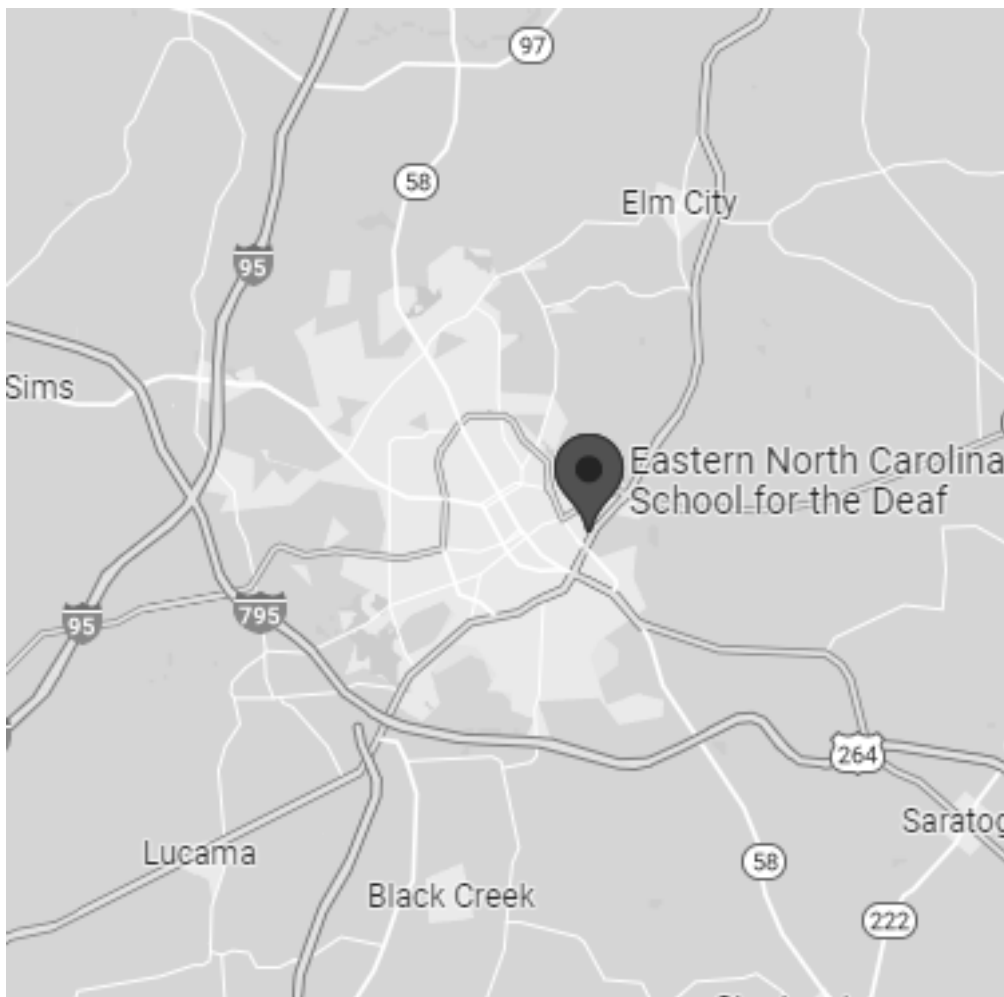


PROJECT: ENCSD Alford Hall HVAC



VICINITY

SCO# 22-24313-01



CAMPUS

PROJECT LOCATION:

ENCSD ALFORD HALL

1311 US Hwy 301 South, Wilson, NC 27893

OWNER:

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION

1311 US Hwy 301 South,
Wilson, NC 27893

INDEX OF DRAWINGS:

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

(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: ENCSD Alford Hall HVAC
Address: 1311 US HWY 301 South, Wilson, NC Zip Code 27893
Owner/Authorized Agent: Jon Long Phone # (984) 236-2923 E-Mail jon.long@dpd.nc.gov
Owned By: State of North Carolina City/County Private State North Carolina
Code Enforcement Jurisdiction: City County State North Carolina

CONTACT:	PROGRESSIVE DESIGN COLLABORATIVE, LTD.
DESIGNER	FIRM NAME LICENSE# TELEPHONE# E-MAIL
Architectural	-- -- -- (###) ### #### --@-- .com
Civil	-- -- -- (###) ### #### --@-- .com
Electrical	PDC James T. Bulkovich 024651 (919) 790-9989 tbulkovich@pdcengineering.com
Fire Alarm	-- -- -- (###) ### #### --@-- .com
Plumbing	-- -- -- (###) ### #### --@-- .com
Mechanical	PDC Steve Campbell 025020 (919) 790-9989 scampbell@pdcengineers.com
Sprinkler	-- -- -- (###) ### #### --@-- .com
Standpipe	-- -- -- (###) ### #### --@-- .com
Structural	-- -- -- ()
Retaining Walls >5' High	N/A ()
Other	()
("Other" should include firms and individuals such as truss, precast, pre-engineered, interior designers, etc.)	

2018 NC BUILDING CODE: ☐ New Building ☐ Addition ☒ Renovation
☐ 1* Time Interior Completions ☐ Shell/Core* ☐ Phased Construction*

*Contact the local inspection jurisdiction for possiblitional procedures and requirements.

2018 NC EXISTING BUILDING CODE: ☐ Prescriptive ☐ Alteration Level I ☐ Historic Property
(check all that apply) ☐ Repair ☐ Alteration Level II ☐ Change of Use
☐ Chapter 14 ☒ Alteration Level III

CONSTRUCTED: (date) 1981 CURRENT OCCUPANCY(S) (Ch.3): EDUCATION

RENOVATED: (date) 2007 - ROOFING PROPOSED OCCUPANCY(S) (Ch.3): EDUCATION

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

BASIC BUILDING DATA
Construction Type: ☐ I-A ☐ II-A ☒ III-A ☐ IV ☐ V-A
☐ I-B ☒ II-B ☒ III-B ☐ V-B
Sprinklers: ☒ No ☐ Partial ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
Standpipes: ☒ No Class ☐ I ☐ II ☐ III ☐ Wet ☐ Dry
Primary Fire District: ☒ No ☐ Yes Flood Hazard Area: ☒ No ☐ Yes
Special Inspections Required: ☐ Yes ☒ No If special inspections are required, contact the local inspection jurisdiction for additional procedures and requirements.

2018 NC Administrative Code and Policies

Gross Building Area Table			
FLOOR	EXISTING (SQ FT)	RENOVATION/ NEW(SQ FT)	SUB-TOTAL
First Floor	12,250 SF	N/A	N/A
TOTAL	12,250 SF	N/A	N/A

ALLOWABLE AREA
Primary Occupancy Classification(s):
Assembly ☐ A-1 ☐ A-2 ☐ A-3 ☐ A-4 ☐ A-5
Business ☒
Educational ☒
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 ☐ I-2 ☐ I-1 & I-2 Condition ☐ I-2 ☐ I-3 Condition ☐ I-1 ☐ I-2 ☐ I-3 ☐ I-4 ☐ I-5
Mercantile ☐
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):

Incidental Uses (Table 509):

Special Uses (Chapter 4 - List Code Sections):

Special Provisions: (Chapter 5 - List Code Sections):

Mixed Occupancy: ☒ No ☐ Yes Separation: _____ Hr. Exception: _____

☐ 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 506.2.4 AREA	(C) AREA FOR FRONTAGE INCREASE ^{1,5}	(D) ALLOWABLE AREA PER STORY OR UNLIMITED ³
-	-	-	-	-	-

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 = 668'-6" (F)
b. Total Building Perimeter = 789'-6" (P)
c. Ratio (F/P) = 85% (F/P)
d. W = Minimum width of public way = 30' (W)
e. Percent of frontage increase $f_f = 100[F/P - 0.25] \times W/30 = 59\%$
² Unlimited area applicable under conditions of Section 5.07
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.
⁵ Frontage increase is based on the unsprinklered area value in Table 506.2.

2018 NC Administrative Code and Policies

ALLOWABLE HEIGHT			
	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE ¹
Building Height in Feet (Table 504.3) ²	Bldg A 160'	17'	
Building Height in Stories (Table 504.4) ¹	Bldg A 5	1	
Building Height in Feet (Table 504.3) ²	Bldg B 55'	17'	
Building Height in Stories (Table 504.4) ¹	Bldg B 2	1	
Building Height in Feet (Table 504.3) ²	Bldg C 55'	17'	
Building Height in Stories (Table 504.4) ¹	Bldg C 2	1	

¹ Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.
² The maximum height of air traffic control towers must comply with Table 412.3.1.
³ The maximum height of open parking garages must comply with Table 406.5.4.

FIRE PROTECTION REQUIREMENTS							
BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	REQ'D	RATING PROVIDED (W/ REDUCTION)	DETAIL# AND SHEET#	DESIGN# FOR RATED ASSEMBLY	SHEET# FOR RATED PENETRATION	SHEET# FOR RATED JOINTS

Structural Frame, including columns, girders, trusses
Bearing Walls
Exterior
North >30' 0
East >30' 0
West >30' 0
South >30' 0
Interior
Nonbearing Walls and Partitions
Exterior walls
North >30' 0
East >30' 0
West >30' 0
South >30' 0
Interior walls and partitions
Floor Construction
Including supporting beams and joists NA
Floor Ceiling Assembly NA
Columns Supporting Floors NA
Roof Construction, including supporting beams and joists Bldg A 1
Roof Ceiling Assembly Bldg A 0
Columns Supporting Roof Bldg A 1
Bldg B & C 0
Shaft Enclosures- Exit NA
Shaft Enclosures- Other NA
Corridor Separation 1
Occupancy/Fire Barrier Separation NA
Party/Fire Wall Separation NA
Smoke Barrier Separation NA
Smoke Partition NA
Tenant/Dwelling Unit/ Sleeping Unit Separation NA
Incidental Use Separation NA

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS			
FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
Building A	NA/ no limit	NA	NA
Building B	NA/ no limit	NA	NA
Building C	NA/ no limit	NA	NA

LIFE SAFETY SYSTEM REQUIREMENTS
Emergency Lighting: ☐ No ☒ Yes (WORK AREAS)
Exit Signs: ☐ No ☒ Yes
Fire Alarm: ☐ No ☒ Yes
Smoke Detection Systems: ☐ No ☒ Yes Partial (WORK AREAS)
Carbon Monoxide Detection: ☐ No ☒ Yes (WORK AREAS)
Life Safety System Items in this building are existing to remain. Life Safety scope of work is the addition of (1) Carbon Monoxide Detector in the required area.

LIFE SAFETY PLAN REQUIREMENTS
Life Safety Plan Sheet #:
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
Maximum calculated
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

EXISTING NOT APPLICABLE (1005.3)

2018 NC Administrative Code and Policies

ACCESSIBLE DWELLING UNITS (SECTION 1107)						
TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED
N/A						

ACCESSIBLE PARKING (SECTION 1106)			
LOT OR PARKING AREA	TOTAL# OF PARKING SPACES REQUIRED	# OF ACCESSIBLE SPACES PROVIDED REGULAR WITH 5' ACCESS AISLE	TOTAL# ACCESSIBLE UNITS PROVIDED
N/A			
TOTAL			

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1)							
USE	WATERCLOSETS M F UNI	URINALS MALE FEMALE	LAVATORIES UNISEX	SHOWERS /TUBS	DRINKING FOUNTAINS REGULAR	ACCESSIBLE	

EXISTING NOT APPLICABLE

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

2018 NC Administrative Code and Policies

ENERGY SUMMARY
ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.
Existing building envelope complies with code: (If checked the remainder of this section is not applicable.)

Exempt Building: Provide code or statutory reference:

Climate Zone: 3A 4A 5A
Method of Compliance:
Energy Code Performance Prescriptive
ASHRAE 90.1 Performance Prescriptive
Other Performance (specify source)

THERMAL ENVELOPE (Prescriptive method only)
Roof/ceiling Assembly (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Skylights in each assembly:
U-Value of skylight:
total square footage of skylights in each assembly:
Exterior Walls (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
U-Value of window/door:
U-Value of skylight:
Solar heat gain coefficient:
projection factor:
Door R-Values:
Walls below grade (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of total assembly:
Floors over unconditioned space (each assembly)
Description of assembly:
U-Value of total assembly:
R-Value of total assembly:
Floors slab on grade
Description of assembly:
U-Value of total assembly:
R-Value of insulation:
Horizontal/vertical requirement:
slab heated:

2018 NC Administrative Code and Policies

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)

DESIGN LOADS:
Importance Factors: Snow (1s) 1.0
Seismic (1s) 1.0
Live Loads: Roof 20 psf
Mezzanine NA psf
Floor NA psf
Ground Snow Load: 15 psf
Wind Load: Ultimate Wind Speed 117 mph (ASCE-7)
Exposure Category B

SEISMIC DESIGN CATEGORY: N/A
Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) N/A
Spectral Response Acceleration S_s 13.5 %g S₁ 6.7 %g
Site Classification (ASCE 7) N/A
Basic structural system N/A
Analysis Procedure: N/A
Architectural, Mechanical, Components anchored? N/A

LATERAL DESIGN CONTROL: N/A

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) N/A psf

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)

MECHANICAL SUMMARY
MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT
Thermal Zone
winter dry bulb: 20.0°F
summer dry bulb: 84.6°F
Interior design conditions
winter dry bulb: 70°F
summer dry bulb: 75°F
relative humidity: 55%
Building heating load: EXISTING
Building cooling load: EXISTING
Mechanical Spacing Conditioning System
Unitary
description of unit: REFER TO SCHEDULE ON DRAWINGS
heating efficiency: REFER TO SCHEDULE ON DRAWINGS
cooling efficiency: REFER TO SCHEDULE ON DRAWINGS
size category of unit: REFER TO SCHEDULE ON DRAWINGS
Boiler
Size category If oversized, state reason: N/A
Chiller
Size category If oversized, state reason: N/A
List equipment efficiencies: REFER TO EQUIPMENT SCHEDULES FOR UNIT EFFICIENCIES

2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)

ELECTRICAL SUMMARY
ELECTRICAL SYSTEM AND EQUIPMENT
Method of Compliance:
Energy Code Prescriptive Performance
ASHRAE 90.1 Prescriptive Performance
Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type
number of
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed
Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
C406.2 More Efficient HVAC Equipment Performance
C406.3 Reduced Lighting Power Density
C406.4 Enhanced Digital Lighting Controls
C406.5 On-Site Renewable Energy
C406.6 Dedicated Outdoor Air System
C406.7 Reduced Energy Use in Service Water Heating

2018 NC Administrative Code and Policies



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REVISIONS		
NUMBER	DATE	DESCRIPTION

BID/PERMIT

ENCSD Alford Hall HVAC
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
1311 US Hwy 301 South,
Wilson, NC 27893
SCO# 22-24313-01A

ENCSD Alford Hall HVAC
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
1311 US Hwy 301 South,
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SCO# 22-24313-01A

BUILDING CODE
SUMMARY

G0.01

NEW WORK KEYNOTES:

1. PROVIDE NEW ACT TYPE CEILING AND GRID TO MATCH NEW LAYOUT OF MECHANICAL AND LIGHTING PLANS AS PART OF ALTERNATE #1.
2. PROVIDE NEW GYPSUM BOARD CEILING IN MECHANICAL SPACE TO COORDINATE WITH NEW EQUIPMENT.

2 First Floor

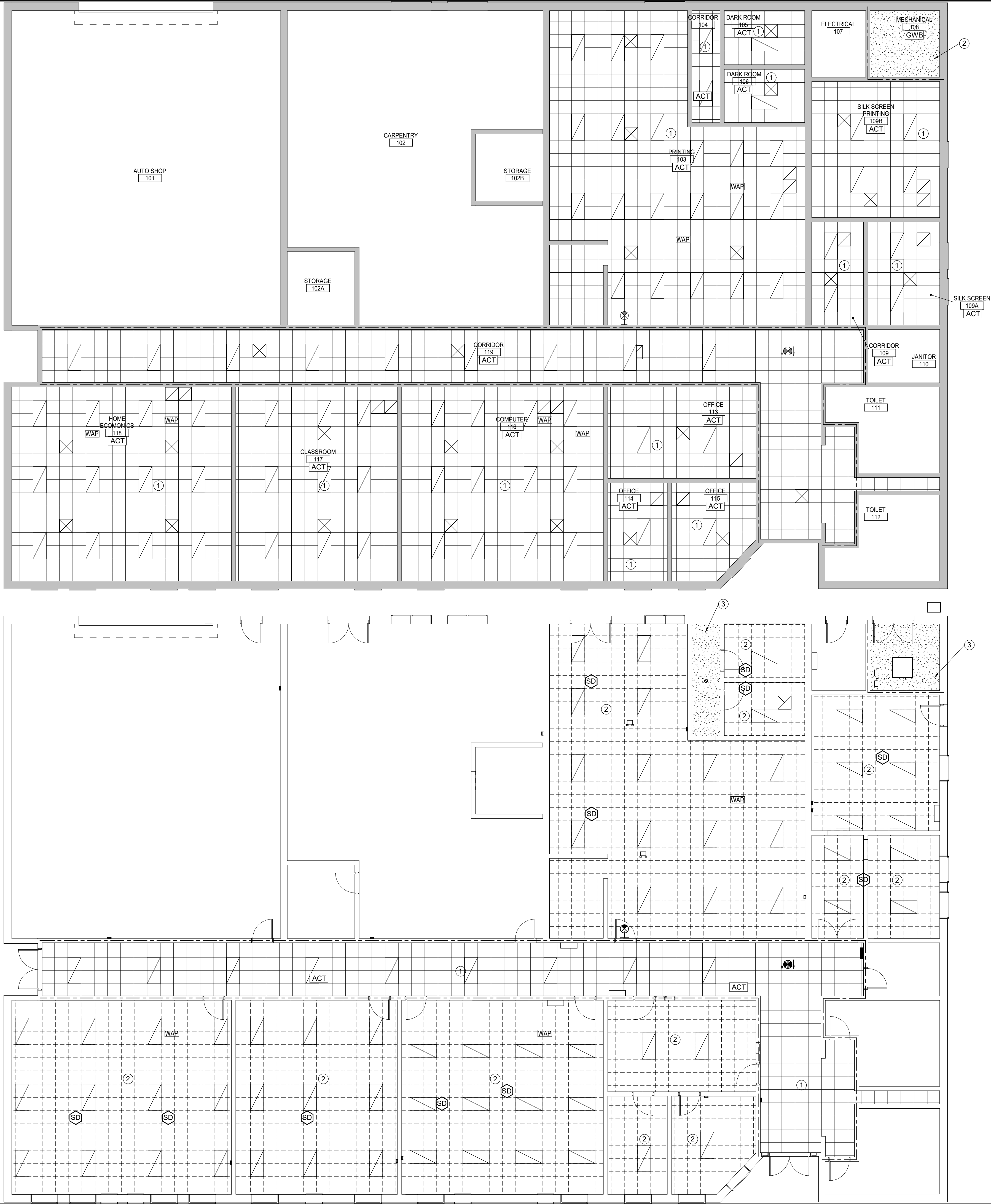
0 4 8 16
1/8" = 1'-0"

DEMOLITION KEYNOTES:

1. EXISTING ACOUSTICAL TILE CEILING TO REMAIN.
2. REMOVE EXISTING ACOUSTICAL TILE CEILING IN ITS ENTIRTY AND PREP FOR NEW CEILING. SEE NEW WORK PLAN ON THIS SHEET AS PART OF ALTERNATE #1
3. REMOVE GYPSUM BOARD CEILING IN ITS ENTIRTY AND PREP FOR NEW CEILING. SEE NEW WORK PLAN ON THIS SHEET.

1 First Floor - Demo

0 4 8 16
1/8" = 1'-0"



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Wilson, NC 27893

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**RCP -
DEMOLITION
AND NEW WORK**

G1.01

BXUV.I505 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

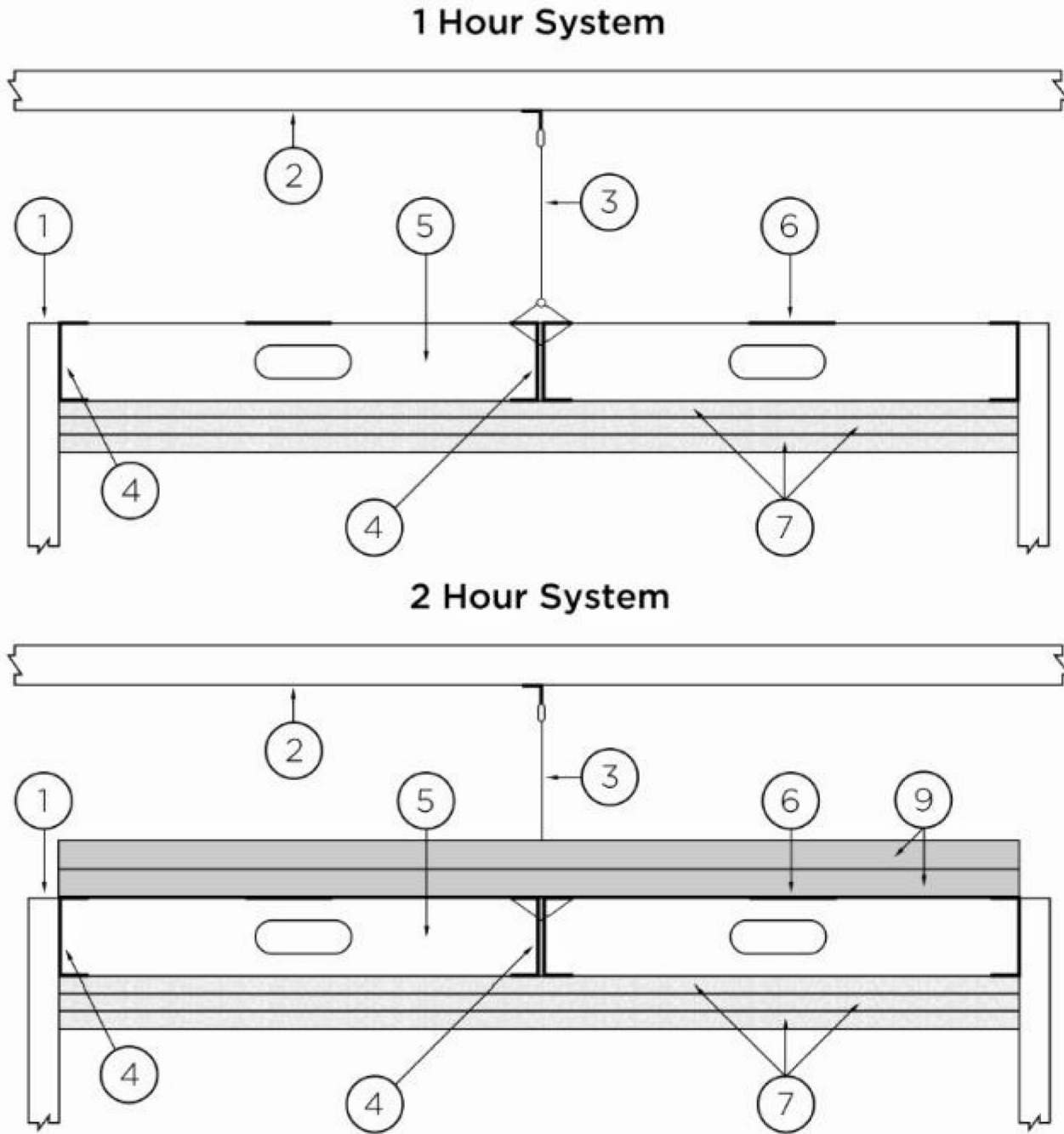
Design No. I505

July 09, 2020

Ceiling Membrane Rating - 1 and 2 Hr. (See Item 9)

Load Restriction - Limited to the Dead Weight of the Assembly

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



1. **Supporting Structure #1** — Fire-resistance rated. Suitable point of attachment of C-Channels (Item 4).

2. **Supporting Structure #2** — If necessary - Suitable point of attachment of hanger wire (Item 3).

3. **Hanger Wire** — If necessary - Min. 8 gauge steel wire, hung from holes punched in C-Channel (Item 4). Hanger wire spaced nominally 24 in. OC.

4. **C-Channels** — Used to support steel studs at both ends. Min. 6 in. deep with min. 1-1/4 in. legs and formed from min. No. 20 MSG galv. steel. Perimeter channels attached to a fire-resistance rated supporting structure (Item 1) with fasteners spaced not greater than 24 in. O.C. at both the top and bottom of the vertical leg. When used with Items 2 and 3, C-Channel secured back to back with 1/2 in. Type S screws spaced 24 in. OC along centerline of C-Channels. Where C-Channels form a butt joint, screws placed at both top and bottom of both sides of butt joint.

5. **Steel Studs** — Min. 6 in. wide with min. 1-5/8 in. legs containing folded back flanges and formed from min. No. 20 MSG galv. Steel. Studs to be cut 1/2 in. to 3/4 in. less than the clear span between the vertical legs of the perimeter channels. Studs spaced a max. 16 in. OC. At each end of the stud, the top and bottom legs shall be secured to the perimeter channel with one 3/8 in. long pan-head steel screw. Studs are used at each end of the horizontal barrier to terminate the assembly at the

adjoining wall. These end studs shall be secured to the adjoining wall in the same manner as the perimeter channels (Item 4). Maximum unsupported length of studs not to exceed 8 ft. 1 in.

6. **Steel Strap** — Min 4 in. wide formed from min. No. 20 MSG galv. Steel. Secured perpendicular to the studs at the centerline of the span using two 3/8 in. long pan-head steel screws. Strips to overlap one full stud bay at splice locations. As an alternate to the steel strap, C-Channels (Item 4) may be substituted and installed in the same manner as the steel straps. If a continuous piece is not used, abut channels on each side of the centerline of the span and overlap one full stud bay.

7. **Gypsum Board*** — Three layers of nom. 5/8 in. thick, 46 to 54 in. wide, gypsum board installed with long dimension perpendicular to the steel studs. Base layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to studs and perimeter channels with 1-1/4 in. long Type S steel screws spaced max. 16 in. O.C. Middle layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to the studs and perimeter channels with 1-5/8 in. long Type S steel screws spaced max. 16 in. O.C. Middle layer joints staggered a min. 16 in. from base layer joints Face layer installed with end joints in adjacent rows staggered min. 32 in. Boards secured to the studs and perimeter channels with 2-1/4 in. long Type S steel screws spaced max. 12 in. O.C. Face layer joints staggered a min. 16 in. from middle layer joints.
AMERICAN GYPSUM CO — Types AGX-1, AG-C, LightRec.

8. **Joint Tape and Compound** — Not Shown — (Optional, Not Required On Joints or Screw Heads) — Vinyl, dry or premixed joint compound, applied in two coats to joints and screw heads; paper tape, nom. 2 in. wide, embedded in first layer of compound over all joints.

9. **Batts and Blankets*** — (For the 2 Hr. Rating) -Two layers of nom. 1-1/2 in. thick mineral wool batts. Mineral wool batts are loosely laid perpendicular to the top side of the steel stud flanges. Base layer laid with narrow (2ft.) end joints centered over studs. Short end joints in adjacent rows are not staggered. Face layer laid with narrow (2ft.) end joints centered over studs with end joints in adjacent rows not being staggered. Narrow end joints between layers are staggered 16 in., with long end joints staggered 8 in.

UNITED STATES MINERAL PRODUCTS CO, DBA ISOLATEK INTERNATIONAL — Type CB

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1 UL 263 DETAIL
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DETAILS

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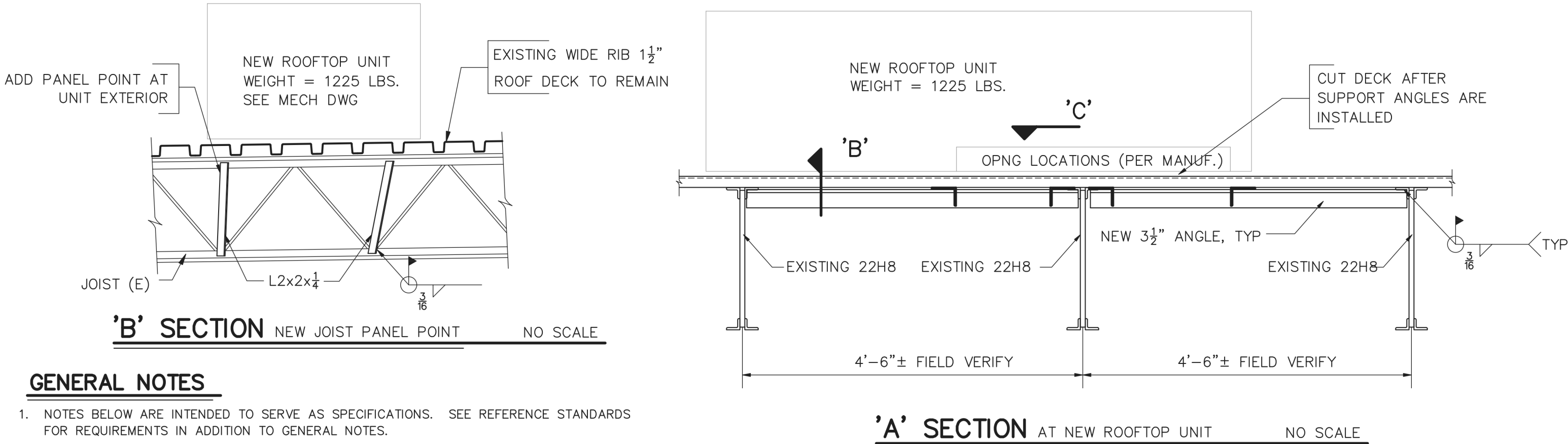
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1311 US Hwy 301 South,
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STRUCTURAL
DETAIL

S1.01



GENERAL NOTES

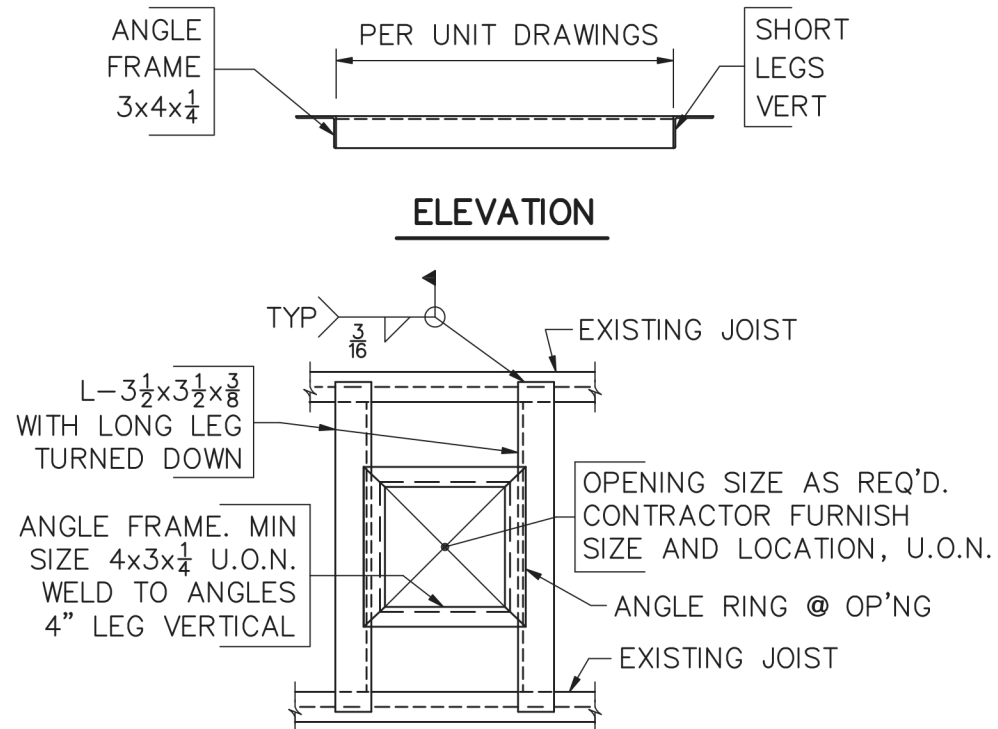
- NOTES BELOW ARE INTENDED TO SERVE AS SPECIFICATIONS. SEE REFERENCE STANDARDS FOR REQUIREMENTS IN ADDITION TO GENERAL NOTES.
- CONTRACTOR SHALL TAKE ALL FIELD DIMENSIONS AND ELEVATIONS AS NECESSARY TO VERIFY THE EXISTING CONDITIONS SHOWN. THE RESPONSIBILITY OF ALL FIELD DIMENSIONS IS THE CONTRACTOR'S. CONTROL POINTS FOR FABRICATION OF STEEL COMPONENTS SHALL BE ESTABLISHED AND MAINTAINED FOR THE DURATION OF THE PROJECT.
- " U.O.N." MEANS UNLESS OTHERWISE NOTED.
- DESIGN LIVE LOADS:
EXISTING ROOF 25 PSF
- ALL SAFETY REGULATIONS TO BE FOLLOWED STRICTLY. METHODS OF CONSTRUCTION AND ERECTION OF STRUCTURAL MATERIAL IS CONTRACTOR'S RESPONSIBILITY. CONSULT ARCHITECT IN CASE OF QUESTIONS.
- SUBMIT COMPLETE SHOP DRAWINGS SHOWING ALL REINFORCING STEEL, EMBEDDED MISCELLANEOUS METAL, SLEEVES, ANCHOR BOLTS, ETC. DO NOT FABRICATE MATERIAL UNTIL APPROVAL HAS BEEN RECEIVED.

STRUCTURAL STEEL

- STRUCTURAL STEEL: ROLLED SECTIONS--ASTM A36, TUBES--ASTM A500--GRADE B.
- DESIGN, FABRICATION AND ERECTION: AISC SPECIFICATIONS FOR BUILDINGS.
- FIELD CONNECTIONS: FIELD WELDED USING E70XX SERIES ELECTRODES, LOW HYDROGEN TYPE. GRIND ALL WELDS TO A NEAT APPEARANCE AND COAT WITH PRIMER PAINT SAME AS SHOP COAT.
- WELDS SHALL BE MADE ONLY BY OPERATORS CERTIFIED BY THE STANDARD QUALIFICATION QUALIFICATION PROCEDURE OF THE AMERICAN WELDING SOCIETY FOR TYPE OF WELD REQ'D.
- RETURN ALL WELDS AT CORNERS TWICE THE NOMINAL SIZE OF THE WELD MINIMUM.
- WHERE PLATES ARE FILLET WELDED TO MEMBERS AND NO WELD SIZE IS SPECIFIED PROVIDE FULL LENGTH FILLET WELDS BOTH SIDES OF PLATE. WELD SIZES SHALL BE AS FOLLOWS:

PL THICKNESS (in)	3/8	1/2	5/8	3/4	7/8	1	1 1/8	5/4
WELD SIZE (in)	3/8	3/8	3/8	1/2	1/2	5/8	3/4	7/8

- THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION'S STANDARD SPECIFICATION SHALL BE THE REFERENCED STANDARD FOR ALL STEEL WORK ON THIS PROJECT.



'C' DETAIL FRAME AROUND NEW OPENINGS NO SCALE

NOTE: PROVIDE ANGLE FRAME AND SUPPORTS AROUND ALL NEW ROOF OPENINGS. FIELD VERIFY LOCATION OF NEW UNIT AND VERIFY WITH MANUFACTURER HOLE SIZE REQUIRED. SEE MECHANICAL DRAWINGS FOR SIZE, LOCATION & QUANTITY.



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+
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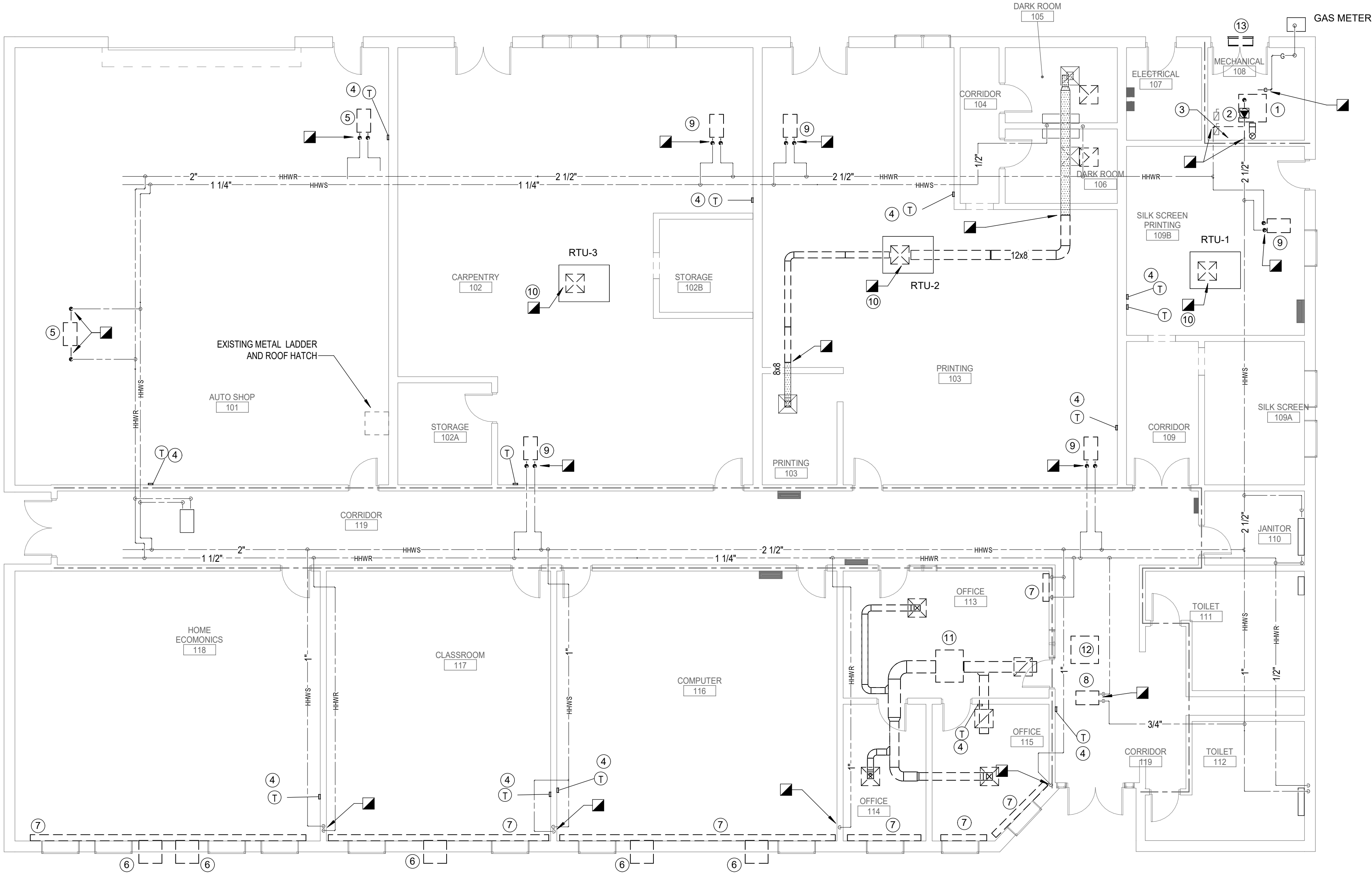
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GENERAL NOTES:

- A. WHERE EXISTING EQUIPMENT, DUCT, AND PIPING IS BEING REMOVED, REMOVE ALL EXISTING HANGERS, RODS, AND SUPPORTING HARDWARE.
- B. PATCH AND PAINT ALL SURFACES AND FINISHES IMPACTED BY THE WORK.

KEYNOTES:

1. DISCONNECT AND REMOVE BOILER, BOILER FLUE, PIPING, AND ASSOCIATED APPURTENANCES. DISCONNECT FROM EXISTING NATURAL GAS PIPING AND MAKE SAFE. BOILER PAD TO REMAIN.
2. DISCONNECT AND REMOVE EXISTING HOT WATER PUMP AND ASSOCIATED APPURTENANCES. REFER TO PICTURE.
3. DISCONNECT EXISTING MAKEUP WATER FROM EXISTING BOILER. REMOVE EXISTING RPZ AND CAP PREP LINE FOR NEW WORK.
4. DISCONNECT AND REMOVE EXISTING THERMOSTAT. PATCH WALL.
5. DISCONNECT AND REMOVE EXISTING HOT WATER UNIT HEATER.
6. DISCONNECT AND REMOVE EXISTING WINDOW UNIT AND TURN OVER TO OWNER. PATCH AND PAINT WALL TO MATCH EXISTING.
7. DISCONNECT EXISTING RADIATOR FROM HOT WATER SUPPLY AND RETURN PIPING. CAP PIPING. BASE BID IS TO ABANDON DISCONNECT RADIATORS IN PLACE. ALTERNATE IS TO REMOVE DISCONNECTED RADIATORS AND PATCH AND PAINT WALL TO MATCH EXISTING.
8. DISCONNECT AND REMOVE EXISTING CABINET HEATER. CAP PIPING ABOVE CEILING.
9. DISCONNECT AND REMOVE EXISTING HOT WATER UNIT HEATER. CAP PIPING ABOVE CEILING.
10. DISCONNECT EXISTING CEILING DIFFUSER AND REMOVE SUPPLY AND RETURN DUCTWORK BACK TO UNDERSIDE OF ROOF DECK.
11. DISCONNECT AND REMOVE SPLIT SYSTEM AIR HANDLING UNIT, ALL ASSOCIATED DOWNSTREAM DUCTWORK, AND ASSOCIATED PIPING AND APPURTENANCES.
12. DISCONNECT AND REMOVE EXISTING SPLIT SYSTEM CONDENSING UNIT ON ROOF. REMOVE ALL ASSOCIATED PIPING AND APPURTENANCES. ROOF RAILS TO REMAIN.
13. DISCONNECT AND REMOVE EXISTING GRILLE ABOVE DOORS. ENLARGE OPENING FOR NEW LOUVER.



1 DEMOLITION PLAN
0 4 8 16
1/8" = 1'-0"

WALL RATINGS LEGEND	
	1 HR RATED WALL
	2 HR RATED WALL
	4 HR RATED WALL



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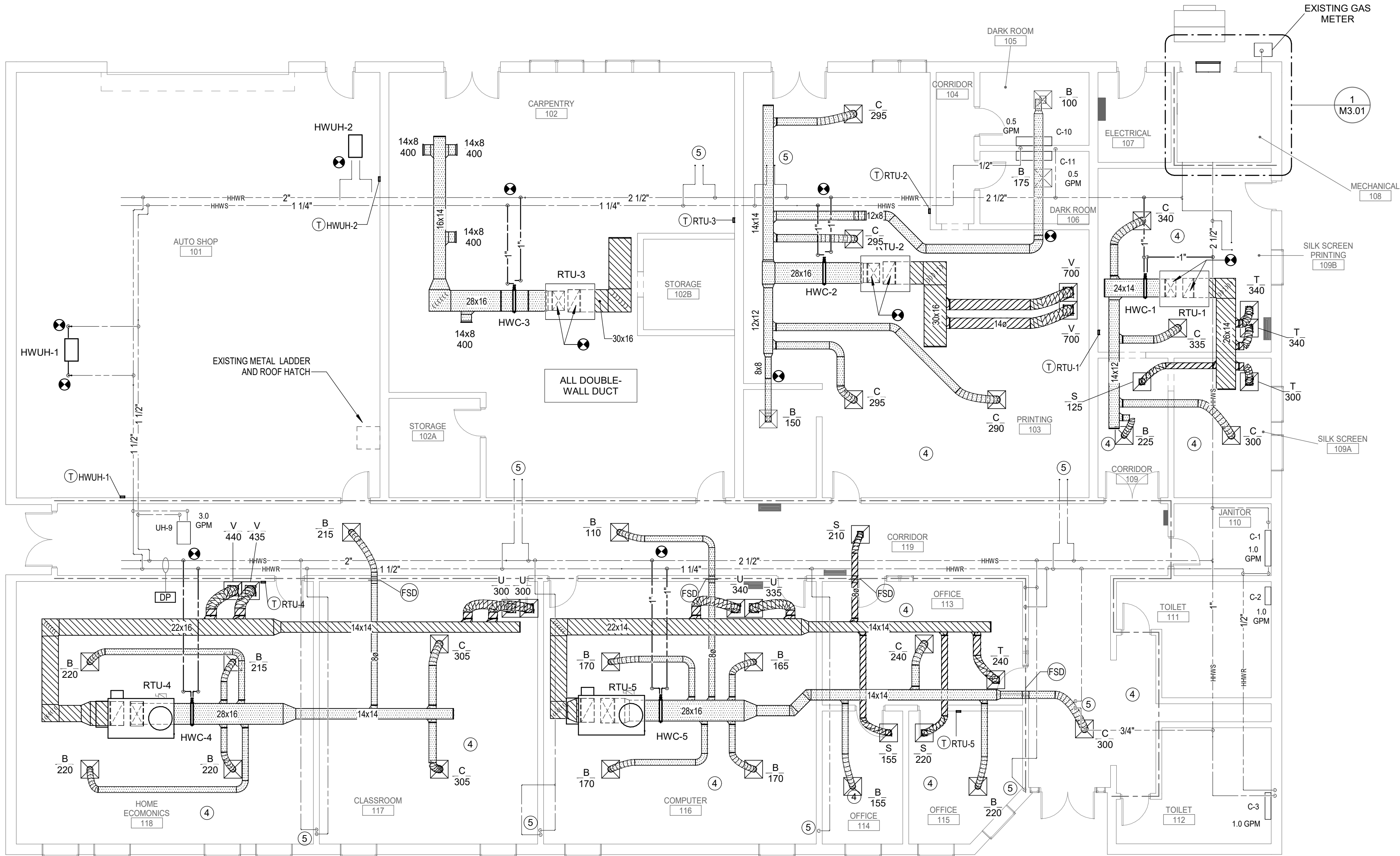
DEMOLITION
PLAN

M1.00

- GENERAL NOTES:**
- A. WHERE EXISTING EQUIPMENT, DUCT, AND PIPING IS BEING REMOVED, REMOVE ALL EXISTING HANGERS, RODS, AND SUPPORTING HARDWARE.
 - B. PATCH AND PAINT ALL SURFACES AND FINISHES IMPACTED BY THE WORK.
 - C. NOT USED

- KEYNOTES:**
- 1. NOT USED.
 - 2. PROVIDE THERMOSTAT WITH LCD SCREEN, SETPOINT ADJUSTMENT, AND OVERRIDE BUTTON AT SAME LOCATION AS EXISTING. CONNECT TO VAV BYPASS BOX. EXISTING CONDUIT AND BOXES MAY BE REUSED.
 - 3. DIFFERENTIAL PRESSURE SENSOR.
 - 4. PROVIDE LAY-IN CEILING GRID AND TILES IN ROOM.
 - 5. CAPPED PIPING.

1 MECHANICAL NEW WORK PLAN
0 4' 8' 16'
1/8" = 1'-0"



WALL RATINGS LEGEND	
	1 HR RATED WALL
	2 HR RATED WALL
	4 HR RATED WALL



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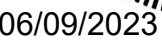
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**NEW WORK
PLAN**

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- A. ALL ROOF EQUIPMENT SHALL BE MINIMUM 6' FROM EDGE OF ROOF.

KEYNOTES:

1. TERMINATE CONDENSATE ON ROOF.





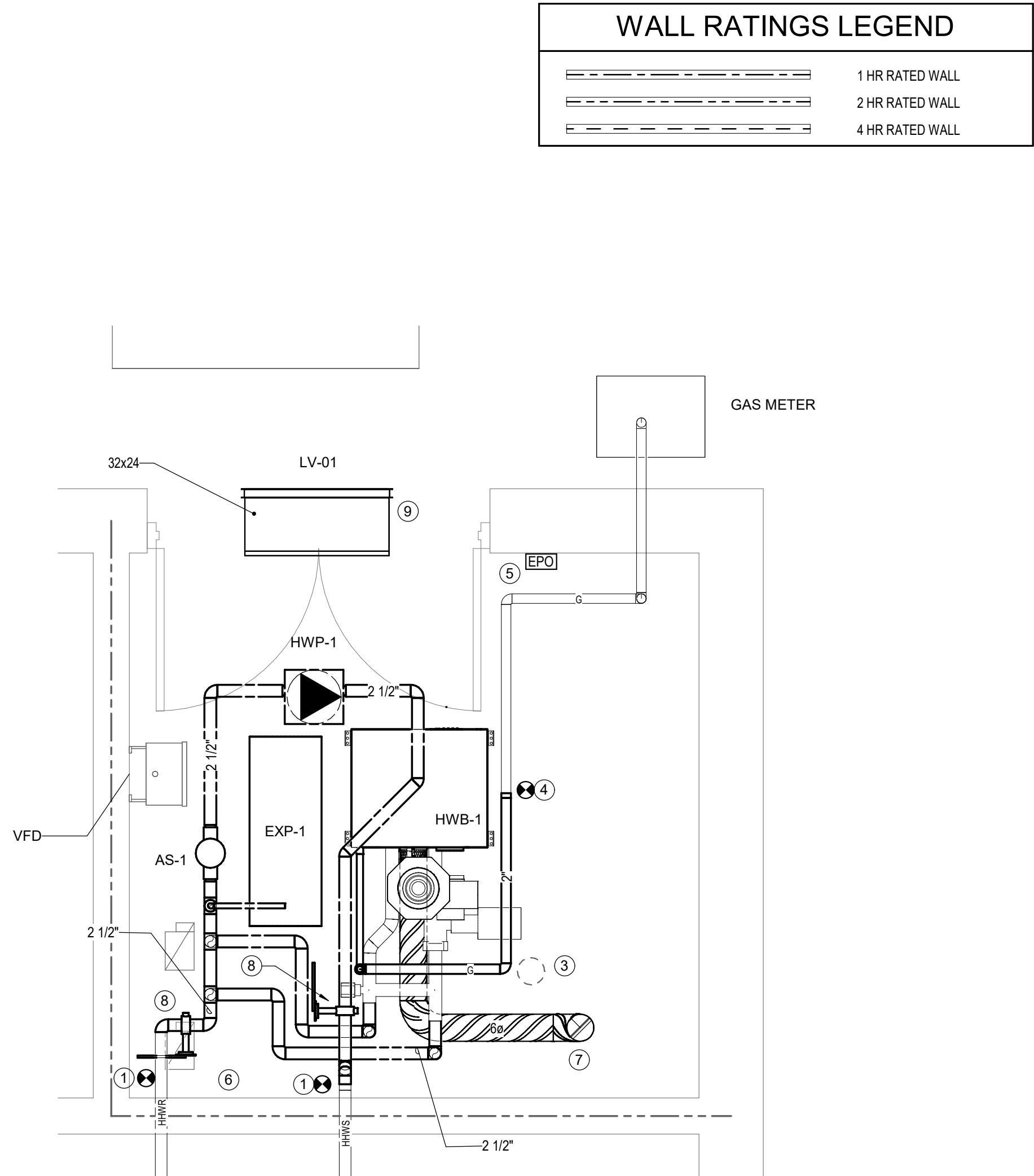
EXISTING BOILER FLUE, PIPING, PUMP, EXPANSION TANK TO BE DISCONNECTED AND REMOVED



EXISTING DOMESTIC WATER MAKEUP LINE. PROVIDE RPZ AND REPLACE EXISTING PRV. REFER TO DETAIL.



DISCONNECT EXISTING BOILER AND BURNER FROM FUEL SOURCE, ELECTRICAL, AND PIPING CONNECTIONS AND REMOVE. HOUSEKEEPING PAD MAY BE REUSED.



1 ENLARGED BOILER ROOM PLAN

KEYNOTES:

1. RECONNECT TO EXISTING HOT WATER SUPPLY AND RETURN PIPING.
2. PROVIDE VALVES FOR ISOLATION.
3. ROUTE DRAIN PIPING TO FLOOR DRAIN.
4. RECONNECT TO EXISTING GAS PIPING AND EXTEND TO EACH BOILER. PROVIDE REGULATOR AND EACH AND MAKE FINAL CONNECTION.
5. EMERGENCY STOP BUTTON FOR BOILER.
6. CONNECT TO EXISTING DOMESTIC WATER LINE AND PROVIDE RPZ AND PRV PER DETAIL.
7. ROUTE BOILER FLUE TO ROOF. REUSE EXISTING ROOF OPENING AND TERMINATE ABOVE ROOF AT CODE MINIMUM HEIGHT.
8. ISOLATION VALVE.
9. PROVIDE LOUVER FOR COMBUSTION AIR. ENLARGE EXISTING OPENING WITHIN 12" OF CEILING.



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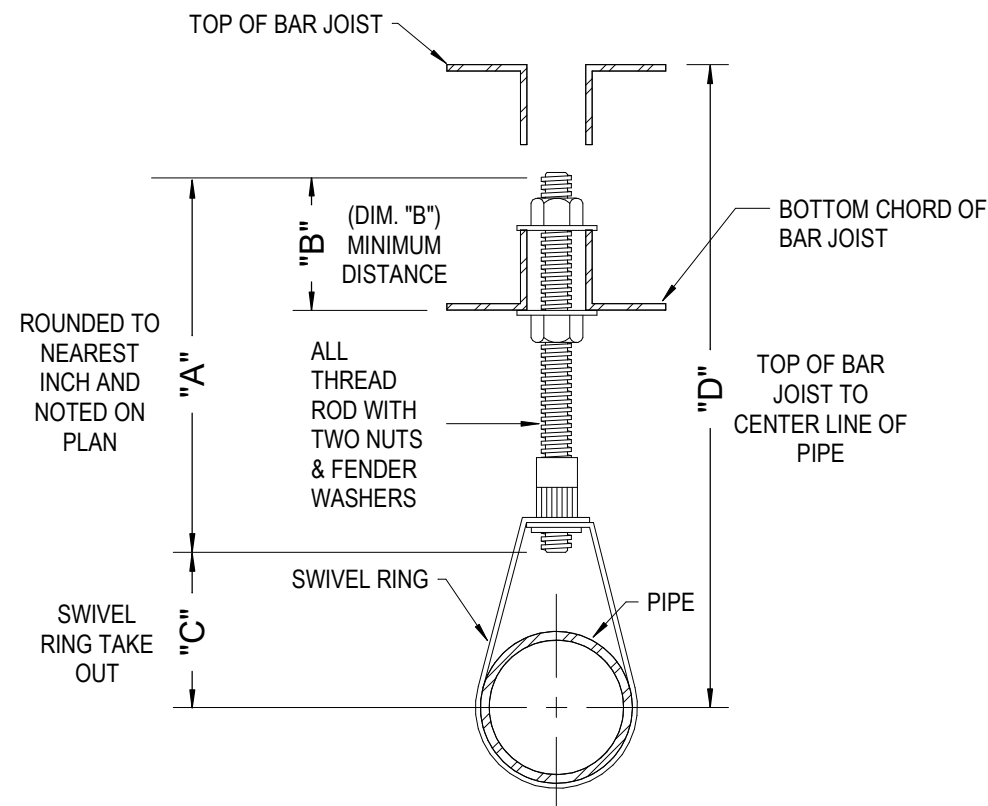
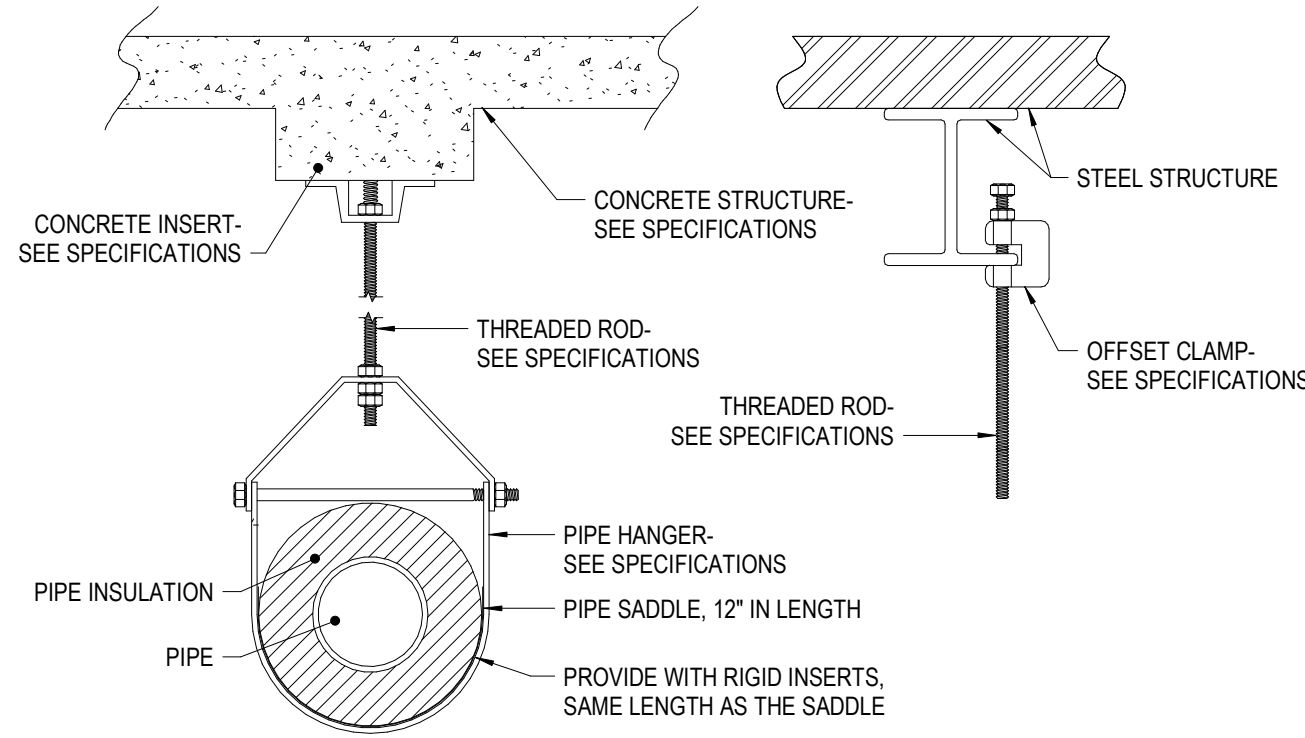
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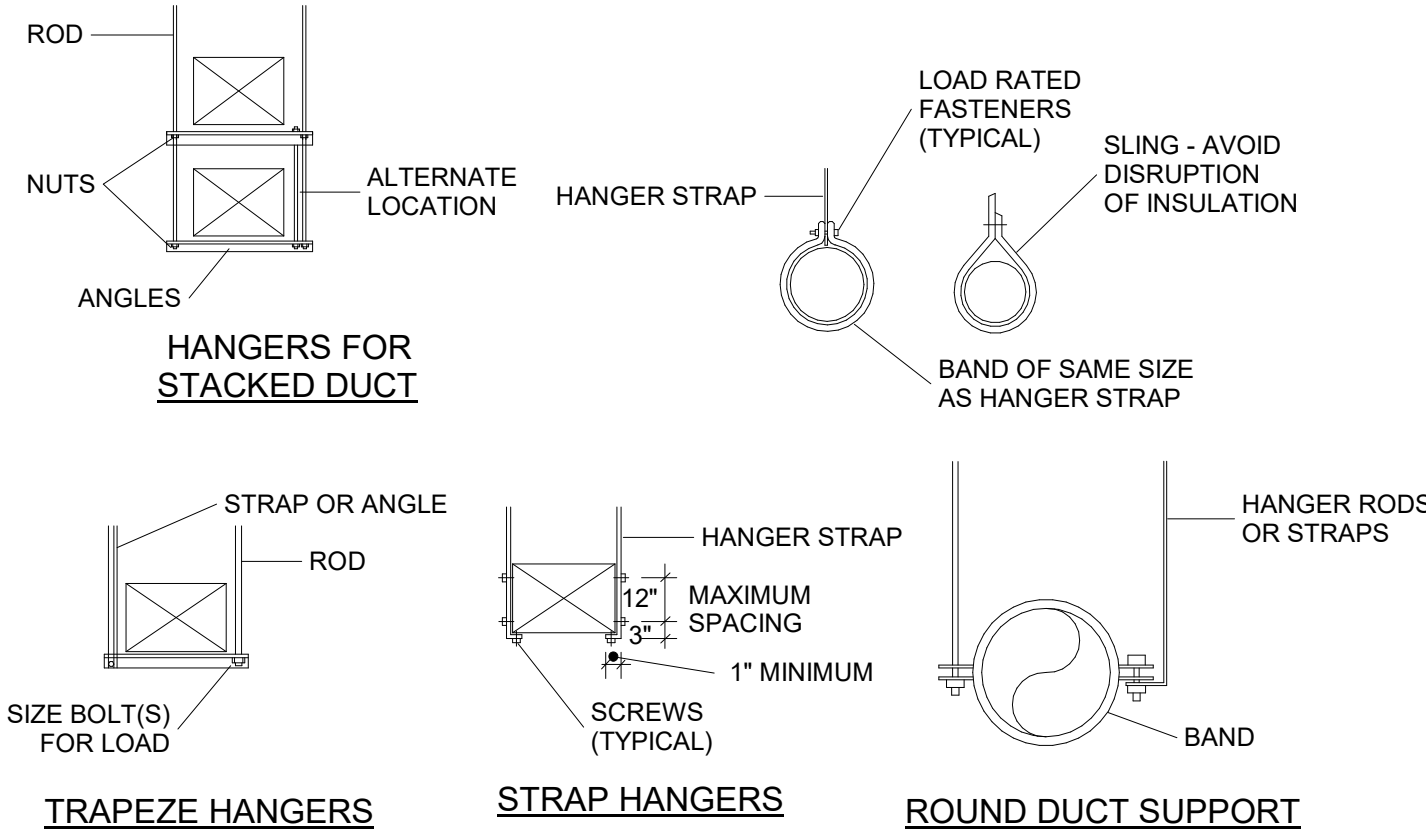
**ENLARGED
PLANS**

M3.01

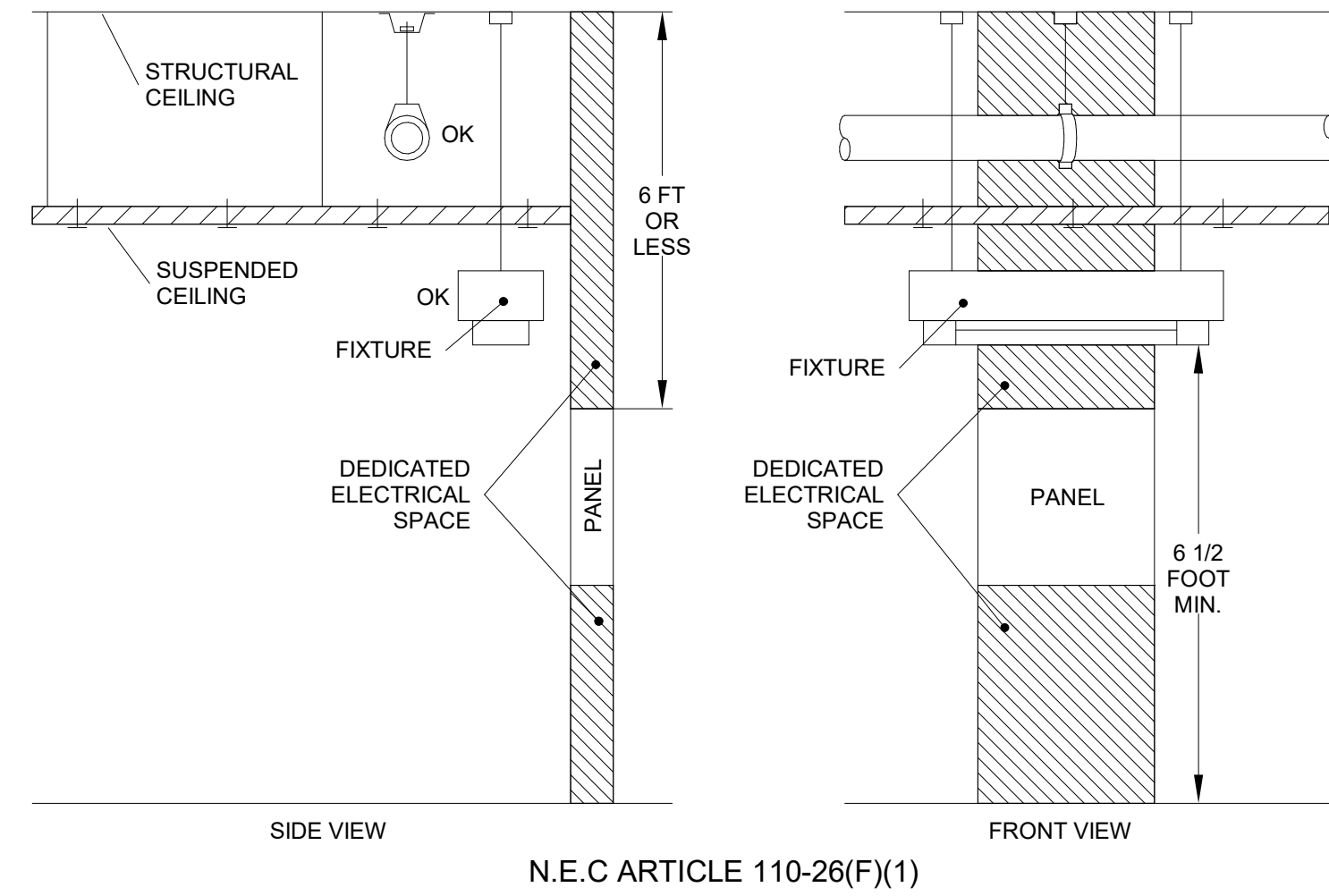


NOTE ON PLAN: HANGER NUMBER AND "A" DIMENSION

PIPE SIZE	ROD SIZE	'B' DIM.	MIN 'C' DIM.	MAX 'C' DIM.
3/4"	3/8"	SIZE OF ANGLE IRON ON BOTTOM CHORD OF BAR JOIST PLUS 1-1/2"	1/2"	1-5/8"
1"			5/8"	1-3/4"
1-1/4"			13/16"	1-7/8"
1-1/2"			15/16"	2"
2"			1-3/16"	2-3/8"
2-1/2"			1-7/16"	2-3/4"
3"			1-3/4"	3-1/4"
3-1/2"			2"	3-5/8"
4"	1/2"		2-1/4"	3-7/8"
5"			2-3/4"	4-3/4"
6"			3-5/16"	5-1/2"
8"			4-5/16"	6-3/4"



- NOTES:
1. REINFORCEMENT MAY BE USED FOR ATTACHMENT IF IT QUALIFIES FOR BOTH DUTIES.
 2. DO NOT EXCEED LOAD RATINGS FOR METHOD USED. FROM SMACNA DUCT STANDARDS

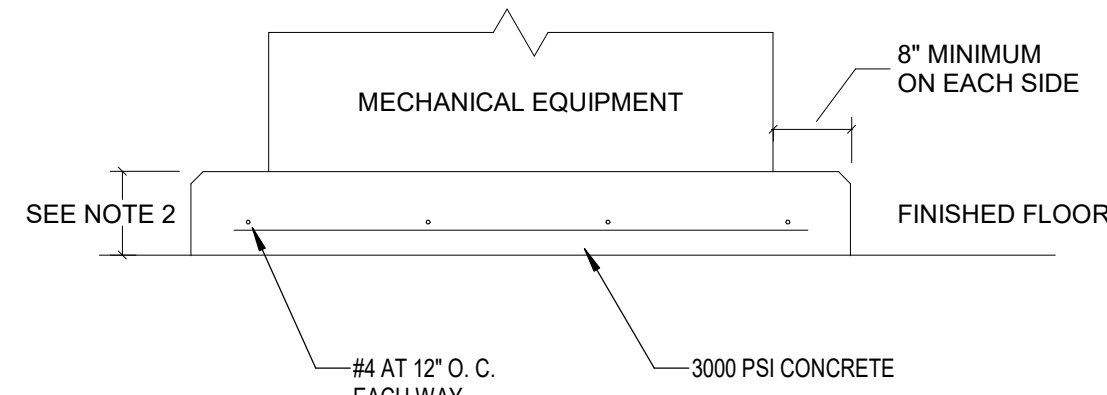


8 HANGERS

NOT TO SCALE

4 DETAIL - TYPICAL DUCT HANGERS

NOT TO SCALE

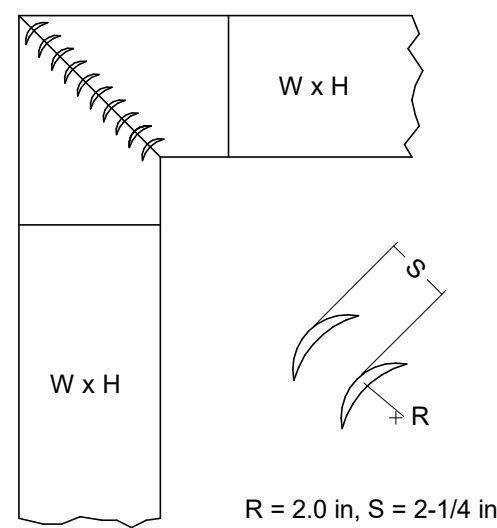


- NOTES:
1. ACTUAL PAD SIZE TO BE DETERMINED AFTER ALL EQUIPMENT HAS BEEN SUBMITTED AND REVIEWED.
 2. PAD SHALL BE 6" HIGH FOR BOILERS AND 4" HIGH FOR ALL OTHER EQUIPMENT.

7 HANGERS

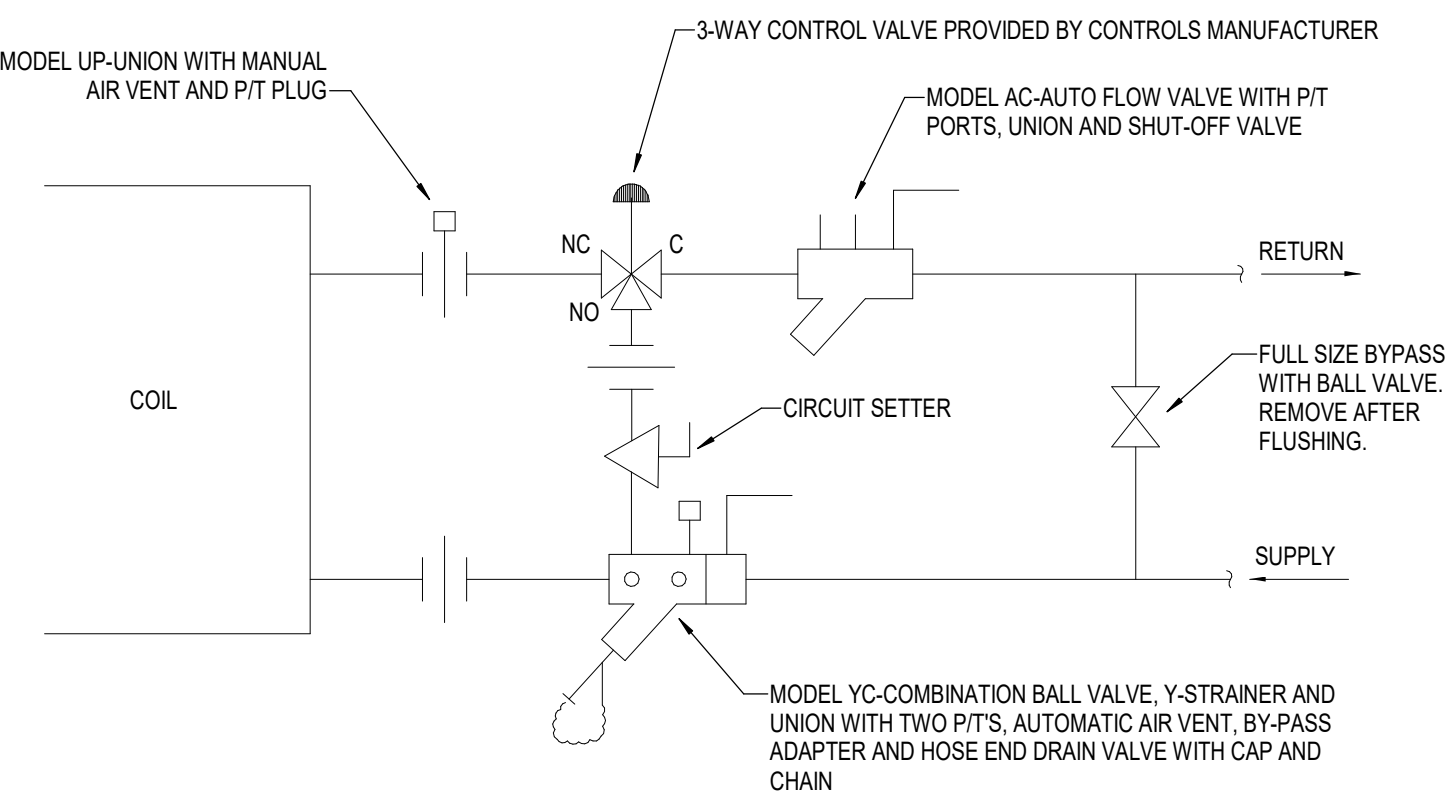
NOT TO SCALE

BAR JOIST HANGER WITH NUTS AND WASHERS



11 DETAIL - MECH EQUIP. INTERIOR HOUSEKEEPING PAD

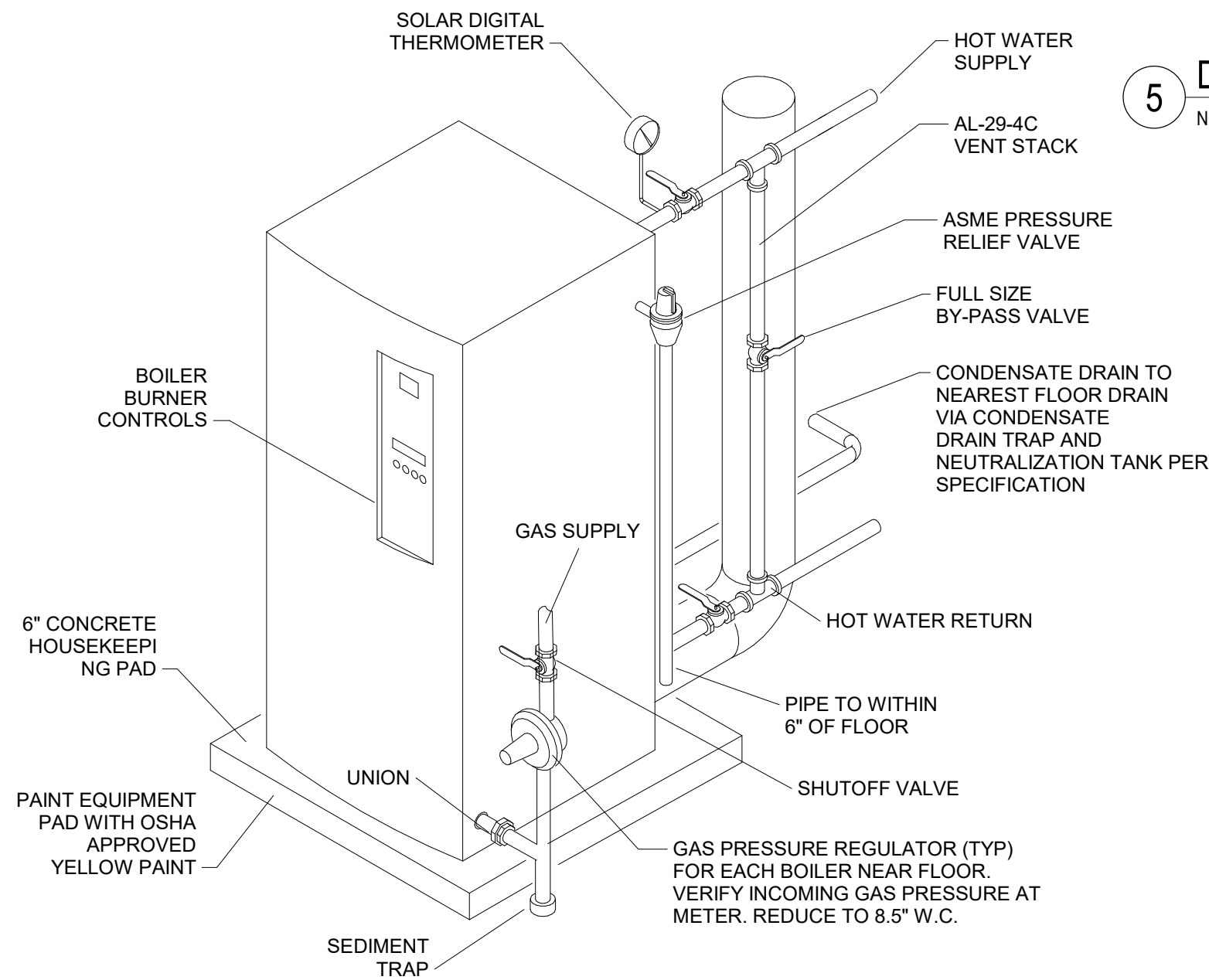
NOT TO SCALE



- NOTES:
1. ALL COMPONENTS MUST BE EQUIVALENT IN QUALITY TO THE SINGULAR COMPONENTS.
 2. ALL MODEL NUMBERS ARE BASED ON FLOW DESIGN, INC.
 3. VALVE LOCATION MUST NOT INTERFERE WITH COIL OR FILTER REMOVAL.
 4. PROVIDE EXTENDED HANDLES ON ALL VALVES TO BE INSULATED.

9 DETAIL - AIR COOLED CHILLER PAD

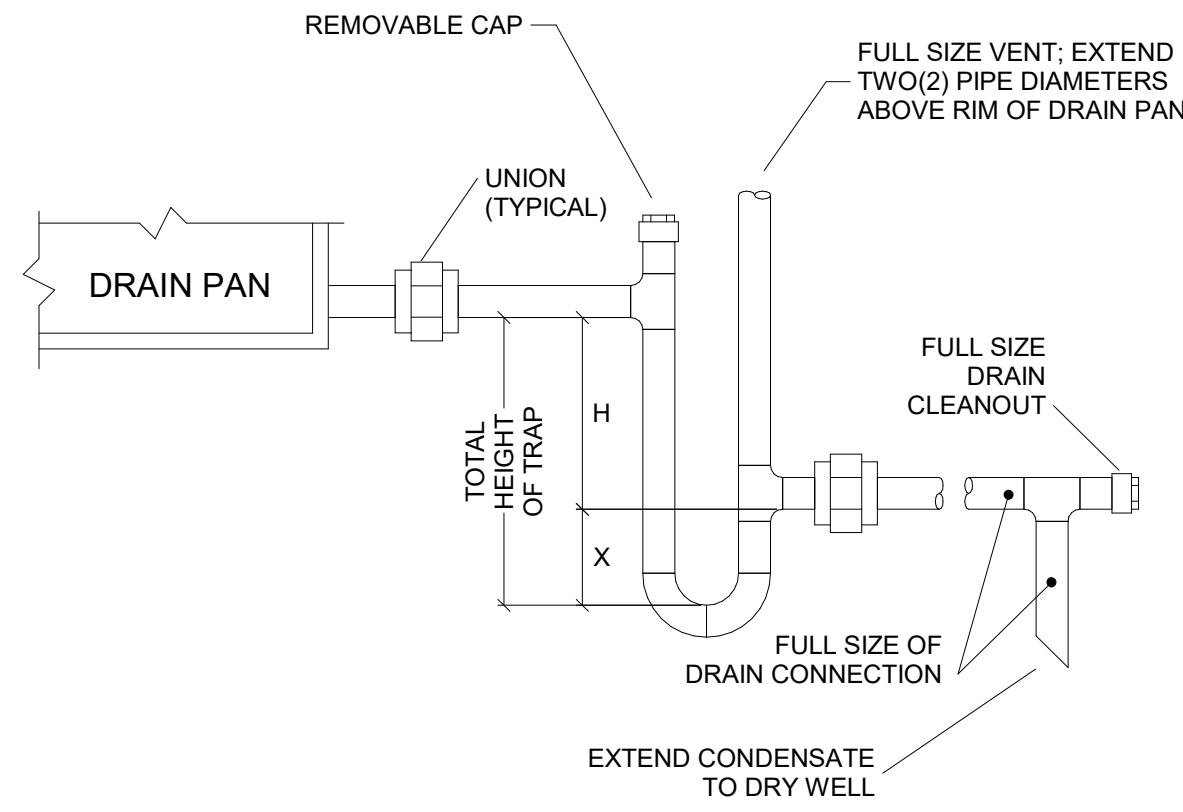
NOT TO SCALE



NOTE: DETAIL IS GENERIC AND BRAND AGNOSTIC. PIPING, FLUE, AND COMBUSTION AIR LOCATIONS MAY VARY DEPENDING ON MANUFACTURER.

10 DETAIL - BOILER

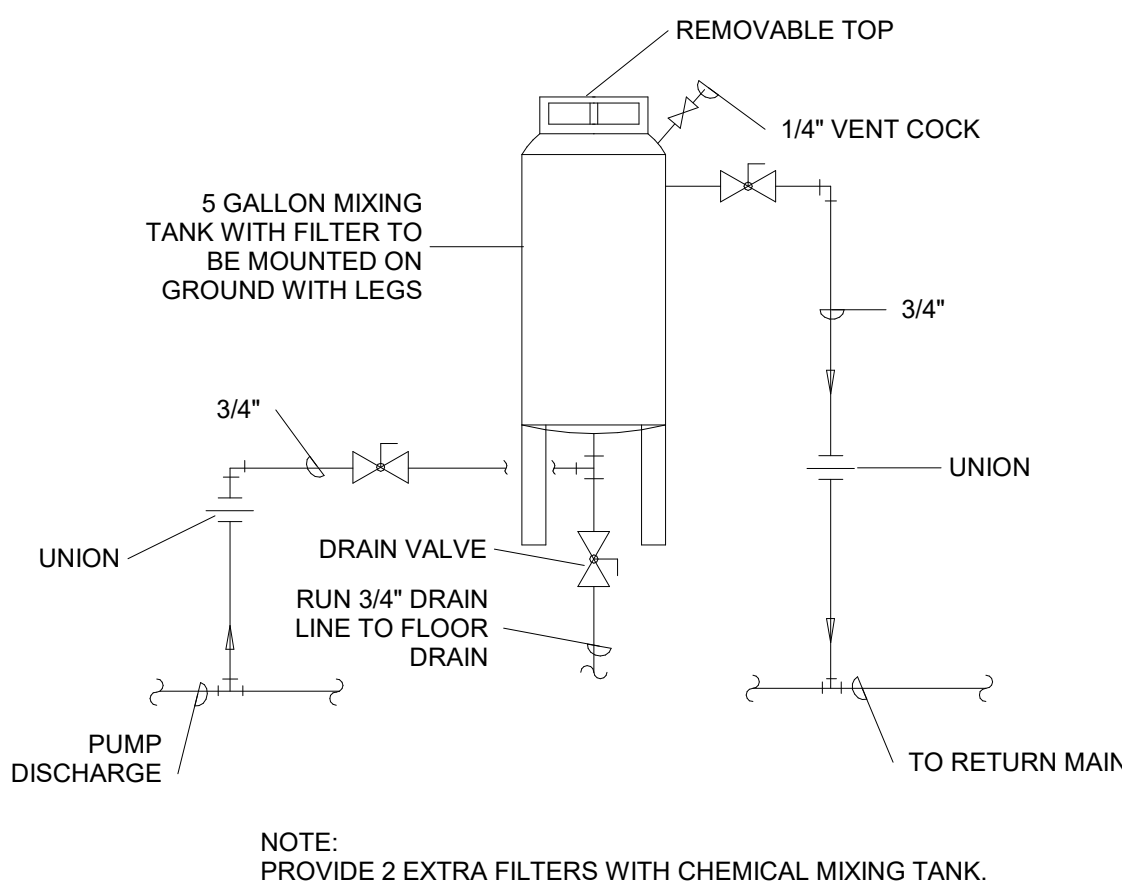
NOT TO SCALE



BLOW THROUGH	DRAW THROUGH
X = MINIMUM 1" PLUS CASING STATIC PRESSURE	X = 1/2 "H"
H = MINIMUM 1"	H = MINIMUM 1" PLUS CASING STATIC PRESSURE

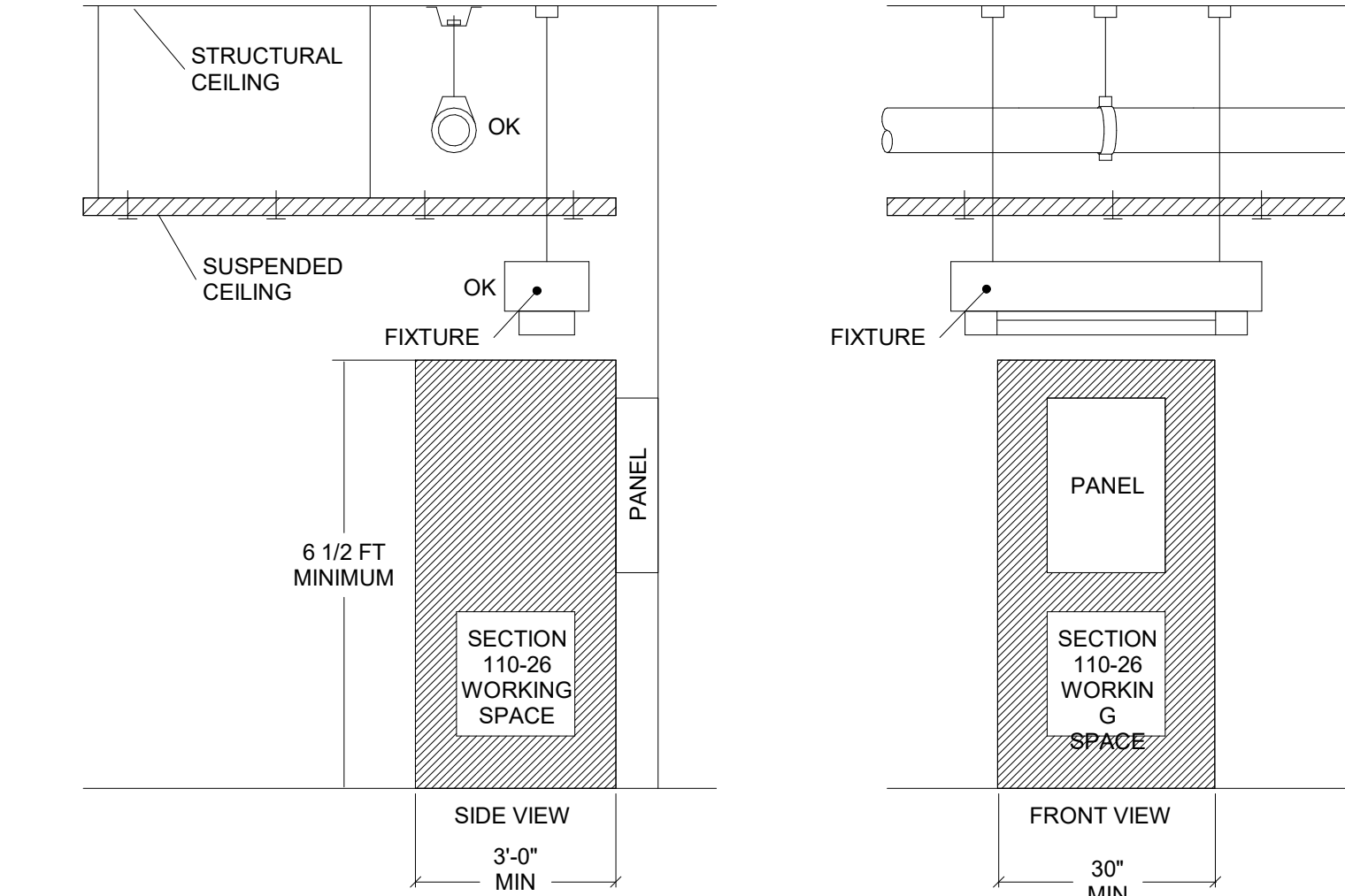
5 DETAIL - CONDENSATE DRAIN DETAIL

NOT TO SCALE



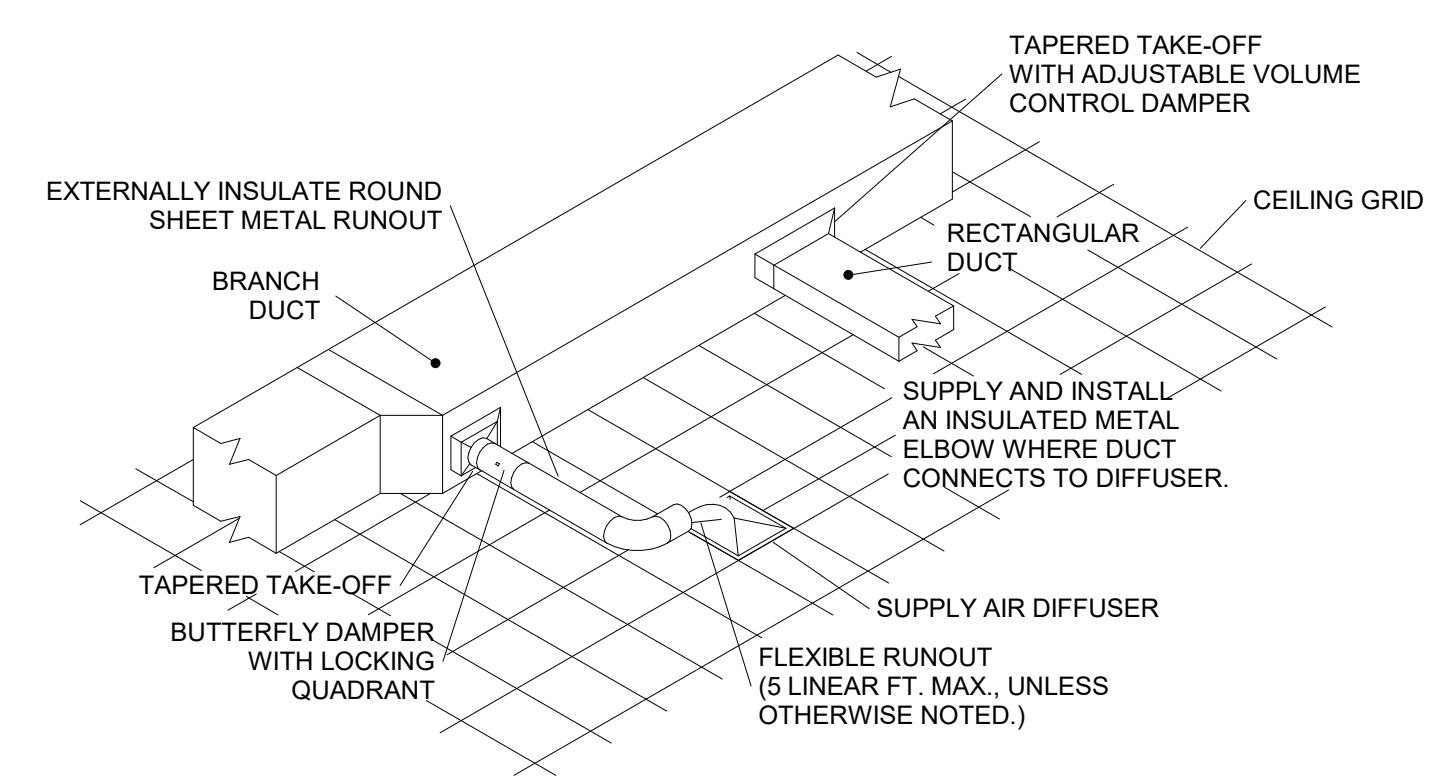
6 DETAIL - CHEMICAL FEED

NOT TO SCALE



2 DETAIL - WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT

NOT TO SCALE



3 DETAIL - SUPPLY, RETURN & EXHAUST AIR TAKE-OFF

NOT TO SCALE



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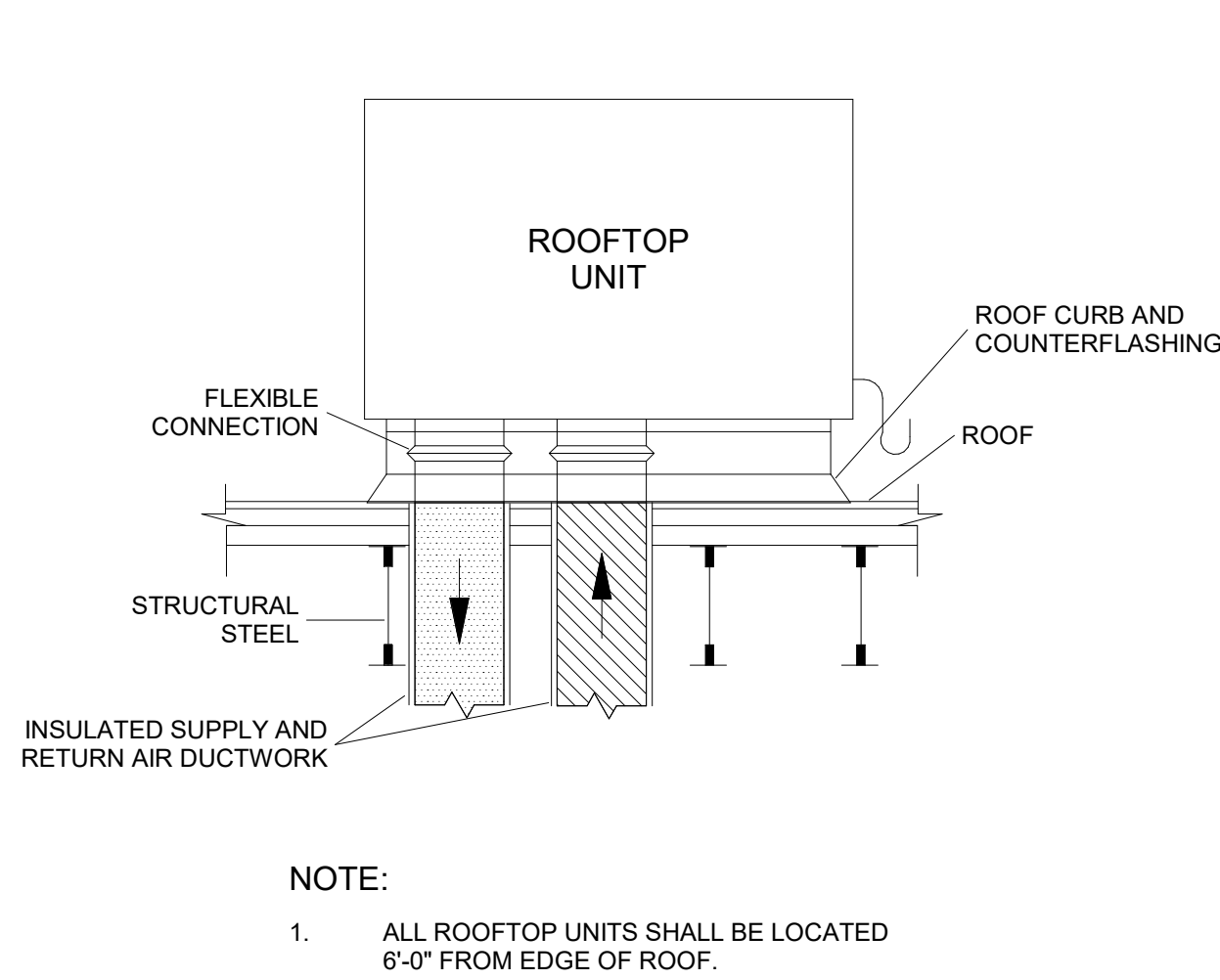
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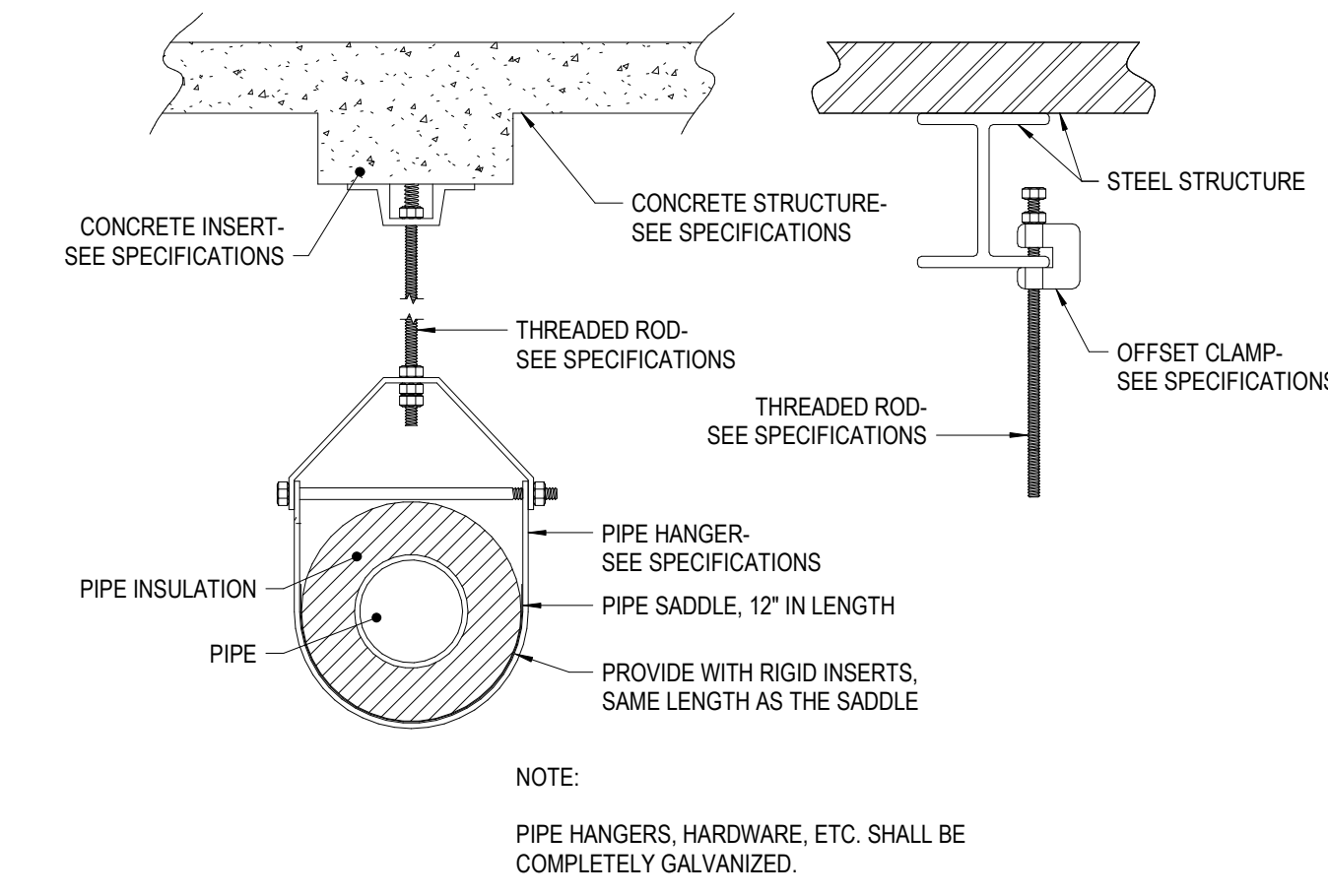
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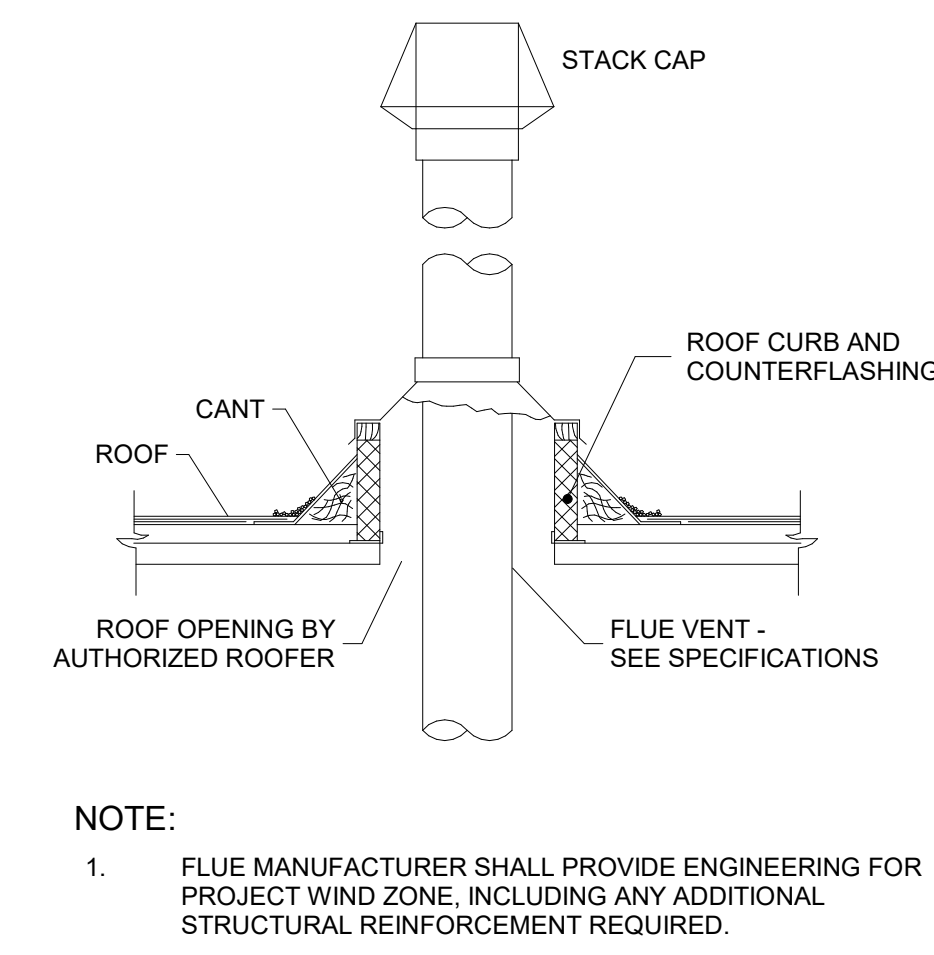
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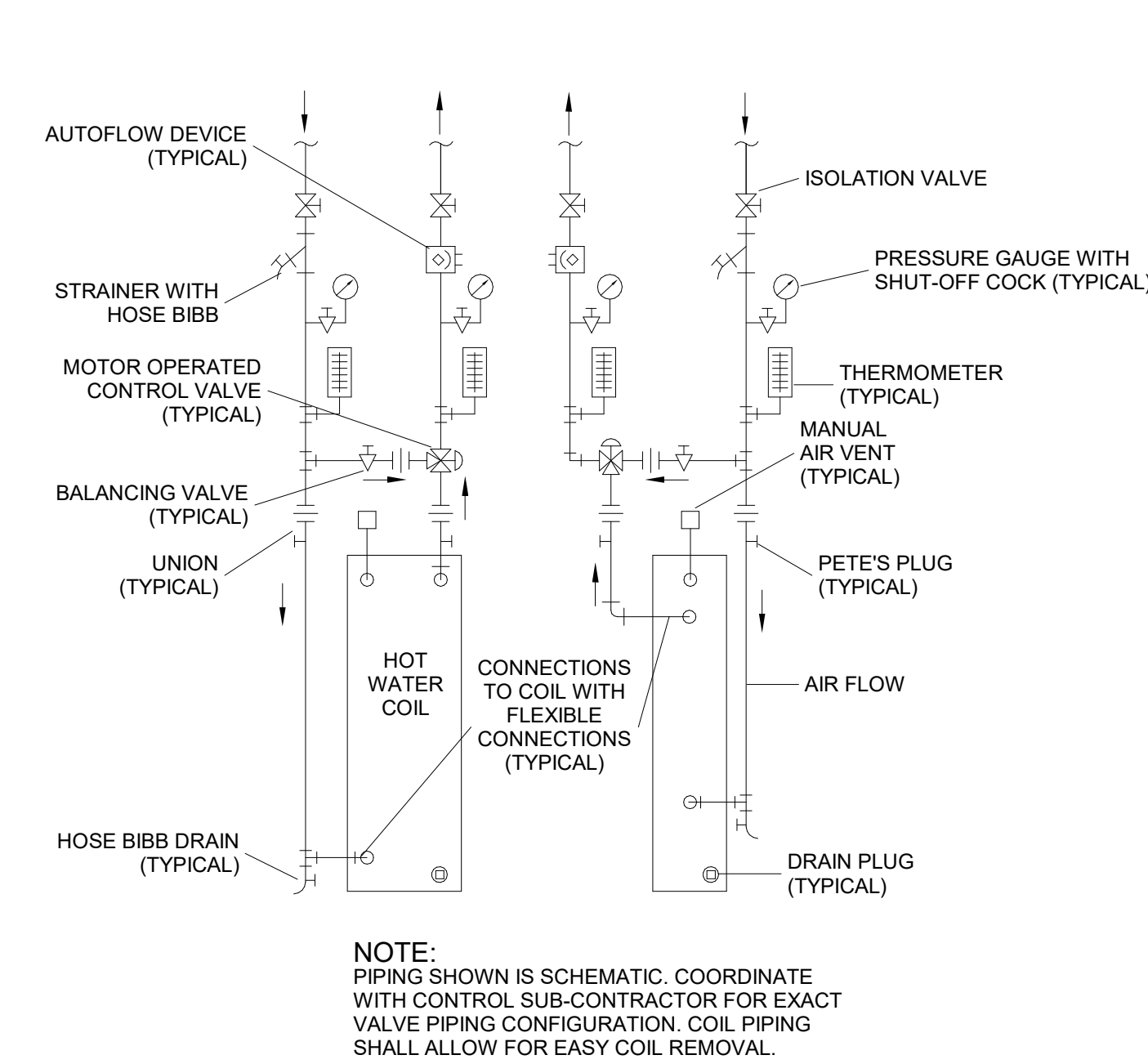
7 DETAIL - ROOF TOP HEAT PUMP UNIT
NOT TO SCALE



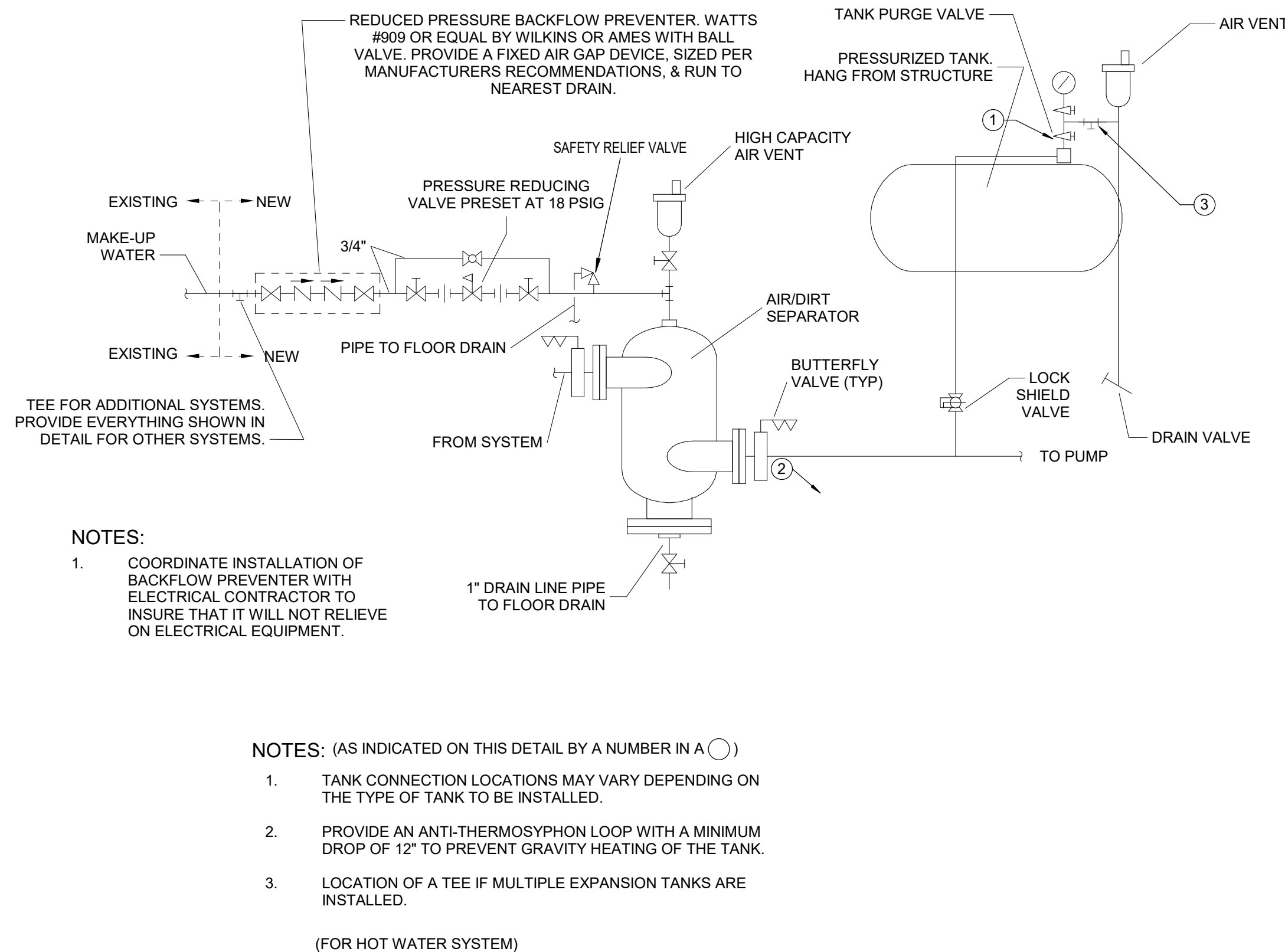
6 PIPE HANGERS
NOT TO SCALE



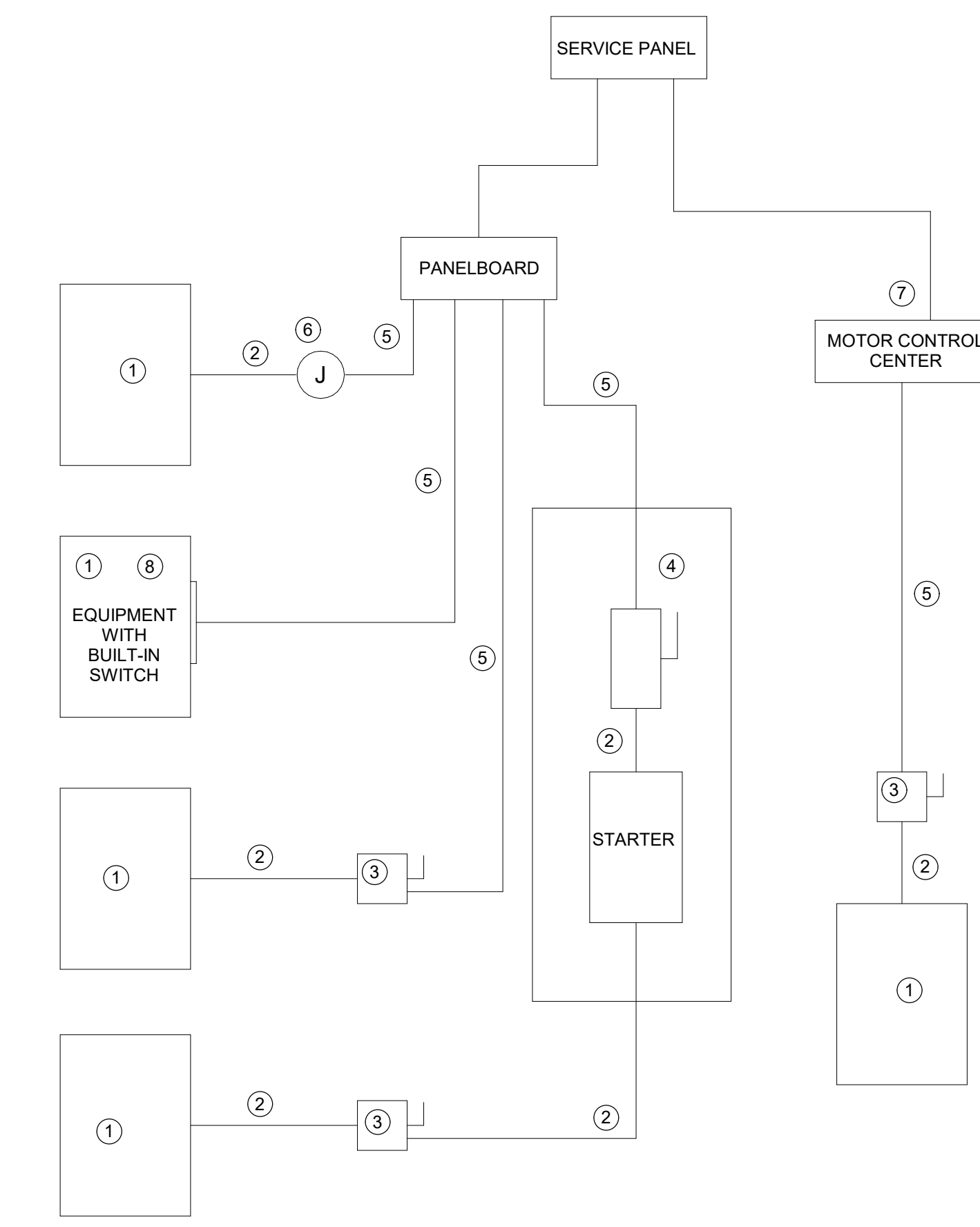
4 DETAIL - FLUE VENT THRU ROOF
NOT TO SCALE



1 DETAIL - THREE(3)-WAY VALVE
NOT TO SCALE

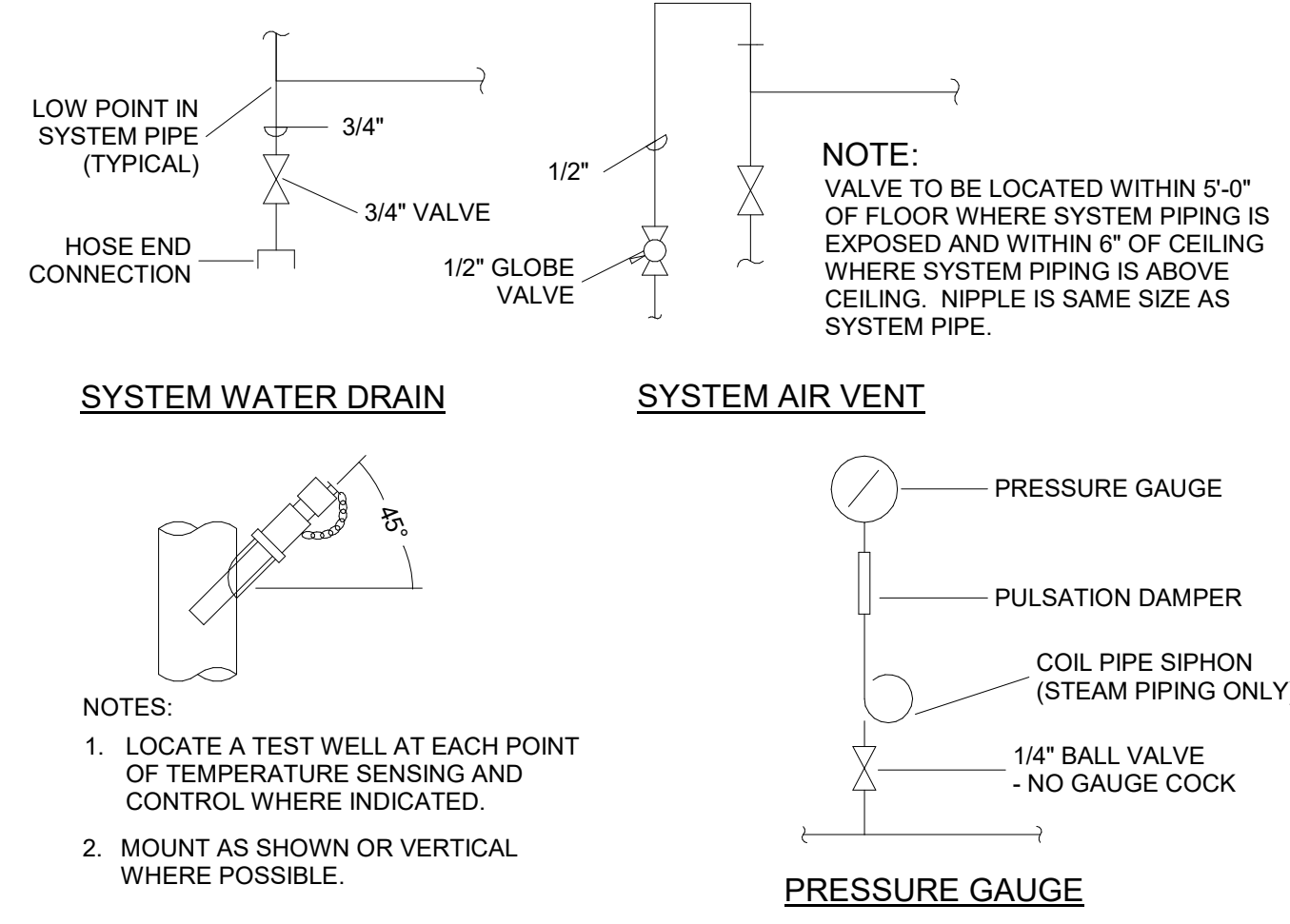


8 DETAIL - EXPANSION TANK INSTALLATION WITH AIR SEPARATOR
NOT TO SCALE

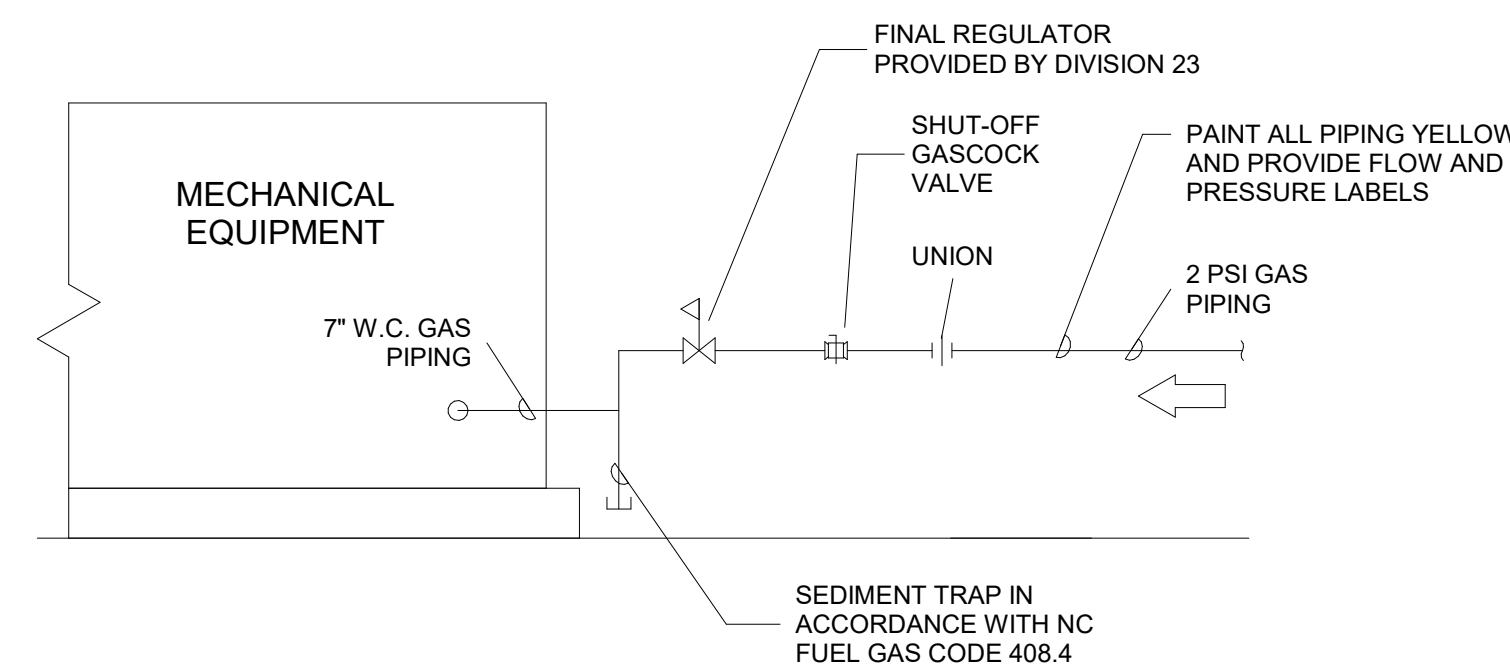


- GENERAL NOTES:
- A. IN A SINGLE PRIME CONTRACT IT IS THE RESPONSIBILITY OF THE PRIME CONTRACTOR TO COORDINATE BETWEEN THE ELECTRICAL AND OTHER TRADES.
 - B. IN ALL CASES, THE EQUIPMENT CONTRACTOR SHALL MAKE THE FINAL CONNECTIONS, START UP, AND TEST AND COMMISSION THE EQUIPMENT.
- NOTES: (AS INDICATED IN THIS DETAIL BY A NUMBER IN A ○)
- 1. EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
 - 2. CONDUIT AND WIRING BY HVAC, PLUMBING CONTRACTOR OR TRADES.
 - 3. IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR.
 - 4. A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPERATE DISCONNECT SWITCH AND STARTER, PROVIDE ADJACENT TO EQUIPMENT. THIS SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR. (VFDs SHALL BE PROVIDED BY CONTROLS CONTRACTOR FOR NON-PACKAGED EQUIPMENT).
 - 5. FEEDER CIRCUIT WIRING AND CONDUIT PROVIDED IN ELECTRICAL WORK. REFER TO PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
 - 6. JUNCTION BOX MAY BE INDICATED ON THE ELECTRICAL DRAWINGS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS FURNISHED BY THE EQUIPMENT MANUFACTURER, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO THE EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
 - 7. FOR PROJECTS UTILIZING A MOTOR CONTROL CENTER (MCC), THE STARTER, CIRCUIT BREAKER, OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.
 - 8. IF THE EQUIPMENT IS NOT PROVIDED WITH A BUILT-IN DISCONNECT SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.

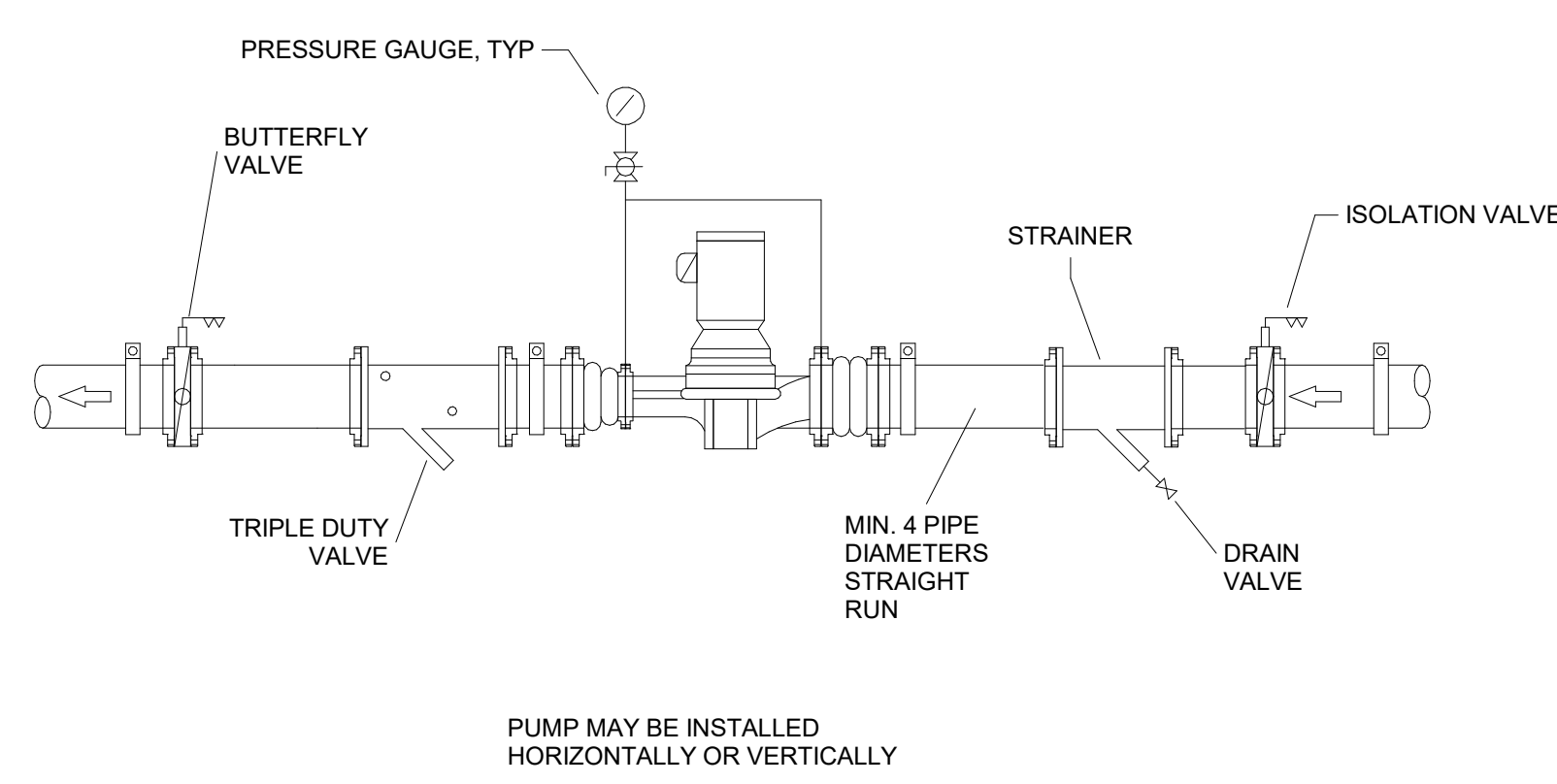
5 DETAIL - ELECTRICAL EQUIPMENT CONNECTIONS
NOT TO SCALE



2 DETAIL - MISC. HYDRONIC ACCESSORIES
NOT TO SCALE



3 DETAIL - TYPICAL GAS CONNECTION
NOT TO SCALE



9 DETAIL - IN LINE PUMP AT BOILERS
NOT TO SCALE



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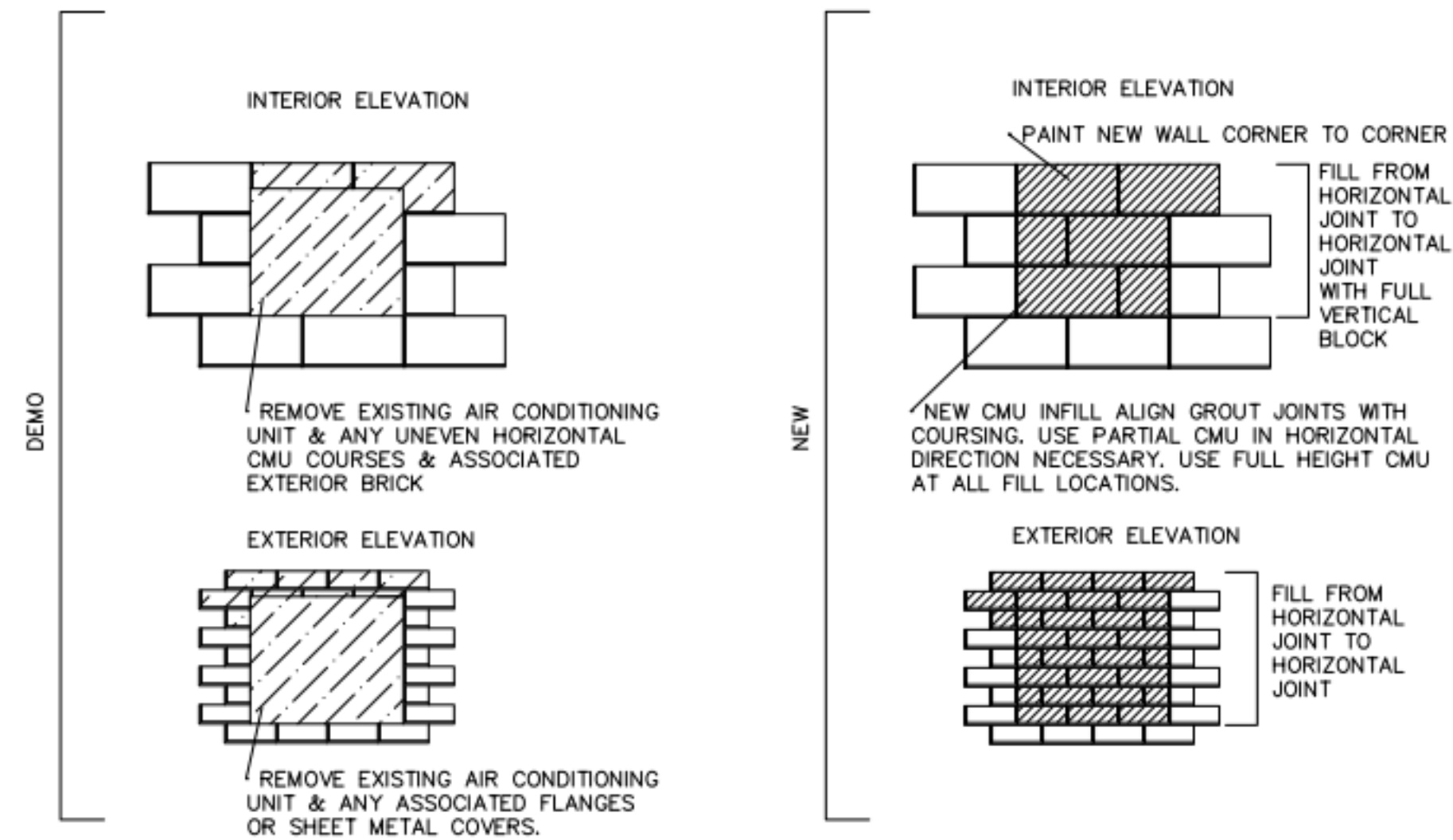
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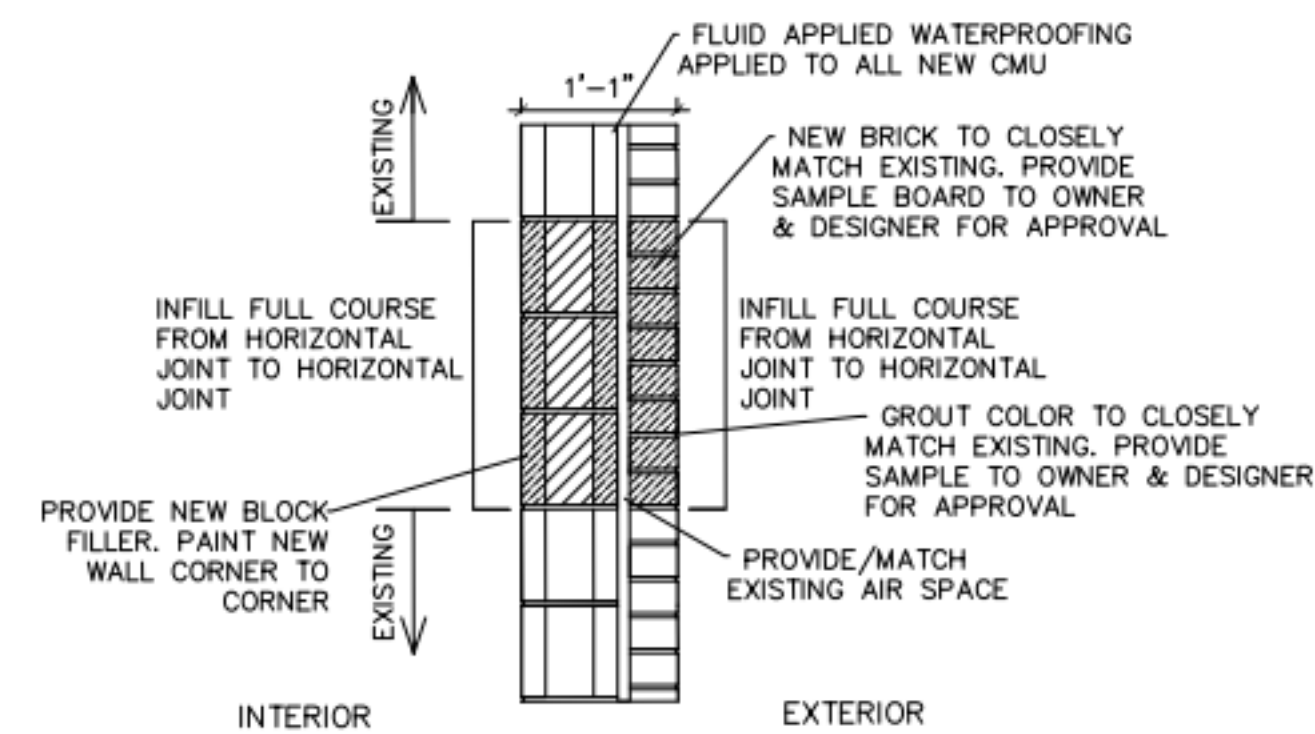
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01 ELEVATION AT WALL MOUNTED HVAC UNIT
Scale: 1/2"= 1'-0"



02 SECTION DETAIL AT INFILL FOR HVAC UNIT
Scale: 3/4"= 1'-0"

RTU SEQUENCE OF OPERATIONS - DX COOLING, HOT WATER HEAT

RUN CONDITIONS - SCHEDULED:
SEQUENCES WILL BE INITIATED 30 MINUTES (ADJ.) OR MORE PRIOR TO BUILDING OCCUPANCY SCHEDULE BASED ON OPTIMIZED START PARAMETERS. THE ASSOCIATED OUTSIDE AIR DAMPER SHALL BE OPEN IN OCCUPIED MODE AND CLOSED IN MORNING WARM-UP, COOL-DOWN, OR UNOCCUPIED MODES.

THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:

- OCCUPIED MODE: THE UNIT SHALL MAINTAIN
75°F (ADJ.) COOLING SETPOINT
70°F (ADJ.) HEATING SETPOINT.
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN
80°F (ADJ.) COOLING SETPOINT.
65°F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE SETPOINT ADJUST:

THE OCCUPANTS SHALL BE ABLE TO ADJUST THE ZONE TEMPERATURE HEATING AND COOLING SETPOINTS AT THE ZONE SENSOR (OPERATOR SHALL HAVE ABILITY TO LOCK OUT LOCAL ADJUSTMENT). THE ZONE SENSOR MAY BE OVERRIDDEN AT THE BAS OPERATOR WORKSTATION.

ZONE OPTIMAL START:

THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

ZONE UNOCCUPIED OVERRIDE:

A TIMED LOCAL OVERRIDE CONTROL SHALL ALLOW AN OCCUPANT TO OVERRIDE THE SCHEDULE AND PLACE THE UNIT INTO AN OCCUPIED MODE FOR AN ADJUSTABLE PERIOD OF TIME (DEFAULT, 2 HOURS, ADJ.). AT THE EXPIRATION OF THIS TIME, CONTROL OF THE UNIT SHALL AUTOMATICALLY RETURN TO THE SCHEDULE.

SUPPLY FAN:

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).
- DRAIN PAN FLOAT SWITCH HAS BEEN ACTIVATED (HARDWIRE TO FAN SHUTDOWN)

ZONE TEMPERATURE CONTROL:

ON A CALL FOR COOLING, THE DX UNIT SHALL BE ENABLED AND SHALL PROVIDE COOLING.

THE COOLING LOOP SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS GREATER THAN 65°F (ADJ.).
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING LOOP IS NOT ACTIVE.
- AND THE ECONOMIZER LOOP IS NOT ACTIVE.

ON A CALL FOR HEATING, THE UNIT SHALL ENABLE ITS HOT WATER COIL AND MODULATE THE HOT WATER CONTROL VALVE TO PROVIDE HEAT TO THE ZONE.

THE HEATING LOOP SHALL BE ENABLED WHENEVER:

- OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F (ADJ.).
- AND THE ZONE TEMPERATURE IS BELOW COOLING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE COOLING LOOP IS NOT ACTIVE.
- AND THE ECONOMIZER LOOP IS NOT ACTIVE.

THE UNIT SHALL RUN ACCORDING TO ITS OWN PACKAGED CONTROLS AND SAFETIES. IT SHALL STAGE ITS COMPRESSORS AND CAPACITY INTERNALLY. WHEN THE CALL FOR COOLING OR HEATING HAS BEEN SATISFIED, THE UNIT SHALL BE DISABLED. A SHORT CYCLE TIMER SHALL PREVENT THE UNIT FROM STARTING AND STOPPING MORE THAN FIVE (5) TIMES PER HOUR.

MINIMUM OUTSIDE AIR VENTILATION:

THE OUTSIDE AIR DAMPERS SHALL BE OPEN DURING BUILDING OCCUPIED HOURS. OUTSIDE AIR DAMPER SHALL BE FULLY CLOSED DURING UNOCCUPIED HOURS.

ECONOMIZER MODE:

IF THE OUTSIDE AIR TEMPERATURE IS BELOW 70 DEG F (ADJ) AND THE OUTSIDE AIR ENTHALPY IS BELOW 28 BTU/LB, ECONOMIZER MODE SHALL BE ENABLED. THE UNIT SHALL ALLOW THE OUTSIDE AIR DAMPER TO MODULATE UP TO THE 100% POSITION TO PROVIDE FREE COOLING - EITHER IN CONJUNCTION WITH MECHANICAL COOLING OR ALONE. THE RETURN AIR DAMPER SHALL MODULATE INVERSELY TO THE OUTSIDE AIR DAMPER. THE GRAVITY RELIEF DAMPER REQUIRES NO BAS CONTROL. THE UNIT SHALL EXIT ECONOMIZER MODE IF THE OUTSIDE AIR ENTHALPY RISES ABOVE 28 BTU/LB, IF THE OUTSIDE AIR TEMPERATURE DROPS BELOW 45 DEG F (ADJ.), OR IF THE ECONOMIZER LOOP IS AT 100% AND THE SPACE SETPOINT IS NOT BEING MAINTAINED.

DEHUMIDIFICATION:

THE CONTROLLER SHALL MEASURE THE RETURN AIR RELATIVE HUMIDITY AND OVERRIDE THE COOLING SEQUENCE TO MAINTAIN RETURN AIR HUMIDITY AT OR BELOW 60% RH (ADJ.). DURING DEHUMIDIFICATION MODE, THE COOLING COIL DISCHARGE AIR TEMPERATURE SHALL BE RESET TO 53 DEG F (ADJ.), AND THE HOT GAS REHEAT COIL SHALL MODULATE TO MAINTAIN A SUPPLY AIR SETPOINT 2°F (ADJ.) LESS THAN THE ZONE COOLING SETPOINT.

DEHUMIDIFICATION SHALL BE ENABLED WHENEVER:

- THE SUPPLY FAN STATUS IS ON.
- AND THE OUTSIDE AIR TEMPERATURE IS GREATER THAN 50 DEG F (ADJ)

RETURN AIR HUMIDITY:

THE CONTROLLER SHALL MONITOR THE RETURN AIR HUMIDITY AND USE AS REQUIRED FOR HUMIDITY CONTROL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS GREATER THAN 65% (ADJ.).

RETURN AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE RETURN AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

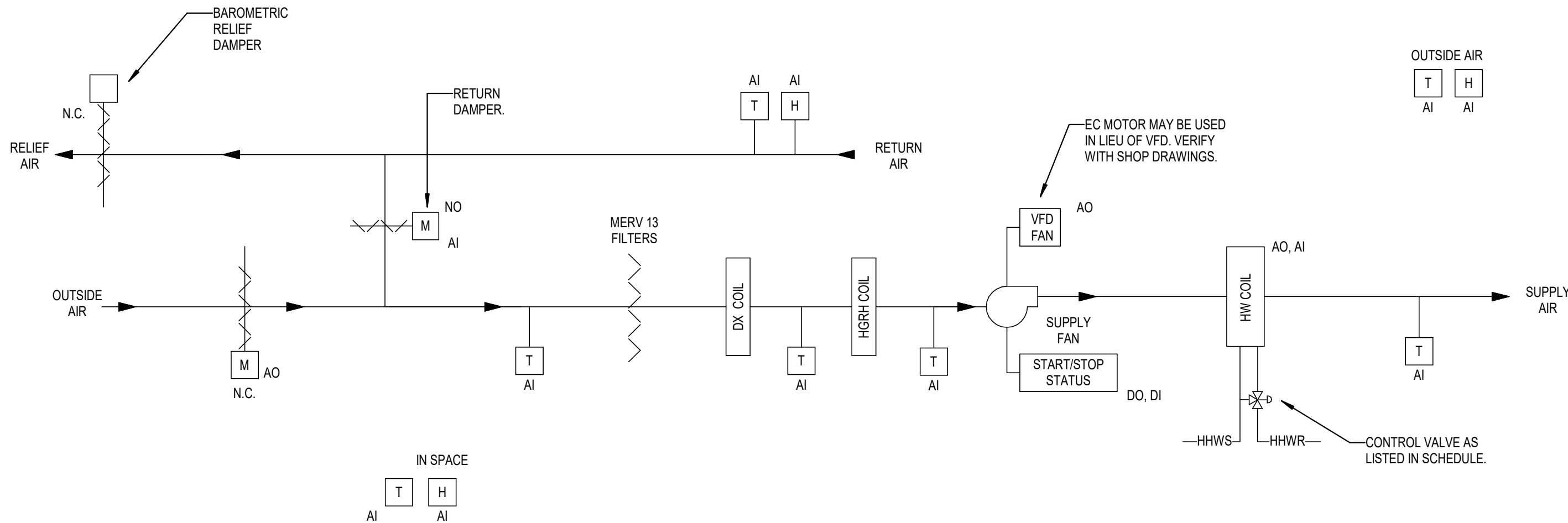
- HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 85°F (ADJ.).
- LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 55°F (ADJ.).

SUPPLY AIR TEMPERATURE:

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:

- HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 110°F (ADJ.).
- LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).



PACKAGED DX UNIT SCHEMATIC

NOTE: ALL POINTS FROM UNIT SHALL BE VIA INTEGRATION THROUGH FACTORY BACNET INTERFACE.

ALL ANALOG OUTPUTS SHALL BE FIELD WRITEABLE.



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06/09/2023

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PDC 22034 06/09/2023

REVISIONS

NUMBER	DATE	DESCRIPTION

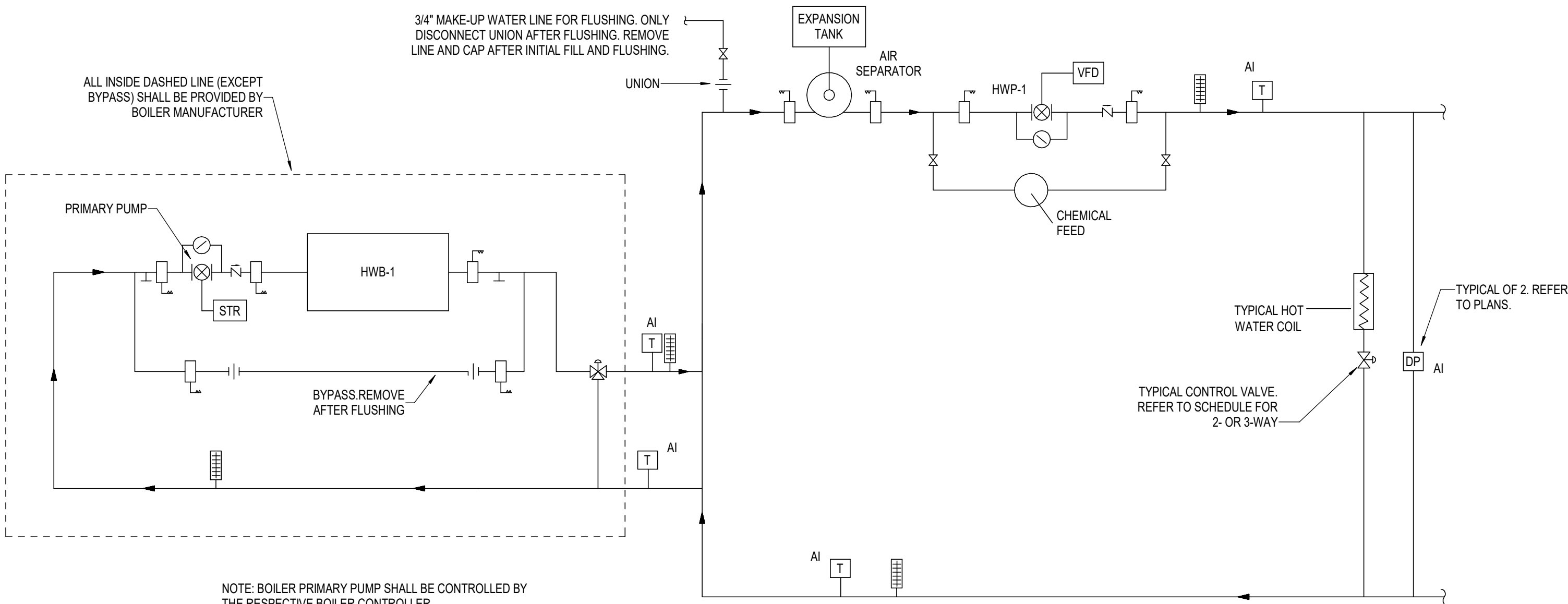
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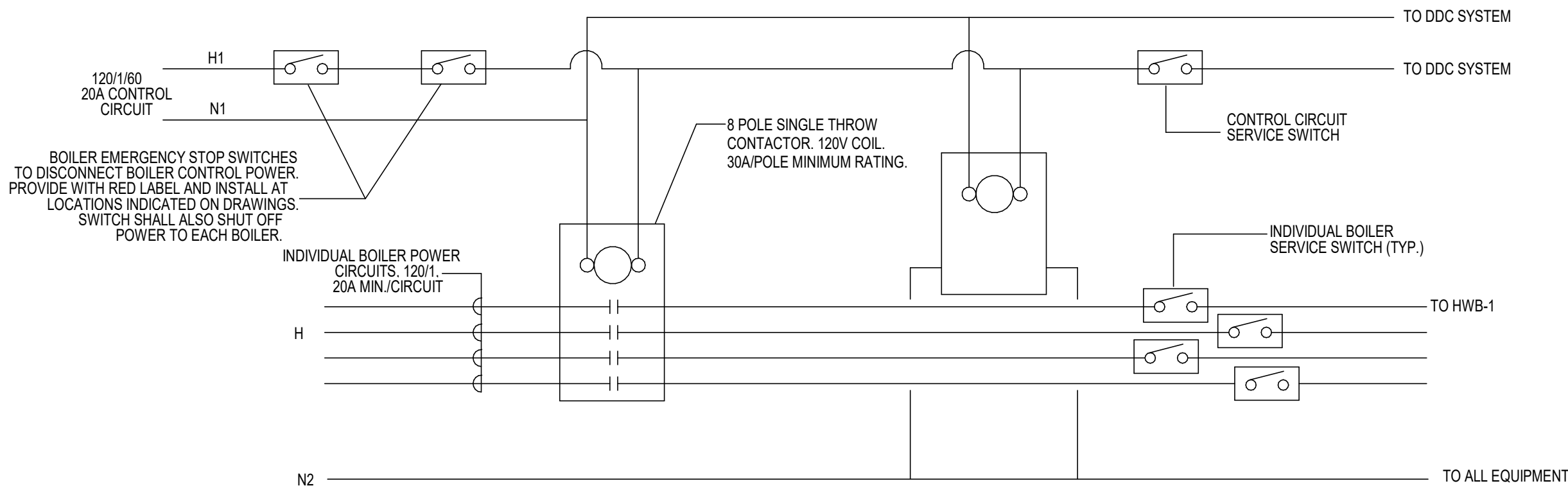
NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
1311 US Hwy 301 South,
Wilson, NC 27893
SCO# 22-24313-01A

RTU WITH HW
HEAT

M6.01



HOT WATER PIPING SCHEMATIC



BOILER EMERGENCY OFF - TYPICAL

HOT WATER PLANT SEQUENCE OF OPERATIONS

THE HOT WATER SYSTEM SHALL BE ENABLED TO OPERATE WHEN:

1. THE OUTSIDE AIR TEMPERATURE IS BELOW 60°F (ADJ)

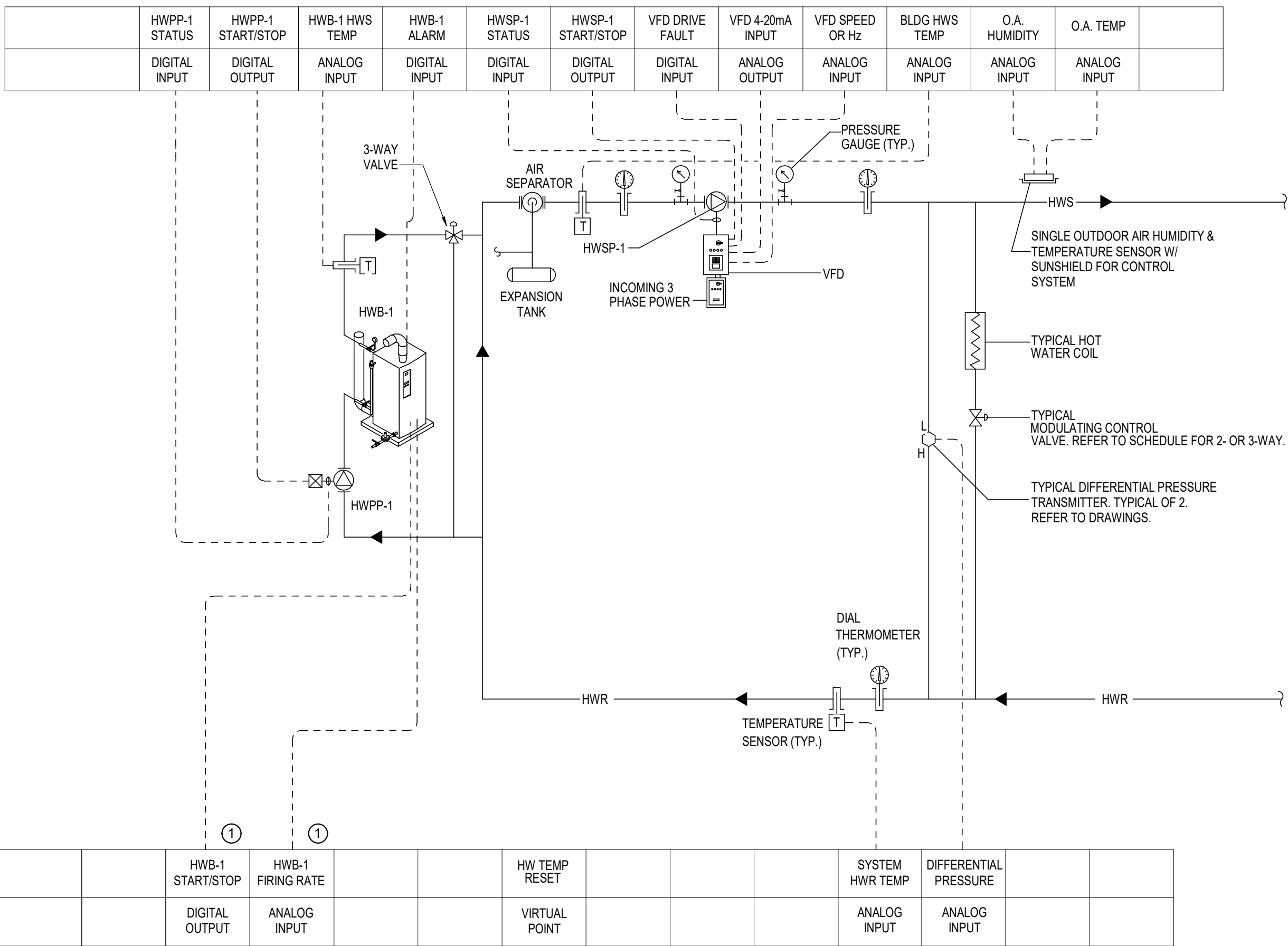
THE HOT WATER SYSTEM PUMP IS A VARIABLE FLOW PUMP WITH VARIABLE FREQUENCY DRIVE. WHEN THE BOILER PLANT IS ENABLED, THE VARIABLE FREQUENCY DRIVE OF THE PUMP SHALL START AT MINIMUM SPEED AND RAMP UP TO THE MAXIMUM SPEED COMMAND ESTABLISHED BY THE TAB CONTRACTOR DURING TEST AND BALANCING..

THE BOILER START SEQUENCE, BOILER PRIMARY PUMP, 3-WAY VALVE, BOILER DISCHARGE TEMPERATURE, BOILER FIRING RATE, AND BOILER STAGING/SEQUENCING SHALL BE CONTROLLED BY THE MANUFACTURER'S BOILER CONTROL PANEL. ONCE PROOF OF FLOW IS ESTABLISHED IN THE PRIMARY LOOP, THE BOILER SHALL ENABLED THE SECONDARY PUMP.

THE HEATING WATER SUPPLY TEMPERATURE SETPOINT SHALL BE RESET FROM 180°F HEATING SUPPLY WATER TEMPERATURE AT 35°F OUTSIDE AIR TEMPERATURE OR BELOW TO 130°F HEATING SUPPLY WATER TEMPERATURE AT 60°F OUTSIDE AIR TEMPERATURE OR ABOVE. THE INITIAL FIXED SETPOINT FOR THE HEATING SUPPLY WATER TEMPERATURE SHALL BE 180°F. AN ALARM SIGNAL SHALL BE SENT TO THE BAS IF THE BOILER PLANT IS ENABLED AND THE HEATING SUPPLY WATER TEMPERATURE DROPS BELOW 120°F (ADJ) FOR 10 MINUTES (ADJ). WHEN BOILER IS SHUTDOWN, ITS ASSOCIATED PRIMARY PUMP SHALL CONTINUE TO RUN FOR 5 MINUTES AFTER THE BOILER HAS STOPPED FIRING.

THE 3-WAY VALVE AT THE BOILER SHALL MODULATE TO PREVENT WATER LESS THAN 130 DEG F FROM ENTERING THE BOILER DURING COLD STARTUP AND AT ALL TIMES.

BOILER SHALL BE DISABLED (REMOVAL OF POWER FROM THE CONTROLLER) IF THE EMERGENCY PUSH BUTTON AT THE BOILER ROOM EXIT DOOR IS PUSHED.



BOILER PLANT SCHEMATIC

① BOILER STAGING AND FIRING RATE SHALL BE CONTROLLED BY BOILER MANUFACTURER'S FACTORY SUPPLIED CONTROLLER. BAS SHALL ENABLE AND MONITOR THE SYSTEM ONLY.

VARIABLE FREQUENCY DRIVE INTERFACE POINTS LIST TABLE			
POINT NAME	HARDWIRED	INTERFACE COM CARD	GUI DISPLAY
VFD COMMAND START/STOP	X	X	HARDWIRED
VFD SPEED COMMAND (%)	X	X	HARDWIRED
PUMP STATUS (VIA VFD)	X	X	HARDWIRED
VFD SPEED FEEDBACK (Hz)		X	COM
PUMP ALARM (COMMAND/STATUS MISMATCH)		X	COM
VFD FAULT STATUS		X	COM
VFD FAULT RESET		X	COM
VFD POWER (KW)		X	COM
TIMESTAMP		X	COM



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Wilson, NC 27893

SCO# 22-24313-01A

HW BOILER SCHEMATIC

M6.02

HOT WATER UNIT HEATER SCHEDULE (HWUH-1,2)

MODINE HC HORIZONTAL UNIT HEATER. 180°F ENTERING WATER TEMPERATURE. 45.6 MBH. 4.7 GPM. 0.6 FT PRESSURE DROP. 1120 CFM. 1/12 HP. 60°F EAT. 97°F LAT. EQUIVALENTS BY REZNOR, TRANE, OR AS LISTED IN THE SPECIFICATIONS. 115V/1PH.

PUMP SCHEDULE

MARK	MANUFACTURER	SERIES	MODEL	GPM	HEAD (FT)	EFF (%)	BHP	HP	IMP (IN)	RPM	V	PH	REMARKS
HWP-1	B&G	e-90	1.25AAB	63	55	54.1	1.26	3.0	4.75	2865	208	3	

GENERAL NOTES:

A. PROVIDE VFD WITH PUMP
B. PROVIDE INVERTER DUTY MOTOR WITH AEGIS SHAFT GROUNDING RING
C. PROVIDE WITH SUCTION DIFFUSER AND TRIPLE DUTY VALVE
D. EQUIVALENTS TACO, ARMSTRONG, OR AS LISTED IN SPECIFICATIONS
E. PUMPS SHALL BE VERTICAL IN-LINE TYPE.

AIR CONTROL

HOT WATER:

AS-1 - ARMSTRONG - DAS-2.5-R AIR/DIRT SEPARATOR, WITH STRAINER, BLOWDOWN VALVE, AND AUTOMATIC AIR VENT. 63 GPM, 125 PSI. ASME STAMPED. FLANGED REMOVABLE HEAD.

EXP-1 - B&G - D-60, 35 GALLON ASME BLADDER EXPANSION TANK WITH ACCEPTANCE VOLUME = 28 GALLONS. FIELD CHARGE TO 20.0 PSI. 175 PSI. PROVIDE CALIFORNIA SIGHT GLASS. ASME STAMPED. EQUIVALENTS IN THE SPECIFICATIONS. TANK SHALL BE SUITABLE FOR HORIZONTAL INSTALLATION.

HOT WATER DUCT COIL SCHEDULE

MARK	DUCT SIZE	CFM	CAPACITY (MBH)	APD IN. WG	COIL DATA					LAT (°F)	CONTROL VALVE	REMARKS
					GPM	EWT (°F)	LWT (°F)	WPD FT WG	EAT (°F)			
HWC-1	24x14	1200	50.2	0.15	5.1	180	160	2.5	56.0	94.6	3-WAY	
HWC-2	28x16	1600	67.1	0.15	6.9	180	160	2.5	55.0	93.7	3-WAY	
HWC-3	28x16	1600	67.1	0.15	6.9	180	160	2.5	55.0	93.7	3-WAY	
HWC-4	28x16	1700	67.1	0.17	6.9	180	160	1.5	57.8	94.2	2-WAY	
HWC-5	28x16	1700	67.1	0.17	6.9	180	160	1.5	57.8	94.2	2-WAY	

GENERAL NOTES:

A. PROVIDE STAINLESS STEEL COIL CASINGS.
B. PROVIDE FLANGED INLET AND OUTLET.
C. CONTROLS CONTRACTOR SHALL PROVIDE CONTROLL VALVES.
D. COIL SELECTIONS INCLUDE 0.0001 FLUID FOULING FACTOR.
E. COILS ARE SELECTED FOR 12 FINS/INCH
F. BASIS OF DESIGN IS CAPITAL COIL.. EQUIVALENTS BY GREENHECK AND LUVATA OR AS LISTED IN THE SPECIFICATIONS.

HOT WATER BOILER SCHEDULE

MARK	TYPE	INPUT (MBH)	OUTPUT (MBH)	EFF (%)	TURN DOWN	FLOW DATA				ELECTRICAL		WEIGHT (LBS)	REMARKS
						MIN GPM	GPM	EWT (°F)	LWT (°F)	WPD FT	V	PH	
HWB-1	COPPER FIN	750.0	630.0	84	60%	32	63	160	180	6	120	1	670

BOILER SCHEDULE (HWB-1)

RAYPACK MVB BOILER, 754A, MODULATING NON-CONDENSING, LOW NOX <30 PPM ALL FIRING RATES TYPE, 63 GPM AT 20 DEG DELTA T. 750.0 MBH INPUT, 630.0 MBH OUTPUT. ELECTRONIC MODULAION, 60% MINIMUM FIRE. FM CONTROLS AND ALARM CONTACTS. PROVIDE 75 PSI RELIEF VALVE. NATURAL GAS FIRED. 115V/1PH, 12 FLA, 20 MOPCP. 30"W X 50"D X 49"H, 670 LBS. SUPPLY WATER TEMPERATURE 180°F. RETURN TEMPERATURE 180°F. PROVIDE SINGLE POINT POWER CONNECTION. COORDINATE FINAL SIZE, VOLTAGE AND PHASE OF THE ELECTRICAL REQUIREMENTS OF THE BOILER WITH THE ELECTRICIAN. PROVIDE GAS PRESSURE REGULATORS FOR EACH BOILER TO PROVIDE 4" WC, MIN. @ FULL INPUT LOAD, 2 PSI MAXIMUM. PROVIDE SYSTEM CONTROLLER WITH MODBUS COMMUNICATIONS. BOILER SHALL CONTROL ITS RESPECTIVE PRIMARY PUMP. EQUIVALENTS BY LOCHINVAR, LAARS, AND AS LISTED IN THE SPECIFICATIONS. COORDINATE WITH CONTROLS CONTRACTOR.

PROVIDE BACNET GATEWAY. PROVIDE FACTORY COLD WATER START OPTION WITH BRONZE PRIMARY PUMP AND 3-WAY CONTROL VALVE TO MAINTAIN INLET TEMPERATURE TO BOILER.

PROVIDE COMBUSTION AIR FILTER.

BOILER STACKS

10" DOUBLE WALL STACK ALL STAINLESS STEEL (AL29-4C) CONSTRUCTION. U.L LISTED, CATEGORY IV BY HEATFAB, VAN-PACKER, OR SELKIRK. SUITABLE FOR USE WITH BOILER SPECIFIED. PROVIDE COMPLETE EXHAUST AND INTAKE DUCTING, INCLUDING ALL DUCTS, ELBOWS, FLANGES, TRIM RING FOR WALL PENETRATION AND WALL CAPS. PROVIDE TEST PORT IN EXHAUST FLUE FOR EACH BOILER.

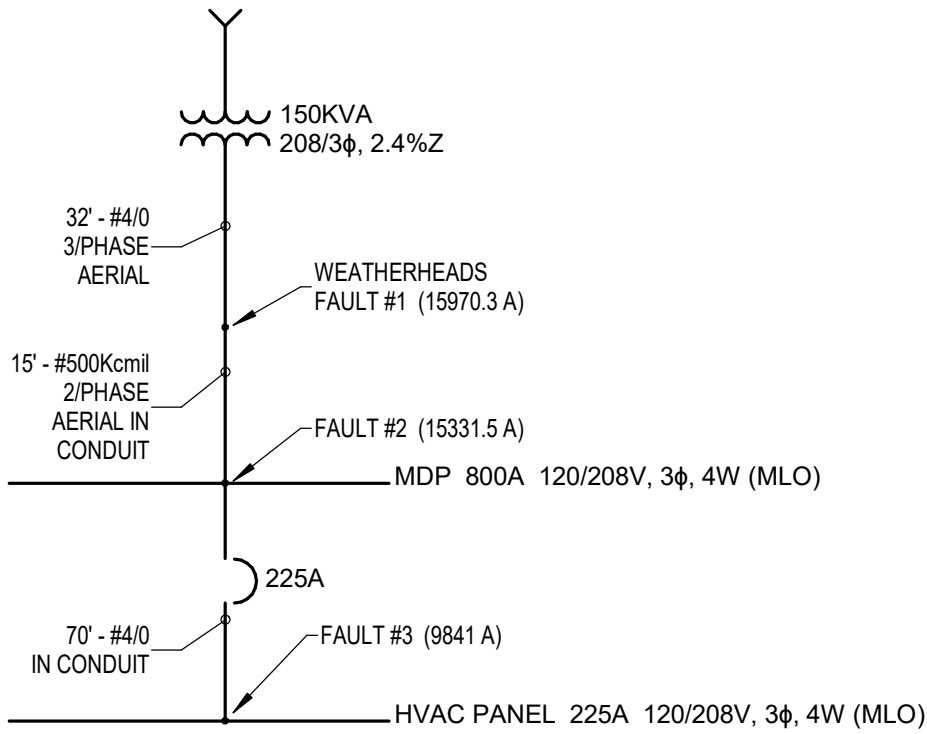
LOUVER SCHEDULE							ROOFTOP UNIT SCHEDULE																											
MARK	PURPOSE	DESCRIPTION	CFM	MIN. FREE AREA (sf)	MAX VELOCITY (fpm)	REMARKS	MARK	MANUFACTURER	MODEL	OUTSIDE AIR (CFM)	SUPPLY FAN					COOLING COIL					COMPRESSOR		REHEAT COIL			ELECTRICAL				WEIGHT (LBS)		REMARKS		
LV-01	COMBUSTION AIR	BOILER	32x24	2.30	600		RTU-4	TRANE	THC060E3R0A	225	1700	0.8	1	1.0	0.75	1.08	11.9	EDB (°F)	EWB (°F)	LDB (°F)	LWB (°F)	TOTAL (MBH)	SENSIBLE (MBH)	QTY	RLA	EDB (°F)	LDB (°F)	HEATING (MBH)	V	PH	MCA		MFS	LBS
							RTU-5	TRANE	THC060E3R0A	200	1700	0.9	1	1.0	0.82	1.18	11.9	75.9	65.8	55.4	53.9	57.3	34.9	1	15.9	55.4	75.4	36.9	208	3	26	40	1,200	
<p><u>GENERAL NOTES:</u></p> <p>A. PROVIDE MILLED ALUMINUM FINISH.</p> <p>B. AMCA 540 AND AMCA 550 CERTIFIED.</p> <p>C. PROVIDE ALUMINUM BIRSCREEN.</p> <p>D. BASIS OF DESIGN IS RUSKIN EME6625, EQUIVALENTS BY GREENHECK, AIROLITE, OR AS LISTED IN THE SPECIFICATIONS.</p>							<p><u>GENERAL NOTES:</u></p> <p>A. EQUIVALENTS BY CARRIER, YORK, OR AAO.</p> <p>B. PROVIDE ROOF CURB WITH 2" INSULATION.</p> <p>C. PROVIDE 0-100% ECONOMIZER WITH REFERENCE ENTHALPY AND BAROMETRIC RELIEF</p> <p>D. PROVIDE TEMPERATURE/HUMIDITY SENSOR AND BACNET CARD</p> <p>E. PROVIDE WITH FACTORY NEMA 3R CIRCUIT BREAKER</p> <p>F. PROVIDE FROSTAT AND/OR LOW AMBIENT COOLING TO 0 DEG F</p> <p>G. PROVIDE HINGED ACCESS PANELS AND HAILGUARDS</p> <p>H. PROVIDE PHASE MONITORING PROTECTION</p> <p>I. PROVIDE CONVENIENCE OUTLET. TO BE FIELD POWERED ON SEPARATE CIRCUIT</p> <p>J. PROVIDE CONDENSATE OVERFLOW SWITCH</p> <p>K. PROVIDE FAN FAILURE SWITCH</p> <p>L. PROVIDE 2" MERV 13 FILTERS</p> <p>M. PROVIDE HUMAN INTERFACE OPTION</p> <p>N. PROVIDE 65 KA SCCR</p>																											

A.C. UNIT SCHEDULE:									
UNIT NO.	TYPE	NOMINAL CAPACITY TONS	CFM	VOLTS	PH	ACCESSORIES	TYPICAL CAT. NO. (CARRIER)		
1	SINGLE PACKAGE ROOF TOP	3	1200	208	3	ROOF CURB ECONOMIZER KIT CONCENTRIC DUCT PKG CONCN-SUP.RET. DIFF.	50YH036		
2	DO	4	1600	208	3	DO	50YH048		
3	DO	4	1600	208	3	DO	50YH048		

EXISTING RTU SCHEDULE - FOR INFORMATION AND TAB ONLY

Building:		Delete Zone		RTU-4	
System Tag/Name:		Add Zone		IP	
Operating Condition Description:					
Units (select from pull-down list)					
Design primary supply fan airflow rate	Vpsd	cfm	1,700	100%	1,700
OA req'd per unit area for system (Weighted average)	Ras	cfm/sf	0.02		
OA req'd per person for system area (Weighted average)	Rps	cfm/p	7.5		
Percent increase in Vbz over minimum required			0%		
Inputs for Potentially Critical zones					
Zone Name	Show Values per Zone		Zone title turns purple italic for critical zone(s)		
Zone Tag					
Occupancy Category					
Floor Area of zone	Az	Select from pull-down list:			
Design population of zone	Pz	P (default value listed; may be overridden)			
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	875	610	215
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?	Select from pull-down list or leave blank if N/A:				
Frac. of local recirc. air that is representative of system RA	Er				
Inputs for Operating Condition Analyzed					
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	100%	100%
Air distribution type at conditioned analyzed	Select from pull-down list:				
Zone air distribution effectiveness at conditioned analyzed	Ez	Show codes for Ez			
Primary air fraction of supply air at conditioned analyzed	Ep				
Results					
System Ventilation Efficiency	Ev			0.88	
Outdoor air intake required for system	Vot	cfm			216
Outdoor air per unit floor area	Vot/Aa	cfm/sf			0.09
Outdoor air per person served by system (including diversity)	Vot/Ps	cfm/p			10.8
Outdoor air as a % of design primary supply air	Ypd	%			13%
Detailed Calculations					
Initial Calculations for the System as a whole					
System primary supply air flow at conditioned analyzed	Vps	cfm	= Vpsd Ds	=	1700
Uncorrected OA intake flow req'd for system	Vou	cfm	= Rps Ps + Ras As	=	190
Uncorrected OA req'd as a fraction of primary SA	Xs		= Vou / Vps	=	0.11

Building:		Delete Zone		RTU-5		
System Tag/Name:		Add Zone		IP		
Operating Condition Description:						
Units (select from pull-down list)						
Inputs for System		Name	Units	who diversity	Diversity	wt diversity
Floor area served by system		As	sf	2173		
Population of area served by system		Ps	P	17	100%	17
Design primary supply fan airflow rate		Vpsd	cfm	1,700	100%	1,700
OA req'd per unit area for system (Weighted average)		Ras	cfm/sf	0.04		
OA req'd per person for system area (Weighted average)		Rps	cfm/p	6.5		
Percent increase in Vbz over minimum required				0%		
Inputs for Potentially Critical zones						
Zone Name	Show Values per Zone		Zone title turns purple italic for critical zone(s)			
Zone Tag						
Occupancy Category						
Floor Area of zone	Az	Select from pull-down list:				
Design population of zone	Pz	P (default value listed; may be overridden)				
Design total supply to zone (primary plus local recirculated)	Vdzd	cfm	675	240	155	
Induction Terminal Unit, Dual Fan Dual Duct or Transfer Fan?	Select from pull-down list or leave blank if N/A:					
Frac. of local recirc. air that is representative of system RA	Er					
Inputs for Operating Condition Analyzed						
Percent of total design airflow rate at conditioned analyzed	Ds	%	100%	100%	100%	100%
Air distribution type at conditioned analyzed	Select from pull-down list:					
Zone air distribution effectiveness at conditioned analyzed	Ez	Show codes for Ez				
Primary air fraction of supply air at conditioned analyzed	Ep					
Results						
System Ventilation Efficiency	Ev			0.93		
Outdoor air intake required for system	Vot	cfm			200	
Outdoor air per unit floor area	Vot/Aa	cfm/sf			0.09	
Outdoor air per person served by system (including diversity)	Vot/Ps	cfm/p			11.7	
Outdoor air as a % of design primary supply air	Ypd	%			12%	



$$3\phi \text{ TRANSFORMER } I_{FA} = \frac{150 \times 1000}{208 \times 1.732} = \frac{150000}{360.3} = 416.3$$

$$\text{TRANSFORMER MULTIPLIER} = \frac{100}{2.4\% \text{ IMPEDANCE}} = 41.7$$

$$I_{sc} = 416.3 \times 41.7 = 17359A$$

$$f = \frac{1.732 \times 32 \times 17359}{17483 \times 3 \times 208} = 0.088$$

$$M = \frac{1}{1 + 0.088} = 0.92$$

FAULT #1

$$I_{SC(MES)} = 17359 \times 0.92 = 15970.3A$$

$$f = \frac{1.732 \times 15 \times 15970.3}{22185 \times 2 \times 208} = 0.045$$

$$M = \frac{1}{1 + 0.045} = 0.96$$

FAULT #2

$$I_{SC(MES)} = 15970.3 \times 0.96 = 15331.5A$$

$$f = \frac{1.732 \times 15 \times 15331.5}{15082 \times 1 \times 208} = 0.61$$

$$M = \frac{1}{1 + 0.61} = 0.621$$

$$I_{SC(MES)} = 15331.5 \times 0.621 = 9521A$$

$$\text{MOTOR } I_{sc} = 2 \times (4 \times 40) = 320A$$

FAULT #3

$$\text{TOTAL } I_{SC(MES)} = 9521A + 320A = 9841A$$

1 FAULT CURRENT CALCULATIONS 5-11-23

NOT TO SCALE

DEMOLITION GENERAL NOTES:

A. NOTIFY THE OWNER, IN WRITING, AT LEAST 7 DAYS IN ADVANCE OF ALL REQUIRED SHUTDOWNS ELECTRICAL UTILITIES. UPON WRITTEN RECEIPT OF APPROVAL FROM OWNER, SHUTDOWNS SHALL BE PERFORMED AS DIRECTED BY THE OWNER AND SHALL BE CONDUCTED AT NO ADDITIONAL CONTRACT COST. AT THE COMPLETION OF EACH SHUT DOWN, ALL SERVICES SHALL BE RESTORED SO THAT NORMAL OPERATION OF ALL UTILITIES CAN RESUME.

B. WHEN WORKING IN AND AROUND THE EXISTING BUILDING, EXTREME CARE SHALL BE EXERCISED IN REGARDS TO PROTECTION OF THE EXISTING STRUCTURE, MECHANICAL AND ELECTRICAL SERVICES WHICH WILL REMAIN, REPAIR, REPLACE OR RESTORE TO THE SATISFACTION OF THE OWNER/ARCHITECT/ENGINEER ALL EXISTING WORK DAMAGED IN THE PERFORMANCE OF DEMOLITION AND/OR NEW WORK.

C. ALL EXISTING WIRING, EQUIPMENT, CONDUITS AND MATERIALS NOT REQUIRED FOR RE-USE OR RE-INSTALLATION (SHOWN OR OTHERWISE) SHALL BE REMOVED. ALL EXISTING MATERIALS AND EQUIPMENT WHICH ARE REMOVED AND DESIRED BY THE OWNER, OR ARE INDICATED TO REMAIN AS THE PROPERTY OF THE OWNER, SHALL BE DELIVERED TO THE OWNER ON THE PREMISES BY THE CONTRACTOR WHERE DIRECTED BY THE ARCHITECT. ALL OTHER MATERIALS AND EQUIPMENT WHICH ARE REMOVED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED BY THE CONTRACTOR FROM THE PREMISES.

D. EXISTING CONDITIONS (PRESENCE AND LOCATION OF PANELBOARDS, LIGHTING FIXTURES, RECEPTACLES, EQUIPMENT, MATERIALS AND CIRCUITING) INDICATED ARE BASED ON INFORMATION OBTAINED FROM AVAILABLE RECORD DRAWINGS AND FIELD SURVEYS AND ARE NOT WARRANTED TO BE COMPLETE OR CORRECT. CONTRACTOR SHALL FIELD VERIFY EXACT LOCATION OF ALL CONDUITS, EQUIPMENT AND MATERIALS IN THE FIELD PRIOR TO STARTING ALL WORK.

E. EXISTING EQUIPMENT SIZES NOTED ARE FOR THE CONVENIENCE OF THE CONTRACTOR ONLY AND ARE NOT WARRANTED TO BE CORRECT. CONTRACTOR SHALL VERIFY ALL SIZES IN THE FIELD IF EQUIPMENT IS IN PROJECT SCOPE.

F. WHEN EXISTING MECHANICAL AND ELECTRICAL WORK IS REMOVED, ALL CONDUITS, WIRING AND MATERIALS SHALL BE REMOVED TO A POINT BELOW FINISHED FLOORS OR BEHIND FINISHED WALLS AND CAPPED. SUCH POINTS SHALL BE FAR ENOUGH BEHIND FINISHED SURFACES TO ALLOW FOR THE INSTALLATION OF THE NORMAL THICKNESS OF FINISHED MATERIAL.

G. EXISTING MECHANICAL AND ELECTRICAL EQUIPMENT, CONDUIT, WIRING, DEVICES, AND MATERIALS AFFECTED BY DEMOLITION OR NEW WORK INSTALLATION AND REQUIRED TO REMAIN IN SERVICE SHALL BE REINSTALLED OR SUPPORTED AS REQUIRED IN ACCORDANCE WITH NEW WORK SPECIFICATIONS. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE OWNER.

H. IN GENERAL ALL EQUIPMENT AND MATERIALS SHOWN "LIGHT" IS EXISTING TO REMAIN AND ALL EQUIPMENT AND MATERIALS SHOWN AS "HEAVY" AND DASHED" IS EXISTING AND SHALL BE DEMOLISHED.

I. ENSURE THAT ALL ELECTRICAL WORK IS DONE DE-ENERGIZED. SPECIFICALLY WHERE ELECTRICAL EQUIPMENT IS OPENED EXPOSING LIVE PARTS, BREAKERS ARE REMOVED OR INSTALLED OR WHERE ELECTRICAL CONNECTIONS ARE MODIFIED, ALL POWER AT THE PANEL OR ENCLOSURE SHALL BE DE-ENERGIZED AT ITS SOURCE, PRIOR TO WORK BEING DONE.

J. ALL TESTING, TROUBLESHOOTING AND VERIFICATION OF DEENERGIZATION IS TO BE DONE IN ACCORDANCE WITH NFPA 70E INCLUDING ESTABLISHING, ISOLATING IF REQUIRED, SHOCK PROTECTIVE AND ARC FLASH PROTECTIVE APPROACH BOUNDARIES AND WEARING PERSONAL PROTECTIVE EQUIPMENT APPROPRIATE FOR THE HAZARD.

K. PRIOR TO THE REMOVAL OF A CIRCUIT FROM A PANELBOARD, THE CONTRACTOR SHALL VERIFY THAT NO EXISTING LOADS REMAIN ON THAT CIRCUIT. IF UNEXPECTED LOADS REMAIN ON THE CIRCUIT, NOTIFY EOR FOR DIRECTIONS TO PROCEED. ONCE CIRCUITS HAVE BEEN VERIFIED TO BE UNDER NO LOAD, BREAKERS IN THE CORRESPONDING PANELBOARD SHALL BE FLIPPED TO THE "OFF" POSITION AND MARKED AS SPARE AND READY FOR FUTURE WORK. ALL CONDUIT AND WIRING SHALL BE REMOVED BACK TO SOURCE.

L. UPDATE PANEL SCHEDULES TO REFLECT NEW AND CHANGED LOAD. ALL PANEL SCHEDULES SHALL BE COMPUTER GENERATED.

M. EXISTING FIRE ALARM SYSTEM SHALL 100% TESTED AFTER ALTERATIONS MADE. DURING DEMOLITION AND NEW CONSTRUCTION, FIELD TESTING REQUIRES TESTING OF ALL DEVICES DIRECTLY CHANGED AS WELL AS 10% OF INITIATING DEVICES NOT AFFECTED BY CHANGES UP TO A MAXIMUM OF 50 DEVICES MUST BE PERFORMED AS PART OF REACCEPTANCE TESTING PER 2018 NC FIRE CODE SECTION 907.8 AND NFPA 70 (2013) NATIONAL FIRE ALARM AND SIGNALING CODE 14.4.2.4 .

GENERAL NOTES

1. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR FLOOR PLAN DIMENSIONS. DO NOT SCALE FROM THESE DRAWINGS.

2. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ANY AND ALL WORK WITH ALL OTHER TRADES INVOLVED IN THE PROJECT PRIOR TO THE INSTALLATION OF HIS EQUIPMENT TO AVOID CONFLICTS DURING CONSTRUCTION AND ALLOW FOR OPTIMUM MAINTENANCE AND WORKING SPACE.

3. ALL LIGHT FIXTURES SHALL BE SUPPORTED FROM BUILDING STRUCTURE AND IS NOT ALLOWED TO BE ANCHORED OR SUPPORTED BY ANY PART OF THE SUSPENDED CEILING SYSTEM. REFER TO SPECIFICATIONS FOR MORE DETAILED INFORMATION.

4. THE USE OF THE CONDUIT SYSTEM FOR EQUIPMENT GROUNDING SHALL NOT BE ACCEPTABLE. A SEPARATE INSULATED, GREEN COLORED COPPER WIRE SHALL RUN WITH THE CIRCUIT CONDUCTORS IN EACH CIRCUIT CONDUIT.

5. IN ALL AREAS WHERE FIRE RATED WALLS, FLOORS AND CEILINGS ARE INSTALLED, ALL PENETRATIONS OF ELECTRICAL CONDUITS OR OTHER RELATED ELECTRICAL MATERIAL SHALL BE PROPERLY SEALED WITH APPROVED FIRE RATED MATERIALS TO MAINTAIN THE RATINGS OF THE BUILDING CONSTRUCTION.

6. ALL FUSES, DISCONNECT SWITCHES AND BREAKER SIZES SHOWN FOR MECHANICAL/PLUMBING/FIRE PROTECTION EQUIPMENT SHALL BE VERIFIED PRIOR TO THE PURCHASE OR INSTALLATION OF SAID EQUIPMENT, WITH THE EQUIPMENT SUPPLIER AND MECHANICAL/PLUMBING CONTRACTOR.

7. ALL WORK AND MATERIAL SHALL BE PROVIDED IN ACCORDANCE WITH STATE, LOCAL AND NATIONAL CODES AND ORDINANCES.

8. EACH CONTRACTOR SHALL PROVIDE THEIR OWN SUPPORTS FOR ALL DEVICES AND EQUIPMENT PROVIDED BY THE CONTRACTOR AND SHALL SUPPORT SUCH EQUIPMENT PER APPROVED GOVERNING CODES OR PER APPROVAL OF THE ENGINEER. UNACCEPTABLE WORKMANSHIP OF MATERIALS SHALL BE REPLACED AT THE REQUEST OF THE ENGINEER AT THE CONTRACTOR'S EXPENSE.

9. ALL JUNCTION BOXES AND CONDUIT RUNS (WITH OR WITHOUT WIRES) SHALL BE COLOR CODED WITH PAINT IN ACCORDANCE WITH ELECTRICAL GENERAL PROVISIONS.

10. THE MOUNTING HEIGHTS AND LOCATIONS OF ALL WALL MOUNTED OUTLETS AND JUNCTION BOXES SHALL BE REVIEWED AND COORDINATED WITH THE ENGINEER AND OWNER PRIOR TO INSTALLATION.

11. ALL WIRE AND CONDUIT SIZES ARE BASED ON 75 DEGREE CELSIUS THHN OR THWN WIRE UNLESS OTHERWISE NOTED.

12. THE NEW FIRE ALARM EQUIPMENT SHOWN SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. PROVIDE ALL WIRING AS REQUIRED FOR A COMPLETE SYSTEM.

13. THE ELECTRICAL CONTRACTOR SHALL VERIFY ALL CEILING TYPES AND FINISHES BEFORE PURCHASING ANY LIGHT FIXTURES SO THAT THE PROPER TRIM WILL BE PROVIDED FOR THE CEILING TO BE INSTALLED. ANY CHANGES REQUIRED DUE TO INCORRECT LIGHTING FIXTURE MOUNTING HARDWARE SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.

14. ALL BRANCH BREAKERS SERVING EMERGENCY LIGHTS SHALL BE PROVIDED WITH COVERS TO PREVENT BREAKERS FROM BEING TURNED OFF ACCIDENTALLY.

15. N/A

16. WHERE MULTIPLE SWITCHES ARE SHOWN IN THE SAME LOCATION, THEY SHALL BE GANGED TOGETHER IN ONE MULTIPLE GANG BOX WITH MATCHING COVER AND PARTITION (IF REQUIRED). THE ELECTRICAL CONTRACTOR SHALL LOOK AT BOTH POWER AND LIGHTING PLAN TO DETERMINE WHICH SWITCH IS APPLICABLE.

17. WHERE ELECTRICAL EQUIPMENT PENETRATES EXTERIOR WALLS OR THE ROOF, THEY SHALL BE PROPERLY SEALED WITH METHODS APPROVED BY THE ENGINEER. SUBMIT DETAIL OF PROPOSED SEALING METHODS.

18. ALL EXTERIOR BUILDING LIGHTS AND EMERGENCY LIGHTING SHALL BE WIRED WITH A MINIMUM #10 AWG OR AS NOTED OTHERWISE.

19. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF ALL CHAIN HUNG FIXTURES LOCATED IN MECHANICAL OR OTHER SPACES WITH OTHER TRADES, SO AS NOT TO CONFLICT WITH OTHER EQUIPMENT.

20. ALL EMERGENCY LIGHTING, EXIT SIGNS AND NIGHT LIGHTS SHALL BE WIRED AHEAD OF ANY SWITCH AND/OR BUILDING AUTOMATION SYSTEM.

21. WHERE CONDUIT OR OUTLET BOXES CANNOT BE INSTALLED IN EXISTING WALLS FOR NEW DEVICES, NOTIFY EOR/ARCHITECT FOR AN ACCEPTABLE INSTALLATION SOLUTION PRIOR TO PROCEEDING.

22. OUTLET BOXES ON OPPOSITE SIDES OF A FIRE RESISTANT WALL OR SHAFT ENCLOSURE RATED TWO (2) HOURS OR LESS SHALL BE INSTALLED IN ACCORDANCE WITH ONE OF THE METHODS ALLOWED UNDER 2018 NC BUILDING CODE SECTION 714.3.2.

23. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL ACCESS PANELS AS REQUIRED FOR ELECTRICAL CODE COMPLIANCE AND TO ACCESS ANY INSTALLATION THAT WILL REQUIRE FUTURE MAINTENANCE. THESE DOORS SHALL BE 20"x20" EACH ROOM WITH A DRYWALL CEILING SHALL HAVE A MINIMUM OF ONE ACCESS DOOR PROVIDED BY THE ELECTRICAL CONTRACTOR. THE DRYWALL SUBCONTRACTOR WILL PROVIDE THE REQUIRED FRAMED OPENING AND INSTALL THE ACCESS DOORS.

24. ALL UNDERGROUND CONDUITS SHALL BE IDENTIFIED ON ASBUILT PLANS WITH DIMENSIONS LOCATING THE CONDUITS AND THEIR RESPECTIVE BURIAL DEPTHS.

25. CONDUCTORS FOR BRANCH CIRCUITS SHALL BE SIZED TO PREVENT VOLTAGE DROP EXCEEDING 3% AT THE FARTHEST OUTLET OF POWER, HEATING AND LIGHTING LOADS OR ANY COMBINATION OF SUCH LOADS. THE MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDER AND BRANCH CIRCUITS TO THE FARTHEST CONNECTION SHALL NOT EXCEED 5%.

A. WHERE THE CONDUCTOR LENGTH FROM THE PANEL TO THE FIRST OUTLET ON A 120V CIRCUIT EXCEEDS 50'-0", THE BRANCH CIRCUIT CONDUCTORS FROM THE PANEL TO THE FIRST OUTLET SHALL NOT BE SMALLER THAN #10 AWG. INCREASE THE BRANCH CIRCUIT CONDUCTOR SIZE AN ADDITIONAL WIRE SIZE FOR EACH ADDITIONAL 125' FOR THE ENTIRE CIRCUIT. THE GROUND CONDUCTOR SIZE SHALL BE INCREASE PROPORTIONALLY TO THE INCREASED PHASE CONDUCTORS AS PER NEC 2020 250.122(B).

SYMBOL LEGEND

SYMBOL	DESCRIPTION	REMARKS
OR	LUMINAIRE - LETTER DESIGNATES TYPE	SEE FIXTURE SCHEDULE
	EMERGENCY LIGHT FIXTURE - LETTER DESIGNATES TYPE	SEE FIXTURE SCHEDULE
	EXIT LIGHT - ARROW INDICATES DIRECTION & SHADING INDICATES ILLUMINATED FACE(S).	SEE FIXTURE SCHEDULE
	CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR WITH ISOLATED RELAY AND WIDE ANGLE LENS. TIME DELAYS OF NO LESS THAN 15 MINUTES. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.	WATTSTOPPER DT300 OR APPROVED EQUAL BY P&S OR LEVITON.
	DUAL TECHNOLOGY WALL SWITCH SENSOR - COVERAGE: MAJOR MOTION 35'x30', MINOR MOTION 20'x15'. TIME DELAYS OF NO LESS THAN 15 MINUTES. MOUNT AT +48" TO TOP OF OUTLET BOX. INSTALL AS PER MANUFACTURER'S INSTRUCTIONS.	WATTSTOPPER DSW-301 OR APPROVED EQUAL BY P&S OR LEVITON.
	SINGLE POLE TOGGLE SWITCH - 48" ABOVE FINISHED FLOOR TO TOP OF OUTLET, UNLESS OTHERWISE NOTED.	
	DIMMER SLIDE SWITCH - INSTALL AT 48" ABOVE FINISHED FLOOR TO TOP OF OUTLET. SWITCH COLOR SELECTED BY ARCHITECT.	
	120 VOLT MOTOR RATED TOGGLE DISCONNECT SWITCH WITH JUNCTION BOX. WP INDICATES TO PROVIDE NEMA-3R SWITCH.	HUBBELL 5362-X WITH 97101 COVER OR APPROVED EQUAL BY LEGRAND OR EATON
	DUPLEX GROUNDING TYPE RECEPTACLE - AT 16" ABOVE FINISHED FLOOR TO BOTTOM OF OUTLET, UNLESS OTHERWISE NOTED	HUBBELL GF-5382-X WITH TAYMAC HEAVY DUTY IN-USE COVER OR EQUAL BY LEGRAND OR EATON
	WEATHERPROOF DUPLEX GROUNDING TYPE RECEPTACLE - +16" ABOVE GRADE TO BOTTOM OF OUTLET BOX, UNLESS OTHERWISE NOTED.	
	CARBON MONOXIDE DETECTOR	
	DIGITAL DIRECT CONTROLS FOR HVAC BY HVAC CONTRACTOR	
	JUNCTION BOX WITH REMOVABLE COVER - SIZE PER NATIONAL ELECTRICAL CODE	
	120/208 VOLT PANELBOARD WITH NEUTRAL AND GROUND BUS ACCESSORIES.	
	SURGE PROTECTIVE DEVICE	
	DISCONNECT SWITCH, HEAVY DUTY	
	WIRING AND CONDUIT INSTALLED CONCEALED IN WALL SPACE OR ABOVE FINISHED CEILING	
	UNSWITCHED WIRING AND CONDUIT LEG ON LIGHTING PLANS. UNDER FLOOR WIRING AND CONDUIT ON POWER PLANS. UNDER GROUND WIRING AND CONDUIT ON SITE PLANS.	
	HOME RUN CIRCUIT TO PANELBOARD	

LOAD SUMMARY

	TOTAL AMPS
EXISTING SPLIT SYSTEM HVAC REMOVED FROM PNL HVAC	-35A
WALL MOUNTED AC UNITS REMOVED FROM PNL HVAC	-7A
EXISTING BOILER AND PUMP REMOVED FROM TROUGH #1 LOAD VIA MDP	-28A
	TOTAL AMPS REMOVED -70A
	TOTAL KVA REMOVED -25.22KVA
NEW HOT WATER COILS	5A
NEW RTU ADDED AT PANEL HVAC	26A
NEW RTU ADDED AT PANEL HVAC	26A
TROUGH #1 LOAD ADDED VIA MDP (NEW BOILER AND PUMP)	22A
	TOTAL AMPS ADDED 79A
	TOTAL KVA ADDED 28.46KVA
	ADDITIONAL KVA DIFFERENCE 3.242KVA

SHEET INDEX - ELECTRICAL

Sheet Number	Sheet Name	Current Revision	Current Revision Date
E0.01	ELECTRICAL LEAD SHEET		
E1.00	DEMOLITION PLAN		
E2.00	NEW WORK PLAN		
E5.01	DETAILS		
E6.01	PANEL SCHEDULE AND DETAILS		

ABBREVIATIONS

ABBREV.	DEFINITION
A	AMPS, AMPERE, AMPERAGE
AC	ABOVE COUNTER
A/C	ALTERNATING CURRENT
ADA	AMERICANS WITH DISABILITIES ACT
AFG	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPERE INTERRUPTING CURRENT
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARD INSTITUTE
ATSC	AUTOMATIC TRANSFER SWITCH CONTROL
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO/VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BFC	BELOW FINISHED CEILING
C	CONDUIT
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
CU	COPPER
D	DIMMING OR DIMMER
DB	DISTRIBUTION BOARD
DC	DIRECT CURRENT
DL	DAY-LIGHTING
DISC	DISCONNECT SWITCH
E	EMERGENCY
ECB	ENCLOSED CIRCUIT BREAKER
EOR	ENGINEER OF RECORD
EWC	ELECTRIC WATER COOLER
EX	EXISTING
FUT	FUTURE
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FATO	FIRE ALARM TERMINAL CABINET
FDR	FEEDER
FFMR	FUSE PER MANUFACTURER RECOMMENDATIONS
GAA	GENERATOR ALARM ANNUNCIATOR
GAP	GENERATOR ALARM PANEL
GEN	GENERATOR
GEC	GROUNDING ELECTRODE CONDUCTOR
GFI	GROUND FAULT INTERRUPTER
GFCl	GROUND FAULT CIRCUIT INTERRUPTER
GFEP	GROUND FAULT EQUIPMENT PROTECTION
GFP	GROUND FAULT PROTECTION
GND	GROUND
GRS	GALVANIZED RIGID STEEL
HH	HAND HOLE
HQA	HAND-OFF AUTOMATIC HORSEPOWER
HP	INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS
IEEE	ISOLATED GROUND
IG	THOUSAND CIRCULAR MILS
KCMIL	KILOVOLT
KV	KILOVOLT AMPS
KVA	KILOVATT
KW	KILOWATT
KWH	KILOWATT HOURS
LC	LIGHTING CONTACTOR
LS	LOUD SPEAKER
LSIG	LONG TIME, SHORT TIME, INSTANTANEOUS AND GROUND FAULT PROTECTION
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MIN	MINIMUM
MH	MAN HOLE
MLO	MAIN LUGS ONLY
MTS	MANUAL TRANSFER SWITCH
N/A	NOT APPLICABLE
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
N or NEUT	NEUTRAL
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
O/H	OVER HEAD
P	POLE
PA	PUBLIC ADDRESS
PB	PULL BOX
PC	PHOTOCELL
PH	PHASE POTENTIAL TRANSFORMER
PT	POTENTIAL TRANSFORMER
RC	RECEPTACLE CONTACTOR
RSC	RIGID STEEL CONDUIT
SEC	SECURITY
SPD	SURGE PROTECTIVE DEVICE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TC	TIME CLOCK
TEMP	TEMPORARY
TGB	TECHNOLOGY GROUND BAR
TGMB	TECHNOLOGY MAIN GROUND BAR
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TYP.	TYPICAL
U/C	UNDER COUNTER
UG	UNDERGROUND
UGE	UNDERGROUND ELECTRIC
UL	UNDERWRITERS' LABORATORIES
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
V	VOLTS, VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
WG	WIRE GUARD
WP	WEATHERPROOF
XFER	TRANSFER
XFMR	TRANSFORMER



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06/09/2023

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PDC 22034 06/09/2023

REVISIONS

NUMBER	DATE	DESCRIPTION

BID/PERMIT

ENCSD Alford Hall HVAC

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
1311 US Hwy 301 South,
Wilson, NC 27893

SCO# 22-24313-01A

ELECTRICAL
LEAD SHEET

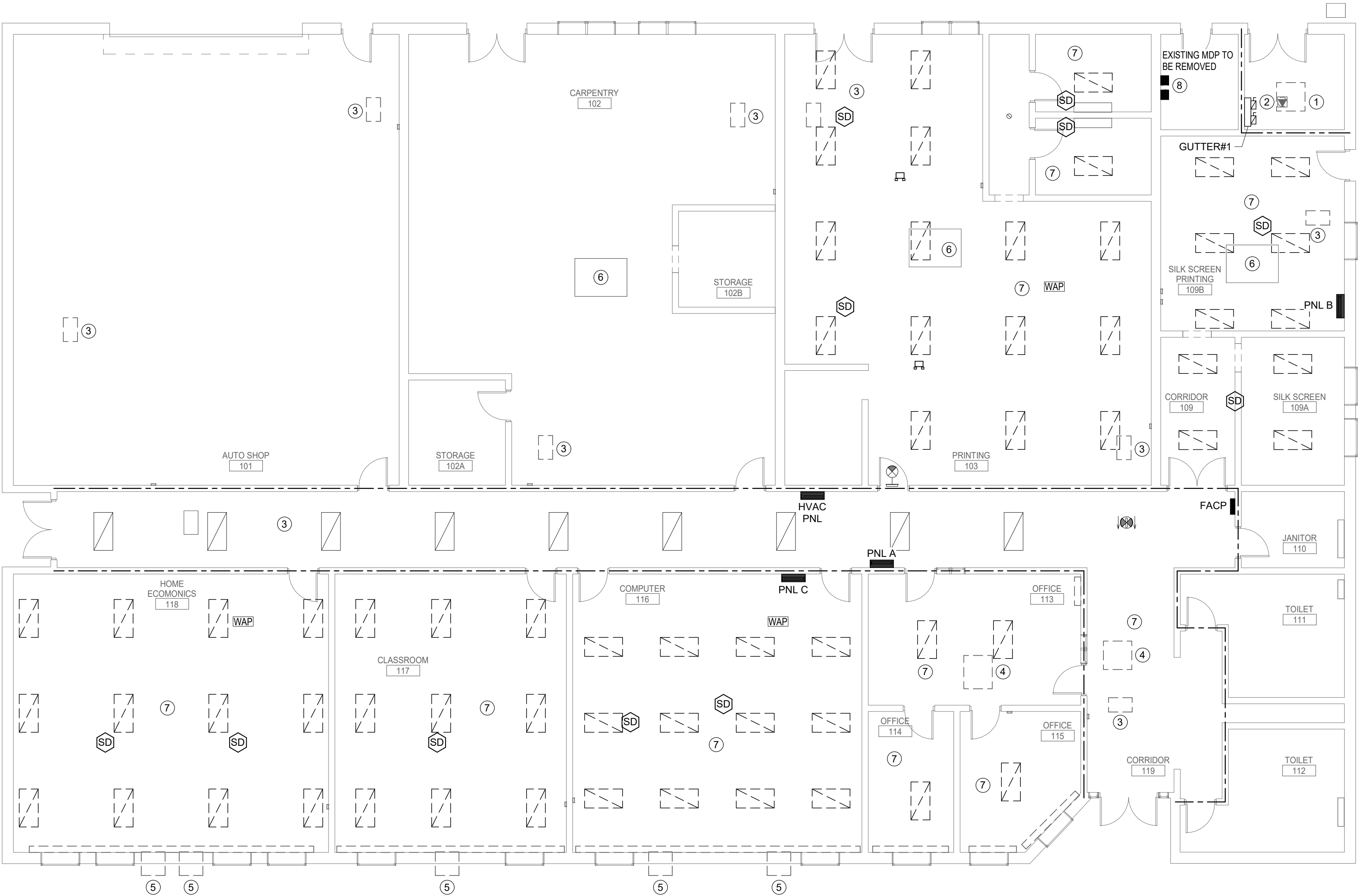
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GENERAL NOTES:

- A. EXISTING PANELS SHOWN FOR REFERENCE, UNLESS OTHERWISE NOTED.
- B. REMOVE ALL CONDUIT, WIRING, AND ACCESSORIES ASSOCIATED WITH MECHANICAL EQUIPMENT BACK TO SOURCE.

KEY NOTES:

1. REMOVE EXISTING WIRING AND DISCONNECT FOR BOILER BACK TO EXISTING GUTTER #1. PRESERVE CONDUIT TAP HOLE FOR NEW WORK.
2. REMOVE EXISTING WIRING AND DISCONNECT FOR HOT WATER PUMP BACK TO EXISTING GUTTER #1 IN BOILER ROOM. RETAIN CONDUIT TAP HOLE FOR NEW WORK.
3. DISCONNECT FEEDER FOR EXISTING HOT WATER UNIT HEATER AND LEAVE IN PLACE FOR NEW WORK. DEMOLISH EXISTING HOT WATER UNIT HEATER AND TURN OVER TO OWNER.
4. REMOVE EXISTING DISCONNECT, WIRING, AND CONDUIT BACK TO PANEL FOR EXISTING SPLIT SYSTEM HVAC UNITS.
5. UNPLUG EXISTING WALL AC UNITS AND DEMOLISH EXISTING RECEPTACLE, WIRING AND CONDUIT BACK TO EXISTING PANEL.
6. EXISTING ROOF TOP UNIT TO REMAIN IN PLACE.
7. REMOVE EXISTING CEILING GRID, LIGHTS, AND CEILING MOUNTED DEVICES AND STORE FOR ADDITION OF NEW DUCTWORK. KEEP ALL WIRING IN PLACE FOR RECONNECTION. PRESERVE EXISTING STRUCTURAL SUPPORTS, FIRE RATED BOXES AND OTHER ITEMS NOT DISTURBED BY DEMOLITION, PROVIDE SUPPORT FOR ANY CABLING NOT REMOVED VIA DEMOLITION OF EXISTING DEVICES. REMOVAL OF CEILING GRID AND REINSTALLATION IS PER BASE BID. ALTERNATE BID#1 IS FOR REMOVAL OF GRID AND REPLACEMENT WITH NEW GRID AND GRID TILE. REFERENCE SHEET G1.01
8. DISCONNECT ALL EXISTING FEEDERS. SERVICE ENTRANCE FEEDER, GROUNDING AND BONDING CONDUCTORS FROM EXISTING PANEL 'MDP' REMOVE EXISTING MDP AND TURN OVER TO OWNER FOR DISPOSAL. RETAIN ALL EXISTING WIRING IN SPACE AND SECURE/PROTECT FOR INSTALLATION OF NEW MDP UNDER NEW CONSTRUCTION.



1 ELECTRICAL DEMOLITION PLAN



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1311 US Hwy 301 South,
Wilson, NC 27893
SCO# 22-24313-01A

DEMOLITION
PLAN

E1.00

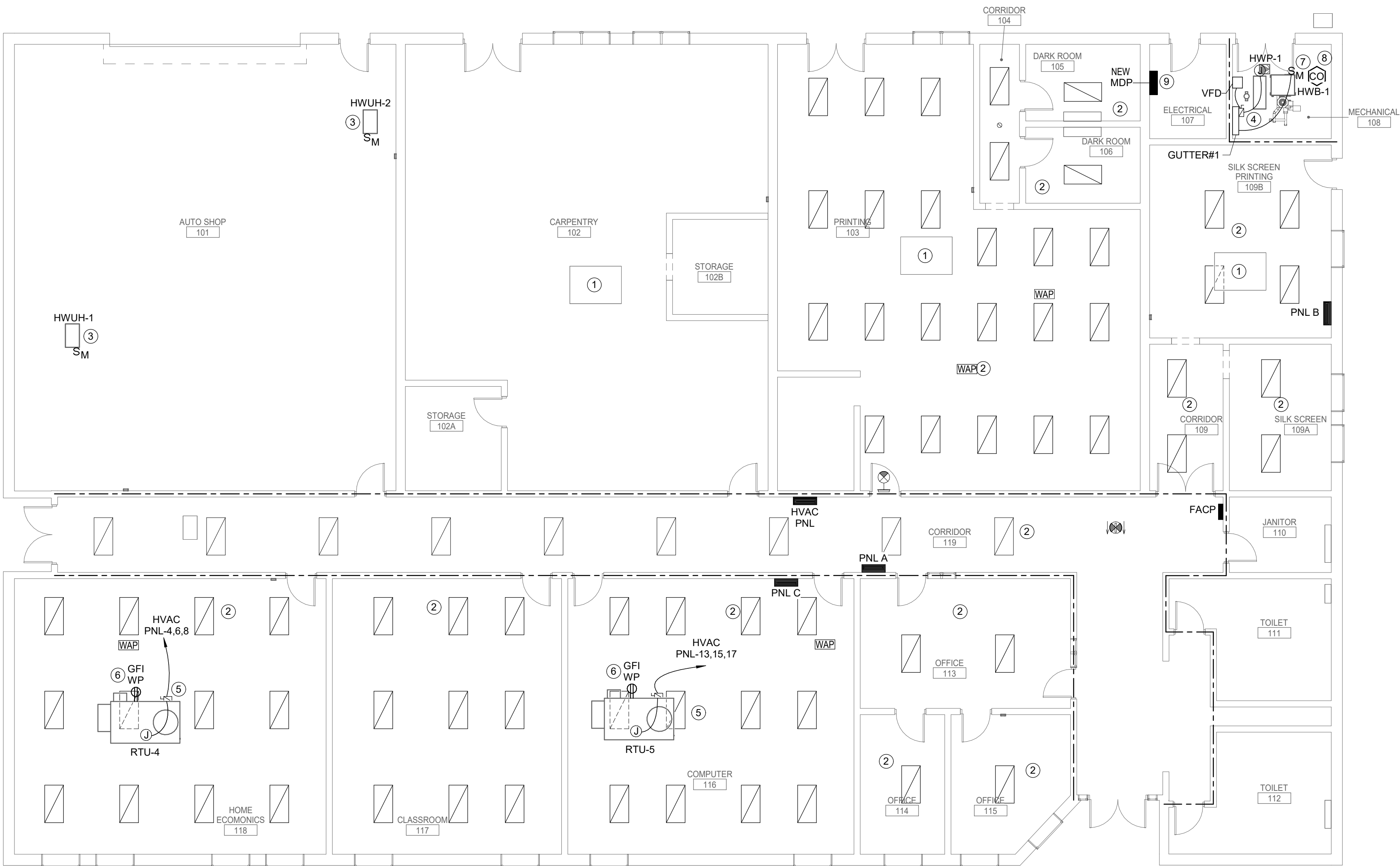
GENERAL NOTES:

- A. EXISTING PANELS SHOWN FOR REFERENCE, UNLESS OTHERWISE NOTED.
- B. LIGHTING REPLACEMENT AND FCAP DEFICIENCY LIFE SAFETY/EGRESS ISSUES WILL BE ADDRESSED DURING CONCURRENT CAMPUS WIDE LIGHTING REPLACEMENT PROJECT - SCO ID# 22-25348-01A.

KEY NOTES:

1. EXISTING ROOF TOP UNIT TO REMAIN IN PLACE.
2. PROVIDE NEW ACT TYPE CEILING AND GRID PER ALTERNATE BID #1. REINSTALL AND RECONNECT ALL LIGHTING AND CEILING MOUNTED DEVICES REMOVED IN DEMOLITION PHASE TO EXISTING WIRING LEFT IN PLACE. ENSURE ALL EXISTING ITEMS HAVE BEEN STORED AND ANY EXISTING CEILING CABLES, STRUCTURE SUPPORTS, AND FIRE RATED BOXES HAVE BEEN REINSTALLED WITH DEVICES AS REQUIRED.
3. PROVIDE 120V, MOTOR RATED TOGGLE SWITCH AND RECONNECT TO EXISTING WIRING LEFT IN PLACE FROM REMOVAL OF EXISTING UNIT HEATERS.
4. PROVIDE 30A, 240V, 3P FUSED DISCONNECT FOR NEW HOT WATER PUMP. PROVIDE 3# 12 & 1#12G IN 3/4" C FEEDER FROM NEW HOT WATER PUMP TO NEW DISCONNECT AND EXISTING TAPS IN EXISTING GUTTER #1 UTILIZING EXISTING CONDUIT SPACE LEFT OVER FROM DEMOLITION . FUSE DISCONNECT PER MANUFACTURER SPECIFICATIONS.
5. PROVIDE 60A, 240V, 3P FUSED DISCONNECT FOR NEW ROOF TOP UNIT. EXTEND NEW CONDUIT AND FEEDER FROM NEW 40A, 3P BREAKER IN EXISTING PANEL AND PROVIDE NEW CONDUCTORS PER PANEL SCHEDULE. FUSE DISCONNECT PER MANUFACTURER SPECIFICATIONS. VERIFY CIRCUITS IN PANELS PRIOR TO ROUGH-IN AND COORDINATE ANY REQUIRED CHANGES WITH ENGINEER. PER RECORD DRAWINGS FAULT CURRENT RATING OF EXISTING EQUIPMENT SHALL NOT EXCEED 10,000kAIC. PROVIDE BREAKER AND DISCONNECT WITH MAX 10,000KAIC RATING AND LABEL BREAKER AND DISCONNECT PER NEC ART.440.10. LABEL PANEL HVAC WITH AVAILABLE FAULT CURRENT AT 9841A
6. WIRE FACTORY PROVIDED RECEPTACLE TO EXISTING LOCAL EXTERIOR RECEPTACLE CIRCUIT.
7. PROVIDE 120V, MOTOR RATED TOGGLE SWITCH AT BOILER. PROVIDE 2#12 & 1#12G IN 3/4" C FEEDER FROM NEW BOILER TO EXISTING TAPS IN EXISTING GUTTER #1 UTILIZING EXISTING CONDUIT SPACE LEFT OVER FROM DEMOLITION.
8. PROVIDE NEW CEILING MOUNTED CARBON MONOXIDE DETECTOR IN BOILER RM. PROVIDE UPGRADE MODULE AND WIRING PER FIRE ALARM RISER AND CONNECT TO EXISTING BUILDING FIRE ALARM CONTROL PANEL PER 2018 NC EXISTING BUILDING CODE SECTION 403.11.
9. PROVIDE NEW 800A MCB, 208/120V, 3PHASE, 22,000KAIC RATED, S.E. RATED MAIN DISTRIBUTION PANEL AT LOCATION OF EXISTING MDP REMOVED UNDER DEMOLITION. RECONNECT EXISTING SERVICE ENTRANCE FEEDERS, PANEL FEEDERS, GROUND AND BONDING JUMPERS TO NEW PANEL. PROVIDE NEW BREAKERS WITH PANEL MATCHING EXISTING LAYOUT OF BREAKERS IN PREVIOUS MDP PANEL THAT WAS DEMOLISHED. FAULT CURRENT CALCULATIONS PERFORMED ON 5/11/23 BY THIS OFFICE STATE THAT 22,000KAIC RATING IS SUFFICIENT. PER NEC ART. 440.10 LABEL NEW MDP WITH LABEL SHOWING AVAILABLE FAULT CURRENT AT MDP AT 15,331.5A.

<div>PANELBOARD: MDP</div> <div>LOCATION: ELECTRICAL ROOM</div> <div>MOUNTING: Surface</div> <div>ENCL NEMA: Type 1</div> <div>MIN AIC: 22,000</div> <div>NOTES: 1. NEW PANEL TO REPLACE EXISTING PANEL NOT MEETING ARC FAULT RATING REQUIREMENTS 2. LABEL PANEL PER NEC ART. 440.10 - AVAILABE FAULT CURRENT AT MDP IS 15,331.5A</div>										<div>MAINS: 800 A MCB</div> <div>VOLTS: 120/208 Wye</div> <div>PHASE: 3</div> <div>WRES: 4</div>										<div>PANEL RATING: 800 A</div> <div>MCB RATING: 800 A MCB</div> <div>FED FROM: UTILITY</div>										<div>PANEL NOTES: PROVIDE DOOR WITH LOCK AND HINGED TRIM</div> <div>PROVIDE COPPER GROUND AND NEUTRAL BUS</div> <div>PROVIDE FULL SIZE NEUTRAL BUS, U.O.N.</div>									
CKT	LOAD TYPE	LOAD DESCRIPTION	WIRE SIZE	CONDUIT	POLES	TRIP AMPS	A		B		C		TRIP AMPS	POLES	CONDUIT	WIRE SIZE	LOAD DESCRIPTION	LOAD TYPE	CKT																				
1	E	EXISTING PANEL B NEW BREAKER	--	EXISTING FEEDER	3	150 A	15	10					150 A	3	EXISTING FEEDER	--	EXISTING GUTTER #2 NEW BREAKER	E	2																				
3									15	10											4																		
5											15	10										6																	
7	E	EXISTING PANEL HVAC NEW BREAKER	EXISTING FEEDER	EXISTING FEEDER	3	225 A	16.64	15					200 A	3	EXISTING FEEDER	--	EXISTING PANEL A NEW BREAKER	E	8																				
9									16.64	15									15.64	15		10																	
11																							12																
13	E	EXISTING SPARE NEW BREAKER	--	-	3	200 A	0	0					125 A	3	-	--	EXISTING SPARE NEW BREAKER	E	14																				
15									0	0												16																	
17																			0	0			18																
19		SPACE	--		3	--	--	1					30 A	2	EXISTING FEEDER	--	EM BACKUP FA CONTROLLER NEW BREAKER		20																				
21									--	1	--	--							--	--	--	1	--	--	22														
23									--	--	--	--							--	--	--	--	--	--	24														
25		SPACE	--		3	--			--	--			--	3		--	SPACE		26																				
27									--	--	--	--							--	--	--	--	--	28															
29												--							--	--	--			--	--	30													
TOTAL LOAD:							57.64 kVA		57.64 kVA		55.64 kVA																												
<div>BREAKER TYPES: LO - INDICATES "LOCK-ON" DEVICE GFCI - INDICATES GROUND FAULT DEVICE</div> <div>ST - INDICATES SHUNT TRIP DEVICE GFPE - INDICATES GROUND FAULT FOR EQUIPMENT</div> <div>AFCI - INDICATES ARC FAULT PROTECTED DEVICE</div>																																							
Load Classification			Connected Load (VA)				Demand Factor				Estimated Demand				Panel Totals																								
Receptacle			0 kVA				0.00%				0 kVA				Total Connected Load:					170.92 kVA																			
Motor			0 kVA				0.00%				0 kVA				Total Connected Amps:					474.43 A																			
HVAC			19 kVA				100.00%				19 kVA				Total Estimated Demand:					170.92 kVA																			
Lighting			0 kVA				0.00%				0 kVA				Total Estimated Demand Amps:					474.43 A																			
Equipment			0 kVA				0.00%				0 kVA																												
Kitchen Equipment			0 kVA				0.00%				0 kVA																												



1 ELECTRICAL NEW WORK PLAN

0 2 4 6 8 10 12 14 16

1/8" = 1'-0"



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PDC 22034 06/09/2023

REVISIONS

NUMBER	DATE	DESCRIPTION

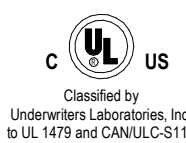
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ENCSD Alford Hall HVAC

NORTH CAROLINA DEPARTMENT OF PUBLIC INSTRUCTION
1311 US Hwy 301 South,
Wilson, NC 27893
SCO# 22-24313-01A

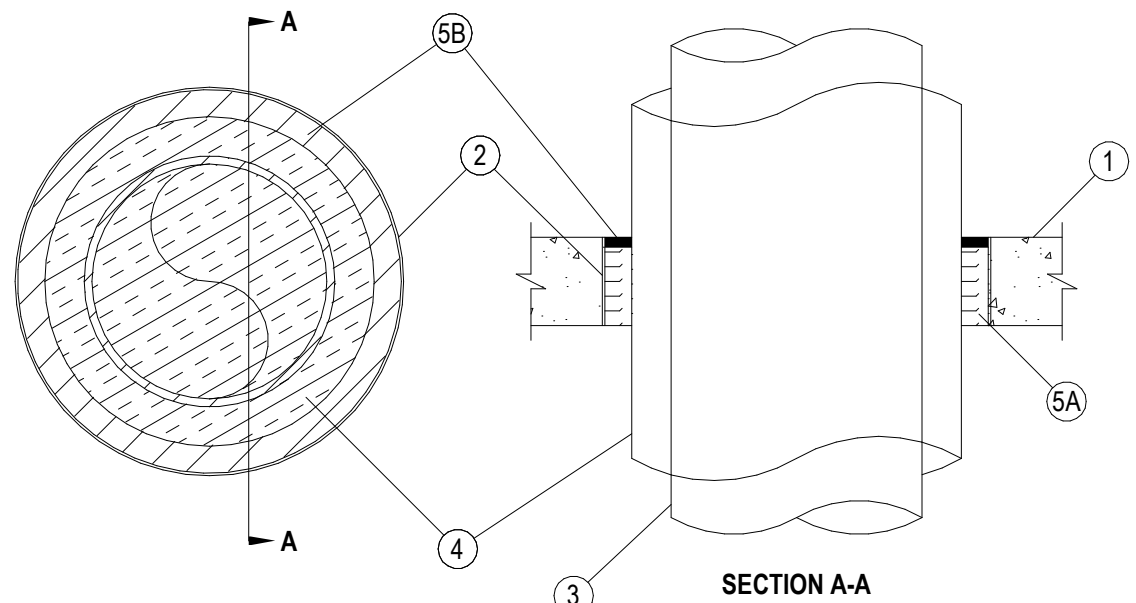
NEW WORK
PLAN

E2.00



System No. C-AJ-5091

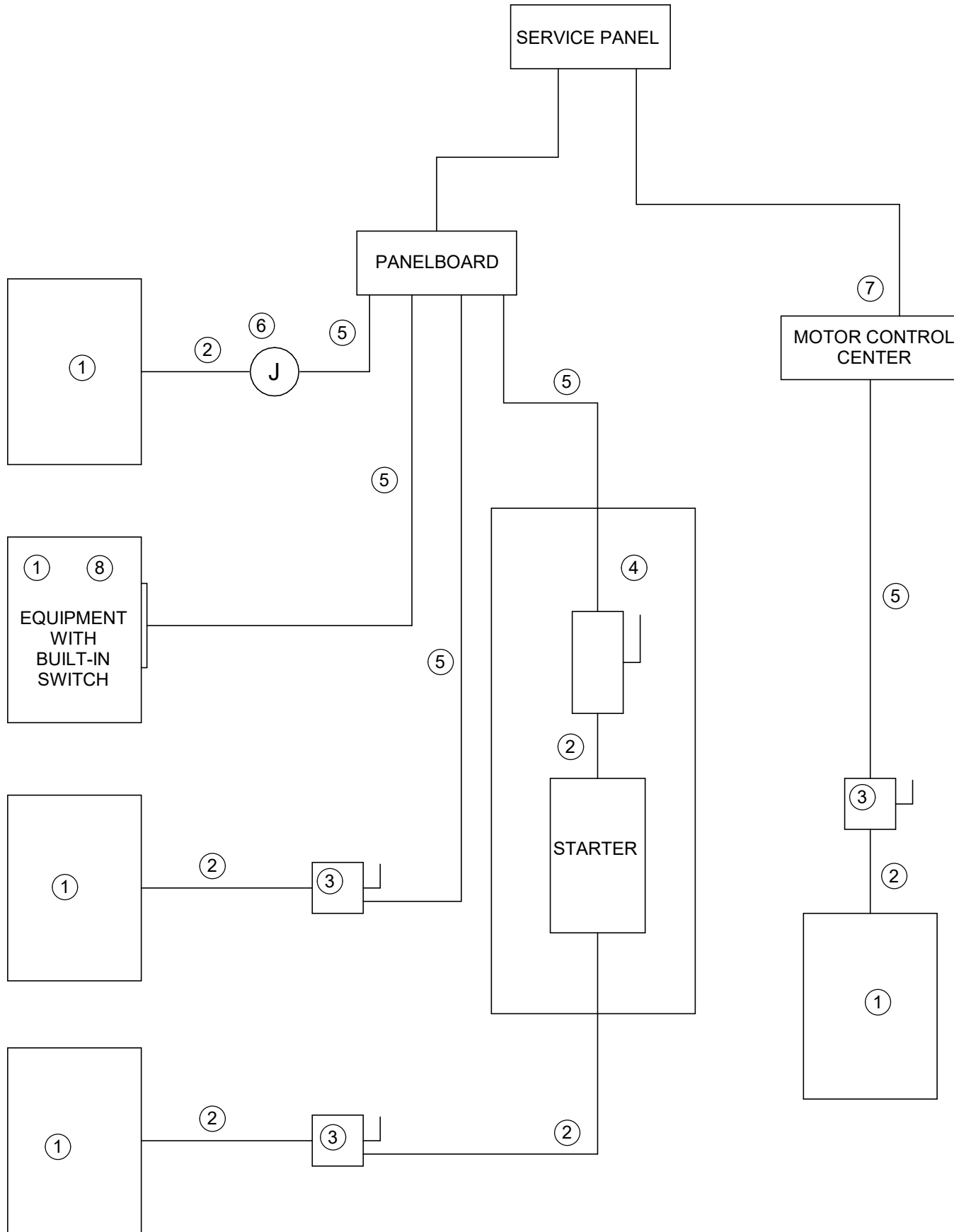
ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Ratings — 0 and 1 Hr (See Items 2 and 4)	FT Ratings — 0 and 1 Hr (See Items 2 and 4)
L Rating At Ambient — 4 CFM/sq ft	FH Rating — 2 Hr
L Rating At 400 F — Less Than 1 CFM/sq ft	FTH Ratings — 0 and 1 Hr (See Items 2 and 4)
	L Rating At Ambient — 4 CFM/sq ft
	L Rating At 400 F — Less Than 1 CFM/sq ft



- Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 29 in. (737 mm).
See Concrete Blocks (CAZT) category in the Fire Resistance directory for names of manufacturers.
 - Metallic Sleeve — (Optional) — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall. If the steel sleeve extends beyond the top surface of the floor or both surfaces of the wall, the T Rating of the firestop system is 0 hr.
 - Through Penetrants — One metallic pipe or tubing to be installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes or tubing may be used:
 - Steel Pipe — Nom 12 in. (305 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
 - Iron Pipe — Nom 12 in. (305 mm) diam (or smaller) cast or ductile iron pipe.
 - Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
 - Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
 - Pipe Covering — Min 1/2 in. (13 mm) to max 2 in. (51 mm) thick hollow cylindrical heavy density (min 3.5 pcf or 56 kg/m³) glass fiber units jacketed on the outside with an all-service jacket. Longitudinal joints sealed with metal fasteners or factory-applied, self-sealing top tape. Transverse joints secured with metal fasteners or with butt tape supplied with the product. The annular space between the insulated pipe and the edge of the periphery of the opening shall be min 1/2 in. (13 mm) to max 12 in. (305 mm). When thickness of pipe covering is less than 2 in. (51 mm), the T Rating for the firestop system is 0 hr.
See Pipe 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.
 - Pipe Covering — (Not Shown) — As an alternate to Item 4, max 2 in. (51 mm) thick cylindrical calcium silicate (min 14 pcf or 224 kg/m³) units sized to the outside diam of the pipe or tube may be used. Pipe insulation secured with stainless steel bands or min 18 AWG stainless steel wire spaced max 12 in. (305 mm) OC. The annular space shall be min 1/2 in. (13 mm) to max 12 in. (305 mm).
 - Firestop System — The firestop system shall consist of the following:
 - Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (84 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material.
 - Fill, Void or Cavity Material — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
- HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant
- * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

2 HR BLOCK PENETRATION

NOT TO SCALE



GENERAL NOTES:

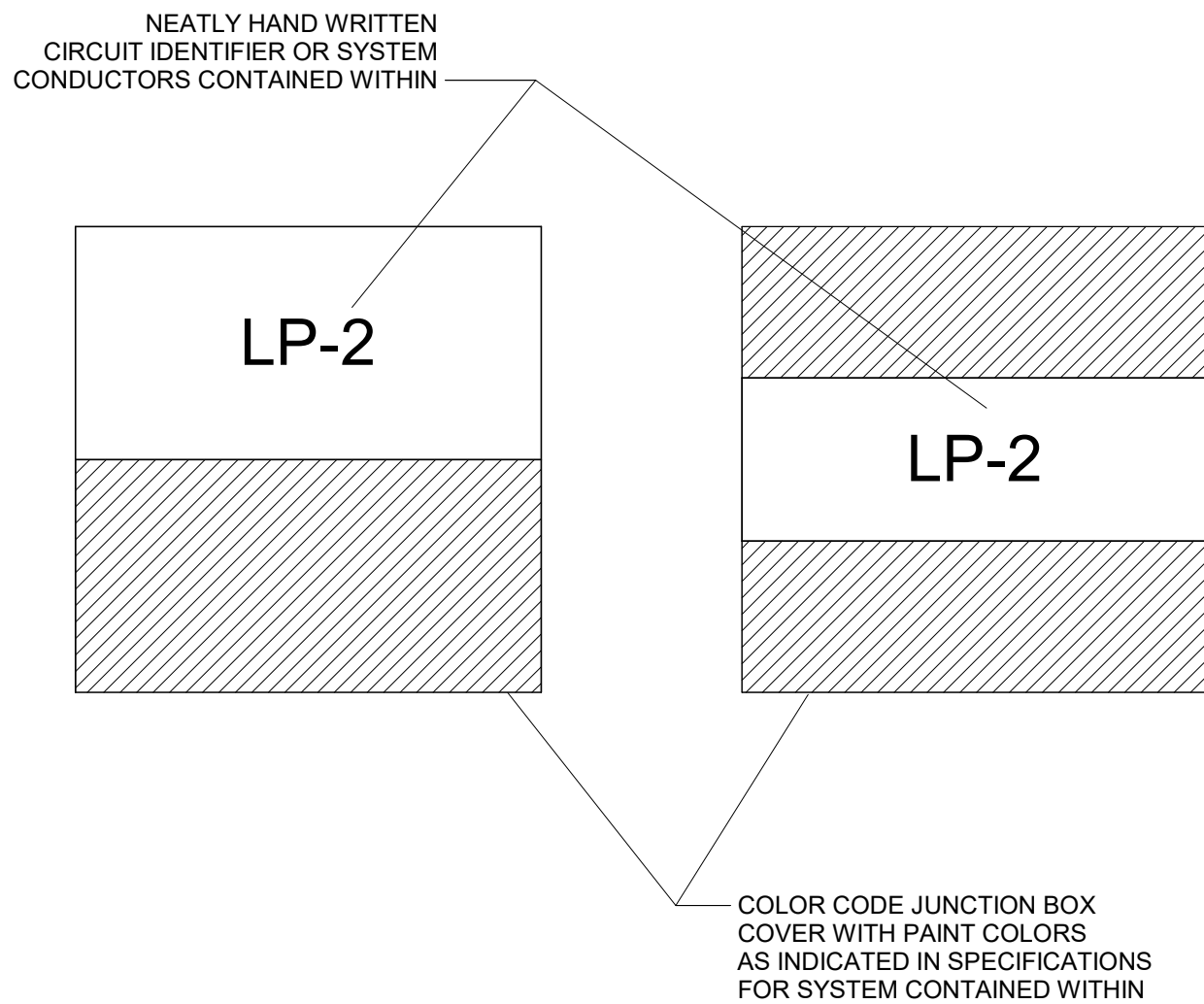
- IN A SINGLE PRIME CONTRACT IT IS THE RESPONSIBILITY OF THE PRIME CONTRACTOR TO COORDINATE BETWEEN THE ELECTRICAL AND OTHER TRADES.
- IN ALL CASES, THE EQUIPMENT CONTRACTOR SHALL MAKE THE FINAL CONNECTIONS, START UP, AND TEST AND COMMISSION THE EQUIPMENT.
- REFERENCE 2020 SCO ELECTRICAL GUIDELINES AND POLICIES SECTION 26-02-05 ITEM 16 AND APPENDIX, SHEET E-18 THAT DIRECTS THIS DETAIL PROVISION WITH BOTH MECHANICAL AND ELECTRICAL DISCIPLINE DRAWINGS.

KEYNOTES:

- EQUIPMENT OF TRADES OTHER THAN ELECTRICAL.
- CONDUIT AND WIRING BY HVAC, PLUMBING CONTRACTOR OR TRADES.
- IF AN ADDITIONAL DISCONNECT IS REQUIRED BY NEC, IT SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR.
- A COMBINATION STARTER OR VFD MAY BE USED IN LIEU OF A SEPERATE DISCONNECT SWITCH AND STARTER. PROVIDE ADJACENT TO EQUIPMENT. THIS SHALL BE PROVIDED AND INSTALLED BY THE EQUIPMENT CONTRACTOR. (VFDs SHALL BE PROVIDED BY CONTROLS CONTRACTOR FOR NON-PACKAGED EQUIPMENT).
- FEEDER CIRCUIT WIRING AND CONDUIT PROVIDED IN ELECTRICAL WORK. REFER TO PANELBOARD SCHEDULES FOR WIRE AND BREAKER SIZES.
- JUNCTION BOX MAY BE INDICATED ON THE ELECTRICAL DRAWINGS FOR SOME EQUIPMENT. IF NO STARTER OR DISCONNECT IS FURNISHED BY THE EQUIPMENT MANUFACTURER, A JUNCTION BOX SHALL BE INSTALLED ADJACENT TO THE EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE LINE SIDE WIRING TO THE JUNCTION BOX. LOAD SIDE WIRING SHALL BE PROVIDED BY MECHANICAL CONTRACTOR OR OTHER TRADES.
- FOR PROJECTS UTILIZING A MOTOR CONTROL CENTER (MCC), THE STARTER, CIRCUIT BREAKER, OR VFD IN THE MCC ARE PROVIDED BY THE ELECTRICAL CONTRACTOR.
- IF THE EQUIPMENT IS NOT PROVIDED WITH A BUILT-IN DISCONNECT SWITCH, THE ELECTRICAL CONTRACTOR SHALL PROVIDE A DISCONNECT SWITCH.

DETAIL - TYPICAL EQUIPMENT CONNECTIONS

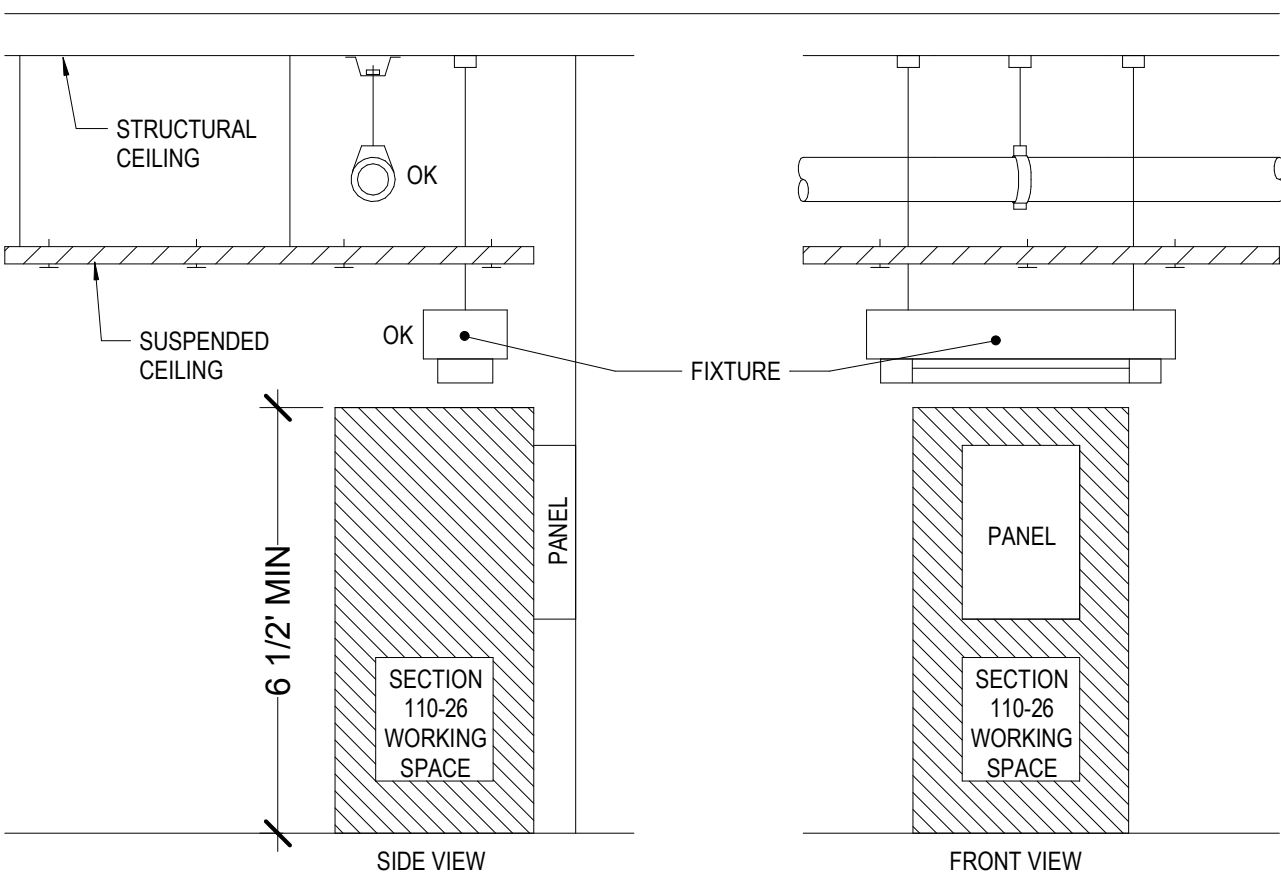
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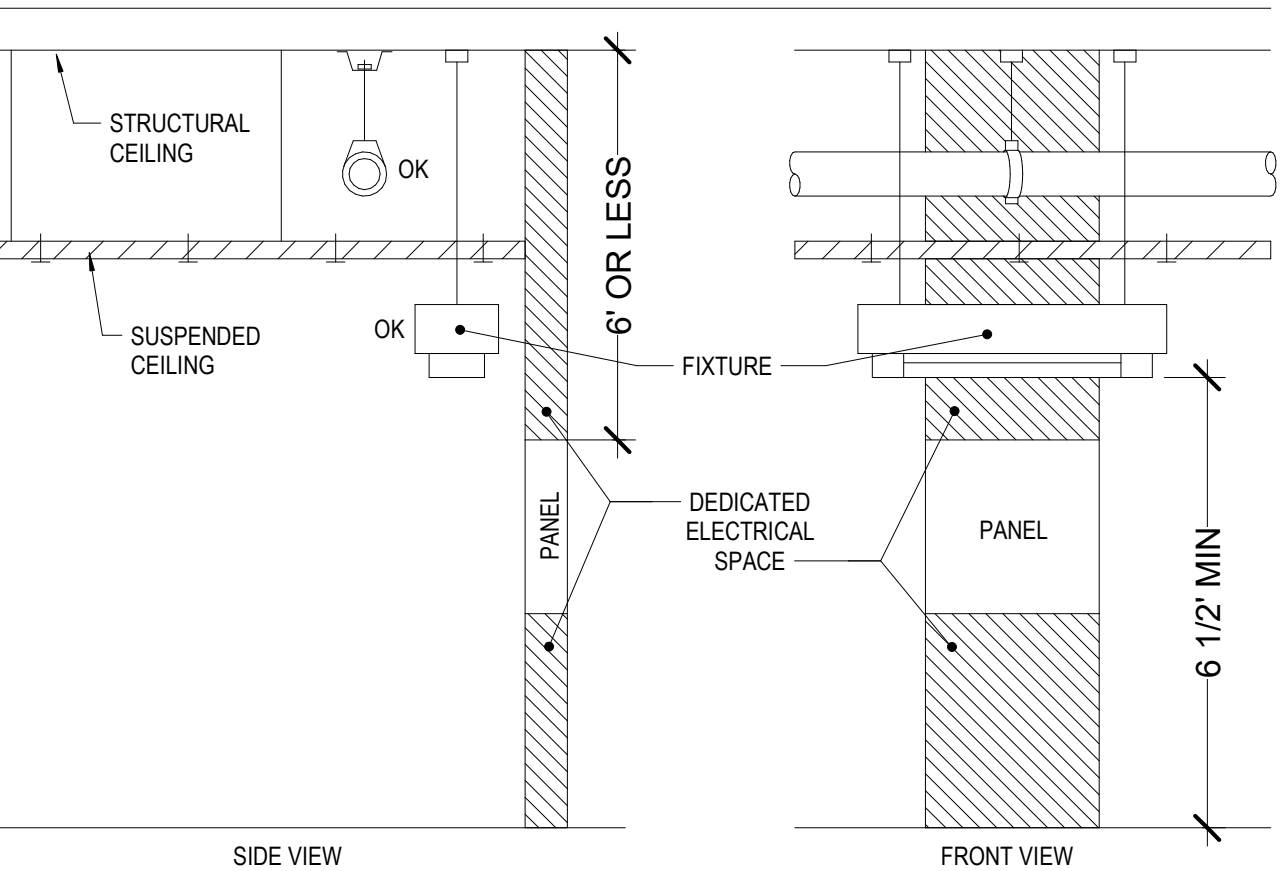
NOTE:
CONTRACTOR SHALL IDENTIFY JUNCTION BOX COVERS WITH ONE OF THE TWO METHODS SHOW ABOVE, BUT NOT BOTH. ALL JUNCTION BOX COVERS SHALL BE CONSISTENTLY IDENTIFIED ACROSS THE ENTIRE PROJECT.

JUNCTION BOX LABELING

NOT TO SCALE



WORKING CLEARANCE FOR ELECTRICAL EQUIPMENT
N.E.C ARTICLE 110-26



DEDICATED SPACE FOR ELECTRICAL EQUIPMENT
N.E.C ARTICLE 110-26

ELECTRICAL EQUIPMENT CLEARANCE

NOT TO SCALE



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SCO# 22-24313-01A

DETAILS

E5.01

GENERAL FIRE ALARM RISER NOTES:

- A. SYSTEM IS EXISTING AND IS BASED ON AS-BUILT DRAWINGS AND FIELD VERIFICATION.
- B. ALL WIRING SHALL BE IN MINIMUM 3/4" CONDUIT.
- C. BATTERY CALCULATIONS ARE REQUIRED WITH ALL SUBMITTALS.
- D. TEST RESULTS ARE REQUIRED FOR ALL NEWLLY INSTALLED DEVICES.
- E. PROVIDE SHUT-DOWN DEVICES FOR NEW AIR HANDLERS, FAN COIL UNITS AND SUPPLY FANS OF ALL MECHANICAL EQUIPMENT.
- F. VERIFY ROOM NUMBERS WITH ARCHITECT PRIOR TO PROGRAMMING SYSTEM.
- G. ALL NAC PANELS AND AMPLIFIER PANELS SHALL HAVE A SMOKE DETECTOR MOUNTED WITHIN 15'-0" OF PANEL.
- H. A SMOKE DETECTOR SHALL BE MOUNTED WITHIN 15'-0" OF FACP AND NAC PANELS.
- I. IF ANY ARCHITECTURAL CHANGES ARE MADE THAT SHALL AFFECT ANY DEVICE PLACEMENT, THIS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER PRIOR TO INSTALLATION.
- J. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL BE NICET LEVEL 3 CERTIFIED AND HAVE AT LEAST 2 YEARS OF EXPERIENCE INSTALLING FIRE ALARM SYSTEMS.
- K. THE PROJECT MANAGER SHALL BE NICET LEVEL 4 CERTIFIED AND HAVE AT LEAST 5 YEARS OF EXPERIENCE INSTALLING FIRE ALARM SYSTEMS.
- L. THE SHOP DRAWINGS SUBMITTALS FOR DEVICE LOCATIONS SHALL BE SUBMITTED TO ENGINEER AND LOCAL (AHJ) FIRE MARSHALL PRIOR TO ANY INSTALLATION/ROUGH-IN FOR FIRE ALARM DEVICES.
- M. WIRING DIAGRAMS, LOCATION DRAWINGS, DEVICE CUT SHEETS AND VOLTAGE DROP CALCULATIONS ARE REQUIRED WITH ALL SUBMITTALS.
- N. THE FIRE ALARM SYSTEM PROVIDER SHALL PROVIDE ALL DOCUMENTATION AS SPECIFIED IN THE INTERNATIONAL FIRE CODE SECTION 907 REQUIREMENTS AS PART OF HIS SHOP DRAWING SUBMITTALS.
- THIS INCLUDES:
1. LOCATION DRAWINGS OF ALARM INITIATING AND NOTIFICATION DEVICES.
2. WIRING DIAGRAMS WITH CONDUCTOR TYPE AND SIZES.
3. LOCATIONS OF ALARM CONTROL AND TROUBLE SIGNALING EQUIPMENT.
4. POWER CONNECTION DETAILS AND WIRING SCHEMATICS.
5. BATTERY CALCULATIONS.
6. VOLTAGE DROP CALCULATIONS.
7. MANUFACTURER'S MODEL NUMBERS, LISTING INFORMATION FOR EQUIPMENT, DEVICES AND MATERIALS.
8. THE INTERFACE OF FIRE SAFETY CONTROL FUNCTIONS.
- O. REFER TO DIVISION 28 SPECIFICATIONS.
- P. FIRE ALARM SIGNAL LINE CIRCUITS SHALL BE WIRED CLASS "A" AND NOTIFICATION CIRCUITS SHALL BE WIRED CLASS "B" WITH THE END OF LINE RESISTOR CLEARLY AND PERMANENTLY MARKED ON THE LAST DEVICE.
- Q. PROVIDE SPARE PARTS AS DEFINED IN SPECIFICATIONS.
- R. ALL FIRE ALARM SYSTEM WORK SHALL BE APPROVED BY THE LOCAL FIRE MARSHAL PRIOR TO COMMENCING ANY FIRE ALARM WORK.
- S. ALL RACPs SHALL BE SEMI RECESSED WITH INTEGRAL PUSH TO TALK MICROPHONES AND ZONE SELECTION SWITCHES.
- T. FIRE ALARM SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH NFPA 72, 2013.
- U. COORDINATE WITH THE FIRE PROTECTION CONTRACTOR FOR VOLTAGE, RELAY, ETC. FOR CONNECTIONS OF SPRINKLER BELL. ALL WIRING, CONDUIT, RELAY, AND INTERCONNECTIONS SHALL BE BY THE ELECTRICAL & FIRE ALARM CONTRACTORS.
- V. SPEAKER AMPLIFIER CABINETS SHALL BE ADDED AS NEEDED. ALL 120VAC POWER FOR CABINET SHALL BE PROVIDED FROM THE NEAREST 120V PANEL. BREAKER HASPS SHALL BE PROVIDED ON BREAKER SERVING CABINET.
- W. ELECTRICAL CONTRACTOR SHALL COORDINATE CLOSELY WITH FIRE ALARM SUB-CONTRACTOR FOR ALL 120V AC POWER REQUIRED FOR THIS SYSTEM. IF ANY ADDITIONAL CIRCUITS ARE REQUIRED THAT ARE NOT IDENTIFIED ON PLANS THE ELECTRICAL CONTRACTOR SHALL PROVIDE THAT CIRCUIT FROM THE NEAREST 120V PANEL AS-BUILTS SHALL BE UPDATED TO REFLECT THE INSTALLED CONDITION. THIS SHALL BE DONE AT NO ADDITIONAL COST TO THE PROJECT.
- X. THE FIRE ALARM SYSTEM SHALL BE INTERCONNECTED WITH ALL SOUND SYSTEMS SUCH THAT UPON ALARM CONDITION THE SOUND SYSTEM MUTES. REFER TO PLANS FOR SOUND SYSTEM LOCATIONS.
- Y. "CO" DETECTOR SHALL BE PROVIDED SOUNDER BASES "TEMPORAL 4" FOR DISTINCT SOUND IN AREA OF ALARM. COORDINATE WITH OWNER TO ESTABLISH WRITTEN EMERGENCY RESPONSE PLAN IN THE EVENT OF CARBON MONOXIDE ALARM.
- Z. LOCAL CARBON MONOXIDE ALARM CANNOT BE SILENCED. VERIFY WITH FIRE MARSHALS.
- AA. ELECTRICAL CONTRACTORS (FIRE ALARM SUB-CONTRACTOR) SHALL COORDINATE CLOSELY WITH THE HVAC CONTROLS CONTRACTOR.

2 FIRE ALARM NETWORK RISER

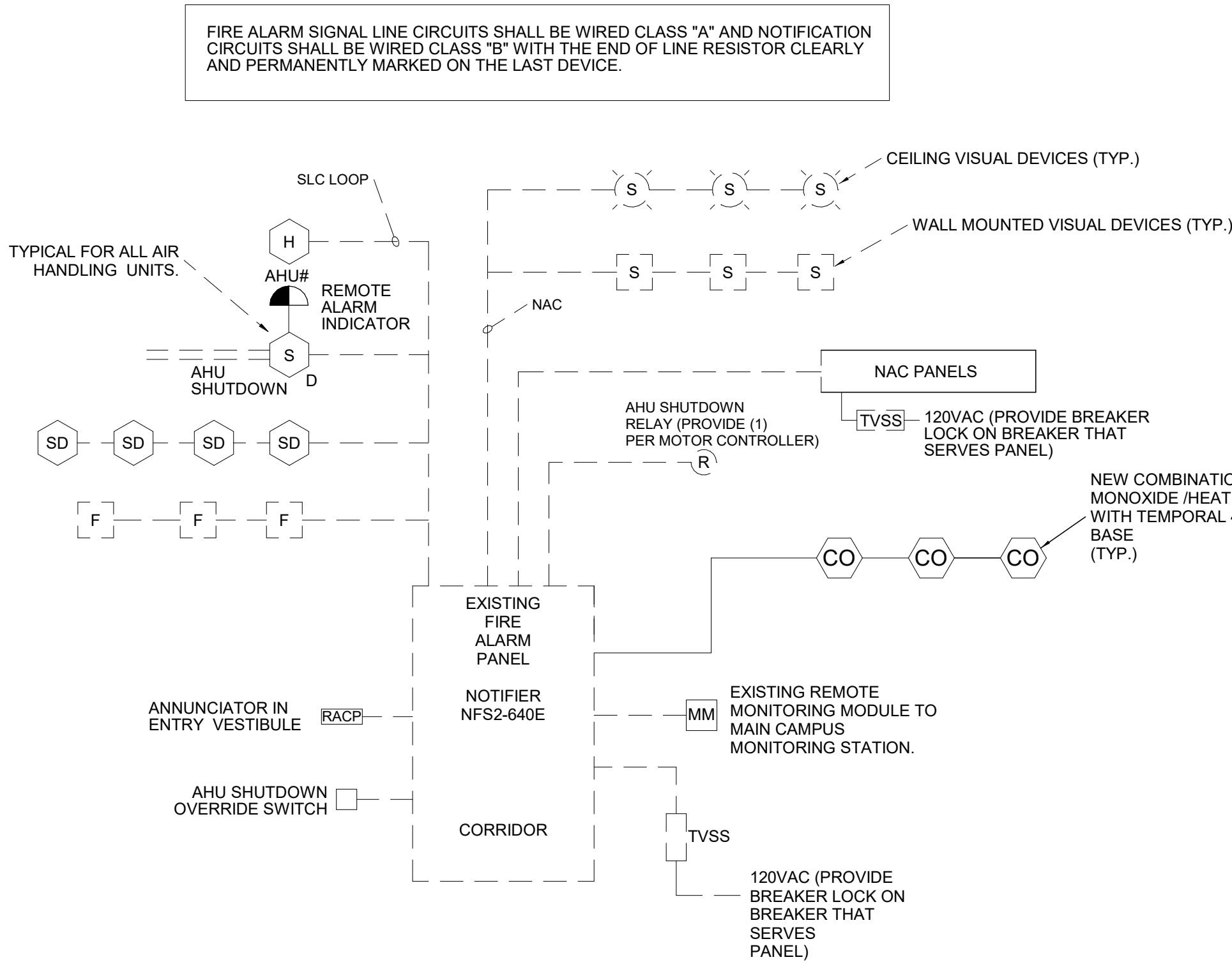
NOT TO SCALE

ELECTRICAL RISER NOTES:

1. EXISTING SERVICE PRIMARY TO REMAIN
2. DISCONNECT EXISTING FEEDERS, GROUNDING AND BONDING JUMPERS TO EXISTING MDP. REMOVE EXISTING MDP AND PROVIDE NEW MDP AS SHOWN. RECONNECT ALL FEEDERS, GROUNDING, AND BONDING JUMPERS AS REQUIRED.
3. EXISTING FEEDERS TO EXISTING PANELS AND TROUGHS.
4. EXISTING CW SERVICE GROUND.
5. EXISTING GROUND ROD JUMPER.

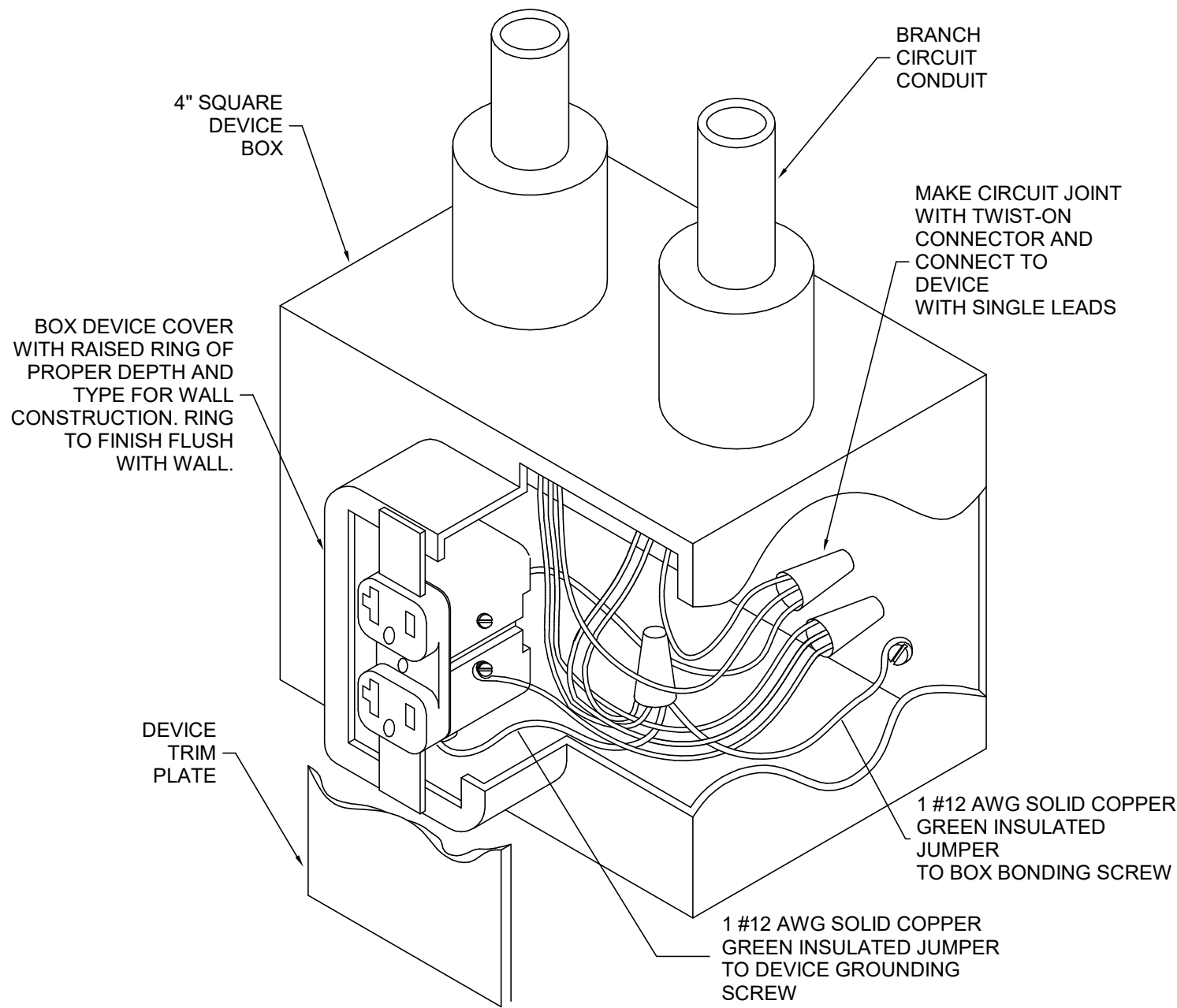
3 E - POWER RISER DIAGRAM

NOT TO SCALE



1 RECEPTACLE GROUNDING

NOT TO SCALE



PANELBOARD: HVAC PNL																			
LOCATION: CORRIDOR 119					MAINS: MCB					PANEL RATING: 225 A					PANEL NOTES: EXISTING WESTINGHOUSE PANEL - EATON AND SQUARE-D BREAKERS ARE COMPATIBLE				
MOUNTING: FLUSH					VOLTS: 120/208 Wye					MCB RATING:									
ENCL NEMA: Type 1					PHASE: 3					FED FROM: MDP									
MIN AIC: 10,000					WIRES: 4														
NOTES: 1. EXISTING PANEL TO REMAIN. CONTRACTOR TO VERIFY EXISTING CIRCUITS PRIOR TO PROJECT START.																			
2. PROVIDE NEW BREAKERS AS REQUIRED.																			
3. NEW WORK SHOWN IN BOLD LINEWEIGHT.																			
4. EXISTING WORK SHOWN IN HALF/LIGHT LINEWEIGHT.																			
CKT	LOAD TYPE	LOAD DESCRIPTION	WIRE SIZE	CONDUIT	POLES	TRIP AMPS	A		B		C		TRIP AMPS	POLES	CONDUIT	WIRE SIZE	LOAD DESCRIPTION	LOAD TYPE	CKT
1		RECEPTACLE	--		1	20 A	1	1					20 A	1		--	RECEPTACLE		2
3		RECEPTACLE	--		1	20 A			1	3.12									4
5		BATHROOM V.F.	--		1	20 A					1	3.12	40 A	3	3/4"	3#8, 1#10GND	RTU-5	HVAC	6
7							1	3.12											8
9		EXISTING IN USE	--		3	15 A			1	3.2			50 A	3		--	EXISTING RTU		10
11							3.12	3.2			1	3.2							12
13	HVAC	RTU-4	3#8, 1#10GND	3/4"	3	40 A			3.12	3.2			50 A	3		--	EXISTING RTU		14
15											3.12	3.2							16
17		SPACE	--		1	--	--	3.2					50 A	3		--	EXISTING RTU		18
19																			20
21		SPACE	--		2	30 A			0	0			30 A	2		--	SPARE		22
23											0	0	30 A	1		--	SPARE		24
25		SPACE	--		2	30 A							30 A	1		--	SPARE		26
27											0	0	30 A	1		--	SPARE		28
29		SPACE	--		2	30 A							--	1		--	SPACE		30
31							0	--					--	1		--	SPACE		32
33		EXISTING IN USE	--		1	20 A			1	--			--	1		--	SPACE		34
35		EXISTING IN USE	--		1	20 A					1	--	--	1		--	SPACE		36
37		EXISTING IN USE	--		1	20 A	1	--					--	1		--	SPACE		38
39		SCREEN PRINTER	--		1	20 A			1	--			--	1		--	SPACE		40
41		SPACE	--		1	--					--	--	--	1		--	SPACE		42
TOTAL LOAD:							16.64 kVA		16.64 kVA		15.64 kVA								
BREAKER TYPES: LO - INDICATES "LOCK-ON" DEVICE GFCI - INDICATES GROUND FAULT DEVICE																			
ST - INDICATES SHUNT TRIP DEVICE GFPE - INDICATES GROUND FAULT FOR EQUIPMENT																			
AFCI - INDICATES ARC FAULT PROTECTED DEVICE																			
Load Classification		Connected Load (VA)				Demand Factor				Estimated Demand				Panel Totals					
Receptacle		0 kVA				0.00%				0 kVA									
Motor		0 kVA				0.00%				0 kVA				Total Connected Load: 48.92 kVA					
HVAC		19 kVA				100.00%				19 kVA				Total Connected Amps: 135.79 A					
Lighting		0 kVA				0.00%				0 kVA				Total Estimated Demand: 48.92 kVA					
Equipment		0 kVA				0.00%				0 kVA				Total Estimated Demand Amps: 135.79 A					
Kitchen Equipment		0 kVA				0.00%				0 kVA									



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PANEL
SCHEDULE AND
DETAILS

E6.01