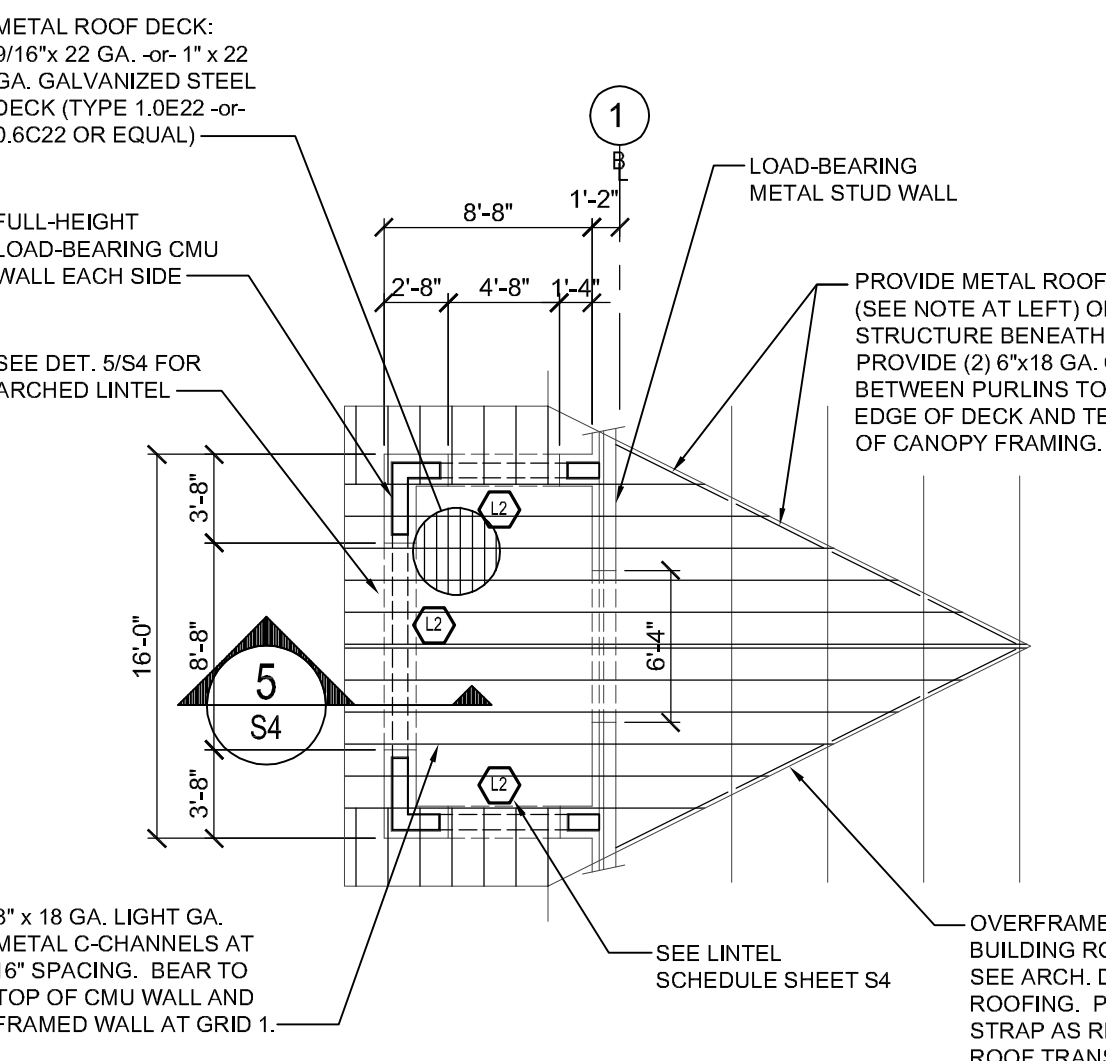
FOUNDATION  
PLAN

S1  
OF S4



**APPARATUS BAY SLAB NOTES**  
6" SLAB ON GRADE (4,000 PSI CONCRETE) REINFORCED WITH #4 BARS AT 12" E.W. (2" CLR. FROM T/SLAB) ON 10 MIL. POLYETHYLENE VAPOR BARRIER ON 4" COMPACTED ABC STONE. FINISHED FLOOR ELEVATION 0'-0". PROVIDE EUCCO DIAMOND HARD SEALER BY EUCLID CHEMICAL CO. AT APPARATUS BAY. SEE ARCH. DWGS. FOR ALTERNATES AND VERIFY WITH G.C. PRIOR TO CONCRETE PLACEMENT.

**SLAB NOTES**  
4" SLAB ON GRADE (3,500 PSI CONCRETE) REINFORCED WITH #6xW2.9xW2.9 WWF (1 1/2" CLR. FROM T/SLAB) ON 10 MIL. POLYETHYLENE VAPOR BARRIER ON 4" COMPACTED ABC STONE. FINISHED FLOOR ELEVATION 0'-0"



**2 CANOPY FRAMING PLAN**  
S1 1/8" = 1'-0"

FOOTING SCHEDULE					
MARK	SIZE			REINFORCEMENT	
	N-S	E-W	THK.	N-S	E-W
A	5'-0"	5'-0"	1'-4"	#5 AT 12"	#5 AT 12"
B	6'-0"	6'-0"	1'-6"	#5 AT 12"	#5 AT 12"
C	7'-0"	7'-0"	2'-0"	#6 AT 12"	#6 AT 12"
D	8'-0"	8'-0"	2'-0"	#6 AT 12"	#6 AT 12"

**1 SLAB AND FOUNDATION PLAN**  
S1 1/8" = 1'-0"



STRUCTURAL NOTES

I. GENERAL

- DESIGN CODES
  - NORTH CAROLINA BUILDING CODE, 2018 EDITION (AMENDED 2015 INTERNATIONAL BUILDING CODE)
  - ACI BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
  - AISC MANUAL OF STEEL CONSTRUCTION - ALLOWABLE STRESS DESIGN NINTH EDITION
  - ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES
- DESIGN LOADS
  - LIVE LOADS: FLOOR: 100 PSF  
MEZZANINE: 125 PSF (LIGHT STORAGE)  
ROOF: 20 PSF
  - ULTIMATE DESIGN WIND SPEED: 123 MPH (RISK CATEGORY IV)
  - GROUND SNOW LOAD: 15 PSF
  - SITE CLASS D  
Ss = 0.175  
S1 = 0.084  
SEISMIC DESIGN CATEGORY D
  - SEE PRE-ENGINEERING METAL BUILDING DRAWINGS BY OTHERS FOR FULL STRUCTURAL DESIGN LOAD SUMMARY USED FOR BUILDING DESIGN.
- ALL ELEVATIONS ARE REFERENCED FROM FINISHED FLOOR ELEVATION OF 0'-0".
- BUILDING DESIGN AND MAXIMUM FOUNDATION REACTIONS PROVIDED BY CHIEF BUILDINGS, JOB NUMBER 63021078, DATED 28 OCTOBER 2021. FOUNDATION DESIGN IS BASED ON MAXIMUM AND MINIMUM LOADING CONDITIONS PROVIDED BY THE BUILDING DESIGNER.
- SEE BUILDING DRAWINGS FOR COLUMN AND BASE PLATE SIZES AND LOCATIONS.
- ANCHOR BOLT DESIGN PROVIDED BY BUILDING DESIGNER. ANCHOR BOLT EMBEDMENT ONLY IS PROVIDED ON DRAWINGS S3.
- ENGINEER'S SEAL APPLIES TO STRUCTURAL COMPONENTS ONLY AND DOES NOT CERTIFY ARCHITECTURAL LAYOUT OR DIMENSIONAL ACCURACY.
- ROSS LINDEN ENGINEERS PC ASSUMES NO LIABILITY FOR CHANGES OR MODIFICATIONS MADE TO THESE DRAWINGS BY OTHERS, OR FOR CONSTRUCTION METHODS, OR FOR ANY DEVIATION FROM THESE DRAWINGS.

II. CONCRETE

- UNLESS OTHERWISE NOTED, ALL CONCRETE SHALL HAVE THE FOLLOWING STRENGTH AND SLUMP REQUIREMENTS:  
3,500 PSI 28-DAY COMPRESSIVE STRENGTH, MAX. 5" SLUMP.
- ALL CONCRETE SHALL BE MOST CURED PER ACI 301 OR CURED WITH AN APPROVED CURING COMPOUND. CONTRACTOR SHALL VERIFY THAT THE CURING COMPOUND IS COMPATIBLE WITH FLOOR COVERING ADHESIVES, COATINGS, OR TOPPING TO BE USED. CONCRETE SHALL BE CURED FOR A MINIMUM OF 7 DAYS.
- PROVIDE EUCO DIAMOND HARD SEALER BY EUCLID CHEMICAL CO. AT APPARATUS BAY. SEE ARCH. DWGS. FOR ALTERNATES AND VERIFY WITH G.C. PRIOR TO CONCRETE PLACEMENT.
- UNLESS OTHERWISE NOTED, ALL REINFORCING STEEL SHALL BE NEW BILLET STEEL, CONFORMING TO ASTM A-615, GRADE 60, DEFORMED.
- UNLESS OTHERWISE NOTED, ALL DETAILING, FABRICATION, AND PLACING OF REINFORCING STEEL SHALL CONFORM TO THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES. (ACI 315)
- ALL BAR SPLICES SHALL BE CLASS "B" TENSION SPLICES PER ACI 318-08, UNLESS OTHERWISE SHOWN.
- ANCHOR BOLTS TO BE ASTM A36 OR A307.
- CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- ALL SPREAD FOOTINGS BEARING ON NATIVE SOIL OR STRUCTURAL FILL ARE DESIGNED FOR AN ALLOWABLE BEARING PRESSURE OF 2,000 PSF. A GEOTECHNICAL REPORT BY GEOTECHNOLOGIES, INC. DATED 5 MAY 2021 HAS BEEN USED AS THE BASIS OF THIS DESIGN. A GEOTECHNICAL REPRESENTATIVE SHALL INSPECT ALL FOOTING EXCAVATIONS TO CONFIRM ALLOWABLE BEARING PRESSURES
- PROVIDE TWO (2) #5 x 4'-0" LONG DIAGONAL BARS IN TOP FACE OF ALL SLABS (1" CLEAR) AT ALL RE-ENTRANT CORNERS. SEE PLAN FOR LOCATIONS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UTILITY LINES IN VICINITY OF THE WORK SITE.
- CONTRACTOR SHALL VERIFY ALL SIZES AND LOCATIONS OF ALL MECHANICAL AND ELECTRICAL OPENINGS AND EQUIPMENT PADS WITH THE MECHANICAL AND ELECTRICAL DETAILS AND SHOP DRAWINGS BY OTHERS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION FOR ALL UTILITIES THROUGHOUT THE BUILDING.
- ALL DOWELS WHICH ARE TO BE DRILLED AND GROUTED INTO EXISTING CONCRETE SHALL BE DONE WITH AN EPOXY GROUT. DRILL HOLE WITH DIAMETER 1/8" LARGER THAN DOWEL OR AS RECOMMENDED BY GROUT SUPPLIER. USE HIT-RE 500 V3 BY HILTI OR APPROVED EQUAL.

III. MASONRY

- MASONRY CONSTRUCTION SHALL COMPLY WITH ACI 530.1-02/ASCE 6-02: "SPECIFICATION FOR MASONRY STRUCTURES."
- ASSUMED MASONRY PROPERTIES: UNIT COMPRESSIVE STRENGTH 1900 PSI, TYPE S MORTAR, PARTIAL GROUT, RUNNING BOND.
- SEE THE DRAWINGS FOR LINTEL INFORMATION.
- PROVIDE 9 GA. LADDER-TYPE JOINT REINFORCEMENT AT 16" O.C.
- PROVIDE A CONTINUOUS BOND BEAM (WITH TWO #4 BARS MINIMUM) AT THE TOP OF ALL WALLS AND AT LOCATIONS WHERE A ROOF OR ELEVATED FLOOR IS STRUCTURALLY CONNECTED TO THE WALL.
- PROVIDE CONTINUOUS BOND BEAMS (WITH TWO #4 BARS MINIMUM) AT A MAXIMUM SPACING OF 8 FEET.
- BOND BEAM BLOCK UNITS SHALL HAVE OPENINGS IN THE BOTTOM TO ALLOW VERTICAL REINFORCEMENT TO PASS. U-LOCKS SHALL BE USED AT LINTELS ONLY.
- SEE DRAWINGS FOR VERTICAL REINFORCING. THE FOLLOWING MINIMUM VERTICAL REINFORCING SHALL BE IN ADDITION TO REINFORCING SHOWN ON DRAWINGS: ONE #5 BAR AT EACH CORNER, ONE #5 BAR EACH SIDE OF OPENINGS, ONE #5 BAR AT ENDS OF WALLS.
- ALL VERTICAL REINFORCING SHALL BE CONTINUOUS FROM TOP TO BOTTOM OF WALL EXCEPT WHERE INTERRUPTED BY AN OPENING.
- PROVIDE DOWELS INTO FOOTING OR SLAB TO MATCH VERTICAL REINFORCING.
- FILL ALL REINFORCED CELLS AND BOND BEAMS WITH 3000 PSI GROUT. PLACE GROUT IN VERTICAL LIFTS NOT EXCEEDING 6 FEET.
- EXPANSION ANCHORS SHALL BE HILTI KWIK HUS-EZ EXPANSION ANCHORS OR APPROVED EQUAL. INSTALLATION AND EMBEDMENT DEPTH SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

IV. METAL FLOOR DECK

- COMPOSITE METAL FLOOR DECK SHALL BE GALVANIZED 4 5/8" DEEP x 18 GAUGE (EQUAL TO DEEP-DEK COMPOSITE 4.5 BY NEW MILLENNIUM) FOR MEZZANINE SLAB. CONCRETE UNIT WEIGHT IS 145 PCF (NORMAL WEIGHT CONCRETE). THE TOTAL SLAB DEPTH SHALL BE 7 5/8". PROVIDE 5/8" PUDDLE WELDS AT 12" SPACING AT BEARING WALLS.
- DETAILED SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.
- METAL ROOF DECK
  - METAL ROOF DECK SHALL BE 1" DEEP x 22 GAUGE (EQUAL TO 1.0E22) 9/16" DEEP x 22 GAUGE (EQUAL TO 0.6C22). PROVIDE #10 TEK SCREWS TO STRUCTURE AT 8" SPACING.

VI. LIGHT GAUGE STEEL FRAMING

- INSTALLATION OF LIGHT GAUGE STEEL FRAMING SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- WALL STUDS SHALL HAVE THE FOLLOWING MINIMUM PROPERTIES:  
16" MAX. SPACING  
STUD DEPTH = 6" (SEE ARCH. DWGS.)  
FLANGE WIDTH = 1 5/8" MIN.  
18 GAUGE STEEL  
L/600 MAX. DEFLECTION AT BRICK VENEER  
SEE ARCH. DWGS. FOR GIRT HEIGHT
- PROVIDE MIN. 18 GA. BOTTOM TRACK AND ANCHOR TO SLAB WITH POWDER ACTUATED FASTENERS AT 16" O.C. USE HILTI DS FASTENERS WITH 0.177" SHANK DIAMETER AND 1.7/16" EMBEDMENT. WELD STUDS TO TRACK EACH SIDE -> PROVIDE (2) NO. 10 SCREWS (ONE EACH SIDE OF TRACK).
- ATTACH STUDS TO BUILDING STRUCTURE WITH CLIP ANGLE AND SCREW CONNECTION DETAILS PROVIDED BY SUPPLIER. CONNECTION OF EACH WALL STUD TO TO BUILDING STRUCTURE SHALL CONSIST OF A MINIMUM OF (3) NO. 12 SCREWS.
- PROVIDE MINIMUM (2) 8" x 18 GA. BOX HEADER AT ALL FRAMED WINDOW AND DOOR OPENINGS UP TO A CLEAR SPAN OF 6'-0". PROVIDE MINIMUM (2) 10" x 18 GA. BOX HEADER AT FRAMED OPENINGS AT CLEAR SPANS GREATER THAN 6'-0". PROVIDE A MINIMUM OF (2) KING STUDS AT EACH END OF EACH HEADER. PROVIDE INSULATION PER ARCHITECTURAL DRAWINGS.
- DETAILED SHOP DRAWINGS SHALL BE PROVIDED FOR REVIEW AND APPROVAL PRIOR TO CONSTRUCTION.

SPECIAL INSPECTIONS REQUIREMENTS

THE FOLLOWING LIST OF STRUCTURAL ELEMENTS SHALL REQUIRE SPECIAL INSPECTIONS PER CHAPTER 17 OF THE NORTH CAROLINA BUILDING CODE. SPECIAL INSPECTIONS DO NOT RELIEVE THE CONTRACTOR OR ANY OTHER ENTITY OF ANY CONTRACTUAL DUTIES, INCLUDING QUALITY CONTROL, QUALITY ASSURANCE, OR SAFETY. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR FOR CONSTRUCTION MEANS, METHODS AND JOB SITE SAFETY.

VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION		
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS: IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS MANUFACTURER'S CERTIFICATE OF COMPLIANCE		X X
INSPECTION OF HIGH-STRENGTH BOLTING: BEARING TYPE CONNECTIONS SLIP-CRITICAL CONNECTIONS	X	X X
INSPECTION OF WELDING STRUCTURAL STEEL: COMPLETE AND PARTIAL PENETRATION GROOVE WELDS MULTIPASS FILLET WELDS SINGLE PASS FILLET WELDS > 5/16" SINGLE PASS FILLET WELDS <= 5/16" FLOOR AND ROOF DECK WELDS	X X X	X X
INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE WITH APPROVED CONSTRUCTION DOCUMENTS:		X

SEE SECTION 1705.2 IN THE NC BUILDING CODE FOR REFERENCED STANDARDS, IBC REFERENCES, AND ADDITIONAL INFORMATION.

VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION		
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
INSPECTION OF REINFORCING STEEL AND PLACEMENT		X
VERIFYING USE OF REQUIRED DESIGN MIX		X
AT THE TIME FRESH CONCRETE IS SAMPLED TO FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	
INSPECTION OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	
INSPECTION FOR MAINTENANCE OF OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.		X

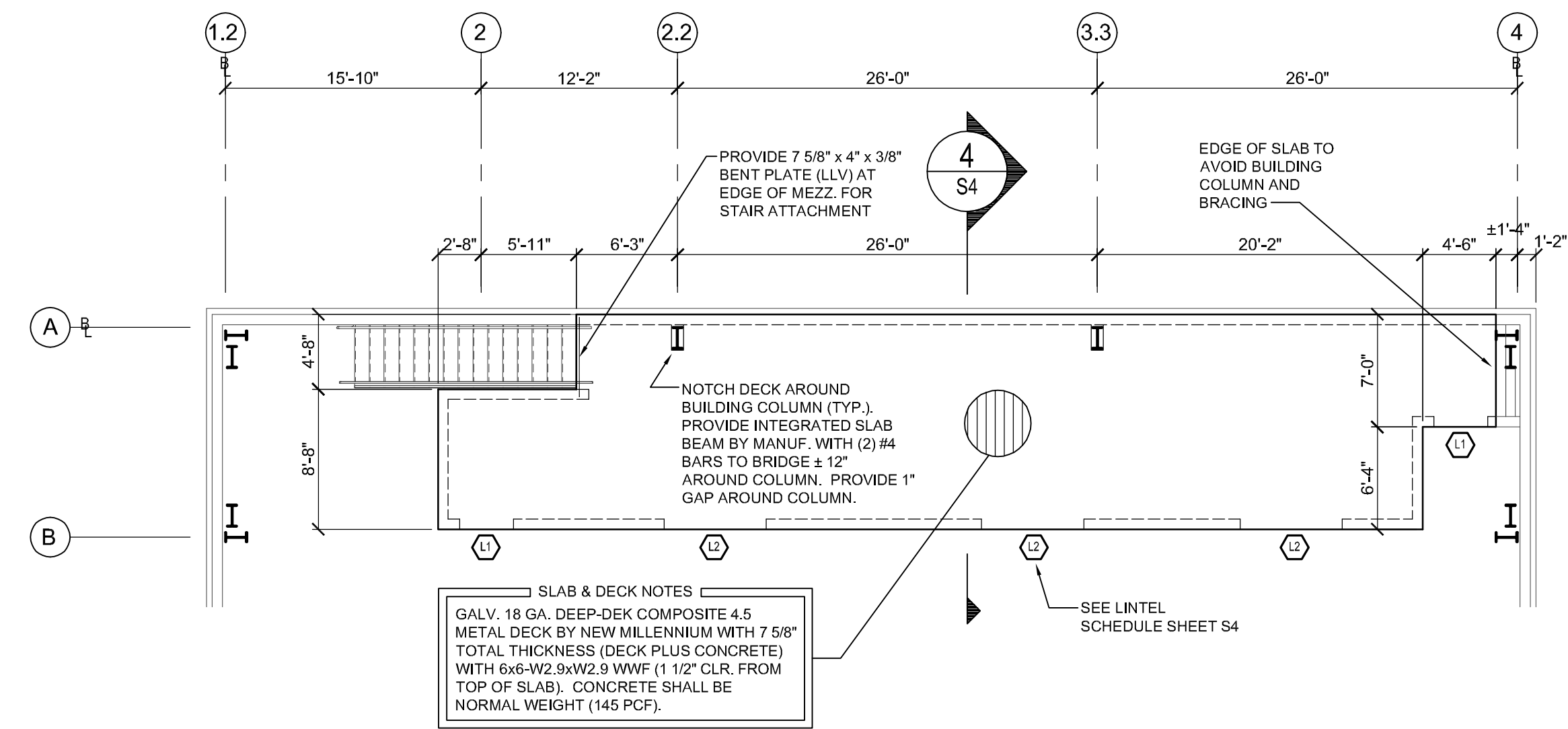
SEE TABLE 1705.3 IN THE NC BUILDING CODE FOR REFERENCED STANDARDS, IBC REFERENCES, AND ADDITIONAL INFORMATION.

VERIFICATION AND INSPECTION OF MASONRY CONSTRUCTION		
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
FROM THE BEGINNING OF MASONRY CONSTRUCTION, THE FOLLOWING SHALL BE VERIFIED TO ENSURE COMPLIANCE: PROPORTIONS OF SITE-PREPARED MORTAR AND GROUT PLACEMENT OF MASONRY UNITS AND CONSTRUCTION OF MORTAR JOINTS PLACEMENT OF REINFORCEMENT GROUT SPACE PRIOR TO GROUTING PLACEMENT OF GROUT	X X	X X X
THE INSPECTION PROGRAM SHALL VERIFY: SIZE AND LOCATION OF STRUCTURAL ELEMENTS SPECIFIED SIZE, GRADE, AND TYPE OF REINFORCEMENT PROTECTION OF MASONRY DURING COLD WEATHER OR HOT WEATHER		X X X

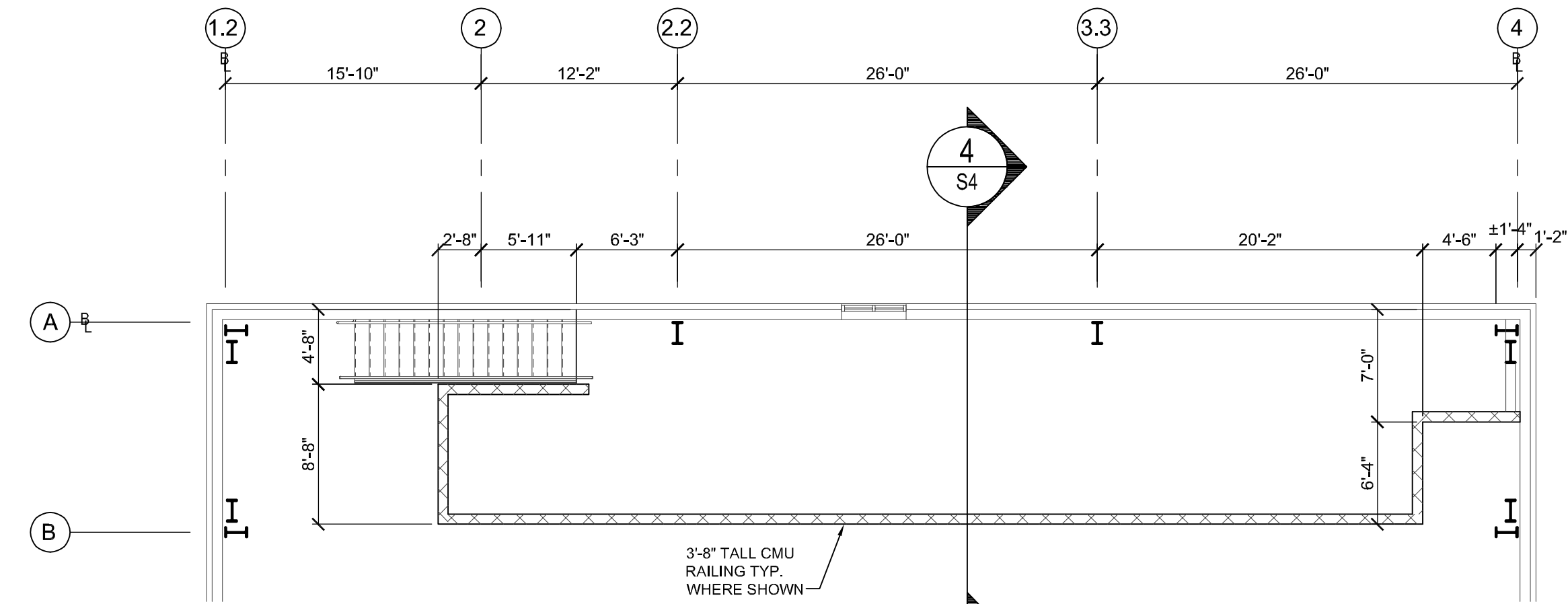
SEE SECTION 1705.4 IN THE NC BUILDING CODE FOR REFERENCED STANDARDS, IBC REFERENCES, AND ADDITIONAL INFORMATION.

VERIFICATION AND INSPECTION OF SOILS		
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC
VERIFY MATERIALS BELOW FOOTINGS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.		X
VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.		X
PERFORM CLASSIFICATION AND TESTING OF CONTROLLED FILL MATERIALS		X
VERIFY USE OF PROPER MATERIALS, DENSITIES, AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF CONTROLLED FILL.	X	
PRIOR TO PLACEMENT OF CONTROLLED FILL, OBSERVE SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.		X

SEE SECTION 1705.6 IN THE NC BUILDING CODE FOR REFERENCED STANDARDS, IBC REFERENCES, AND ADDITIONAL INFORMATION.



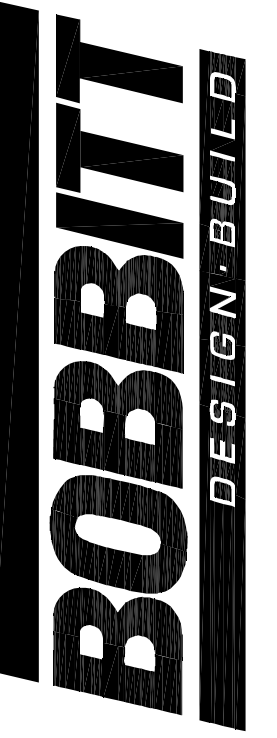
1 MEZZANINE FRAMING PLAN  
S2 1/8" = 1'-0" F.F.E. 9'-4" LIVE LOAD: 125 PSF



2 MEZZANINE FLOOR PLAN  
S2 1/8" = 1'-0" F.F.E. 9'-4"



DESIGN: B. ROSS



ROSS LINDEN ENGINEERS PC  
709 W. JONES STREET RALEIGH, NC 27603  
TEL 919.832.5680 FAX 919.832.5675  
WWW.ROSSLINDEN.COM NC LICENSE NO. C2364

DRAWN BY: B. ROSS

CHK BY:

NW HARNETT FIRE STATION 3  
8300 US 401 N  
HARNETT COUNTY, NORTH CAROLINA

24 x 36

1/8" = 1'-0"

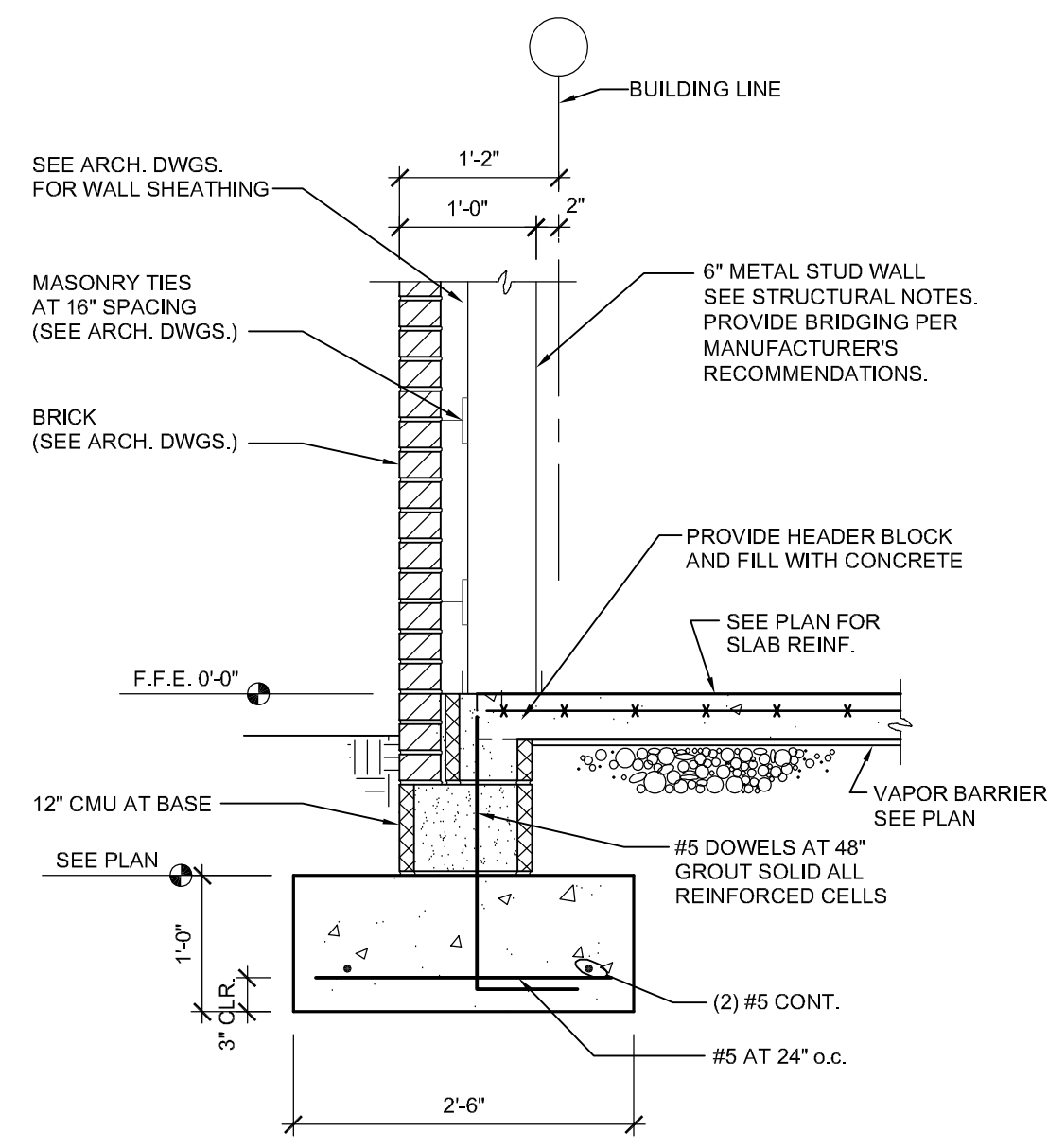
3/24/2022

C211204

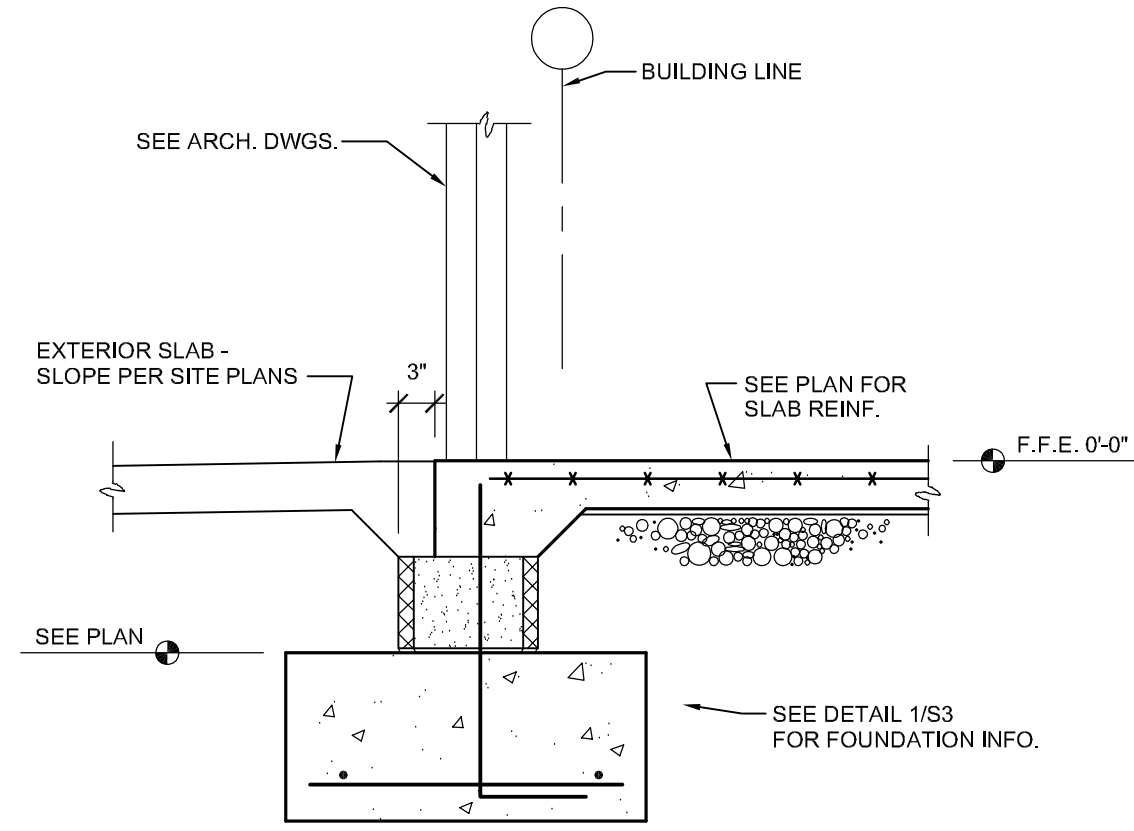
STR. NOTES  
MEZZ. PLAN

S2  
OF S4

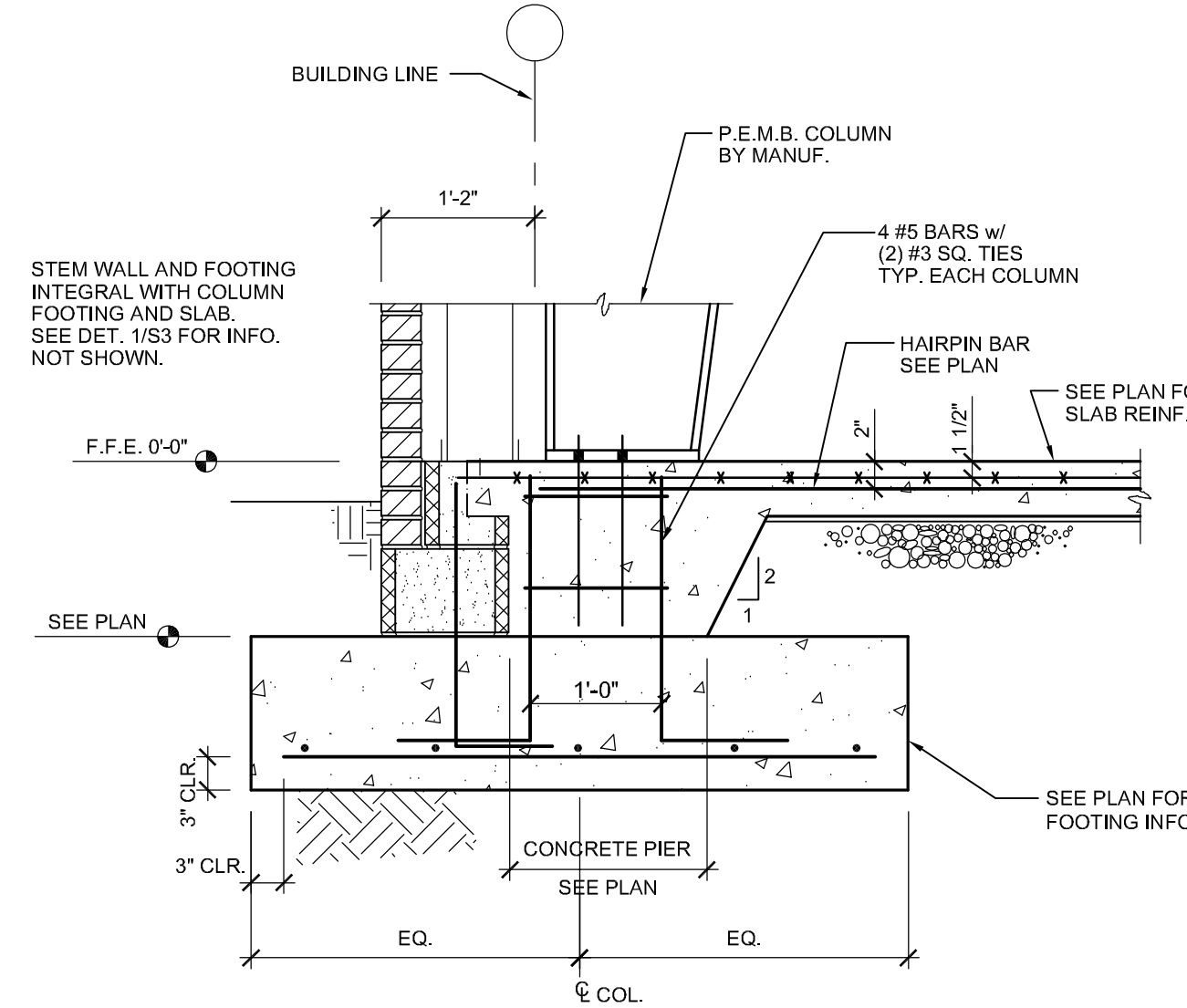




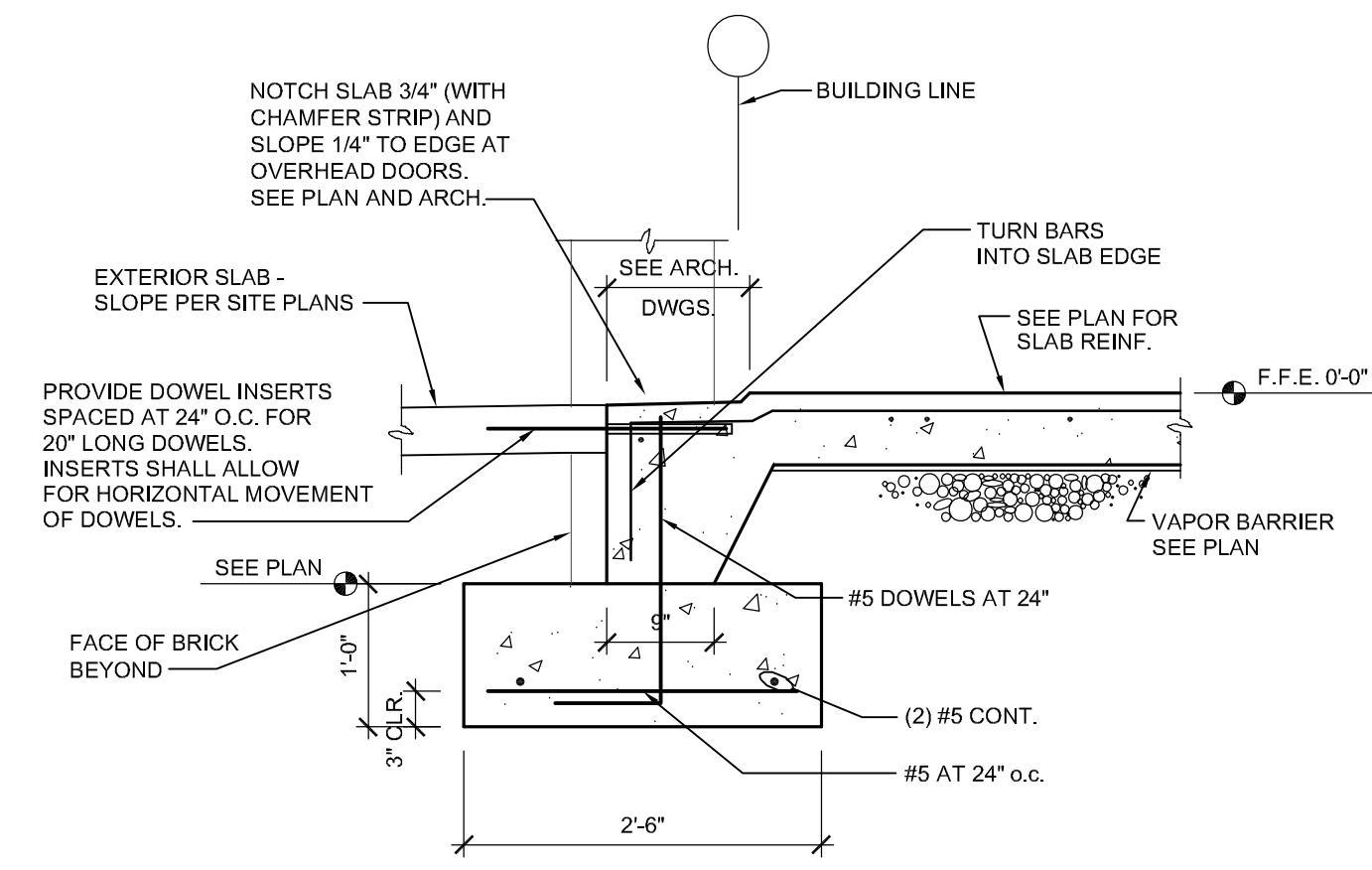
**1** DETAIL - SLAB EDGE  
S3 3/4" = 1'-0" METAL STUD WALLS WITH VENEER



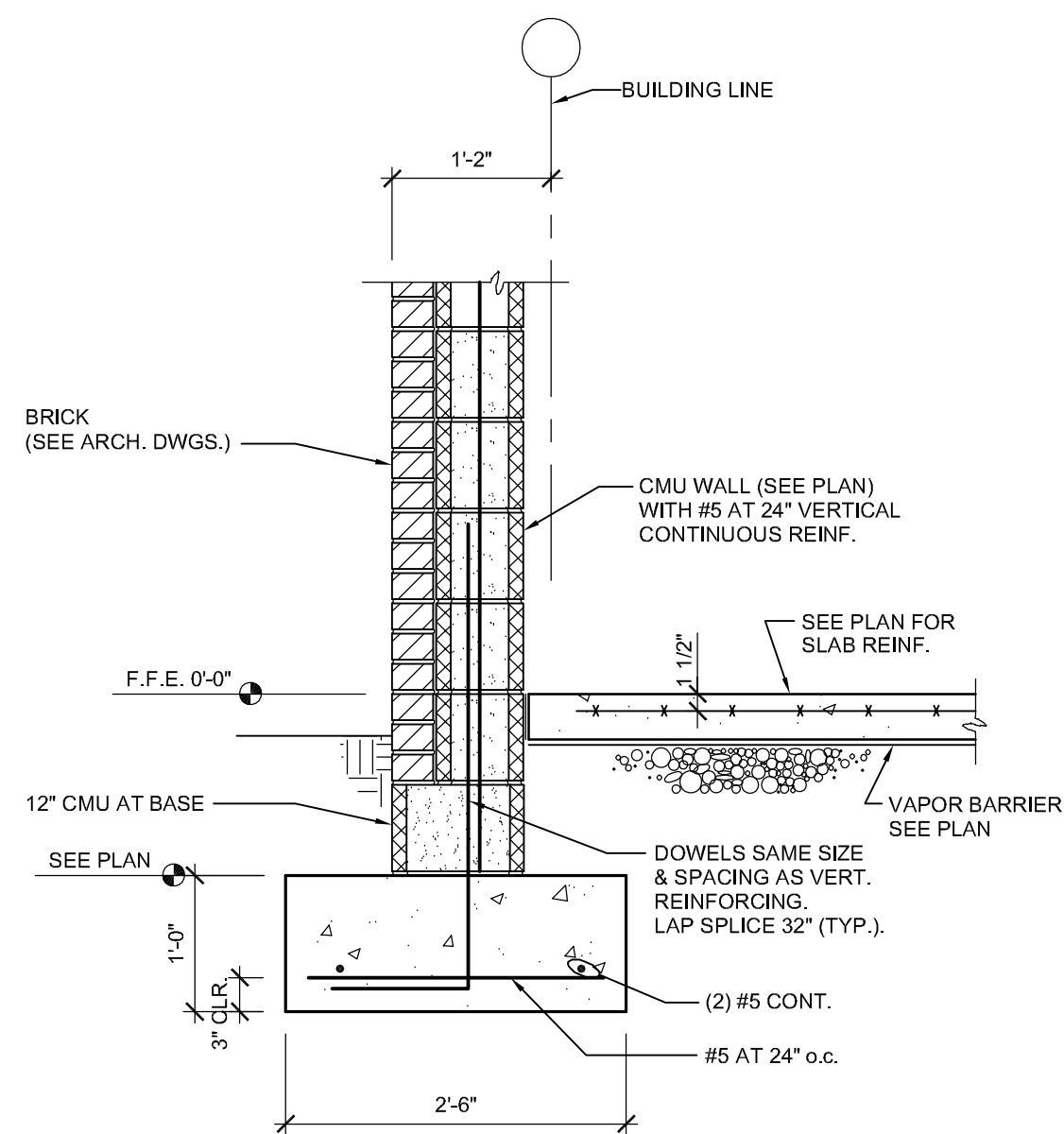
**2** DETAIL - SLAB EDGE AT DOORS  
S3 3/4" = 1'-0"



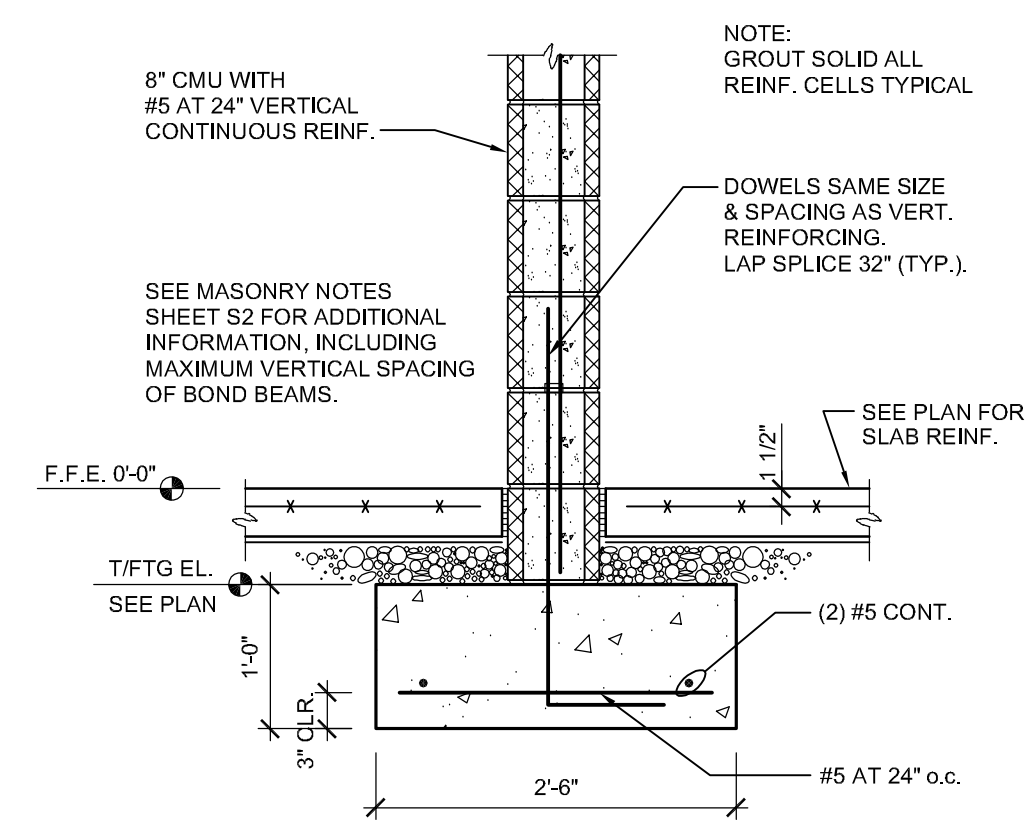
**3** SECTION - COLUMN FOOTING  
S3 3/4" = 1'-0" MASONRY VENEER



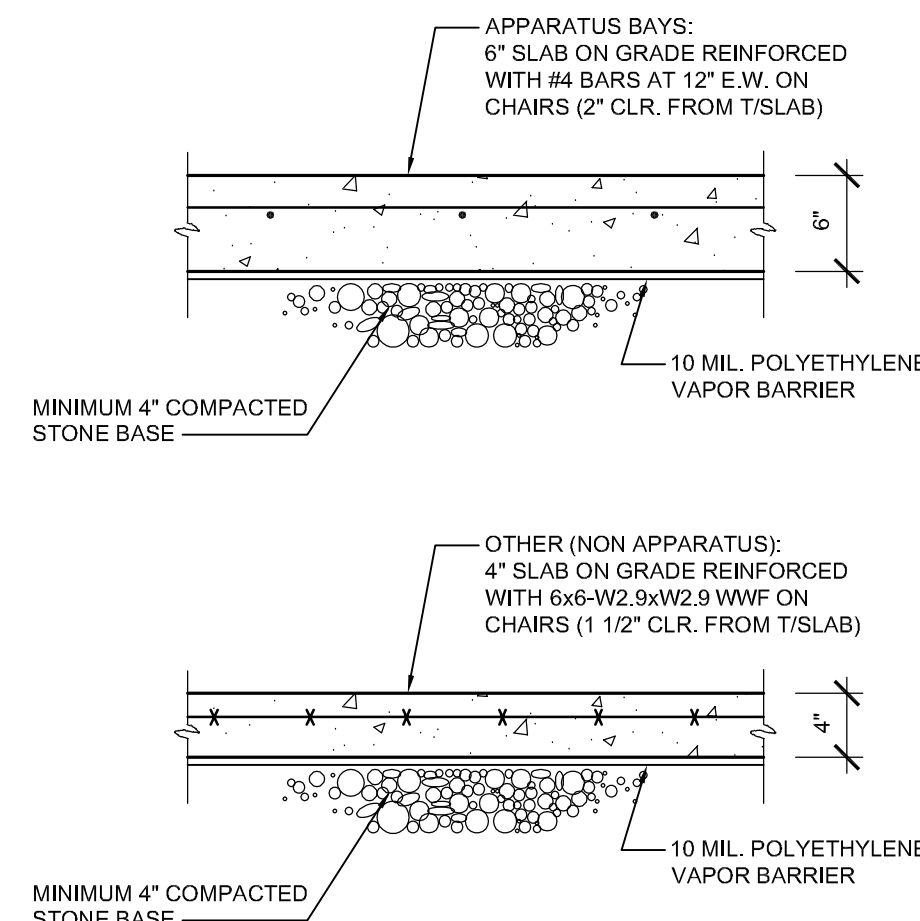
**4** DETAIL - SLAB EDGE AT OVERHEAD DOORS  
S3 3/4" = 1'-0" APPARATUS BAYS



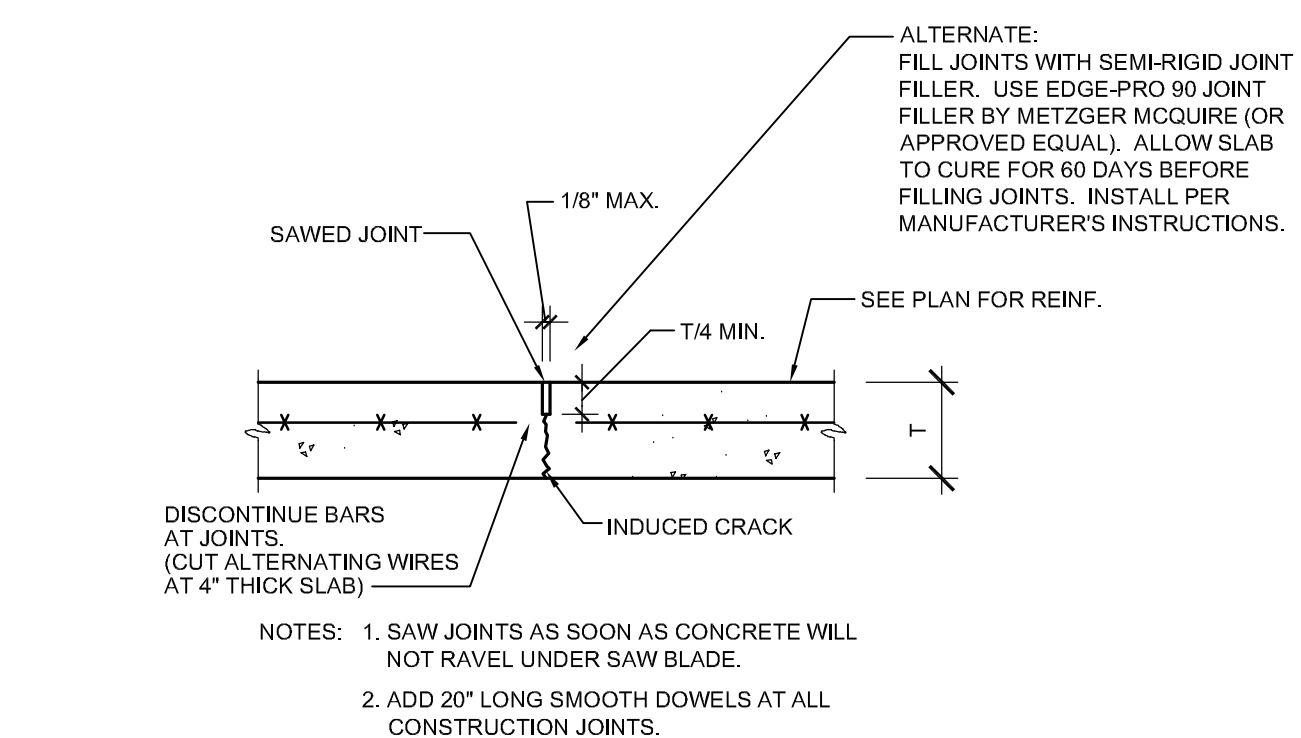
**5** DETAIL - SLAB EDGE  
S3 3/4" = 1'-0" 8" CMU WITH BRICK



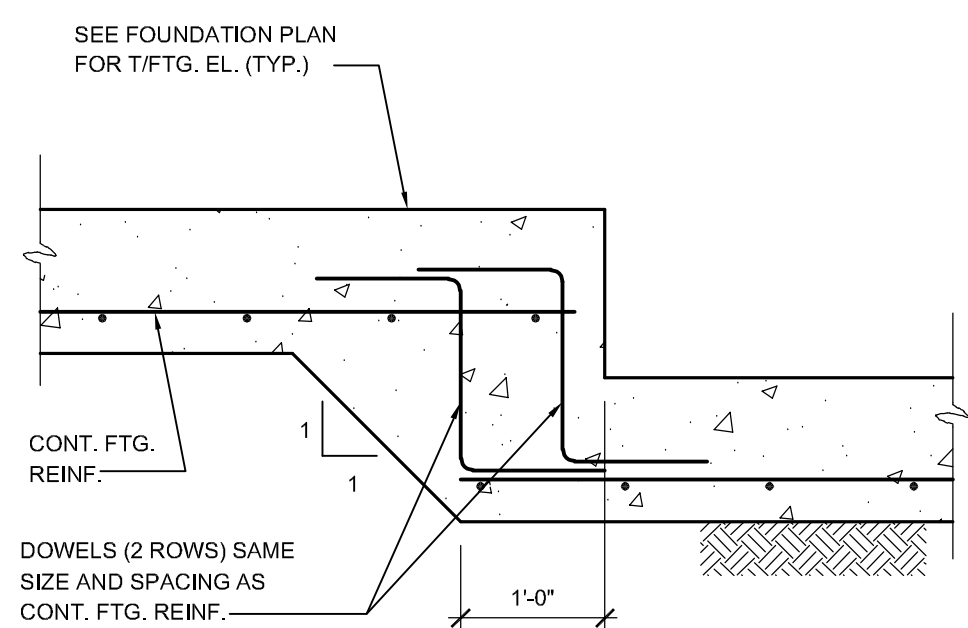
**6** SECTION - INTERIOR WALL FOOTING  
S3 3/4" = 1'-0"



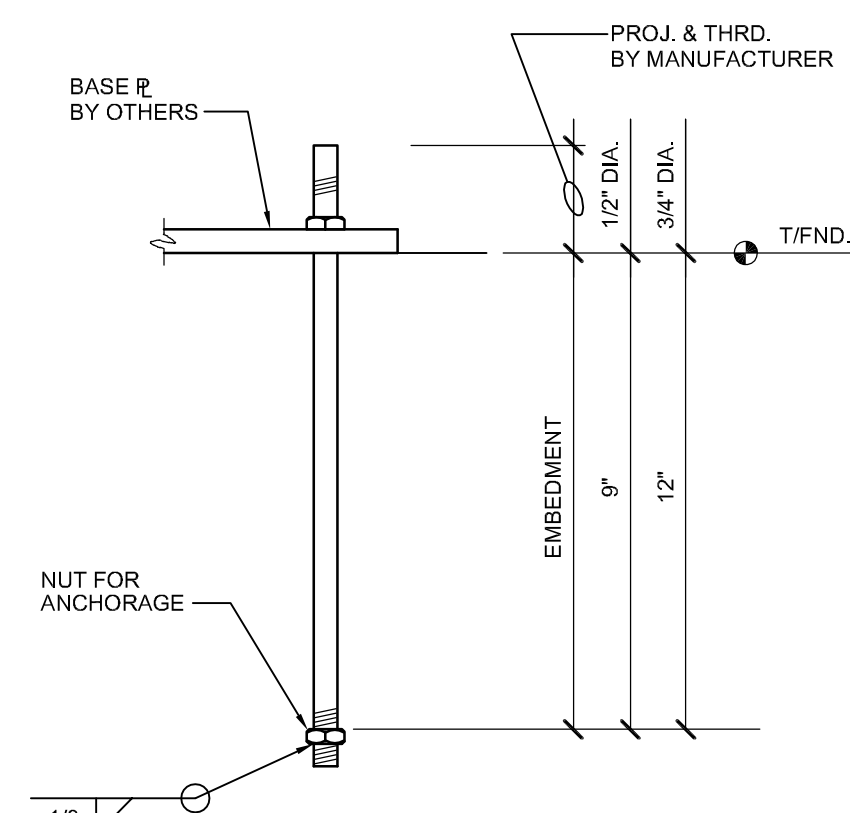
**7** TYP. SLAB DETAILS  
S3 1" = 1'-0"



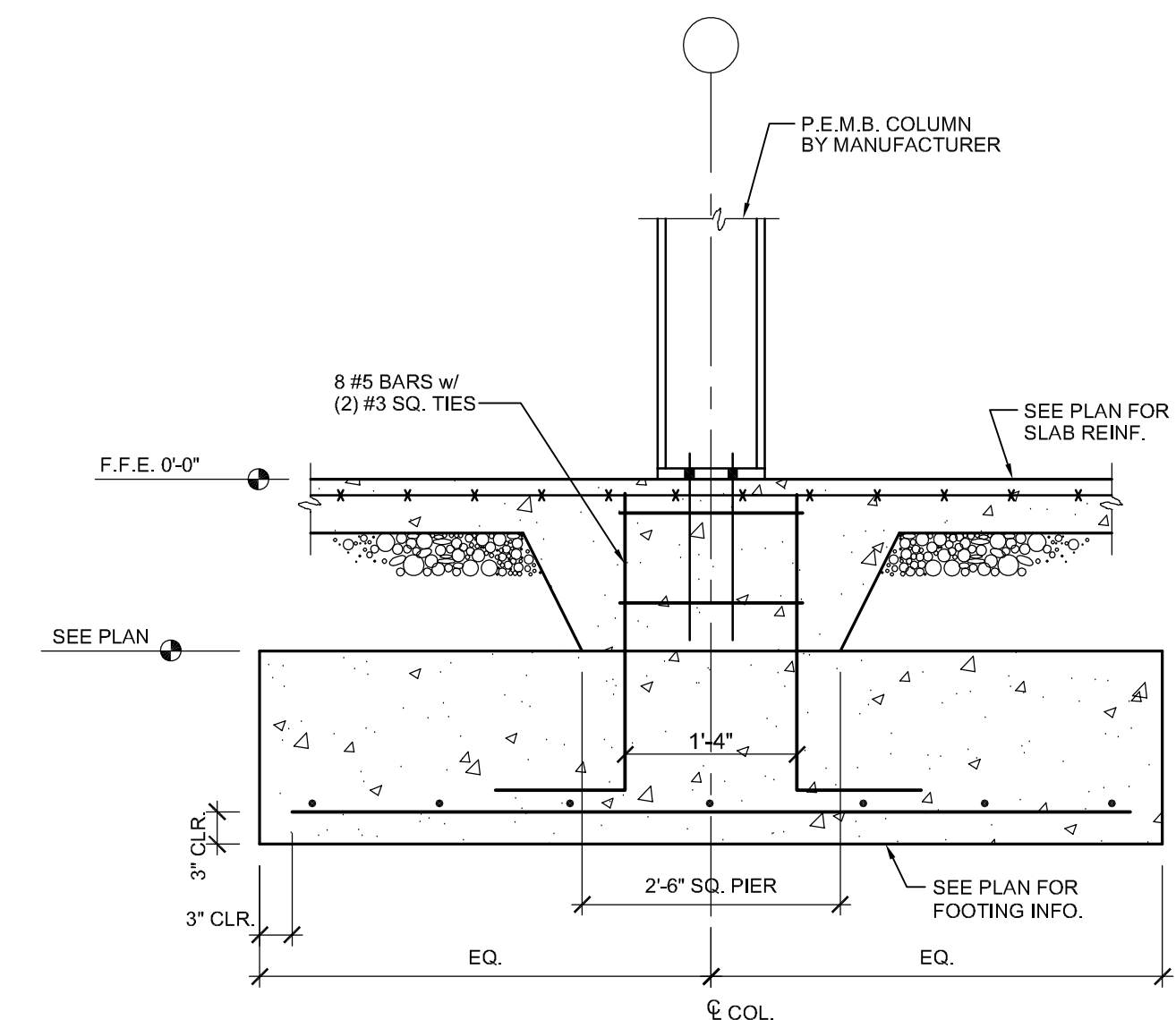
**8** DETAIL - TYP. SLAB CONTROL JOINT  
S3 1" = 1'-0"



**11** DETAIL - TYP. STEPPED FOOTING  
S3 3/4" = 1'-0"



**9** TYP. ANCHOR ROD DETAIL  
S3 NO SCALE



**10** SECTION - INTERIOR COLUMN FOOTING  
S3 3/4" = 1'-0"



DESIGN: B. ROSS

**BOBBITT**  
DESIGN • BUILD

ROSS LINDEN  
ENGINEERS PC  
709 W. JONES STREET RALEIGH, NC 27603  
TEL 919.832.5680 FAX 919.832.5675  
WWW.ROSSLINDEN.COM NC LICENSE NO. C2364

DRAWN BY:  
B. ROSS

CHK BY:

NW HARNETT FIRE STATION 3  
8300 US 401 N  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
SCALE VARIES

3/24/2022

C211204

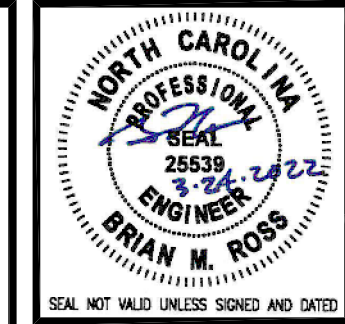
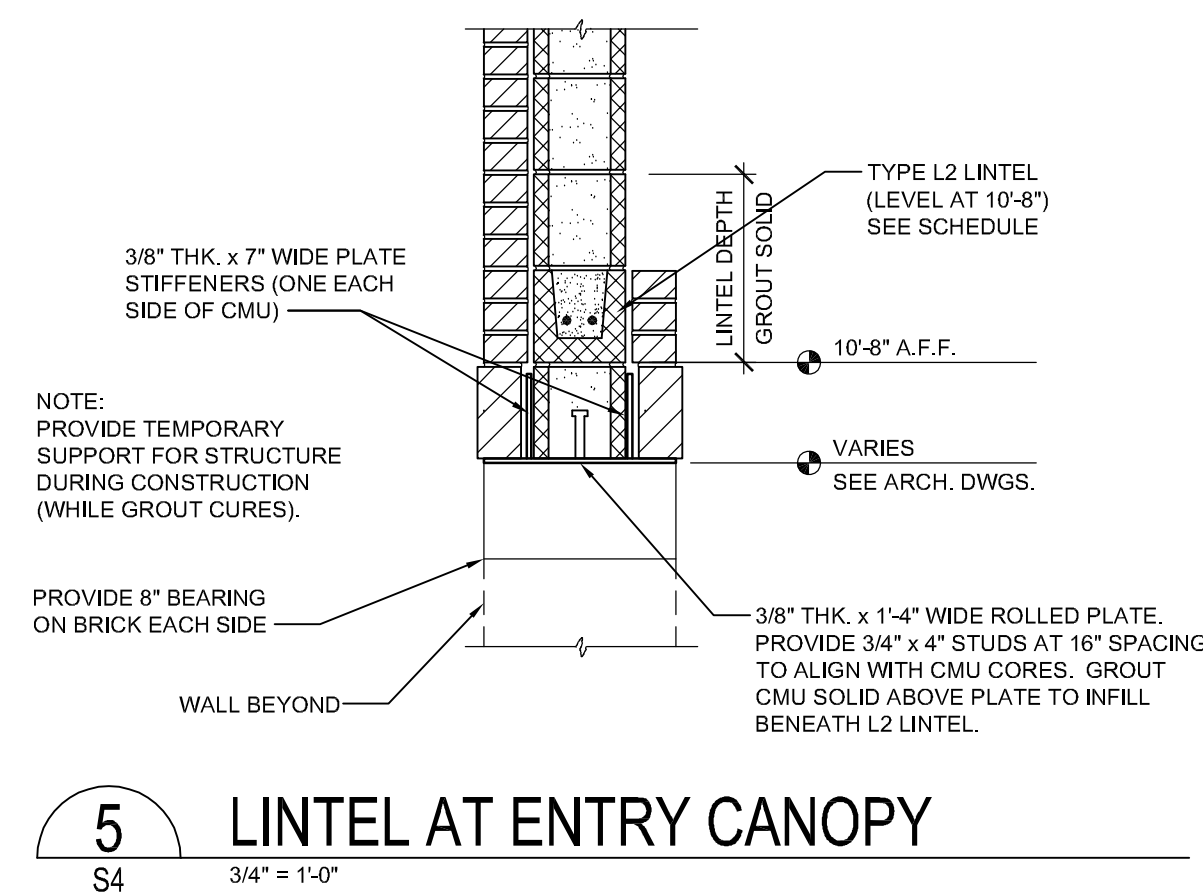
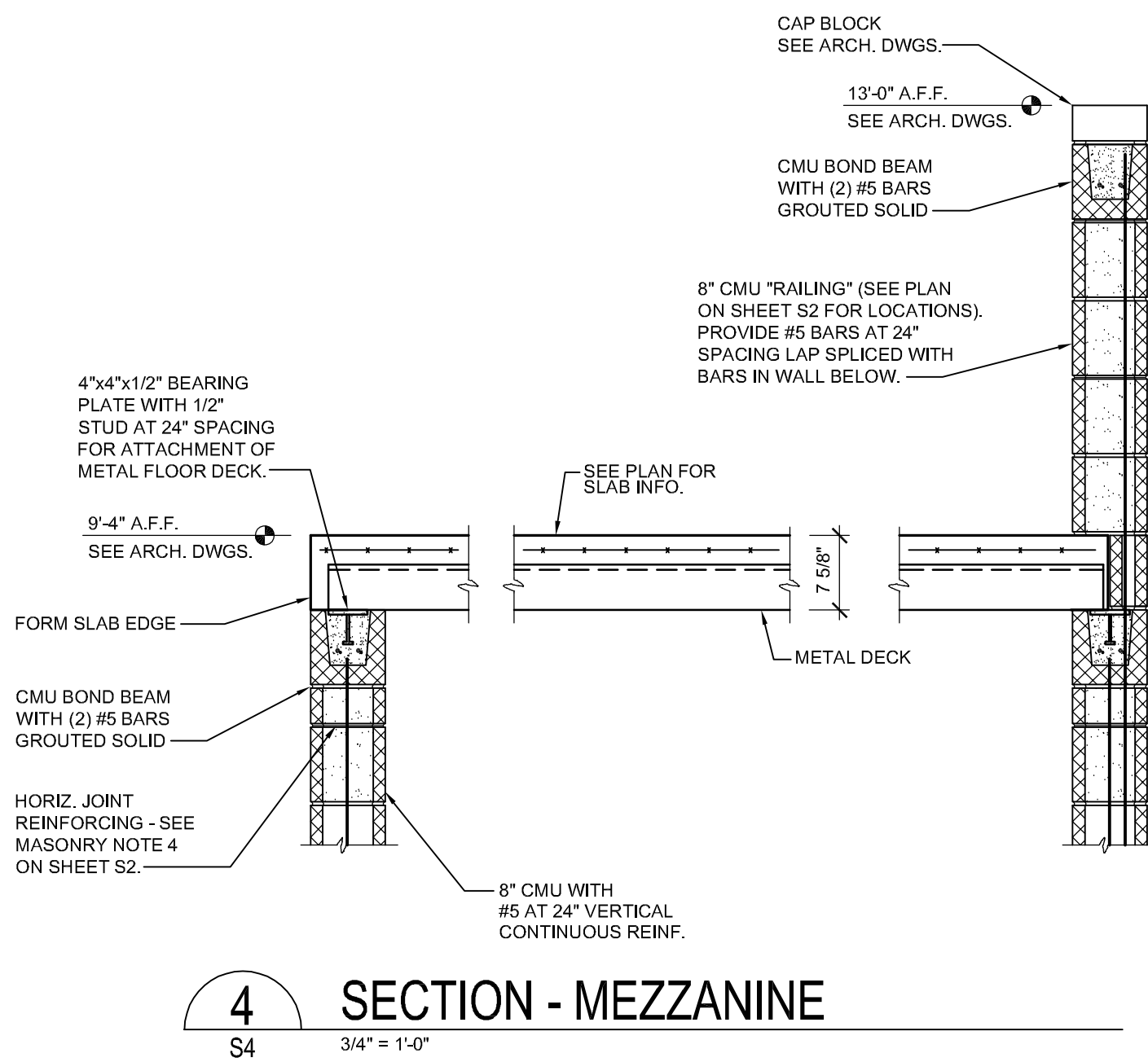
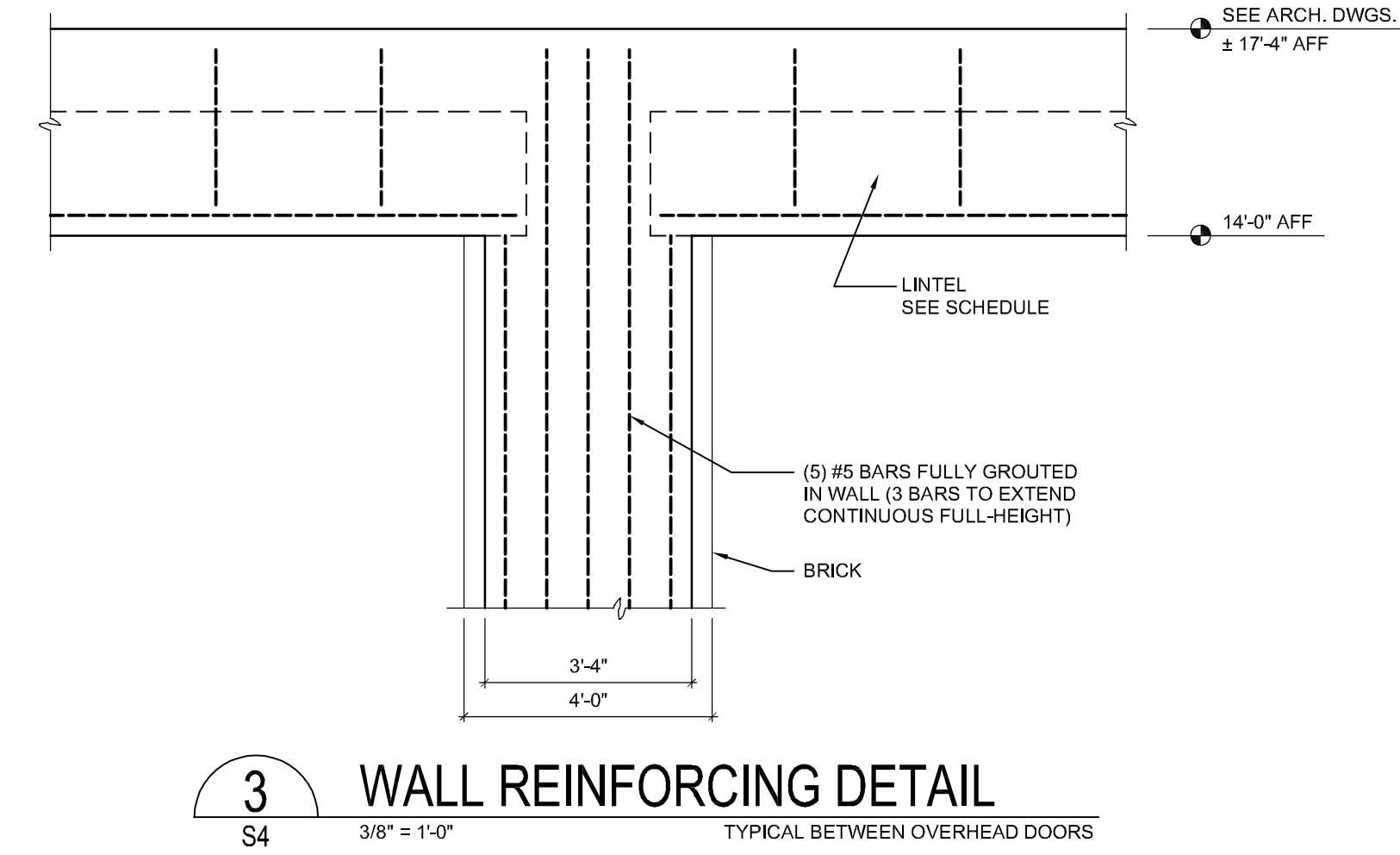
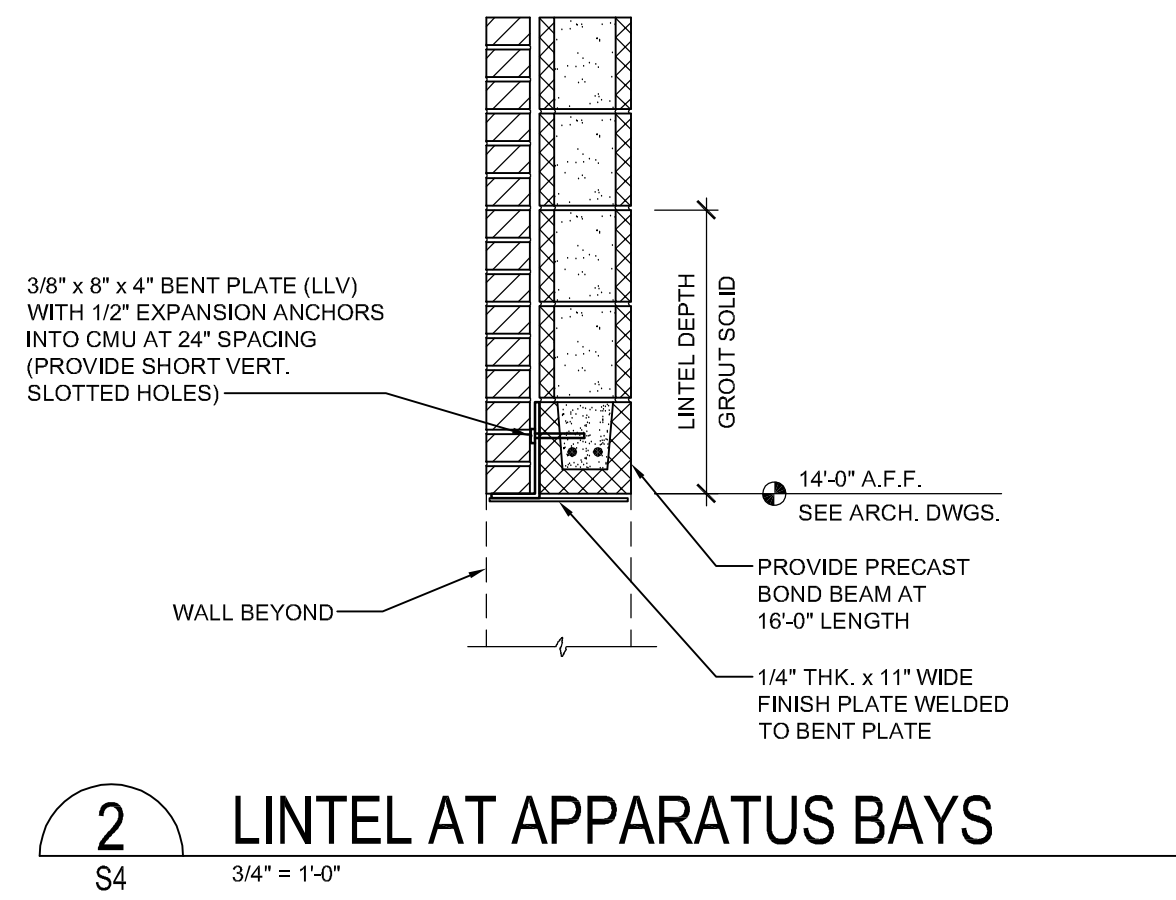
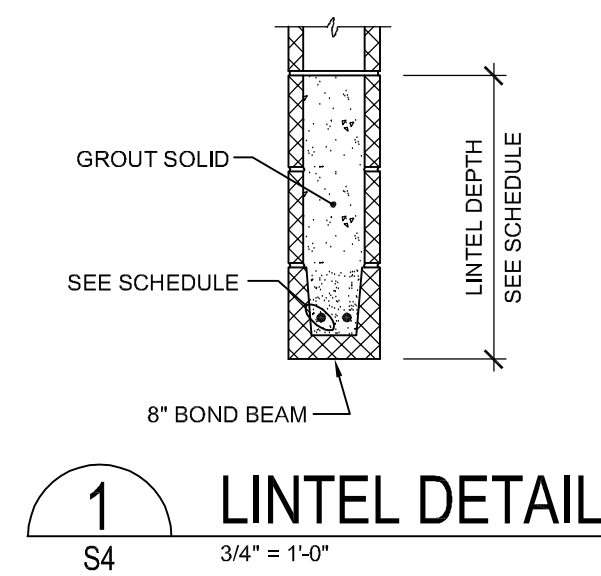
SECTIONS  
& DETAILS

**S3**  
OF S4



LINTEL SCHEDULE					
LINTEL MARK	WALL TYPE	CLEAR OPENING WIDTH	DESCRIPTION	LINTEL DEPTH	NOTES
TYPICAL	4" BRICK VENEER	UP TO 3'-4"	L 3 1/2 x 3 1/2 x 1/4		
TYPICAL	4" BRICK VENEER	UP TO 6'-4"	L 6 x 4 x 3/8 (LLV)		
TYPICAL	4" BRICK VENEER	14'-0"	BENT PLATE 8 x 4 x 3/8 (LLV)		APPARATUS BAYS (SEE DET. 2/S4)
TYPICAL	8" CMU	3'-4"	8" BOND BEAM WITH (1) #5 BARS	8" (1 COURSE)	EXTERIOR CMU WALL
TYPICAL	8" CMU	14'-0"	CONT. 8" BOND BEAM WITH (2) #5 BARS	24" (3 COURSES)	APPARATUS BAYS (SEE DET. 2/S4)
L1	8" CMU	3'-4"	8" BOND BEAM WITH (2) #5 BARS	8" (1 COURSE)	CMU LOAD-BEARING WALLS AT MEZZ.
L2	8" CMU	6'-4"	8" BOND BEAM WITH (2) #5 BARS	16" (2 COURSES)	CMU LOAD-BEARING WALLS AT MEZZ.

- LINTEL NOTES:**
- LINTEL SCHEDULE SHALL APPLY UNLESS NOTED OTHERWISE
  - PROVIDE MIN. 8" BEARING FOR ALL LINTEL ANGLES U.N.O.
  - PROVIDE MIN. 8" BEARING FOR CMU LINTELS U.N.O.
  - PLACE BARS IN BOTTOM OF BOND BEAM.
  - FOR LINTELS CONSISTING OF MULTIPLE COURSES OF CMU, PLACE BARS IN BOTTOM OF BOND BEAM AND GROUT THE ENTIRE LINTEL SOLID IN ONE LIFT.
  - SEE DETAIL 1/S4 FOR DEFINITION OF LINTEL DEPTH.
  - SEE STRUCTURAL NOTES SHEET S2 FOR TYPICAL BOX HEADER FOR FRAMED OPENINGS.



DESIGN: B. ROSS



**ROSS LINDEN ENGINEERS PC**  
 709 W. JONES STREET RALEIGH, NC 27603  
 TEL 919.832.5680 FAX 919.832.5675  
 WWW.ROSSLINDEN.COM NC LICENSE NO. C2364

DRAWN BY: B. ROSS

CHK BY:

**NW HARNETT FIRE STATION 3**  
 8300 US 401 N  
 HARNETT COUNTY, NORTH CAROLINA

24 x 36  
 SCALE VARIES

3/24/2022

C211204

SECTIONS & DETAILS

**S4**  
 OF S4



**STATEMENT FOR SPECIAL INSPECTIONS:**

PROJECT: NW HARNETT FIRE DEPARTMENT  
 LOCATION: HARNETT COUNTY, NORTH CAROLINA  
 PME ENGINEERING FIRM: ENTECH ENGINEERING

THE SITE CLASSIFICATION AS DEFINED BY THE IBC IS "D". THE SEISMIC DESIGN CATEGORY IS "D" BASED ON BUILDING OCCUPANCY CATEGORY IV - ESSENTIAL FACILITIES.

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL SERVICES APPLICABLE TO THIS PROJECT. IT INCLUDES REQUIREMENTS FOR SEISMIC RESISTANCE AND/OR REQUIREMENTS FOR WIND RESISTANCE.

THE SPECIAL INSPECTION COORDINATOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INSPECTIONS REPORTS TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND REGISTERED DESIGN PROFESSIONAL. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES.

THE FREQUENCY OF INSPECTIONS, EITHER CONTINUOUS OR PERIODIC, SHALL BE MADE IN ACCORDANCE WITH SECTION 1704 OF THE NORTH CAROLINA BUILDING CODE. INTERIM REPORTS SHALL BE SUBMITTED MONTHLY TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL. THE REPORTS SHALL INCLUDE THE DAILY OBSERVATION REPORTS AND A SUMMARY OF THE ACTIVITIES COMPLETED AND/OR IN PROGRESS THAT ARE RECEIVING SPECIAL INSPECTIONS. A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY.

THE MINIMUM QUALIFICATIONS OF SPECIAL INSPECTOR SHALL BE DONE BY AN APPROVED TESTING AGENCY MEETING THE REQUIREMENTS OF THE IBC SECTION 1703 AND ADTM-E329.

THE BUILDING OFFICIAL IS AUTHORIZED TO APPROVE SPECIAL INSPECTORS WHO HAVE DOCUMENTED RELEVANT EXPERIENCE AND ARE PROGRESSING TOWARDS ACHIEVING THE MINIMUM QUALIFICATIONS.

THE STATEMENT OF SPECIAL INSPECTIONS ENCOMPASSES THE FOLLOWING DISCIPLINES:

- ELECTRICAL
- THE CONTRACTOR SHALL INCLUDE SEISMIC REQUIREMENTS FOR THE FOLLOWING SYSTEMS AND COMPONENTS:
  - STANDBY POWER GENERATOR (ANCHORAGE) (FUTURE - BY OTHERS)
  - AUTOMATIC TRANSFER SWITCH (RESTRAINT SYSTEM) (FUTURE - BY OTHERS)
  - LIGHT FIXTURES (SUPPORT CABLES)

**STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS OF WIND RESISTANCE**

BASIC WIND SPEED (3 SECOND GUST): 123 MPH  
 WIND EXPOSURE CATEGORY: B

DESCRIPTION OF MAIN WIND FORCE-RESISTING COMPONENTS SUBJECT TO SPECIAL INSPECTION FOR WIND RESISTANCE:

- ANCHORING OF STANDBY POWER GENERATOR (FUTURE - BY OTHERS)

ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESIGNATED ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY.

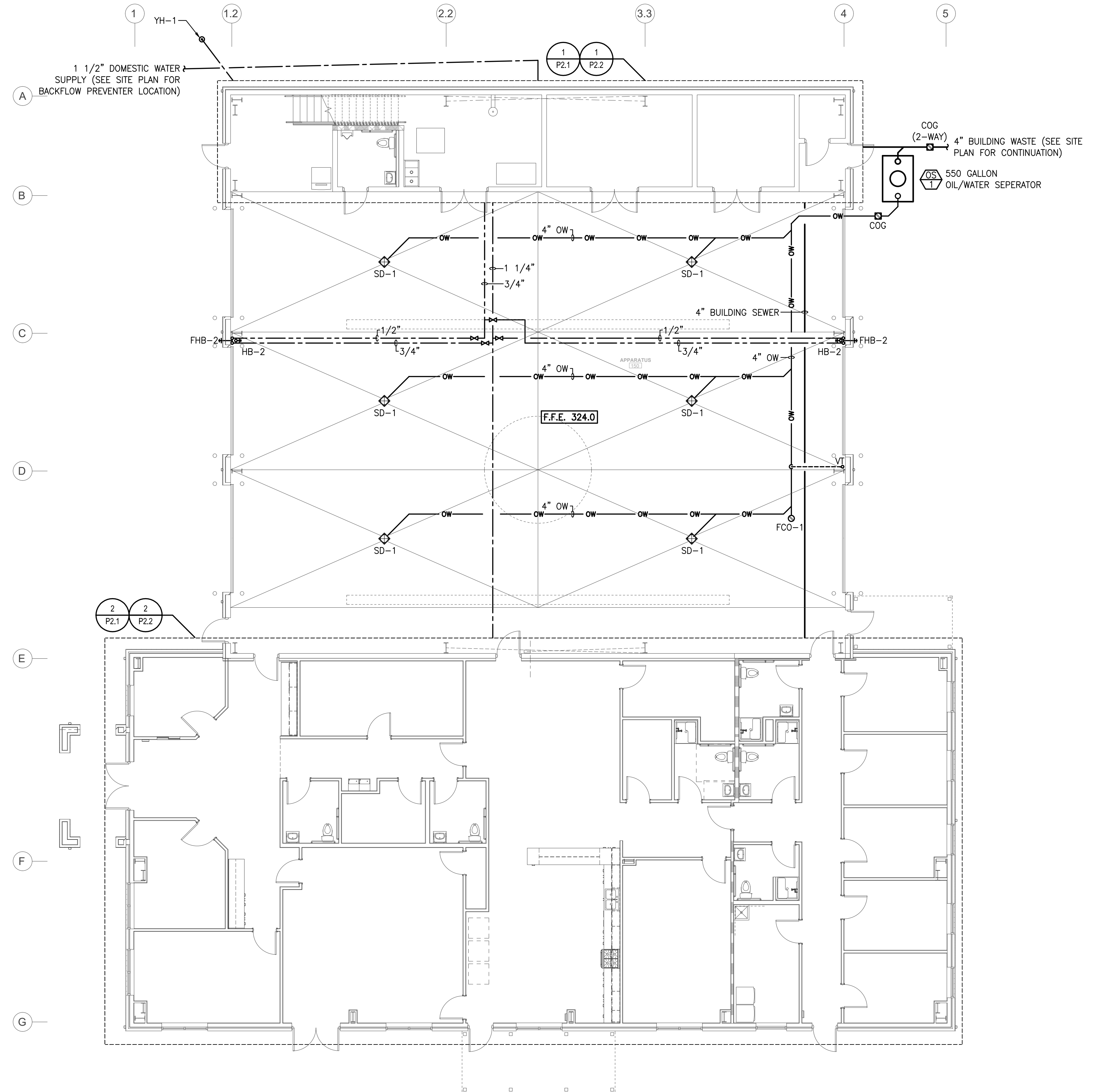
**STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS FOR SEISMIC RESISTANCE**

THE SITE CLASSIFICATION: "D"

DESCRIPTION OF SEISMIC SYSTEMS SUBJECT TO PERIODIC SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE:

- STANDBY POWER GENERATOR (ANCHORAGE)
- AUTOMATIC TRANSFER SWITCH (RESTRAINTS)
- LIGHT FIXTURES (SUPPORT CABLES)

CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESIGNATED ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY.



1 PLUMBING OVERALL PIPING PLAN  
 SCALE: 1/8" = 1'-0"

FIRE RATING LEGEND  
 ■■■■■■■■ 1 - HR FIRE PARTITION

Bobbit, Inc.  
 600 Germantown Road  
 Raleigh, NC 27607  
 (919) 851-1980  
 Fax: (919) 851-1982  
 design@bobbit.com  
 www.bobbit.com

**BOBBITT**

Professional Engineer  
 State of North Carolina  
 License No. 31466  
 Date of Issue: 07/22/2014  
 Expiration Date: 07/22/2017

Entech  
 ENGINEERING  
 INC. LIC. # C-1132  
 1071 N. BERKELEY BLVD.  
 RALEIGH, NC 27609  
 TEL: (919) 778-9088  
 PROJECT MGR.: D. HAM  
 PROJECT NO.: 22104E

COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 DEH

NW HARNETT FIRE STATION 3  
 US 401  
 HARNETT COUNTY, NORTH CAROLINA

24 x 36  
 AS NOTED

2/24/22

21-0337

PLUMBING  
 PLANS

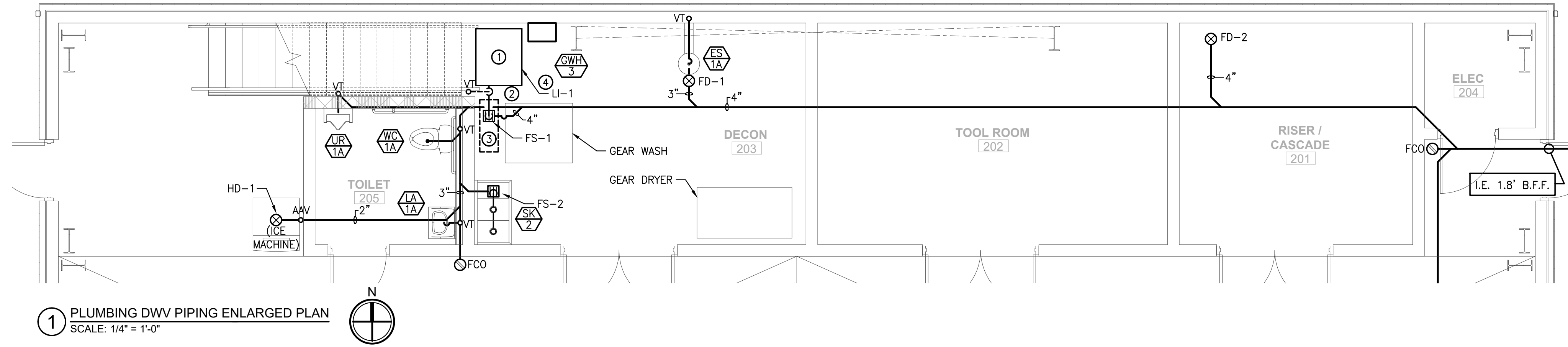
P1.1  
 OF 8

COPYRIGHT © 2021 BOBBITT, INC. ALL RIGHTS RESERVED.

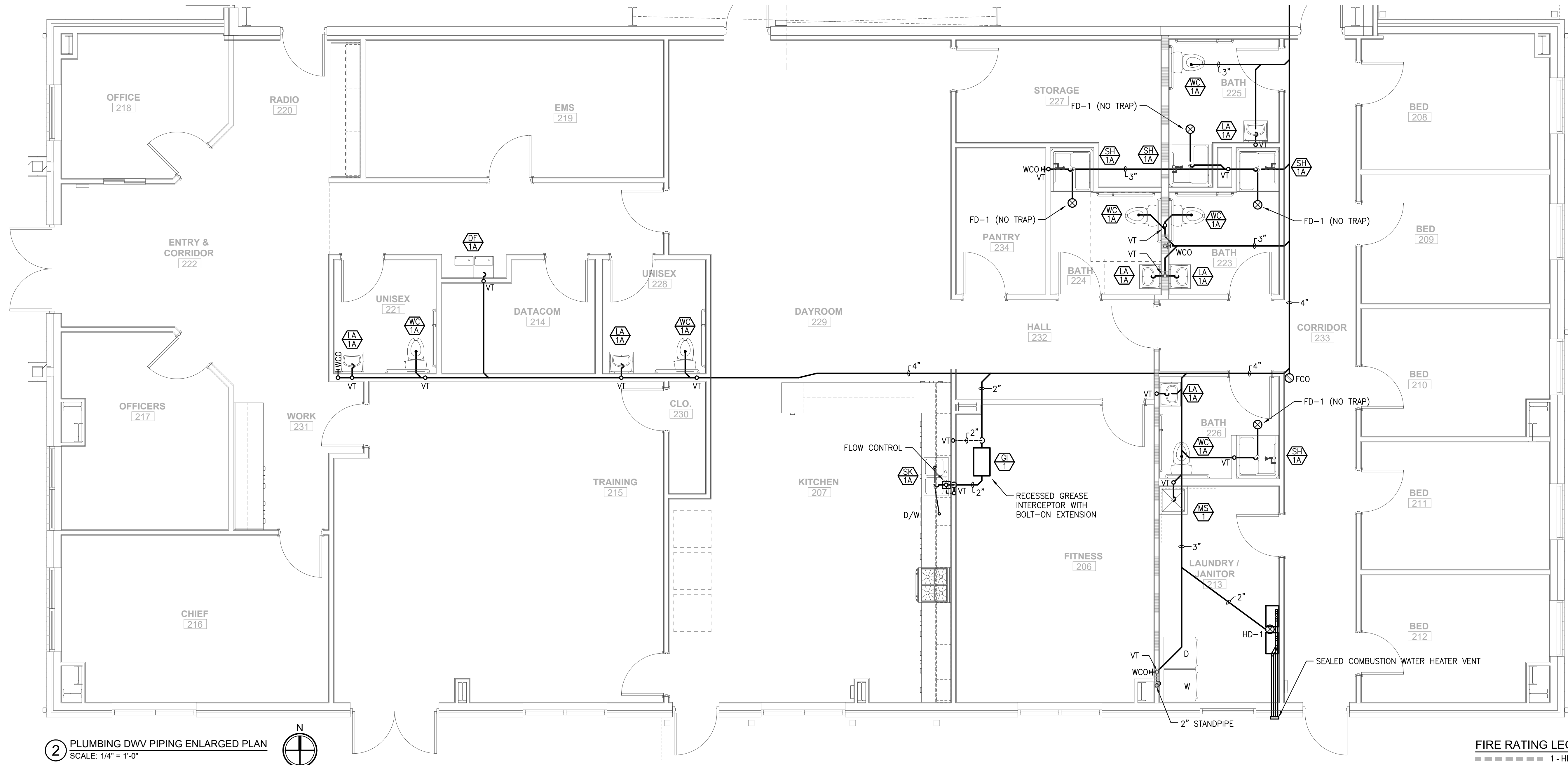


**KEYED NOTES "Ⓢ":**

1. REMOVABLE LINT SCREEN BY OTHERS.
2. 3" WASHER DRAIN.
3. WASHER DRAIN TROUGH BY OTHERS.
4. PROVIDE 4" WASTE CONNECTION (LJ-1) AT BASE OF WASHER DRAIN TROUGH. COORDINATE SPECIFIC CONNECTION REQUIREMENTS WITH TROUGH SYSTEM, BY OTHERS.



**1** PLUMBING DWV PIPING ENLARGED PLAN  
SCALE: 1/4" = 1'-0"



**2** PLUMBING DWV PIPING ENLARGED PLAN  
SCALE: 1/4" = 1'-0"



**FIRE RATING LEGEND**  
 ■■■■■■■■ 1 - HR FIRE PARTITION

BOBBITT Inc.  
 600 Germantown Road  
 Raleigh, NC 27607  
 (919) 851-1980  
 Fax: (919) 851-1982  
 design@bobbitt.com  
 www.bobbitt.com

**Entech**  
 ENGINEERING  
 NC Lic. # C-1132  
 1071 N. BERKELEY BLVD.  
 RALEIGH, NC 27607  
 TEL: (919) 776-9088  
 PROJECT MGR.: D. H. M.  
 PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

**NW HARNETT FIRE STATION 3**  
**US 401**  
**HARNETT COUNTY, NORTH CAROLINA**

24 x 36  
AS NOTED

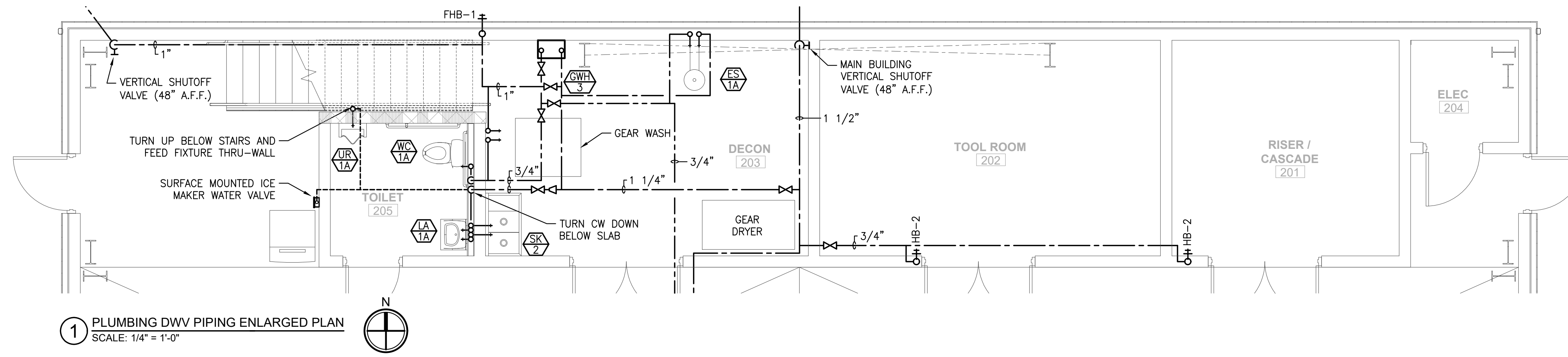
2/24/22

21-0337

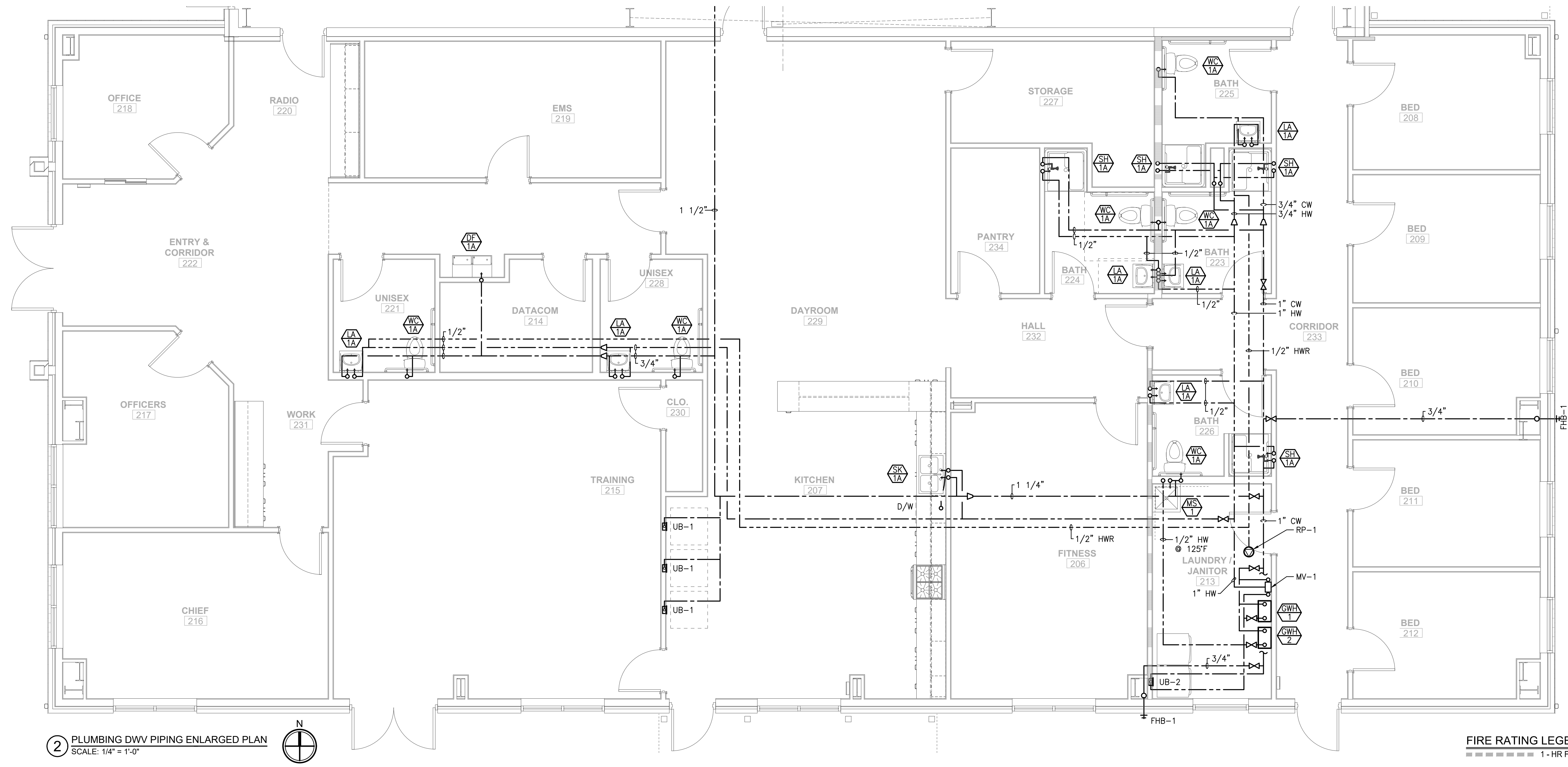
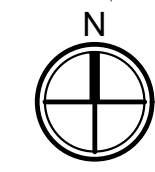
PLUMBING  
PLANS

**P2.1**  
OF 8

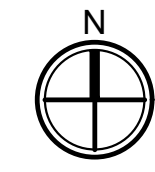




1 PLUMBING DWV PIPING ENLARGED PLAN  
SCALE: 1/4" = 1'-0"

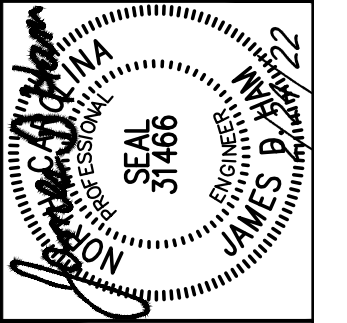


2 PLUMBING DWV PIPING ENLARGED PLAN  
SCALE: 1/4" = 1'-0"



FIRE RATING LEGEND  
 ■■■■■■■■ 1 - HR FIRE PARTITION

BOBBITT  
 Bobbitt, Inc.  
 600 Germantown Road  
 Raleigh, NC 27607  
 (919) 851-1980  
 Fax: (919) 851-1982  
 design@bobbitt.com  
 www.bobbitt.com



Entech  
 ENGINEERING  
 NC LIC # C-1132  
 1071 N. BERKELEY BLVD.  
 RALEIGH, NC 27609  
 TEL: (919) 776-9088  
 PROJECT MGR.: D. HALL  
 PROJECT NO.: 221046

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
 US 401  
 HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

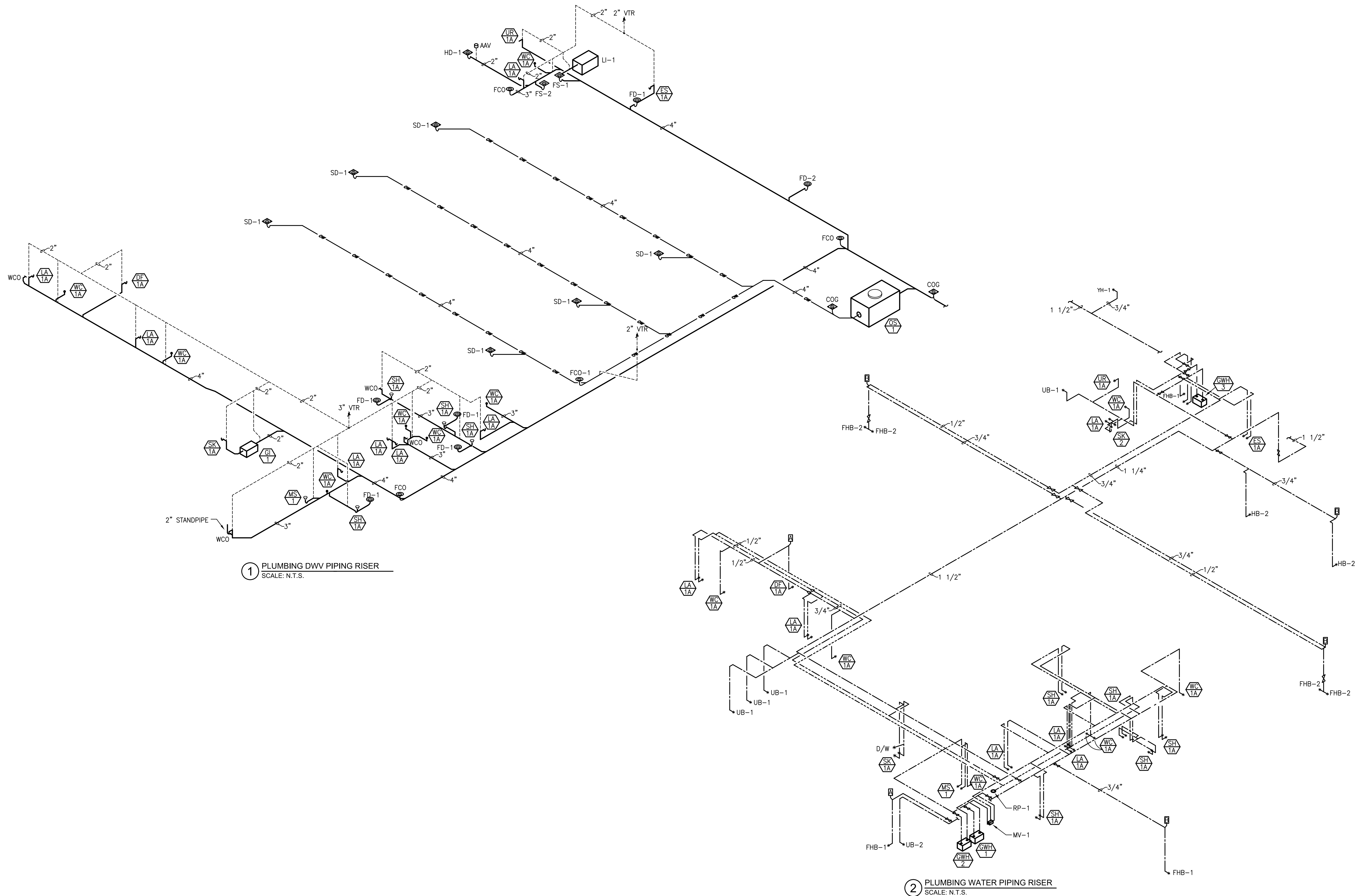
21-0337

PLUMBING  
PLANS

P2.2  
OF 8

COPYRIGHT © 2021 BOBBITT, INC. ALL RIGHTS RESERVED.

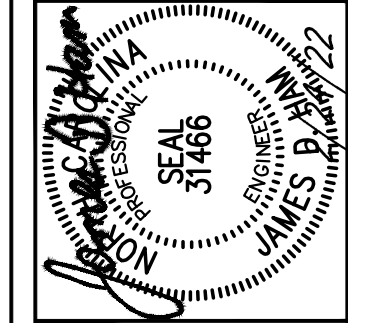




1 PLUMBING DWV PIPING RISER  
SCALE: N.T.S.

2 PLUMBING WATER PIPING RISER  
SCALE: N.T.S.

BOBBITT  
BOBBITT, Inc.  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbitt.com  
www.bobbitt.com



Entech  
ENGINEERING  
INC. LIC. # C-1132  
4071 N. BERKELEY BLVD.  
RALEIGH, NC 27609  
TEL: (919) 776-9088  
PROJECT MGR.: D. J. GRIFFITH  
PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

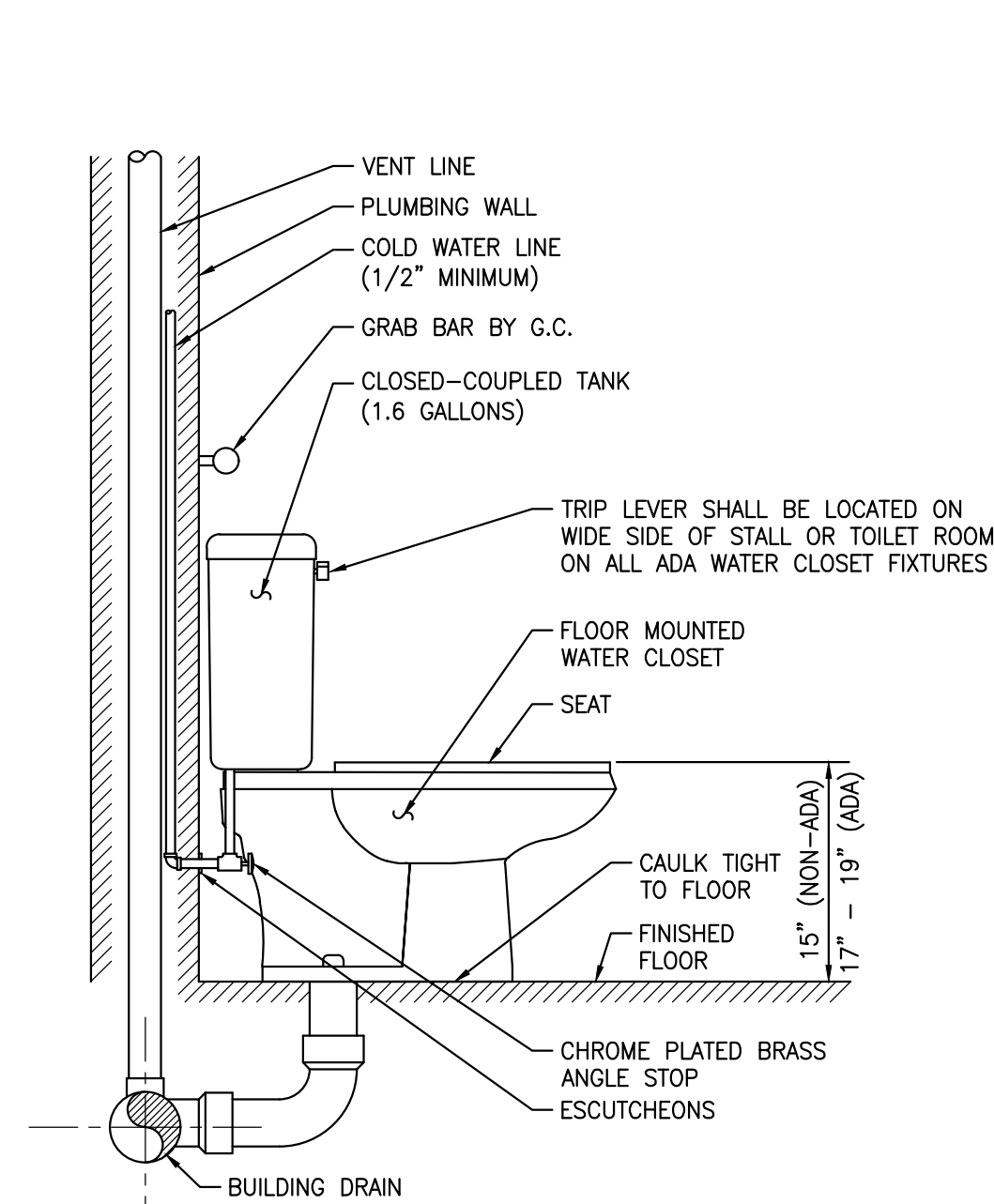
21-0337

PLUMBING  
RISERS

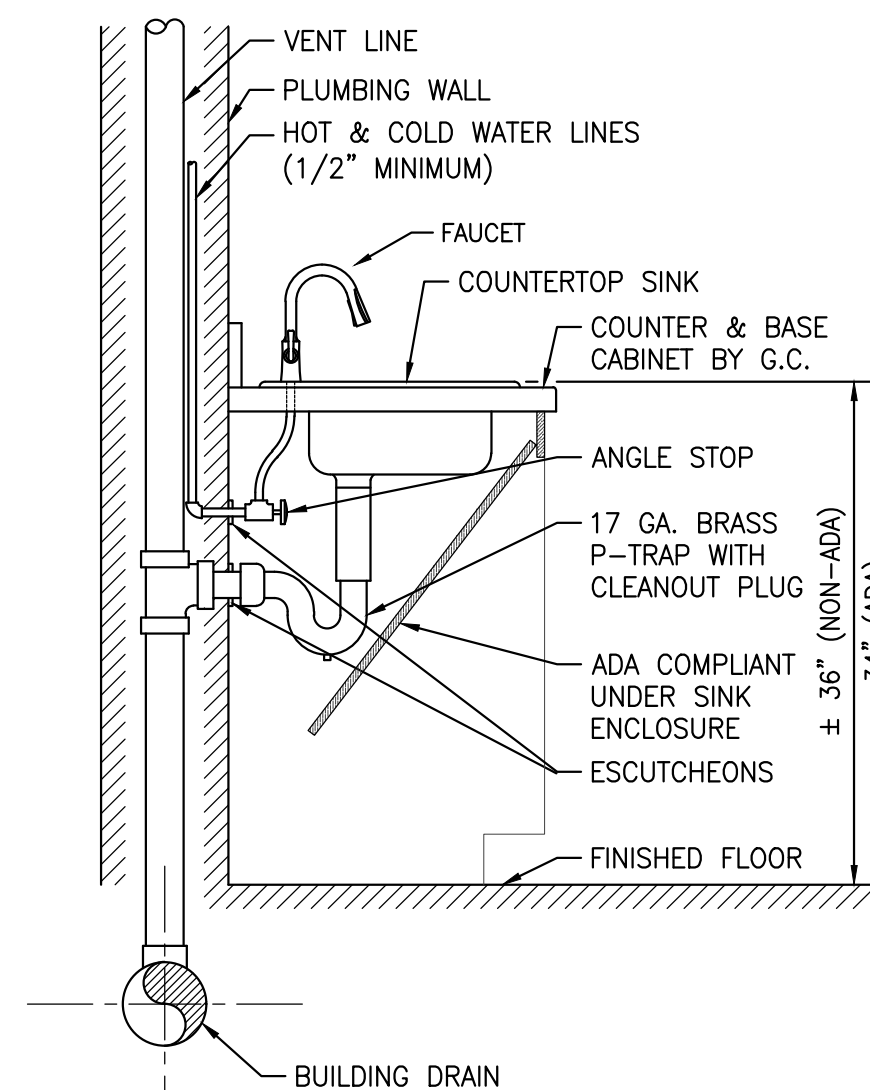
P3.1  
OF 8

COPYRIGHT © 2021 BOBBITT, INC. ALL RIGHTS RESERVED.



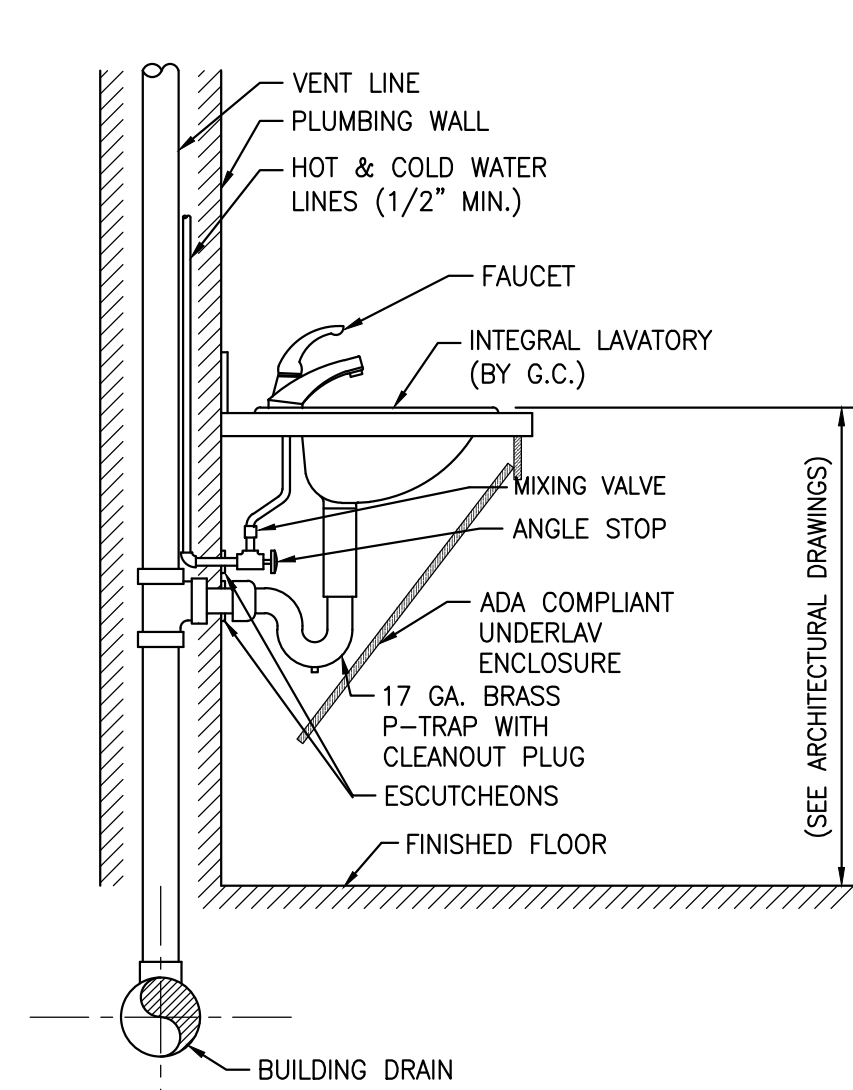


1 FLOOR MOUNTED WATER CLOSET WITH FLUSH TANK DETAIL  
SCALE: N.T.S.



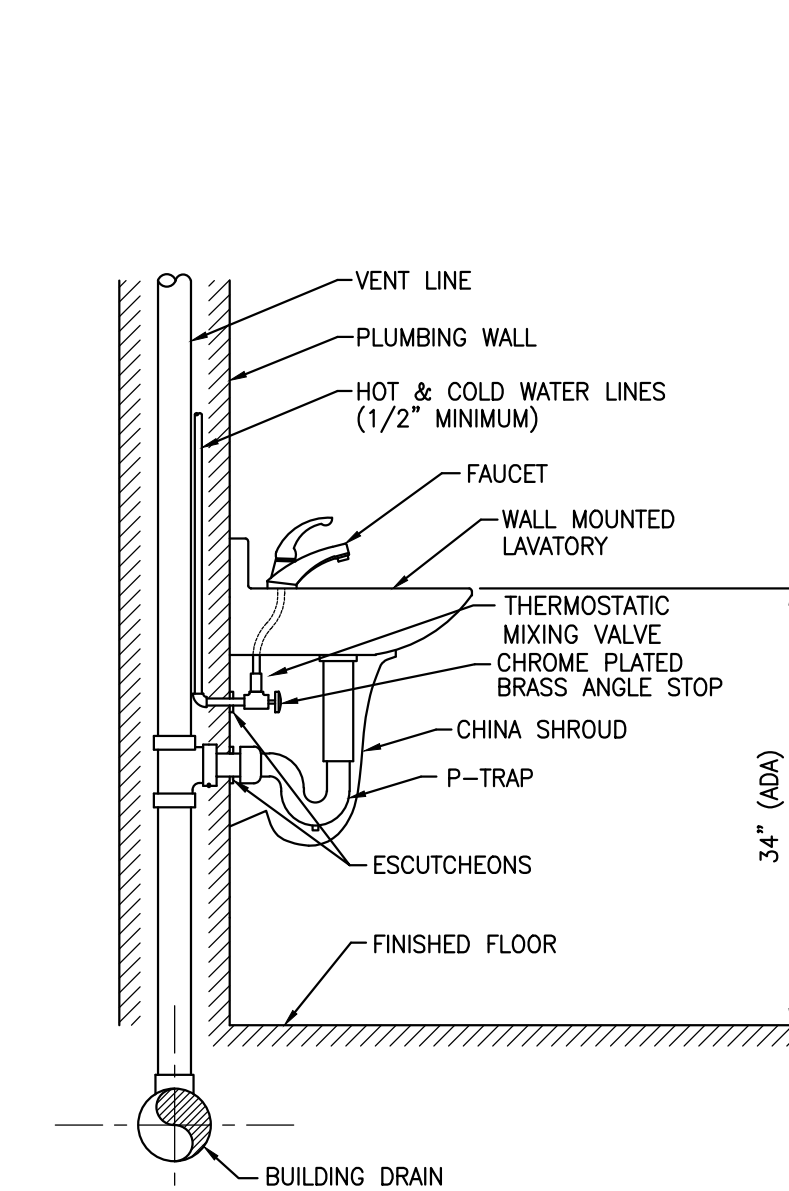
NOTES:  
1. G.C. SHALL PROVIDE ADA COMPLIANT UNDERSPACE SINK PROTECTIVE ENCLOSURES FOR ALL ADA SINKS.  
2. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER (CHROME PLATED WHERE EXPOSED TO VIEW.)

2 COUNTER SINK DETAIL  
SCALE: N.T.S.



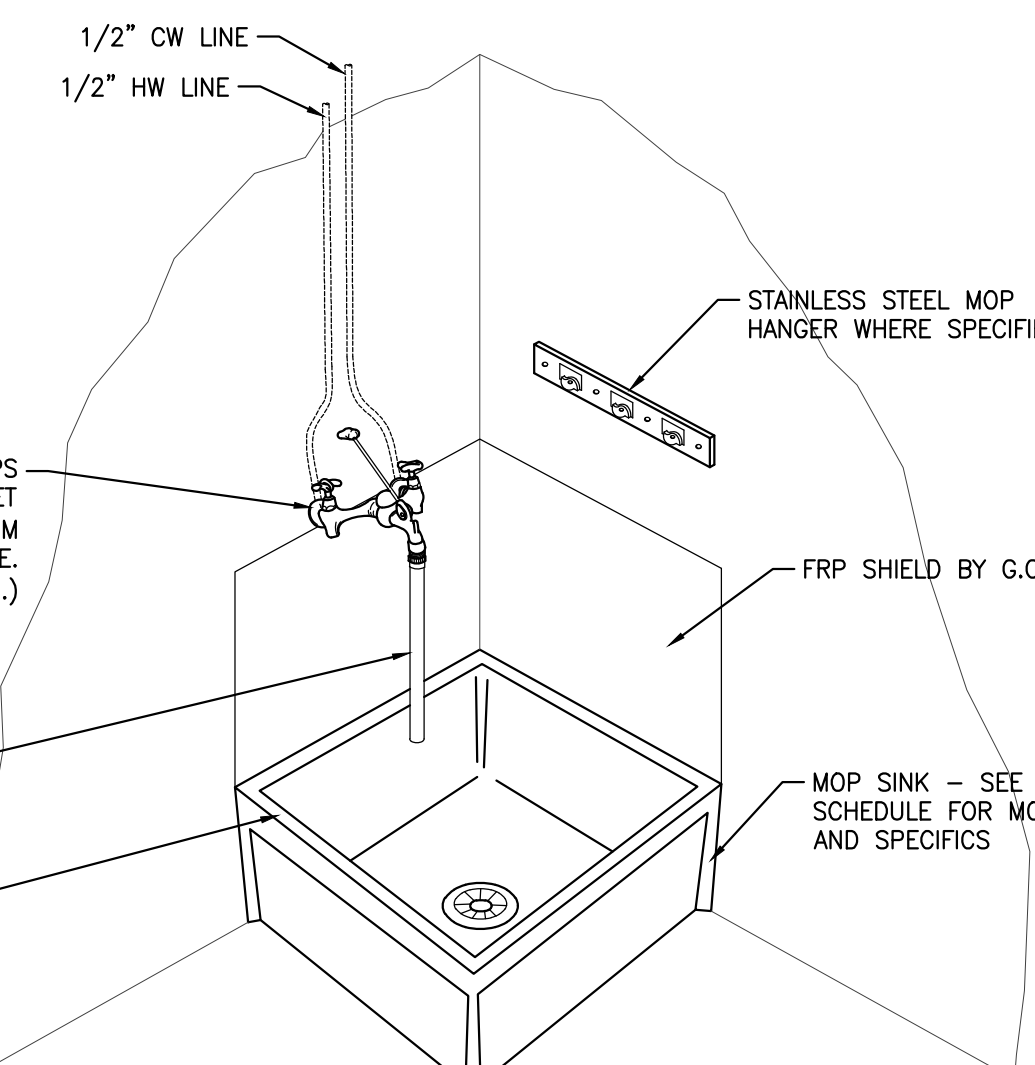
NOTES:  
1. G.C. SHALL PROVIDE ADA COMPLIANT UNDERLAV PROTECTIVE ENCLOSURES FOR ALL ADA LAVATORIES.  
2. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER.

3 COUNTERTOP LAVATORY DETAIL  
SCALE: N.T.S.



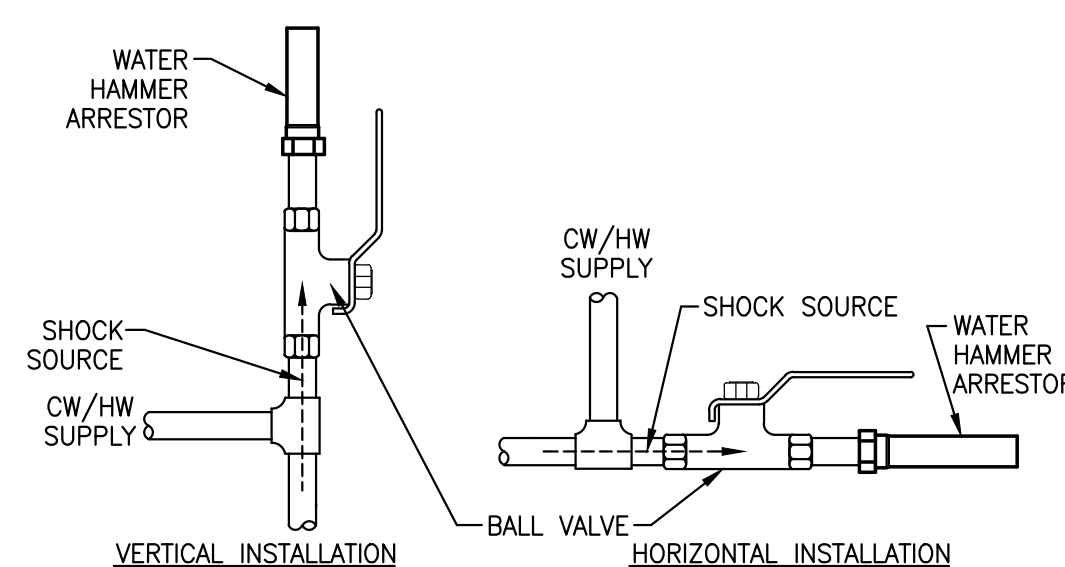
NOTES:  
1. WATER SUPPLY INLETS AND RISERS SHALL BE BRASS OR COPPER.

4 WALL MOUNTED LAVATORY WITH CHINA SHROUD DETAIL  
SCALE: N.T.S.



NOTES:  
1. GROUT BOTTOM AND CAULK ALL EDGES FOR COMPLETE SEAL TO FLOOR AND WALLS.

5 FLOOR MOUNTED MOP SINK DETAIL  
SCALE: N.T.S.

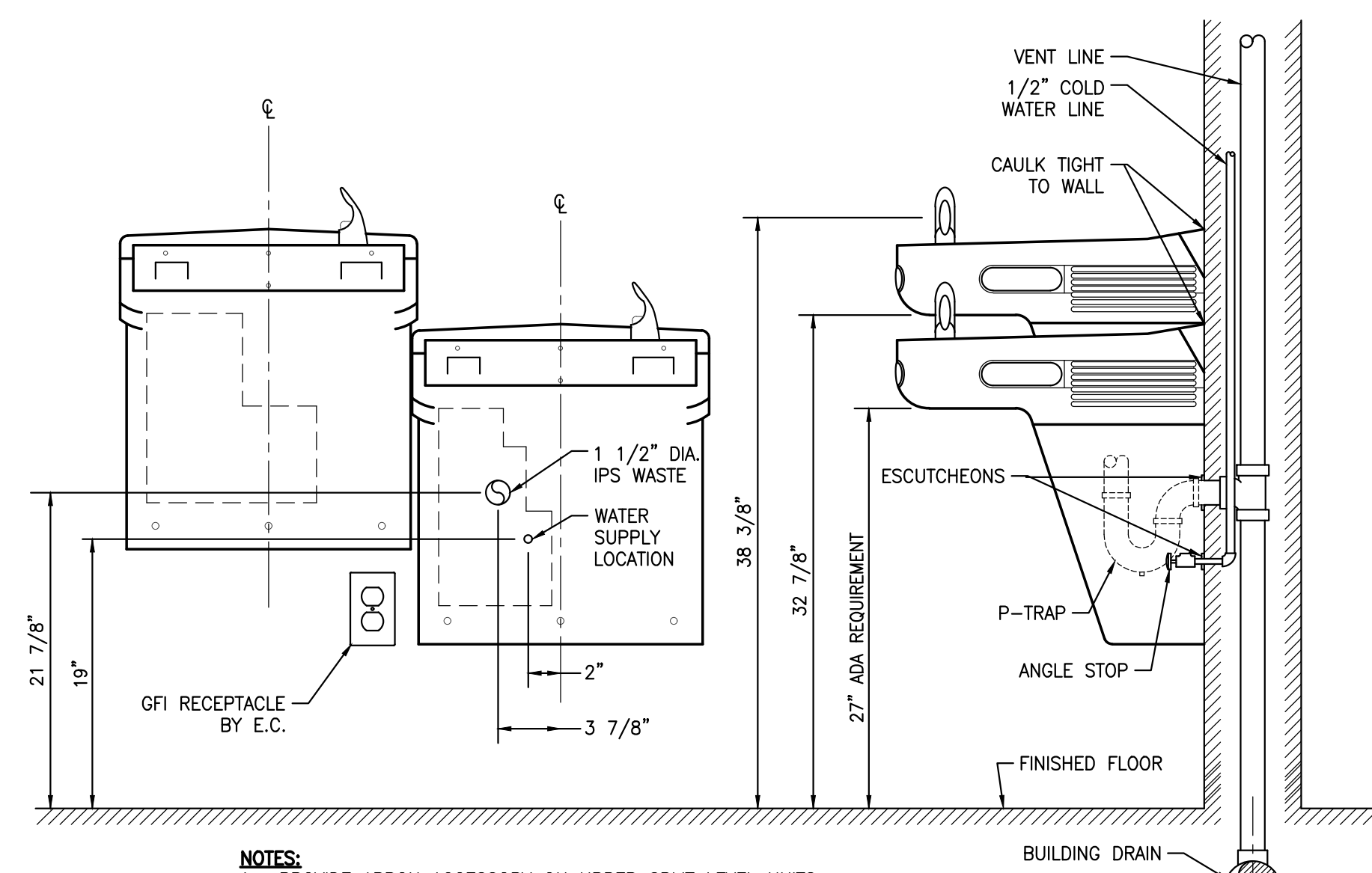


SIZE	FIXTURE UNITS	*PDI UNITS
1/2"	1-11	A
3/4"	12-32	B
1"	33-60	C
1 1/4"	61-113	D
1 1/2"	114-154	E
2"	155-330	F

\*PLUMBING & DRAINAGE INSTITUTE STANDARD PDI-WH201.

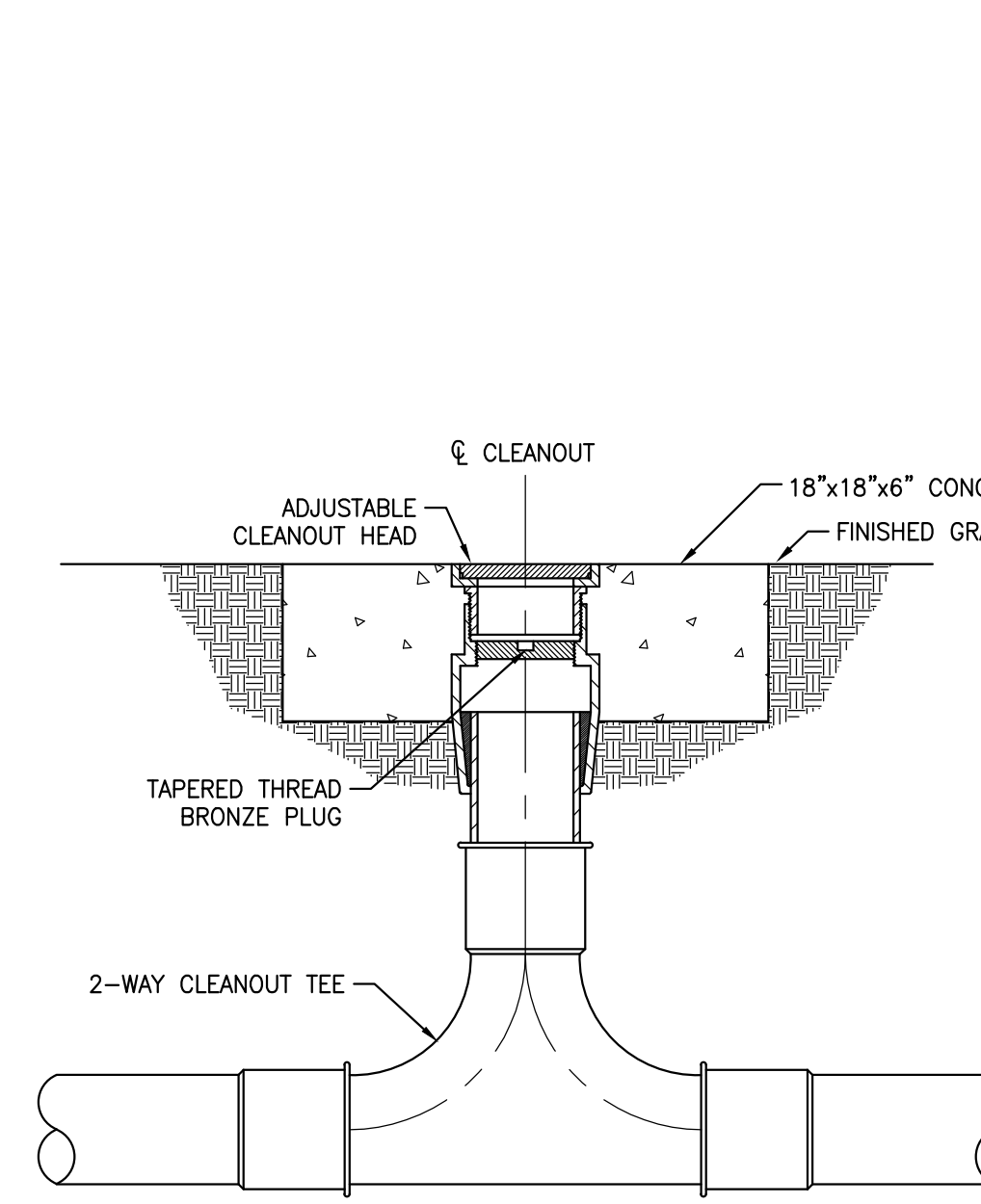
NOTES:  
1. SEE PLANS FOR LOCATIONS OF WATER HAMMER ARRESTORS.  
2. INSTALL ISOLATION VALVES FOR SERVICING.

6 WATER HAMMER ARRESTOR WITH SHUTOFF VALVE DETAIL  
SCALE: N.T.S.

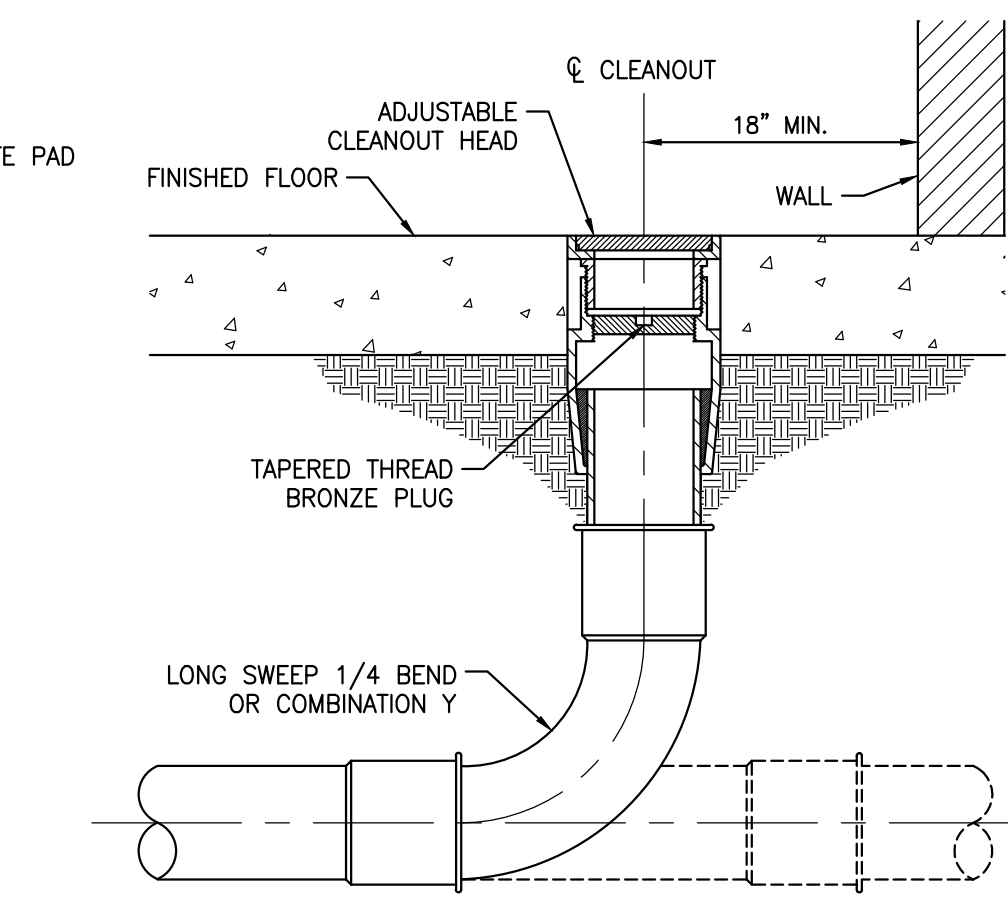


NOTES:  
1. PROVIDE APRON ACCESSORY ON UPPER SPLIT LEVEL UNITS.  
2. COORDINATE SOLID SUPPORT WOOD BLOCKING REQUIREMENTS WITH G.C.  
3. COORDINATE RECEPTACLE MOUNTING LOCATION WITH E.C. PER INSTALLATION INSTRUCTIONS.

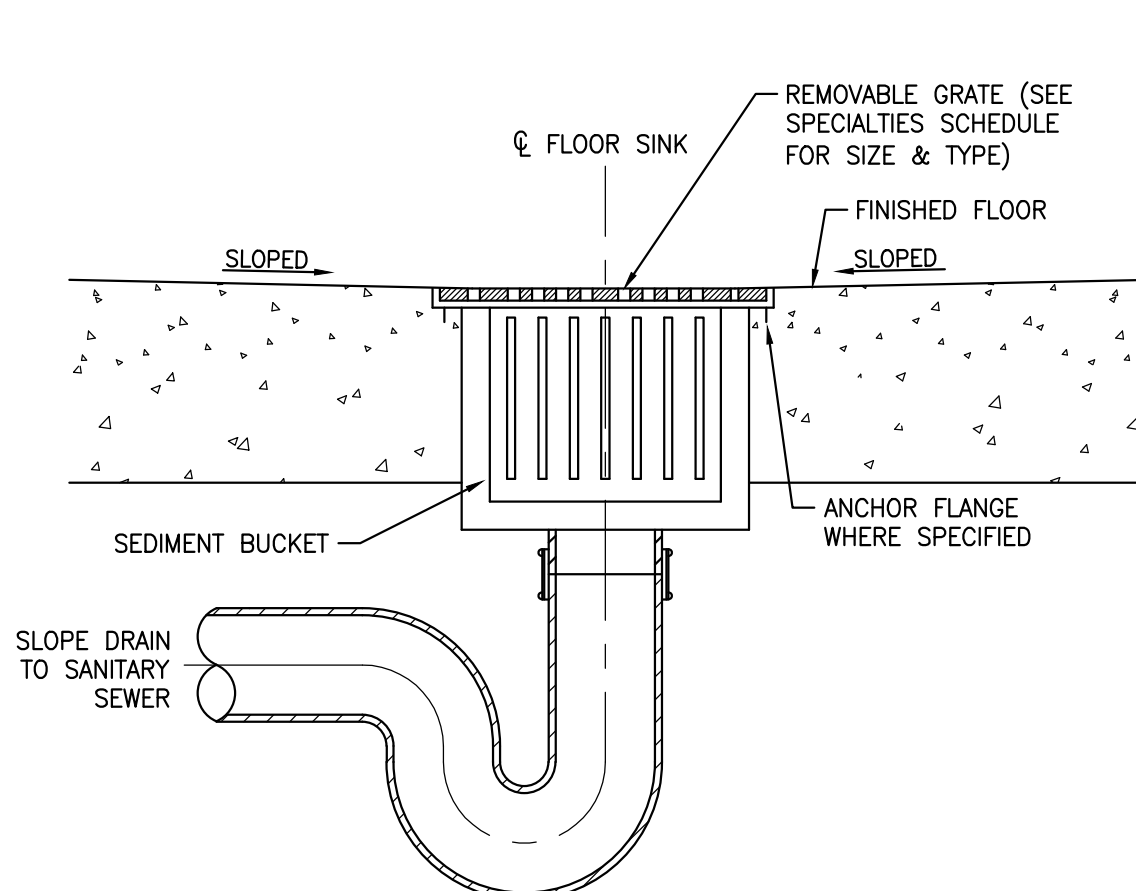
7 WALL MOUNTED ELECTRIC WATER COOLER DETAIL  
SCALE: N.T.S.



8 CLEANOUT ON GRADE WITH 2-WAY TEE DETAIL  
SCALE: N.T.S.

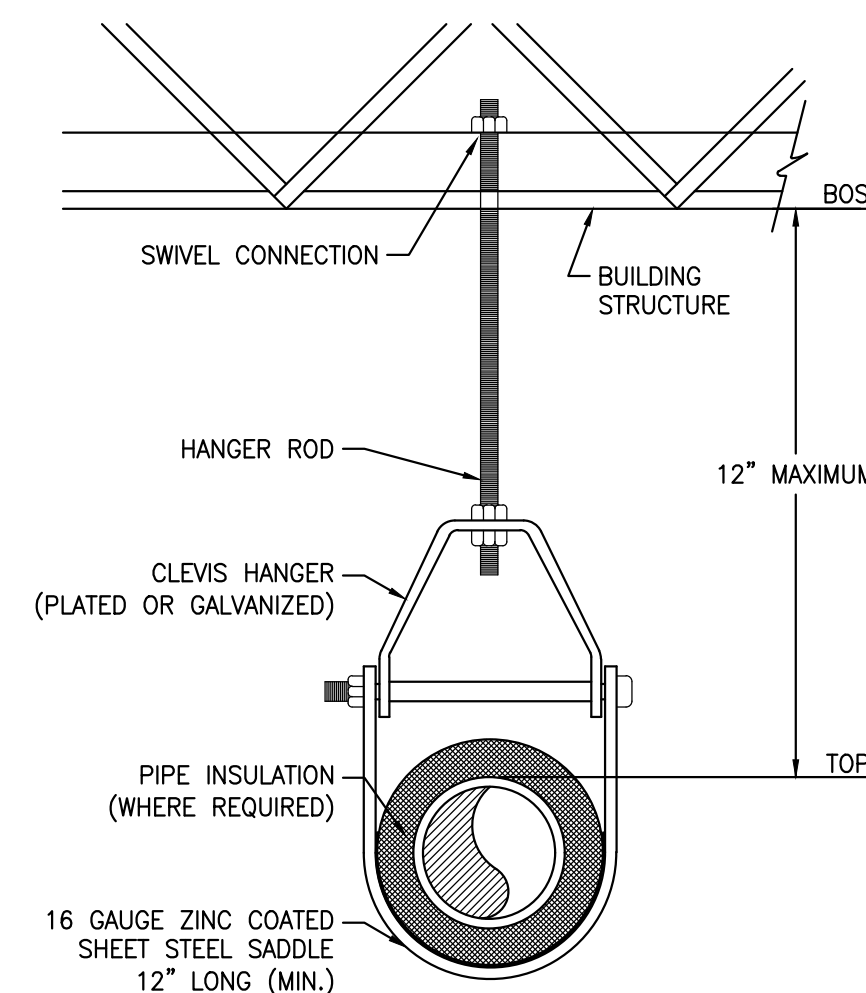


9 FLOOR CLEANOUT WITH SWEEP BEND OR COMBINATION Y DETAIL  
SCALE: N.T.S.

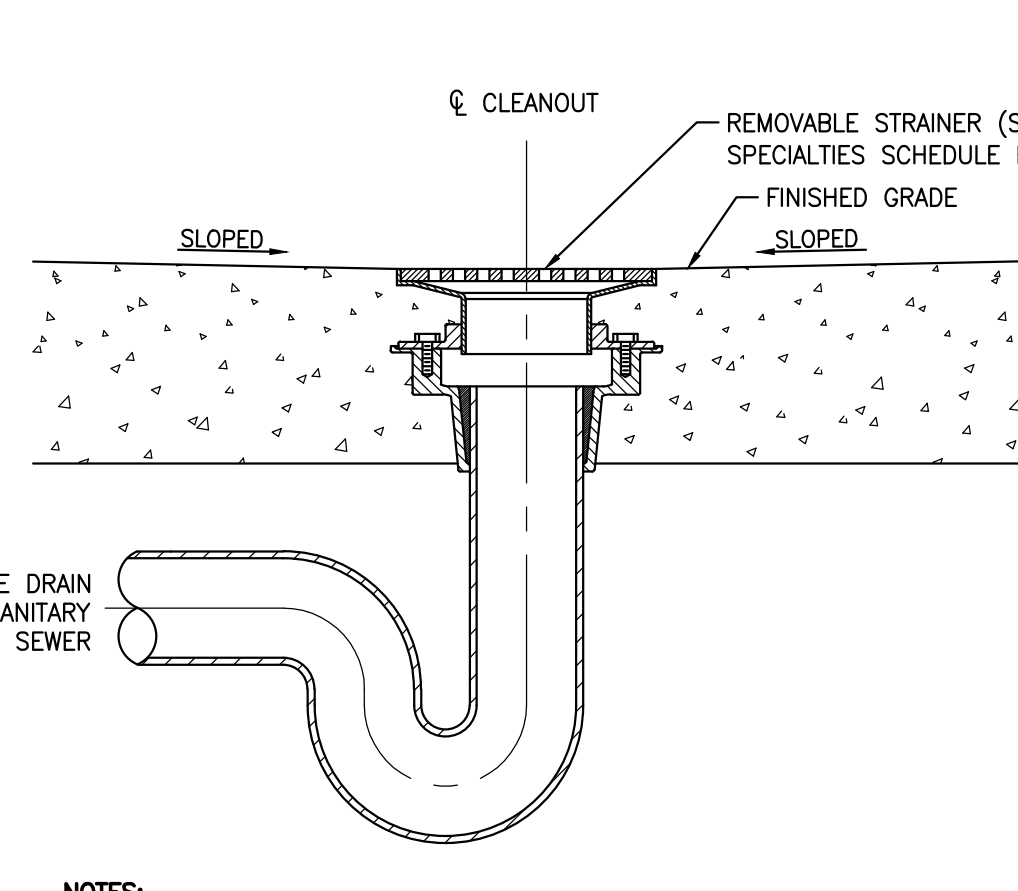


NOTES:  
1. FINISHED FLOOR SHALL BE SLOPED TO DRAIN FLUSH WITH STRAINER WHERE REQUIRED, COORDINATE WITH G.C.

10 SHOP DRAIN WITH SEDIMENT BUCKET DETAIL  
SCALE: N.T.S.

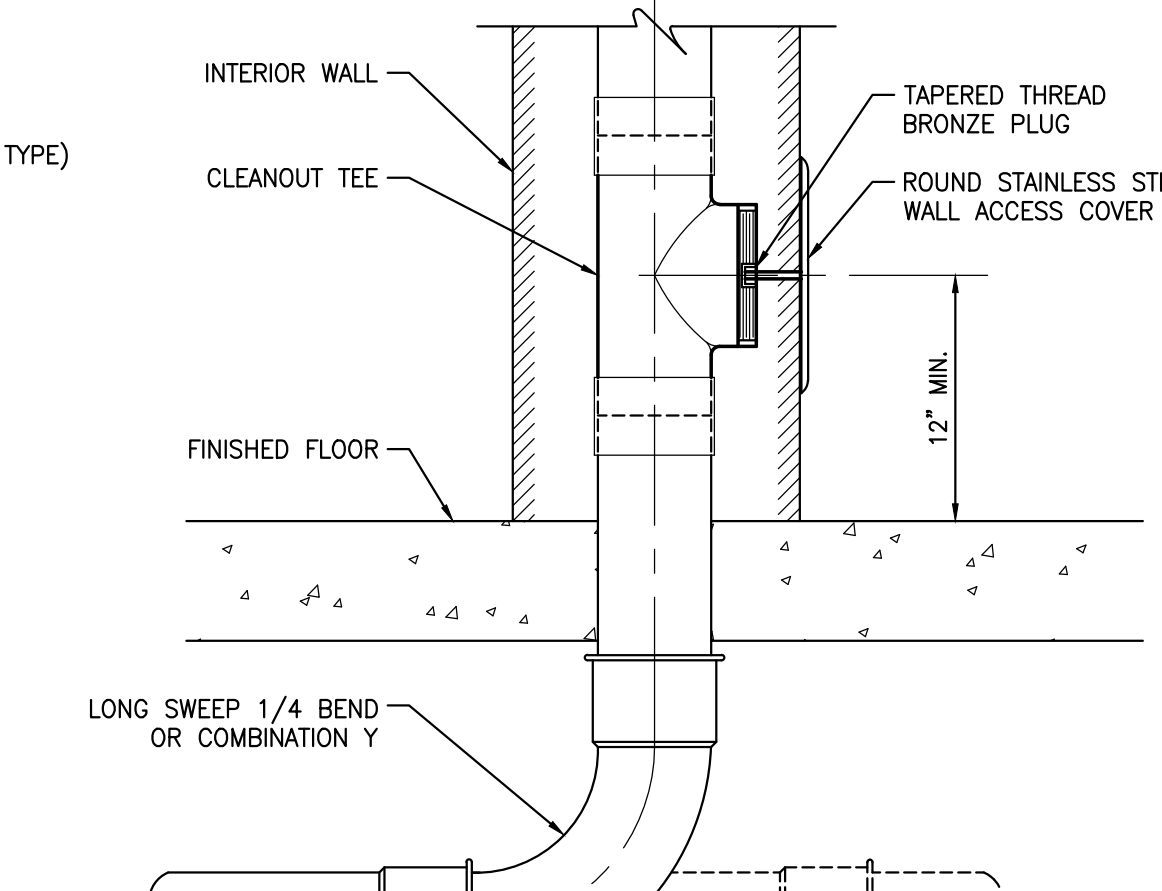


11 CLEVIS PIPE HANGER DETAIL  
SCALE: N.T.S.

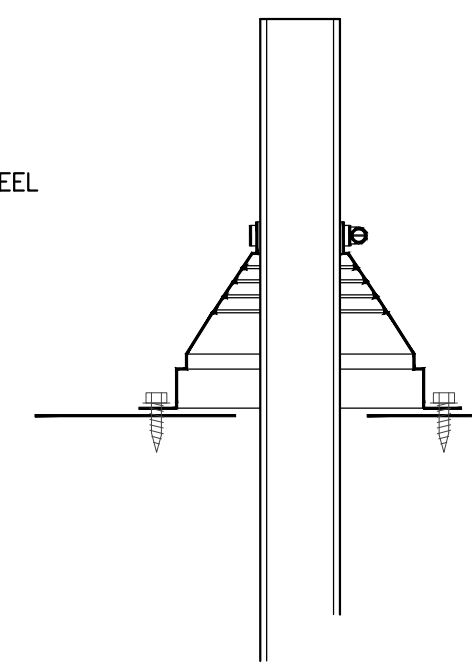


NOTES:  
1. FINISHED FLOOR SHALL BE SLOPED TO DRAIN FLUSH WITH STRAINER WHERE REQUIRED, COORDINATE WITH G.C.

12 FLOOR DRAIN DETAIL  
SCALE: N.T.S.



13 WALL CLEANOUT WITH SWEEP BEND OR COMBINATION Y DETAIL  
SCALE: N.T.S.



14 STANDARD ROOF PENETRATION INSTALLATION DETAIL  
SCALE: N.T.S.

OPENINGS 10" OR LESS TO HAVE HIGH TEMP. CORROSION RESISTANT, SILICONE BASED FLASHING (AKA: DECK-TITE) FURNISHED AND INSTALLED BY THE PC, EC, OR MC TRADE REQUIRING THE OPENING. TRADE CONTRACTOR IS TO CUT OPENING IN THE BOOT SMALLER THAN THE ACTUAL PIPE, HOSE, OR CONDUIT AND INSTALL 1/2" TO 3/4" ADJUSTABLE STAINLESS STEEL BAND AT TOP OF BOOT TO PROVIDE SECURE FIT. PC, EC, OR MC TO BED THE DECK-TITE USING ELASTOMERIC POLYURETHANE SEALANT (SUCH AS TREMCO-VULKEM 116). FASTEN DECK-TITE TO METAL ROOF WITH #14 X 7/8", MINI POINT STAINLESS STEEL SELF DRILLING SCREWS W/ HEX HEADS AND METAL BACKED RUBBER WASHERS (SCREWS POSITIONED APPROX. 1-1/2" ON CENTER AROUND PERIMETER OF DECK-TITE). TRADE REQUIRING OPENING IS RESPONSIBLE FOR COORDINATION OF LOCATION WITH BOBBITT.

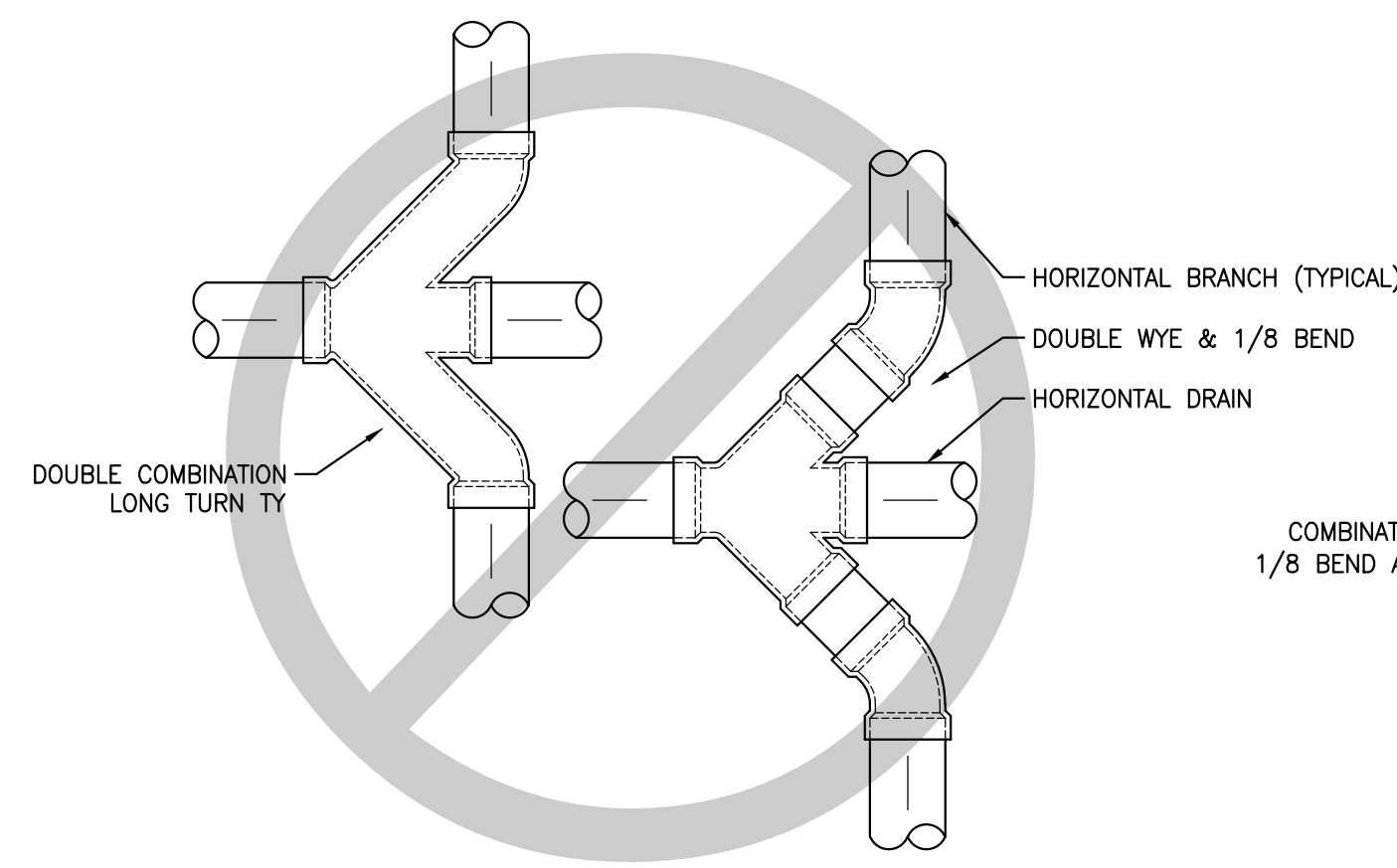
PROJECTS WITH COLORED ARCHITECTURAL ROOF PANELS REQUIRE SPECIALTY COLORED DECK-TITES. WHEN THIS OCCURS, THE DECK-TITES SHOULD BE COLORED EPDM AS FROM: [HTTP://WWW.BESTMATERIALS.COM/SEARCHRESULT.ASP?CATEGORYID=1177](http://www.bestmaterials.com/searchresult.asp?categoryid=1177)

PROJECTS WITH STANDARD GALVALUME ROOFS REQUIRE DECK-TITES AS FROM: [HTTP://WWW.BESTMATERIALS.COM/SILICONE-PIPE-FLASHING-BOOT-684.HTML](http://www.bestmaterials.com/silicone-pipe-flashing-boot-684.html)

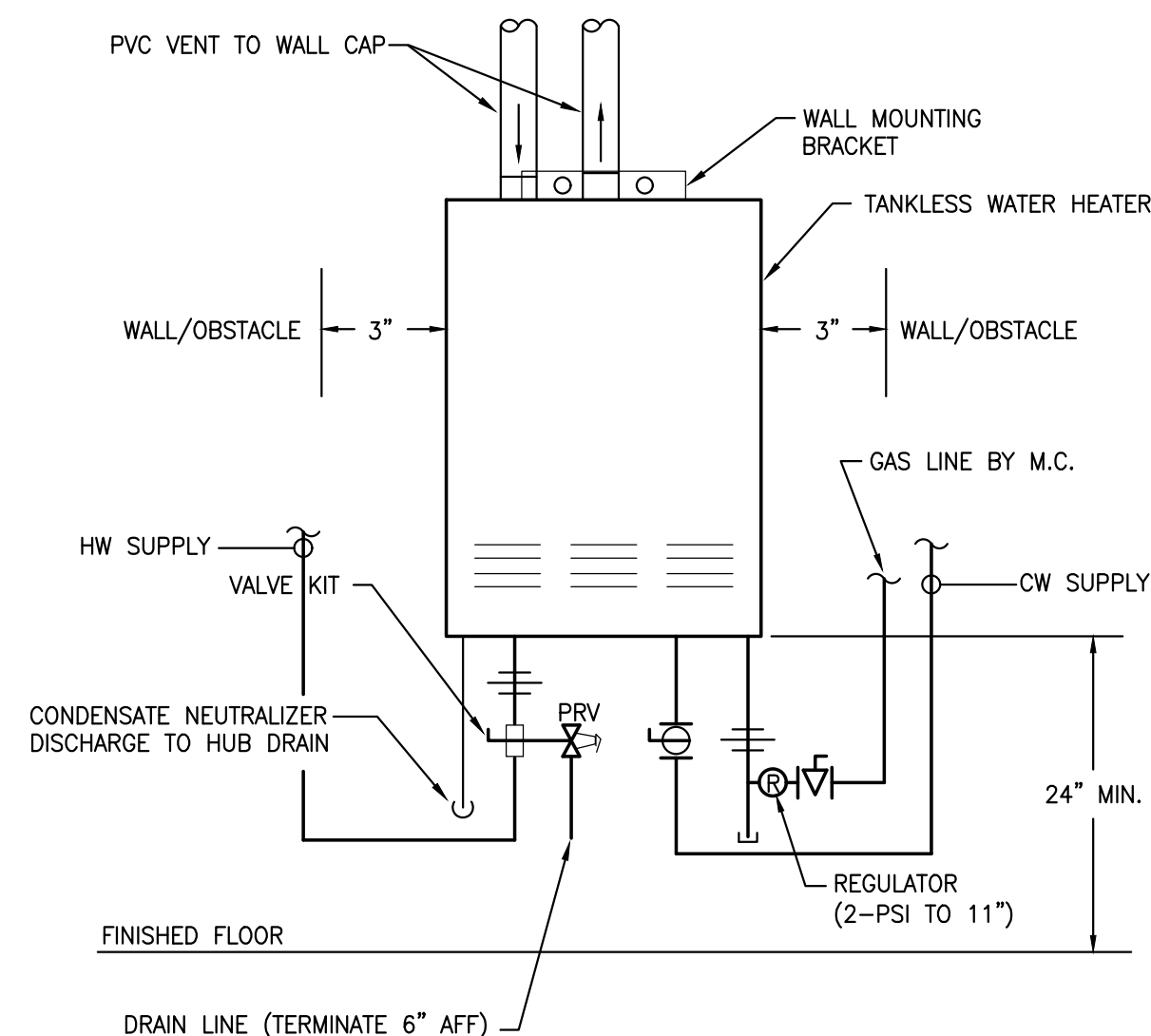
TRADE CONTRACTOR IS TO VERIFY SELECTION OF COLORED DECK-TITES WITH GC BEFORE PURCHASE.

OPENINGS LARGER THAN 10" REQUIRE A ROOF CURB PROVIDED AND INSTALLED BY BOBBITT. PC, MC, OR EC TO MAKE WEATHER TIGHT ONCE CURB HAS BEEN INSTALLED. TRADE REQUIRING CURB IS RESPONSIBLE FOR COORDINATION OF LOCATION WITH BOBBITT.

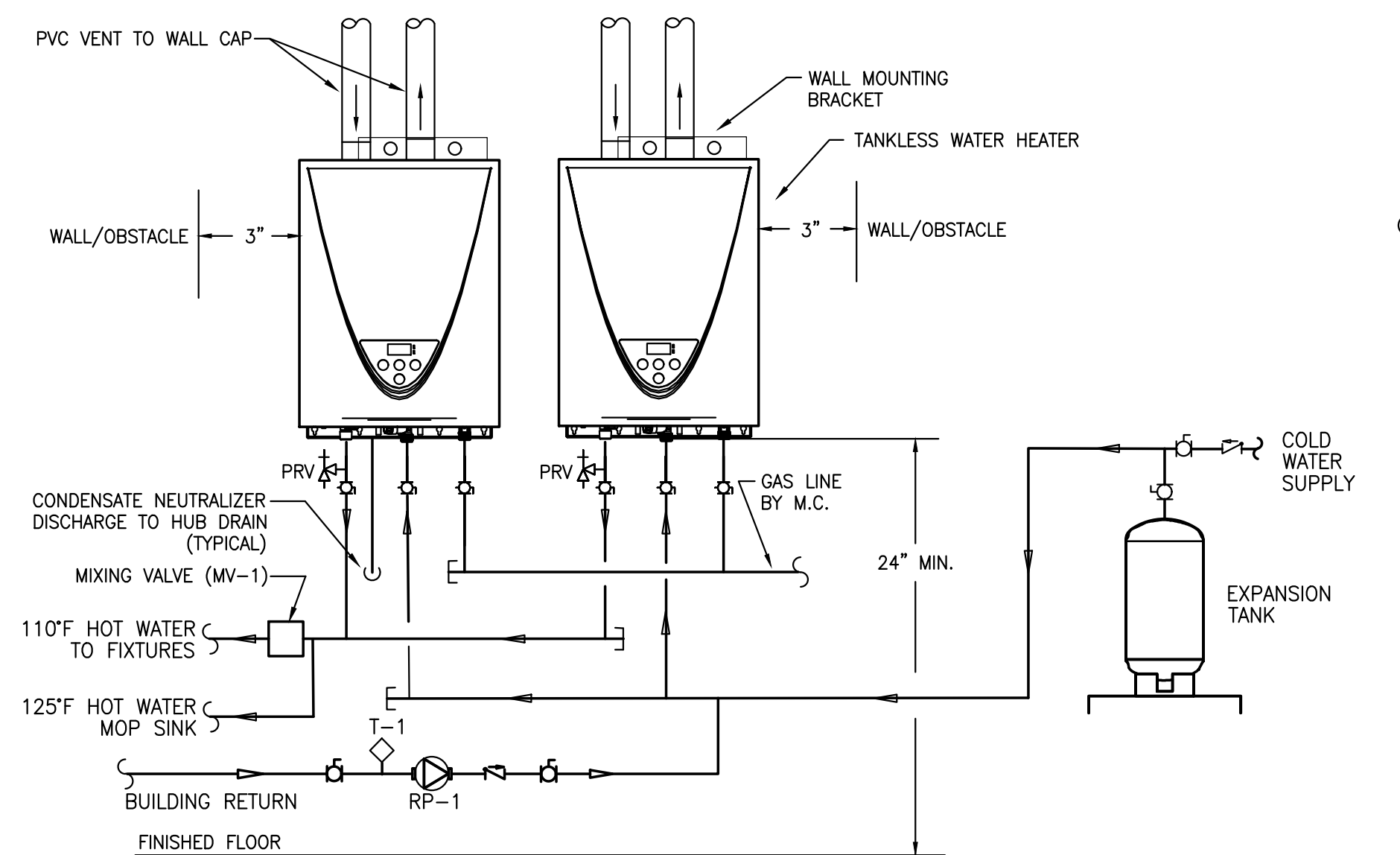




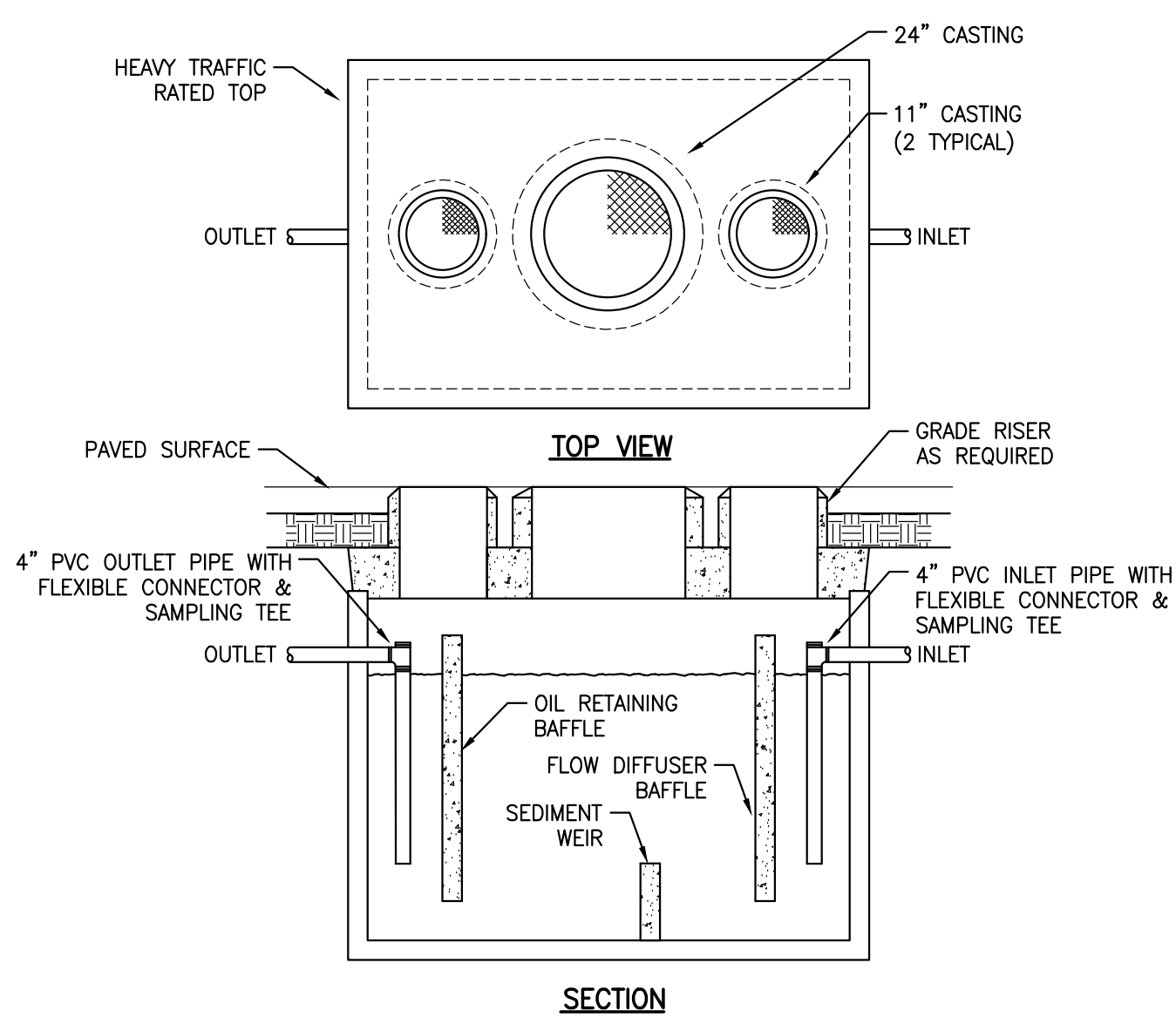
1 PLUMBING DRAIN CONNECTION DETAIL  
SCALE: N.T.S.



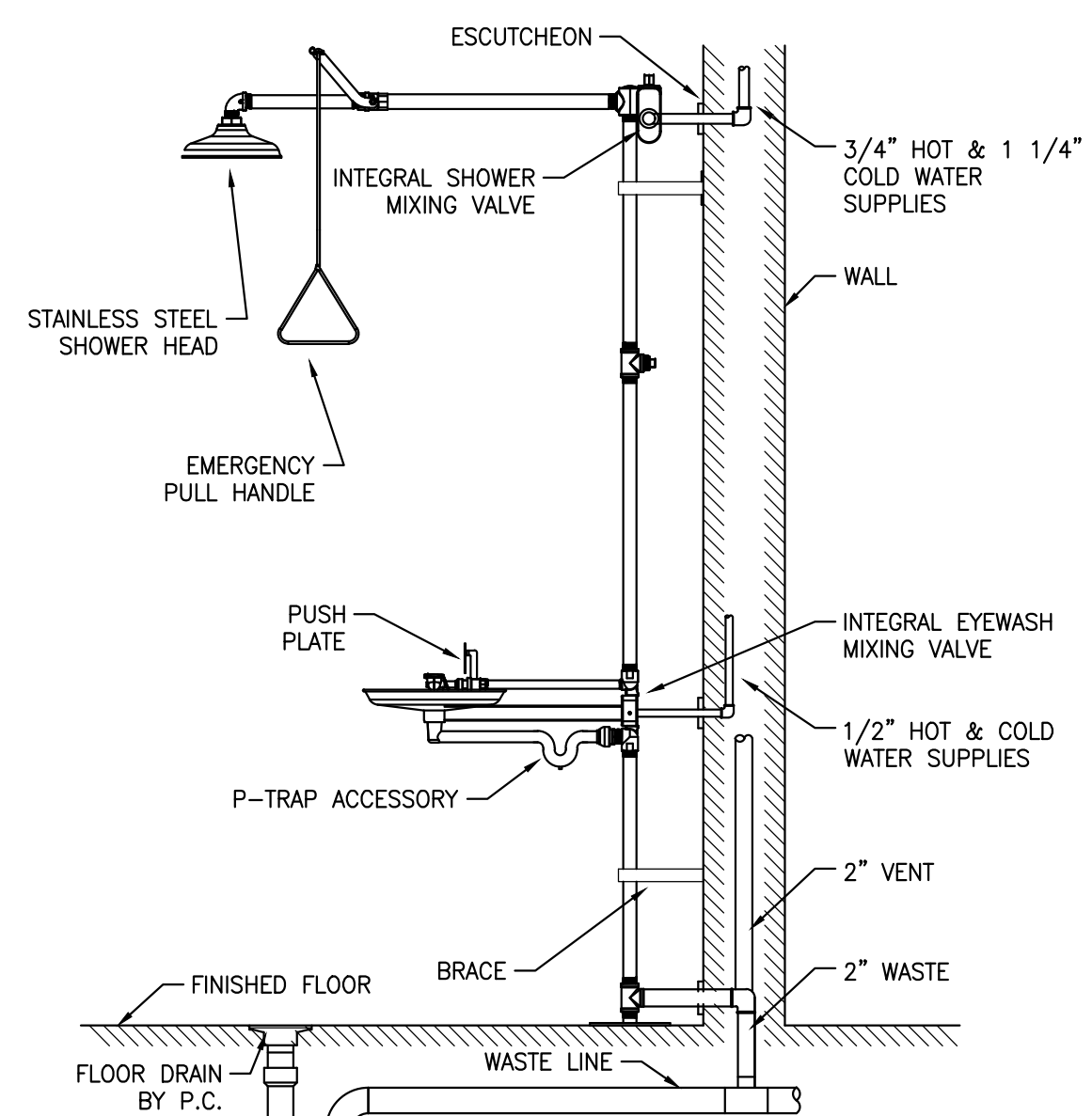
2 TANKLESS WATER HEATER (INTERIOR) DETAIL  
SCALE: N.T.S.



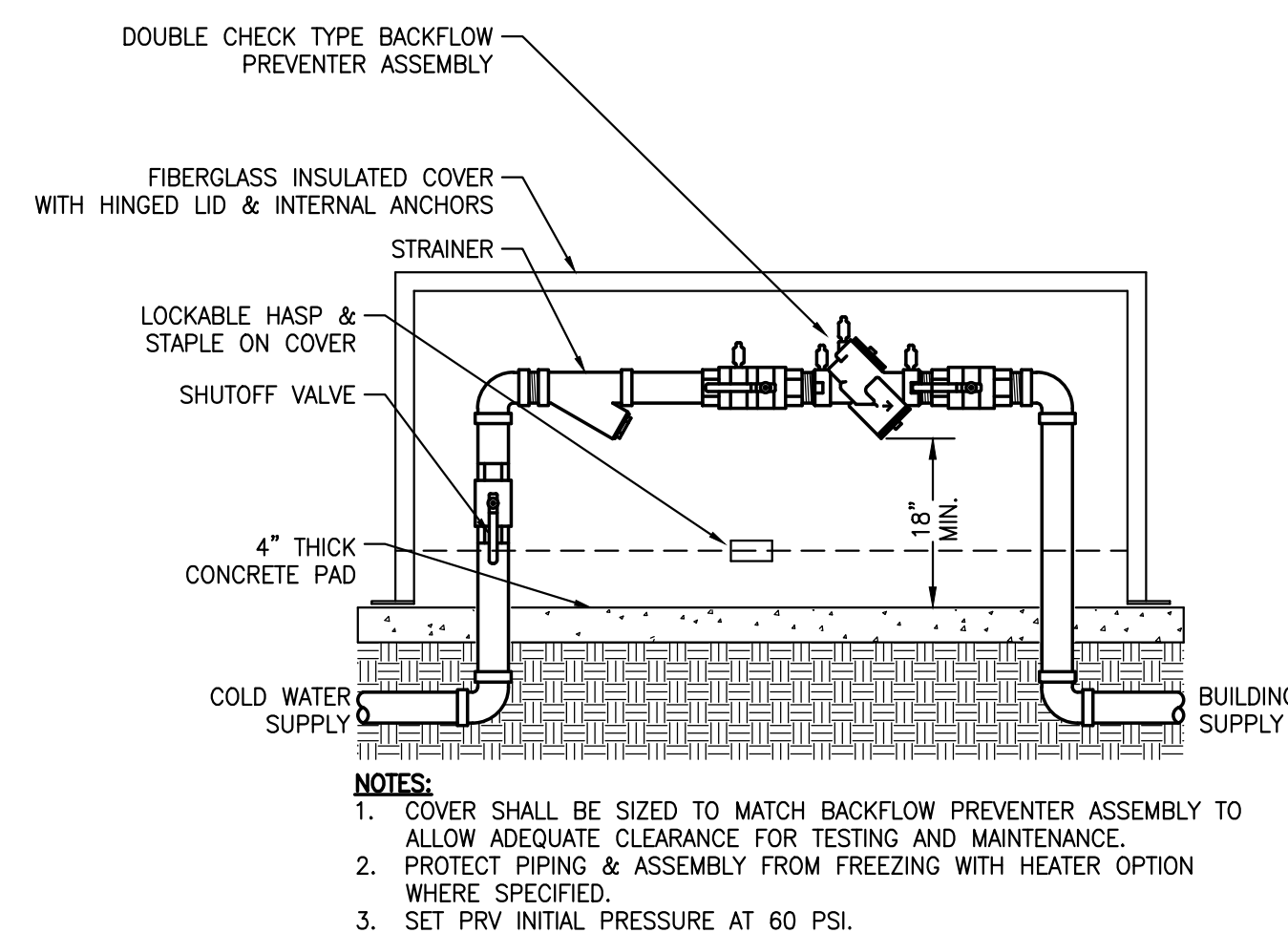
3 TWO TANKLESS HEATERS W/ RECIRC PUMP DETAIL  
SCALE: N.T.S.



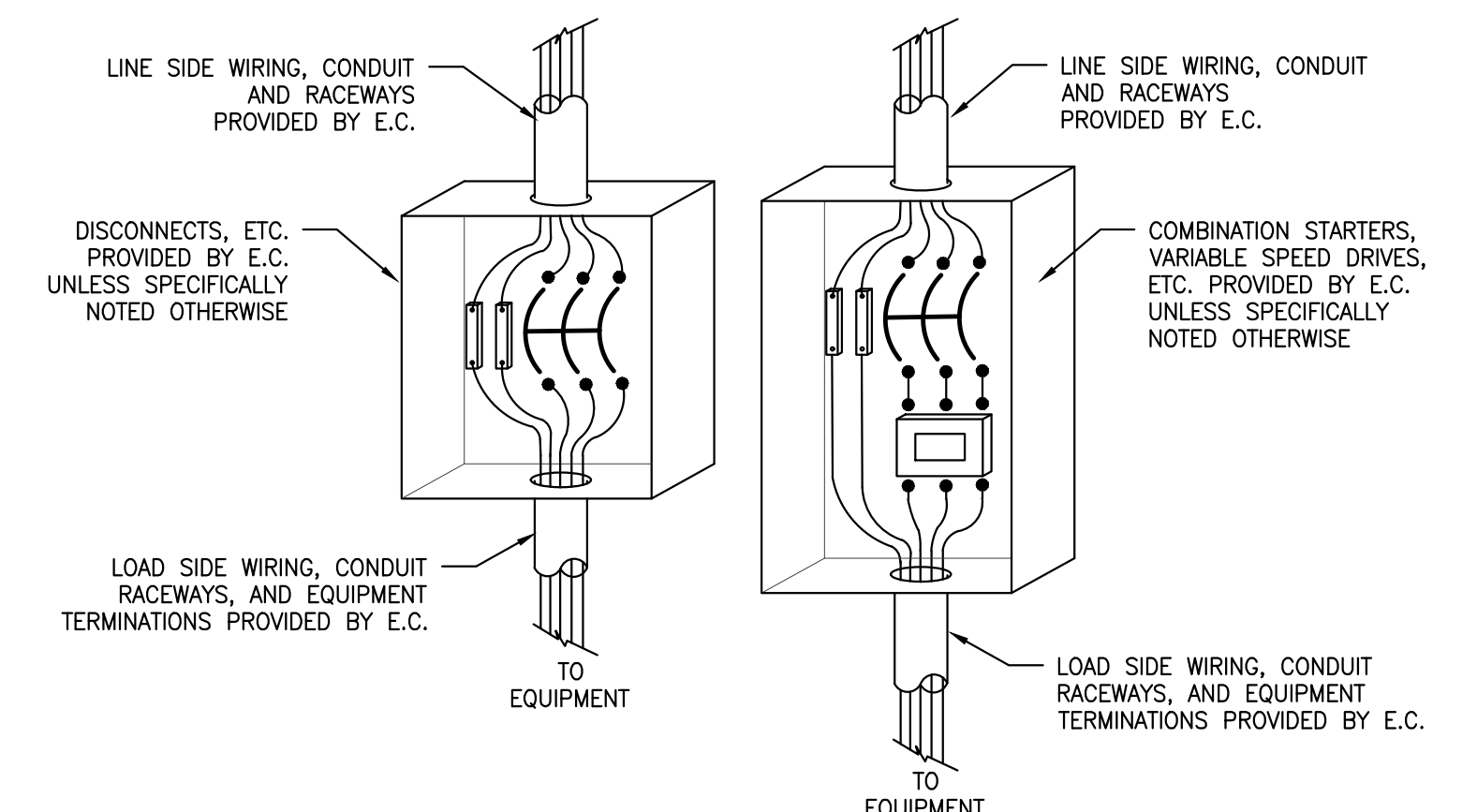
4 TRAFFIC RATED OIL/WATER INTERCEPTOR DETAIL  
SCALE: N.T.S.



5 BARRIER-FREE EMERGENCY SHOWER & EYE/FACE WASH  
SCALE: N.T.S.



6 BACKFLOW PREVENTER DETAIL  
SCALE: N.T.S.

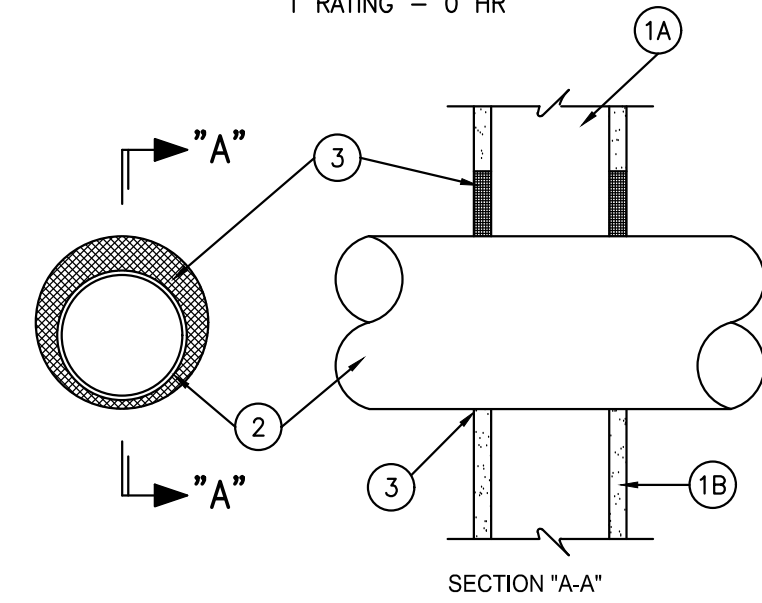


7 ELECTRICAL CONNECTION COORDINATION  
SCALE: N.T.S.



**UL SYSTEM NO. W-L-1108**

F RATING - 1 HR  
T RATING - 0 HR



- WALL ASSEMBLY - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM. 2 BY 4 IN. LUMBER SPACED 16 IN. O.C. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. O.C.
  - WALLBOARD, GYPSUM\* - ONE LAYER OF NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 11-3/4 IN.
- THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDERS OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
  - STEEL PIPE - NOM 10 IN. DIA. (OR SMALLER) SCHEDULE 20 (OR HEAVIER) STEEL PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - IRON PIPE - NOM 10 IN. DIA. (OR SMALLER) CAST OR DUCTILE IRON PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - CONDUIT - NOM 2 IN. DIA. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - COPPER TUBING - NOM 2 IN. DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - COPPER PIPE - NOM 2 IN. DIA. (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
- FILL, VOID OR CAVITY MATERIAL\* - CAULK - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND WALL, A MIN 1/4 IN. DIA. BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE WALL/PIPE INTERFACE ON BOTH SURFACES OF WALL.

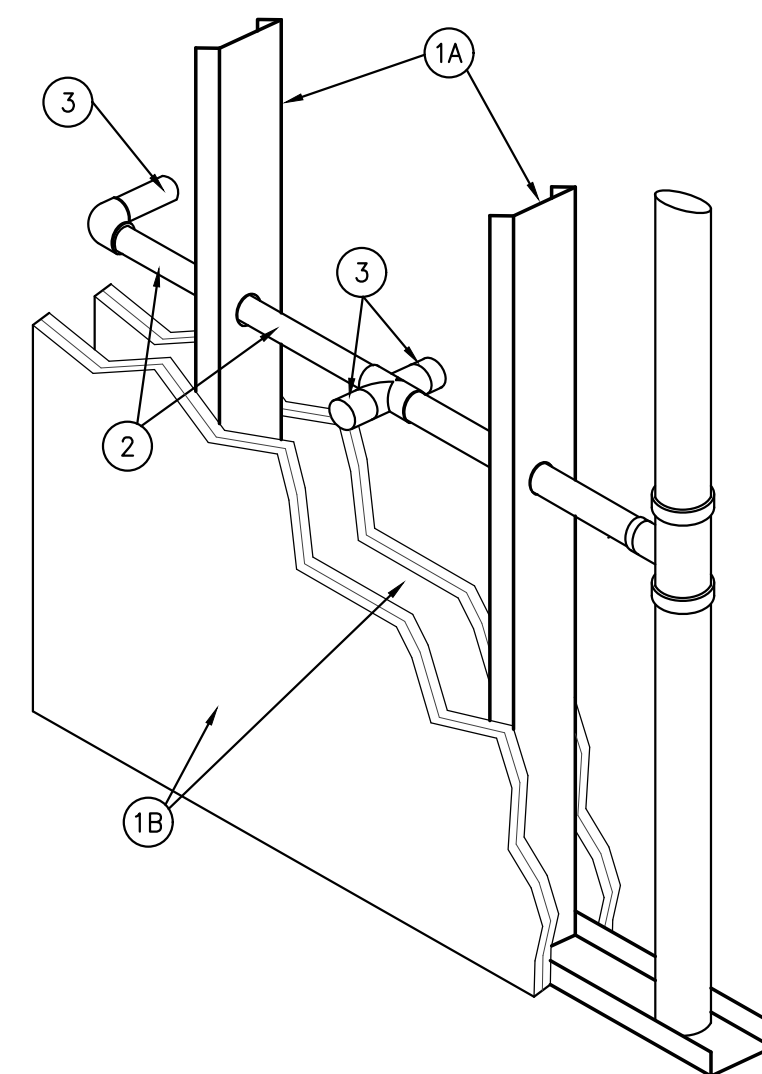
THE RECTORSEAL CORP.-METACAULK 1000 \*BEARING THE UL CLASSIFICATION MARKING

FIRESTOP MATERIALS BY 3M AND SPECSEAL ARE ACCEPTABLE WHERE TESTED & ACCEPTED BY U.L. FOR THIS APPLICATION.

**1** UL 1 HOUR GYPBOARD WALL PENETRATION DETAIL  
SCALE: N.T.S.

**UL SYSTEM NO. W-L-2035**

F RATING - 1 AND 2 HR  
T RATING - 1 1/2 AND 2 HR (SEE ITEM 3)



- CHASE WALL-THE FIRE RATED GYPSUM WALLBOARD/STUD CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. O.C. STEEL STUDS TO BE MIN 3 5/8 IN. WIDE AND SPACED MAX 24 IN. O.C.
  - WALLBOARD, GYPSUM\* - NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. HOLE-SAWED OPENING IN GYPSUM WALLBOARD LAYERS TO ACCOMMODATE STUB OUT DEVICE (ITEM 3) TO BE 2 IN. IN DIAMETER.
- NONMETALLIC PIPE- NOM 1 1/2 IN. DIA. SCHEDULE 40 PVC DRAIN, WASTE OR VENT PIPE WITH ASSOCIATED TEE AND ELBOW FITTINGS. SOCKET OF TEE OR ELBOW TO ALIGN WITH 2 IN. DIA. OPENING HOLE SAWED THROUGH GYPSUM WALLBOARD LAYERS AT EACH STUB OUT LOCATION. PIPE TO BE RIGIDLY SUPPORTED WITHIN STUD CAVITY OF CHASE WALL.
- FIRESTOP DEVICE\* - STUB OUT - CAST IRON LINED PVC SLEEVE PROVIDED WITH TRAP ADAPTER OR COUPLING AT ONE END FOR SINK DRAIN CONNECTION. STUB-OUT DEVICE CEMENTED INTO SOCKET OF TEE OR ELBOW OF PVC DWV PIPING WITHIN STUD CAVITY OF CHASE WALL. WHEN INSTALLED ON BOTH SIDERS OF CHASE WALL, (4-WAY TEE), T RATING IS 1-1/2 HR. MAX. WHEN INSTALLED ON ONLY ONE SIDE OF CHASE WALL, T RATING IS 2 HR.

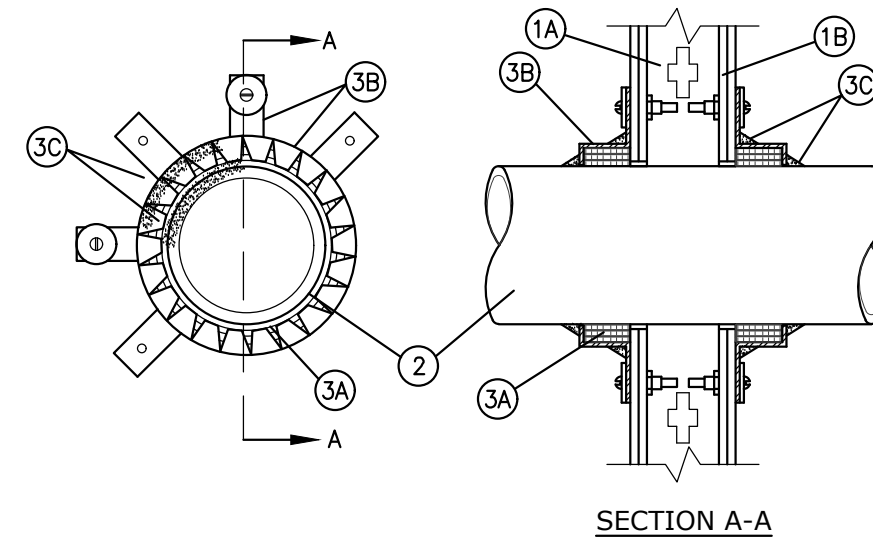
\*BEARING THE UL CLASSIFICATION MARKING.

FIRESTOP MATERIALS BY 3M AND SPECSEAL ARE ACCEPTABLE WHERE TESTED & ACCEPTED BY U.L. FOR THIS APPLICATION.

**2** UL 1 & 2 HOUR GYPSUM WALL PENETRATION (PVC PIPE) DETAIL  
SCALE: N.T.S.

**UL SYSTEM NO. W-L-2002**

F RATING - 1, 1-1/2 AND 2 HR (SEE ITEM 3)  
T RATING - 3/4, 1, 1-1/2 AND 2 HR (SEE ITEM 3)  
L RATING AT AMBIENT - 7 CFM/SQ FT (SEE ITEM 3C)  
L RATING AT 400 F - 1 CFM/SQ FT (SEE ITEM 3C)



- WALL ASSEMBLY - THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 IN. BY 4 IN. (51 MM BY 102 MM) LUMBER SPACED 16 IN. (406 MM) OC. STEEL STUDS TO BE MIN 3-5/8 IN. (92 MM) WIDE BY 1-3/8 IN. (35 MM) DEEP CHANNELS SPACED MAX 24 IN. (610 MM) OC.
  - GYPSUM BOARD\* - 5/8 IN. (16 MM) THICK, 4 FT (122 CM) WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 7 IN. (178 MM).
- NONMETALLIC PIPE OR CONDUIT - ONE NONMETALLIC PIPE OR CONDUIT IS CENTERED WITHIN THE FIRESTOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDERS OF WALL. THE FOLLOWING TYPES AND SIZES OF NONMETALLIC PIPES OR CONDUIT MAY BE USED:
  - NOM 6 IN. (152 MM) DIA. (OR SMALLER) SCHEDULE 40 SOLID-CORE POLYVINYL CHLORIDE (PVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
  - NOM 4 IN. (102 MM) DIA. (OR SMALLER) SCHEDULE 40 CELLULAR CORE POLYVINYL CHLORIDE (PVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
  - NOM 4 IN. (102 MM) DIA. (OR SMALLER) SCHEDULE 40 SOLID-CORE ACRYLONITRILE-BUTADIENE-STYRENE (ABS) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
  - NOM 4 IN. (102 MM) DIA. (OR SMALLER) SCHEDULE 40 FIRE RETARDANT POLYPROPYLENE (FRPP) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) OR VENTED (DRAIN, WASTE OR VENT) PIPING SYSTEMS.
  - NOM 4 IN. (102 MM) DIA. (OR SMALLER) RIGID NONMETALLIC CONDUIT FORMED OF PVC.
  - NOM 1 IN. (25 MM) DIA. (SMALLER) ELECTRICAL NONMETALLIC TUBING FORMED OF PVC.
  - NOM 6 IN. (152 MM) DIA. (OR SMALLER) SDR13.5 CHLORINATED POLYVINYL CHLORIDE (CPVC) PIPE FOR USE IN CLOSED (PROCESS OR SUPPLY) PIPING SYSTEMS. SEE RIGID NONMETALLIC CONDUIT (DZKT) AND ELECTRICAL NONMETALLIC TUBING (FKHU) CATEGORIES IN UL ELECTRICAL CONSTRUCTION MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS.
- FIRESTOP SYSTEM - INSTALLED SYMMETRICALLY ON BOTH SIDERS OF WALL ASSEMBLY. THE HOURLY F AND T RATINGS FOR THE FIRESTOP SYSTEM ARE DEPENDENT UPON THE TYPE AND SIZE OF NONMETALLIC PIPE OR CONDUIT, THE PIPING SYSTEM TYPE (CLOSED SYSTEMS SUCH AS PROCESS OR SUPPLY PIPING OR VENTED SYSTEMS SUCH AS DRAIN, WASTE OR VENT PIPING) AND THE HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED, AS SHOWN IN THE FOLLOWING TABLE:

PIPE OR CONDUIT TYPE	NOM PIPE DIA. IN. (MM)	ANNULAR SPACE IN. (MM)	PIPING SYSTEM (A)	WALL FIRE RATING HR	F RATING HR	T RATING HR
FRPP	1/2 TO 2 (13 TO 51)	0-3/16 (0-5)	V	2	1-1/2	1-1/2
FRPP, PB	1/2 TO 2 (13 TO 51)	0-3/16 (0-5)	C	2	2	2
ABS	1/2 TO 4 (13 TO102)	0-3/16 (0-5)	C, V	1	1	3/4
ABS	1/2 TO 4 (13 TO102)	0-3/16 (0-5)	C, V	2	1-1/2	1-1/2
PVC	1/2 TO 4 (13 TO102)	0-3/16 (0-5)	C, V	1	1	1
PVC	1/2 TO 4 (13 TO102)	0-3/16 (0-5)	C, V	2	2	2
FRPP+	2-1/2 TO 4 (64 TO 102)	0-3/16 (0-5)	C, V	2	1-1/2	1-1/2
PVC+	5, 6 (127 TO 152)	0-3/16 (0-5)	C, V	2	1-1/2	1-1/2

+PIPE COVERING MATERIAL WRAP REQUIRED ON PIPE ON BOTH SIDERS OF WALL.

(A)C = CLOSED SYSTEMS, V = VENTED SYSTEMS.

**3** UL 1 & 2 HOUR GYPBOARD WALL PENETRATION (PVC PIPE) DETAIL  
SCALE: N.T.S.

THE DETAILS OF THE FIRESTOP SYSTEM SHALL BE AS FOLLOWS.

A. FILL,VOID OR CAVITY MATERIALS\* - WRAP STRIP - NOM 1/4 IN. (6 MM) THICK INTUMESCENT ELASTOMERIC MATERIAL FACED ON ONE SIDE WITH ALUMINUM FOIL, SUPPLIED IN 2 IN. (51 MM) WIDE STRIPS. NOM 2 IN. (51 MM) WIDE STRIPS TIGHTLY WRAPPED AROUND NONMETALLIC PIPE OR CONDUIT (FOIL SIDE EXPOSED) WITH THE EDGES BUTTED AGAINST THE SURFACE OF THE WALL. SUFFICIENT LAYERS OF WRAP STRIP SHALL BE INSTALLED TO LAP A MIN OF 3/16 IN. (5 MM) ON THE WALL SURFACE AROUND THE ENTIRE PERIMETER OF THE CIRCULAR THROUGH OPENING. FOR NOM 1/2 IN. (13 MM) TO NOM 2 IN. (51 MM) DIA. PIPES OR CONDUITS, A MIN OF ONE LAYER OF WRAP STRIP IS REQUIRED. FOR NOM 2-1/2 IN. (64 MM) AND NOM 3 IN. (76 MM) DIA. PIPES, A MIN OF TWO LAYERS OF WRAP STRIP IS REQUIRED. FOR NOM 3-1/2 IN. (89 MM) AND NOM 4 IN. (102 MM) DIA. PIPES, A MIN OF THREE LAYERS OF WRAP STRIP IS REQUIRED. FOR NOM 5 IN. (127 MM) AND 6 IN. (152 MM) DIA. PIPE, TWO TIERS (4 IN. (102 MM) OVERALL LENGTH) OF THREE LAYERS OF WRAP STRIP IS REQUIRED, WITH ADJOINING WRAP STRIP LAYER EDGES BETWEEN TIERS TIGHTLY BUTTED. EACH LAYER OF WRAP STRIP TO BE INSTALLED WITH BUTTED SEAM, WITH BUTTED SEAMS IN SUCCESSIVE LAYERS STAGGERED. WRAP STRIP LAYERS TEMPORARILY HELD IN POSITION USING ALUMINUM FOIL TAPE, STEEL WIRE TIE OR EQUIVALENT.

3M COMPANY - PS-195+

B. STEEL COLLAR - NOM 2 IN. OR 4 IN. (51 MM OR 102 MM) DEEP COLLAR WITH 1-1/4 IN. (32 MM) WIDE BY 2 IN. (51 MM) LONG ANCHOR TABS AND MIN 3/4 IN. (19 MM) LONG TABS TO RETAIN WRAP STRIP LAYERS. COILS OF REOUT 0.016 IN. (0.41 MM) THICK (NO. 30 28 GAUGE) GALV SHEET STEEL AVAILABLE FROM WRAP STRIP MANUFACTURER. AS AN ALTERNATE, COLLAR MAY BE FIELD-FABRICATED FROM MIN 0.016 IN. (0.41 MM) THICK (NO. 30 28 GAUGE) GALV SHEET STEEL IN ACCORDANCE WITH INSTRUCTION SHEET SUPPLIED BY WRAP STRIP MANUFACTURER. STEEL COLLAR, WITH ANCHOR TABS BENT OUTWARD 90 DEG, WRAPPED TIGHTLY AROUND WRAP STRIP LAYERS WITH MIN 1 IN. (25 MM) OVERLAP AT THE SEAM. WITH STEEL COLLAR ANCHOR TABS PRESSED TIGHTLY AGAINST WALL SURFACE, COMPRESS COLLAR AROUND WRAP STRIP LAYERS USING A MIN 1/2 IN. (13 MM) WIDE BY 0.028 IN. (0.71 MM) THICK STAINLESS STEEL BAND CLAMP WITH WORM DRIVE TIGHTENING MECHANISM AT THE COLLAR MIDHEIGHT. AS AN ALTERNATE TO THE STAINLESS STEEL BAND CLAMP, THE STEEL COLLAR MAY BE COMPRESSED AROUND NOM 4 IN. (102 MM) DIA. (OR SMALLER NONMETALLIC PIPES USING TWO MIN 16 SWG (0.0625 IN. (0.016 MM) DIA.) STEEL WIRES SECURED WITH MULTIPLE TWISTS. AS AN ALTERNATE TO THE BAND CLAMPS OR STEEL WIRES, COLLARS MAY BE SECURED BY A MEANS NO. 10 BY 1/2 IN. (13 MM) LONG SHEET METAL SCREWS INSTALLED IN THE VERTICAL AXIS AT THE CENTER OF THE 1 IN. (25 MM) OVERLAP ALONG THE PERIMETER JOINT OF THE COLLAR. A MIN OF THREE SCREWS IS REQUIRED. SECURE COLLAR TO WALL SURFACE WITH 3/16 IN. (5 MM) DIA. STEEL TOGGLE BOLTS IN CONJUNCTION WITH MIN 1-1/2 IN. (38 MM) DIA. STEEL WASHERS, THREE BOLTS, SYMMETRICALLY LOCATED, REQUIRED FOR 2 IN. (51 MM) DEEP STEEL COLLAR FOR NOM 1/2 IN. (13 MM) TO NOM 3 IN. (76 MM) DIA. PIPES. FOUR BOLTS, SYMMETRICALLY LOCATED, REQUIRED FOR 2 IN. (51 MM) DEEP STEEL COLLAR FOR NOM 3-1/2 IN. AND 4 IN. (89 MM AND 102 MM) DIA. PIPES. FIVE TO SEVEN BOLTS (EVERY OTHER ANCHOR TAB) REQUIRED FOR 4 IN. (102 MM) DEEP STEEL COLLAR FOR NOM 5 IN. AND 6 IN. (127 MM AND 152 MM) DIA. PIPES. AS A FINAL STEP, BEND RETAINER TABS 90 DEG TOWARD PIPE TO LOCK WRAP STRIP LAYERS IN POSITION.

C. FILL,VOID OR CAVITY MATERIALS\* - CAULK, SEALANT OR PUTTY - GENEROUS BEAD OF CAULK APPLIED TO OUTER PERIMETER OF WRAP STRIP AT INTERFACE WITH WALL SURFACE AND TO PERIMETER OF PIPE OR CONDUIT AT ITS EGRESS FROM THE WRAP STRIP LAYERS.

3M COMPANY - CP 25WB+, IC 15WB+, FIREADM 150+ CAULK, FB-3000 WT SEALANT OR MP+ STIX PUTTY  
(NOTE: L RATINGS APPLY ONLY WHEN CP 25WB+ CAULK OR FB-3000 WT SEALANT IS USED.  
CP 25WB+ NOT SUITABLE FOR USE WITH CPVC PIPES.)

D. PIPE COVERING\* (NOT SHOWN) - NOM 1 IN. (25 MM) THICK HOLLOW CYLINDRICAL HEAVY DENSITY GLASS FIBER UNITS JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. WHEN REQUIRED (SEE TABLE), MIN 6 IN. (152 MM) LENGTH OF PIPE COVERING INSTALLED AROUND PVC PIPE AT ITS EGRESS FROM STEEL COLLAR ON BOTH SIDERS OF WALL. PIPE COVERING SECURED TO PIPE WITH STEEL WIRE TIES SPACED MAX 4 IN. (102 MM) OC. EDGE OF PIPE COVERING ABUTTING STEEL COLLAR TO BE SEALED WITH A MIN 1/4 IN. (6 MM) DIA. BEAD OF CAULK (ITEM C).

SEE PIPE AND EQUIPMENT COVERING - MATERIALS (BRGU) CATEGORY IN BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

E. FIRESTOP DEVICE\* (NOT SHOWN) - AS AN ALTERNATE TO ITEMS A, B AND C FOR NOM 1-1/2 IN., 2 IN., 3 IN. OR 4 IN. (38 MM, 51 MM, 76 MM OR 102 MM) DIA. NONMETALLIC PIPES, A FIRESTOP DEVICE CONSISTING OF A SHEET-STEEL SPLIT COLLAR LINED WITH INTUMESCENT MATERIAL AND PROVIDED WITH STEEL CLIPS FOR ATTACHMENT MAY BE USED. FIRESTOP DEVICE TO BE INSTALLED ON BOTH SIDERS OF WALL IN ACCORDANCE WITH THE ACCOMPANYING INSTALLATION INSTRUCTIONS.

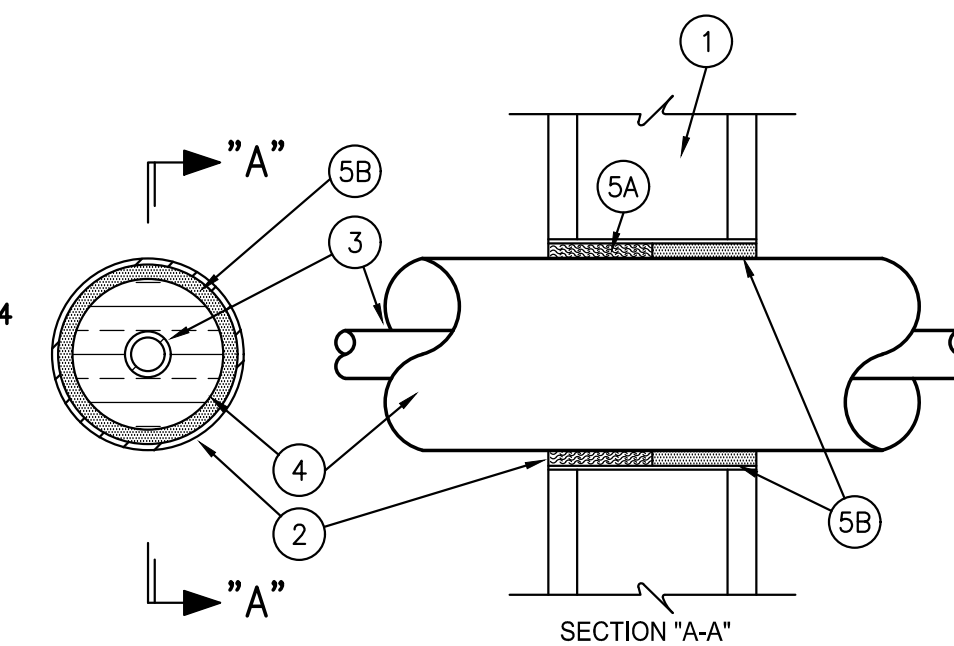
3M COMPANY - PPD 150, PPD 200, PPD 300, PPD 400

\*BEARING THE UL CLASSIFICATION MARKING

FIRESTOP MATERIALS BY METACAULK AND SPECSEAL ARE ACCEPTABLE WHERE TESTED & ACCEPTED BY U.L. FOR THIS APPLICATION.

**UL SYSTEM NO. W-L-5144**

F RATING - 1 HR  
T RATING - 1 HR



- WALL ASSEMBLY - THE 1 HR FIRE-RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U400 SERIES OR V400 OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - "C"-T SHAPED STUDS 1-5/8 IN. WIDE BY 2-1/2 IN. DEEP, FABRICATED FROM 25 MSG GALV STEEL, SPACED MAX 24 IN. OC.
  - GYPSUM BOARD\* - ONE LAYER OF NOM 1 IN. THICK, 24 IN. WIDE GYPSUM LINER AND ONE LAYER OF NOM 5/8 IN. THICK, 4 FT. WIDE GYPSUM BOARD WITH SQUARED OR TAMPERED EDGES. THE GYPSUM BOARD TYPE, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 6-1/2 IN.

- WALL ASSEMBLY - AS AN ALTERNATE TO THE ABOVE WALL ASSEMBLY, THE 1 HR FIRE RATED GYPSUM BOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300, U400 OR V400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN LUMBER SPACED 16 IN. OC.
  - GYPSUM BOARD\* - THICKNESS, TYPE, NUMBER OF LAYERS AND FASTENERS AS REQUIRED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAX DIAM OF OPENING IS 6-1/2 IN.

- METALLIC SLEEVE - MAX 6-1/2 IN. DIA. CYLINDRICAL SLEEVE FABRICATED FROM MIN 0.016 IN. THICK (28 GAUGE) GALV SHEET STEEL AND HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL SEAM. LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL. SLEEVE INSTALLED BY COILING THE SHEET STEEL TO A DIA. SMALLER THAN THE THROUGH OPENING, INSERTING THE COIL THROUGH THE OPENING AND RELEASING THE COIL TO LET IT UNCOIL AGAINST THE CIRCULAR CUTOUTS IN THE GYPSUM BOARD LAYERS. SLEEVE MAY ALSO BE FORMED OF NO. 8 STEEL WIRE MESH HAVING A MIN 1 IN. LAP ALONG THE LONGITUDINAL SEAM.

- THROUGH PENETRANTS - ONE METALLIC PIPE OR TUBE TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDERS OF THE WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR TUBING MAY BE USED:
  - COPPER TUBING - NOM 1 IN. DIA. (OR SMALLER) TYPE L COPPER TUBING.
  - COPPER PIPE - NOM 1 IN. DIA. (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

- PIPE COVERING\* - NOM 2 IN. THICK HOLLOW CYLINDRICAL HEAVY DENSITY (MIN. 3.5 PCF) GLASS FIBER UNITS, JACKETED ON THE OUTSIDE WITH AN ALL SERVICE JACKET. LONGITUDINAL JOINTS SEALED WITH METAL FASTENERS OR FACTORY-APPLIED SSL TAPE. TRANSVERSE JOINTS SECURED WITH METAL FASTENERS OR WITH BUTT TAPE SUPPLIED WITH THE PRODUCT. THE ANNULAR SPACE BETWEEN THE INSULATED PIPE AND THE PERIPHERY OF THE STEEL SLEEVE SHALL BE MIN 1/4 IN. TO MAX 1-1/8.

SEE PIPE AND EQUIPMENT COVERING - MATERIALS (BRGU) CATEGORY IN THE BUILDING MATERIALS DIRECTORY FOR NAMES OF MANUFACTURERS. ANY PIPE COVERING MATERIAL MEETING THE ABOVE SPECIFICATIONS AND BEARING THE UL CLASSIFICATION MARKING WITH A FLAME SPREAD INDEX OF 25 OR LESS AND A SMOKE DEVELOPED INDEX OF 50 OR LESS MAY BE USED.

- FIRE STOP SYSTEM - THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
  - PACKAGING MATERIAL - MIN 1-5/8 IN. THICKNESS OF MIN 4 PCF MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO SLEEVE ON ONE SIDE OF THE WALL AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM THE ROOM SIDE OF WALL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL. IN ALTERNATE WALL ASSEMBLY, PACKING MATERIAL TO BE FLUSH WITH EITHER SIDE OF THE WALL AND RECESSED FROM THE OTHER SIDE OF THE WALL TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
  - FILL, VOID OR CAVITY MATERIAL - SEALANT\* - MIN 1-1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITH SLEEVE, FLUSH WITH THE ROOM SURFACE OF WALL OR EITHER SURFACE IN THE ALTERNATE WALL ASSEMBLY.

**4** UL 1 HOUR GYPBOARD WALL PENETRATION DETAIL  
SCALE: N.T.S.

Bobbit Inc.  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbit.com  
www.bobbit.com

Entech ENGINEERING INC. L.P. F-1132  
1071 N. BERKELEY BLVD.  
DURHAM, NC 27705  
TEL: (919) 776-9088  
PROJECT MGR.: D. HUN  
PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

21-0337

PLUMBING  
DETAILS

**P4.3**  
OF 8



**PLUMBING NOTES:**

- PLUMBING PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE PLUMBING SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.
- CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF PLUMBING INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.
- COORDINATE CONNECTION OF PLUMBING SYSTEMS WITH SITE UTILITIES AND SERVICES. P.C. SHALL EXTEND WATER SUPPLY LINE 5- FEET OUTSIDE OF BUILDING AND EXTEND BUILDING DRAIN 10- FEET OUTSIDE OF BUILDING & PROVIDE 2-WAY CLEANOUT.
- COORDINATE VENT THRU ROOF (VTR) LOCATIONS WITH OUTSIDE AIR INTAKES OF HVAC UNITS TO MAINTAIN A MINIMUM CLEARANCE OF 20 FEET.
- CONTRACTOR SHALL COORDINATE LOCATION & TYPE OF VTR BOOTS WITH G.C.. CONTRACTOR SHALL FURNISH & INSTALL THE REQUIRED BOOTS. G.C. SHALL ENGAGE ROOFING CONTRACTOR TO ASSURE WEATHER-TIGHTNESS OF INSTALLATION. ANY EXPOSED PVC PIPING SHALL BE PAINTED WITH 2-COATS OF ENAMEL PAINT - COLOR SELECTED BY ARCHITECT.
- COORDINATE INSTALLATION OF PLUMBING LINES WITH BLOCK WALLS SO THAT ALL LINES ARE PLACED WITHIN WALLS DURING WALL CONSTRUCTION. CUTTING AND PATCHING OF WALLS IN PLACE IS NOT PERMITTED.
- ALL WORK SHALL COMPLY WITH LOCAL, STATE & ADA CODES. WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.
- PROTECT ALL NEW MATERIALS FROM THE WEATHER IN STORAGE TRAILERS OR PROVIDE SUITABLE COVERING.
- DRAIN, WASTE & VENT (DWV) PIPING SHALL BE ASTM D 2665, SOLID-WALL, SCHEDULE 40 PVC WITH SOLVENT-WELDED SOCKET TYPE FITTINGS (FOAM CORE PIPING IS NOT ACCEPTABLE).
- ABOVE GRADE/SLAB WATER PIPING SHALL BE ASTM B 88, HARD DRAWN, TYPE L COPPER WITH SOLDERED OR BRAZED WROUGHT-COPPER FITTINGS. PEX CAN ALSO BE USED AS AN ALTERNATE WHERE CONCEALED ABOVE CEILING (SEE NOTE BELOW).
- ABOVE GRADE/SLAB WATER PIPING SHALL BE CROSSLINKED POLYETHYLENE (PEX-A) TUBING AND PROPEX FITTINGS AS MANUFACTURED BY UPONOR, INC. BRANCH LINES SHALL BE COLOR CODED FOR HOT & COLD WATER APPLICATIONS. PROVIDE HANGER TYPE & SPACING CRITERIA AS RECOMMENDED BY PRODUCT MANUFACTURERS
- BELOW GRADE/SLAB WATER PIPING (INSIDE OF BUILDING) SHALL BE ASTM B 88, SOFT ANNEALED, TYPE K COPPER WITH SOLDERED OR BRAZED WROUGHT-COPPER FITTINGS. MINIMIZE JOINTS BELOW SLAB.
- DOMESTIC WATER SERVICE PIPING: (SEE SITE PLANS).
- WATER PIPE & FITTINGS AND LEAD FREE SOLDER & FLUX SHALL BE IN ACCORDANCE WITH NC PLUMBING CODE SECTION 605.
- INDIVIDUAL SUPPLY AND DRAIN CONNECTIONS SIZES ARE NOT INDICATED ON PLANS FOR CLARITY. SIZE EACH TO SUIT RESPECTIVE FIXTURE.
- WATER PIPING ON OUTSIDE WALLS AND IN CEILING SHALL BE LOCATED BETWEEN BUILDING INSULATION AND CONDITIONED SPACE.
- PROVIDE SHUTOFF VALVES AT EACH MAIN BRANCH LINE. VALVES SHALL BE INSTALLED IN A READILY ACCESSIBLE LOCATION. PROVIDE CEILING ACCESS DOORS WHERE REQUIRED TO ACCESS SERVICEABLE VALVES LOCATED ABOVE GYPBOARD CEILINGS.
- UNLESS NOTED OTHERWISE ALL VALVES SHALL BE FULL PORT BRONZE OR BRASS BALL VALVES WITH THREADED OR SWEAT CONNECTIONS AS APPLICABLE TO THE CONNECTING PIPING.
- PROTECT COPPER PIPING FROM DIRECT CONTACT WITH MASONRY OR DISSIMILAR METAL.
- HANGERS, SUPPORTS, ANCHORS AND CLIPS SHALL BE COPPER PLATED OR PROVIDED WITH ELECTROLYTIC ISOLATION MATERIAL ON COPPER PIPING. ALL OTHER HANGERS AND SUPPORTS SHALL BE PAINTED OR GALVANIZED.
- PIPING PASSING THROUGH CONCRETE/MASONRY WALLS OR FLOORS SHALL BE PROTECTED AGAINST EXTERNAL CORROSION BY PROTECTIVE SHEATHING OR WRAPPING.
- INSTALL SCHEDULE 80 PVC PIPE SLEEVE TWO SIZES LARGER AT PENETRATIONS THROUGH FOUNDATION WALLS. SEAL SLEEVE TIGHT TO FOUNDATION WALL.
- INSTALL UL LISTED FIRE-RATED ASSEMBLY AT PENETRATIONS THROUGH FIRE-RATED WALLS, FLOORS AND CEILINGS.
- PROVIDE MECHANICAL WATER HAMMER ARRESTORS AS SHOWN ON PLANS OR WATER RISER.
- PROVIDE INSULATION EQUAL TO MCGUIRE PROWRAP ON P-TRAP ASSEMBLIES AND HOT & COLD WATER PIPING FOR LAVATORIES WITH EXPOSED PIPING.
- VERIFY FINAL LOCATIONS FOR ROUGH-INS WITH FIELD MEASUREMENTS AND WITH THE REQUIREMENTS OF THE ACTUAL EQUIPMENT TO BE CONNECTED.
- INSTALL PLUMBING FIXTURES AND EQUIPMENT LEVEL & PLUMB. ROUTE PIPING PARALLEL & PERPENDICULAR TO OTHER BUILDING SYSTEMS AND COMPONENTS.
- INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE & REPAIR IN ACCORDANCE WITH MFG'S WRITTEN INSTALLATION INSTRUCTIONS AS WELL AS SPECIFIC INSTRUCTIONS ON PLANS.
- ALL FIXTURES & EXPOSED SURFACES SHALL BE WASHED & CLEANED AND PAINTED SURFACES SHALL BE TOUCHED UP TO MATCH FACTORY APPLIED FINISHES.
- DWV AND WATER DISTRIBUTION PIPING SHALL BE TESTED IN ACCORDANCE WITH NC PLUMBING CODE SECTION 312.
- POTABLE WATER PIPING SHALL BE PURGED AND DISINFECTED. FLUSH SYSTEM WITH CLEAN, POTABLE WATER. ISOLATE AND FILL SYSTEM WITH WATER/CHLORINE SOLUTION WITH AT LEAST 200 PPM OF CHLORINE. ALLOW TO STAND FOR THREE HOURS. FLUSH SYSTEM WITH CLEAN, POTABLE WATER UNTIL CHLORINE SOLUTION IS REMOVED. SUBMIT WATER SAMPLE REPORT TO AUTHORITY HAVING JURISDICTION.
- GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION FREE OF DEFECTS FOR A PERIOD OF 1-YEAR AFTER RECEIVING CERTIFICATE OF OCCUPANCY.
- COORDINATE LOCATIONS AND CONNECTION SIZES OF WASTE AND WATER LINES WITH OWNER FURNISHED EQUIPMENT. P.C. SHALL MAKE ALL FINAL CONNECTIONS.

PLUMBING LEGEND		
SYMBOL	ABBR	DESCRIPTION
---	CW	COLD WATER LINE
----	HW	HOT WATER LINE
-----	W	SOIL OR WASTE LINE
-----	VT	VENT LINE
⊥	AAV	AIR ADMITTANCE VALVE
⊥	VTR	VENT THRU ROOF
⊥	WCO	WALL CLEANOUT
⊥	FCO	FLOOR CLEANOUT
⊥	COG	CLEANOUT ON GRADE
⊥	FD	ROUND FLOOR DRAIN
⊥	SD	SHOP DRAIN
⊥	HB	HOSE BIB/HYDRANT
⊥	FHB	FROSTPROOF HOSE BIB/HYDRANT
⊥	WA	WATER ARRESTOR (PDI SIZE "A")
⊥	A	COMPRESSED AIR PIPING
⊥	-	SHUTOFF VALVE
⊥	-	GAS COCK
⊥	BFP	BACKFLOW PREVENTER
⊥	-	UNION
⊥	-	THERMOMETER
⊥	PG	PRESSURE GAUGE WITH COCK
⊥	FS	FLOW SWITCH
⊥	-	CONCENTRIC REDUCER
⊥	-	FLOW DIRECTION ARROW
⊥	-	FIXTURE MARK (SEE SCHEDULE)
G.C.	GENERAL CONTRACTOR	
P.C.	PLUMBING CONTRACTOR	
M.C.	MECHANICAL CONTRACTOR	
E.C.	ELECTRICAL CONTRACTOR	
AFF	ABOVE FINISHED FLOOR	
AFG	ABOVE FINISHED GRADE	
BFG	BELOW FINISHED GRADE	

LOAD/DEMAND TABLE								
FIXTURE TYPE	QTY.	DRAIN FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
		DRAIN	TOTAL	COLD	HOT	CW & HW	HOT TOTAL	SUPPLY TOTAL
WATER CLOSET (TANK)	7	4.0	28.0	5.0		5.0		35.0
URINAL	1	2.0	2.0	5.0		5.0		5.0
LAVATORY (SMALL P.O.)	7	1.0	7.0	1.5	1.5	2.0	10.50	14.00
DRINKING FOUNTAIN	2	0.5	1.0	0.25		0.25		0.50
MOP SINK/UTILITY SINK	1	2.0	2.0	2.25	2.25	3.0	2.25	3.00
KITCHEN SINK	1	2.0	2.0	1.5	1.5	2.0	1.50	2.00
2-COMP SINK	1	2.0	2.0	2.25	2.25	3.0	2.25	3.00
WASHING MACHINE	1	3.0	3.0	2.25	2.25	3.0	2.25	3.00
GEAR WASHER	1	3.0	3.0	2.25	2.25	3.0	2.25	3.00
SHOWER	4	2.0	8.0	1.5	1.5	2.0	6.00	8.00
ICE MACHINE	4	0.5	2.0	0.25		0.25		1.00
FLOOR DRAIN	6	2.0	12.0					
TOTAL LOAD (FIXTURE UNITS)			72.00	TOTAL LOAD (FIXTURE UNITS)			27.00	77.50
MINIMUM LINE SIZE		4"		MINIMUM LINE SIZE		1 1/4"		1 1/2"
APPLIED LINE SIZE		4"		APPLIED LINE SIZE		1" 1/4"		1 1/2"
TOTAL LOAD (FIXTURE UNITS)			72.00	TOTAL DEMAND (GPM)			22	36

NOTES:  
1. LINE SIZES SHOWN FOR TYPE "L" COPPER. PEX SIZES WILL INCREASE FROM PLAN SIZES.

PIPING IDENTIFICATION TABLE				
SYMBOL	CLASSIFICATION	LABEL COLOR SCHEME (LETTERING / BACKGROUND)	PIPE LABEL	INSULATION COLOR
---	DOMESTIC COLD WATER	WHITE / GREEN	DOMESTIC COLD WATER	WHITE
----	DOMESTIC HOT WATER	WHITE / GREEN	DOMESTIC HOT WATER	WHITE
-----	DOMESTIC HOT WATER	WHITE / GREEN	DOMESTIC HW RETURN	WHITE
-----	COMPRESSED AIR	WHITE / BLUE	COMPRESSED AIR	-
OUTSIDE DIAMETER OF PIPE OR COVERING	SIZE OF LETTERS	LENGTH OF BACKGROUND	PIPE LABELS SHALL MEET ASME (ANSI) A13.1-2007 STANDARD & NCPD AND BE MARKED AS FOLLOWS: 1. STANDARD AND BE MARKED AS FOLLOWS: - ADJACENT TO ALL VALVES AND FLANGES - AT BOTH SIDES OF FLOOR OR WALL PENETRATIONS - ADJACENT TO CHANGES IN DIRECTIONS - EVERY 25' INTERVALS ON STRAIGHT RUNS - READILY VISIBLE TO PERSONNEL FROM POINT OF APPROACH - WITH DIRECTION OF FLOW ARROWS INDICATED	
3/4" TO 1-1/4"	1/2"	8" MIN.		
1-1/2" TO 2"	3/4"	8" MIN.		
2-1/2" TO 6"	1-1/4"	12" MIN.		

**GREASE INTERCEPTOR LOAD**

GREASE INTERCEPTOR IS SIZED ACCORDING TO RATE OF FLOW (GPM). THE RATED CAPACITY (LBS) IS LISTED AT 2X THE FLOW.

KITCHEN SINK (SK-2A)  
BOWL (2) 14"x16"x8" = 3584  
3584 CI / 231 = 15.5 GPM  
15.5 GPM x 0.75 = 11.6 GPM  
(10 GPM FLOW RESTRICTOR PROVIDED)

PLUMBING FIXTURE SCHEDULE						
FIX. NO.	DESCRIPTION	CW	HW	DRAIN	FAUCETS, VALVES & ACCESSORIES	NOTES
WC-1A	WATER CLOSET TANK TYPE, FLOOR MOUNTED, ELONGATED LOW-CONSUMPTION (1.6 GPF) FULLY GLAZED 2 1/8" BALL PASS TRAPWAY MEETS ASME A112.19.2M & 19.6M ADA (+/-17" RIM HEIGHT)	1/2"		3"	FIXTURE BY: AMERICAN STANDARD, SLOAN OR KOHLER SEAT: EQUAL TO CHURCH 9500C (OPEN FRONT LESS COVER) MATERIAL: VITREOUS CHINA COLOR: WHITE MGP: 1000	TANK SHALL HAVE RIGHT HAND OR LEFT HAND TRIP LEVER AS REQUIRED TO MEET ADA (SEE DETAIL)
UR-1A	URINAL MANUAL FLUSH VALVE TYPE, WALL MOUNTED, WASHOUT ULTRA LOW-CONSUMPTION (0.5 GPF) MEETS ASME A112.19.2M & 19.6M ADA APPLICATIONS	3/4"		1 1/2"	FIXTURE BY: AMERICAN STANDARD, SLOAN, KOHLER MANUAL FLUSH VALVE: EQUAL TO SLOAN REGAL 186-0.5 MATERIAL: VITREOUS CHINA COLOR: WHITE	REFER TO ARCHITECTURAL DWGS FOR SPECIFIC MOUNTING HEIGHTS
LA-1A	WALL HUNG LAVATORY 21 1/4"x22" WITH CHINA SHROUD OPTION CHROME SINGLE LEVER FAUCET (0.5 GPM AERATOR) MEETS ASME A112.19.2M ADA COMPLIANT	3/8"	3/8"	1 1/4"	FIXTURE: AMERICAN STANDARD 0954.004EC MURRO UNIVERSAL DESIGN FAUCET: EQUAL TO DELTA 501LF-HGMHDF (4" CENTERSET) STRAINER: EQUAL TO MCGUIRE 155A MATERIAL: VITREOUS CHINA COLOR: WHITE SHROUD: TRUEBRO LAVSHIELD 82202	REFER TO ARCHITECTURAL DWGS FOR SPECIFIC MOUNTING HEIGHTS
SK-1A	DOUBLE BOWL UNDERMOUNT SINK (33" X 21" X 12" 18 GAUGE TYPE 304, 18-8 STAINLESS STEEL SOUND DEADENING COATING SINGLE LEVER FAUCET WITH SPRAYER (1.0 GPM AERATOR) ADA COMPLIANT - SIDE APPROACH	1/2"	1/2"	1 1/2"	FIXTURE BY: WEST, ELKAY OR MOEN FAUCET: EQUAL TO MOEN 527608 (1-HOLE) STRAINER: REMOVABLE BASKET	LISTED SIZES INDICATE SIDE TO SIDE DIMENSION X FRONT TO BACK DIMENSION X DEPTH PROVIDE WITH REAR DRAIN
SK-2	DOUBLE COMPARTMENT UTILITY SINK (55 1/2" X 27 1/2") 14 GA., 304 STAINLESS STEEL 15"x24"x14" COMPARTMENTS LEFT 24" DRAINBOARD	3/4"	3/4"	2"	EQUAL TO ELKAY SS8230L FAUCET: T&S B-0291 (18"L SWING NOZZLE) STRAINER: LK27 (LEVER HANDLE)	LISTED SIZES INDICATE SIDE TO SIDE DIMENSION X FRONT TO BACK DIMENSION X DEPTH PROVIDE WITH REAR DRAIN
DF-1A	ELECTRIC WATER COOLER DUAL LEVEL, WALL MOUNT ADA COMPLIANT	3/8"		1 1/4"	BUBBLER: FLEXIBLE GUARD ANTI-MICROBIAL SAFETY TYPE CABINET FINISH: STAINLESS STEEL ELECTRICAL: 4 AMPS @ 120V/1PH	PROVIDE WITH CANE APRON
SH-1A	SHOWER BUILT-IN TILE ENCLOSURE BY G.C. HAND-HELD SHOWER WITH ADJUSTABLE SLIDE BAR (2.5 GPM) ADA COMPLIANT	1/2"	1/2"	2"	VALVE & TRIM: EQUAL TO DELTA T13H153(R-10000-UNWS) (WITH METAL HOSE) DRAIN: EQUAL TO ZURN ZN-415-2"-W/TYP "B" STRAINER-5" ACCESSORIES SUCH AS PAN, GRAB BARS, SEAT, CURTAIN ROD, CURTAIN, ETC. PROVIDED BY G.C.	SEE PLANS TO DETERMINE RH OR LH CONFIGURATION. ADJUST STOP TO LIMIT MAX TEMPERATURE TO 110°F
MS-1	MOP SINK SERVICE BASIN (24"Wx24"Lx10"D)	1/2"	1/2"	3"	EQUAL TO FIAT MSB2424 FAUCET: 830-AA PROVIDE WITH STAINLESS STEEL BUMPER GUARDS, MOP BRACKET, AND HOSE & HOSE BRACKET	
ES-1A	EMERGENCY EYE/FACE WASH AND SHOWER STATION FLOOR MOUNTED MEETS ANSI Z358.1. ADA COMPLIANT	1 1/4"	1 1/4"	1 1/4"	FIXTURE: EQUAL TO STINGRAY T515-SS-NFT-SS/SS PROVIDE WITH ANSI-COMPLIANT IDENTIFICATION SIGN INTEGRAL TEMPERING UNITS, STAINLESS STEEL PIPE, BOWL & SHOWERHEAD	
GI-1	10 GPM GREASE INTERCEPTOR 20 LBS GREASE CAPACITY (22"Lx14"x12"D)			2"	WATTS WD-10-E FINISH: ACID RESISTANT BAKED GRAY EPOXY COATING, INSIDE & OUT FINISH: GASKETED EPOXY COATED 1/4" SKID-PROOF STEEL FLOW CONTROL: 10 GMP	

PLUMBING EQUIPMENT SCHEDULE						
FIX. NO.	DESCRIPTION	CW	HW	DRAIN	REFERENCE MAKE & MODEL	NOTES
OS-1	OIL/WATER SEPARATOR 550 GALLON HEAVY TRAFFIC RATED FLOW RATE: 37 GPM BASED ON 15-MINUTE RETENTION TIME			4"	EQUAL TO OLDCASTLE 660-SA-550 OPTIONAL TOP: 660-T-SA-HD	MATERIALS & INSTALLATION SHALL MEET ALL REQUIREMENTS OF CITY/COUNTY FOG PROGRAM (SEE DETAIL ON P6)

PLUMBING SPECIALTIES SCHEDULE				
MARK	DESCRIPTION	MANF.	REFERENCE MODEL NO.	NOTES
FCO	ADJUSTABLE FLOOR CLEANOUT WITH BRONZE PLUG	MIFAB	C1220-1-34B-P	SEE PLANS FOR SIZES
FCO-1	WHEEL TRAFFIC FLOOR CLEANOUT WITH BRONZE PLUG	MIFAB	C1220-XR-1-34B-P	SEE PLANS FOR SIZES
COG	CLEANOUT ON GRADE WITH BRONZE PLUG	MIFAB	C1220-1-34B-P	SEE PLANS FOR SIZES
WCO	WALL CLEANOUT WITH BRONZE PLUG & S.S. COVER	MIFAB	C1430-RD	SEE PLANS FOR SIZES
WHA	WATER HAMMER ARRESTOR	PPP	SWA (PDI SIZE)	
FD-1	AREA FLOOR DRAIN	MIFAB	F1100-C-1-6-P-2" (5" ROUND STRAINER)	
FD-2	AREA FLOOR DRAIN	MIFAB	F1100-C-1-6-P-4" (8" ROUND STRAINER)	
HD-1	EXTENDED OPEN HUB DRAIN WITH DEEP SEAL TRAP	MIFAB	F1120-C-DD-50-2"	
LI-1	LINT SEPARATOR	MIFAB	MI-LINT-4	
SD-1	SHOP DRAIN W/SEDIMENT BUCKET	MIFAB	F1480-4-5-P-4"	PROVIDE WITH REMOVABLE GRATE
FS-1	FLOOR SINK WITH BUCKET	MIFAB	FS1730-5-175-P-4"	
FS-2	FLOOR SINK WITH BUCKET	MIFAB	FS1730-5-175-P-3"	
UB-1	UTILITY BOX - ICE MAKER	OATEY	37687	INCLUDES WATER HAMMER ARRESTOR
UB-2	UTILITY BOX - WASHING MACHINE	OATEY	37609 (2 VALVE BOX & DRAIN BOX)	INCLUDES WATER HAMMER ARRESTORS
MV-1	THERMOSTATIC MIXING VALVE (SEIPOINT: 110°F)	LEONARD	370-LF-SW-DT (3/4" INLET/OUTLET)	10.0 GPM @ 20 PSI PRESSURE DROP
BFP-1	BACKFLOW PREVENTER (RPZ) - DOMESTIC WATER	WATTS	LF009M2QT-S-1"	PROVIDE IN HEATED ENCLOSURE
BFP-2	BACKFLOW PREVENTER - ICE MACHINE	WATTS	SD2-MF-3/8"	
FHB-1	FREZLESS WALL FAUCET WITH BACKFLOW PROTECTION	WOODFORD	V22	PROVIDE WITH METAL HANDLE
FHB-2	HOT & COLD WALL FAUCET WITH BACKFLOW PROTECTION	WOODFORD	V22	VERTICAL MOUNT
HB-1	WALL FAUCET WITH ANTI-SIPHON PROTECTION	WOODFORD	Z1 (CHROME)	PROVIDE WITH POLYCARBONATE HANDLE
HB-2	WALL FAUCET WITH BACKFLOW PROTECTION	WOODFORD	Z6-BR (ROUGH BRASS)	PROVIDE WITH METAL HANDLE OPTION
HB-2	WALL FAUCET WITH BACKFLOW PROTECTION	WOODFORD	T22 (ROUGH BRASS)	PROVIDE WITH METAL HANDLE OPTION
RP-1	HOT WATER RECIRCULATION PUMP WITH AUTOMATIC TIMER	B&G	NBF-22U	120V CONNECTION REQUIRED (1 AMP)
EXP	WATER HEATER EXPANSION TANK	A.O. SMITH	PMC-2 (2 GALLON)	
YH-1	YARD HYDRANT WITH BACKFLOW PROTECTION	WOODFORD	Y2 (1" NPT PIPE CONNECTION & 2' BURY DEPTH)	

GAS WATER HEATER SCHEDULE													
MARK	SIZE	GPM	TEMP. RISE	INPUT CAPACITY	EFFICIENCY	CW CONN.	HW CONN.	GAS CONN.	VENTS	MANF.	REF. MODEL	OPERATING WEIGHT	SIZE HxWxD
GWH-1	1/2" ANKLESS	10	45°F	199,900 BTUH	95%	3/4"	3/4"	3/4"	3"	A.O. SMITH	ACT-1991-N	71 LBS	23.6"x17.75"x11.25"
GWH-2	3/4" ANKLESS	10	45°F	199,900 BTUH	95%	3/4"	3/4"	3/4"	3"	A.O. SMITH	ACT-1991-N	71 LBS	23.6"x17.75"x11.25"
GWH-3	1" ANKLESS	10	45°F	199,900 BTUH	95%	3/4"	3/4"	3/4"	3"	A.O. SMITH	ACT-1991-N	71 LBS	23.6"x17.75"x11.25"

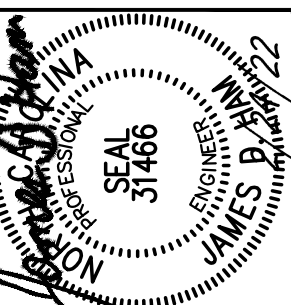
- NOTES:  
1. SET OUTLET WATER TEMPERATURE AT 120°F.  
2. PROVIDE WITH ECONET WiFi ACCESSORY KIT.  
3. PROVIDE WITH 5-YEAR HEAT EXCHANGER & PARTS WARRANTY AND 1-YEAR LABOR WARRANTY.  
4. PROVIDE WITH NEUTRALIZATION KIT WHEN NECESSARY.

PLUMBING PIPING INSULATION TABLE						
SERVICE	LOCATION	MATERIAL TYPE	JACKET TYPE	PIPE SIZE	THICKNESS	REMARKS
DOMESTIC WATER	BUILDING ENVELOPE	PREFORMED GLASS FIBER	ASJ	COLD 1/2" OR LESS COLD 3/4" - 3" HOT 1/2" OR LESS HOT 3/4" - 2" HW RECIRCULATION	1/2" 1" 1" 1"	-

- NOTES:  
1. ALL PIPE HANGERS AND SUPPORTS ON COLD PIPING SHALL BE OF CLEVIS TYPE ON OUTSIDE OF INSULATION TO MAINTAIN VAPOR BARRIER.

Bobbit Inc.  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbit.com  
www.bobbit.com

**BOBBIT**



Entech  
ENGINEERING  
INC. LIC. # C-1132  
4071 N. BERKELEY BLVD.  
DURHAM, NC 27705  
TEL: (919) 776-9088  
PROJECT MGR.: D. WILHELM  
PROJECT NO.: 221046

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

21-0337

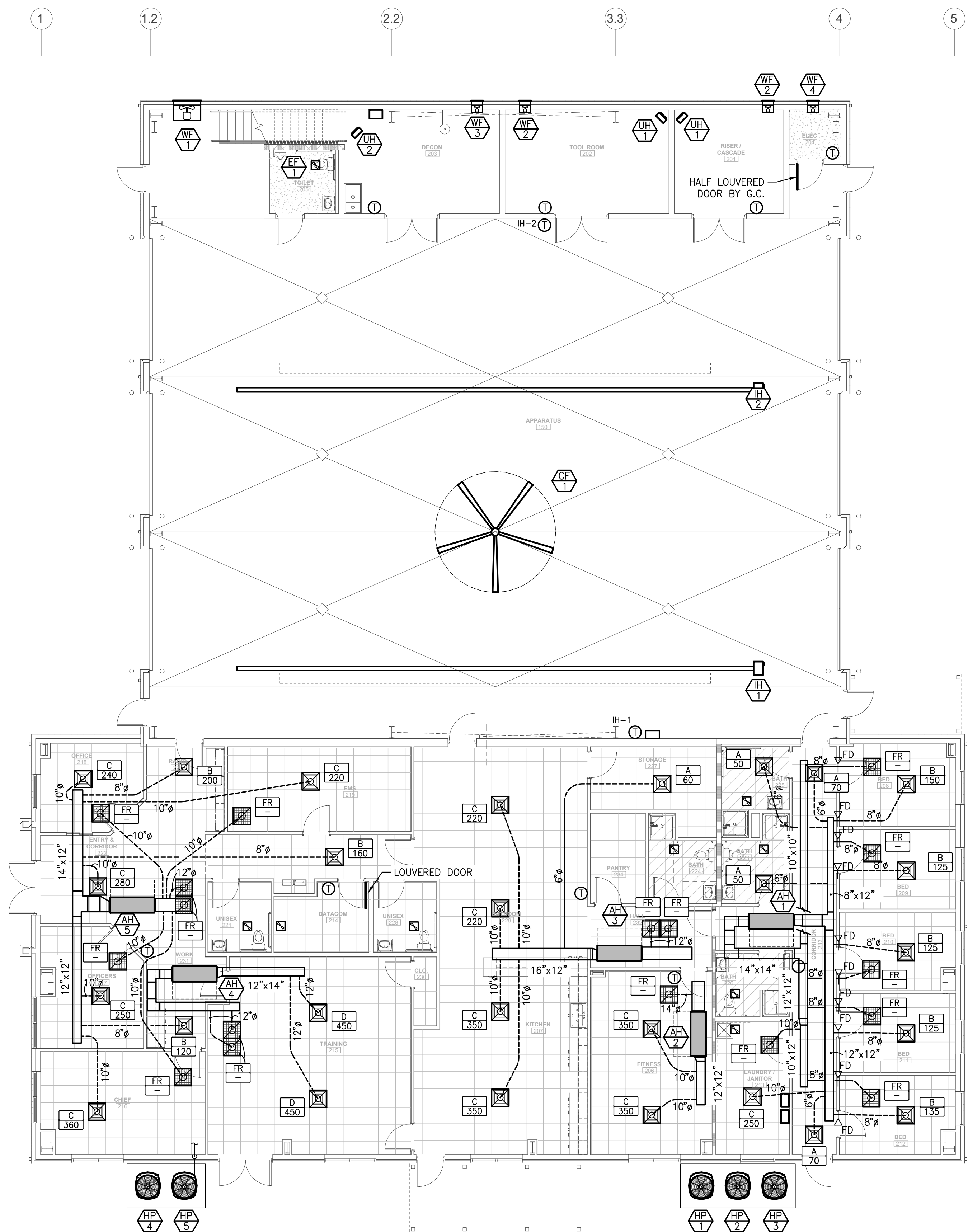
PLUMBING  
SCHEDULES

**P5.1**  
OF 8

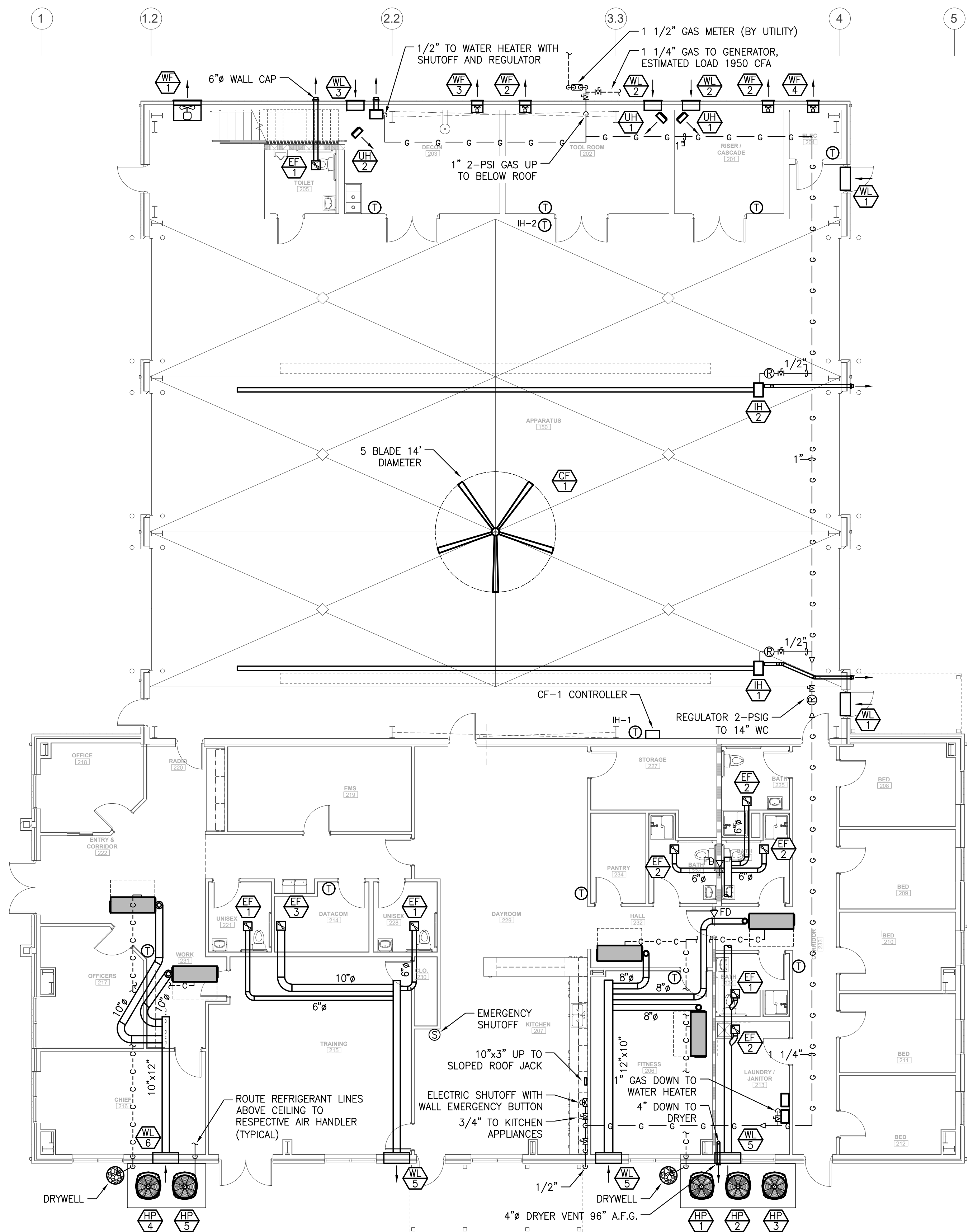


GAS PIPING DESIGN TABLE				
PIPING MATERIAL:	SCH 40 CS / CSST	BLDG HEATING EQUIP:	350 MBH	
DEVELOPED LENGTH:	200 FT	WATER HEATING EQUIP:	600 MBH	
REQ'D HEADER SIZE:	1 1/4"	KITCHEN COOKING EQUIP:	160 MBH	
			TOTAL CAPACITY:	1110 MBH
SERVICE TYPE	SYSTEM PRESSURE	PRESSURE DROP	INPUT CAPACITY	
NATURAL	2 PSI	1 PSI	1110 MBH	1076 CFH

NOTE: GAS PIPING SIZED BASE ON NC FUEL GAS CODE.



1 MECHANICAL DUCT & EQUIPMENT PLAN  
SCALE: 1/8" = 1'-0"



2 MECHANICAL OUTSIDE/EXHAUST AIR & PIPING PLAN  
SCALE: 1/8" = 1'-0"

FIRE RATING LEGEND  
----- 1-HR FIRE PARTITION

BOBBITT  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbitt.com  
www.bobbitt.com

Entech  
ENGINEERING  
INC. LIC. # C-1132  
1071 N. BERKELEY BLVD.  
RALEIGH, NC 27609  
TEL: (919) 776-9088  
PROJECT MGR.: D. HALL  
PROJECT NO.: 221046

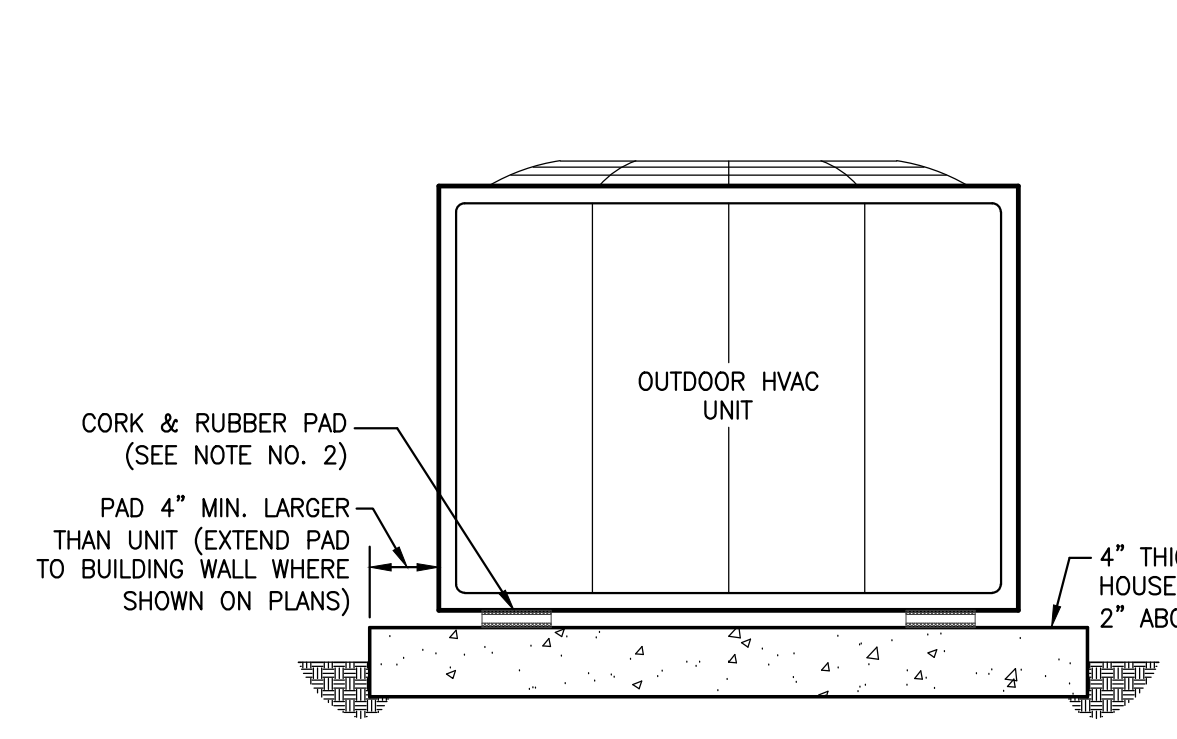
COORDINATOR:  
B. GRIFFITH  
DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED  
2/24/22  
21-0337  
MECHANICAL  
PLANS

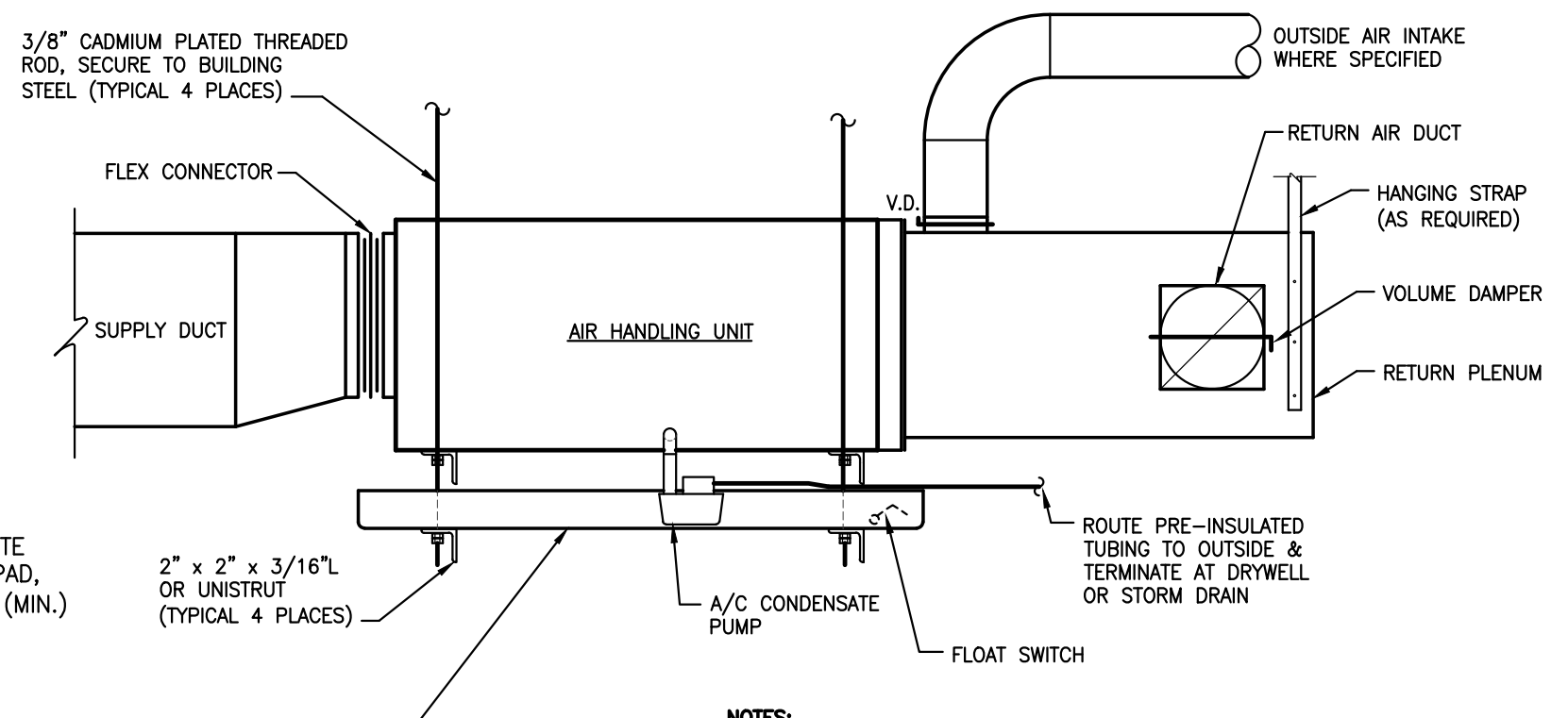
M1.1  
OF 4





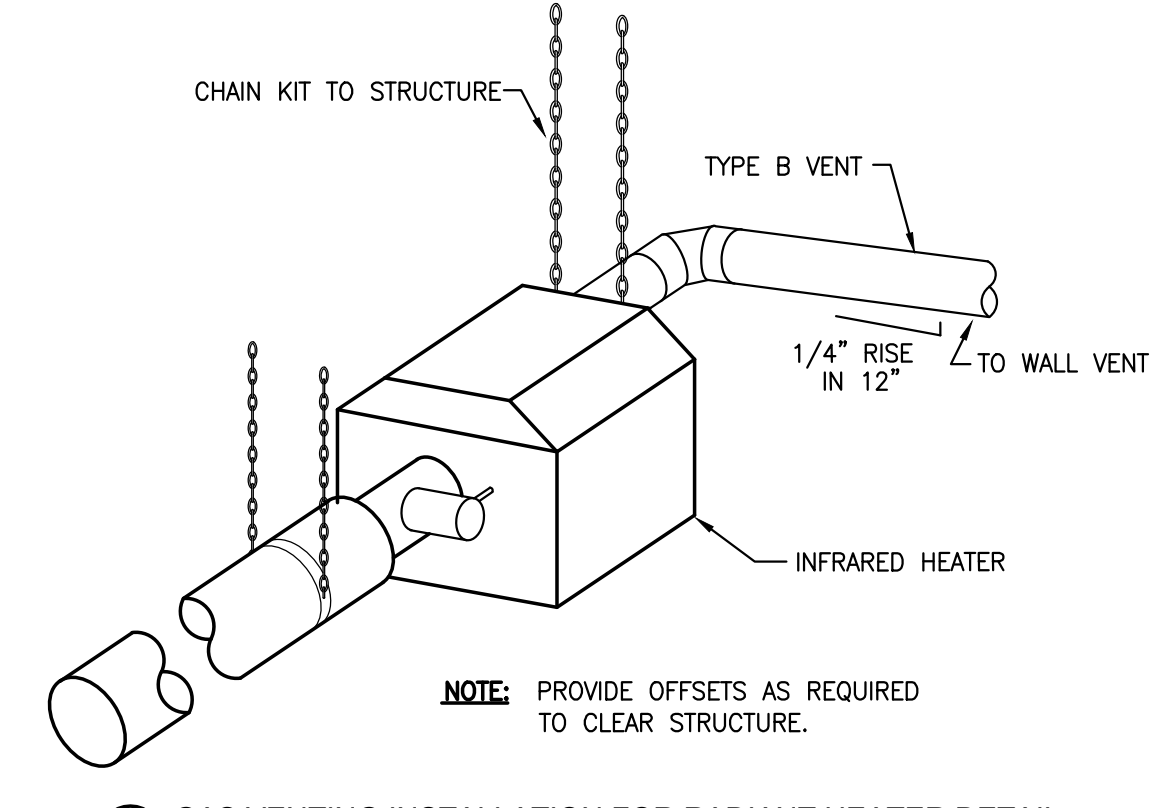
**NOTES:**  
 1. MAINTAIN EQUIPMENT MFG'S. RECOMMENDED CLEARANCES AND A MINIMUM OF 6" BEYOND SPLASH LINE OF ROOF OVERHANG.  
 2. CORK & RUBBER PADS ARE NOT REQUIRED WHEN UNITS HAVE INTEGRAL PLASTIC BASES.

**1** OUTDOOR HVAC UNIT DETAIL  
 SCALE: N.T.S.



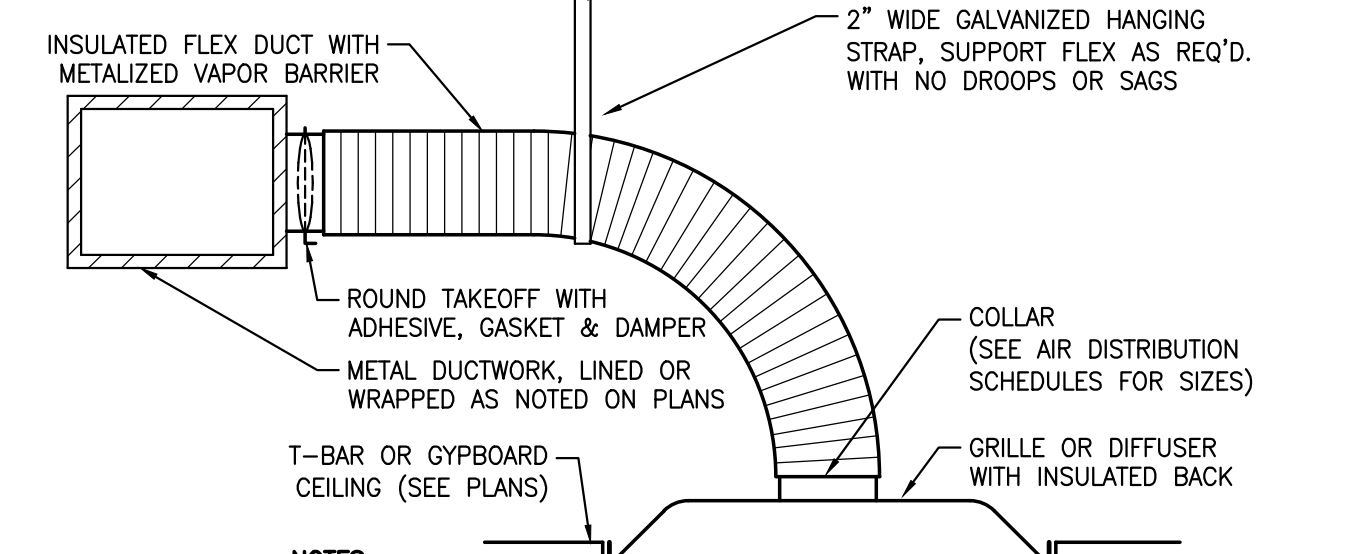
**NOTES:**  
 1. INSTALL A/C CONDENSATE PUMP IN DRAIN PAN OR PROVIDE SEPARATE PAN.  
 2. E.C. SHALL PROVIDE MOTOR RATED SWITCH ABOVE LAY-IN CEILING WITHIN 3' OF PUMP. M.C. SHALL COORDINATE EXACT LOCATIONS.

**2** ABOVE CEILING AIR HANDLING UNIT WITH CONDENSATE PUMP DETAIL  
 SCALE: N.T.S.



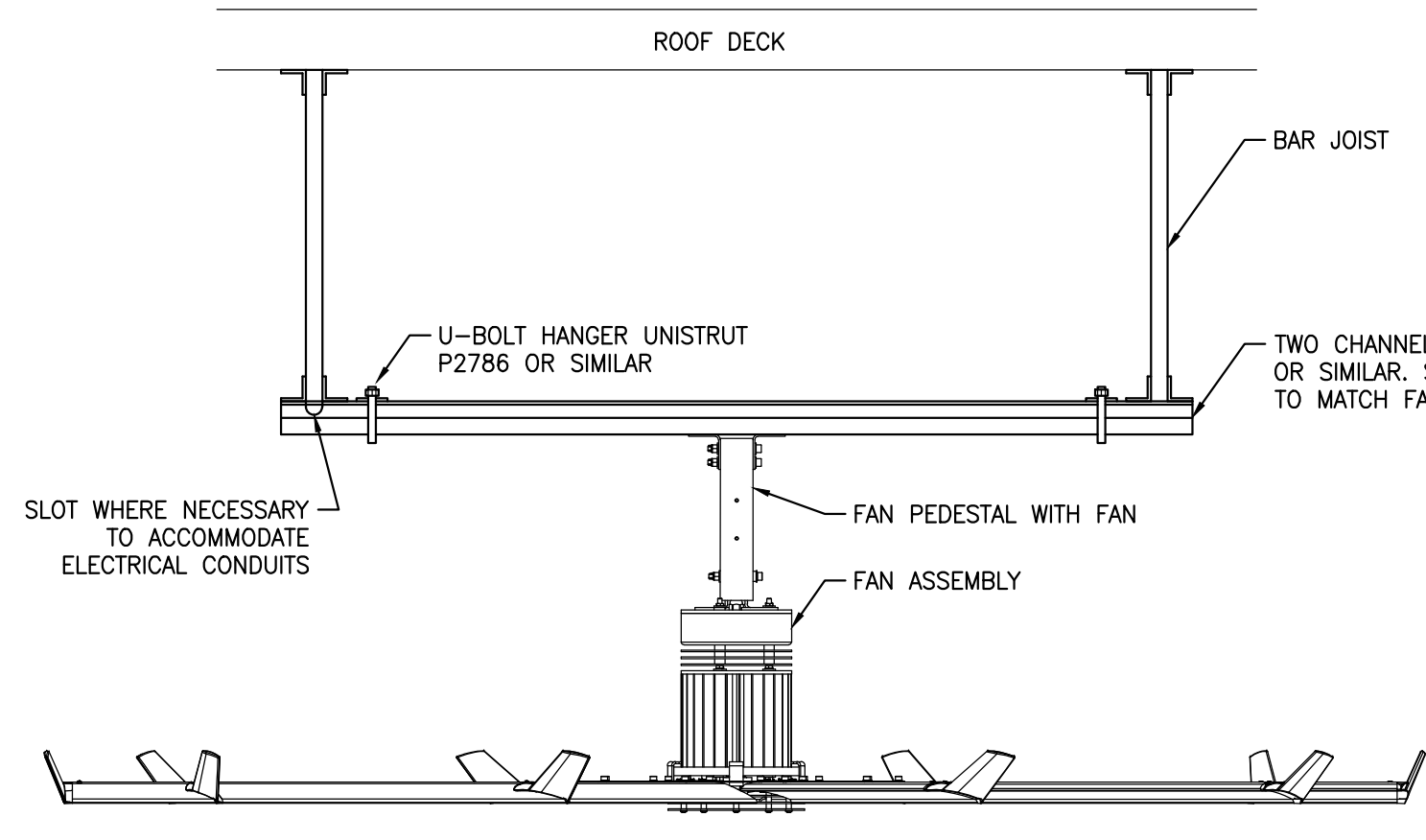
**NOTE:** PROVIDE OFFSETS AS REQUIRED TO CLEAR STRUCTURE.

**3** GAS VENTING INSTALLATION FOR RADIANT HEATER DETAIL  
 SCALE: N.T.S.

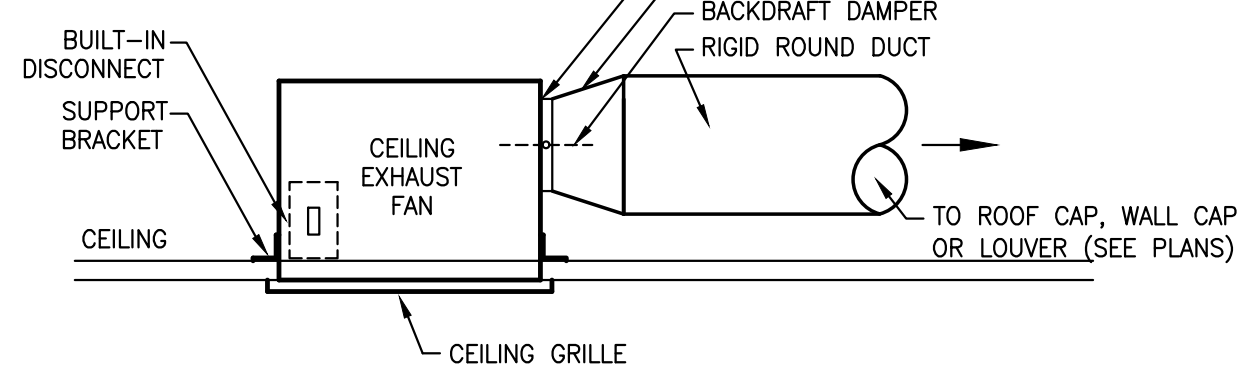


**NOTES:**  
 1. SECURE ENDS OF FLEX WITH NYLON BANDS AND 3" WIDE METALIZED DUCT TAPE.  
 2. INSULATE & SEAL ALL GRILLE & DIFFUSER NECKS TO MAINTAIN VAPOR BARRIER AND ELIMINATE CONDENSATE.

**4** AIR DISTRIBUTION DETAIL  
 SCALE: N.T.S.

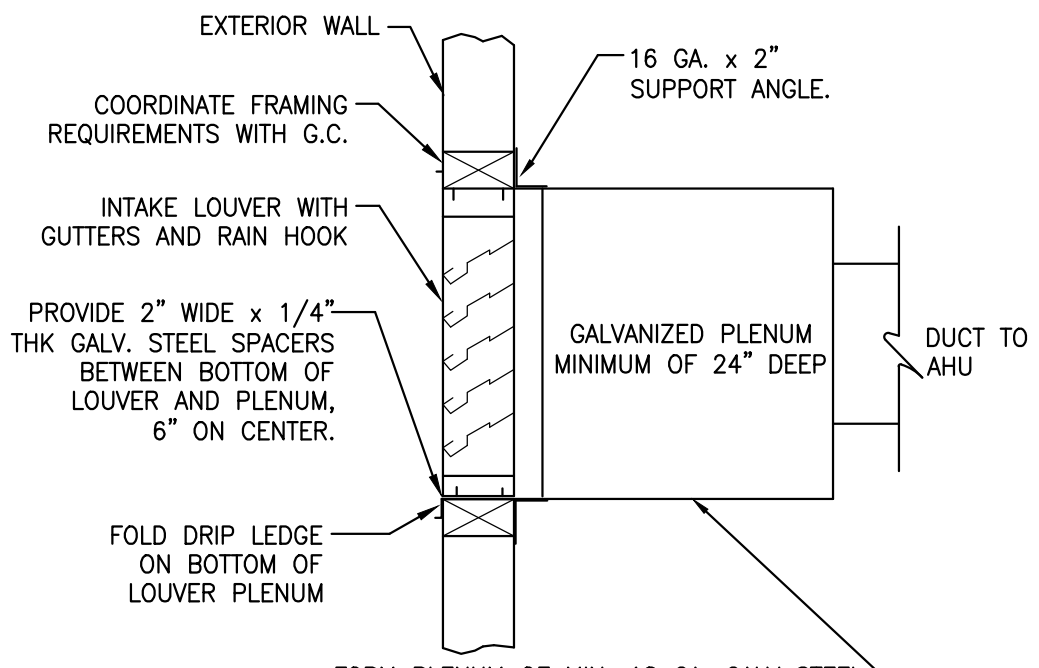


**5** CIRCULATION FAN DETAIL  
 SCALE: N.T.S.



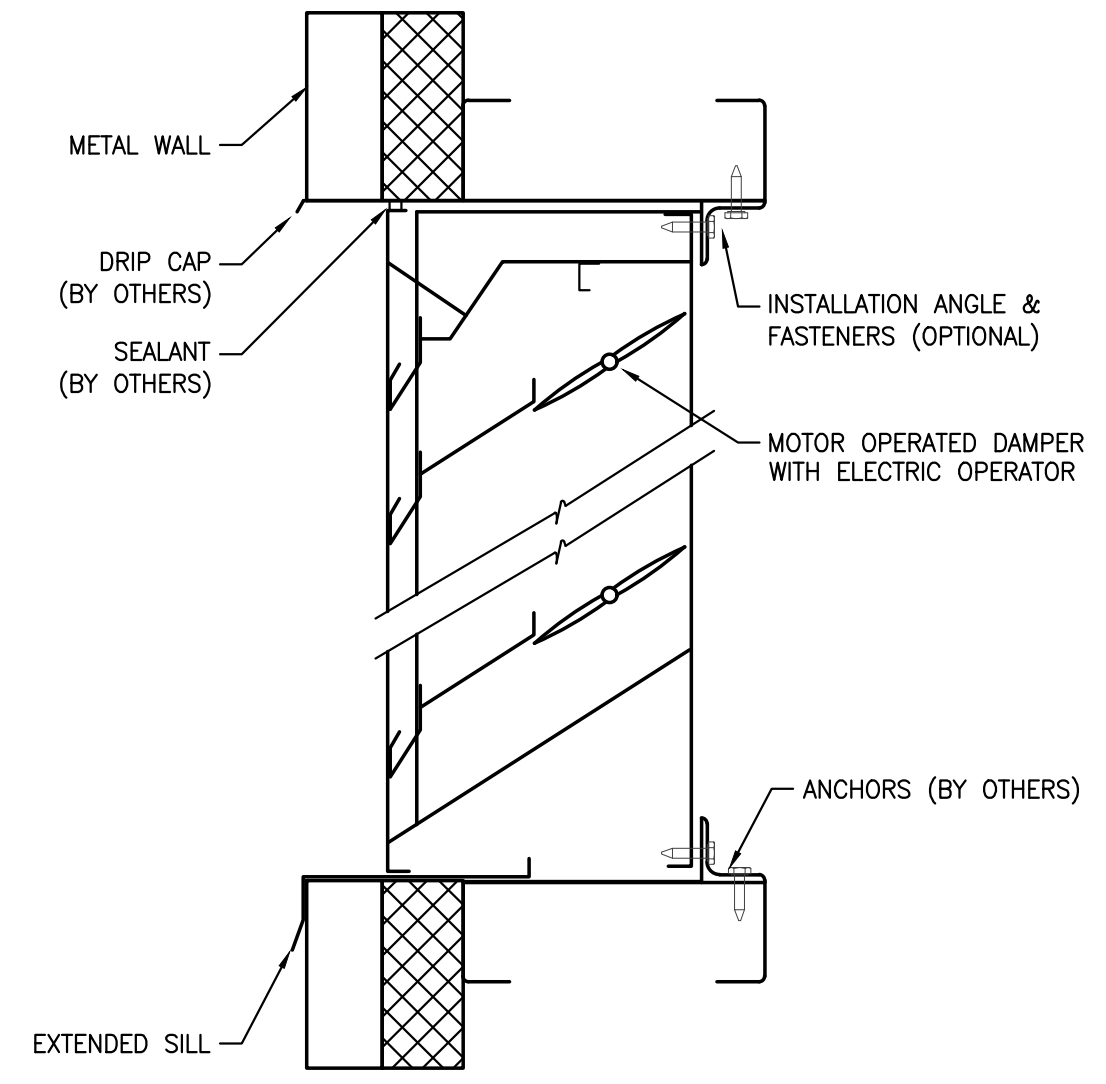
**NOTE:** E.C. SHALL PROVIDE GFCI BRANCH PROTECTED CIRCUIT WHEN LOCATED ABOVE TUB/SHOWER.

**6** CEILING MOUNTED EXHAUST FAN DETAIL  
 SCALE: N.T.S.

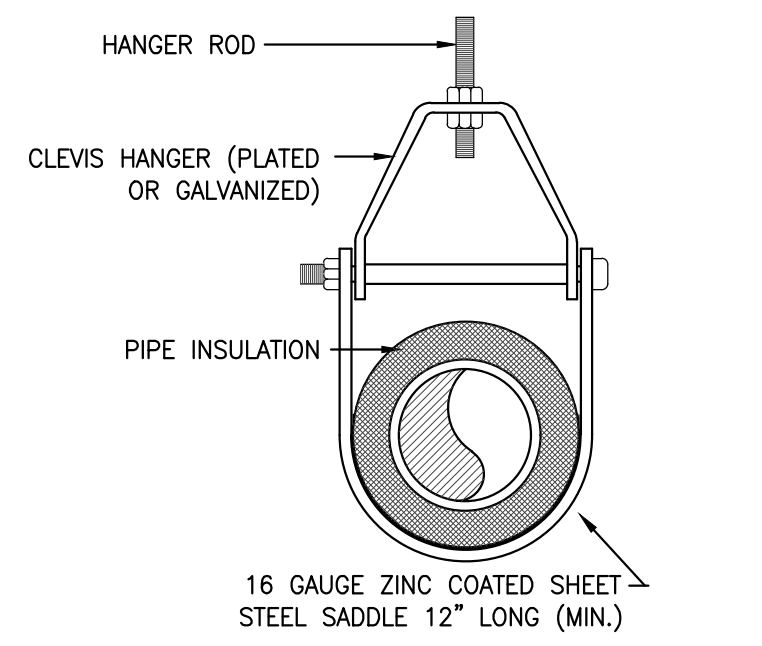


**NOTE:** FORM PLENUM OF MIN. 18 GA. GALV. STEEL WITH NO SEAMS IN THE BOTTOM TO MAINTAIN A WATER TIGHT PAN AND SLOPE 1/4" PER FOOT TOWARD THE EXTERIOR. EXTEND BEYOND WALL.

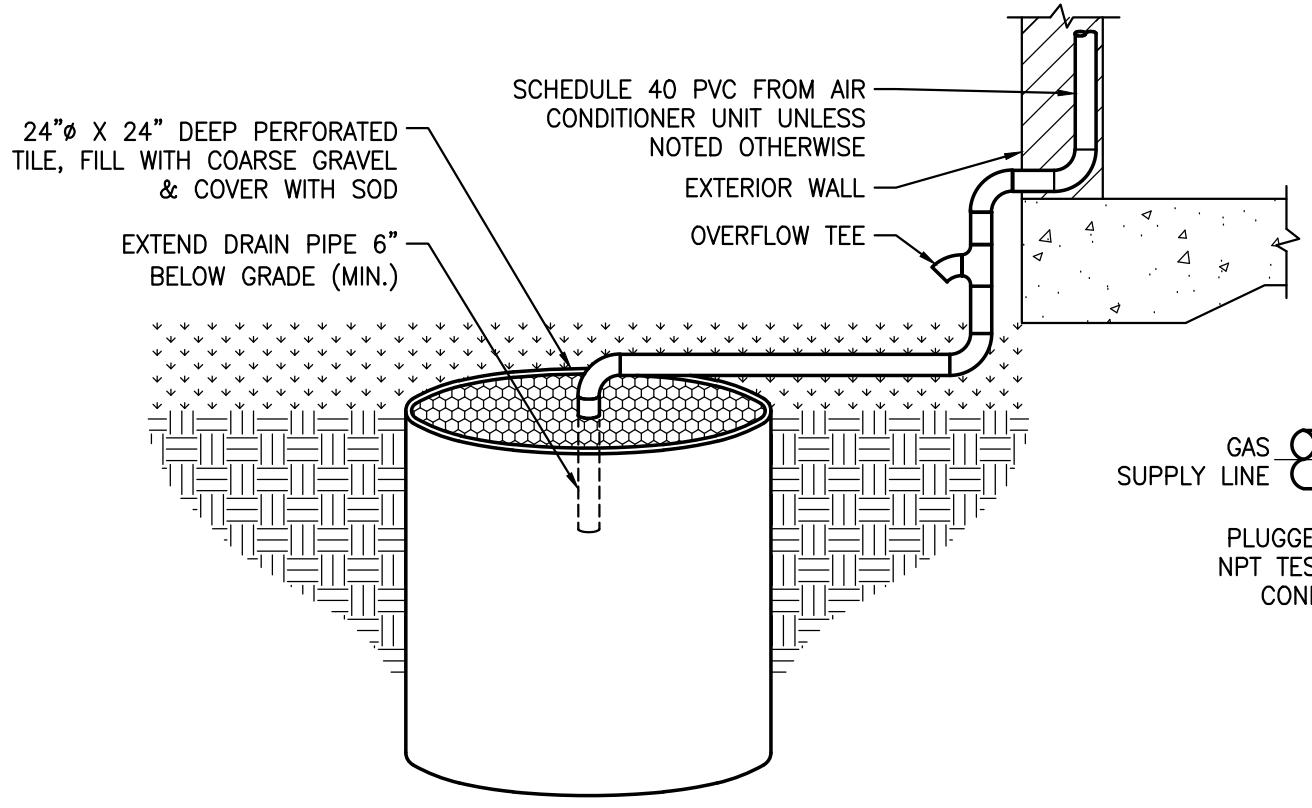
**7** MAKEUP AIR LOUVER DETAIL  
 SCALE: N.T.S.



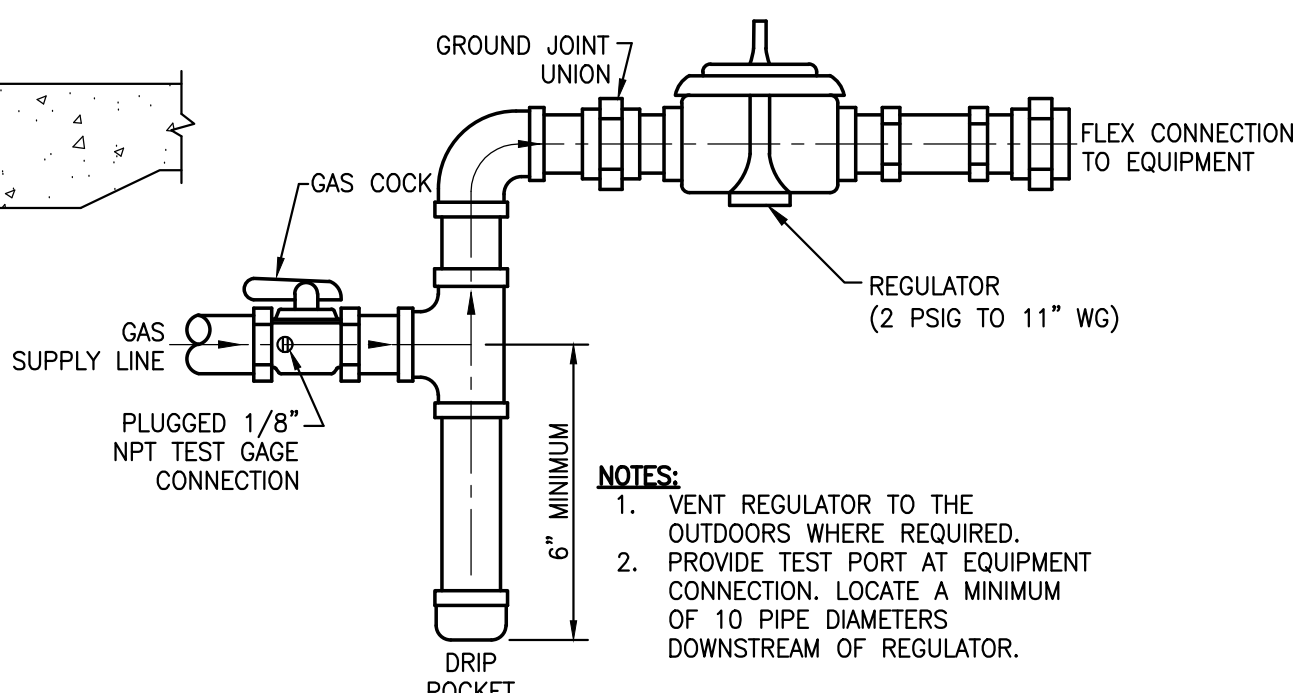
**8** COMBINATION INTAKE LOUVER DETAIL  
 SCALE: N.T.S.



**9** CLEVIS PIPE HANGER DETAIL  
 SCALE: N.T.S.

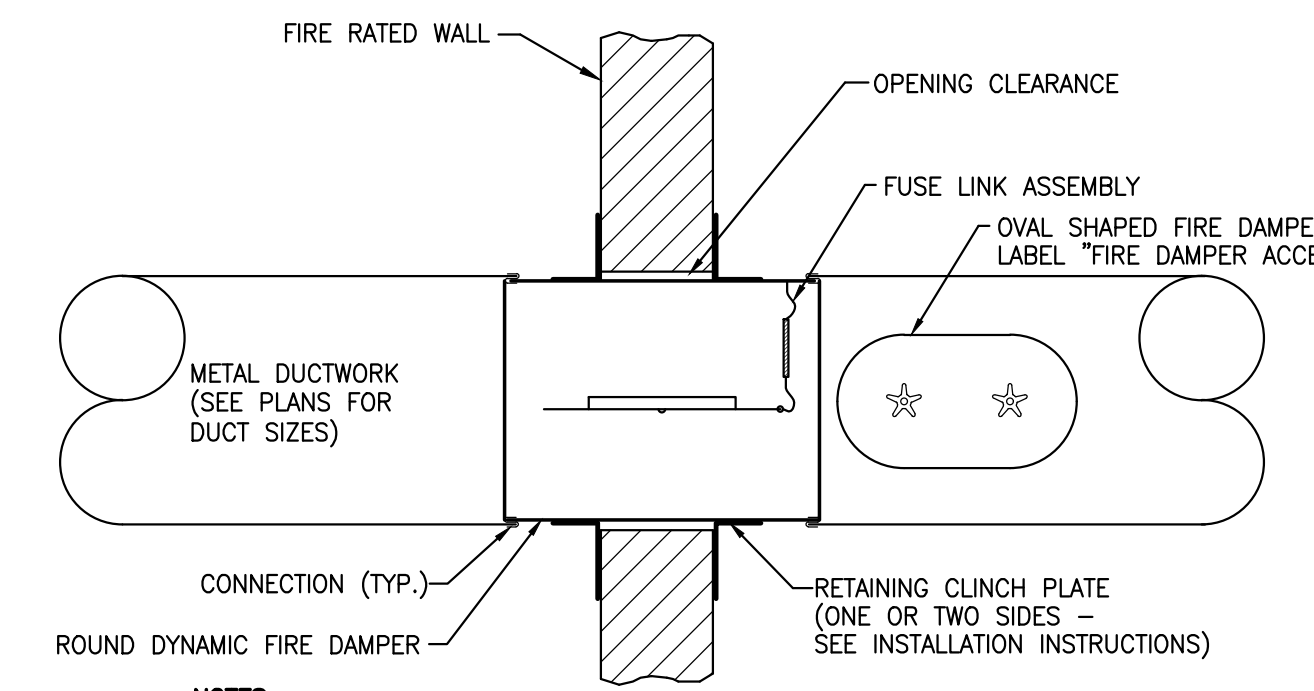


**10** DRYWELL (FRENCH DRAIN) DETAIL  
 SCALE: N.T.S.



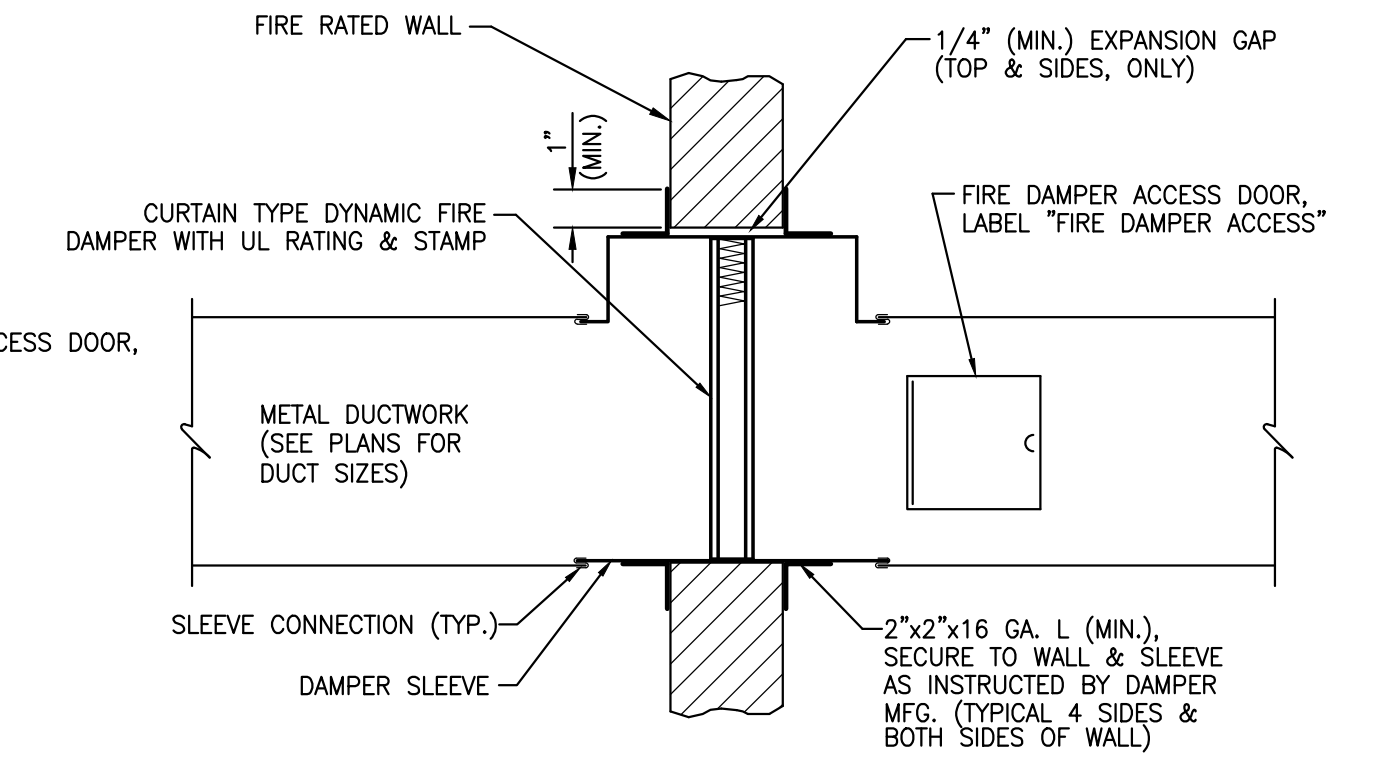
**NOTES:**  
 1. VENT REGULATOR TO THE OUTDOORS WHERE REQUIRED.  
 2. PROVIDE TEST PORT AT EQUIPMENT CONNECTION. LOCATE A MINIMUM OF 10 PIPE DIAMETERS DOWNSTREAM OF REGULATOR.

**11** EQUIPMENT GAS CONNECTION DETAIL  
 SCALE: N.T.S.



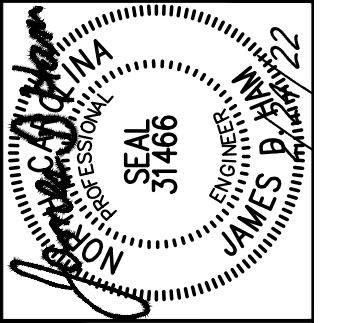
**NOTES:**  
 1. THIS DETAIL IS GENERIC FOR GENERAL GUIDANCE ONLY.  
 2. INSTALL FIRE DAMPER IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION DETAILS. DO NOT VARY FROM THOSE INSTRUCTIONS IN ANY WAY. DO NOT FIRESTOP THE GAP BETWEEN THE FIRE DAMPER SLEEVE AND THE PENETRATION UNLESS SPECIFICALLY REQUIRED BY THE DAMPER MANUFACTURER'S INSTALLATION INSTRUCTIONS.  
 3. APPLY SEALANT EQUAL TO DOW CORNING 999 AROUND RETAINING ANGLES & SLEEVE CONNECTIONS.  
 4. PROVIDE 2" THICK WRAP INSULATION AROUND EXPOSED DAMPER SLEEVE TO PREVENT CONDENSATION.  
 5. DAMPER ACCESS DOOR SIZES SHALL BE 10"x6".

**12** ROUND FIRE DAMPER DETAIL  
 SCALE: N.T.S.



**NOTES:**  
 1. THIS DETAIL IS GENERIC FOR GENERAL GUIDANCE ONLY.  
 2. INSTALL FIRE DAMPER IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION DETAILS. DO NOT VARY FROM THOSE INSTRUCTIONS IN ANY WAY. DO NOT FIRESTOP THE GAP BETWEEN THE FIRE DAMPER SLEEVE AND THE PENETRATION UNLESS SPECIFICALLY REQUIRED BY THE DAMPER MANUFACTURER'S INSTALLATION INSTRUCTIONS.  
 3. APPLY SEALANT EQUAL TO DOW CORNING 999 AROUND RETAINING ANGLES & SLEEVE CONNECTIONS.  
 4. PROVIDE 2" THICK WRAP INSULATION AROUND EXPOSED DAMPER SLEEVE TO PREVENT CONDENSATION.  
 5. DAMPER ACCESS DOOR SIZES SHALL BE 8"x8" ON DUCTS SMALLER THAN 14" AND 12"x12" ON DUCTS 14" & LARGER.

**13** VERTICAL FIRE DAMPER - STYLE B DETAIL  
 SCALE: N.T.S.



COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 DEH

24 x 36  
 AS NOTED

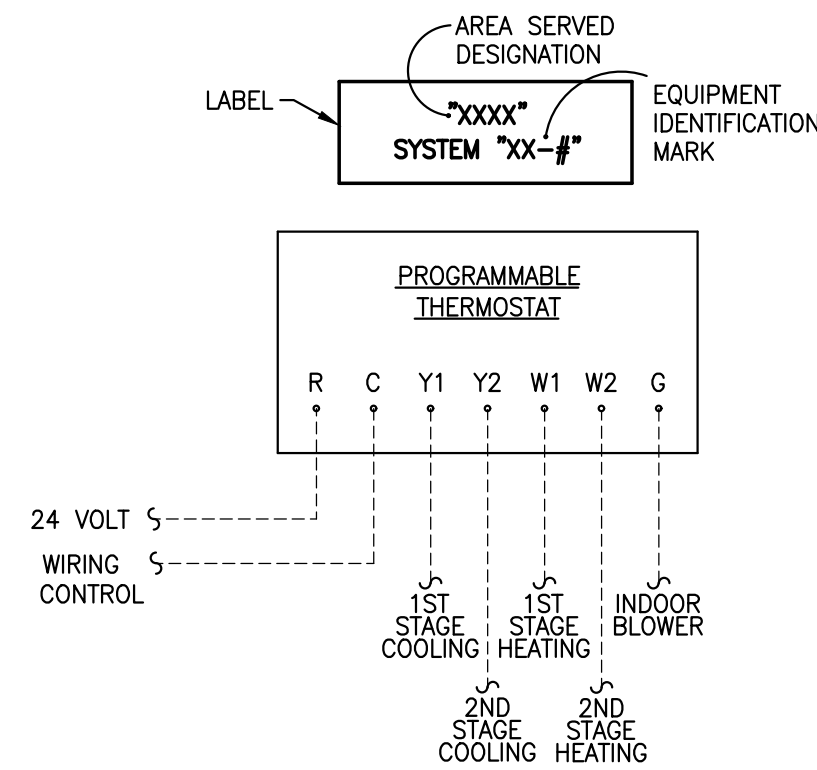
2/24/22

21-0337

MECHANICAL  
 DETAILS

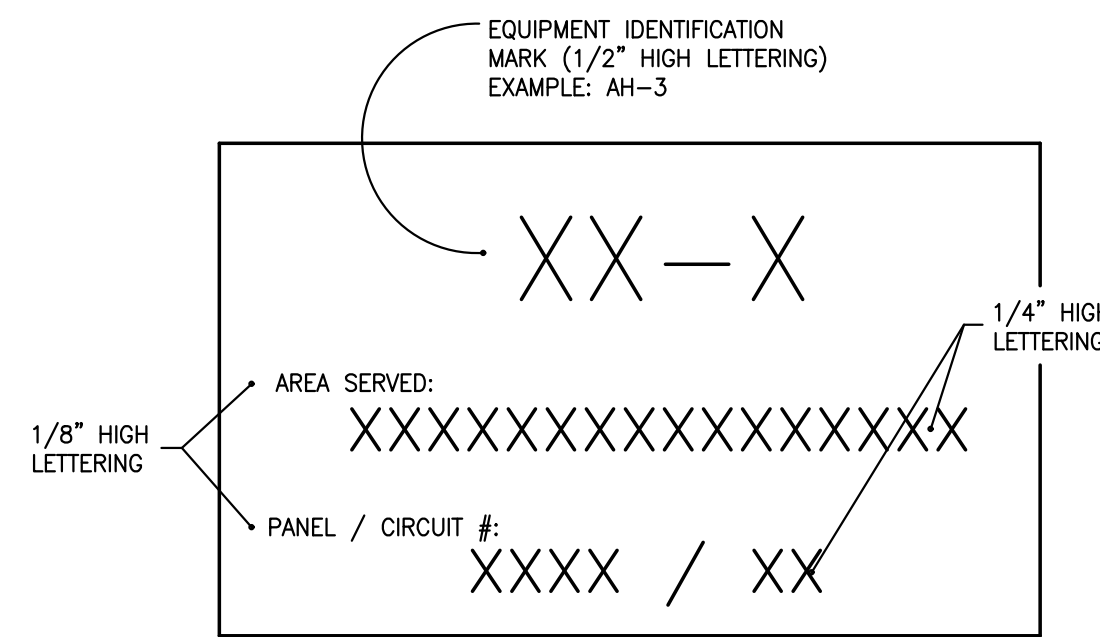


Ventilation Sizing Summary Based on ASHRAE 62.1-2016 for Constant Volume Systems serving multiple spaces										
Air Handler 1 Sleeping Shower Laundry										
Space Name	Mult	Req SA Cfm	Area SF	Cfm/SF	People /person	OA cfm	Air Dist Effect cfm	OA cfm	Breath Zo OA	Vent Eff
N Bed	1	154	135	0.06	3	5.0	0.8	29	23	0.944
E Bed	1	121	125	0.06	3	5.0	0.8	28	23	0.900
E Bed	1	121	125	0.06	3	5.0	0.8	28	23	0.900
E Bed	1	121	125	0.06	3	5.0	0.8	28	23	0.900
S Bed	1	132	125	0.06	3	5.0	0.8	28	23	0.918
Laundry	1	246	125	0.12	1	5.0	0.8	25	20	1.030
Bath	1	50	70	0.01	0	5.0	0.8	1	1	1.114
Bath	1	15	60	0.01	0	5.0	0.8	1	1	1.082
Corridor	1	143	280	0.06	0	5.0	0.8	21	17	0.985
Totals		1103							154	0.9
									OA Required for unit	171
									OA CFM Provided	180
Air Handler 2 Fitness										
Space Name	Mult	Req SA Cfm	Area SF	Cfm/SF	People /person	OA cfm	Air Dist Effect cfm	OA cfm	Breath Zo OA	Vent Eff
Fitness	1	700	295	0.06	4	20.0	0.8	122	98	1
Totals		700								1
									OA Required for unit	122
									OA CFM Provided	140
Air Handler 3 Kitchen Dayroom Pantry										
Space Name	Mult	Req SA Cfm	Area SF	Cfm/SF	People /person	OA cfm	Air Dist Effect cfm	OA cfm	Breath Zo OA	Vent Eff
Kitchen	1	670	435	0.12	4	7.5	0.8	163	82	0.976
Day Room	1	350	455	0.06	6	5.0	0.8	72	57	0.929
Storage	1	67	115	0.06	0	5.0	0.8	9	7	1.002
Bath	1	35	70	0.01	0	5.0	0.8	1	1	1.105
Pantry	1	28	55	0.06	0	5.0	0.8	4	3	0.98
Corridor	1	50	100	0.06	0	5.0	0.8	8	6	0.98
Totals		1200							156	0.929
									OA Required for unit	168
									OA CFM Provided	180
Air Handler 4 Training										
Space Name	Mult	Req SA Cfm	Area SF	Cfm/SF	People /person	OA cfm	Air Dist Effect cfm	OA cfm	Breath Zo OA	Vent Eff
Training	1	900	540	0.06	24	7.5	0.8	266	212	1
Totals		1222								1
									OA Required for unit	266
									OA CFM Provided	280
Air Handlers 5 Office										
Space Name	Mult	Req SA Cfm	Area SF	Cfm/SF	People /person	OA cfm	Air Dist Effect cfm	OA cfm	Breath Zo OA	Vent Eff
Data	1	188	70	0.12	0	5.0	0.8	11	8	1.027
Chief	1	354	230	0.06	1	5.0	0.8	23	19	1.017
Office	1	241	160	0.06	2	5.0	0.8	25	20	0.981
Office	1	228	130	0.06	1	5.0	0.8	16	13	1.013
EMS	1	205	210	0.12	2	5.0	0.8	44	35	0.868
Radio	1	170	115	0.12	1	5.0	0.8	24	19	0.945
Toilet	1	28	55	0.01	0	5.0	0.8	1	1	1.058
Corridor	1	60	120	0.06	0	5.0	0.8	9	7	0.933
Entry	1	239	230	0.06	1	5.0	0.8	23	19	0.988
Toilet	1	28	55	0.01	0	5.0	0.8	1	1	1.058
Work Room	1	63	75	0.06	1	5.0	0.8	12	10	0.895
Totals		1804							152	0.868
									OA Required for unit	175
									OA CFM Provided	200
Shop and Shop Areas										
Space Name	Area SF	Cfm/SF	People /person	OA cfm	Air Dist Effect cfm	OA cfm	OA cfm	OA cfm	Vent CFM	
Cascade	155	0.12	0	5.0	1	11		19	400	
Tool	230	0.12	0	5.0	1	23		27	400	
Decon	215	0.18	2	10.0	1	25		59	600	
Elec	35	0.12	0	5.0	1	16		5	250	
Apparatus Bays	5150	0.75	8	10.0	1	44		3943	4500	



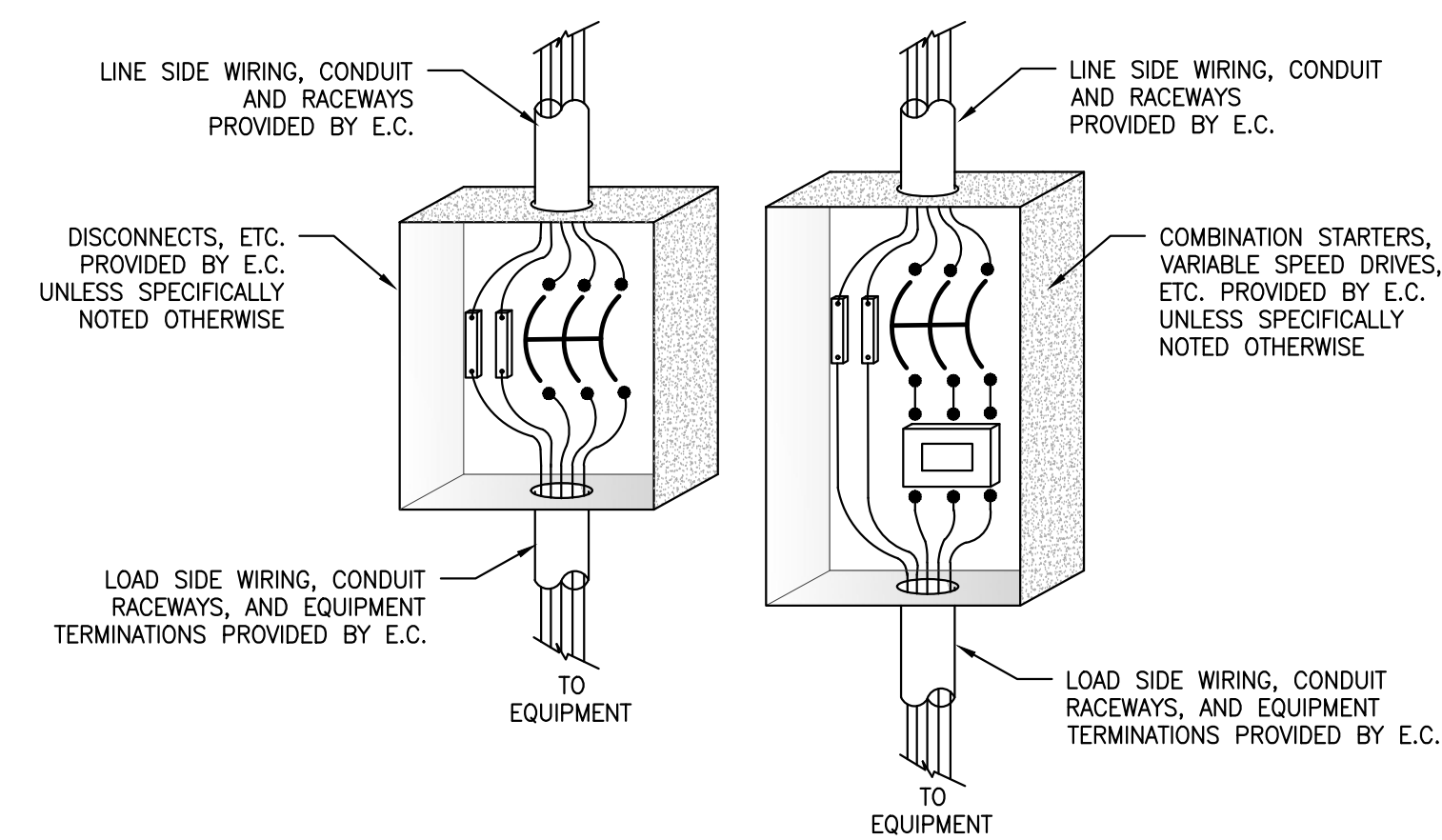
NOTE: LABEL T-STAT WITH PHENOLIC ENGRAVING STOCK WITH WHITE SURFACE AND BLACK 1/4" HIGH LETTERING.

1 THERMOSTAT DETAIL  
SCALE: N.T.S.



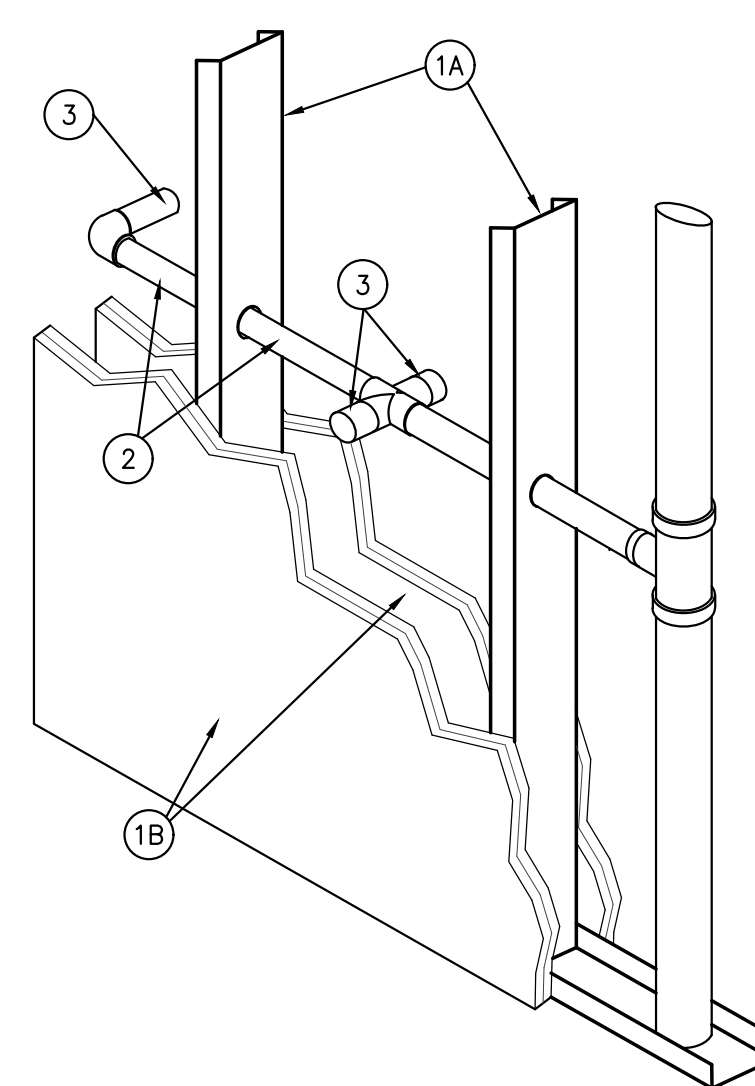
NOTES:  
1. PROVIDE LABEL FOR OUTDOOR UNITS, AIR HANDLERS AND WALL FANS.  
2. EQUIPMENT LABELS SHALL BE 3"x5" PHENOLIC ENGRAVING STOCK WITH WHITE SURFACE AND BLACK LETTERING.  
3. LAY-IN CEILING TILES BELOW AIR HANDLER SHALL HAVE AIR HANDLER ID'S. LABELS SHALL BE PRINTED IN BLACK WITH LABEL MAKER.

2 EQUIPMENT IDENTIFICATION LABELS DETAIL  
SCALE: N.T.S.



3 ELECTRICAL CONNECTION COORDINATION  
SCALE: N.T.S.

UL SYSTEM NO. W-L-2035  
F RATING - 1 AND 2 HR  
T RATING - 1 1/2 AND 2 HR (SEE ITEM 3)



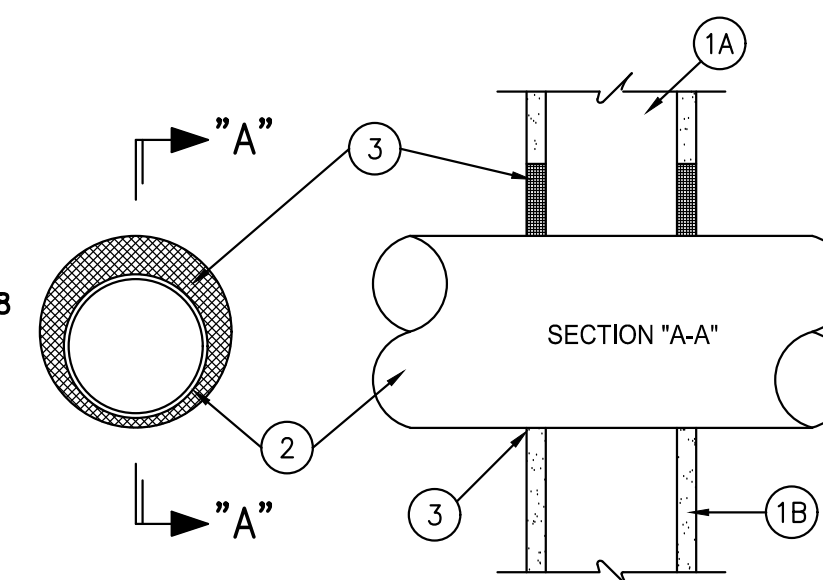
4 UL 1 & 2 HOUR GYPSUM WALL PENETRATION (PVC PIPE) DETAIL  
SCALE: N.T.S.

- CHASE WALL-THE FIRE RATED GYPSUM WALLBOARD/STUD CHASE WALL SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS- WALL FRAMING MAY CONSIST OF EITHER WOOD OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. O.C. STEEL STUDS TO BE MIN 3 5/8 IN. WIDE AND SPACED MAX 24 IN. O.C.
  - WALLBOARD, GYPSUM\*- NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. HOLE-SAWED OPENING IN GYPSUM WALLBOARD LAYERS TO ACCOMMODATE STUB OUT DEVICE (ITEM 3) TO BE 2 IN. IN DIAMETER.
- NONMETALLIC PIPE- NOM 1 1/2 IN. DIA. SCHEDULE 40 PVC DRAIN, WASTE OR VENT PIPE WITH ASSOCIATED TEE AND ELBOW FITTINGS. SOCKET OF TEE OR ELBOW TO ALIGN WITH 2 IN. DIA. OPENING HOLE SAWED THROUGH GYPSUM WALLBOARD LAYERS AT EACH STUB OUT LOCATION. PIPE TO BE RIGIDLY SUPPORTED WITHIN STUD CAVITY OF CHASE WALL.
- FIRESTOP DEVICE\*- STUB OUT - CAST IRON LINED PVC SLEEVE PROVIDED WITH TRAP ADAPTER OR COUPLING AT ONE END FOR SINK DRAIN CONNECTION. STUB-OUT DEVICE CEMENTED INTO SOCKET OF TEE OR ELBOW OF PVC DWV PIPING WITHIN STUD CAVITY OF CHASE WALL. WHEN INSTALLED ON BOTH SIDES OF CHASE WALL (4-WAY TEE), T RATING IS 1-1/2 HR. MAX. WHEN INSTALLED ON ONLY ONE SIDE OF CHASE WALL, T RATING IS 2 HR.

\*BEARING THE UL CLASSIFICATION MARKING.

FIRESTOP MATERIALS BY 3M AND SPECSEAL ARE ACCEPTABLE WHERE TESTED & ACCEPTED BY U.L. FOR THIS APPLICATION.

UL SYSTEM NO. W-L-1108  
F RATING - 1 HR  
T RATING - 0 HR



5 UL 1 HOUR GYPBOARD WALL PENETRATION DETAIL  
SCALE: N.T.S.

- WALL ASSEMBLY - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM. 2 BY 4 IN. LUMBER SPACED 16 IN. O.C. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. O.C.
  - WALLBOARD, GYPSUM\* - ONE LAYER OF NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 11-3/4 IN.
- THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
  - STEEL PIPE - NOM 1 1/2 IN. DIA. (OR SMALLER) SCHEDULE 20 (OR HEAVIER) STEEL PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - IRON PIPE - NOM 1 1/2 IN. DIA. (OR SMALLER) CAST OR DUCTILE IRON PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - CONDUIT - NOM 2 IN. DIA. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - COPPER TUBING - NOM 2 IN. DIA. (OR HEAVIER) COPPER TUBING. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - COPPER PIPE - NOM 2 IN. DIA. (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
- FILL, VOID OR CAVITY MATERIAL\*-CAULK- MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND WALL, A MIN 1/4 IN. DIA. BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE WALL/PIPE INTERFACE ON BOTH SURFACES OF WALL.

THE RECTORSAL CORP.-METACALK 1000 \*BEARING THE UL CLASSIFICATION MARKING

FIRESTOP MATERIALS BY 3M AND SPECSEAL ARE ACCEPTABLE WHERE TESTED & ACCEPTED BY U.L. FOR THIS APPLICATION.

MECHANICAL DUCT INSULATION TABLE						
SERVICE	LOCATION	MATERIAL TYPE	JACKET TYPE	R-VALUE	THICKNESS	REMARKS
RIGID METAL SUPPLY DUCT	BUILDING ENVELOPE	FIBERGLASS BLANKET	FSK	R-6.0	2.2"	R-VALUE BASED ON NOMINAL RATING AS INSTALLED
	CONDITIONED SPACE	(NONE REQUIRED)				
RIGID METAL RETURN DUCT	BUILDING ENVELOPE	FIBERGLASS BLANKET	FSK	R-6.0	2.2"	R-VALUE BASED ON NOMINAL RATING AS INSTALLED
	BUILDING ENVELOPE	FIBERGLASS BLANKET	FSK	R-6.0	2.2"	R-VALUE BASED ON NOMINAL RATING AS INSTALLED
RIGID METAL OUTSIDE AIR DUCT	BUILDING ENVELOPE	FIBERGLASS BLANKET	FSK	R-6.0	2.2"	R-VALUE BASED ON NOMINAL RATING AS INSTALLED
EXHAUST DUCT	ALL	(NONE REQUIRED)				
FLEXIBLE SUPPLY DUCT	BUILDING ENVELOPE	FIBERGLASS	REINFORCED METALIZED PROTECTIVE BARRIER	R-6.0	2"	
FLEXIBLE RETURN DUCT	BUILDING ENVELOPE	FIBERGLASS	REINFORCED METALIZED PROTECTIVE BARRIER	R-6.0	2"	

BOBBITT  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbitt.com  
www.bobbitt.com

Entech  
ENGINEERING  
INC. L.P. # C-1132  
1071 N. BERKELEY BLVD.  
RALEIGH, NC 27609  
TEL: (919) 776-9089  
PROJECT MGR.: D. HALL  
PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED  
2/24/22  
21-0337  
MECHANICAL  
DETAILS

M2.2  
OF 4



**STATEMENT FOR SPECIAL INSPECTIONS:**

PROJECT: NW HARNETT FIRE DEPARTMENT  
 LOCATION: HARNETT COUNTY, NORTH CAROLINA  
 P.M.E. ENGINEERING FIRM: ENTECH ENGINEERING

THE SITE CLASSIFICATION AS DEFINED BY THE IBC IS "D". THE SEISMIC DESIGN CATEGORY IS "D" BASED ON BUILDING OCCUPANCY CATEGORY IV. - ESSENTIAL FACILITIES.

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL SERVICES APPLICABLE TO THIS PROJECT. IT INCLUDES REQUIREMENTS FOR SEISMIC RESISTANCE AND/OR REQUIREMENTS FOR WIND RESISTANCE.

THE SPECIAL INSPECTION COORDINATOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INSPECTIONS REPORTS TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND REGISTERED DESIGN PROFESSIONAL. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES.

THE FREQUENCY OF INSPECTIONS, EITHER CONTINUOUS OR PERIODIC, SHALL BE MADE IN ACCORDANCE WITH SECTION 1704 OF THE NORTH CAROLINA BUILDING CODE.

INTERIM REPORTS SHALL BE SUBMITTED MONTHLY TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL. THE REPORTS SHALL INCLUDE THE DAILY OBSERVATION REPORTS AND A SUMMARY OF THE ACTIVITIES COMPLETED AND/OR IN PROGRESS THAT ARE RECEIVING SPECIAL INSPECTIONS. A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY. THE MINIMUM QUALIFICATIONS OF SPECIAL INSPECTOR SHALL BE DONE BY AN APPROVED TESTING AGENCY MEETING THE REQUIREMENTS OF THE IBC SECTION 1703 AND ADTM-E329.

THE BUILDING OFFICIAL IS AUTHORIZED TO APPROVE SPECIAL INSPECTORS WHO HAVE DOCUMENTED RELEVANT EXPERIENCE AND ARE PROGRESSING TOWARDS ACHIEVING THE MINIMUM QUALIFICATIONS.

THE STATEMENT OF SPECIAL INSPECTIONS ENCOMPASSES THE FOLLOWING DISCIPLINES:

- MECHANICAL
- GAS PIPING (HANGERS & SUPPORTS)
- AIR HANDLERS (HANGERS)
- INFRARED GAS UNIT HEATER (HANGERS & FLEX GAS CONNECTION)
- GAS RANGE (FLEX GAS CONNECTION)
- GAS DRYER (FLEX GAS CONNECTION)
- REFRIGERANT PIPING (HANGERS)
- AIR DISTRIBUTION (GRID CLIPS)
- WALL FANS (STRUCTURAL ATTACHMENTS)
- (DUCTWORK IS NOT REQUIRED)

**STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS OF WIND RESISTANCE**

BASIC WIND SPEED (3 SECOND GUST): 110 MPH

WIND EXPOSURE CATEGORY: "B"

DESCRIPTION OF MAIN WIND FORCE-RESISTING COMPONENTS SUBJECT TO SPECIAL INSPECTION FOR WIND RESISTANCE:

- N/A

**STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS FOR SEISMIC RESISTANCE**

THE SITE CLASSIFICATION: "D"

DESCRIPTION OF SEISMIC SYSTEMS SUBJECT TO PERIODIC SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE:

- GAS PIPING (HANGERS & SUPPORTS)
- AIR HANDLERS (HANGERS)
- INFRARED GAS UNIT HEATER (HANGERS & FLEX GAS CONNECTION)
- GAS RANGE (FLEX GAS CONNECTION)
- GAS DRYER (FLEX GAS CONNECTION)
- REFRIGERANT PIPING (HANGERS)
- AIR DISTRIBUTION (GRID CLIPS)
- WALL FANS (STRUCTURAL ATTACHMENTS)

CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESIGNATED ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY.

**MECHANICAL NOTES:**

- MECHANICAL PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE OPERATING MECHANICAL SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.
- CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF HVAC INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.
- ALL WORK SHALL COMPLY WITH LOCAL, STATE & NATIONAL CODES. WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.
- PROTECT ALL NEW MATERIALS FROM THE WEATHER IN STORAGE TRAILERS OR PROVIDE SUITABLE COVERING.
- POWER WIRING, DISCONNECTS & STARTERS NOT FURNISHED WITH HVAC EQUIPMENT AND FINAL CONNECTIONS SHALL BE BY THE E.C.
- CONTROL WIRING, RELAYS AND INTERLOCKING DEVICES SHALL BE PROVIDED BY THE M.C.
- TEMPERATURE CONTROLS FOR EACH HEATING-COOLING SYSTEM SHALL CONSIST OF AN ELECTRONIC PROGRAMMABLE HEATING-COOLING THERMOSTAT WITH HEAT-OFF-COOL-AUTO SYSTEM SWITCH & AUTO-ON FAN SWITCH. MOUNT THERMOSTATS 48-INCHES A.F.F.
- INSTALL EQUIPMENT TO FACILITATE SERVICING, MAINTENANCE & REPAIR IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AS WELL AS SPECIFIC INSTRUCTIONS ON PLANS.
- PROVIDE FLEX CONNECTORS AT ALL DUCT TO EQUIPMENT CONNECTIONS NOT HAVING INTERNALLY ISOLATED FANS.
- PROVIDE CONCRETE HOUSEKEEPING PADS FOR ALL GROUND & FLOOR MOUNTED EQUIPMENT. UNLESS NOTED OTHERWISE ALL PADS SHALL BE 4" THICK & 4" LARGER THAN EQUIPMENT ON ALL SIDES. PADS SHALL BE 3000 PSI CONCRETE.
- CONTRACTOR SHALL BALANCE AIR SYSTEM TO QUANTITIES INDICATED ON PLANS AND PROVIDE TYPE WRITTEN REPORT WITH O&M MANUALS.
- ALL EQUIPMENT & SYSTEMS SHALL BE WASHED, MECHANICAL AREAS CLEANED AND PAINTED SURFACES TOUCHED UP TO MATCH FACTORY APPLIED FINISHES. AIR HANDLERS SHALL BE VACUUMED AND WIPED CLEAN ON THE INSIDE PRIOR TO TURNING THE PROJECT OVER TO THE OWNER. ENTIRE SYSTEMS INCLUDING DUCTWORK THAT HAVE NOT BEEN ADEQUATELY PROTECTED DURING INSTALLATION WILL REQUIRE ADDITIONAL CLEANING AT THE END OF THE PROJECT.
- CONTRACTOR SHALL COVER EACH RETURN OPENING LOCATION & EACH AIR HANDLER FILTER RACK WITH MERV 8 PLEATED FILTER MEDIA BEFORE STARTUP OF MECHANICAL SYSTEMS. CONTRACTOR SHALL ALSO INSTALL A NEW SET OF MERV 8 PLEATED FILTERS AT EACH PERMANENT FILTER LOCATION BEFORE TURNING BUILDING OVER TO OWNER.
- CONTRACTOR SHALL PROVIDE BUILDING OWNER WITH A COMPLETE OPERATING & MAINTENANCE MANUAL AS REQUIRED BY THE NC ENERGY CODE 503.2.9.2 INCLUDING EQUIPMENT BASIC DATA, CONTROL INFORMATION, ROUTINE MAINTENANCE ACTIONS AND SERVICE AGENCIES NAME, PHONE NUMBER & ADDRESS.
- GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION FREE OF DEFECTS FOR A PERIOD OF 1-YEAR AFTER RECEIVING CERTIFICATE OF OCCUPANCY. EXTENDED GUARANTEES ON EQUIPMENT SHALL BE AS PUBLISHED ON MANUFACTURER'S EXTENDED WARRANTIES.

**DUCT SYSTEMS**

- FABRICATE AND INSTALL DUCT PER SMACNA STANDARDS FOR AND 2-INCH WC. USE GALVANIZED METAL (26 GAUGE MINIMUM).
- WHERE RECTANGULAR DUCT IS INDICATED, RADIUS ELBOWS & TEES SHALL HAVE CENTERLINE RADIUS OF 1.5 X DUCT WIDTH. SQUARE ELBOWS SHALL INCLUDE TURNING VANES. ALL DUCT JOINTS, SEAMS & BRANCH TAKEOFFS SHALL BE SEALED AIR-TIGHT WITH DUCT SEALANT EQUAL TO HARDCAST IRON-GRIP. ROLLED FORM FLANGE TYPE JOINTS WITH GASKETS BOLTED CORNERS AND CLIPS MAY BE USED PROVIDING AN AIR TIGHT SEAL AND RE-INFORCING.
- PRIOR TO FABRICATION, MECHANICAL CONTRACTOR SHALL FIELD VERIFY STRUCTURAL OBSTRUCTIONS & CEILING SPACE LIMITATIONS AND MAKE NECESSARY DUCT MODIFICATIONS INCLUDING CHANGING OF ASPECT RATIOS, ADDING OFFSETS, AND SHIFTING LOCATIONS. PROTECT DUCT BY STORING IN A CLEAN AND DRY ENVIRONMENT PRIOR TO INSTALLATION. COVER ENDS OF EXPOSED WORK AT THE END OF EVERY SHIFT.
- ROUND RUNOUTS ON RECTANGULAR DUCTS SHALL HAVE SIDE TAKEOFFS WITH GASKET & DAMPER, RECTANGULAR BRANCH DUCTS SHALL HAVE 45 DEGREE TAPS WITH AIR EXTRACTOR AND ALL TEES SHALL HAVE SPLITTER DAMPERS. PROVIDE ANY OTHER DEVICES REQUIRED TO BALANCE AIR SYSTEM.
- FLEX DUCT SHALL BE FACTORY INSULATED, HAVE ACOUSTICAL INNER CORE AND HAVE METALIZED VAPOR BARRIER. BOTH ENDS SHALL BE SECURED WITH NYLON BANDS AND METALIZED DUCT TAPE PER MFG'S RECOMMENDATIONS AND IN ACCORDANCE WITH U.L. 181B.
- RIGID ROUND AND RECTANGULAR DUCT SHALL BE EXTERNALLY INSULATED WITH 3/4 LB. DENSITY FIBERGLASS BLANKET WITH FSK VAPOR BARRIER, STAPLE AND SEAL ALL JOINTS WITH 3-INCH WIDE METALIZED DUCT TAPE EQUAL TO SHURFLEX SF-683.

**PIPE SYSTEMS**

- ALL PIPING SHALL BE SUPPORTED & SECURED WITH SUITABLE HANGERS, STRAPS OR PIPE STANDS. SUPPORT WITH NO DROOPS OR SAGS. ALL HANGERS AND ATTACHMENTS SHALL BE PLATED, GALVANIZED OR PAINTED. PROVIDE ISOLATION ON PIPING OF DISSIMILAR MATERIALS.
- CONDENSATE TRAPS FOR ALL AC UNITS SHALL BE SIZED AS RECOMMENDED BY UNIT MANUFACTURER'S. CONDENSATE PIPING SHALL BE SCHEDULE 40 PVC ROUTED TO DRYWELL OR STORM DRAIN. INSULATE WITH FLEXIBLE ELASTOMERIC INSULATION. SEAL ALL JOINTS AND SEAMS TO PREVENT CONDENSATION.
- REFRIGERANT PIPING SHALL BE TYPE ACR COPPER WITH SILVER SOLDERED JOINTS. INSTALL PER EQUIPMENT INSTALLATION INSTRUCTIONS. INSULATION SHALL BE FLEXIBLE ELASTOMERIC INSULATION. SEAL ALL JOINTS AND SEAMS TO PREVENT CONDENSATION. PROTECT EXTERIOR INSULATION FROM SOLAR DEGRADATION WITH UV COATING.
- GAS PIPING SHALL BE A-53 SCHEDULE 40 BLACK STEEL WITH MALLEABLE FITTINGS. PIPING BELOW GRADE SHALL HAVE FRP COATING AND ABOVE GRADE SHALL BE PRIMED & PAINTED. BOND ALL GAS PIPING ABOVE GRADE & WITHIN BUILDING. PROVIDE MAGNETIC MARKER TAPE 12-INCHES ABOVE ALL BELOW GRADE PIPING. PIPING CONCEALED WITHIN WALLS SHALL COMPLY WITH NC GAS CODE SECTION 404.3.

MARK	SUPPLY FAN			NOMINAL COOLING CAPACITY			AUX. HEAT		VOLT/PH	FLA	MCA	MOCP	REF. MANF.	REF. MODEL	WEIGHT
	SA CFM	OA CFM	EXT SP MTR HP	EAT(DB/WB)	TOT CAP	SEN CAP	208V	208/10							
AH-1	1150	180	0.5	1/3	78/65	35 MBH	27 MBH	7.2 KW	208/10	37	46	50	TRANE	TEM4A0B36	150 LBS
AH-2	700	140	0.5	1/5	78/67	22 MBH	15 MBH	7.2 KW	208/10	36	45	45	TRANE	TEM4A0B36	120 LBS
AH-3	1200	180	0.5	1/3	78/65	34 MBH	28 MBH	7.2 KW	208/10	37	46	50	TRANE	TEM4A0B36	150 LBS
AH-4	900	280	0.5	1/3	81/68	28 MBH	21 MBH	7.2 KW	208/10	37	46	50	TRANE	TEM4A0B36	120 LBS
AH-5	1800	200	0.5	3/4	77/64	54 MBH	44 MBH	10.8 KW	208/30	36	44	45	TRANE	TEM4A0C60	160 LBS

- NOTES:**
- PROVIDE THE FOLLOWING OPTIONS AND ACCESSORIES:
    - SINGLE POINT WIRING CONNECTION
    - TXV MATCHING CONDENSER CAPACITY
    - 7-DAY PROGRAMMABLE THERMOSTAT WITH LOCKOUT FUNCTION
    - ECM FAN MOTORS AH-2, AH-3 & AH-4

MARK	EAT(DB)	NOM CAP	VOLT/PH	FLA	MCA	MOCP	MIN. SEER	HSPF	REF. MANF.	REF. MODEL	WEIGHT
HP-1	95	3-TON	208/10	16	19	30	14 SEER	8.0	TRANE	4TWR4036	220 LBS
HP-2	95	2-TON	208/10	12	14	25	14 SEER	8.0	TRANE	4TWR4024	170 LBS
HP-3	95	3-TON	208/10	16	19	30	14 SEER	8.0	TRANE	4TWR4036	220 LBS
HP-4	95	2.5-TON	208/10	14	17	25	14 SEER	8.0	TRANE	4TWR4030	220 LBS
HP-5	95	5-TON	208/10	26	32	50	14 SEER	8.0	TRANE	4TWR4060	280 LBS

- NOTES:**
- PROVIDE THE FOLLOWING OPTIONS AND ACCESSORIES:
    - 5 YEAR COMPRESSOR WARRANTY
    - COMPRESSOR ANTI SHORT CYCLE DELAY
    - CRANKCASE HEATERS
    - HIGH AND LOW PRESSURE SWITCHES
    - OUTDOOR THERMOSTAT
    - LOW AMBIENT CONTROL TO 40° OPTION
  - M.C. SHALL COORDINATE PRODUCT SPECIFIC ELECTRICAL REQUIREMENTS WITH E.C.

MARK	CFM	EAT(DB)	LAT	CAPACITY	VOLT/PH	AMPS	REF. MANF.	CATALOG NO.	WEIGHT
UH-1	400	50	76	3.3 KW	208/10	16A	MARKEL	F1F5103	25 LBS
UH-2	400	50	76	5 KW	208/10	24A	MARKEL	F1F5105	25 LBS

- NOTES:**
- PROVIDE WH WITH DISCONNECT, BUILT IN T-STAT & VERTICAL WALL BRACKET.
  - PROVIDE WALL HEATER WITH BUILT IN THERMOSTAT AND SURFACE MOUNT FRAME.

MARK	SERVICE	SIZE	CFM	FREE AREA	MATERIAL	REF. MANF.	REF. MODEL	NOTES
WL-1	INTAKE	32"Wx32"H	2250	2.7 SQ FT	ALUMINUM	GREENHECK	EAC-401	1,2,3
WL-2	INTAKE	24"Wx18"H	400	0.6 SQ FT	ALUMINUM	GREENHECK	EAC-401	1,2,3
WL-3	INTAKE	24"Wx18"H	600	0.6 SQ FT	ALUMINUM	GREENHECK	EAC-401	1,2,3
WL-4	INTAKE	24"Wx18"H	250	0.6 SQ FT	ALUMINUM	GREENHECK	EAC-401	1,2,3
WL-5	INTAKE	36"Wx12"H	500	1.06 SQ FT	ALUMINUM	GREENHECK	ESJ-401	1,2
WL-6	INTAKE	36"Wx12"H	480	1.06 SQ FT	ALUMINUM	GREENHECK	ESJ-401	1,2

QUANTITY (2)

- NOTES:**
- PROVIDE WITH BIRD SCREEN, EXTENDED SILL & KYNAR FINISH.
  - SUBMIT LOUVER TYPE & COLOR PALLET TO ARCHITECT FOR COLOR SELECTION.
  - PROVIDE WITH 120V OPERATOR INTERLOCKED WITH ASSOCIATED FAN.

MARK	TYPE	CFM	ESP	TSP	HP	VOLT/PH	WALL OPENING	REF. MANF.	REF. MODEL	*SONES	WEIGHT	NOTES
WF-1	WALL	4500	0.15	0.31	3/4	120/10	40"x40"	GREENHECK	AER-E300-370-B5	22	260 LBS	1
WF-2	WALL	400	0.15	0.20	1/20	120/10	16.25"x16.25"	GREENHECK	SE1-10-428-P	7	70 LBS	1,2
WF-3	WALL	600	0.15	0.22	1/6	120/10	19.25"x19.25"	GREENHECK	SE1-12-432-B6	6	85 LBS	1,2
WF-4	WALL	250	0.15	0.25	1/20	120/10	16.25"x16.25"	GREENHECK	SE1-10-428-P	10	70 LBS	1,2

- NOTES:**
- PROVIDE WITH:
    - WALL HOUSING, FLUSH WITH EXTERIOR WITH PERMATECTOR COATING. COLOR SELECTED BY ARCHITECT.
    - DISCONNECT
    - DAMPER, MOTOR OPERATOR, MOUNTED AND WIRED
    - SINGLE POINT WIRING
  - PROVIDE WITH LINE VOLTAGE THERMOSTAT

MARK	TYPE	CFM	ESP	WATTS	VOLT/PH	REF. MANF.	REF. MODEL	*SONES	WEIGHT	NOTES	CONTROL
EF-1	CEILING	70	0.25	20	120/10	GREENHECK	SP-B90	2	10 LBS	1,2	A
EF-2	CEILING	150	0.25	128	120/10	GREENHECK	SP-B150	3	10 LBS	1,2	A
EF-3	CEILING	360	0.25	135	120/10	GREENHECK	SP-A390	2	25 LBS	1,2	B

- NOTES:**
- PROVIDE WITH ROOF CAP, WALL CAP OR LOUVER AS SHOWN ON PLANS.
  - PROVIDE WITH BACKDRAFT DAMPER.

- CONTROL TYPE DESCRIPTION:**
- INTERLOCK WITH ROOM LIGHTING CONTROL BY EC.
  - PROVIDE WITH LINE VOLTAGE THERMOSTAT

MARK	LENGTH	MTG HEIGHT	INPUT CAP.	FUEL	STAGES	VOLT/PH	RLA	MAX AMPS	REF. MANF.	REF. MODEL	WEIGHT
IH-1	60"	18"	175 MBH	NAT.	1	120/10	1.1	1.7	DETROIT	DES3-60-175	270 LBS
IH-2	60"	18"	175 MBH	NAT.	1	120/10	1.1	1.7	DETROIT	DES3-60-175	270 LBS

- NOTES:**
- PROVIDE WITH:
    - DIRECT SPARK IGNITION
    - POLISHED ALUMINUM REFLECTOR
    - 120 VOLT SINGLE STAGE WALL THERMOSTAT
    - WALL VENT KIT
  - 3-YEAR COMBUSTION AND TUBE WARRANTY, 5-YEAR BURNER WARRANTY

MARK	BLADES		CFM	FAN RPM	OPERATE WATTS	MOTOR FLA	VOLT/PH	MAXIMUM WATTS	MTG HEIGHT	SOUND dBA	MANF.	MODEL	WEIGHT	
	QTY.	DIAMETER TYPE												
CF-1	5	14"	AF	40,000	57	104	5.0	208/10	175	20"	38	GREENHECK	DC-5-14-13LV	122 LBS

- NOTES:**
- PROVIDE WITH THE FOLLOWING:
    - VFD FACTORY PROGRAMMED
    - CAT-5e CONTROL CABLE TO WALL CONTROLLER
    - WALL MOUNTED CONTROLLER
    - EXTRUDED ALUMINUM AIR FOIL BLADES, MILL FINISH WITH WINGLETS
    - FACTORY WIRING
    - I-BEAM MOUNTING KIT WITH POLYESTER FLAT BLACK FINISH
    - SAFETY CABLES

MARK	CFM RANGE	TYPE	CLG	SIZE	NECK	THROW	MAX NC	PATTERN	DIRECTION	MAT'L	FINISH	REMARKS
A	0-100	LOUVERED FACE SUPPLY DIFFUSER	LAY-IN	24"x24"	6"x6"x6"	9'	15	4-WAY	HORZ	ALUM.	WHITE	FLUSH FACE SNAP IN CORE MOUNTED IN 2X2 PANEL
B	100-200	LOUVERED FACE SUPPLY DIFFUSER	LAY-IN	24"x24"	9"x9"x8"	13'	15	4-WAY	HORZ	ALUM.	WHITE	FLUSH FACE SNAP IN CORE MOUNTED IN 2X2 PANEL
C	200-400	LOUVERED FACE SUPPLY DIFFUSER	LAY-IN	24"x24"	12"x12"x10"	15'	20	4-WAY	HORZ	ALUM.	WHITE	FLUSH FACE SNAP IN CORE MOUNTED IN 2X2 PANEL
D	400-600	LOUVERED FACE SUPPLY DIFFUSER	LAY-IN	24"x24"	12"x12"x12"	13'	20	4-WAY	HORZ	ALUM.	WHITE	FLUSH FACE SNAP IN CORE MOUNTED IN 2X2 PANEL
FG	0-800	FILTERED RETURN 1/2" CUBE FACE	LAY-IN	24"x24"	SEE PLANS	-	-	-	-	ALUM.	WHITE	HINGED FACE WITH KURLED KNOBS 1" PLEATED FILTER

- NOTES:**
- VERIFY AIR DISTRIBUTION TYPE WITH ARCHITECTURAL REFLECTED CEILING PLAN.
  - PROVIDE SUPPLY DIFFUSERS WITH INSULATED BACK PANEL.

	RIGID RECTANGULAR DUCT
	RIGID ROUND DUCT
	FLEXIBLE DUCT
	90° ELBOW WITH TURNING VANES
	VERTICAL FIRE DAMPER (1.5-HR. RATING)
	BRANCH DUCT WITH 45° TAP
	SUPPLY DIFFUSER WITH ROUND NECK
	RETURN/EXHAUST GRILLE W/ROUND NECK
	CEILING EXHAUST FAN
	UNIT HEATER
	WALL THERMOSTAT FOR SYSTEM NO. 3
	AIR DISTRIBUTION MARK "B", 200 CFM
	EQUIPMENT MARK (SEE SCHEDULES)
	FLOW DIRECTION ARROW
	GAS PIPING
	CONDENSATE PIPING
	REFRIGERANT PIPING
	GATE VALVE
	GAS COCK
	GAS REGULATOR
	UNION
	REDUCER

**ABBREVIATIONS:**

- G.C. GENERAL CONTRACTOR
- P.C. PLUMBING CONTRACTOR
- M.C. MECHANICAL CONTRACTOR
- E.C. ELECTRICAL CONTRACTOR
- ECM ELECTRICALLY COMMUTATED MICROPROCESSOR
- AFG ABOVE FINISHED FLOOR
- FFG ABOVE FINISHED GRADE
- UNO UNLESS NOTED OTHERWISE
- BOD BOTTOM OF DUCT
- TOD TOP OF DUCT

<b>METHOD OF COMPLIANCE:</b>	
NC ENERGY CODE (2018) PRESCRIPTIVE	<input checked="" type="checkbox"/> PERFORMANCE
ASHRAE 90.1 (2013) PRESCRIPTIVE	<input type="checkbox"/> PERFORMANCE
THERMAL ZONE 4A	
<b>EXTERIOR DESIGN CONDITIONS</b>	
WINTER DRY BULB	22°F
SUMMER DRY BULB	95°F
<b>INTERIOR DESIGN CONDITIONS</b>	



**INSTALLATION KEYED NOTES \* (M):**

- INSTALL THE SIX DOOR CONTROLLERS IN TWO ROWS OF THREE TO SAVE WALL SPACE. PROVIDE 1/2" C. WITH CONTROL WIRES TO EACH DOOR CONTROLLER. PROVIDE ALL REQUIRED CONTROL WIRING AND RACEWAY FOR MOTION SENSORS, ETC. PER MANUFACTURER'S INSTALLATION DOCUMENTS. NOTE DOOR CONTROLS INSTALLED AT (2) LOCATIONS.
- KITCHEN HOOD INTEGRATED WITH MICROWAVE APPLIANCE. PROVIDED BY OWNER. COORDINATE WITH OWNER FOR ELECTRICAL REQUIREMENTS.
- PROVIDE 2#12 & 1#12G IN 3/4" FROM LOUVER TO CORRESPONDING FAN STARTER/THERMOSTAT. PROVIDE DISCONNECT NEXT TO EACH LOUVER MOTOR.
- ELECTRIC CORD REELS PROVIDED BY OWNER. E.C. SHALL PROVIDE JUNCTION BOX ON PURLIN ABOVE AND CAP WIRING.
- PROVIDE (3) SPARE 1" C FROM PANEL A TO EXTERIOR OF BUILDING. RACEWAYS SHALL BE ROUTED DOWN FROM PANEL AND INTO BUILDING SLAB, THROUGH FOOTING AND CAPPED UNDERGROUND.
- PROVIDE (2) SPARE 1" C FROM PANEL C TO FRONT OF BUILDING. TERMINATE RACEWAYS NEAR CANOPY. PROVIDE AS-BUILT PLANS SHOWING TERMINATION LOCATION OF RACEWAYS.
- PROVIDE USB/RECEPTACLES IN EACH BEDROOM.
- PROVIDE 1" C FROM CONTROLLER TO NEAR CEILING JOIST FOR CONTROL WIRING TO HVLS FAN (CF-1).
- PROVIDE DISCONNECT FOR RECIRCULATION PUMP WIRED TO SAME CIRCUIT AS WATER HEATER.

**STATEMENT FOR SPECIAL INSPECTIONS:**

PROJECT: NW HARNETT FIRE DEPARTMENT  
 LOCATION: HARNETT COUNTY, NORTH CAROLINA  
 PME ENGINEERING FIRM: ENTECH ENGINEERING

THE SITE CLASSIFICATION AS DEFINED BY THE IBC IS "D". THE SEISMIC DESIGN CATEGORY IS "D" BASED ON BUILDING OCCUPANCY CATEGORY IV - ESSENTIAL FACILITIES.

THIS STATEMENT OF SPECIAL INSPECTIONS IS SUBMITTED AS A CONDITION FOR PERMIT ISSUANCE IN ACCORDANCE WITH THE SPECIAL INSPECTION REQUIREMENTS OF THE NORTH CAROLINA BUILDING CODE. IT INCLUDES A SCHEDULE OF SPECIAL SERVICES APPLICABLE TO THIS PROJECT. IT INCLUDES REQUIREMENTS FOR SEISMIC RESISTANCE AND/OR REQUIREMENTS FOR WIND RESISTANCE.

THE SPECIAL INSPECTION COORDINATOR SHALL KEEP RECORDS OF ALL INSPECTIONS AND SHALL FURNISH INSPECTIONS REPORTS TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. DISCOVERED DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF SUCH DISCREPANCIES ARE NOT CORRECTED, THEY SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND REGISTERED DESIGN PROFESSIONAL. THE SPECIAL INSPECTION PROGRAM DOES NOT RELIEVE THE CONTRACTOR OF HIS OR HER RESPONSIBILITIES.

THE FREQUENCY OF INSPECTIONS, EITHER CONTINUOUS OR PERIODIC, SHALL BE MADE IN ACCORDANCE WITH SECTION 1704 OF THE NORTH CAROLINA BUILDING CODE. INTERIM REPORTS SHALL BE SUBMITTED MONTHLY TO THE BUILDING OFFICIAL AND THE REGISTERED DESIGN PROFESSIONAL. THE REPORTS SHALL INCLUDE THE DAILY OBSERVATION REPORTS AND A SUMMARY OF THE ACTIVITIES COMPLETED AND/OR IN PROGRESS THAT ARE RECEIVING SPECIAL INSPECTIONS. A FINAL REPORT OF SPECIAL INSPECTIONS DOCUMENTING COMPLETION OF ALL REQUIRED SPECIAL INSPECTIONS, TESTING AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED PRIOR TO ISSUANCE OF A CERTIFICATE OF USE AND OCCUPANCY.

THE MINIMUM QUALIFICATIONS OF SPECIAL INSPECTOR SHALL BE DONE BY AN APPROVED TESTING AGENCY MEETING THE REQUIREMENTS OF THE IBC SECTION 1703 AND ADM-E329.

THE BUILDING OFFICIAL IS AUTHORIZED TO APPROVE SPECIAL INSPECTORS WHO HAVE DOCUMENTED RELEVANT EXPERIENCE AND ARE PROGRESSING TOWARDS ACHIEVING THE MINIMUM QUALIFICATIONS.

THE STATEMENT OF SPECIAL INSPECTIONS ENCOMPASSES THE FOLLOWING DISCIPLINES:  
 • ELECTRICAL  
 THE CONTRACTOR SHALL INCLUDE SEISMIC REQUIREMENTS FOR THE FOLLOWING SYSTEMS AND COMPONENTS:  
 • STANDBY POWER GENERATOR (ANCHORAGE) (FUTURE - BY OTHERS)  
 • AUTOMATIC TRANSFER SWITCH (RESTRAINT SYSTEM) (FUTURE - BY OTHERS)  
 • LIGHT FIXTURES (SUPPORT CABLES)

**STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS OF WIND RESISTANCE**

BASIC WIND SPEED (3 SECOND GUST): 123 MPH  
 WIND EXPOSURE CATEGORY: B

DESCRIPTION OF MAIN WIND FORCE-RESISTING COMPONENTS SUBJECT TO SPECIAL INSPECTION FOR WIND RESISTANCE:  
 • ANCHORING OF STANDBY POWER GENERATOR (FUTURE - BY OTHERS)

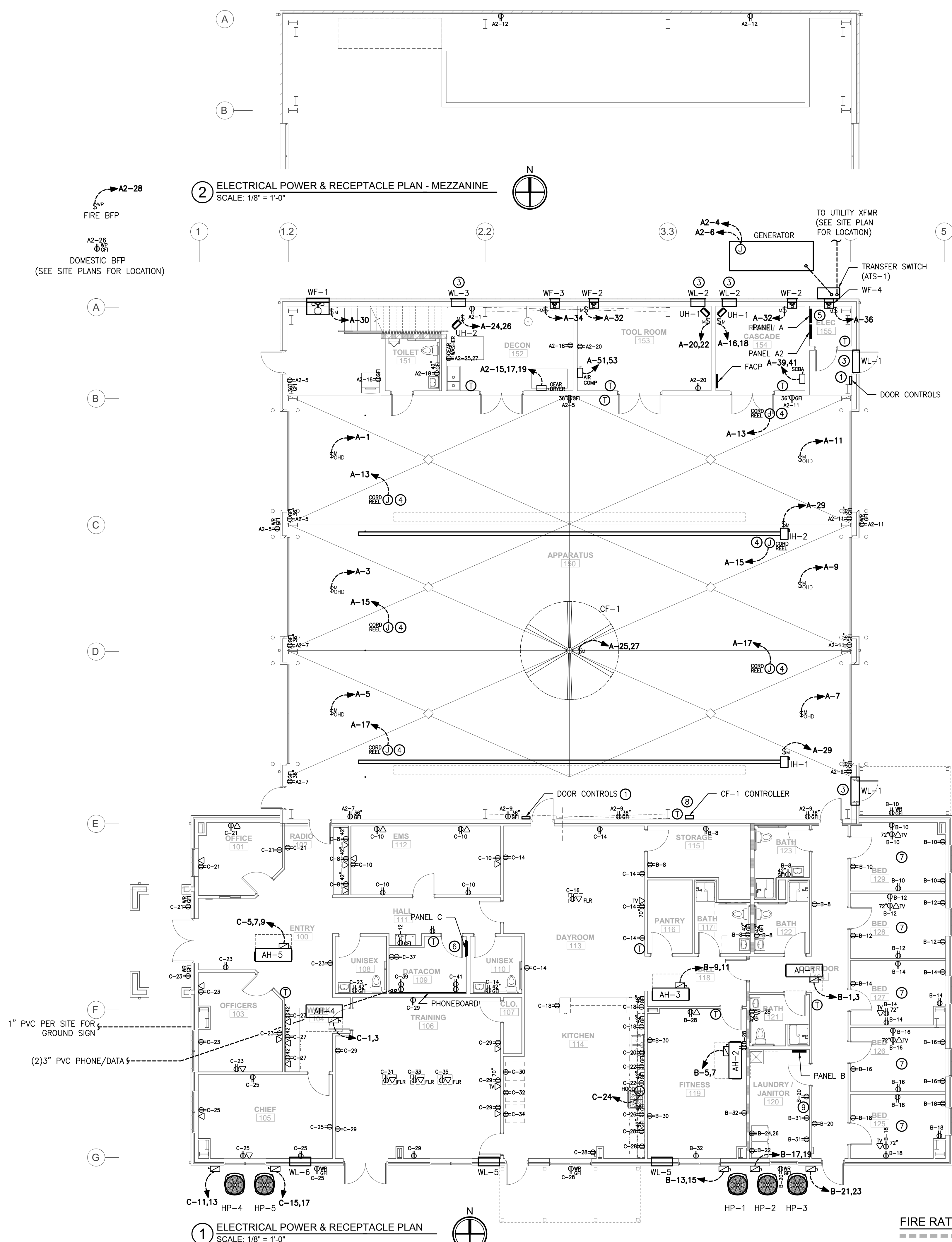
ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESIGNATED ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY.

**STATEMENT OF SPECIAL INSPECTIONS REQUIREMENTS FOR SEISMIC RESISTANCE**

THE SITE CLASSIFICATION: "D"  
 DESCRIPTION OF SEISMIC SYSTEMS SUBJECT TO PERIODIC SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE:

- STANDBY POWER GENERATOR (ANCHORAGE)
- AUTOMATIC TRANSFER SWITCH (RESTRAINTS)
- LIGHT FIXTURES (SUPPORT CABLES)

CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OR FABRICATION OF A SYSTEM OR COMPONENT DESIGNATED ABOVE MUST SUBMIT A STATEMENT OF RESPONSIBILITY.



**2 ELECTRICAL POWER & RECEPTACLE PLAN - MEZZANINE**  
 SCALE: 1/8" = 1'-0"

**1 ELECTRICAL POWER & RECEPTACLE PLAN**  
 SCALE: 1/8" = 1'-0"

**FIRE RATING LEGEND**  
 ■■■■■■■■ 1 - HR FIRE PARTITION

BOBBITT Inc  
 600 Germantown Road  
 Raleigh, NC 27607  
 (919) 851-1980  
 Fax: (919) 851-1982  
 design@bobbitt.com  
 www.bobbitt.com

**BOBBITT**

PROJECT NO. 22104E

PROJECT MGR. D. HUNN

TEL: (919) 778-9088

INC. LIC. # E-1132

ENTECH ENGINEERING

0071 N. BERKELEY BLVD.

SEAL 31466

PROJECT NO. 22104E

NW HARNETT FIRE STATION 3

US 401

HARNETT COUNTY, NORTH CAROLINA

COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 DEH

24 x 36  
 AS NOTED

2/24/22

21-0337

ELECTRICAL  
 PLANS

**E1.1**  
 OF 5



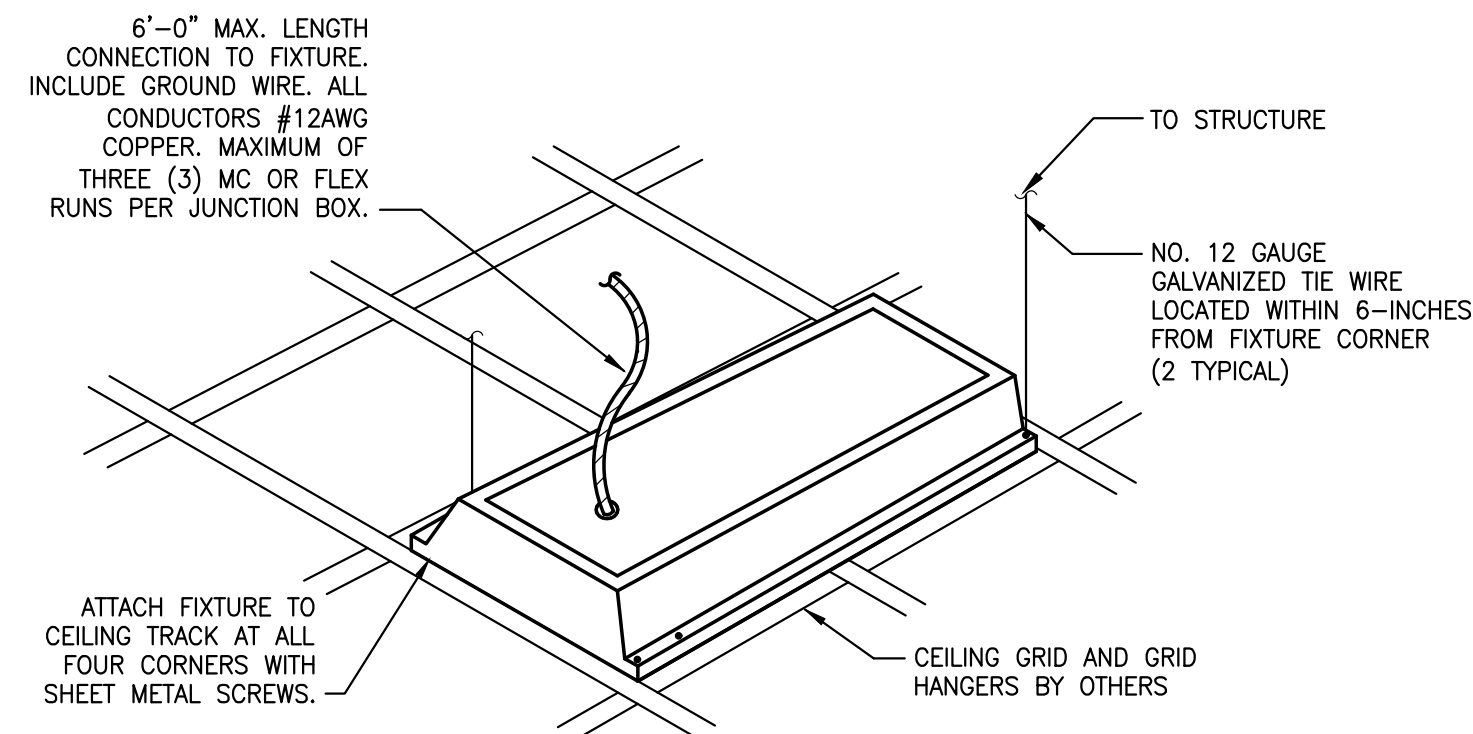




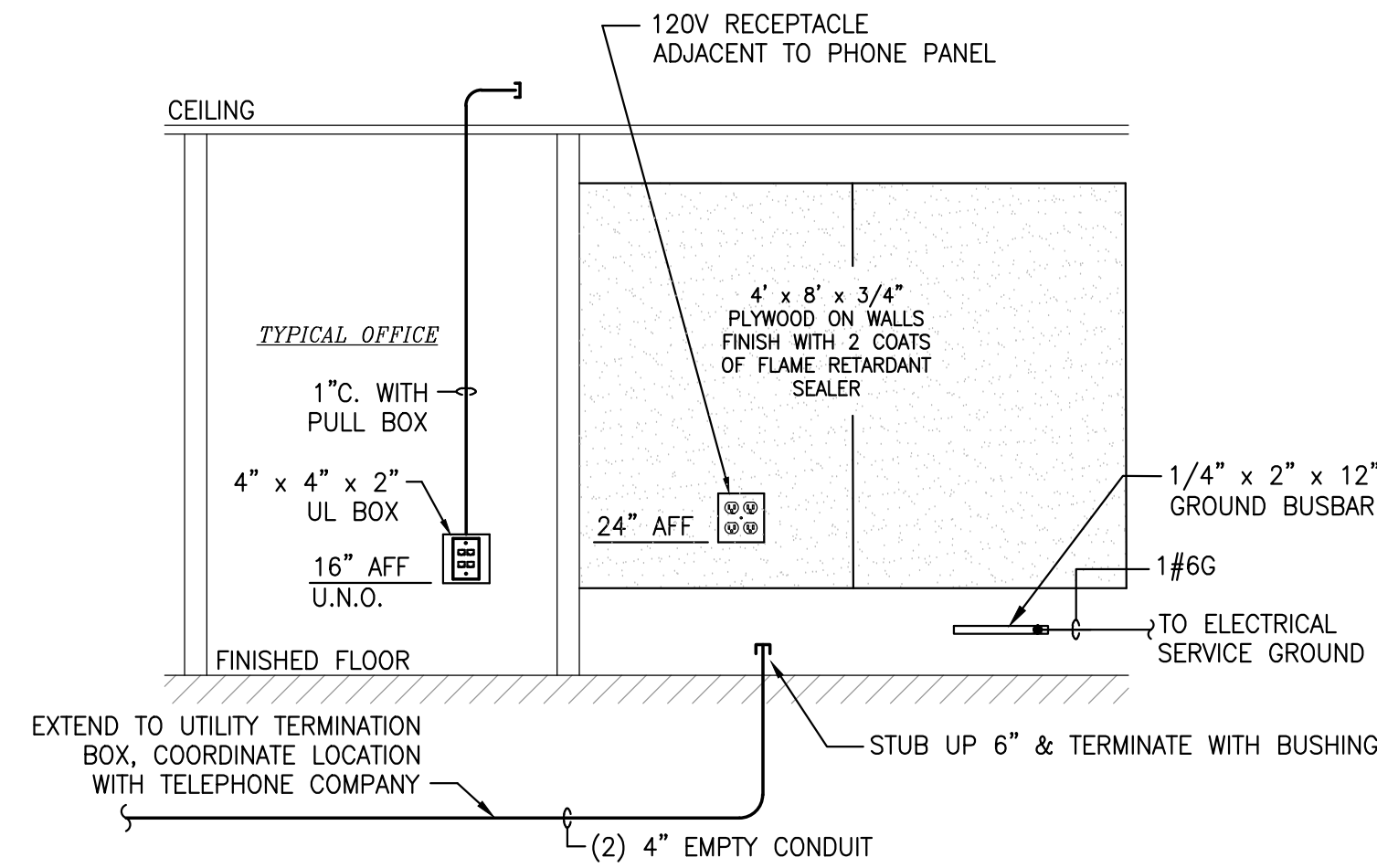
DEVICE DESCRIPTION	EXTERIOR RECEPTACLE	DUPLEX RECEPTACLE	ABOVE COUNTER RECEPTACLE	PHONE/DATA	ABOVE COUNTER PHONE/DATA	ALL OTHER WALL MOUNTED CONTROL DEVICES	EXHAUST FAN WALL SWITCH/SPEED CONTROL	HVAC THERMOSTAT OR SENSOR	LIGHT SWITCH OR OTHER LIGHTING CONTROL DEVICE	LIGHT SWITCHES AND OTHER LIGHTING CONTROL DEVICES SHALL ALWAYS BE LOCATED ON THE STRIKE SIDE OF THE DOORWAY. (VERIFY DOOR SWINGS PRIOR TO ROUGH-IN)
EXAMPLES OF DEVICE SYMBOLS										
	24" ABOVE FIN. GRADE	16"	6" ABOVE COUNTER OR 6" ABOVE COUNTER (NOTE 5)	16"	42" OR 6" ABOVE COUNTER (NOTE 5)	48"	48"	48"	48"	48"

- NOTES:**
1. THIS DETAIL IS GENERIC TO ADDRESS MOUNTING HEIGHTS OF WALL MOUNTED DEVICES.
  2. ALL DEVICES MAY NOT APPLY TO THIS PROJECT.
  3. ALL MOUNTING HEIGHTS ARE TYPICAL UNLESS OTHERWISE NOTED ON PLANS.
  4. REFERENCE ELECTRICAL LEGEND FOR MORE SPECIFIC DEVICES TYPES.
  5. VERIFY COUNTER AND BACKSLASH HEIGHTS PRIOR TO ROUGH-IN.

**1** DEVICE MOUNTING HEIGHTS  
SCALE: N.T.S.

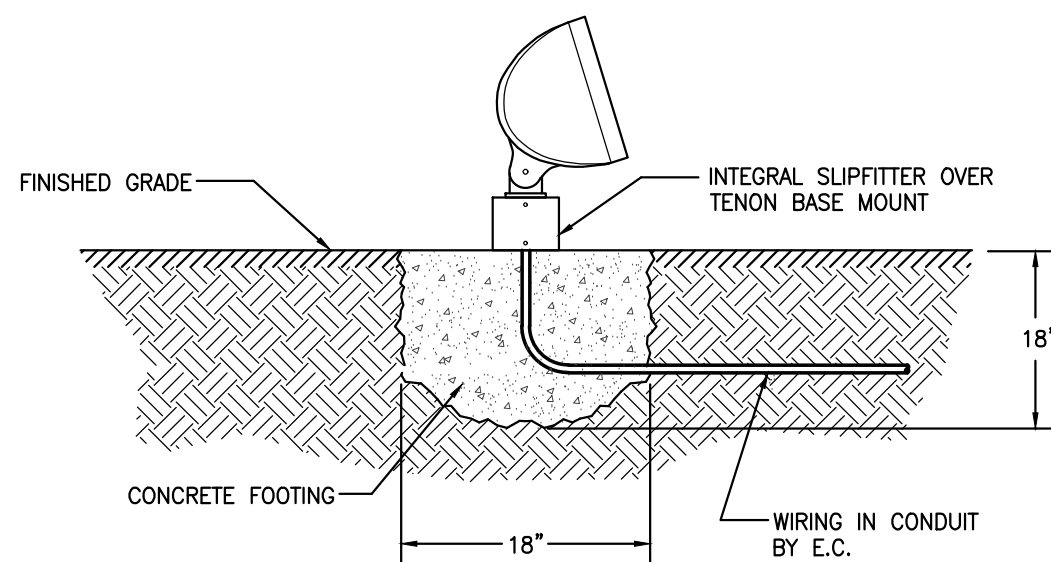


**4** TYPICAL RECESSED FIXTURE SUPPORT  
SCALE: N.T.S.



- NOTES:**
1. PROVIDE QUANTITY OF PLYWOOD SHEETS TO COVER WALLS AS SHOWN ON PLAN SHEET.
  2. IF PROVIDING FIRE RETARDANT PLYWOOD, SHEETING DOES NOT REQUIRE PAINTING. INSTALL SHEETING SUCH THAT FIRE LABEL FACES OUT.

**5** TELEPHONE SYSTEM DIAGRAM  
SCALE: N.T.S.



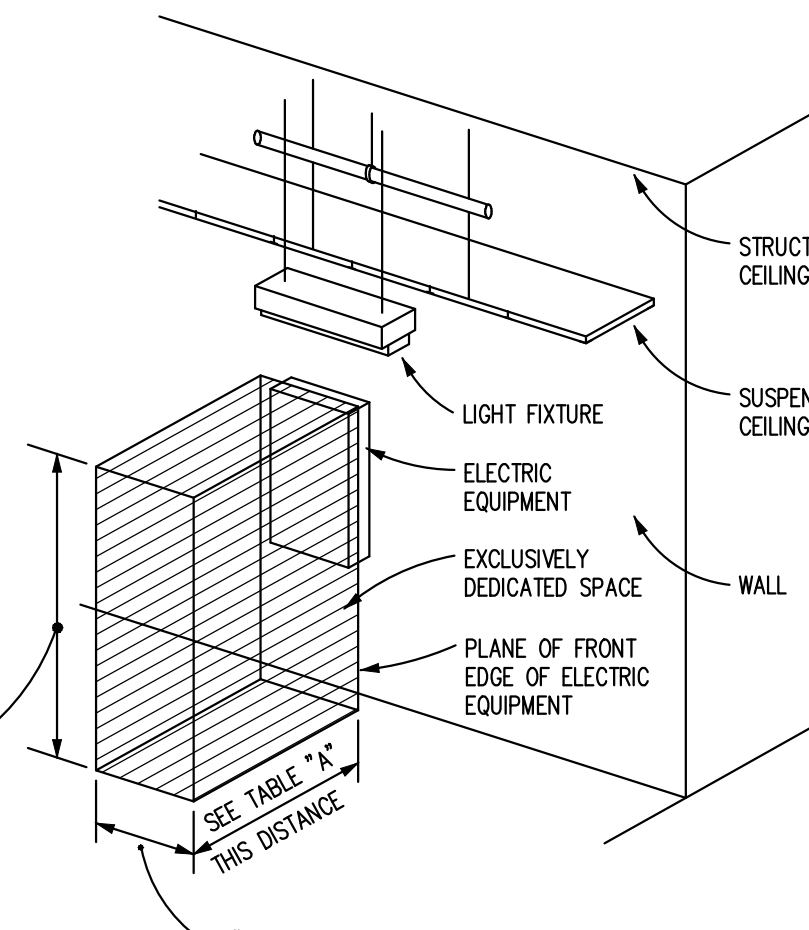
**8** GRADE MOUNTED FLOODLIGHT MOUNTING  
SCALE: N.T.S.

VOLTAGE TO GROUND (NOMINAL)	CONDITION 1 (MINIMUM CLEAR DISTANCE)	CONDITION 2	CONDITION 3
0-150	3'	3'	3'
151-600	3'	3 1/2'	4'

WHERE THE "CONDITIONS" ARE AS FOLLOWS:

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

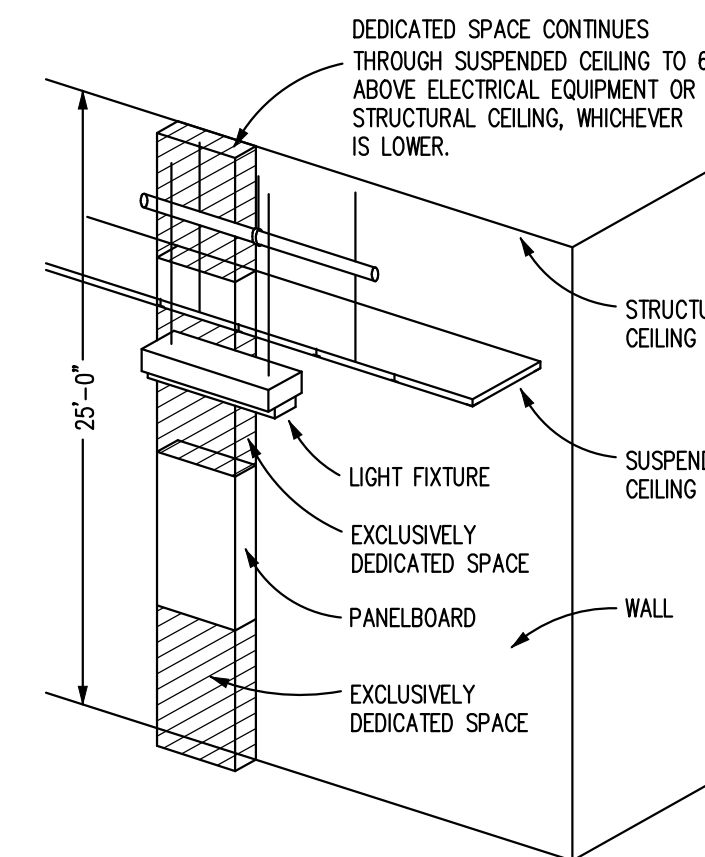
6 1/2" MINIMUM OR HEIGHT OF EQUIPMENT



- NOTES:**
1. THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF ELECTRICAL EQUIPMENT REQUIRED BY NEC SECTION 110-26.
  2. THIS INCLUDES BUT IS NOT LIMITED TO PANELBOARDS, SAFETY SWITCHES, MOTOR STARTERS, JUNCTION BOXES AND OTHER ELECTRICAL EQUIPMENT.

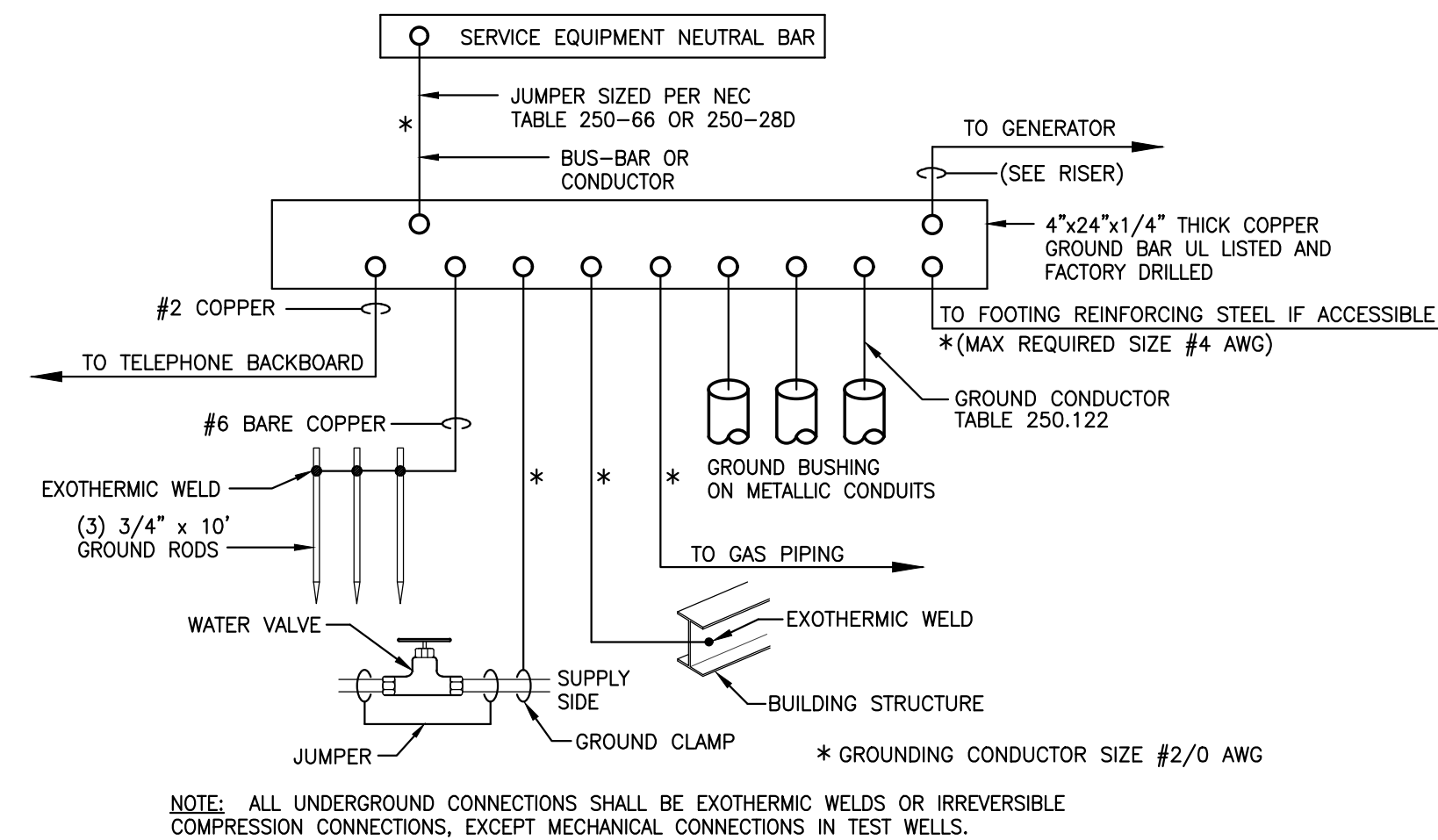
ALL ELECTRIC EQUIPMENT

**9** DEDICATED WORKING SPACE REQUIREMENTS  
SCALE: N.T.S.

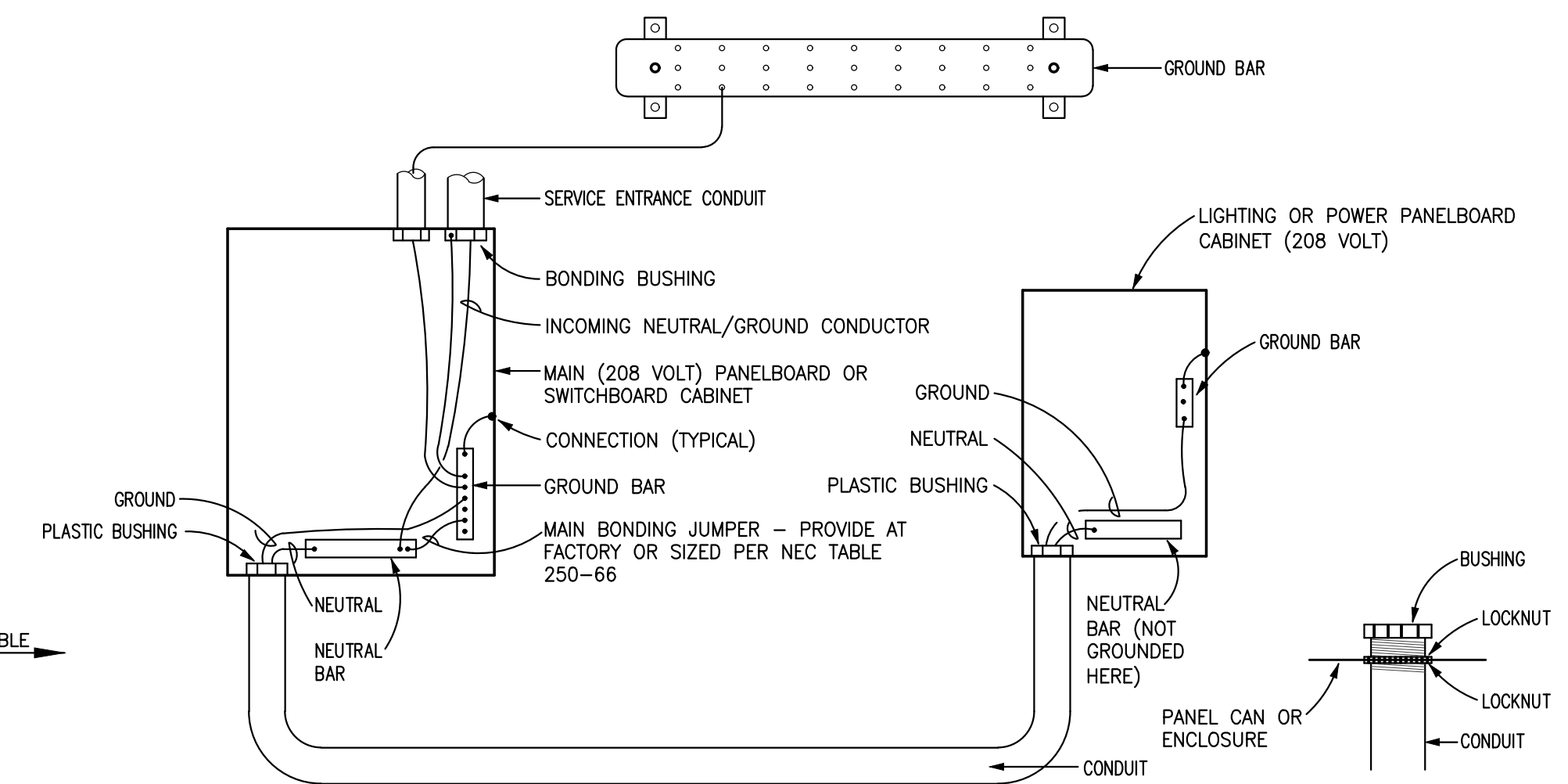


- NOTES:**
1. THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER PANELBOARDS FOR CABLES, RACEWAYS, ETC. TO AND FROM PANELBOARDS REQUIRED BY NEC SECTION 110-26.
  2. NO PIPING DUCTWORK OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPEARANCES SHALL BE PERMITTED TO BE INSTALLED IN, ENTER OR PASS THROUGH THE DEDICATED SPACES SHOWN. FOR EXCEPTIONS SEE NEC SECTION 110-26f.

PANELBOARDS

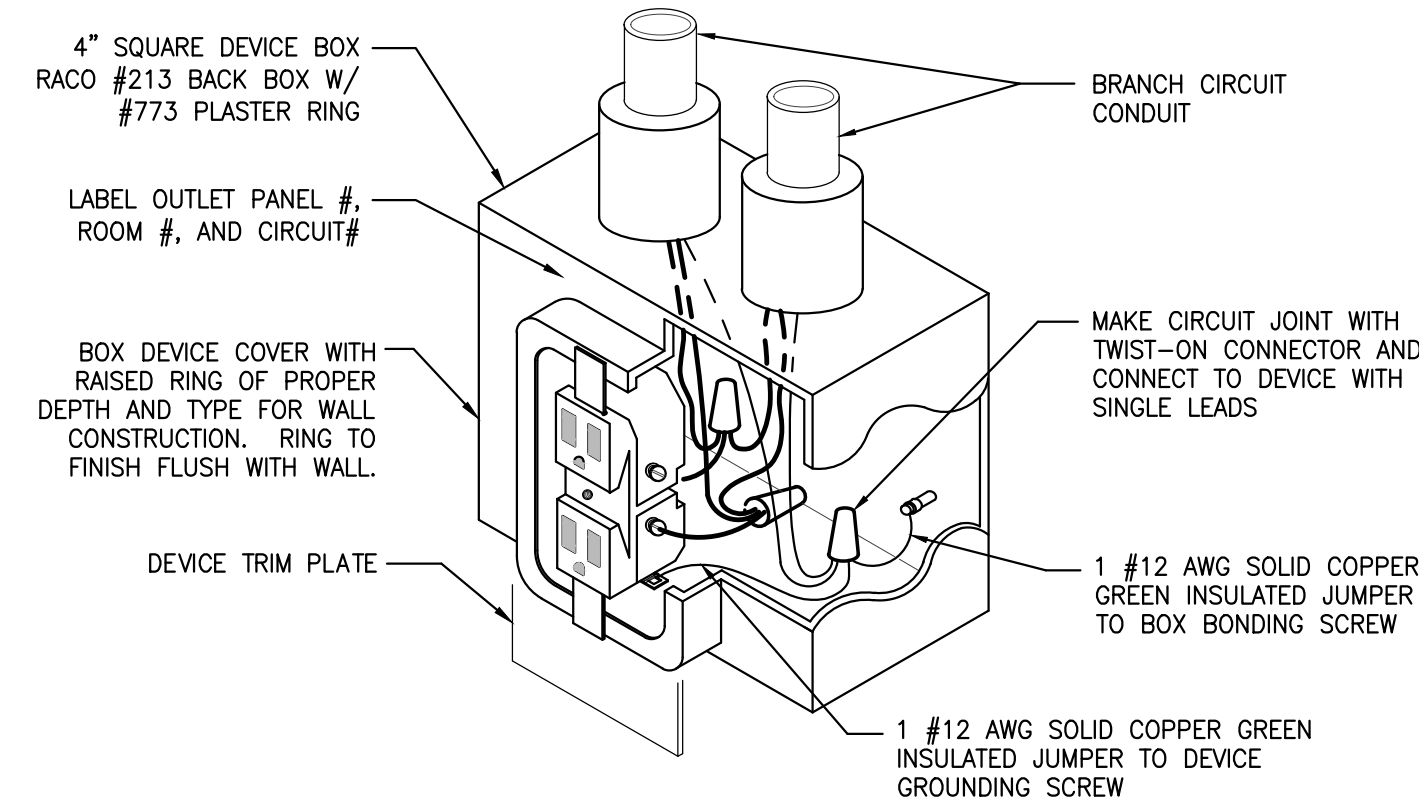


**10** SERVICE EQUIPMENT GROUNDING DIAGRAM  
SCALE: N.T.S.

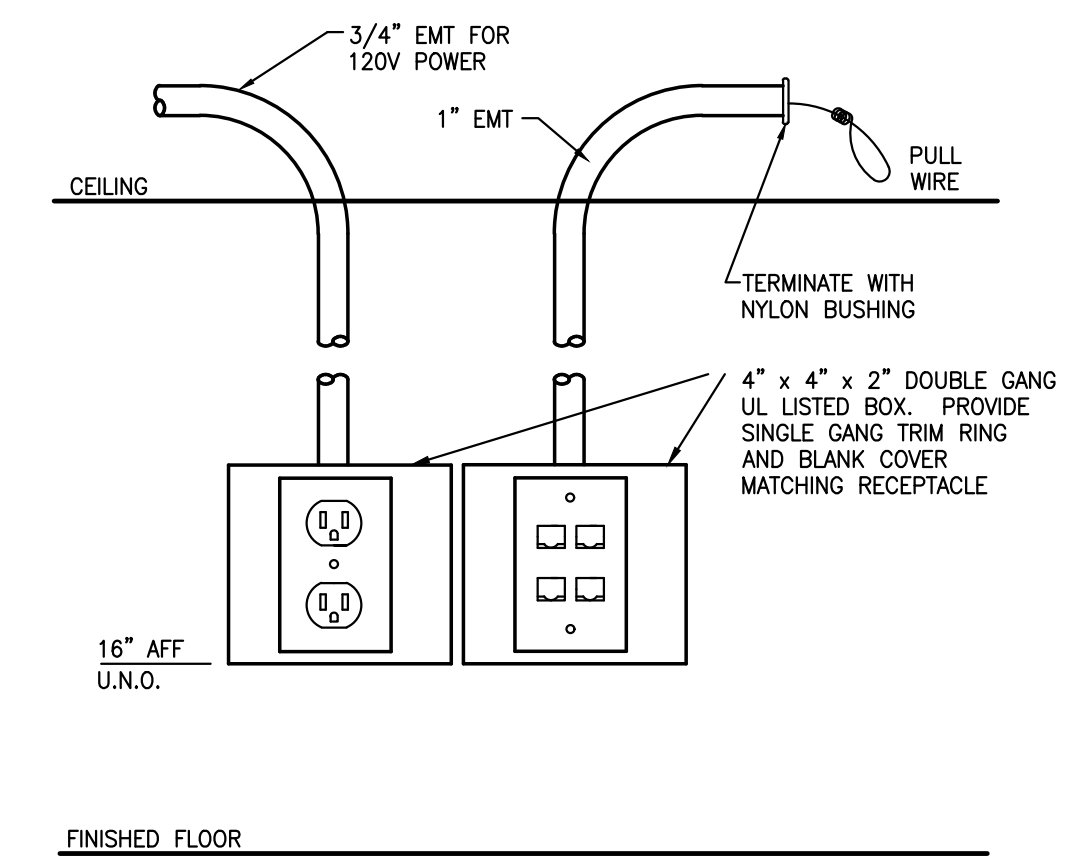


- NOTES:**
1. GROUNDING ELECTRODE CONDUCTOR SHALL BE RUN CONTINUOUSLY (UNBROKEN) FROM COLD WATER LINE AND/OR BUILDING STEEL AND GROUND ROD TO GROUND BAR BEFORE BONDING TO ANY CONDUIT BUSHING.
  2. ALL THE FOLLOWING GROUNDING ELECTRODES THAT ARE PRESENT SHALL BE BONDED TOGETHER TO FORM THE GROUNDING ELECTRODE SYSTEM PER NEC 250.52:
    - 2.1. METAL UNDERGROUND WATER PIPE IN DIRECT CONTACT WITH EARTH FOR 10 FT OR MORE
    - 2.2. METAL FRAME OF THE BUILDING.
    - 2.3. ANY ELECTRODE ENCASED BY AT LEAST 2 IN. OF CONCRETE, CONSISTING OF 20 FT OR MORE BARE OR ZINC GALVANIZED OR OTHER ELECTRICALLY CONDUCTIVE COATED STEEL REINFORCING BARS OR RODS NOT LESS THAN 1/2" IN DIAMETER.
    - 2.4. GROUND RING ENCIRCLING THE BUILDING
    - 2.5. ROD AND PIPE ELECTRODES NOT LESS THAN 8 FT.
    - 2.6. PLATE ELECTRODES

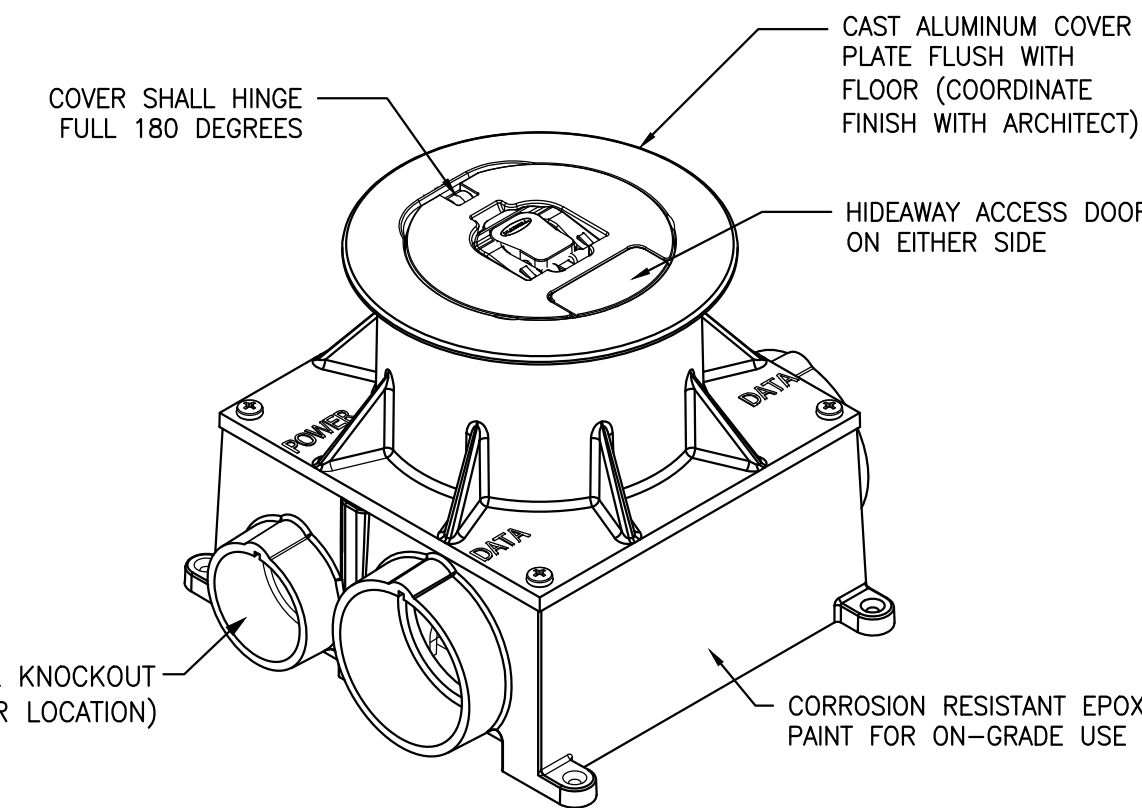
**11** TYPICAL BONDING & GROUNDING DIAGRAM  
SCALE: N.T.S.



**2** RECEPTACLE GROUNDING DIAGRAM  
SCALE: N.T.S.

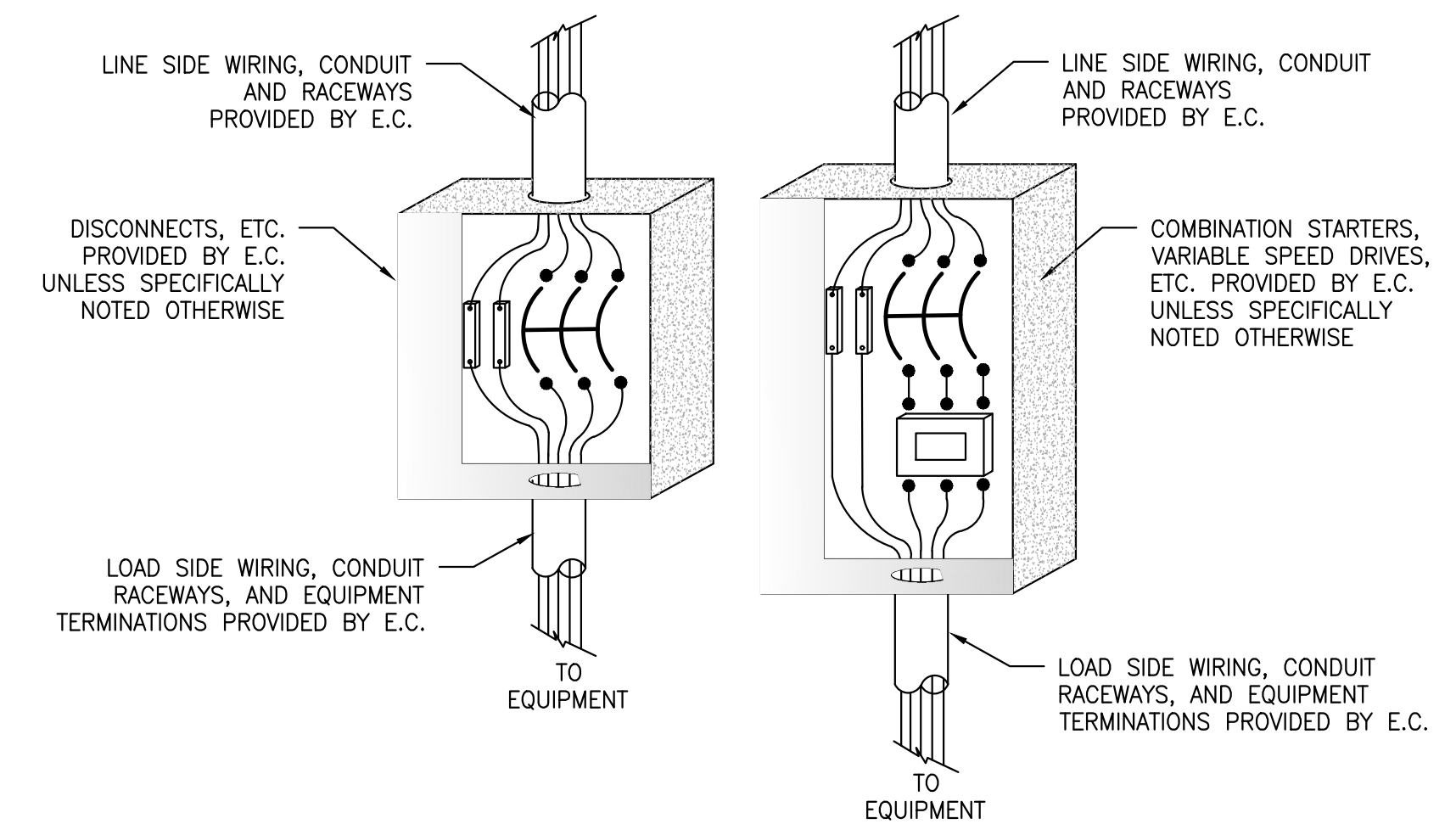


**3** POWER/DATA/PHONE OUTLET DETAIL  
SCALE: N.T.S.



- NOTES:**
1. BOX SHALL BE PROVIDED WITH DIVIDER FOR POWER AND DATA COMPARTMENTS. COORDINATE LID TYPE AND COLOR WITH ARCHITECT.
  2. PROVIDE (1) 1" C. FOR DATA AND (1) 2" C. FOR A/V TO ABOVE CEILING.
  3. PROVIDE WITH 2-INCH THREADED CONDUIT HUB.
  4. PRODUCT SHALL BE UL LISTED AND COMPLY WITH UL 514A FOR SCRUB WATER REQUIREMENTS.
  5. BOX SHALL BE RATED FOR "ON-GRADE" USE

**6** MULTISERVICE FLUSH CONCRETE FLOOR BOX  
SCALE: N.T.S.



**7** ELECTRICAL CONNECTION COORDINATION  
SCALE: N.T.S.



SERVICE LOAD SUMMARY					
OCCUPANCY TYPE -- MIXED			BUILDING AREA -- 11,030 SQUARE FEET		
CONTINUOUS LOAD DESCRIPTION	LOAD (KVA)	NEC REFERENCE	DEMAND FACTOR	NEC REFERENCE	LOAD (KVA)
INDOOR LIGHTING	22.0	TABLE 220.12	100%	TABLE 220.42	22.0
OUTDOOR LIGHTING	1.0	---	100%	---	1.0
SIGN LIGHTING	1.2	220.14 F	100%	---	1.2
ELECTRIC UNIT HEATERS	11.6	ARTICLE 440	100%	---	11.6
AIR HANDLER FANS (SPLIT SYSTEMS)	3.0	ARTICLE 440	100%	---	3.0
AIR HANDLER ELECTRIC HEAT	39.6	422.12	100%	---	39.6
HVAC OUTDOOR UNIT	17.4	ARTICLE 440	100%	---	17.4
EXHAUST FANS & WALL FANS	2.0	ARTICLE 440	100%	---	2.0
WATER HEATERS	4.5	422.13	100%	---	4.5
<b>SUBTOTAL CONTINUOUS LOADS</b>					102.3
					230.42 A 1
					<b>x 125%</b>
<b>CONT. LOAD TOTAL</b>					127.9
NON CONTINUOUS LOAD DESCRIPTION					
RECEPTACLES UP TO 10 KVA	10.0	220.14 1	100% OF 1st 10 KVA		10.0
RECEPTACLES OVER 10 KVA	8.0	220.14 1	50% ABOVE 10 KVA		4.0
KITCHEN EQUIPMENT	5.0	---	x 70% DIVERSITY FOR 5 PCS OF EQUIP	TABLE 220.56	3.5
MISC. LOADS	5.0	---	NONCONTINUOUS LOAD x 100%		5.0
AIR COMPRESSOR & SCBA	15.0	---	NONCONTINUOUS LOAD x 100%		15.0
GARAGE DOORS	10.0	---	NONCONTINUOUS LOAD x 100%		10.0
<b>SUBTOTAL NON-CONUOUS LOADS</b>					47.5
<b>TOTAL CONTINUOUS AND NON CONTINUOUS LOADS</b>					175.4
FAULT CURRENT @ TRANSFORMER SECONDARY TERMINALS			SERVICE LOAD		
150 KVA (X-FORMER)			175 KVA		
$0.208 \times \sqrt{3} \times 2\%Z$			$0.208 \times \sqrt{3}$		
= 20,820 AMPS			= 486 AMPS		

PACKAGE GENERATOR SYSTEM SCHEDULE					
MARK	VOLTS/PH	KW RATING	RATING	FUEL TYPE	
MG-1	120/208 3Ø	150 KW	STANDBY	NAT GAS	

- NOTES:**
- PROVIDE THE FOLLOWING OPTIONS AND ACCESSORIES:
    - THE GENERATOR SET SHALL BE PROVIDED WITH AN OVERCURRENT PROTECTIVE DEVICE THAT IS COORDINATED WITH THE ALTERNATOR TO PREVENT DAMAGE ON ANY POSSIBLE OVERLOAD OR OVERCURRENT CONDITION EXTERNAL TO THE MACHINE. THE PROTECTIVE DEVICE SHALL BE LISTED AS A UTILITY GRADE PROTECTIVE DEVICE UNDER UL CATEGORY NRGU
    - THE GENERATOR SET SHALL PICK UP A BLOCK LOAD EQUAL TO THE SPECIFIED KW AT 0.8 POWER FACTOR AT RATED SITE CONDITIONS AND RECOVER TO RATED VOLTAGE AND FREQUENCY
    - MIN. 10 AMP BATTERY CHARGER, AUTOMATIC FLOAT CHARGE BATTERY CHARGER WITH 4-STATE CHARGING ALGORITHM
    - CLASS H INSULATION (150 DEG C.)
    - MICROPROCESSOR-BASED CONTROL FOR AUTOMATIC STARTING, MONITORING, AND CONTROL FUNCTIONS
    - CONTROL SHALL ALLOW FOR REMOTE MONITORING
    - PROVIDE REMOTE SHUTDOWN BUTTON LOCATED ON EXTERIOR OF BUILDING.
    - DIGITAL METERING SET, 100% ACCURACY, TO INDICATE RMS VOLTAGE AND CURRENT, FREQUENCY, OUTPUT KW, OUTPUT KVA, AND POWER FACTOR
    - MOUNTED MAIN LINE CIRCUIT BREAKER, SIZED TO CARRY RATED OUTPUT OF GENERATOR SET.
    - OUTDOOR WEATHER-PROTECTIVE AND LEVEL 2 SOUND ATTENUATED ENCLOSURE NOT TO EXCEED 75DB @ 23 FEET FROM ENCLOSURE.
    - 120 VAC GFCI DUPLEX RECEPTACLE AND INTERIOR LED LIGHTING
    - ISO 8528 RATED
    - 5 YEAR COMPREHENSIVE WARRANTY
    - UL2200 LISTED FOR STATIONARY ENGINE GENERATOR ASSEMBLY.

AUTOMATIC TRANSFER SWITCH SCHEDULE							
MARK	TRANSITION TYPE	VOLTS/PH/WIRES	RATING	ENCLOSURE	S.C. WITHSTAND	NO. POLES	S.E. RATED
ATS-1	OPEN TRANSITION	120/208 3Ø 4W	600A	NEMA 3R	35 KAIC	3	YES

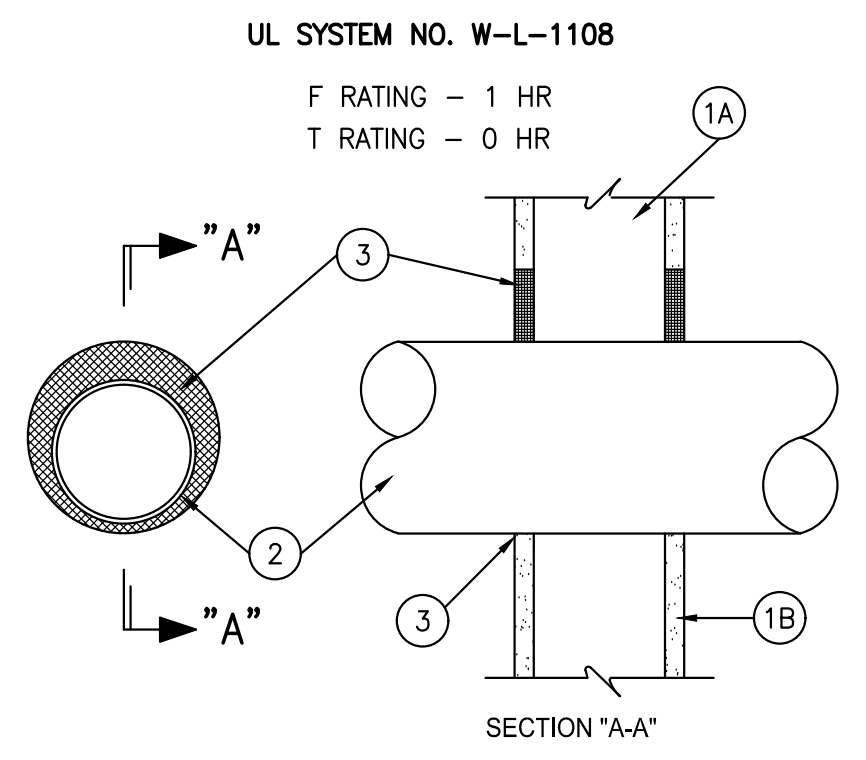
- NOTES:**
- PROVIDE THE FOLLOWING OPTIONS AND ACCESSORIES:
    - MICROPROCESSOR BASED CONTROLLER
    - UL1008 LISTED
    - GENERATOR AND UTILITY UNDER VOLTAGE CONTROL SETPOINT
    - UTILITY RETURN TIMER
    - ENGINE START CONTACT
    - SHORT CIRCUIT RATING BASED ON ANY UPSTREAM BREAKER
    - 5 YEAR WARRANTY

PANELBOARD SCHEDULE													
PANEL A		SURFACE MOUNTED				22K AIC				600 AMP (FEEDER SIZE)		3Ø, 4 WIRE	
MAIN LUG ONLY		BOTTOM FEED				120/208 VOLT				BOLT ON BREAKER			
NEMA 1		COPPER BUS				600 AMP (BUS RATING)							
LOAD SERVED	WIRE SIZE	CONDUIT SIZE	LOAD (AMPS)	PHASE	CONDUIT NO.	LOAD (AMPS)	PHASE	CONDUIT NO.	LOAD (AMPS)	PHASE	CONDUIT NO.	WIRE SIZE	LOAD SERVED
OH DOOR	2#12 & 1#12G	3/4"	12	1	20	2	8	3/4"	2#10 & 1#10G	BAY LIGHTS			
OH DOOR	2#12 & 1#12G	3/4"	12	3	20	4	10	3/4"	2#10 & 1#10G	BAY LIGHTS			
OH DOOR	2#12 & 1#12G	3/4"	12	5	20	6	10	3/4"	2#12 & 1#12G	BAY LIGHTS			
OH DOOR	2#12 & 1#12G	3/4"	12	7	20	8							
OH DOOR	2#12 & 1#12G	3/4"	12	9	20	10	4	3/4"	2#12 & 1#12G	MEZZ. LIGHTS			
OH DOOR	2#12 & 1#12G	3/4"	12	11	20	12	4	3/4"	2#12 & 1#12G	EXTERIOR LTS.			
SPARE					13	14							
SPARE					15	16							
CORD REELS	2#12 & 1#12G	3/4"	3	17	20	18			3/4"	2#12 & 1#12G		UH-1	
CORD REELS	2#12 & 1#12G	3/4"	3	19	20	20			3/4"	2#10 & 1#10G		UH-1	
CORD REELS	2#12 & 1#12G	3/4"	3	21	20	22	16		3/4"	2#10 & 1#10G		UH-2	
CORD REELS	2#12 & 1#12G	3/4"	3	23	20	24	24		3/4"	2#10 & 1#10G		UH-2	
CORD REELS	2#12 & 1#12G	3/4"	3	25	20	26	24						
CORD REELS	2#12 & 1#12G	3/4"	3	27	20	28							
SPARE					29	30	12	3/4"	2#12 & 1#12G			WF-1	
SPARE					31	32	3	3/4"	2#12 & 1#12G			WF-2 & RECP.	
SPARE					33	34	3	3/4"	2#12 & 1#12G			WF-3 & RECP.	
SPARE					35	36	3	3/4"	2#12 & 1#12G			WF-4 & RECP.	
SPARE					37	38	100						
SCBA COMPRESSOR	3#8 & 1#10G	3/4"	40	39	80	40	33	1/2"	4#3 & 1#8G			PANEL A2	
SPARE					40	41							
SPARE					43	44	161						
CIRCULATION FAN	2#12 & 1#12G	3/4"	3	45	20	46	146	2"	4#3/0 & 1#6G			PANEL B	
SPARE					47	48	146						
INFRARED HEATERS	2#12 & 1#12G	3/4"	7	49	20	50	141						
SPARE					51	52	152	2"	4#3/0 & 1#6G			PANEL C	
AIR COMP.	2#10 & 1#10G	3/4"	25	53	20	54	130						

- COORDINATE HVAC BREAKERS AND WIRE SIZES WITH HVAC SUBMITTALS  
 PROVIDE SEPARATE NEUTRALS FOR ALL CIRCUITS.
- COORDINATE BREAKERS, DISCONNECTS, AND WIRE SIZES FOR OWNER FURNISHED EQUIPMENT WITH SUBMITTALS  
 VERIFY AIR COMPRESSOR RECEPTACLE WITH OWNERS EQUIPMENT.
  - WIRE THROUGH PHOTOCELL.

PANELBOARD SCHEDULE													
PANEL A2		SURFACE MOUNTED				10K AIC				100 AMP (FEEDER SIZE)		3Ø, 4 WIRE	
MAIN LUG ONLY		BOTTOM FEED				120/208 VOLT				BOLT ON BREAKER			
NEMA 1		COPPER BUS				100 AMP (BUS RATING)							
LOAD SERVED	WIRE SIZE	CONDUIT SIZE	LOAD (AMPS)	PHASE	CONDUIT NO.	LOAD (AMPS)	PHASE	CONDUIT NO.	LOAD (AMPS)	PHASE	CONDUIT NO.	WIRE SIZE	LOAD SERVED
GW-H-3	2#12 & 1#12G	3/4"	2	1	20	2							SPARE
SPARE					3	4	12	1"	2#12 & 1#12G				GEN HEAT
TRUCK BAY RECP.	2#12 & 1#12G	3/4"	5	5	20	6	2	1"	2#12 & 1#12G				GEN BATT
TRUCK BAY RECP.	2#12 & 1#12G	3/4"	3	7	20	8							SPARE
TRUCK BAY RECP.	2#12 & 1#12G	3/4"	3	9	20	10	2						SPARE
TRUCK BAY RECP.	2#12 & 1#12G	3/4"	3	11	20	12	5	3/4"	2#12 & 1#12G				MEZZ RECEP
SPARE					13	14							SPARE
SPARE					15	16	6	3/4"	2#12 & 1#12G				ICE MACHINE
SPARE					17	18							SPARE
SPARE					19	20							SPARE
SPARE					21	22							SPARE
SPARE					23	24							SPARE
SPARE					25	26	12	1"	2#12 & 1#12G				DOMESTIC BFP
SPARE					27	28	16	1"	2#12 & 1#12G				FIRE PROT BFP
GEAR WASHER	3#12 & 1#12G	3/4"	6	27	20	28	16	1"	2#12 & 1#12G				FACP
SPARE					29	30	3	3/4"	2#12 & 1#12G				

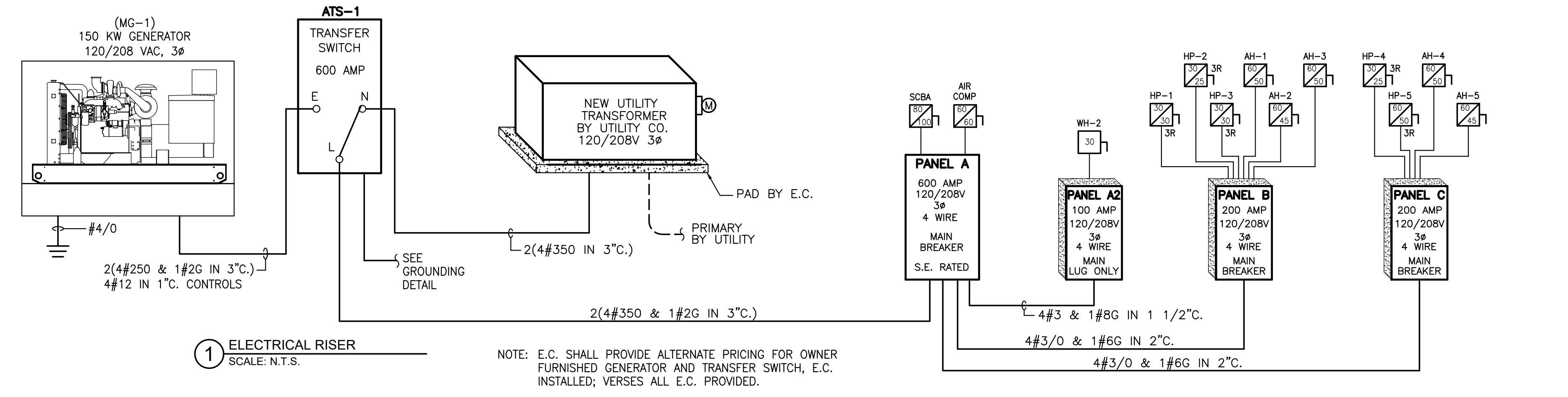
- COORDINATE HVAC BREAKERS AND WIRE SIZES WITH HVAC SUBMITTALS  
 PROVIDE SEPARATE NEUTRALS FOR ALL CIRCUITS.
- PROVIDE WITH LOCKING BREAKER & IDENTIFY WITH A RED MARKING PER NFPA 72-10.6.5.2 (2013).
  - COORDINATE RECEPTACLE, BREAKER AND WIRE SIZES FOR ALL OWNER FURNISHED EQUIPMENT
  - PROVIDE 30mA GFCI BREAKER FOR EQUIPMENT PROTECTION
- |  |               |                   |
|--|---------------|-------------------|
| CONNECTED LOAD (KVA)                                     | DEMAND FACTOR | DEMAND LOAD (KVA) |
| RECEPTACLES = 4.6  | 100%          | = 4.6             |
| WATER HEATERS = 0.2                                      | 100%          | = 0.2             |
| EQUIPMENT = 15.7   | 100%          | = 15.7            |
| <b>TOTALS:</b>   |               | <b>= 20.5 KVA</b> |
| MINIMUM PANEL SIZE: 20.5 KVA X 125% = 26 KVA (72.1 AMPS) |               |                   |
| GROSS PHASE TOTALS (AMPS) A = 70 B = 43 C = 50           |               |                   |



- WALL ASSEMBLY - THE FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
  - STUDS - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM. 2 BY 4 IN. LUMBER SPACED 16 IN. O.C. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. O.C.
  - WALLBOARD, GYPSUM\* - ONE LAYER OF NOM 5/8 IN. THICK GYPSUM WALLBOARD, AS SPECIFIED IN THE INDIVIDUAL WALL AND PARTITION DESIGN. MAXIMUM DIAMETER OF OPENING IS 11-3/4 IN.
- THROUGH PENETRANTS - ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:
  - STEEL PIPE - NOM 10 IN. DIA. (OR SMALLER) SCHEDULE 20 (OR HEAVIER) STEEL PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - IRON PIPE - NOM 10 IN. DIA. (OR SMALLER) CAST OR DUCTILE IRON PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - CONDUIT - NOM 2 IN. DIA. (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR STEEL CONDUIT. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - COPPER TUBING - NOM 2 IN. DIA. (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
  - COPPER PIPE - NOM 2 IN. DIA. (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 1 IN.
- FILL, VOID OR CAVITY MATERIAL - CAULK - MIN 1/2 IN. THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT CONTACT LOCATION BETWEEN PIPE AND WALL, A MIN 1/4 IN. DIA. BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE WALL/PIPE INTERFACE ON BOTH SURFACES OF WALL.

THE RECTORSEAL CORP.-METACAULK 1000 \*BEARING THE UL CLASSIFICATION MARKING  
 FIRESTOP MATERIALS BY 3M AND SPECSEAL ARE ACCEPTABLE WHERE TESTED & ACCEPTED BY U.L. FOR THIS APPLICATION.

7 UL 1 HOUR GYPBOARD WALL PENETRATION DETAIL  
 SCALE: N.T.S.



Bobbit, Inc.  
 600 Germantown Road  
 Raleigh, NC 27607  
 (919) 851-1980  
 Fax: (919) 851-1982  
 design@bobbit.com  
 www.bobbit.com

**BOBBITT**

Entech ENGINEERING  
 1071 N. BERKELEY BLVD.  
 RALEIGH, NC 27609  
 TEL: (919) 776-9088  
 PROJECT MGR.: D. WAM  
 PROJECT NO.: 22104E

COORDINATOR:  
 B. GRIFFITH

DRAWN BY:  
 DEH

NW HARNETT FIRE STATION 3  
 US 401  
 HARNETT COUNTY, NORTH CAROLINA

24 x 36  
 AS NOTED

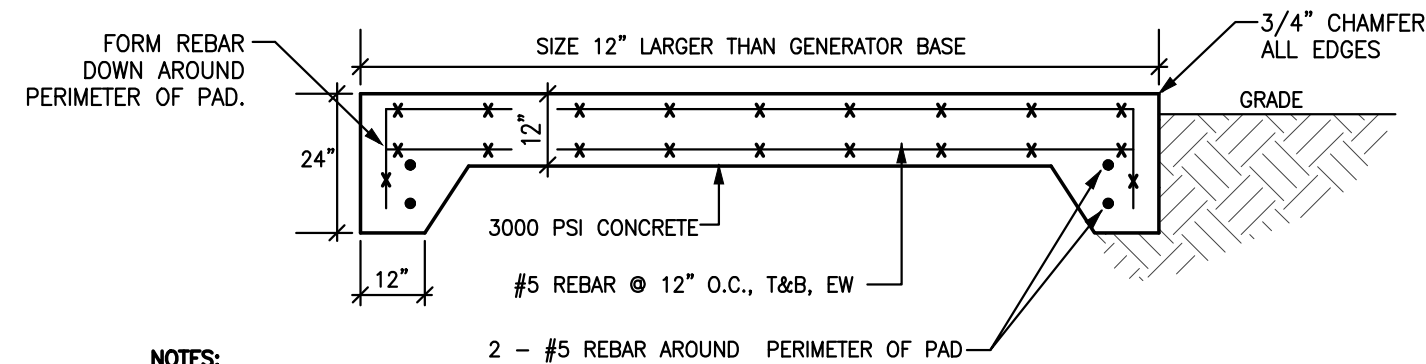
2/24/22

21-0337

ELECTRICAL  
 SCHEDULES

E3.1  
 OF 5





- NOTES:**
- CONFIRM FINAL LOCATION OF POWER AND CONTROL CONDUITS WITH MANUFACTURER DATA PRIOR TO INSTALLATION.
  - MAINTAIN MINIMUM 48" SPACING AROUND GENERATOR ENCLOSURE AREA FOR REFUELING AND FUTURE SERVICE REQUIREMENTS.
  - PROVIDE 4/0 AWG BARE COPPER GROUND RING 24" FROM EDGE OF GENERATOR PAD BURIED 30" BELOW GRADE. PROVIDE 10' X 3/4" COPPER CLAD GROUND ROD AT EACH CORNER OF GENERATOR PAD AND EXOTHERMICALLY WELDED TO THE COPPER RING. PROVIDE MINIMUM 36" PIGTAIL THROUGH PAD FOR CONNECTION TO THE GENERATOR FRAME. PROVIDE 4/0 BARE COPPER CONDUCTOR FROM THE COPPER RING TO EITHER THE BUILDING GROUND OR MAIN ELECTRICAL SERVICE GROUND BUS.
  - PROVIDE MINIMUM 2" CONCRETE COVER FOR TOP REBAR AND 3" COVER TO EARTH FOR LOWER LEVEL OF REBAR.
  - IF UNSUITABLE MATERIAL IS ENCOUNTERED, REMOVE ALL UNSUITABLE MATERIAL FROM BELOW THE PROPOSED SLAB AND BASE, AND PLACE COMPACTED STRUCTURAL FILL MATERIAL TO THE BOTTOM OF GRAVEL BASE LAYER. ALTERNATELY, REMOVE ALL UNSUITABLE MATERIAL AND REPLACE WITH COMPACTED GRAVEL.

**1 GENERATOR CONCRETE PAD INSTALLATION DETAIL**  
N.T.S.

Entech PANELBOARD SCHEDULE													
PANEL B		SURFACE MOUNTED			10K AIC			200 AMP (FEEDER SIZE)			3Ø, 4 WIRE		
MAIN BREAKER		BOTTOM FEED						120/208 VOLT			BOLT ON BREAKER		
NEMA 1		COPPER BUS						200 AMP (BUS RATING)					
LOAD SERVED	WIRE SIZE	CONDUIT SIZE	LOAD (AMPS)	CKT NO.	PHASE	CONDUIT SIZE	LOAD (AMPS)	CONDUIT SIZE	WIRE SIZE	LOAD SERVED			
		A B C	A B C		A B C	A B C	A B C	A B C					
AH-1	2#8 & 1#10G	3/4"	37	1	50	20	2	7	3/4"	2#12 & 1#12G	LIGHTS		
AH-2	2#8 & 1#10G	3/4"	37	3	45	20	4	7	3/4"	2#12 & 1#12G	LIGHTS		
AH-3	2#8 & 1#10G	3/4"	36	5	50	20	6				SPARE		
HP-1	2#10 & 1#10G	3/4"	37	7	50	20	8	8	3/4"	2#12 & 1#12G	RECEPTACLES		
HP-2	2#10 & 1#10G	3/4"	37	9	50	20	10	9	3/4"	2#12 & 1#12G	RECEPTACLES		
HP-3	2#10 & 1#10G	3/4"	16	11	30	20	12	9	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			16	13	30	20	14	9	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			12	15	25	20	16	9	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			12	17	30	20	18	9	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			16	19	30	20	20	5	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			16	21	30	20	22	10	3/4"	2#12 & 1#12G	WASHER		
SPARE			16	23	20	20	24	24			2#10 & 1#10G	DRYER	
SPARE			25	25	20	20	26	24					
SPARE			27	27	20	20	28	5	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			29	29	20	20	30	3	3/4"	2#12 & 1#12G	RECEPTACLES		
GWH-1 & GWH-2	2#12 & 1#12G	3/4"	4	31	20	20	32	3	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE				33	20	20	34				SPARE		
SPARE				35	20	20	36				SPARE		
SPARE				37	20	20	38				SPARE		
SPARE				39	20	20	40				SPARE		
SPARE				41	20	20	42				SPARE		

COORDINATE HVAC BREAKERS AND WIRE SIZES WITH HVAC SUBMITTALS  
COORDINATE BREAKERS AND WIRE SIZES FOR OWNER FURNISHED EQUIPMENT WITH SUBMITTALS  
PROVIDE SEPARATE NEUTRALS FOR ALL CIRCUITS.

1. ARC FAULT BREAKER

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
INDOOR LIGHTING	= 1.7	100%	= 1.7
RECEPTACLES (1ST 10 KVA)	= 8.2	100%	= 8.2
RECEPTACLES (ABV 10 KVA)	= 0.8	50%	= 0.4
HVAC	= 31.6	100%	= 31.6
HVAC (NON-COINCIDENTAL)	= 0.0	0%	= 0.0
DEDICATED RECP/EQUIP	= 4.2	100%	= 4.2
<b>TOTALS:</b>	<b>= 46 KVA</b>		<b>= 46 KVA</b>
MINIMUM PANEL SIZE: 46 KVA X 125% = 58 KVA (161 AMPS)			
GROSS PHASE TOTALS (AMPS) A = 161 B = 146 C = 146			

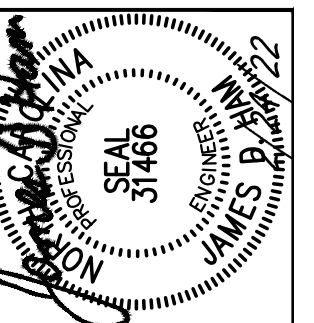
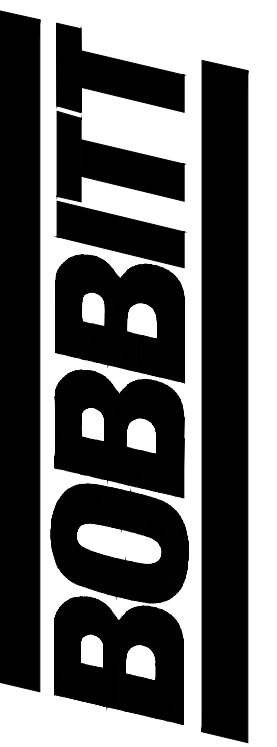
Entech PANELBOARD SCHEDULE													
PANEL C		SURFACE MOUNTED			10K AIC			200 AMP (FEEDER SIZE)			3Ø, 4 WIRE		
MAIN BREAKER		BOTTOM FEED						120/208 VOLT			BOLT ON BREAKER		
NEMA 1		COPPER BUS						200 AMP (BUS RATING)					
LOAD SERVED	WIRE SIZE	CONDUIT SIZE	LOAD (AMPS)	CKT NO.	PHASE	CONDUIT SIZE	LOAD (AMPS)	CONDUIT SIZE	WIRE SIZE	LOAD SERVED			
		A B C	A B C		A B C	A B C	A B C	A B C					
AH-4	2#8 & 1#10G	3/4"	37	1	50	20	2	7	3/4"	2#12 & 1#12G	LIGHTS		
AH-5	3#8 & 1#10G	3/4"	37	3	45	20	4	10	1"	2#12 & 1#12G	FLAG LIGHTS		
			36	5	50	20	6	10	1"	2#12 & 1#12G	SITE SIGN		
			36	7	50	20	8	5	3/4"	2#12 & 1#12G	RECEPTACLES		
			36	9	25	20	10	9	3/4"	2#12 & 1#12G	RECEPTACLES		
HP-4	2#10 & 1#10G	3/4"	14	11	50	20	12	5	3/4"	2#12 & 1#12G	WATER COOLER		
HP-5	2#8 & 1#10G	3/4"	26	13	50	20	14	9	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			26	15	50	20	16	3	3/4"	2#12 & 1#12G	RECEPTACLES		
SPARE			19	17	20	20	18	5	3/4"	2#12 & 1#12G	RECEPTACLES		
RECEPTACLES	2#12 & 1#12G	3/4"	8	21	20	20	20	4	3/4"	2#12 & 1#12G	DISHWASHER		
RECEPTACLES	2#12 & 1#12G	3/4"	11	23	20	20	22	3	3/4"	2#12 & 1#12G	KITCHEN RECP		
RECEPTACLES	2#12 & 1#12G	3/4"	8	25	20	20	24	3	3/4"	2#12 & 1#12G	KITCHEN HOOD		
RECEPTACLES	2#12 & 1#12G	3/4"	5	27	20	20	26	12	3/4"	2#12 & 1#12G	MICROWAVE		
RECEPTACLES	2#12 & 1#12G	3/4"	5	29	20	20	28	6	3/4"	2#12 & 1#12G	KITCHEN RECP		
RECEPTACLES	2#12 & 1#12G	3/4"	2	31	20	20	30	5	3/4"	2#12 & 1#12G	FRIDGE/FREEZER		
RECEPTACLES	2#12 & 1#12G	3/4"	2	33	20	20	32	5	3/4"	2#12 & 1#12G	FRIDGE/FREEZER		
RECEPTACLES	2#12 & 1#12G	3/4"	2	35	20	20	34	5	3/4"	2#12 & 1#12G	FRIDGE/FREEZER		
DATA/PHONEBOARD	2#12 & 1#12G	3/4"	2	37	20	20	36				SPARE		
DATA/PHONEBOARD	2#12 & 1#12G	3/4"	2	39	20	20	38				SPARE		
DATA/PHONEBOARD	2#12 & 1#12G	3/4"	2	41	20	20	40				SPARE		
				41	20	20	42				SPARE		

COORDINATE HVAC BREAKERS AND WIRE SIZES WITH HVAC SUBMITTALS  
COORDINATE BREAKERS AND WIRE SIZES FOR OWNER FURNISHED EQUIPMENT WITH SUBMITTALS  
PROVIDE SEPARATE NEUTRALS FOR ALL CIRCUITS.

- PROVIDE WITH CLASS "A" (6mA) GFCI BREAKER IN ACCORDANCE WITH UL 489
- PROVIDE WITH SHUNT TRIP
- COORDINATE DISCONNECT, BREAKER AND WIRE SIZES FOR ALL OWNER FURNISHED EQUIPMENT
- PROVIDE ARC FAULT CIRCUIT BREAKER.

	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
INDOOR LIGHTING	= 0.8	100%	= 0.8
RECEPTACLES (1ST 10 KVA)	= 10	100%	= 10
RECEPTACLES (ABV 10 KVA)	= 4.2	50%	= 2.1
HVAC	= 28.8	100%	= 28.8
HVAC (NON-COINCIDENTAL)	= 0.0	0%	= 0.0
DEDICATED RECP/EQUIP	= 5.6	100%	= 5.6
<b>TOTALS:</b>	<b>= 49.5 KVA</b>		<b>= 47.5 KVA</b>
MINIMUM PANEL SIZE: 47.5 KVA X 125% = 60 KVA (167 AMPS)			
GROSS PHASE TOTALS (AMPS) A = 141 B = 152 C = 130			

Bobbit, Inc.  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-4980  
Fax: (919) 851-1982  
design@bobbit.com  
www.bobbit.com



Entech  
ENGINEERING  
INC. LIC. # C-1132  
1071 N. BERKELEY BLVD.  
RALEIGH, NC 27607  
TEL: (919) 776-9088  
PROJECT MGR.: D. HUN  
PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

21-0337

ELECTRICAL  
SCHEDULES

E3.2  
OF 5

COPYRIGHT © 2021 BOBBITT, INC. ALL RIGHTS RESERVED.



**ELECTRICAL NOTES:**

- ELECTRICAL PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE ELECTRICAL SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT. THIS INCLUDES ALL REQUIRED CONTROL WIRING OR WIRING CALLED FOR BY THE MANUFACTURER. INSTALLATION SHALL FOLLOW ALL MANUFACTURER'S RECOMMENDATIONS.
- CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF ELECTRICAL INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.
- ALL WORK SHALL COMPLY WITH THE 2017 NATIONAL ELECTRICAL CODE (NEC). WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.
- PROTECT ALL NEW MATERIALS FROM THE WEATHER IN STORAGE TRAILERS OR PROVIDE SUITABLE COVERING.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL DISCONNECTS, STARTERS, DEVICES AND ELECTRICAL COMPONENTS UNLESS SPECIFICALLY NOTED AS PROVIDED BY OTHERS. COORDINATE LOCATION AND WIRING OF DEVICES WITH OTHER TRADES OR SUPPLIERS SUCH AS: ELEVATOR, FIRE PUMP AND FIRE PROTECTION PLANS, KITCHEN HOOD, KITCHEN COOLER, ETC. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL FIELD WIRING OF SPECIALTY ITEMS UNLESS NOTED OTHERWISE.
- ELECTRICAL CONTRACTOR SHALL PROVIDE ALL LINE AND LOAD SIDE WIRING INCLUDING ALL TERMINATIONS TO EQUIPMENT PROVIDED UNDER OTHER TRADES. POWER WIRING TO CONTROL DEVICES SHALL BE PROVIDED BY E.C.. INTERLOCK WIRING SHALL BE PROVIDED BY THE CONTRACTOR INSTALLING THE CONTROL DEVICE.
- ALL WIRING, PANELBOARDS, DEVICES AND OTHER LIKE MATERIALS SHALL BE UL LISTED & LABELED. ALL MATERIALS SHALL MEET THE NEC FOR THE INTENDED USE AND INSTALLED IN ACCORDANCE WITH THE NEC.
- PROVIDE THHN/THWN COPPER WIRE. PROVIDE A MINIMUM WIRE SIZE OF #12. ALL WIRE #8 AWG AND LARGER SHALL BE STRANDED, #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS AND CONDUIT ON PLANS AND SCHEDULES REFLECT AMPACITIES PER NEC 310.15(B)(16) 75C RATING. CONTRACTOR SHALL VERIFY ALL TERMINATIONS, LUGS, ETC. ARE RATED FOR USE PER NEC 110.14(C). OTHERWISE PROVIDE CONDUCTOR AND CONDUIT SIZED PER LOWEST TEMPERATURE RATING OF ANY TERMINATION WITHIN A CIRCUIT. A SEPARATE INSULATED EQUIPMENT GROUNDING CONDUCTOR SHALL BE PROVIDED FOR ALL CIRCUITS. #10 AWG SHALL BE USED FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS WITH A TOTAL INSTALLED LENGTH GREATER THAN 100 FEET. WHERE THE CONDUCTOR LENGTH FROM THE PANEL TO THE FIRST OUTLET ON A 120 VOLT CIRCUIT EXCEEDS 50 FEET, THE CONDUCTOR TO THE FIRST OUTLET SHALL NOT BE SMALLER THAN #10 AWG.
- COLOR CODING OF WIRE SHALL BE AS FOLLOWS:  
208/120V PHASE A BLACK  
PHASE B RED  
PHASE C BLUE  
NEUTRAL WHITE  
EQ. GROUND GREEN
- PROVIDE LABELS ON ALL RECEPTACLES IDENTIFYING PANEL AND CIRCUIT NUMBER. LABELS SHALL BE BRADY CLEAR POLYESTER 1" W X 0.375"H OR PANDUIT EQUAL, WITH BLACK LETTERING. MARK ALL JUNCTION BOXES ABOVE CEILING WITH PANEL AND CIRCUIT NUMBER USING PERMANENT MARKER.
- PROVIDE MC CABLE FOR ALL SINGLE PHASE BRANCH CIRCUITS 30 AMPS AND SMALLER. MC CABLE SHALL BE SUPPORTED AT INTERNALS NO GREATER THAN 6 FEET AND SECURED WITHIN 12 INCHES OF EVERY BOX, FITTING OR CABLE TERMINATION. PROVIDE MINIMUM 3/4" CONDUIT FOR ALL OTHER WIRINGS. EMT OR RIGID SHALL BE USED WHERE EXPOSED TO PHYSICAL DAMAGE. CONDUIT ABOVE GRADE SHALL BE STEEL. EMT SHALL NOT BE USED IN DIRECT CONTACT WITH THE EARTH, EXTERIOR LOCATIONS, OR WHERE EXPOSED TO SEVERE PHYSICAL DAMAGE. FITTINGS ON EMT CONDUIT SHALL BE COMPRESSION TYPE. FITTINGS ON IMC OR RGS SHALL BE THREADED. MOTOR CONNECTIONS SHALL BE MADE WITH FMC, MIN. 18" LONG AND MAX 36". USE PVC JACKETED FLEXIBLE LIQUID TIGHT CONDUIT TYPE UA FOR CONNECTIONS IN WET LOCATIONS. EXPOSED CONDUIT IN FINISHED ROOMS SHALL BE MOUNTED ADJACENT TO WALL SURFACE. FEEDER CONDUITS SHALL BE INSTALLED WITH LIMITED EXPOSURE. STAND-OFF TYPE SUPPORTS ARE NOT ALLOWED. PROVIDE COOPER "DURA-BLOCK" SUPPORTS FOR CONDUITS INSTALLED OUTDOORS AND ROUTED ACROSS ROOF OR CONCRETE. SEAL SERVICE RACEWAYS ENTERING A BUILDING FROM AN UNDERGROUND SYSTEM PER NEC 230.8 AND 300.5(G). ALL EMPTY RACEWAYS SHALL BE PROVIDED WITH PULL STRING.
- PROVIDE ONE-INCH EMPTY CONDUITS EXTENDING ABOVE CEILING FOR ALL TELEPHONE AND DATA OUTLETS SHOWN ON PLANS. PROVIDE PROTECTIVE BUSHINGS ON ENDS OF CONDUIT. ALL CABLING IS PROVIDED BY OTHERS.
- PROVIDE 3/4-INCH EMPTY CONDUITS TERMINATING ABOVE THE CEILING FOR ALL HVAC THERMOSTATS. JUNCTION BOXES SHALL MATCH ORIENTATION OF THERMOSTATS PROVIDED BY M.C.. MOUNT JUNCTION BOXES 48-INCHES A.F.F. UNLESS NOTED OTHERWISE. PROVIDE PROTECTIVE BUSHINGS ON ENDS OF CONDUIT.
- PANELBOARDS FOR SERVICE ENTRANCE SHALL BE SERVICE ENTRANCE RATED. PROVIDE NEMA 3R PANELBOARDS WHERE LOCATED OUTSIDE. PROVIDE COPPER NEUTRAL AND GROUNDING BARS IN ALL PANELBOARDS UNLESS NOTED OTHERWISE (ALUMINUM IS NOT ALLOWED). GROUND ALL SERVICE ENTRANCE PANELS AND RACEWAYS (BONDING BUSHINGS) IN ACCORDANCE WITH THE NEC. PROVIDE BOLT-IN BREAKERS UNLESS NOTED OTHERWISE. PROVIDE A MINIMUM OF THREE SPARE 3/4" CONDUITS TO ABOVE CEILING FOR ALL FLUSH MOUNTED PANELBOARDS. PANELS SHALL BE FULLY RATED FOR SHORT CIRCUIT CURRENT, SERIES RATINGS ARE NOT ALLOWED.
- PROVIDE MACHINE TYPED PANEL SCHEDULES IN EACH PANEL INDICATING THE LOAD DESCRIPTION FOR EACH BREAKER. LABEL PANELS ON PANEL FACE WITH PHENOLIC LABELS INDICATING PANEL NUMBER OR LETTER DESIGNATION, VOLTAGE, CURRENT RATING AND PHASE. PROVIDE ALL PANELBOARDS, SWITCHBOARDS, CONTROL PANELS, ETC. WITH WARNING SIGN FOR POTENTIAL ELECTRIC ARC FLASH HAZARDS PER NEC 110.16.
- PROVIDE A MINIMUM OF THREE (3) GROUND RODS. GROUND RODS SHALL BE COPPER CLAD STEEL, DIAMETER OF 3/4" x 10' LENGTH MINIMUM. SPACE RODS SUCH THAT THERE IS A MINIMUM OF 10 FEET SPACING BETWEEN RODS. DRIVE RODS 6 INCHES BELOW GRADE. CONNECTIONS TO RODS SHALL BE BY EXOTHERMIC WELDS OR COMPRESSION CONNECTORS. GROUNDING TO BUILDING STEEL FOR SERVICE CONNECTION AND ANY SEPARATELY DERIVED SYSTEM SHALL BE BY EXOTHERMIC WELD.
- PROVIDE HEAVY DUTY FUSED AND NON-FUSED DISCONNECT SWITCHES AS INDICATED ON PLANS. DISCONNECTS LOCATED OUTSIDE SHALL BE NEMA-3R. PROVIDE REJECTION CLIPS IN FUSED DISCONNECTS. LABEL DISCONNECT WITH PHENOLIC LABEL INDICATING PANEL AND CIRCUIT NUMBER FEEDING EQUIPMENT.
- PROVIDE HORSEPOWER RATED STARTERS AND DISCONNECTS WHEN CONNECTED TO MOTORS. STARTERS SHALL BE PROVIDED WITH OVERLOAD SIZED TO MATCH MOTOR RATINGS.
- PROVIDE LIGHTING AS SCHEDULED IN THE FIXTURE SCHEDULE OR OTHERWISE NOTED ON PLANS. LIGHTING INSTALLED IN SUSPENDED CEILINGS SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING GRID SYSTEM WITH #12 WIRE. SECURE FIXTURES TO CEILING FRAMING MEMBER BY MECHANICAL MEANS PER NEC 410.36. LIGHTING CIRCUITS SHALL NOT SHARE NEUTRALS. LED FIXTURES SHALL CONTAIN COMPONENTS THAT ARE MODULAR IN DESIGN AND EASILY REPLACEABLE/UPGRADABLE. COORDINATE LOCATION OF EXTERIOR FIXTURES WITH ARCHITECTURAL ELEVATION DRAWINGS.
- PROVIDE EMERGENCY AND EXIT LIGHTS AS SHOWN ON PLANS. PER NFPA 101 SECTION 7.10.1.9, EXIT SIGNS SHALL BE LOCATED AT A VERTICAL DISTANCE OF NOT MORE THAN 6 FT 8 IN. ABOVE THE TOP EDGE OF THE EGRESS OPENING AND A HORIZONTAL DISTANCE OF NOT MORE THAN THE REQUIRED WIDTH OF THE EGRESS OPENING. POWER SHALL BE PROVIDED FROM LIGHTING CIRCUITS ON THE UNSWITCHED LEG OF THE CIRCUIT SUCH THAT POWER TO THE EMERGENCY AND EXIT LIGHTS IS NOT DISCONNECTED WHEN NORMAL LIGHTING IS OFF. EXTERIOR EMERGENCY LIGHTS SHALL BE WIRED SUCH THAT PHOTOCELL AND/OR TIME CLOCK OPERATION DOES NOT DISCONNECT POWER TO BATTERIES. EMERGENCY UNIT EQUIPMENT AND BATTERIES SHALL BE UL924 LISTED FOR 90 MINUTES. BATTERIES SHALL BE TESTED PER NEC 700.12(A).
- OCCUPANCY SENSORS IN RESTROOMS, CORRIDORS AND OPEN OFFICE AREAS SHALL BE ULTRASONIC ONLY. NO SENSOR SHALL BE INSTALLED MORE THAN 12 FEET A.F.F., UNLESS NOTED OTHERWISE OR ALLOWED BY MANUFACTURER'S RECOMMENDATIONS.
- RECEPTACLES SHALL BE 20 AMP, 120V UNLESS NOTED OTHERWISE.
- RECEPTACLES WITHIN 6 FT. OF THE EDGE OF SINKS & LAVATORIES SHALL BE GROUND FAULT CIRCUIT-INTERRUPTING. ALL KITCHEN RECEPTACLES, INDOOR WET LOCATIONS, LOCKER ROOMS WITH SHOWERS, GARAGES, SERVICE BAYS AND THOSE RECEPTACLES FEEDING VENDING MACHINES AND WATER COOLERS SHALL BE PROVIDED WITH GROUND FAULT CIRCUIT-INTERRUPTER PROTECTION.
- RECEPTACLES INSTALLED OUTSIDE OR IN WET LOCATIONS SHALL BE LISTED AS WEATHER-RESISTANT TYPE AND HAVE GROUND FAULT CIRCUIT-INTERRUPTER PROTECTION. PROVIDE WITH "IN USE", CAST ALUMINUM WEATHERPROOF COVERS IDENTIFIED AS "EXTRA DUTY" PER NEC 406.9(B).
- THOROUGHLY REVIEW AND COORDINATE ALL CASEWORK AND CABINET DRAWINGS AND ARCHITECTURAL ELEVATIONS FOR DEVICE LOCATIONS PRIOR TO ROUGH-IN OF OUTLETS. COORDINATE WITH OWNER FOR SIGN-OFF OF JUNCTION BOX ROUGH-IN FOR RECEPTACLES AND DATA OUTLETS. SHEETROCK SHALL NOT BE INSTALLED BEFORE OWNER SIGN-OFF IS COMPLETED.
- OBTAIN CUT SHEETS, INSTALLATION DATA, AND ROUGH-IN REQUIREMENTS FOR OWNER FURNISHED, CONTRACTOR INSTALLED EQUIPMENT. COORDINATE ROUGH-IN AND POWER REQUIREMENTS WITH THE OWNER'S REPRESENTATIVE PRIOR TO STARTING ANY ASSOCIATED WORK.
- WALL SWITCHES SHALL BE SINGLE POLE, 20 AMP, 120/277V.
- PROVIDE STANDARD SIZE WALL PLATES FOR ALL DEVICES AND BLANK WALL PLATES FOR JUNCTION BOXES. WALL PLATES SHALL BE HIGH IMPACT, SMOOTH NYLON, COLOR TO MATCH DEVICE.
- MEMBRANE PENETRATIONS OF MAXIMUM 2-HOUR FIRE-RESISTANCE RATED WALLS AND PARTITIONS BY STEEL ELECTRICAL BOXES THAT DO NOT EXCEED 16 SQUARE INCHES IN AREA, INSTALLED ON OPPOSITE SIDES OF THE WALL OR PARTITION SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF NOT LESS THAN 24" OR PROTECTED WITH LISTED PUTTY PADS. THE ANNULAR SPACE BETWEEN THE WALL MEMBRANE AND THE BOX SHALL NOT EXCEED 1/8". THE USE OF LISTED ELECTRICAL BOXES WHICH HAVE BEEN TESTED FOR USE IN FIRE-RESISTANCE-RATED ASSEMBLIES SHALL BE INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
- ALL ELECTRICAL COMPONENTS AND FIXTURES SHALL BE CLEANED & POLISHED. PAINTED SURFACES SHALL BE TOUCHED UP TO MATCH FACTORY APPLIED FINISHES.
- GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION FREE OF DEFECTS FOR A PERIOD OF 1-YEAR AFTER RECEIVING CERTIFICATE OF OCCUPANCY.

LIGHT FIXTURE SCHEDULE												
MARK	DESCRIPTION	REF MANF	MODEL NUMBER FOR FIXTURE REFERENCE QUALITY AND APPEARANCE	SOURCE	LED LUMENS	LAMP--NON LED TYPE	NO. WATTS	COLOR TEMP	CRI	FIXTURE INPUT WATTS	VOLTS	REMARKS
A	2x4 LED LENSED TROFFER	LITHONIA	2GTL4 40L FW A19 E21 LP835	LED	4,000	-	-	35K	80	32	120	
A1	2x4 LED LENSED TROFFER (EMERGENCY)	LITHONIA	2GTL4 40L FW A19 E21 LP835 EL14L	LED	4,000	-	-	35K	80	32	120	
B	2x4 LED LENSED TROFFER	LITHONIA	2GTL4 48L FW A19 E21 LP835	LED	4,800	-	-	35K	80	40	120	
B1	2x4 LED LENSED TROFFER (EMERGENCY)	LITHONIA	2GTL4 48L FW A19 E21 LP835 EL14L	LED	4,800	-	-	35K	80	40	120	
C	2x2 LED LENSED TROFFER	LITHONIA	2GTL2 33L FW A19 E21 LP835	LED	3,277	-	-	35K	80	27	120	
D1	4' LED STRIPLIGHT	LITHONIA	ZL1D L48 5000LM FST MVOLT 35K 80 CRI WH EL14L	LED	5,000	-	-	35K	80	41	120	
G	8' LED STRIPLIGHT	LITHONIA	CLX L96 20000LM SEF RDL MVOLT G210 35K 80CRI SPD ZACVH	LED	20,000	-	-	35K	80	154	120	
G1	8' LED STRIPLIGHT (EMERGENCY)	LITHONIA	CLX L96 20000LM SEF RDL MVOLT G210 35K 80CRI PS1050 SPD ZACVH	LED	20,000	-	-	35K	80	154	120	
H	8' LED STRIPLIGHT	LITHONIA	CLX L96 14000LM SEF RDL 120 G210 35K 80CRI SPD ZACVH	LED	14,000	-	-	35K	80	121	120	
H1	8' LED STRIPLIGHT (EMERGENCY)	LITHONIA	CLX L96 14000 LM SEF RDL 120 G210 35K 80CRI PS1050 SPD ZACVH	LED	14,000	-	-	35K	80	121	120	
EXIT	EXIT LIGHT	LITHONIA	LQM S W R 120/277	LED	-	-	-	-	-	4	120	
EXIT	EXIT/EMER. LIGHT	LITHONIA	LHQM LED R	LED	-	-	-	-	-	6	120	
XA1	EXTERIOR WALL PACK (EMERGENCY)	LITHONIA	ARC1 P1 40K MVOLT E4WC SPD6KV	LED	1500	-	-	40K	-	11	120	
XB	EXTERIOR WALL PACK	LITHONIA	ARC2 P3 40K MVOLT SPD6KV	LED	3390	-	-	40K	-	24	120	
XB1	EXTERIOR WALL PACK (EMERGENCY)	LITHONIA	ARC2 P3 40K MVOLT E8WC SPD6KV	LED	3390	-	-	40K	-	24	120	
XC	CANOPY	LITHONIA	CYN LED P1 40K MVOLT	LED	3500	-	-	40K	-	27	120	
XF	FLAG POLE LIGHT	LITHONIA	DSX1 LED P2 40K MSP MVOLT IS DDBXD AFTM	LED	5200	-	-	40K	-	42	120	

**NOTES:**

- PROVIDE EXIT LIGHTS WITH SINGLE OR DOUBLE-FACE AS REQUIRED, CHEVRON DIRECTIONAL INDICATORS, MOUNTING BRACKETS AND NICKEL CADMIUM BATTERY BACKUP.
- BATTERIES INSTALLED OUTDOORS SHALL BE RATED -4°F TO 130°F.
- BATTERIES SHALL BE UL924 LISTED FOR 90 MINUTES PER NC FIRE CODE SECTION 1006.3 & 1011.5.3. BATTERIES SHALL BE TESTED PER NEC 700.12(A).
- CONTRACTOR SHALL SUBMIT LIGHTING PLAN SHEET(S) WITH SCHEDULE TO SUPPLIER FOR FIXTURE SELECTION.

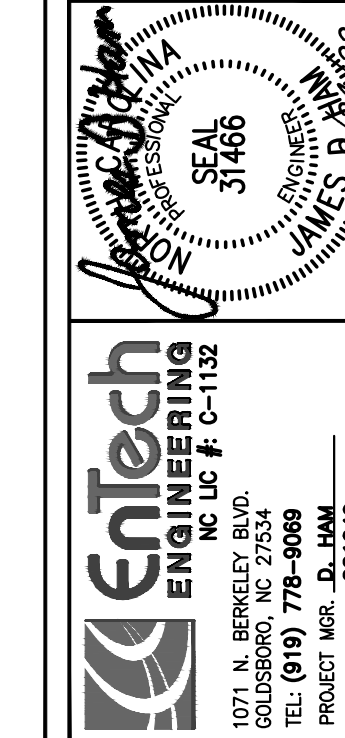
ELECTRICAL ENERGY SUMMARY ELECTRICAL SYSTEMS AND EQUIPMENT:	
METHOD OF COMPLIANCE:	
NC ENERGY CODE 2018:	<input checked="" type="checkbox"/> PRESCRIPTIVE <input type="checkbox"/> PERFORMANCE (C101.2 EXEPT #2)
ASHRAE 90.1:	<input type="checkbox"/> PRESCRIPTIVE <input type="checkbox"/> PERFORMANCE
LIGHTING SCHEDULE	
LAMP TYPE REQUIRED IN FIXTURE	SEE LIGHTING SCHEDULE ON PLANS
NUMBER OF LAMPS IN FIXTURE	SEE LIGHTING SCHEDULE ON PLANS
BALLAST TYPE USED IN THE FIXTURE	SEE LIGHTING SCHEDULE ON PLANS
NUMBER OF BALLASTS IN THE FIXTURE	SEE LIGHTING SCHEDULE ON PLANS
TOTAL WATTAGE PER FIXTURE	SEE LIGHTING SCHEDULE ON PLANS
TOTAL INTERIOR WATTAGE SPEC. VS ALLOWED	4,974 WATTS SPEC. VS 6,729 WATTS ALLOWED
	<input checked="" type="checkbox"/> WHOLE BLDG <input type="checkbox"/> SPACE BY SPACE
TOTAL EXTERIOR WATTAGE SPEC. VS ALLOWED	234 WATTS SPEC. VS 504 WATTS ALLOWED
ZONE: 3	ALLOWANCE: 750
ADDITIONAL PRESCRIPTIVE COMPLIANCE	
<input type="checkbox"/> 506.2.1 MORE EFFICIENT MECHANICAL EQUIPMENT	
<input checked="" type="checkbox"/> 506.2.2 REDUCED LIGHTING POWER DENSITY	
<input type="checkbox"/> 506.2.3 ENERGY RECOVERY VENTILATION SYSTEM	
<input type="checkbox"/> 506.2.4 HIGHER EFFICIENCY SERVICE WATER HEATING	
<input type="checkbox"/> 506.2.5 ON-SITE SUPPLY OF RENEWABLE ENERGY	
<input type="checkbox"/> 506.2.6 AUTOMATIC DAYLIGHTING CONTROL SYSTEMS	

ELECTRICAL LEGEND			
SYM.	DESCRIPTION	REF. MODEL NO.	REMARKS
⊕	JUNCTION BOX	-	DOUBLE GANG UNO
⊕Ⓢ	THERMOSTAT OR SENSOR JUNCTION BOX	-	MOUNT 48" TOD AFF UNO
⊏	NON-FUSED DISCONNECT	-	-
⊏ <sub>F</sub>	FUSED DISCONNECT	-	-
⊕ <sub>DT</sub>	CEILING OCCUPANCY SENSOR DUAL TECHNOLOGY	WATTSTOPPER DT-305	CONTRACTOR SHALL VERIFY COVERAGE OF SENSORS
⊕ <sub>US</sub>	CEILING OCCUPANCY SENSOR	WATTSTOPPER WT-1105 OR 2205	CONTRACTOR SHALL VERIFY COVERAGE OF SENSORS
⊕ <sub>GS</sub>	WALL SWITCH WITH OCCUPANCY SENSOR	WATTSTOPPER PW-100LA, OR EQUAL	-
⊕ <sub>S</sub>	SWITCH	HUBBELL CSB120x	-
⊕ <sub>D</sub>	DIMMER SWITCH	-	COORDINATE WITH BALLAST
⊕ <sub>3</sub>	3 WAY SWITCH	HUBBELL CS320xLA	-
⊕ <sub>4</sub>	4 WAY SWITCH	HUBBELL CS420xLA	-
⊕ <sub>SC</sub>	SPEED CONTROL SWITCH	-	PROVIDED BY M.C., INSTALLED BY E.C.
⊕ <sub>M</sub>	MANUAL MOTOR SWITCH	SIEMENS MMS	MOUNT AS REQUIRED
⊕ <sub>EM</sub>	EMERGENCY LIGHT	-	-
⊕ <sub>NL</sub>	EMERGENCY/NIGHT LIGHT	-	-
⊕	RECEPTACLE	HUBBELL HBL5352x	-
⊕ <sub>DED</sub>	DEDICATED CIRCUIT RECEPTACLE	HUBBELL HBL5352x	-
⊕ <sub>GFI</sub>	GROUND FAULT RECEPTACLE	HUBBELL GFRST20X	SELF TESTING PER UL 943
⊕ <sub>WP GFI</sub>	GROUND FAULT, WEATHERPROOF RECEPT.	HUBBELL GFRWRST20X W/IN USE COVER	SELF TESTING PER UL 943
⊕ <sub>CLG</sub>	CEILING RECEPTACLE	-	-
⊕ <sub>USB</sub>	RECEPTACLE WITH USB PORTS	HUBBELL USB2#ACS1	USB TYPE "A" AND "C" PORTS
⊕ <sub>S</sub>	SPECIAL RECEPTACLE	-	-
⊕ <sub>D</sub>	DOUBLE DUPLEX RECEPTACLE	HUBBELL (2) HBL5352xLA	-
XX-YY	XX=PANEL YY=CIRCUIT IDENTIFIER	-	-
▽	DATA/PHONE OUTLET	-	DOUBLE GANG UNO

NOTES:  
1. STANDARD MOUNTING HEIGHTS OF DEVICES SHALL BE AS LISTED IN LEGEND. SPECIFIC MOUNTING HEIGHT OF A DEVICE MAY VARY AS NOTED ON PLANS.  
2. E.C. SHALL COORDINATE COLOR SELECTION OF DEVICES AND COVERPLATES WITH ARCHITECT, OWNER AND/OR G.C.  
3. PROVIDE EQUIPMENT SHOWN BY HUBBELL, PASS & SEYMOUR, COOPER WIRING DEVICES, OR EQUAL PRODUCT.

ABBREVIATIONS:

G.C.	GENERAL CONTRACTOR	AFG	ABOVE FINISHED GRADE
P.C.	PLUMBING CONTRACTOR	UNO	UNLESS NOTED OTHERWISE
M.C.	MECHANICAL CONTRACTOR	℄	CENTERLINE OF DEVICE
E.C.	ELECTRICAL CONTRACTOR	BOD	BOTTOM OF DEVICE
AFB	ABOVE FINISHED FLOOR	TOD	TOP OF DEVICE



COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

NW HARNETT FIRE STATION 3  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

21-0337

ELECTRICAL  
DETAILS

E4.1  
OF 5

COPYRIGHT © 2021 BOBBITT, INC. ALL RIGHTS RESERVED.

Bobbitt, Inc.  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbitt.com  
www.bobbitt.com



FIRE ALARM LEGEND			
SYM.	DESCRIPTION	REF. MODEL NO.	REMARKS
HS <sub>1</sub>	AUDIBLE/VISUAL NOTIFICATION APPLIANCE (177-cd) "HORN/STROBE" CEILING MOUNT - LOW FREQUENCY	-	CEILING MOUNTED
P	MANUAL ALARM PULL STATION	-	MOUNT TO D 48" AFF
S	AREA SMOKE DETECTOR	-	CEILING MOUNTED UNO
S <sub>CD</sub>	AREA SMOKE/CARBON MONOXIDE DETECTOR	-	CEILING MOUNTED UNO
R	INDIVIDUAL ADDRESSABLE RELAY MODULE	-	(2) FORM "C" CONTACTS
TS	FIRE SPRINKLER VALVE TAMPER SWITCH	-	(VERIFY QUANTITIES WITH FIRE SPRINKLER DRAWINGS)
FS	FIRE SPRINKLER WATER FLOW SWITCH	-	(VERIFY QUANTITIES WITH FIRE SPRINKLER DRAWINGS)
FACP	FIRE ALARM CONTROL PANEL	-	(SEE PLANS FOR LOCATION)
FA	FIRE ALARM ANNUNCIATOR	-	(SEE PLANS FOR LOCATION)
OB	OUTDOOR ALARM BELL	-	BELL POWERED FROM FACP OR WATER FLOW
PV	POST INDICATOR VALVE	-	(SEE PLANS FOR LOCATION)
SP	SURGE PROTECTION	-	-

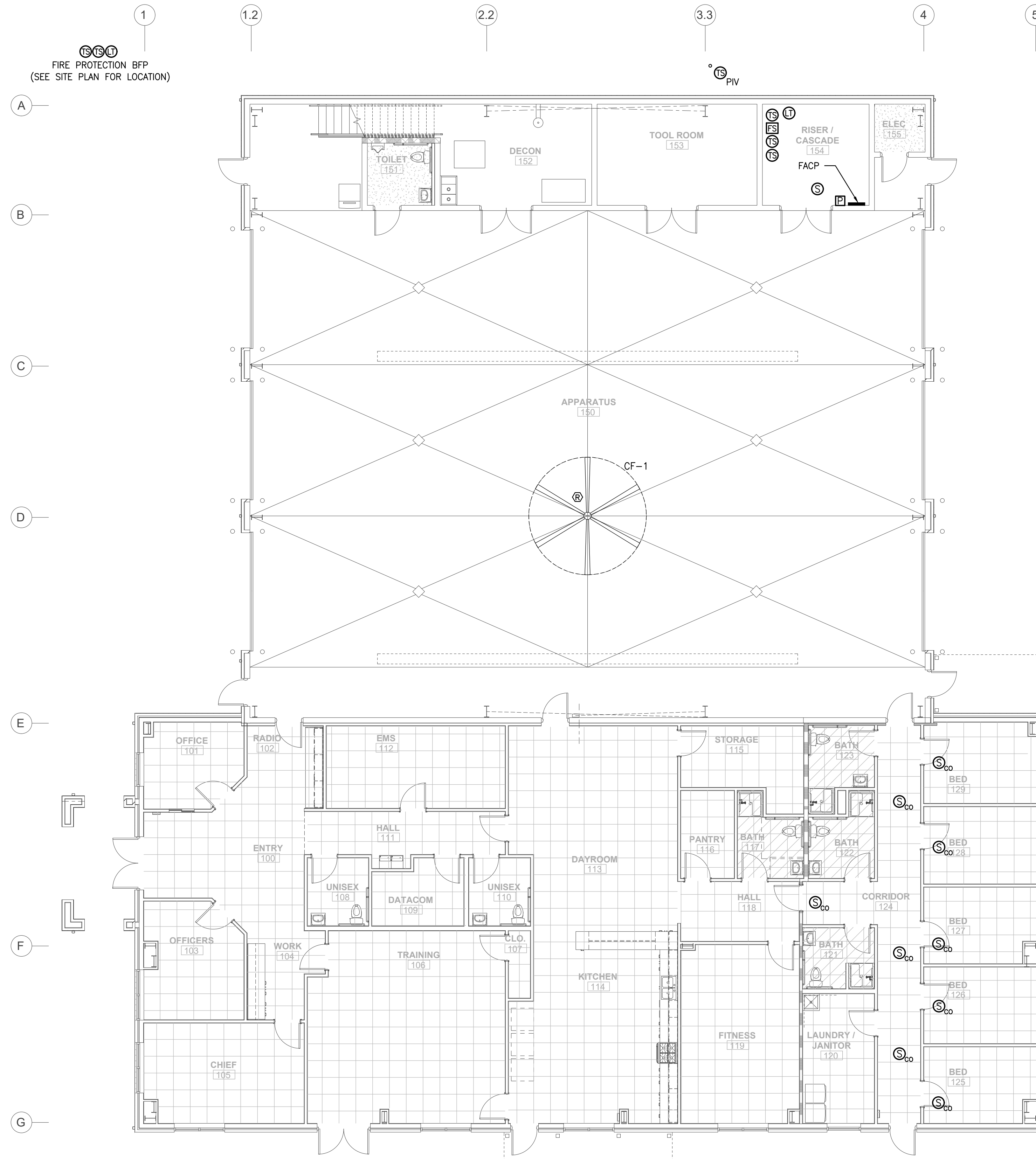
ABBREVIATIONS:	
G.C.	GENERAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR
AFF	ABOVE FINISHED FLOOR
UNO	UNLESS NOTED OTHERWISE
CL	CENTERLINE OF DEVICE
BOD	BOTTOM OF DEVICE
TOD	TOP OF DEVICE

**CODE DATA SUMMARY SHEET FOR FIRE ALARM**

<b>GENERAL REQUIREMENTS:</b>	<input type="checkbox"/> GENERAL ALARM ONLY	<input checked="" type="checkbox"/> SPRINKLER SYSTEM SUPERVISION ONLY
	<input type="checkbox"/> SPRINKLER AND GENERAL ALARM	
<b>SECONDARY POWER REQUIREMENTS:</b>		
VOICE ALARM:	<input type="checkbox"/> 15 MINUTE ALARM/24 HOUR STANDBY	
REMOTE:	<input checked="" type="checkbox"/> 5 MINUTE ALARM/24 HOUR STANDBY	
CENTRAL:	<input type="checkbox"/> 5 MINUTE ALARM/24 HOUR STANDBY	
PROPRIETARY:	<input type="checkbox"/> 5 MINUTE ALARM/24 HOUR STANDBY	
<b>PRIMARY SUPPLY:</b>	<input type="checkbox"/> LIGHT & POWER	<input type="checkbox"/> GENERATOR
<b>WIRING:</b>	<input type="checkbox"/> ELEVATOR NEC 725	<input type="checkbox"/> DUCT OR PLENUM NEC 300-22
	<input type="checkbox"/> POWER LIMITED	<input checked="" type="checkbox"/> NON-POWER LIMITED
<b>LIFE SAFETY CONTROLS:</b>		
SMOKE DDDR:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
SHAFT PRESSURIZATION:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
DUCT DETECTOR:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
DDDR RELEASE:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
ELEVATOR CAPTURE:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
DAMPERS/CONTROL:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
<b>VOICE ALARM SYSTEM:</b>		
PRE-RECORDED:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
LIVE:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
ENTIRE BUILDING:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
SELECTED SECTION OF BLDG:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
SURVIVABILITY REQUIREMENTS:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
2-WAY COMMUNICATION:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
<b>SMOKE DETECTOR SYSTEM:</b>		
CROSS-ZONED:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
ALARM VERIFICATION:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
APPROVED EQUIVALENT:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
<b>WIRING CLASS:</b>		
CLASS A SYSTEM:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
CLASS B SYSTEM:	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> N/A
CLASS N SYSTEM:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
CLASS X SYSTEM:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
<b>SPECIAL SYSTEMS:</b>		
FM 200:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
HOOD SYSTEMS:	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> N/A
PRE-ACTION:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
SPRAY BOOTH:	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> N/A
OTHER:	-	

**GENERAL NOTE:**

1. PROVIDE SLEEPING AREAS WITH LISTED MULTI-STATION SMOKE/CARBON MONOXIDE DETECTORS COMPLYING WITH UL 217. UNITS SHALL BE EQUIPPED WITH BATTERY BACKUP CONNECT TO ONE OF THE BEDROOM RECEPTACLE CIRCUITS. THIS SYSTEM IS INDEPENDENT OF THE SPRINKLER MONITORING SYSTEM.



1 FIRE ALARM DEVICE PLAN  
SCALE: 1/8" = 1'-0"



EMERGENCY BDA (BI-DIRECTIONAL AMPLIFIER) SYSTEM IS NOT PROVIDED

**FIRE RATING LEGEND**  
===== 1 - HR FIRE PARTITION

**BOBBITT**  
BOBBITT, INC.  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbitt.com  
www.bobbitt.com

**Entech ENGINEERING**  
INC. LIC. # C-1132  
4071 N. BERKELEY BLVD.  
DURHAM, NC 27705  
TEL: (919) 778-9088  
PROJECT MGR.: D. HALL  
PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

**NW HARNETT FIRE STATION 3**  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED

2/24/22

21-0337

FIRE ALARM  
PLANS

**FA1.1**  
OF 2

COPYRIGHT © 2021 BOBBITT, INC. ALL RIGHTS RESERVED.



**SPRINKLER MONITORING SPECIFICATIONS:**

**PART 1 - GENERAL**

- 1.1 SUMMARY**
  - A. PROVIDE A COMPLETE AND FUNCTIONAL SPRINKLER MONITORING SYSTEM INCLUDING BUT NOT LIMITED TO, MAIN FIRE ALARM PANEL, MANUAL STATIONS, DETECTORS, SIGNAL EQUIPMENT, CONTROLS, DEVICES, FIRE SPRINKLER INTERFACE DEVICES, WIRING, CONDUIT, SERVICE COMPONENTS AND DATA.
- 1.2 DEFINITIONS**
  - A. FACP: FIRE ALARM CONTROL PANEL.
  - B. LED: LIGHT-EMITTING DIODE.
  - C. DEFINITIONS IN NFPA 72 APPLY TO FIRE ALARM TERMS.
- 1.3 SYSTEM DESCRIPTION**
  - A. GENERAL: NON-CODED, ADDRESSABLE SYSTEM WITH MANUAL & AUTOMATIC ALARM INDICATION; AND HARD-WIRED FOR SIGNAL TRANSMISSION, USING SEPARATE INDIVIDUAL CIRCUITS FOR EACH ZONE OF ALARM INITIATION & NOTIFICATION APPLIANCES.

**PART 2 - PRODUCTS**

- 2.1 FUNCTIONAL SYSTEM DESCRIPTION**
  - A. CONTROL OF SYSTEM: BY SPRINKLER MONITORING SYSTEM (FACP).
  - B. ALL EQUIPMENT SHALL BE UL LISTED. FACP SHALL BE UL 862 9th ED. LISTED.
  - C. SYSTEM SUPERVISION: AUTOMATICALLY DETECT AND REPORT OPEN CIRCUITS, SHORTS, AND GROUNDS OF WIRING FOR INITIATING DEVICE, SIGNALING LINE, AND NOTIFICATION APPLIANCE CIRCUITS.
  - D. PRIORITY OF SIGNALS: AUTOMATIC ALARM RESPONSE FUNCTIONS RESULTING FROM AN ALARM SIGNAL FROM ONE ZONE OR DEVICE ARE NOT ALTERED BY SUBSEQUENT ALARM, SUPERVISORY, OR TROUBLE SIGNALS. AN ALARM SIGNAL IS THE HIGHEST PRIORITY. SUPERVISORY AND TROUBLE SIGNALS HAVE SECOND AND THIRD LEVEL PRIORITY. HIGHER PRIORITY SIGNALS TAKE PRECEDENCE OVER SIGNALS OF LOWER PRIORITY, EVEN WHEN THE LOWER PRIORITY CONDITION OCCURS FIRST. ANNUNCIATE AND DISPLAY ALL ALARM, SUPERVISORY, AND TROUBLE SIGNALS REGARDLESS OF PRIORITY OF ORDER RECEIVED.
  - E. NONINTERFERENCE: A SIGNAL ON ONE ZONE SHALL NOT PREVENT THE RECEIPT OF SIGNALS FROM OTHER ZONES.
  - F. SYSTEM RESET: ALL ZONES ARE MANUALLY RESET FROM THE FACP AFTER INITIATING DEVICES ARE RESTORED TO NORMAL.
  - G. TRANSMISSION TO REMOTE ALARM RECEIVING STATION: AUTOMATICALLY ROUTE ALARM, SUPERVISORY, AND TROUBLE SIGNALS TO A REMOTE ALARM STATION BY MEANS OF A CELLULAR NETWORK PER NFPA 72 SECTION 26.3.
  - H. SYSTEM ALARM CAPABILITY DURING CIRCUIT FAULT CONDITIONS: SYSTEM WIRING AND CIRCUIT ARRANGEMENT PREVENT ALARM CAPABILITY REDUCTION WHEN AND OPEN CIRCUIT, GROUND OR WIRE TO WIRE SHORT OCCURS, OF AND OPEN CIRCUIT AND A GROUND OCCUR AT THE SAME TIME IN AN INITIATING DEVICE CIRCUIT, SIGNAL LINE CIRCUIT, OR NOTIFICATION APPLIANCE CIRCUIT.
  - I. LOSS OF PRIMARY POWER AND THE FACP INITIATES A TROUBLE SIGNAL AT THE FACP. AN EMERGENCY POWER LIGHT IS ILLUMINATED AT BOTH LOCATIONS WHEN THE SYSTEM IS OPERATING ON THE SECONDARY POWER SUPPLY.
  - K. ALARM SILENCING, SYSTEM RESET & INDICATION: CONTROLLED BY SWITCHES AT THE FACP.
  - L. SYSTEM TROUBLE SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES OR ACTIONS:
    - 1. OPEN CIRCUITS, SHORTS AND GROUNDS OF WIRING FOR INITIATING DEVICE, SIGNALING LINE, AND NOTIFICATION-APPLIANCE CIRCUITS.
    - 2. OPENING, TAMPERING, OR REMOVAL OF ALARM INITIATING AND SUPERVISORY SIGNAL-INITIATING DEVICES.
    - 3. LOSS OF PRIMARY POWER AT THE FACP.
    - 4. GROUND OR A SINGLE BREAK IN FACP INTERNAL CIRCUITS.
    - 5. ABNORMAL AC VOLTAGE AT THE FACP.
    - 6. A BREAK IN STAND-BY BATTERY CIRCUITRY.
    - 7. FAILURE OF BATTERY CHARGING.
    - 8. ABNORMAL POSITION OF ANY SWITCH AT THE FACP.
    - 9. LOW-AIR-PRESSURE SWITCH OPERATION ON A DRY-PIPE OR PREACTION SPRINKLER SYSTEM.
  - M. SYSTEM TROUBLE AND SUPERVISORY SIGNAL ACTIONS:
    - 1. RING TROUBLE BELL AND ANNUNCIATE AT THE FACP.
    - 2. RECORD THE EVENT ON THE SYSTEM PRINTER.
    - 3. TRANSMISSION OF TROUBLE SIGNAL TO REMOTE ALARM RECEIVING STATION.
  - N. PRIMARY POWER
    - 1. CONNECTION TO THE LIGHT AND POWER SERVICE SHALL BE ON A DEDICATED BRANCH CIRCUIT. CIRCUIT DISCONNECTING MEANS SHALL HAVE A RED MARKING AND SHALL BE IDENTIFIED AS "FIRE ALARM CIRCUIT CONTROL". THE LOCATION OF CIRCUITING DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AT THE FIRE ALARM CONTROL UNIT.
    - 2. INSTALL SURGE PROTECTION ON NORMAL AC POWER FOR THE FACP. PROVIDE SURGE PROTECTORS RECOMMENDED BY FACP MANUFACTURER.
    - 3. SYSTEM TROUBLE SIGNAL INITIATION SHALL BE BY ONE OR MORE OF THE FOLLOWING DEVICES OR ACTIONS:
      - 1. OPEN CIRCUITS, SHORTS AND GROUNDS OF WIRING FOR INITIATING DEVICE, SIGNALING LINE, AND NOTIFICATION-APPLIANCE CIRCUITS.
      - 2. OPENING, TAMPERING, OR REMOVAL OF ALARM INITIATING AND SUPERVISORY SIGNAL-INITIATING DEVICES.
      - 3. LOSS OF PRIMARY POWER AT THE FACP.
      - 4. GROUND OR A SINGLE BREAK IN FACP INTERNAL CIRCUITS.
      - 5. ABNORMAL AC VOLTAGE AT THE FACP.
      - 6. A BREAK IN STAND-BY BATTERY CIRCUITRY.
      - 7. FAILURE OF BATTERY CHARGING.
      - 8. ABNORMAL POSITION OF ANY SWITCH AT THE FACP.
      - 9. FIRE-PUMP POWER FAILURE, INCLUDING A DEAD PHASE OR PHASE-REVERSAL CONDITION.
    - P. SECONDARY (STAND-BY) POWER
      - 1. THE SECONDARY SUPPLY SHALL AUTOMATICALLY SUPPLY THE ENERGY TO THE SYSTEM WITHIN 30 SECONDS.
      - 2. THE SECONDARY SUPPLY SHALL HAVE SUFFICIENT CAPACITY TO OPERATE FOR 24 HOURS WHEN SYSTEM IS FUNCTIONING IN A NON-ALARM CONDITION. AT THE END OF THAT PERIOD, THE SECONDARY SUPPLY SHALL BE CAPABLE OF OPERATING IN ALARM MODE FOR 5 MINUTES.
      - 3. FIRE ALARM SYSTEM INSTALLER SHALL CERTIFY CALCULATED CAPACITY TO DRIVE THE SYSTEM PER NFPA 72 ON FORM FOR RECORD OF COMPLETION.
    - Q. SHOP DRAWINGS SHALL BE PREPARED BY PERSONS WITH THE FOLLOWING QUALIFICATIONS:
      - 1.A. TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE ALARM SYSTEM DESIGN.
      - 1.B. FIRE ALARM CERTIFIED BY NICET, MINIMUM LEVEL III.
    - 2. SYSTEM OPERATION DESCRIPTION: DETAILED DESCRIPTION FOR THIS PROJECT, INCLUDING METHOD OF OPERATION AND SUPERVISION OF EACH TYPE OF CIRCUIT AND SEQUENCE OF OPERATIONS FOR MANUALLY AND AUTOMATICALLY INITIATED SYSTEM INPUTS AND OUTPUTS. MANUFACTURER'S STANDARD DESCRIPTION FOR GENERIC SYSTEMS ARE NOT ACCEPTABLE.
    - 3. DEVICE ADDRESS LIST: COORDINATE WITH FINAL SYSTEM PROGRAMMING.
    - 4. SYSTEM RISER DIAGRAM WITH DEVICE ADDRESSES, CONDUIT SIZES, AND CABLE AND WIRE TYPES AND SIZES.
    - 5. WIRING DIAGRAMS: POWER, SIGNAL, AND CONDUIT WIRING. INCLUDE DIAGRAMS FOR EQUIPMENT AND FOR SYSTEM WITH ALL TERMINALS AND INTERCONNECTIONS IDENTIFIED. SHOW WIRING COLOR CODE.
    - 6. BATTERIES: SIZE CALCULATIONS.
- 2.2 MANUAL PULL STATIONS**
  - A. DESCRIPTION: FABRICATED OF METAL OR PLASTIC AND FINISHED IN RED WITH MOLDED, RAISED LETTER OPERATING INSTRUCTIONS OF CONTRASTING COLOR.
- 2.3 SMOKE DETECTORS**
  - A. GENERAL: SHALL INCLUDE THE FOLLOWING FEATURES:
    - 1. OPERATING VOLTAGE: 24 VDC, NOMINAL
    - 2. SELF-RESTORING: DETECTORS DO NOT REQUIRE RESETING OR READJUSTMENT AFTER ACTIVATION TO RESTORE THEM TO NORMAL OPERATION.
    - 3. PLUG-IN ARRANGEMENT: DETECTOR AND ASSOCIATED ELECTRONIC COMPONENTS ARE MOUNTED IN A MODULE THAT CONNECTS IN A TAMPER-RESISTANT MANNER TO A FIXED BASE WITH A TWIST-LOCKING PLUG CONNECTION. SCREW TERMINALS ARE LOCATED IN THE FIXED BASE FOR SYSTEM CONNECTIONS.
    - 4. INTEGRAL VISUAL INDICATING LIGHT: LED BLINKS WHEN UNIT IS ADDRESSED AND LATCHES ON ALARM.
  - B. PHOTO ELECTRIC DETECTOR: INCLUDE THE FOLLOWING FEATURES:
    - 1. SELF-COMPENSATING FOR VARIATIONS IN ENVIRONMENTAL CONDITIONS.
    - 2. MAINTENANCE ALERT WARNING WHEN SMOKE DETECTOR DUST ACCUMULATION IS EXCESSIVE AND WHEN SENSITIVITY IS OUTSIDE ITS LISTED SENSITIVITY RANGE.
    - 3. DETECTOR SENSITIVITY TEST CAPABILITY AT THE FACP (NFPA 72)

**2.4 SURGE ARRESTORS**

- A. THE FOLLOWING PROTECTION AGAINST VOLTAGE TRANSIENTS AND SURGES MUST BE PROVIDED BY THE FIRE ALARM EQUIPMENT SUPPLIER, AND INSTALLED BY THE ELECTRICAL CONTRACTOR:
  - 1. ON AC INFEED: A FEED-THROUGH (NOT A SHUNT-TYPE) BRANCH CIRCUIT TRANSIENT ARRESTOR SUCH AS THE EPI HWH-120, LEVITON OEM-120EFT, NORTHERN TECHNOLOGIES TCS-HW, TRANSECTOR ACP100BWN3, OR ANY EQUIVALENT UL LISTED DEVICE SUBMITTED TO AND APPROVED BY THE ELECTRICAL DESIGN ENGINEER. INSTALL SUPPRESSOR IN A LISTED ENCLOSURE NEAR THE ELECTRICAL PANELBOARD, AND TRIM EXCESS LEAD LENGTHS. WIND SMALL COIL IN THE BRANCH CIRCUIT CONDUCTOR JUST DOWNSTREAM OF THE SUPPRESSOR CONNECTION. COIL SHALL BE 5 TO 10 TURNS, ABOUT 1" DIAMETER, AND SECURELY TIE-WRAPPED.
  - 2. ON DC CIRCUITS EXTENDING BEYOND BUILDING: PROVIDE ADJACENT TO FACP, AND ALSO NEAR POINT OF EXIT FROM MAIN BUILDING AND ENTRY TO OUTLYING BUILDING. PROVIDE "PI" TYPE FILTER ON EACH LEG CONSISTING OF A PRIMARY ARRESTOR, SERIES IMPEDANCE, AND A FAST ACTING SECONDARY ARRESTOR THAT CLAMPS AT 30-40VDC. ACCEPTABLE MODELS INCLUDE: INNOVATIVE TECHNOLOGY D2S33-2ML, SIMPLEX 2081-9027, DITEK DTKXLV, OR LEVITON 3824-OWM. DEVICES USING ONLY MOV ACTIVE ELEMENTS ARE NOT ACCEPTABLE

**2.5 WIRE**

- A. NON-POWER-LIMITED CIRCUITS: SOLID COPPER CONDUCTORS WITH 600V RATED, 75 DEG C, COLOR CODED INSULATION PER NFPA 72
  - 1. LOW VOLTAGE CIRCUITS: #16 AWG, MINIMUM.
  - 2. LINE VOLTAGE CIRCUITS: #12 AWG, MINIMUM.
- B. POWER-LIMITED CIRCUITS: NFPA 70, TYPES FPL, FPLR OR FPLP AS RECOMMENDED BY MANUFACTURER.

**PART 3 - EXECUTION**

**3.1 EQUIPMENT INSTALLATION**

- A. CONNECT THE FACP FROM A DEDICATED BREAKER WITH LOCKING PROVISIONS TO PREVENT ACCIDENTAL DE-ENERGIZING OF CIRCUIT.
- B. MANUAL PULL STATIONS: MOUNT SEMI FLUSH IN RECESSED BACK BOXES.
- C. CEILING MOUNTED SMOKE DETECTORS: NOT LESS THAN 4 INCHES FROM A SIDEWALL TO THE NEAR EDGE. FOR EXPOSED SOLID JOIST CONSTRUCTION, MOUNT DETECTORS ON THE BOTTOM OF JOISTS.
- D. FACP: FIRE ALARM CONTROL PANEL SHALL BE SURFACE MOUNTED WITH TOP OF CABINET NOT MORE THAN 72 INCHES FROM FINISHED FLOOR.
- E. TO MINIMIZE WIRING FAULT IMPACT, ISOLATION MODULES SHALL BE PROVIDED IN ALL THE LOCATIONS LISTED BELOW. IF CEILING HEIGHT  $\leq$  10 FEET, ISOLATOR BASE TYPE INITIATING DEVICES ARE PERMITTED TO BE USED TO SATISFY ANY OR ALL OF THE FOLLOWING:
  - 1. IN OR IMMEDIATELY ADJACENT TO THE FACU, AT EACH END OF THE ADDRESSABLE LOOP. THESE TWO ISOLATORS MUST BE IN THE SAME ROOM AS THE FACU AND WITHIN 15 FEET.
  - 2. AFTER EACH 25 INITIATING DEVICES AND CONTROL POINTS ON THE ADDRESSABLE LOOP.
  - 3. FOR LOOPS WITH LESS THAN 25 DEVICES AND CONTROL POINTS, INSTALL AN ISOLATOR AT THE APPROXIMATE MIDDLE OF THE LOOP.
  - 4. NEAR THE POINT ANY ADDRESSABLE CIRCUIT EXTENDS OUTSIDE THE BUILDING, EXCEPT FOR THOSE ATTACHED TO THE BUILDING EXTERIOR WALLS.

**3.2 WIRING INSTALLATION**

- A. WIRING METHOD: INSTALL NON-POWER-LIMITED WIRING IN METAL RACEWAY AND PER NFPA 72, LATEST EDITION. CONCEAL RACEWAY EXCEPT IN UNFINISHED SPACES AND AS INDICATED. INSTALL POWER-LIMITED WIRING IN METAL RACEWAY AS REQUIRED BY AUTHORITY HAVING LOCAL JURISDICTION, OTHERWISE PROVIDE PLENUM OR NON-PLENUM RATED CABLE AS REQUIRED BY CONDITIONS OF INSTALLATION, CONCEALED IN FINISHED SPACES.
- B. WIRING WITHIN ENCLOSURES: SEPARATE POWER LIMITED AND NON-POWER LIMITED CONDUCTORS AS RECOMMENDED BY THE MANUFACTURER. INSTALL CONDUCTORS PARALLEL WITH AND AT RIGHT ANGLES TO SIDES AND BACK OF ENCLOSURE. BUNDLE, LACE, AND TRAIN CONDUCTORS TO TERMINAL POINTS WITH NO EXCESS. CONNECT CONDUCTORS THAT ARE TERMINATED, SPICED OR INTERRUPTED IN ANY ENCLOSURE ASSOCIATED WITH THE FIRE ALARM SYSTEM TO TERMINAL BLOCKS. MARK EACH TERMINAL ACCORDING TO THE SYSTEMS WIRING DIAGRAMS. MAKE ALL CONNECTIONS WITH APPROVED CRIMP-ON TERMINAL SPADE LUGS, PRESSURE TYPE TERMINAL BLOCKS, OR PLUG CONNECTORS.
- C. CABLE TAPS: USE NUMBERED STRIPS IN JUNCTION, PULL AND OUTLET BOXES, CABINETS, OR EQUIPMENT ENCLOSURES WHERE CIRCUIT CONNECTIONS ARE MADE. CLASS "A" SIGNALING LINE CIRCUITS SHALL NOT CONTAIN "T-TAPS".
- D. THERE SHALL BE NO SPLICES IN THE SYSTEM OTHER THAN AT DEVICE TERMINAL BLOCKS, OR ON TERMINAL BLOCKS IN CABINETS. WIRE NUTS AND CRIMP SPLICES WILL NOT BE PERMITTED. PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY ALL CONNECTIONS AT THE FACU AND OTHER CONTROL EQUIPMENT, AT POWER SUPPLIES, AND IN TERMINAL CABINETS.
- E. COLOR CODING: INITIATING CIRCUITS, GENERAL RED(+)/WHITE(-) INITIATING CIRCUITS, SMOKE ONLY VIOLET(+)/GRAY(-), ALARM INDICATING APPLIANCE CIRCUITS BLUE(+)/BLACK(-), AHU SHUTDOWN CIRCUITS YELLOW(+)/BROWN(-)

**3.3 IDENTIFICATION**

- A. IDENTIFY SYSTEM COMPONENTS, WIRING, CABLING AND TERMINALS ACCORDING TO REQUIREMENTS OF NFPA 72, LATEST EDITION.
- B. INSTALL INSTRUCTIONS, FRAMED, IN A LOCATION ADJACENT TO AND VISIBLE FROM THE FACP.
- C. PAINT POWER SUPPLIES DISCONNECT SWITCH OR BREAKER RED AND LABEL "FIRE ALARM".
- D. ALL JUNCTION BOX COVERS SHALL BE PAINTED RED.
- E. PROVIDE AN ENGRAVED LABEL AT EACH FIRE ALARM SYSTEM CONTROL UNIT, SYSTEM SUB-PANEL, SUPPLEMENTARY NOTIFICATION APPLIANCE PANEL, ETC., IDENTIFYING ITS 120VAC POWER SOURCE AS FOLLOWS: PANELBOARD LOCATION, PANELBOARD IDENTIFICATION, AND BRANCH CIRCUIT NUMBER.

**3.4 GROUNDING**

- A. GROUND CABLE SHIELDS AND EQUIPMENT ACCORDING TO SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS TO ELIMINATE SHOCK HAZARD AND TO MINIMIZE, GROUND LOOPS, COMMON MODE RETURNS, NOISE TRANSMISSION, CROSS TALK AND OTHER IMPAIRMENTS. PROVIDE MAXIMUM 5- OHM GROUND AT FACP LOCATION. MEASURE RECORD AND REPORT GROUND RESISTANCE.
- B. SIGNAL GROUND TERMINAL: LOCATE AT MAIN EQUIPMENT RACK OR ISOLATE FROM POWER SYSTEM AND EQUIPMENT GROUNDING.
- C. INSTALL GROUNDING ELECTRODES OF TYPE, SIZE, LOCATION, & QUANTITY AS INDICATED. COMPLY WITH INSTALLATION REQUIREMENTS FROM MANUFACTURER & AS REQUIRED BY NFPA 70 & NFPA 72 LATEST EDITION.

**3.5 FIELD QUALITY CONTROL**

- A. MANUFACTURER FIELD SERVICE: ENGAGE A FACTORY AUTHORIZED SERVICE REPRESENTATIVE TO INSPECT FIELD ASSEMBLED COMPONENTS & CONNECTIONS AND TO SUPERVISE PRE-TESTING, TESTING AND ADJUSTMENT OF THE SYSTEM. REPORT RESULTS IN WRITING.
- B. PRE-TESTING: AFTER INSTALLATION, ALIGN, ADJUST, AND BALANCE THE SYSTEM AND PERFORM COMPLETE PRE-TESTING. DETERMINE THROUGH PRE-TESTING, THE COMPLIANCE OF THE SYSTEM WITH REQUIREMENTS OF CONTRACT DOCUMENTS. CORRECT DEFICIENCIES OBSERVED IN PRE-TESTING. REPLACE MALFUNCTIONING OR DAMAGED ITEMS WITH NEW DEVICES, AND RETEST UNTIL SATISFACTORY PERFORMANCE IS ACHIEVED. PREPARE FORMS FOR SYSTEMATIC RECORDING OF ACCEPTANCE TEST
- C. REPORT OF PRE-TESTING: AFTER PRE-TESTING IS COMPLETE, PROVIDE A LETTER CERTIFYING THE INSTALLATION IS COMPLETE AND FULLY OPERABLE, INCLUDING NAMES AND TITLES OF WITNESSES TO PRELIMINARY TESTS.
- D. FINAL TEST NOTICE: PROVIDE MINIMUM OF 10 DAY'S NOTICE IN WRITING WHEN THE SYSTEM IS READY FOR FINAL ACCEPTANCE TESTING.
- E. MINIMUM SYSTEM TESTS: TEST THE SYSTEM ACCORDING TO PROCEDURES OUTLINED IN NFPA 72, LATEST EDITION. MINIMUM REQUIRED TESTS ARE AS FOLLOWS:
  - 1. VERIFY ABSENCE OF UNWANTED VOLTAGES BETWEEN CIRCUIT CONDUCTORS AND GROUND.
  - 2. TEST ALL CONDUCTORS FOR SHORT CIRCUITS USING AND INSULATION TESTING DEVICE.
  - 3. WITH EACH CIRCUIT PAIR, SHORT AT THE FAR END OF THE CIRCUIT AND MEASURE THE CIRCUIT RESISTANCE WITH AN OHMMETER. RECORD THE CIRCUIT RESISTANCE OF EACH CIRCUIT ON THE RECORD DRAWINGS.
  - 4. VERIFY THAT THE CONTROL UNIT IS IN THE NORMAL CONDITION AS DETAILED IN THE MANUFACTURER'S OPERATION AND MAINTENANCE MANUAL.

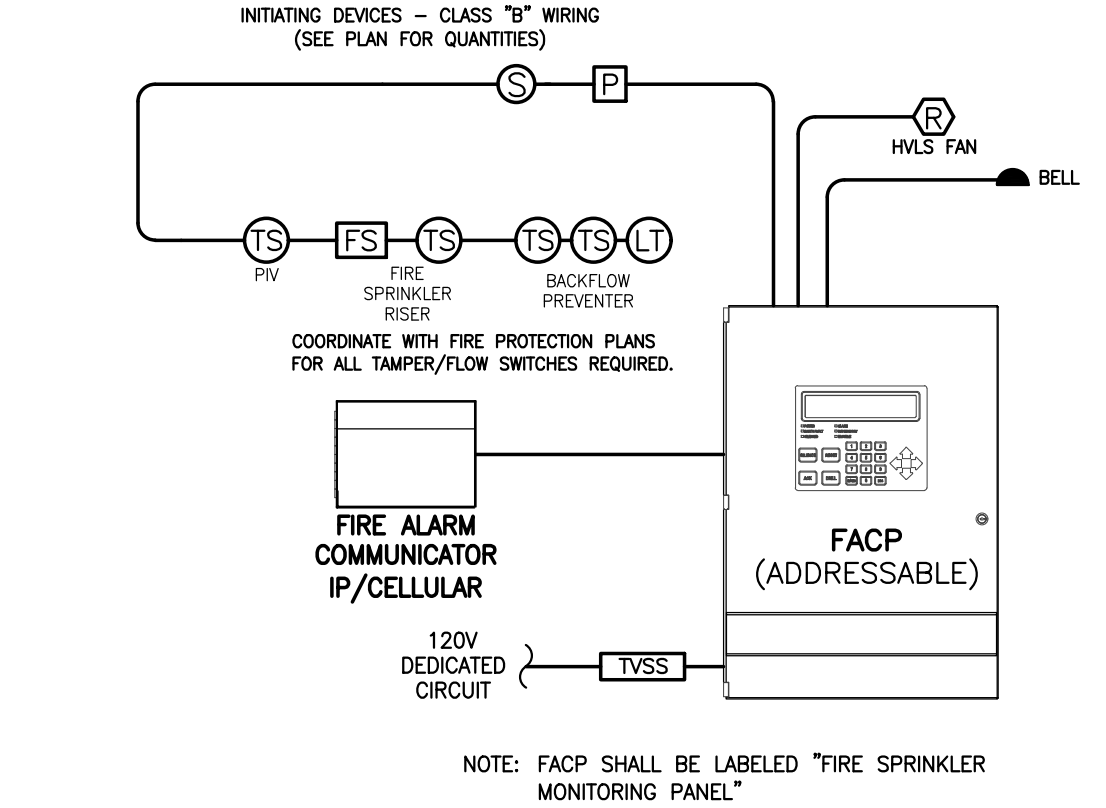
- 5. TEST INITIATING AND INDICATING CIRCUITS FOR PROPER SIGNAL TRANSMISSION UNDER OPEN CIRCUIT CONDITIONS. ONE CONNECTION EACH SHOULD BE OPENED AT NOT LESS THAN 10 PERCENT OF INITIATING AND INDICATING DEVICES. OBSERVE PROPER SIGNAL TRANSMISSION ACCORDING TO CLASS OF WIRING USED.
  - 6. TEST EACH INITIATING AND INDICATING DEVICE FOR ALARM OPERATION AND PROPER RESPONSE AT THE CONTROL UNIT. TEST SMOKE DETECTORS WITH ACTUAL PRODUCTS OF COMBUSTION.
  - 7. TEST THE SYSTEM FOR ALL SPECIFIED FUNCTIONS ACCORDING TO THE APPROVED OPERATION AND MAINTENANCE MANUAL. SYSTEMATICALLY INITIATE SPECIFIED FUNCTIONAL PERFORMANCE ITEMS AT EACH STATION, INCLUDING MAKING ALL POSSIBLE ALARM AND MONITORING INDICATIONS AND USING ALL COMMUNICATIONS OPTIONS. FOR EACH ITEM, OBSERVE RELATED PERFORMANCE AT ALL DEVICES REQUIRED TO BE AFFECTED BY THE ITEM UNDER ALL SYSTEM SEQUENCES. OBSERVE INDICATING LIGHTS, DISPLAYS AND SIGNAL TONES. OBSERVE ALL VOICE AUDIO FOR TONE, CLARITY, QUALITY, FREEDOM FROM NOISE AND DISTORTION, AND PROPER VOLUME LEVEL.
  - 8. TEST BOTH PRIMARY AND SECONDARY POWER: VERIFY BY TEST THAT THE SECONDARY POWER SYSTEM IS CAPABLE OF OPERATING THE SYSTEM FOR THE PERIOD AND THE MANNER SPECIFIED.
  - F. RETESTING: CORRECT DEFICIENCIES INDICATED BY TESTS AND COMPLETELY RETEST WORK AFFECTED BY SUCH DEFICIENCIES. VERIFY BY THE SYSTEM TEST THAT THE TOTAL SYSTEM MEETS SPECIFICATIONS AND COMPLIES WITH APPLICABLE STANDARDS.
  - G. REPORT OF TESTS AND INSPECTIONS: PROVIDE A WRITTEN RECORD OF INSPECTIONS, TESTS, AND DETAILED TEST RESULTS IN THE FORM OF A TEST. SUBMIT LOG ON SATISFACTORY COMPLETION OF TESTS.
  - H. TAG ALL EQUIPMENT, STATIONS AND OTHER COMPONENTS AT WHICH TESTS HAVE BEEN SATISFACTORILY COMPLETED.
  - I. BEFORE REQUESTING FINAL APPROVAL OF INSTALLATION, SUBMIT A WRITTEN STATEMENT USING FORM FOR RECORD OF COMPLETION IN NFPA 72.
- 3.6 CLEANING AND ADJUSTING**
- A. CLEANING: REMOVE PAINT SPLATTERS AND OTHER SPOTS, DIRT, AND DEBRIS. TOUCH UP SCRATCHES AND MARRED FINISH TO MATCH ORIGINAL FINISH. CLEAN UNIT INTERNALLY USING METHODS AND MATERIALS RECOMMENDED BY MANUFACTURER.

**FIRE ALARM NOTES:**

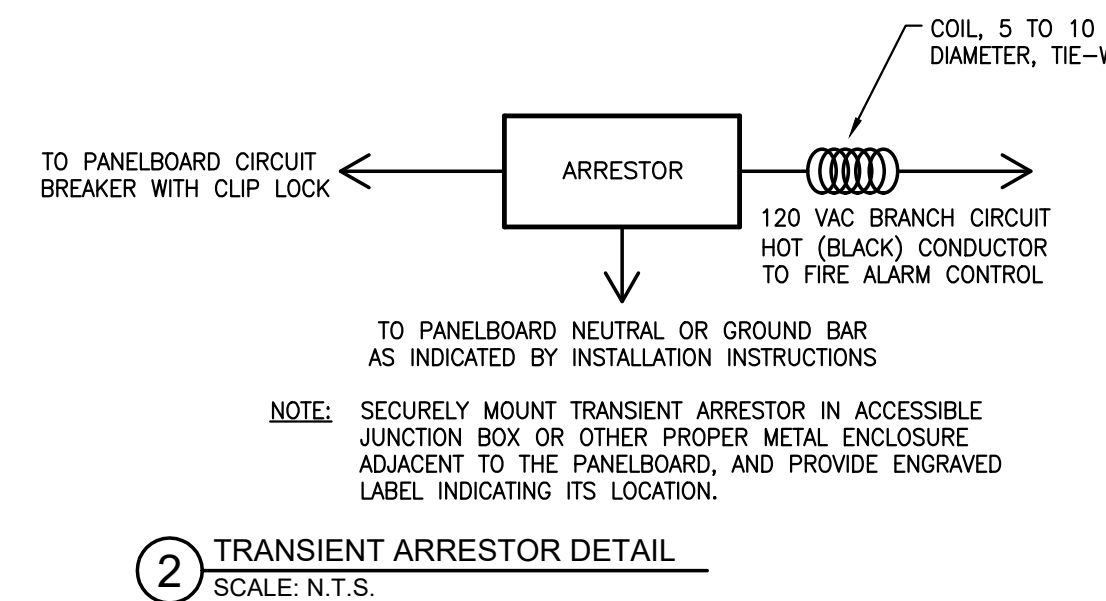
- 1. FIRE ALARM PLANS ARE INTENDED TO PROVIDE INFORMATION FOR INSTALLATION OF A COMPLETE SYSTEM. PROVIDE ALL ESSENTIAL LABOR, MATERIALS & DEVICES REQUIRED TO PRODUCE A QUALITY END PRODUCT.
- 2. FIRE ALARM CONTRACTOR SHALL REVIEW & BECOME FAMILIAR WITH THE WORK OF ALL TRADES FOR PURPOSES OF COORDINATION AND ROUTING. CONTRACTOR SHALL PROVIDE REQUIRED PLANNING, COORDINATION AND SEQUENCING OF FIRE ALARM INSTALLATION WITH BUILDING COMPONENTS AND OTHER TRADES.
- 3. ALL WORK SHALL COMPLY WITH THE LOCAL FIRE CODE, THE 2017 NATIONAL ELECTRICAL CODE (NEC) AND 2013 NFPA 72. WORKMANSHIP SHALL MEET OR EXCEED INDUSTRY STANDARDS.
- 4. PROTECT ALL NEW MATERIALS FROM THE WEATHER IN STORAGE TRAILERS OR PROVIDE SUITABLE COVERING.
- 5. FIRE ALARM CONTRACTOR SHALL PROVIDE BATTERY CALCULATIONS VERIFYING THAT SECONDARY SUPPLY HAS SUFFICIENT CAPACITY TO OPERATE FOR 24 HOURS WHEN SYSTEM IS FUNCTIONING IN A NON-ALARM CONDITION. AT THE END OF THAT PERIOD, THE SECONDARY SUPPLY SHALL BE CAPABLE OF OPERATING IN ALARM MODE FOR 5 MINUTES. FIRE ALARM INSTALLER SHALL CERTIFY CALCULATED CAPACITY TO DRIVE THE SYSTEM PER NFPA 72 ON FORM FOR RECORD OF COMPLETION.
- 6. FIRE ALARM CONTRACTOR SHALL PROVIDE A DETAILED RISER DIAGRAM SHOWING EACH DEVICE & SYSTEM FUNCTION.
- 7. ALL WIRING, DEVICES AND OTHER LIKE MATERIALS SHALL BE UL LISTED & LABELED.
- 8. PER NFPA 72 - 10.6.5.2.1, THE LOCATION OF THE DEDICATED BRANCH CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED ON THE CONTROL UNIT. SYSTEM CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED AS TO ITS PURPOSE SUCH AS "FIRE ALARM CIRCUIT" OR "EMERGENCY COMMUNICATIONS" PER 10.6.5.2.2. THE DISCONNECT SHALL HAVE A RED MARKING AND PROVIDED WITH A LISTED BREAKER LOCKING DEVICE PER 10.6.5.2.3. MARKING SHALL NOT OBSCURE MANUFACTURES MARKINGS.
- 9. SPRINKLER VALVE SUPERVISORY SWITCH: SUPERVISORY SWITCH MECHANISMS SHALL BE CONTAINED IN A WEATHERPROOF HOUSINGS THAT SHALL PROVIDE A 3/4 INCH TAPPED CONDUIT ENTRANCE AND SHALL INCORPORATE THE NECESSARY FACILITIES FOR ATTACHMENT TO THE VALVES. SWITCH HOUSING SHALL BE FINISHED IN RED BAKED ENAMEL. MOUNTING: MOUNT SWITCH SO AS NOT TO INTERFERE WITH THE NORMAL OPERATION OF THE VALVE AND ADJUST TO OPERATE WITHIN TWO REVOLUTIONS TOWARD THE CLOSED POSITION OF THE VALVE CONTROL, OR WHEN THE STEM HAS MOVED NO MORE THAN ONE-FIFTH OF THE DISTANCE FROM ITS NORMAL POSITION.
- 10. SPRINKLER SUPERVISORY MONITORING OF FLOW SWITCHES, TAMPER SWITCHES, AND SIMILAR FUNCTIONS SHALL BE ACCOMPLISHED WITH A SEPARATE SYSTEM ADDRESS FOR EACH ACTIVITY MONITORED
- 11. CONDUIT SHALL BE RED EMT WITH COMPRESSION TYPE FITTINGS WHERE EXPOSED OR AS REQUIRED BY LOCAL AUTHORITY HAVING JURISDICTION. IMC OR RGS SHALL BE USED IN ANY OUTDOOR LOCATION.
- 9. FIRE ALARM CONTRACTOR SHALL PROVIDE A PROJECT SPECIFIC RISER DIAGRAM WITH DEVICE ADDRESSES AT ANNUNCIATOR AND MAIN FACP LOCATIONS. PROVIDE FRAMED OPERATING INSTRUCTIONS AT MAIN FACP. INSTALL FRAMED INSTRUCTIONS IN A LOCATION VISIBLE FROM FIRE-ALARM CONTROL UNIT. PROVIDE FLOOR PLANS WITH DEVICE NUMBERS WITH A SEPARATE SHEET PROVIDED FOR EACH FLOOR. PLANS SHALL BE REDUCED IN SIZE FROM ENGINEERING PLANS IN ORDER TO FIT ON 11 x 14 SHEETS PER FLOOR. ALL DEVICE ADDRESSES SHALL BE CLEARLY LABELED ON PLANS. INDICATE LOCATIONS OF ALL CABINETS, MODULES AND END OF LINE DEVICES. SHEETS SHALL BE LAMINATED. PROVIDE LEGEND FOR SYMBOLS. PLANS SHALL INCLUDE THE FOLLOWING: NAME OF BUILDING OR BUSINESS, ADDRESS OF BUILDING OR BUSINESS, NORTH ARROW, FIRE ALARM SYMBOL LEGEND, AND DATE WHEN PLANS WERE INSTALLED.
- 10. AUDIBLE APPLIANCES PROVIDED FOR SLEEPING AREAS SHALL PRODUCE A LOW FREQUENCY ALARM SIGNAL THAT IS A SQUARE WAVE, OR EQUAL, AND THE WAVE SHALL HAVE A FUNDAMENTAL FREQUENCY OF 520HZ.
- 11. THE TECHNICIANS WHO MAKE CONNECTIONS TO (OR PERFORM ANY PROGRAMMING FOR) THE FIRE ALARM SYSTEM ARE REQUIRED TO BE TRAINED AND INDIVIDUALLY CERTIFIED BY THE MANUFACTURER, FOR THE CONTROL PANEL MODEL & SERIES BEING INSTALLED. THIS TRAINING AND CERTIFICATION MUST HAVE OCCURRED WITHIN THE MOST RECENT 24 MONTHS.
- 12. AT THE CONCLUSION OF THIS PROJECT, THE FIRE ALARM SYSTEM WILL BE TESTED AND CERTIFIED IN ACCORDANCE WITH THE 2013 EDITION OF NFPA 72.
- 13. GUARANTEE ALL EQUIPMENT, MATERIALS AND INSTALLATION FREE OF DEFECTS FOR A PERIOD OF 1-YEAR AFTER RECEIVING CERTIFICATE OF OCCUPANCY.

**SPRINKLER MONITORING SYSTEM INPUT/OUTPUT MATRIX**

	SYSTEM OUTPUTS																		
	FACP ANNUNCIATION				NOTIFICATION				REQUIRED SAFETY CONTROL										
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1 SPRINKLER MONITORING SYSTEM AC POWER FAILURE			●	●															
2 SPRINKLER MONITORING SYSTEM LOW BATTERY						●	●												
3 OPEN CIRCUIT								●	●										
4 GROUND FAULT										●	●								
5 NOTIFICATION APPLIANCE CIRCUIT SHORT												●	●						
6 AREA SMOKE DETECTORS	●	●												●					
7 SPRINKLER TAMPER SWITCH																			
8 SPRINKLER WATER FLOW IN BUILDING	●	●												●	●				
9 TEMPERATURE SWITCH				●	●														



① FIRE SPRINKLER MONITORING RISER SCALE: N.T.S.



② TRANSIENT ARRESTOR DETAIL SCALE: N.T.S.



③ FIRE SPRINKLER MONITORING PANEL LABEL DETAIL SCALE: N.T.S.

Bobbitt, Inc  
600 Germantown Road  
Raleigh, NC 27607  
(919) 851-1980  
Fax: (919) 851-1982  
design@bobbitt.com  
www.bobbitt.com

# BOBBITT

Entech Engineering  
1074 N. BERKELEY BLVD.  
CARRIEDBORO, NC 27513  
TEL: (919) 778-9088  
PROJECT MGR.: D. HAHM  
PROJECT NO.: 22104E

COORDINATOR:  
B. GRIFFITH

DRAWN BY:  
DEH

**NW HARNETT FIRE STATION 3**  
US 401  
HARNETT COUNTY, NORTH CAROLINA

24 x 36  
AS NOTED  
2/24/22  
21-0337  
FIRE ALARM  
DETAILS

# FA2.1

OF 2



# GENERAL NOTES:

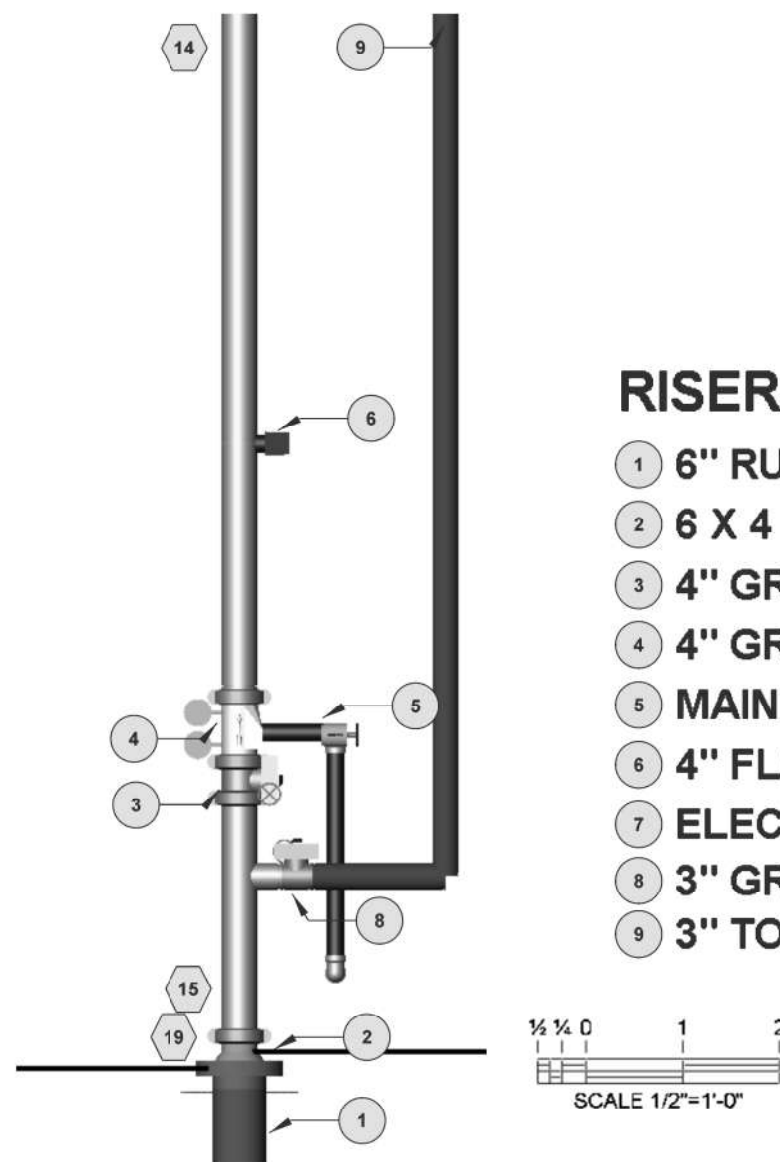
- MATERIALS AND INSTALLATION SHALL COMPLY WITH APPLICABLE NFPA CODES (NFPA 13 2013 EDITION), STATE BUILDING CODE, LOCAL AUTHORITY HAVING JURISDICTION, AND INSURANCE UNDERWRITER'S REQUIREMENTS.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW, UL LISTED FOR THE INTENDED USE AND SHALL BE INSTALLED IN FULL COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.
- ALL NEW SPRINKLER PIPE 1" AND SMALLER IS SCHEDULE-40 BLACK STEEL WITH THREADED ENDS AND FITTINGS. ALL NEW SPRINKLER PIPE 1 1/2" AND LARGER IS SCHEDULE-10 BLACK STEEL WITH GROOVED ENDS AND FITTINGS.
- SPRINKLER HEAD SPACING IS BASED ON THE NFPA STANDARDS FOR LIGHT HAZARD OCCUPANCIES (OFFICE) ALLOWING A MAXIMUM HEAD SPACING OF 225 S.F. PER HEAD.
- SPRINKLER HEAD SPACING IS BASED ON THE NFPA STANDARDS FOR ORDINARY GROUP I OCCUPANCIES (APPARATUS/KITCHEN) ALLOWING A MAXIMUM HEAD SPACING OF 130 S.F. PER HEAD.
- LOCATIONS OF PIPING AS SHOWN ON THE DRAWINGS ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD.
- THE WATER TEST INFORMATION HAS BEEN PROVIDED BY EPM DATED 12/1/2021 INDICATES THE FOLLOWING...

STATIC: 50.8 PSI  
 RESIDUAL: 49.3 PSI  
 FLOW: 1454 GPM

## SYMBOLS:

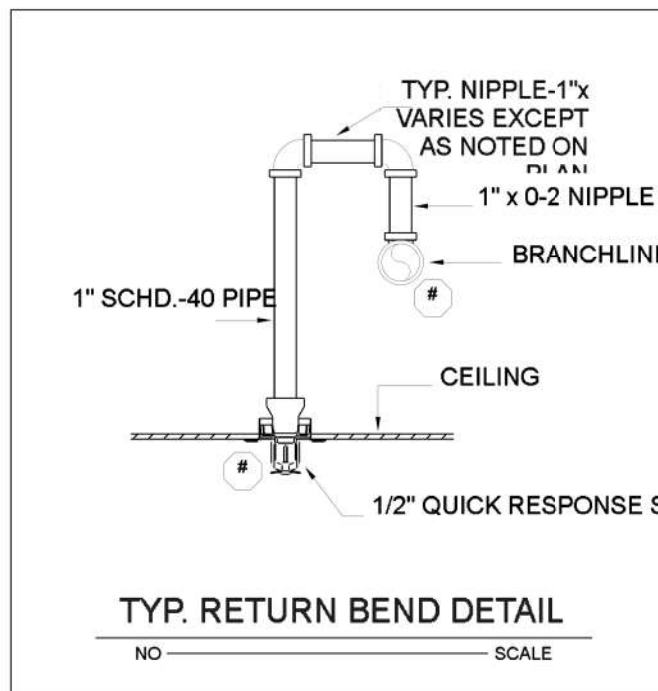
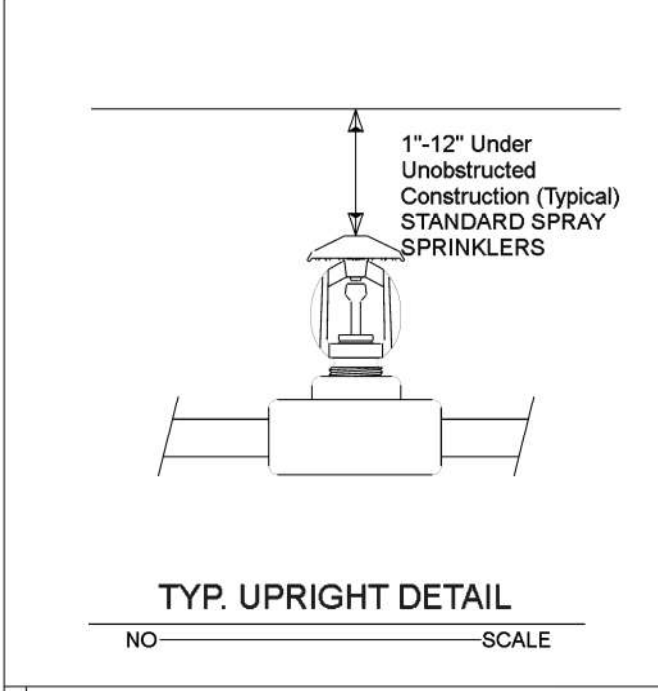
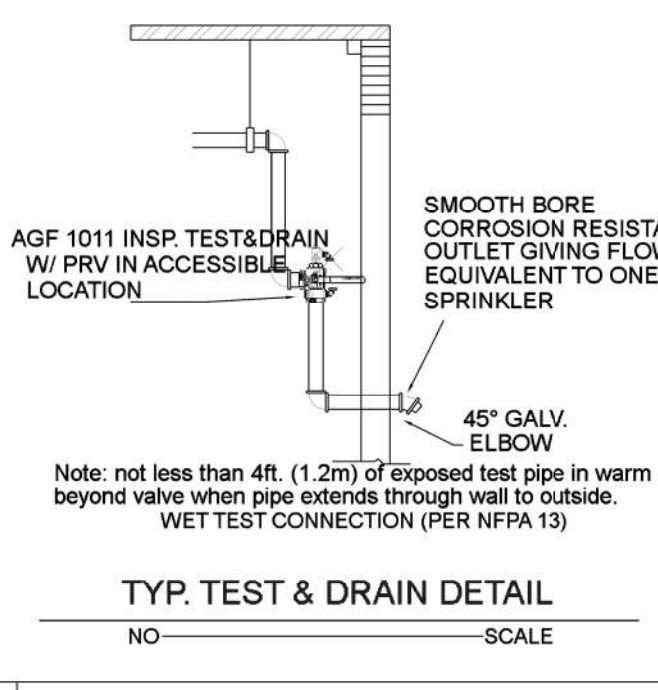
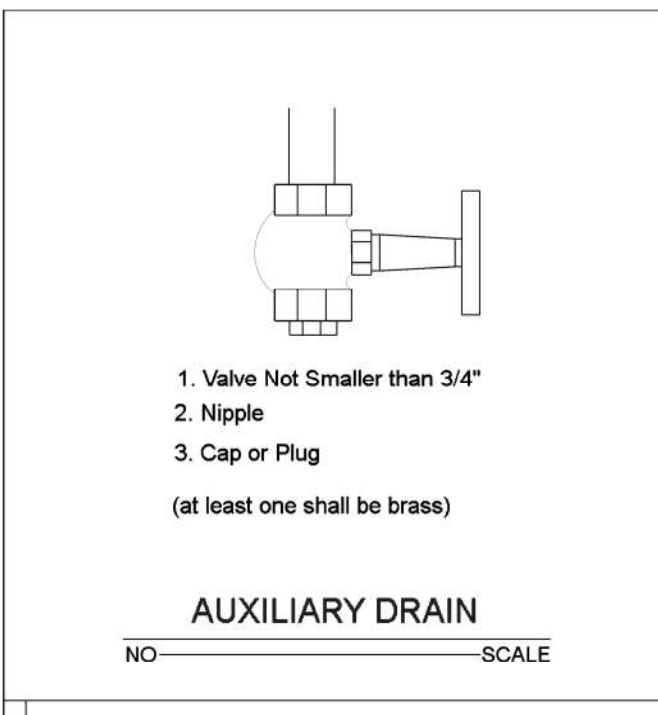
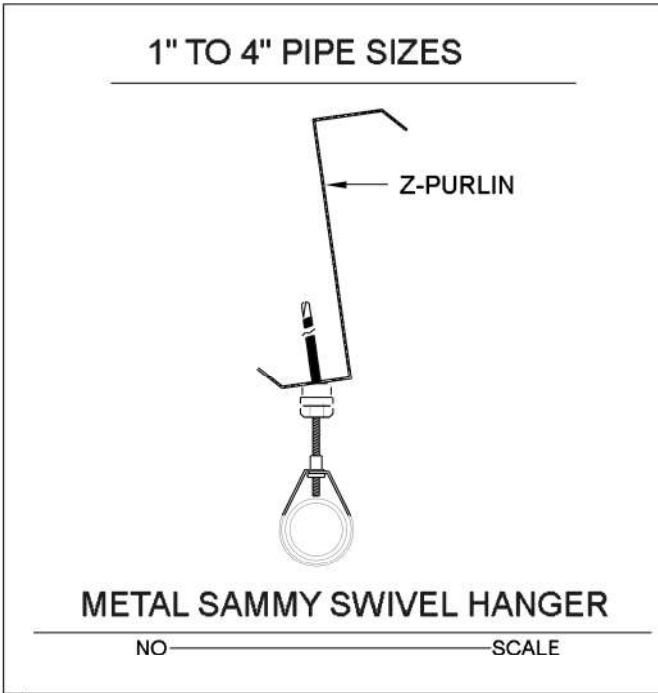
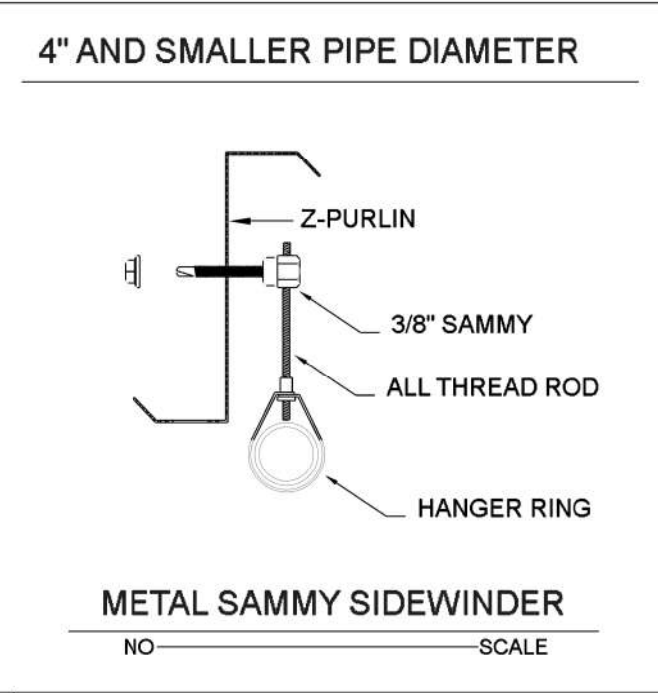
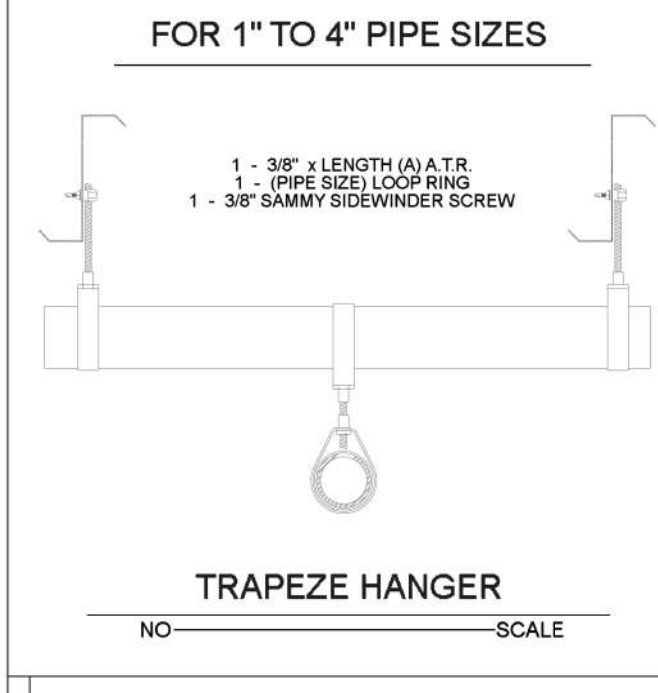
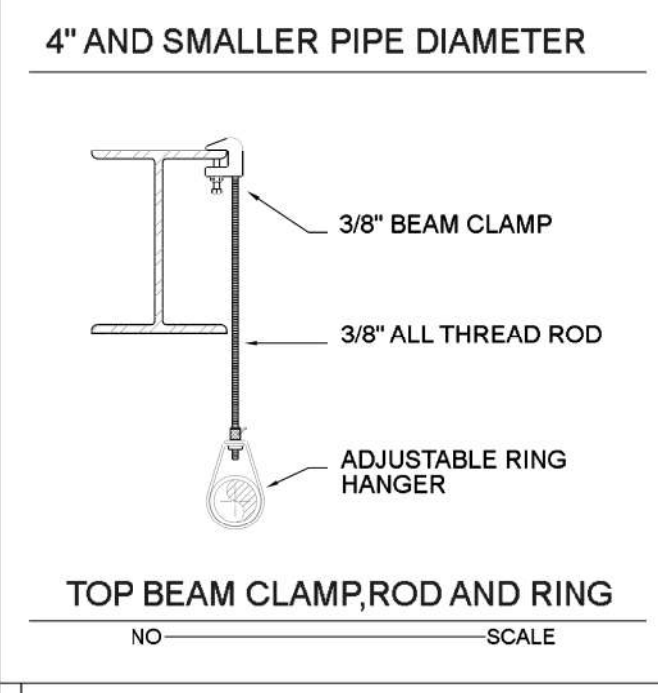
- XX DENOTES A HYDRAULIC CALCULATION POINT OF REFERENCE
- DENOTES A HYDRAULIC REMOTE AREA
- DENOTES NEW SPRINKLER PIPE
- DENOTES UNDERGROUND PIPE
- △ DENOTES THE RISER LOCATION
- 0'-0" FF DENOTES PIPE CENTERLINE ELEVATION AFF
- 0'-0" TS DENOTES PIPE CENTERLINE BELOW TOP OF STEEL
- X-X' DENOTES FINISHED CEILING ELEVATION
- XXX DENOTES AN EXTERIOR MOUNTED ELECTRIC BELL
- ◇ DENOTES A FIRE DEPARTMENT CONNECTION

Sprinkler Legend											
Symbol	Manufacturer	SIN	Model	Quantity	K-Factor	Type	Size	Response	Finish	Temperature	Note
○	Viking	VK3001		63	5.6	Upright	1/2"	Quick	Brass	155°F	
○	Viking	VK3001		1	5.6	Upright	1/2"	Quick	Brass	200°F	
△	Viking	VK176		2	5.6	Pendent	1"	Quick	Chrome	200°F	Dry Recessed
▶	Viking	VK305	Microfast	6	5.6	Sidewall	1/2"	Quick	Brass	200°F	Under Door
●	Viking	VK3021		53	5.6	Pendent	1/2"	Quick	White Polyester	155°F	White Recessed
				Total = 125							



## RISER LEGEND

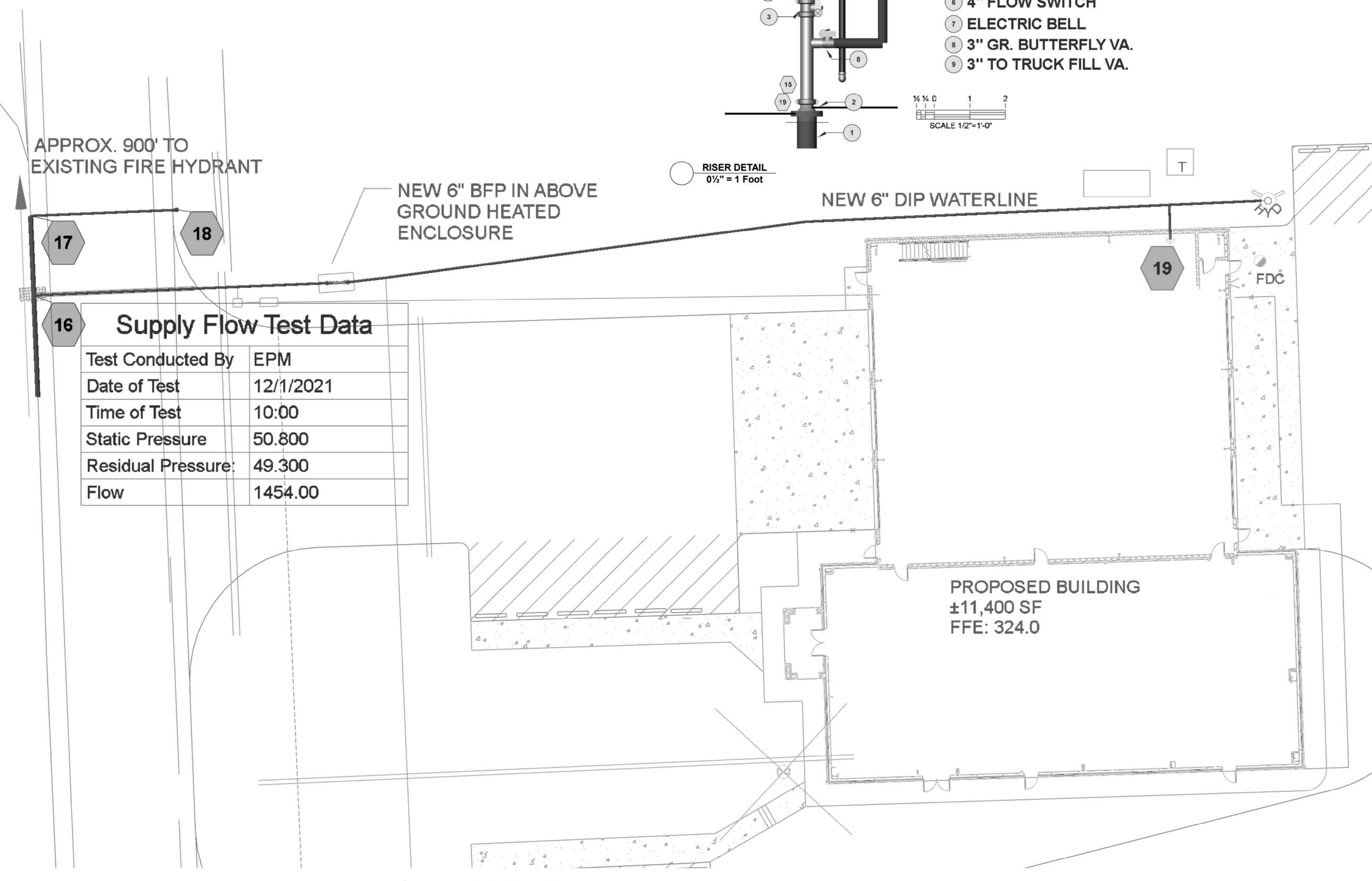
- 6" RUN-IN (BY OTHERS)
- 6 X 4 GR. CONCENTRIC REDUCER
- 4" GR. BUTTERFLY VA.
- 4" GR. RISER CHECK WITH TRIM
- MAIN DRAIN VA. PIPE OUTSIDE
- 4" FLOW SWITCH
- ELECTRIC BELL
- 3" GR. BUTTERFLY VA.
- 3" TO TRUCK FILL VA.



HANGER INSTALLATION REQUIREMENTS									
MAXIMUM DISTANCE BETWEEN HANGERS									
NOMINAL PIPE SIZE	3/4"	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"
BLAZEMASTER CPVC	5' 6"	6' 0"	6' 6"	7' 0"	8' 0"	9' 0"	10' 0"	N/A	N/A
THREADABLE LIGHTWALL	N/A	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	12' 0"	N/A	N/A
STEEL PIPE (10 40)	N/A	12' 0"	12' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"	15' 0"

100 PSI STATIC PRESSURE ON SYSTEM REQUIRES UP-LIFT RESTRAINT WITHIN 12 INCHES HORIZONTALLY OF HEAD FOR ARM-OVERS AND END OF BRANCH LINE  
 THE UNSUPPORTED LENGTH BETWEEN THE END SPRINKLER AND THE LAST HANGER ON THE LINE SHALL NOT EXCEED 36" FOR 1" PIPE, 48" FOR 1 1/4" PIPE AND 60" FOR 1 1/2" PIPE OR LARGER  
 THE CUMULATIVE HORIZONTAL LENGTH OF AN UNSUPPORTED ARM OVER TO A SPRINKLER, SPRINKLER DROP, OR SPRING-UP SHALL NOT EXCEED 24"

TRAPEZE INSTALLATION REQUIREMENTS									
SPAN OF TRAPEZE (Schedule 10)	NOMINAL PIPE SIZE SUPPORTED								
	1"	1-1/4"	1-1/2"	2"	2-1/2"	3"	4"	6"	
1 FT. 6 IN.	1"	1"	1"	1"	1"	1"	1-1/4"	1-1/4"	
2 FT. 0 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	2"	
3 FT. 0 IN.	1-1/4"	1-1/4"	1-1/4"	1-1/4"	1-1/2"	1-1/2"	1-1/2"	2"	
4 FT. 0 IN.	1-1/2"	1-1/2"	1-1/2"	1-1/2"	2"	2"	2"	2-1/2"	
5 FT. 0 IN.	2"	2"	2"	2"	2"	2"	2-1/2"	2-1/2"	
6 FT. 0 IN.	2"	2"	2"	2"	2"	2-1/2"	2-1/2"	3"	
7 FT. 0 IN.	2"	2"	2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	
8 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	
9 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	4"	
10 FT. 0 IN.	2-1/2"	2-1/2"	2-1/2"	2-1/2"	2-1/2"	3"	3"	4"	



Supply Flow Test Data	
Test Conducted By	EPM
Date of Test	12/1/2021
Time of Test	10:00
Static Pressure	50.800
Residual Pressure	49.300
Flow	1454.00

## Sprinkler Design Data

Project Name: NW HARNETT FIRE STATION #3	System: 1
Project Street Address: -	Sys. Sq. Ft.: 11,400
Suite: -	Floor#: -
Designed By: J&D SPRINKLER	Phone: -
Occupancy: FIRE STATION	Hazard: ORD GRP I/LIGHT
	Ceiling Height: VARIES
	Total Bldg. Hgt.: 24-8

Design Summary			
Design Method	SYSTEM #1	SYSTEM #1	
Design Method	CALCULATED	CALCULATED	-
Design Area #	REMOTE AREA #1	REMOTE AREA #2	-
Location	KITCHEN	APPARATUS	-
Type of System	WET	WET	-
Hazard Class	ORD GRP I	ORD GRP I	-
Criteria From	NFPA 13 (2013)	NFPA 13 (2013)	-
Design Area	1013	1530	-
Sprinkler Spacing	130	130	-
Density	.15	.15	-
K-factor	5.6	5.6	-
Hose Allowance	250	250	-
# Design Sprinklers	11	14	-
Special Application Spk.	-	-	-
Requirement @ BASE			
G.P.M. Req'd	221.89	262.47	-
P.S.I. Req'd	26.660	26.235	-
Requirement @ TEST			
GPM Required	471.89	512.47	-
PSI Required	39.127	39.028	-
Safety factor @ Test	+11.486	+11.554	-
Dry Sys. Volume (gal)	-	-	-

Water Supply Information			
Tested by	EPM	Date/Time	12/1/2021
Hydrant Elevation	-	Flow Hydrant #1	-
Static (PSI)	50.8	Residual (PSI)	49.3
		Flow Hydrant #2	-
		Flow (gpm)	1454

Copy of Water Test Data Included with Calculation is required

Fire Pump Data			
Rated G.P.M.	---	Rated Pressure	---
Diesel/Electric	---	Churn Pressure	---
Combined Discharge	---	150%/100% Flow (suction)	---
		150%/100% Flow (gpm)	---

Certified pump curve required

If Storage is Greater than 12 Feet Complete Commodity Storage Design Information									
Commodity Description		Storage Height		Storage Type (Rack, Bin, Pile)				Clearance	
Stable/Unstable		Open/Close	Array	Wet/Dry	System				
Figure #	Curve #	Density	Height	Clear	Array	Dry	Design	Minimum	Final
		Area	Factor	Factor	Factor	Penalty		Design	Design

Is system compliant with Chapter 23 (FPC) \_\_\_\_\_

Is storage area layout, rack, and pile plan included? \_\_\_\_\_

NW HARNETT FIRE STATION 3  
 US 401  
 HARNETT COUNTY, NC

**J & D SPRINKLER CO. INC.**  
 315 W. MAIN ST., CLAYTON, NC 27520  
 PHONE: (919)553-2356 FAX: (919) 359-0622

SHEET TITLE:  
 NOTES AND DETAILS

This fire sprinkler planning and design drawing has been prepared by J & D Sprinkler Co. Inc. in accordance with the General Statutes for J & D Sprinkler's exclusive use pursuant to G.S. § 89C-25(b), and J & D Sprinkler must perform any and all installation work and other work performed in reliance on this drawing pursuant to G.S. § 85B-15(a)(2). Installation work or any other work on this drawing or any copy thereof is strictly prohibited.

**J&D SPRINKLER CO. INC.**  
 Fire Protection - Est. 1989  
 DANA GRAHAM  
 NC # 16269FS CERT # 71075  
 NICET LEVEL III  
 JASON GRAHAM  
 NC # 16269FS CERT # 121842  
 NICET LEVEL III

REVISION:  
 NO. DATE

Date: 3/7/2022

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

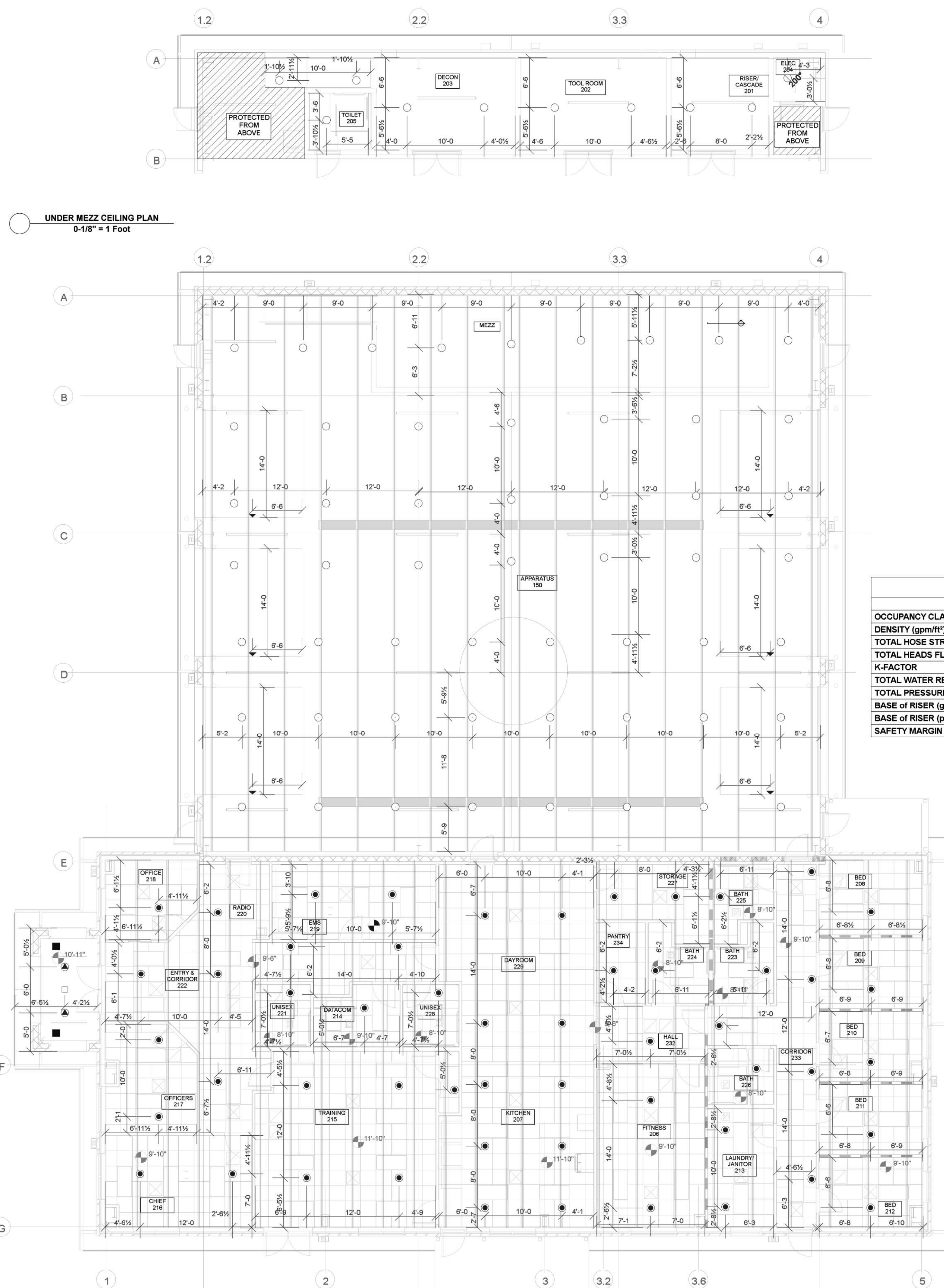
Job Number: F22-010

Drawn By: RAF

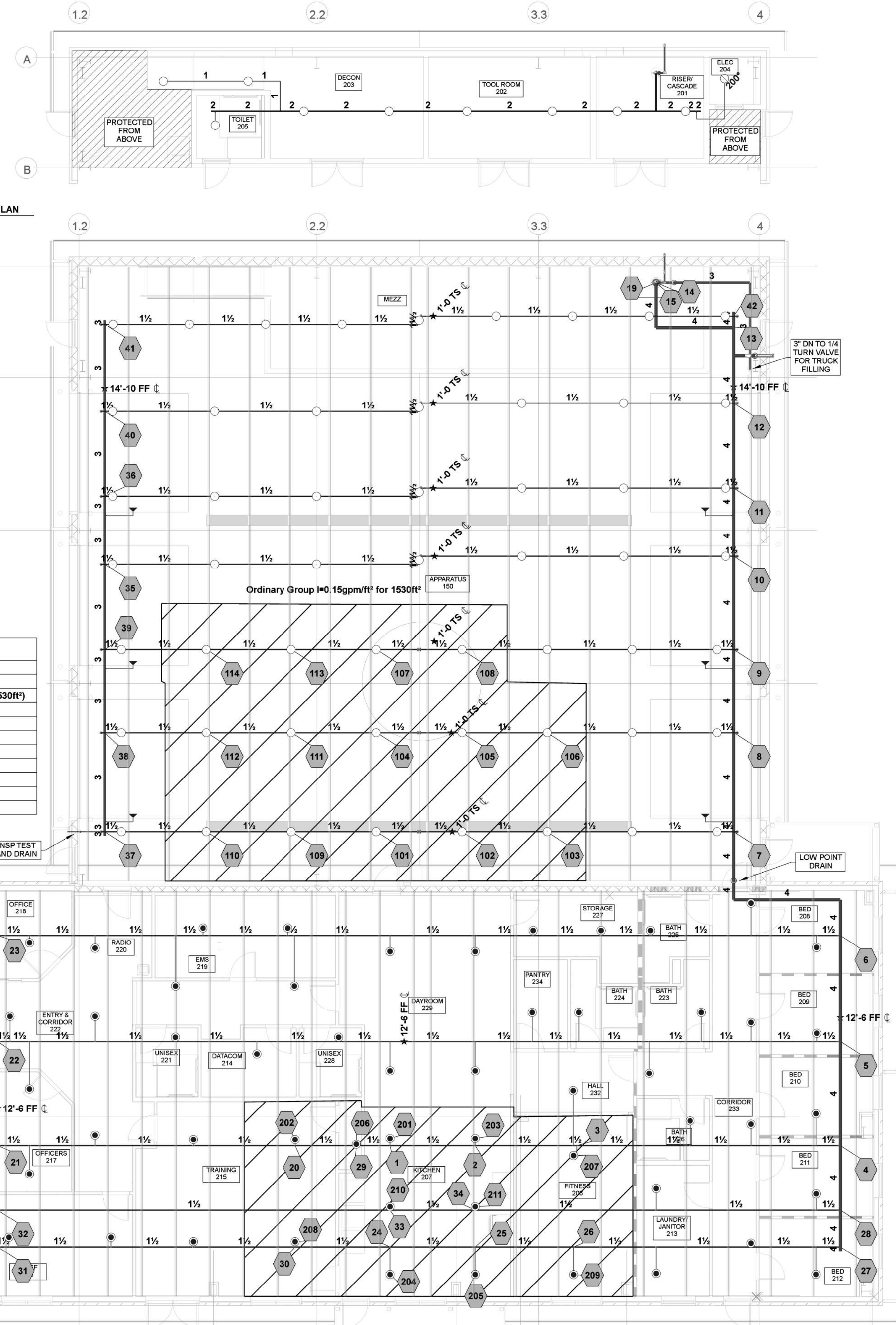
Sheet Number

FP 1 OF 2





UNDER MEZZ PIPING PLAN  
0-1/8" = 1 Foot



Hydraulic Information	
Remote Area 2	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft <sup>2</sup> )	0.15 for 1500ft <sup>2</sup> (Actual 1530ft <sup>2</sup> )
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	14
K-FACTOR	5.6
TOTAL WATER REQUIRED	512.47
TOTAL PRESSURE REQUIRED	39.028
BASE OF RISER (gpm)	262.47
BASE OF RISER (psi)	26.235
SAFETY MARGIN (psi)	+11.554 (22.8%)

Hydraulic Information	
Remote Area 1	
OCCUPANCY CLASSIFICATION	Ordinary Group I
DENSITY (gpm/ft <sup>2</sup> )	0.15 for 1500ft <sup>2</sup> (Actual 1013ft <sup>2</sup> )
QUICK RESPONSE REDUCTION	11'-10" Ceiling (37.3%) 941ft <sup>2</sup>
TOTAL HOSE STREAMS	250.00
TOTAL HEADS FLOWING	11
K-FACTOR	5.6
TOTAL WATER REQUIRED	471.99
TOTAL PRESSURE REQUIRED	39.127
BASE OF RISER (gpm)	221.99
BASE OF RISER (psi)	26.660
SAFETY MARGIN (psi)	+11.486 (22.7%)

This fire sprinkler planning and design drawing has been prepared by J & D Sprinkler Co. Inc. under Article 9 of Chapter 87 of the General Statutes for J & D Sprinkler's exclusive use pursuant to G.S. § 89C-25(b), and J & D Sprinkler must perform any and all installation work and other work performed in reliance on this drawing pursuant to G.S. § 85B-15(a)(2). Installation work or any other work on this drawing or any copy thereof is strictly prohibited.  
© 2013 J & D Sprinkler Co., Inc.



DANA GRAHAM  
NC # 16289FS CERT # 71075  
NICET LEVEL III  
JASON GRAHAM  
NC # 16289FS CERT # 121842  
NICET LEVEL III

REVISION:  
NO. DATE

Date:  
3/7/2022

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

Job Number:  
F22-010

Drawn By:  
RAF

Sheet Number