

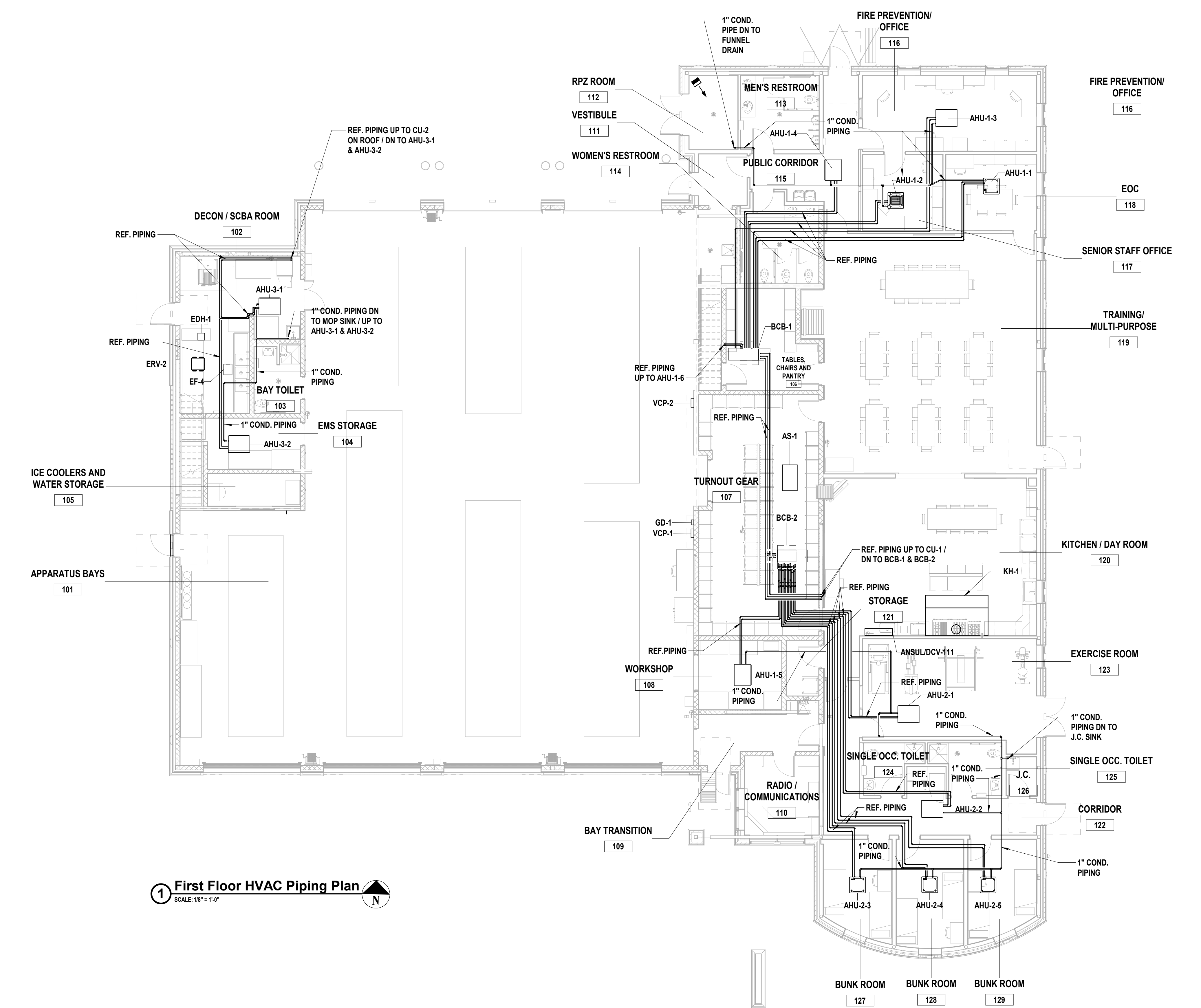


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**GENERAL MECHANICAL NOTES**

1. INSTALL ALL REFRIGERANT PIPING AS PER SPECIFICATIONS.
2. SIZE ALL REFRIGERANT PIPING AS PER MANUFACTURERS INSTALL MANUAL.
3. INSULATE ALL REFRIGERANT PIPING AS PER SPECIFICATIONS.
4. INSTALL ALL CONDENSATE PIPING AS PER SPECIFICATIONS.
5. PITCH ALL CONDENSATE PIPING AS PER SPECIFICATIONS.
6. CONTRACTOR SHALL PROVIDE AND INSTALL SEISMIC SUPPORTS & RESTRAINTS FOR ALL HVAC PIPING.
7. CONTRACTOR SHALL INSTALL ALL PIPING AND EQUIPMENT SUCH THAT IT DOES NOT INFRINGE ON THE 60" CLEARANCE ZONE REQUIRED BELOW THE PROPOSED MANHOLE COVER IN DECON ROOM 102. SEE 'A' DRAWINGS FOR MORE INFORMATION.



**1 First Floor HVAC Piping Plan**  
SCALE: 1/8" = 1'-0"  
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SHEET TITLE  
**FIRST FLOOR HVAC PIPING PLAN**

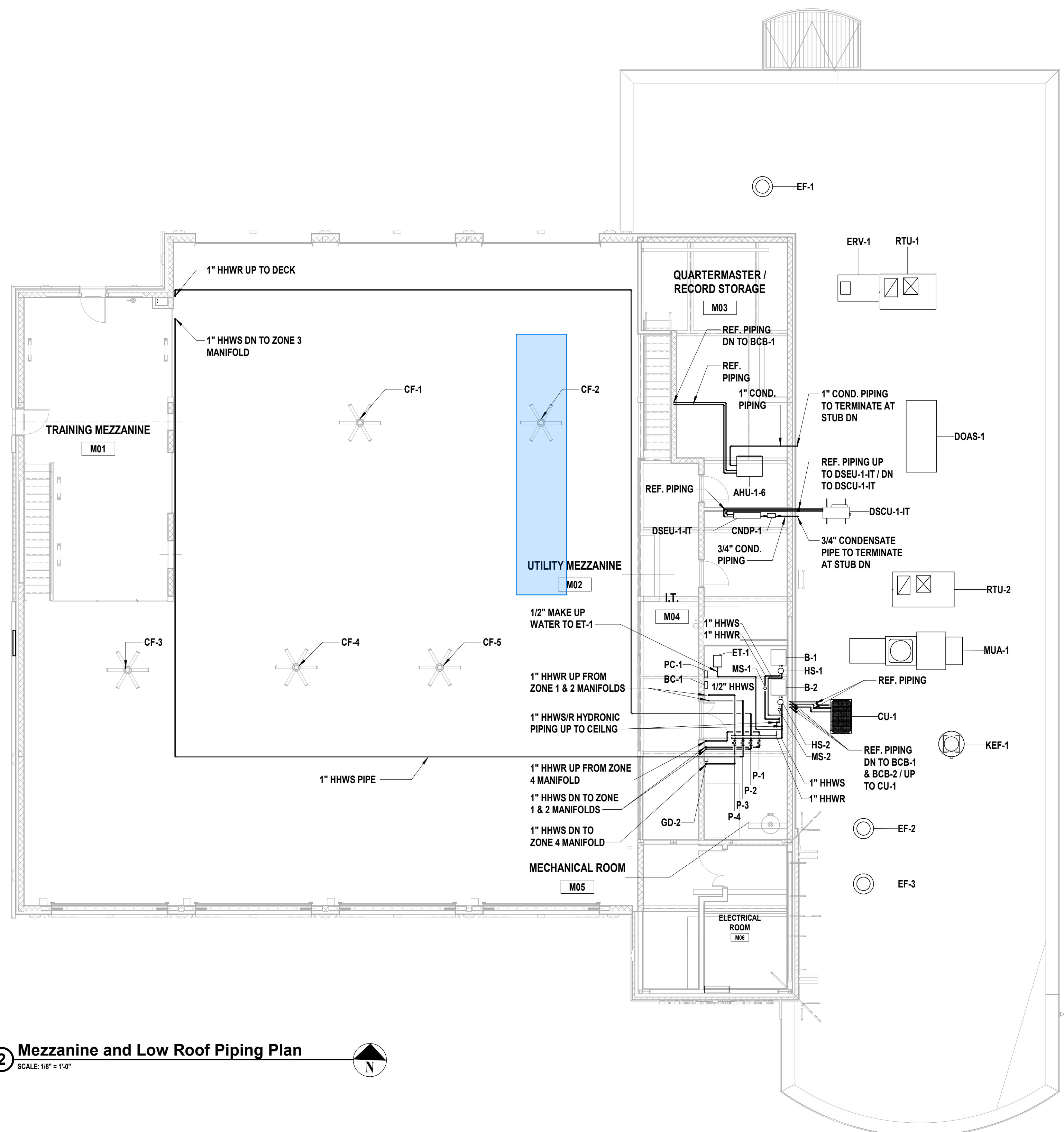
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**M 101.00**

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**GENERAL MECHANICAL NOTES**

- INSTALL ALL REFRIGERANT PIPING AS PER SPECIFICATIONS.
- SIZE ALL REFRIGERANT PIPING AS PER MANUFACTURERS INSTALL MANUAL.
- INSULATE ALL REFRIGERANT PIPING AS PER SPECIFICATIONS.
- INSTALL ALL CONDENSATE PIPING AS PER SPECIFICATIONS.
- PITCH ALL CONDENSATE PIPING AS PER SPECIFICATIONS.
- ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM ALL ROOF EDGES.
- CONTRACTOR SHALL PROVIDE AND INSTALL SEISMIC SUPPORTS & RESTRAINTS FOR ALL HVAC PIPING.
- MAKE UP WATER LINE FOR THE RADIANT FLOOR BOILER SYSTEM, UP TO AND INCLUDING BACKFLOW PREVENTION DEVICE, SHALL BE THE RESPONSIBILITY OF THE 'P' TRADE. 'M' TRADE SHALL PROVIDE AND INSTALL ALL MAKE UP WATER PIPING/SYSTEM COMPONENTS DOWNSTREAM OF THE BACKFLOW PREVENTION DEVICE. 'M' TRADE SHALL COORDINATE WITH 'P' TRADE FOR CONNECTION TO MAKE UP WATER LINE.



**2 Mezzanine and Low Roof Piping Plan**  
SCALE: 1/8" = 1'-0"

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SHEET TITLE  
**MEZZANINE AND LOW ROOF HVAC PIPING PLAN**

DRAWING No. **M 102.00**

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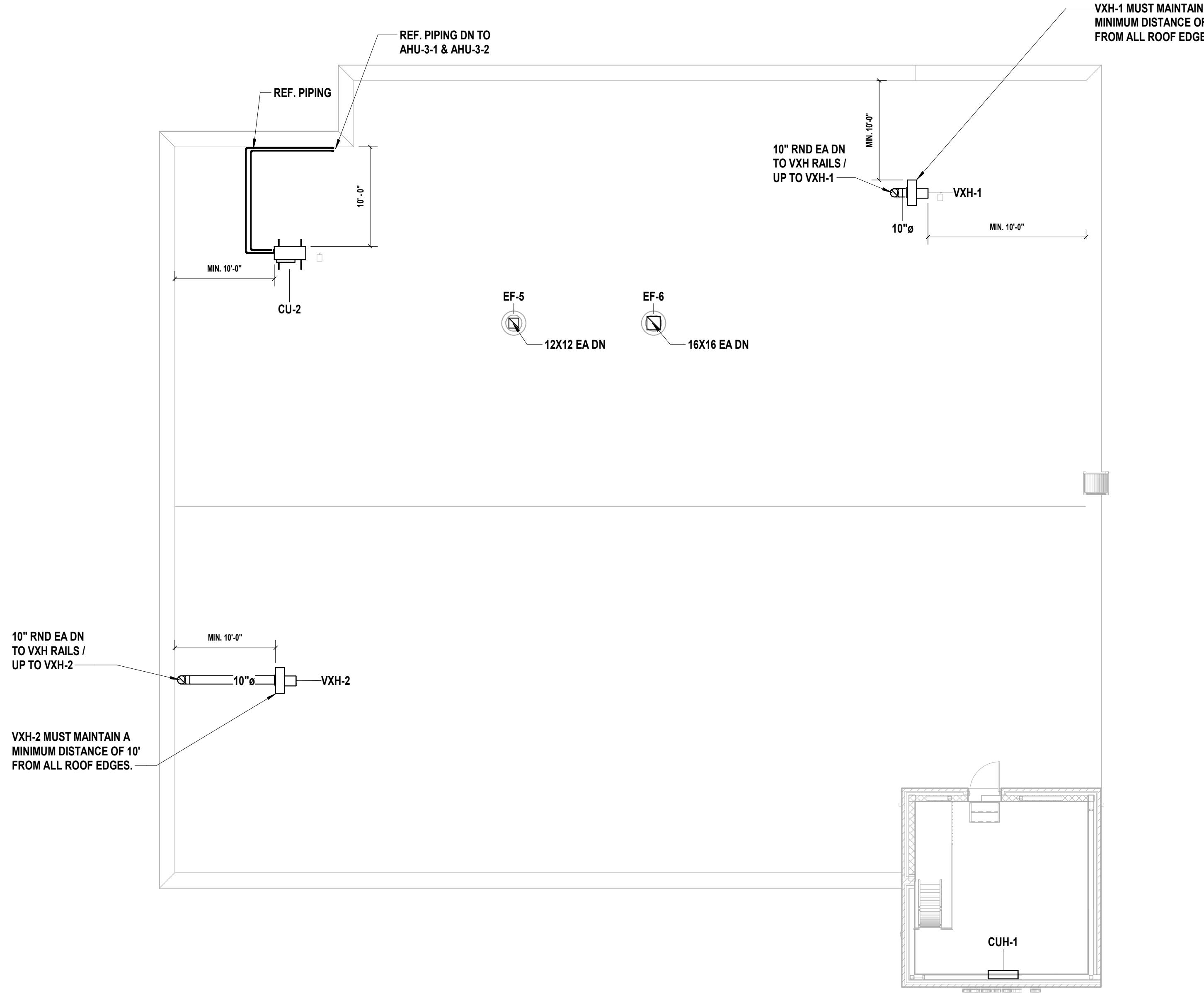


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SHEET TITLE  
**HIGH ROOF HVAC PLAN**

DRAWING No.    **M 103.00**



- GENERAL MECHANICAL NOTES:**
1. INSTALL HVAC EQUIPMENT AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  2. SIZE REFRIGERANT PIPING AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  3. INSULATE ALL REFRIGERANT AND CONDENSATE PIPING AS PER SPECIFICATIONS.
  4. PITCH ALL CONDENSATE PIPING AS PER SPECIFICATIONS.
  5. COORDINATE/TRANSITION ALL DUCTWORK WITH STRUCTURAL MEMBERS BELOW, AS REQUIRED.
  6. FLASH ALL ROOF PENETRATIONS, AS PER SPECIFICATIONS AND DETAILS.
  7. INSULATE, WEATHERPROOF, AND SUPPORT ALL ROOFTOP DUCTWORK AS PER SPECIFICATIONS.
  8. PROVIDE AND INSTALL THYBAR SUPPORT RAILS TEMS-1 SYSTEM FOR ALL SPLIT/VRF CONDENSING UNITS AND VEHICLE EXHAUST FANS. SEE DETAILS FOR FURTHER EQUIPMENT SUPPORT INFORMATION.
  9. ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM ALL ROOF EDGES.
  10. CONTRACTOR SHALL PROVIDE AND INSTALL SEISMIC RESTRAINTS FOR ALL HVAC DUCTWORK, PIPING, AND EQUIPMENT. SEE VIBRATION ISOLATION / SEISMIC & WIND RESTRAINTS SCHEDULE FOR FURTHER INFORMATION ON RESTRAINING HVAC EQUIPMENT.

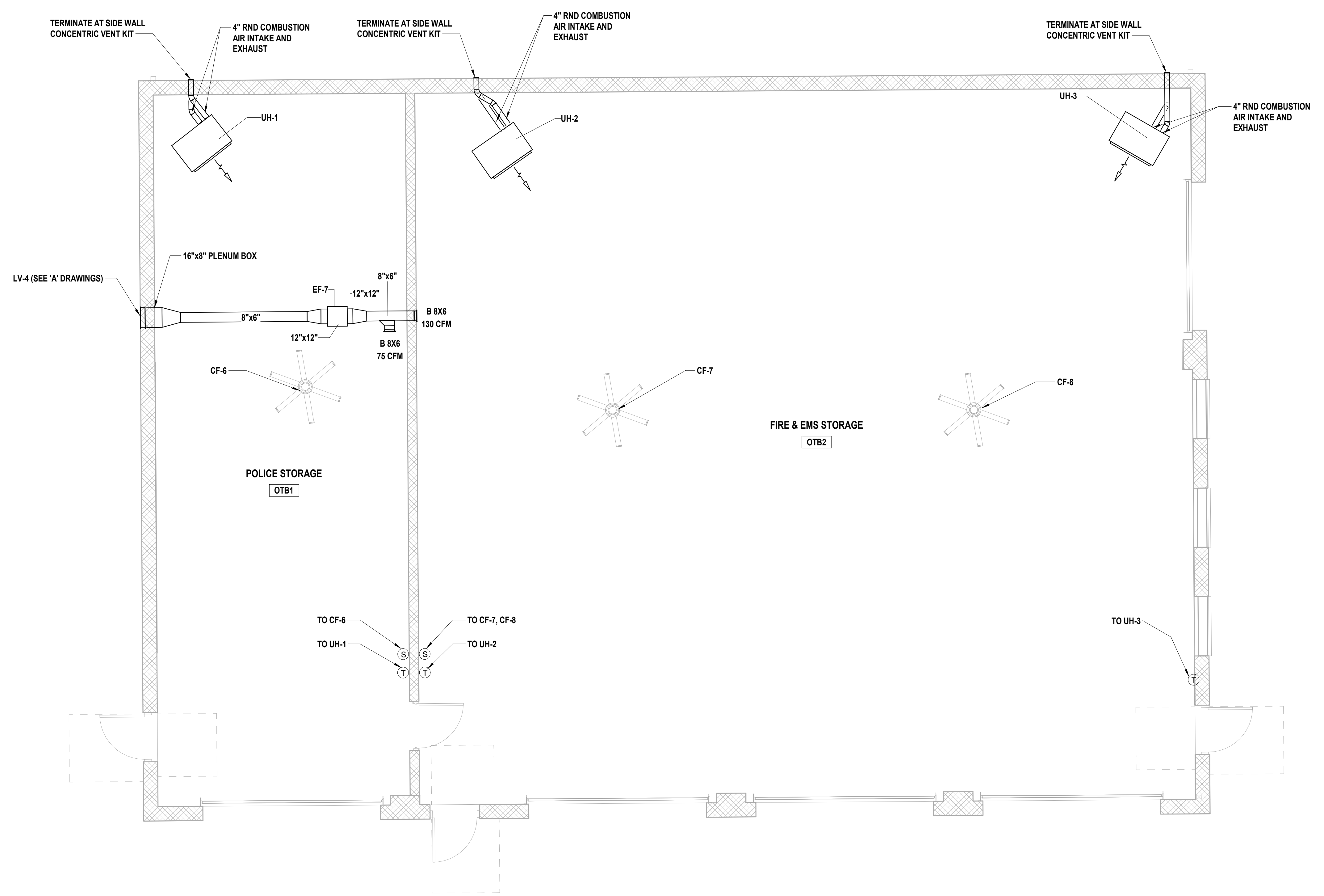
**1 High Roof HVAC Plan**  
 SCALE: 1/8" = 1'-0"

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- GENERAL MECHANICAL NOTES:**
1. INSTALL HVAC EQUIPMENT AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  2. ALL HVAC EQUIPMENT TO BE INSTALLED WITH MANUFACTURERS RECOMMENDED CLEARANCES.
  3. COORDINATE/TRANSITION ALL DUCTWORK WITH STRUCTURAL MEMBERS, AS NECESSARY.
  4. ALL UNIT HEATER'S SUPPLY AND EXHAUST DUCTWORK TO BE INSTALLED WITH FACTORY PROVIDED CONCENTRIC VENT KIT, AND INSTALLED AS PER MANUFACTURERS INSTRUCTIONS. CONCENTRIC VENT KIT SHALL STICK OUT NO MORE THAN 7" PAST BUILDING FACADE.
  5. CONTRACTOR SHALL PROVIDE AND INSTALL SEISMIC RESTRAINTS FOR ALL HVAC DUCTWORK, PIPING, AND EQUIPMENT. SEE VIBRATION ISOLATION / SEISMIC & WIND RESTRAINTS SCHEDULE FOR FURTHER INFORMATION ON RESTRAINING HVAC EQUIPMENT.
  6. CONTRACTOR SHALL PROVIDE AND INSTALL SEISMIC RESTRAINTS FOR ALL HVAC DUCTWORK, PIPING, AND EQUIPMENT. SEE VIBRATION ISOLATION / SEISMIC & WIND RESTRAINTS SCHEDULE FOR FURTHER INFORMATION ON RESTRAINING HVAC EQUIPMENT.
  7. PROVIDE AND INSTALL INSULATED BACKPLATES ON ALL THERMOSTATS LOCATED ON EXTERIOR WALLS.
  8. ALL THERMOSTATS TO BE WALL MOUNTED AT A HEIGHT OF 48" AFF.

**1 OUTBUILDING HVAC PLAN**  
 SCALE: 1/4" = 1'-0"

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SHEET TITLE:  
**OUTBUILDING HVAC PLAN**

DRAWING No.:  
**M 104.00**

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**GENERAL MECHANICAL NOTES**

- ALL RADIANT FLOOR PIPING TO MAINTAIN A MINIMUM DISTANCE OF 6" FROM ALL WALLS.
- ALL THERMOSTATS TO BE WALL MOUNTED AT A HEIGHT OF 48" AFF

**RADIANT ZONE KEY PLAN:**

ZONE 1: NORTH HALF OF APPARATUS BAY (101), RPZ (112), & VESTIBULE (111).  
 ZONE 2: SOUTH HALF OF APPARATUS BAY (101).  
 ZONE 3: DECON/SCBA (102), BAY TOILET (103), & EMS STORAGE (104).  
 ZONE 4: WORKSHOP (108), & BAY TRANSITION (109).

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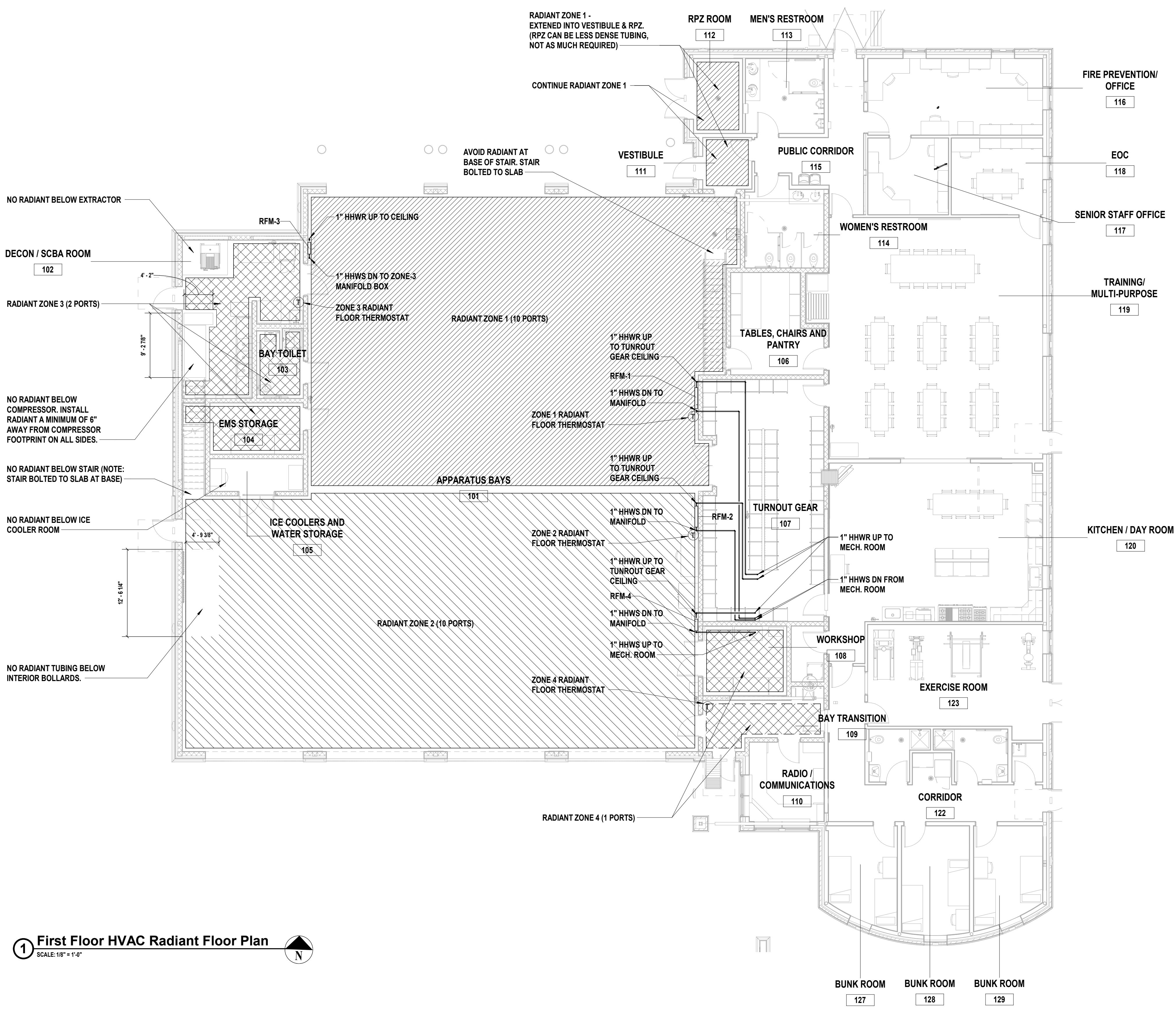


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SHEET TITLE  
**FIRST FLOOR HVAC RADIANT FLOOR PLAN**

DRAWING No.  
**M 105.00**



**1 First Floor HVAC Radiant Floor Plan**  
 SCALE: 1/8" = 1'-0"

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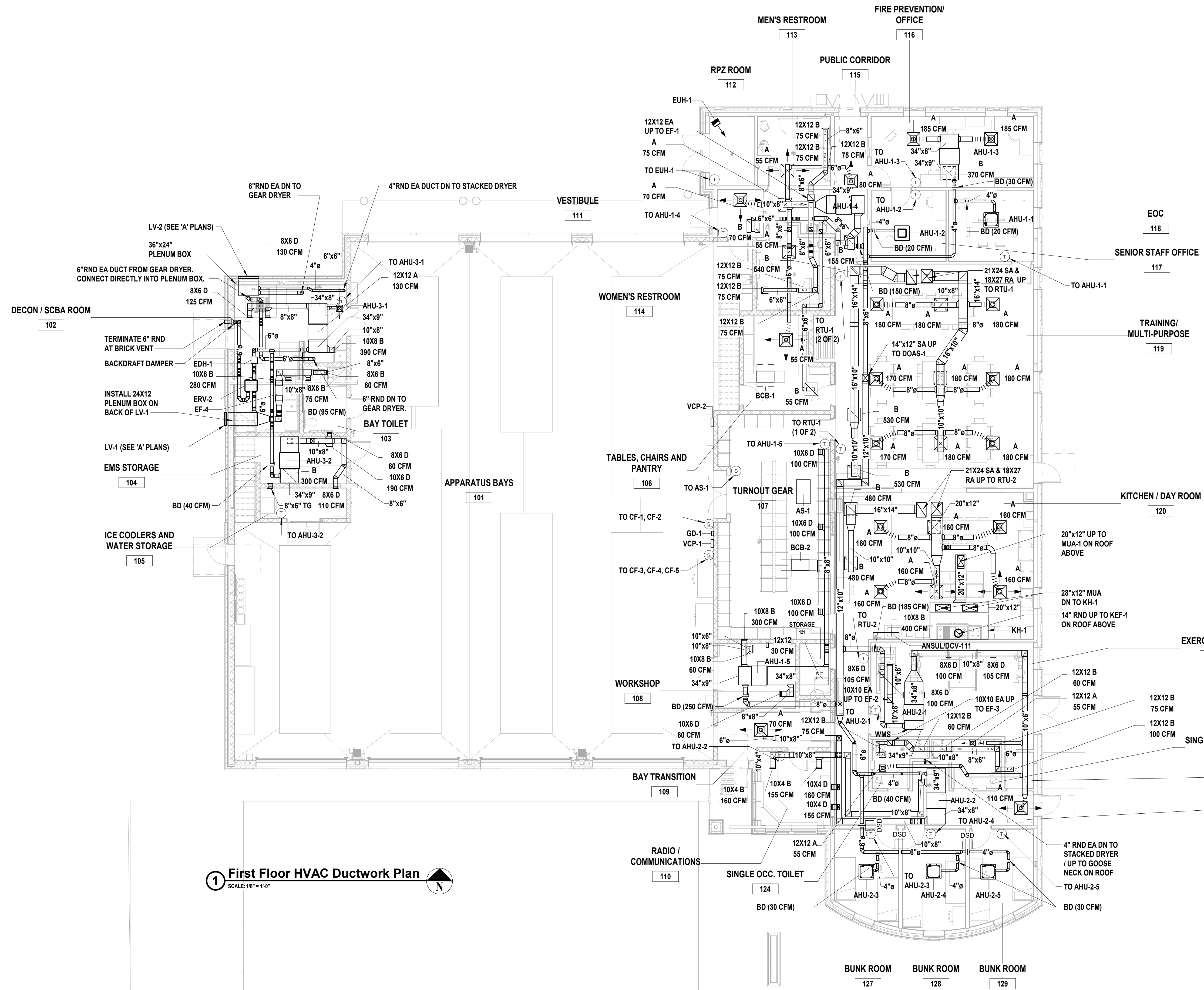


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SHEET TITLE  
**FIRST FLOOR HVAC DUCTWORK PLAN**

DRAWING No.  
**M 131.00**



**1 First Floor HVAC Ductwork Plan**  
 SCALE: 1/8" = 1'-0"

- GENERAL MECHANICAL NOTES:**
- PROVIDE AND INSTALL VOLUME DAMPERS AT ALL BRANCH DUCTS.
  - MAXIMUM FLEX DUCT LENGTH TO BE 5'-0".
  - INSTALL HVAC EQUIPMENT AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  - INSTALL, SUPPORT, AND INSULATE ALL DUCTWORK AS PER SPECIFICATIONS.
  - FOR ALL VRF AHU'S ABOVE GYP. CEILINGS, PROVIDE AND INSTALL 24X24 ACCESS DOOR.
  - FOR ALL DAMPERS ABOVE GYP. CEILINGS, PROVIDE AND INSTALL 24X24 ACCESS DOOR.
  - COORDINATE/TRANSITION ALL DUCTWORK WITH STRUCTURAL MEMBERS AND LIGHTING, AS NECESSARY.
  - MECHANICAL TRADE SHALL PROVIDE LOW VOLTAGE 24V GAS SHUTOFF VALVE FOR KITCHEN EQUIPMENT. GAS SHUTOFF VALVE TO BE INSTALLED BY PLUMBER. COORDINATE WITH 'P' DRAWINGS FOR FURTHER INFORMATION.
  - MAINTAIN ALL MANUFACTURER RECOMMENDED CLEARANCES.
  - PROVIDE AND INSTALL DUCT ACCESS DOORS FOR ALL SMOKE DAMPERS.
  - PROVIDE AND INSTALL CEILING ACCESS DOORS FOR ALL SMOKE DAMPERS, IF DAMPERS ARE ABOVE GYP. CEILINGS.
  - DUCT SMOKE DAMPER SHALL BE MOTORIZED, ACTUATOR MODEL HONEYWELL MS4120 SERIES 120 VAC.
  - BASIS OF DESIGN FOR DUCT SMOKE DAMPER IS GREENHECK SMD-201.
  - CONTRACTOR SHALL PROVIDE AND INSTALL SEISMIC RESTRAINTS FOR ALL HVAC DUCTWORK, PIPING, AND EQUIPMENT. SEE VIBRATION ISOLATION / SEISMIC & WIND RESTRAINTS SCHEDULE FOR FURTHER INFORMATION ON RESTRAINING HVAC EQUIPMENT.
  - PROVIDE AND INSTALL INSULATED BACKPLATES ON ALL THERMOSTATS LOCATED ON EXTERIOR WALLS.
  - PROVIDE AND INSTALL A LINT CLEAN OUT ACCESS DOOR ON THE BOTTOM OF LV-2 PLENUM BOX.
  - ALL THERMOSTATS TO BE WALL MOUNTED AT A HEIGHT OF 48" AFF.
  - GD-1 TO BE WALL MOUNTED AT A HEIGHT OF 48" AFF.

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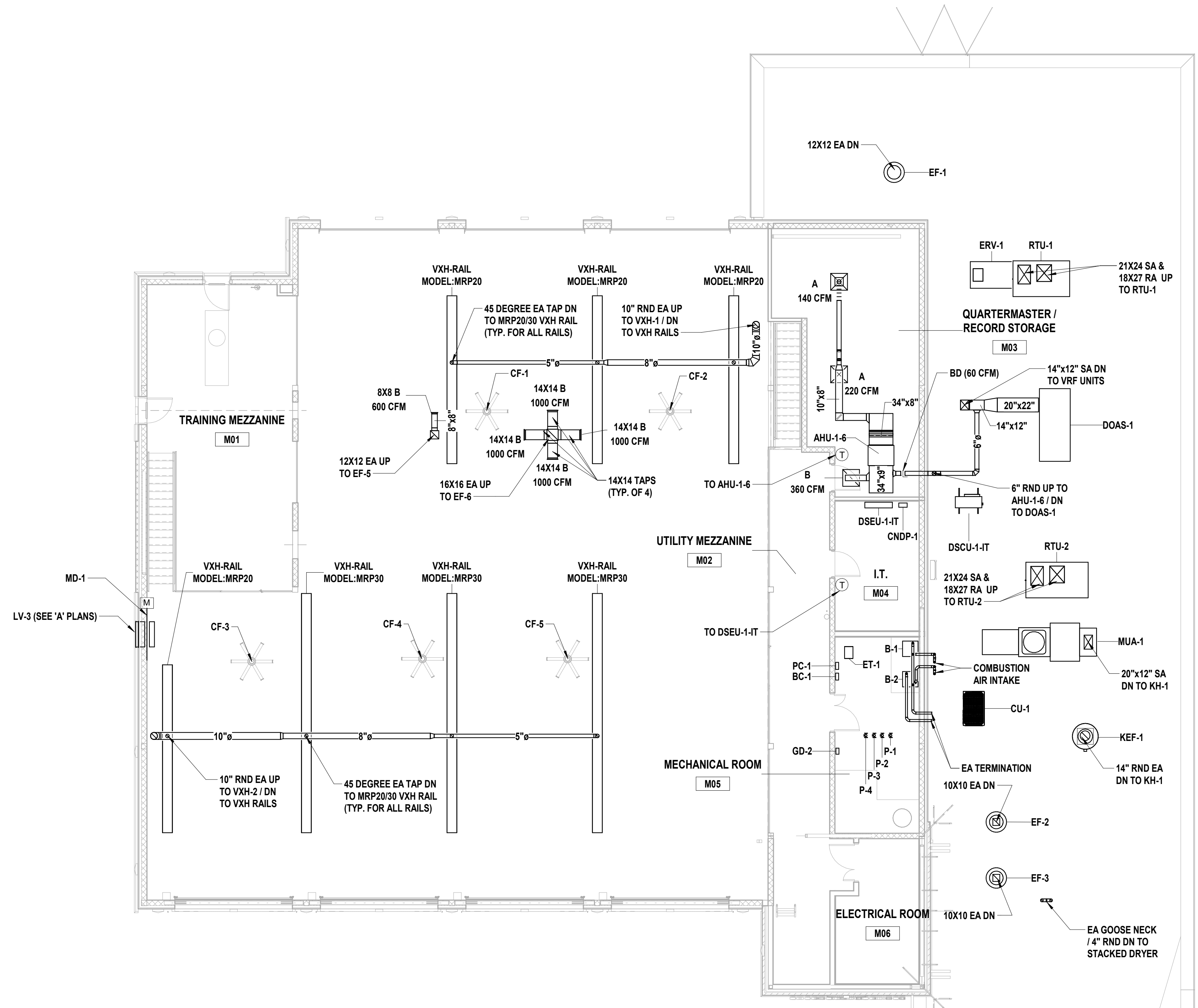


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SHEET TITLE  
**MEZZANINE AND LOW ROOF HVAC  
 DUCTWORK PLAN**

DRAWING No.  
**M 132.00**



**1 Mezzanine and Low Roof Ductwork Plan**  
 SCALE: 1/8" = 1'-0"

- GENERAL MECHANICAL NOTES:**
- INSTALL HVAC EQUIPMENT AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  - MAXIMUM FLEX DUCT LENGTH TO BE 5'-0".
  - COORDINATE/TRANSITION ALL DUCTWORK WITH STRUCTURAL MEMBERS, AS REQUIRED.
  - FLASH ALL ROOF PENETRATIONS, AS PER SPECIFICATIONS AND DETAILS.
  - INSULATE, WEATHERPROOF, AND SUPPORT ALL ROOFTOP DUCTWORK AS PER SPECIFICATIONS.
  - PROVIDE AND INSTALL THYBAR SUPPORT RAILS TEMS-1 SYSTEM FOR ALL SPLIT/VRF CONDENSING UNITS AND VEHICLE EXHAUST FANS. SEE DERAILS FOR FURTHER EQUIPMENT SUPPORT INFORMATION.
  - ALL ROOFTOP HVAC EQUIPMENT SHALL BE INSTALLED A MINIMUM OF 10'-0" AWAY FROM ALL ROOF EDGES.
  - PROVIDE AND INSTALL VOLUME DAMPERS ON ALL BRANCH DUCTWORK.
  - MAXIMUM FLEX DUCT LENGTH TO BE 5'-0".
  - SIZE ALL REFRIGERANT PIPING AS PER MANUFACTURERS INSTALLATION INSTRUCTIONS.
  - INSULATE AND SUPPORT ALL REFRIGERANT PIPING AND CONDENSATE DRAIN PIPING, AS PER SPECIFICATIONS.
  - MECHANICAL TRADE SHALL PURCHASE AND INSTALL THE DIRECT CAPTURE VEHICLE EXHAUST SYSTEM IN ITS ENTIRETY. THIS IS INCLUDING BUT NOT LIMITED TO VXH-1, VXH-2, ALL MRP-20 & MRP-30 VEHICLE EXHAUST RAILS AND ALL THEIR ASSOCIATED HARDWARE, DUCTWORK, HOSES, AND CONNECTORS. MECHANICAL TRADE SHALL COORDINATE WITH PLYMOVENT, FOR FULL VEHICLE EXHAUST PACKAGE, PRIOR TO PURCHASE.
  - LOCATIONS OF MRP-20 AND MRP-30 VEHICLE EXHAUST RAILS ARE APPROXIMATE/DIAGRAMMATIC. MECHANICAL TRADE SHALL COORDINATE WITH PLYMOVENT, THE FIRE DISTRICT, AND GENERAL CONTRACTOR FOR EXACT VEHICLE EXHAUST RAIL MOUNTING LOCATIONS/PLACEMENT. FINAL RAIL MOUNTING LOCATIONS AND MOUNTING SYSTEMS SHALL BE COORDINATED WITH GENERAL CONTRACTOR.
  - FOR ALL VRF AHUS ABOVE GYP. CEILINGS, PROVIDE AND INSTALL 24X24 ACCESS DOOR.
  - FOR ALL DAMPERS ABOVE GYP. CEILINGS, PROVIDE AND INSTALL 24X24 ACCESS DOOR.
  - COORDINATE/TRANSITION ALL DUCTWORK WITH STRUCTURAL MEMBERS, AS NECESSARY.
  - MAINTAIN ALL MANUFACTURER RECOMMENDED CLEARANCES.
  - ALL THERMOSTATS TO BE WALL MOUNTED AT A HEIGHT OF 48" AFF.
  - GD-2 TO BE WALL MOUNTED AT HEIGHT OF MANUFACTURERS RECOMMENDATIONS FOR METHANE DETECTION.



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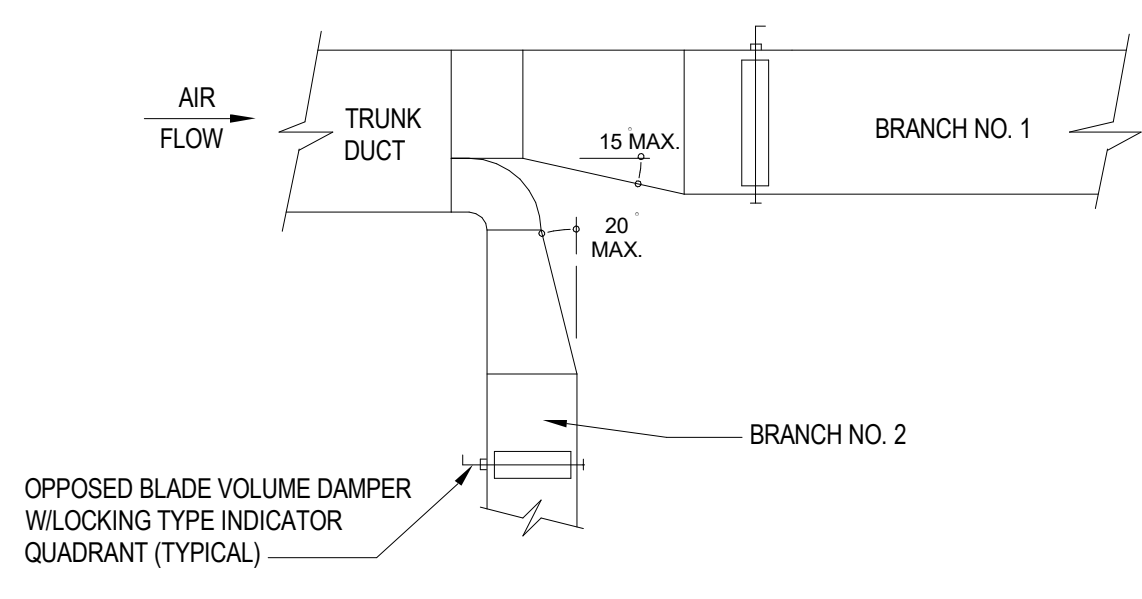
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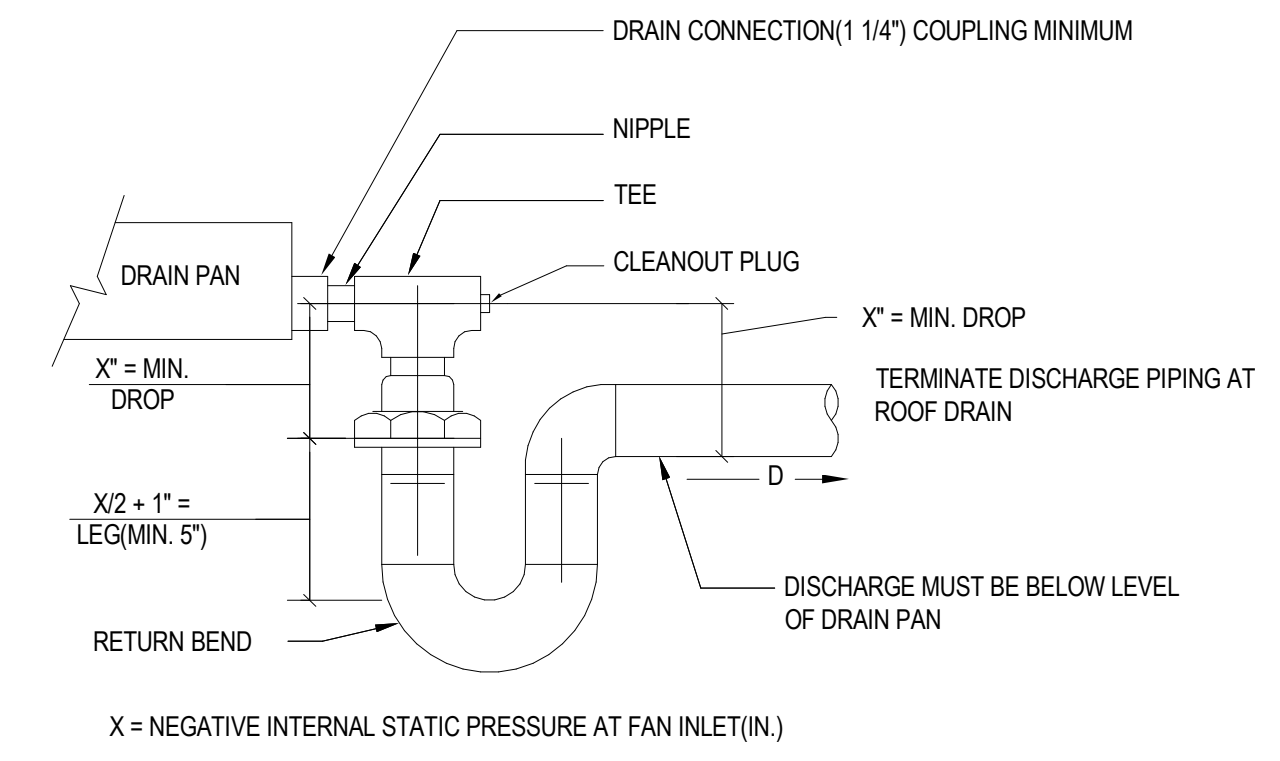
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**HVAC DETAILS**

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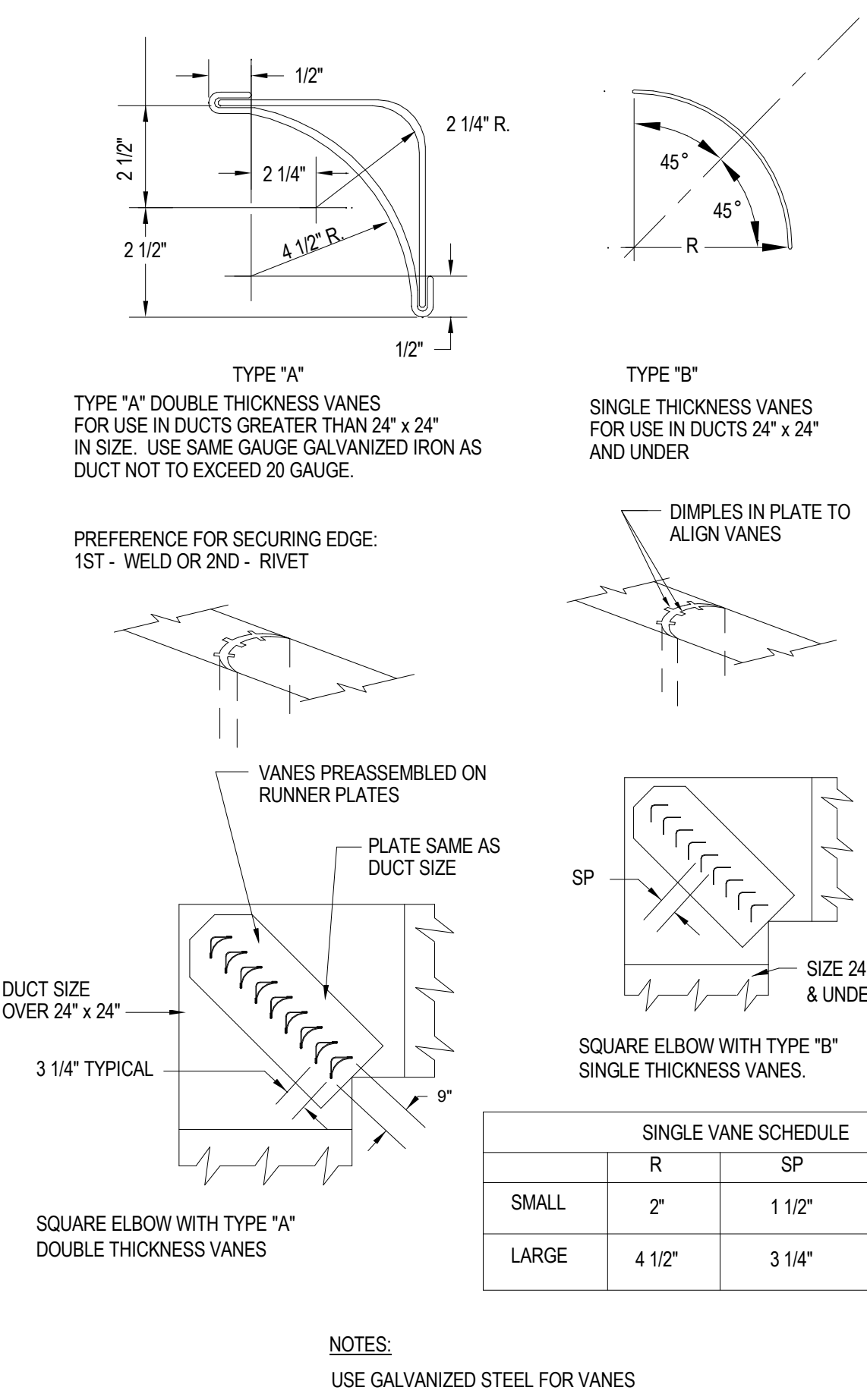


**1 BRANCH DUCT WITH RADIUS ELBOW**  
 SCALE: NTS

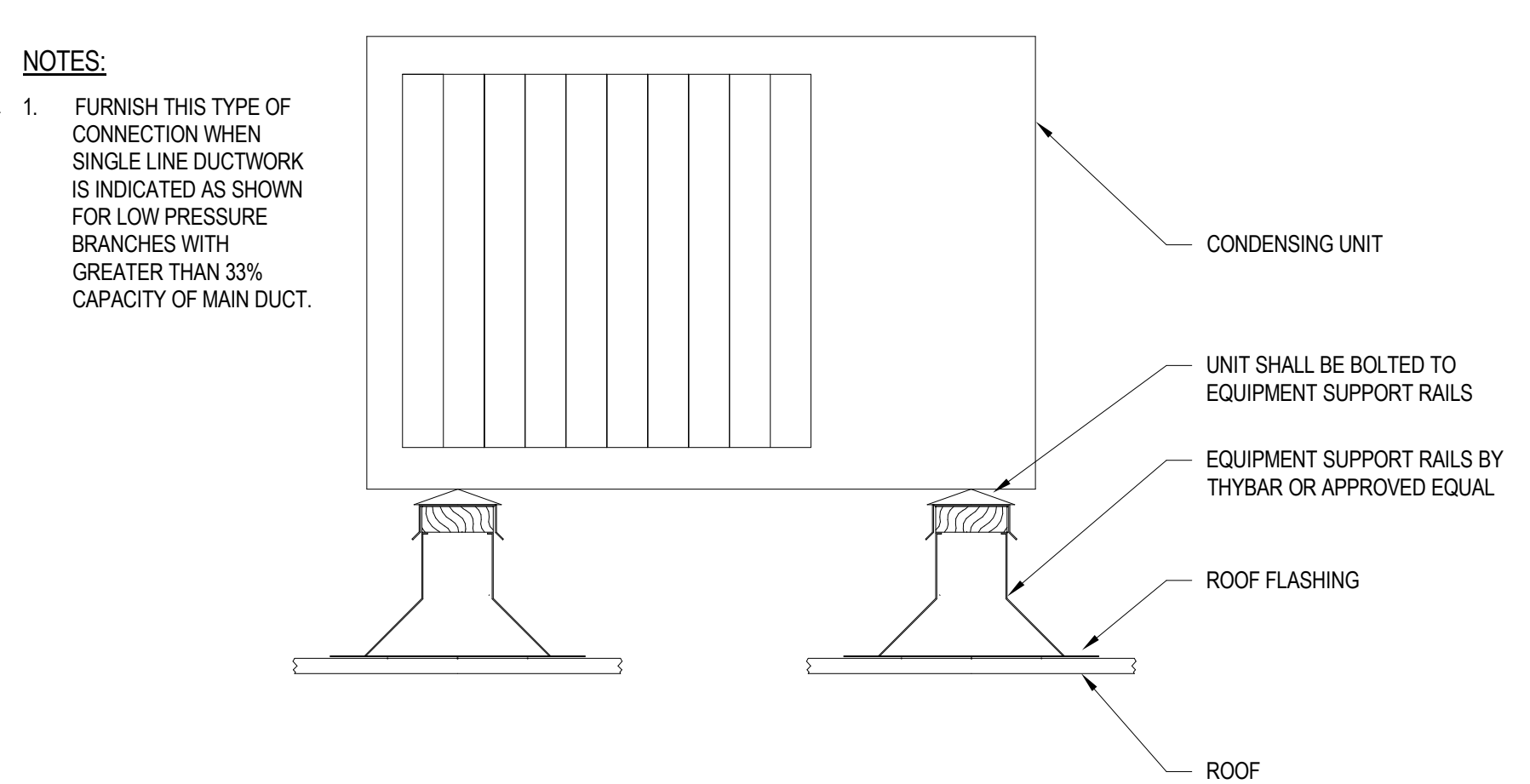


- NOTES:**
1. ALLOW SUFFICIENT SPACE BELOW DRAIN PAN FOR TRAP.
  2. PITCH DRAIN FOR PROPER RUN-OFF.
  3. MANUALLY PRIME FILL TRAP BEFORE START-UP TO FORM INITIAL DRAIN SEAL.
  4. SUPPORT LENGTHY DRAIN LINES TO PREVENT SAG AND CONDENSATE OVERFLOW.
  5. PROVIDE DRAIN SEAL AT EACH AC UNIT.

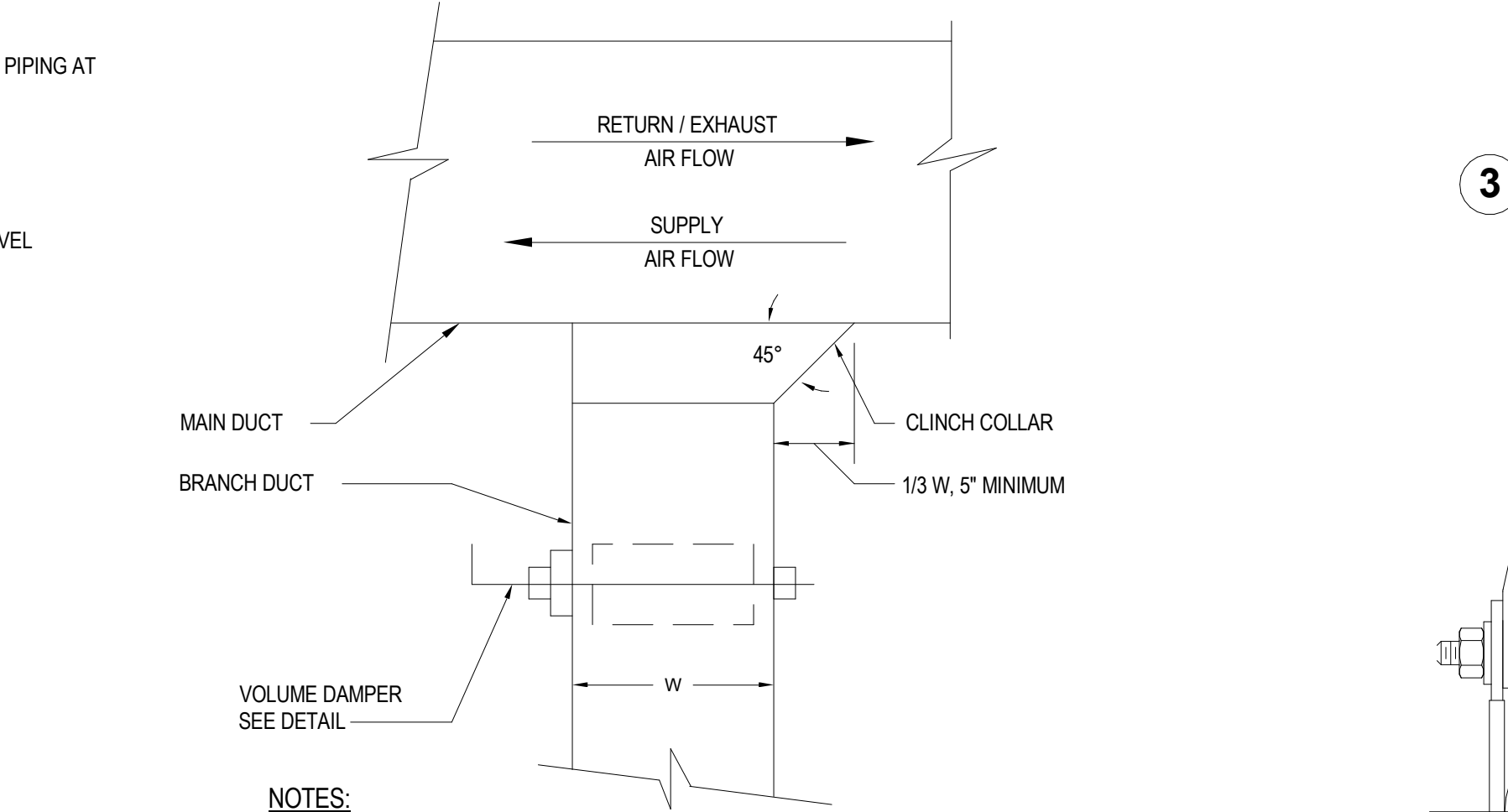
**5 DRAIN PAN PIPING DETAIL**  
 SCALE: NTS



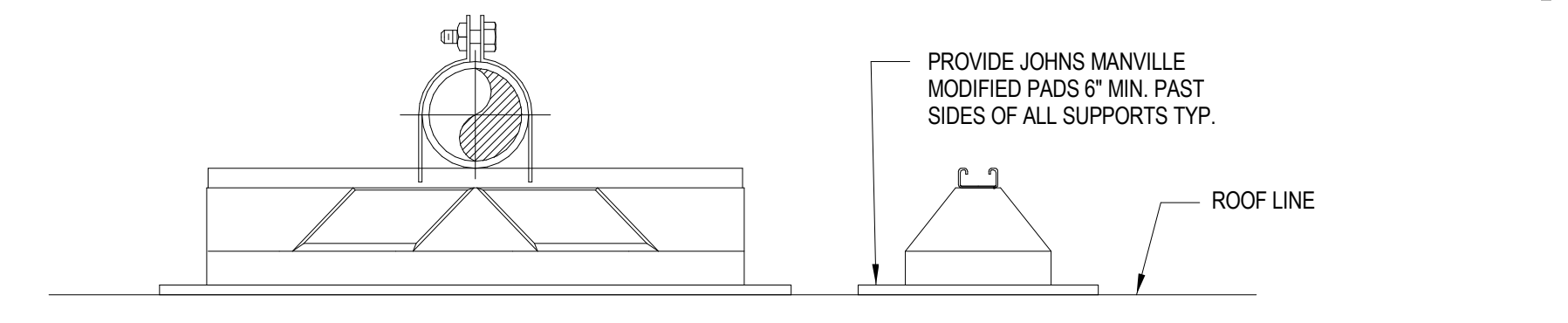
**11 TURNING VANE DETAIL**  
 SCALE: NTS



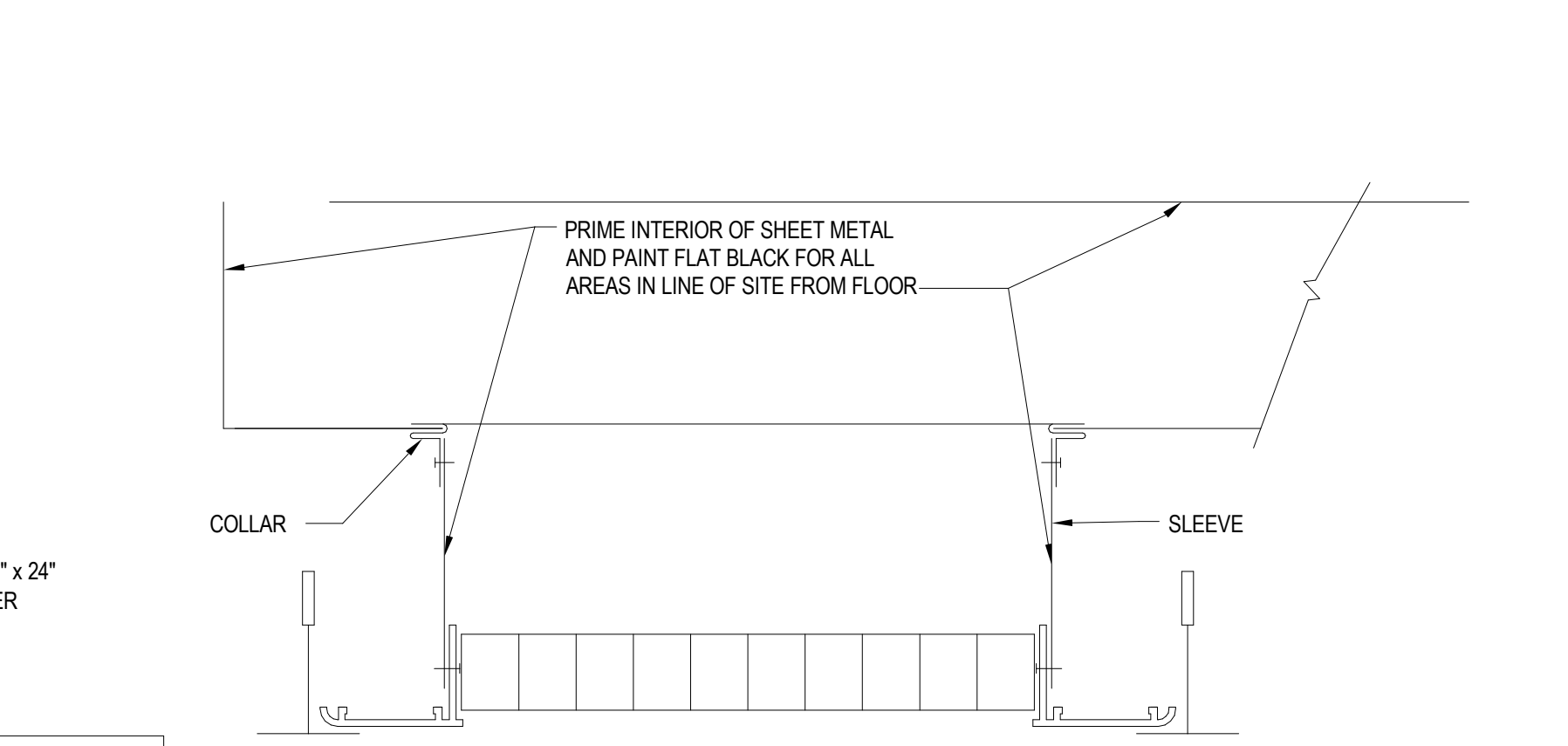
**2 CONDENSING UNIT CURB DETAIL**  
 SCALE: NTS



**6 DUCT BRANCH TAKEOFF FOR LOW PRESSURE DUCTWORK**  
 SCALE: NTS

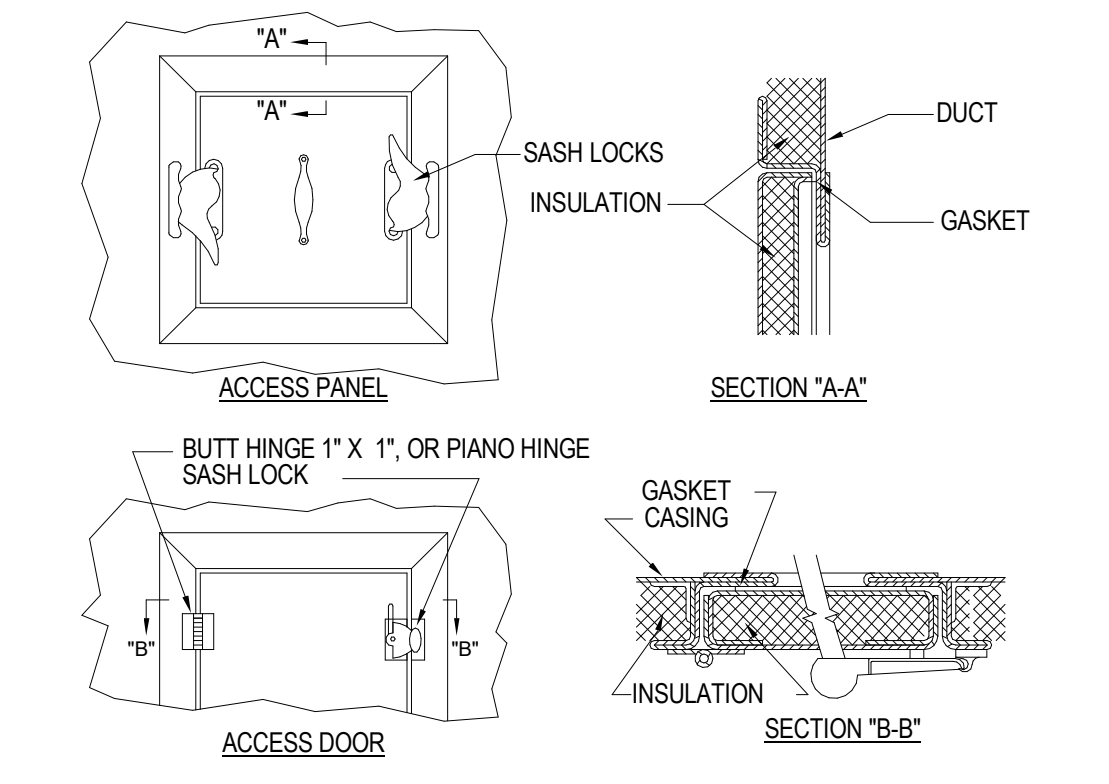


**9 ROOF PIPE SUPPORT**  
 SCALE: NTS



- NOTES:**
1. PROVIDE CONCEALED SCREW HOLES IN NECK.
  2. PROVIDE CLINCH LOCK DUCT COLLAR AND TELESCOPIC SLEEVE.
  3. SECURE GRILLE FRAME TO SLEEVE AND DUCT COLLAR TO SLEEVE.

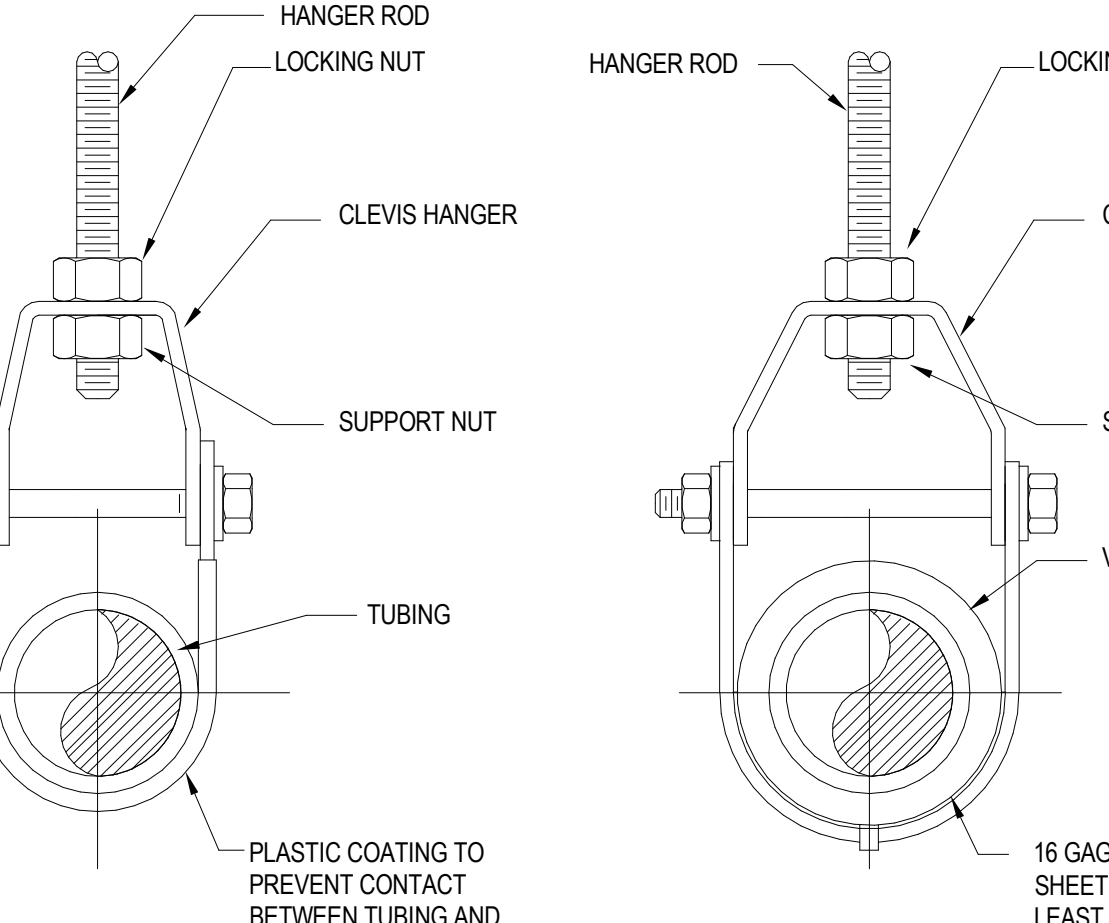
**12 DUCTED CEILING GRILLE DETAIL**  
 SCALE: NTS



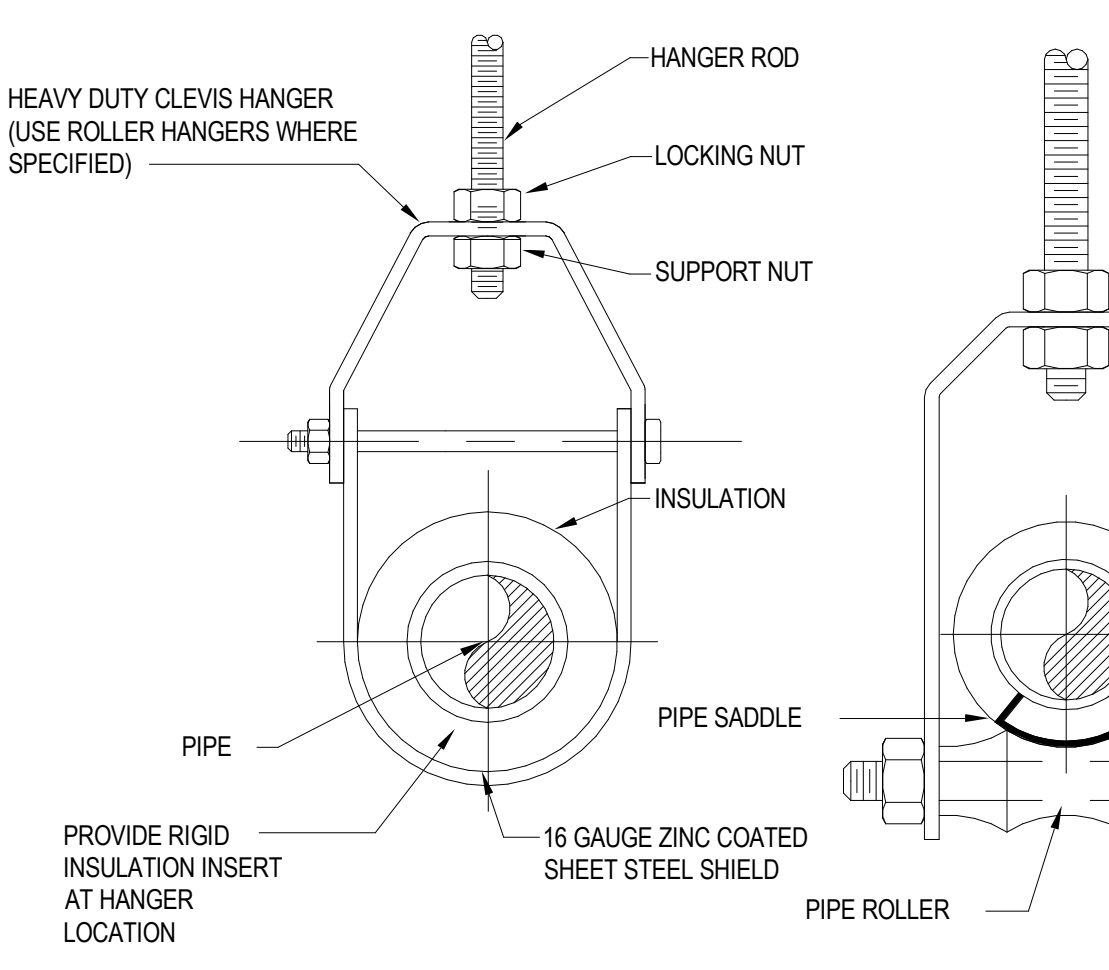
| DOOR SIZE | NO. HINGES | NO. LOCKS | METAL GAGE |      |      |
|-----------|------------|-----------|------------|------|------|
|           |            |           | FRAME      | DOOR | BACK |
| 12" X 12" | 2          | 1-S       | 24         | 26   | 26   |
| 16" X 20" | 2          | 2-S       | 22         | 24   | 26   |
| 24" X 24" | 3          | 2-S       | 22         | 22   | 26   |

- NOTES:**
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
  2. HINGES ON THE ACCESS DOORS SHALL HAVE NON-CORROSIVE PINS.
  3. PROVIDE ACCESS DOORS OR PANELS AT ALL FIRE DAMPER LOCATIONS.
  4. PROVIDE ACCESS PANELS ON ALL DUCTWORK INSTALLED ABOVE FINISHED.

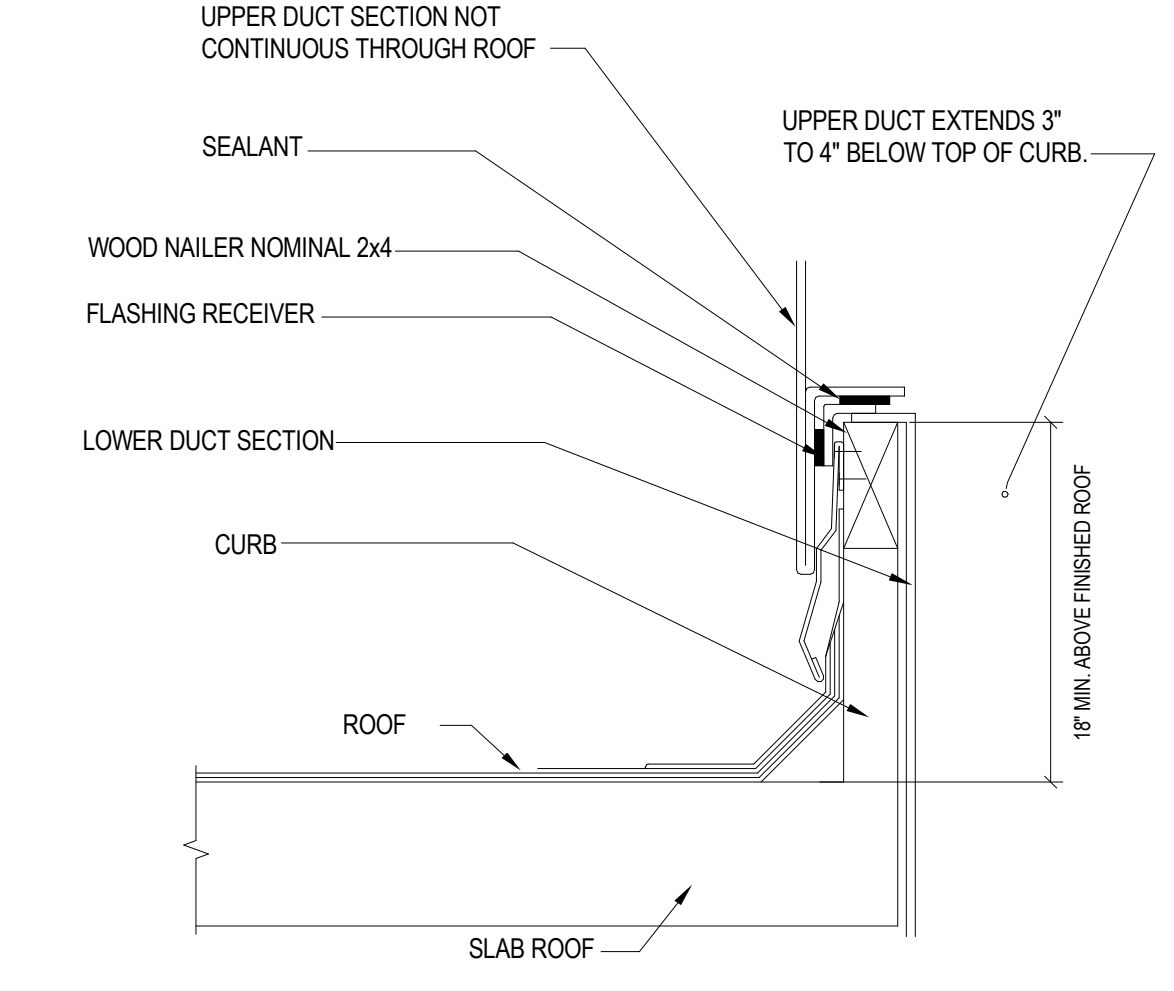
**3 ACCESS DOOR AND PANEL DETAILS**  
 SCALE: NTS



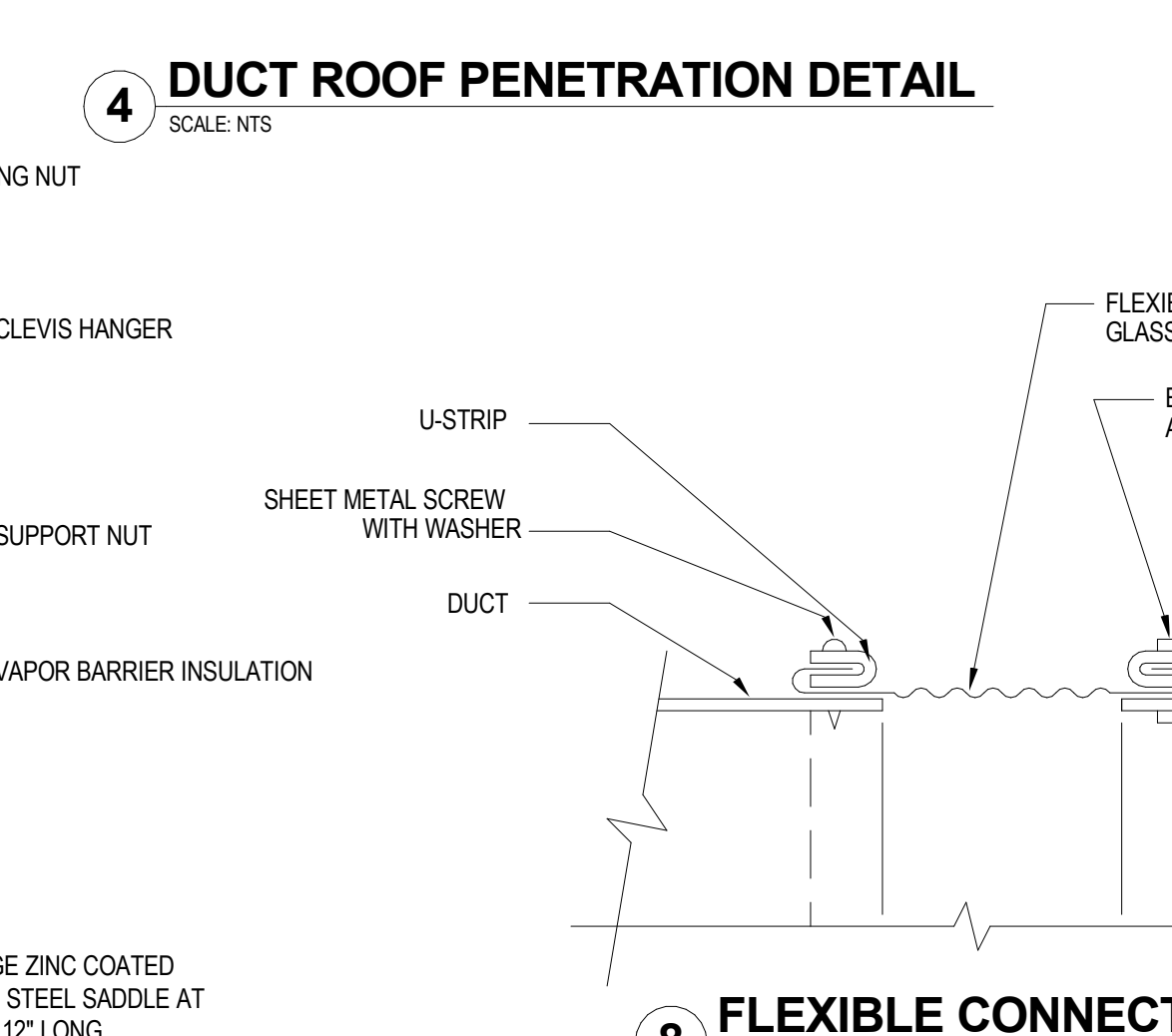
**7 COPPER TUBING HANGER DETAILS**  
 SCALE: NTS



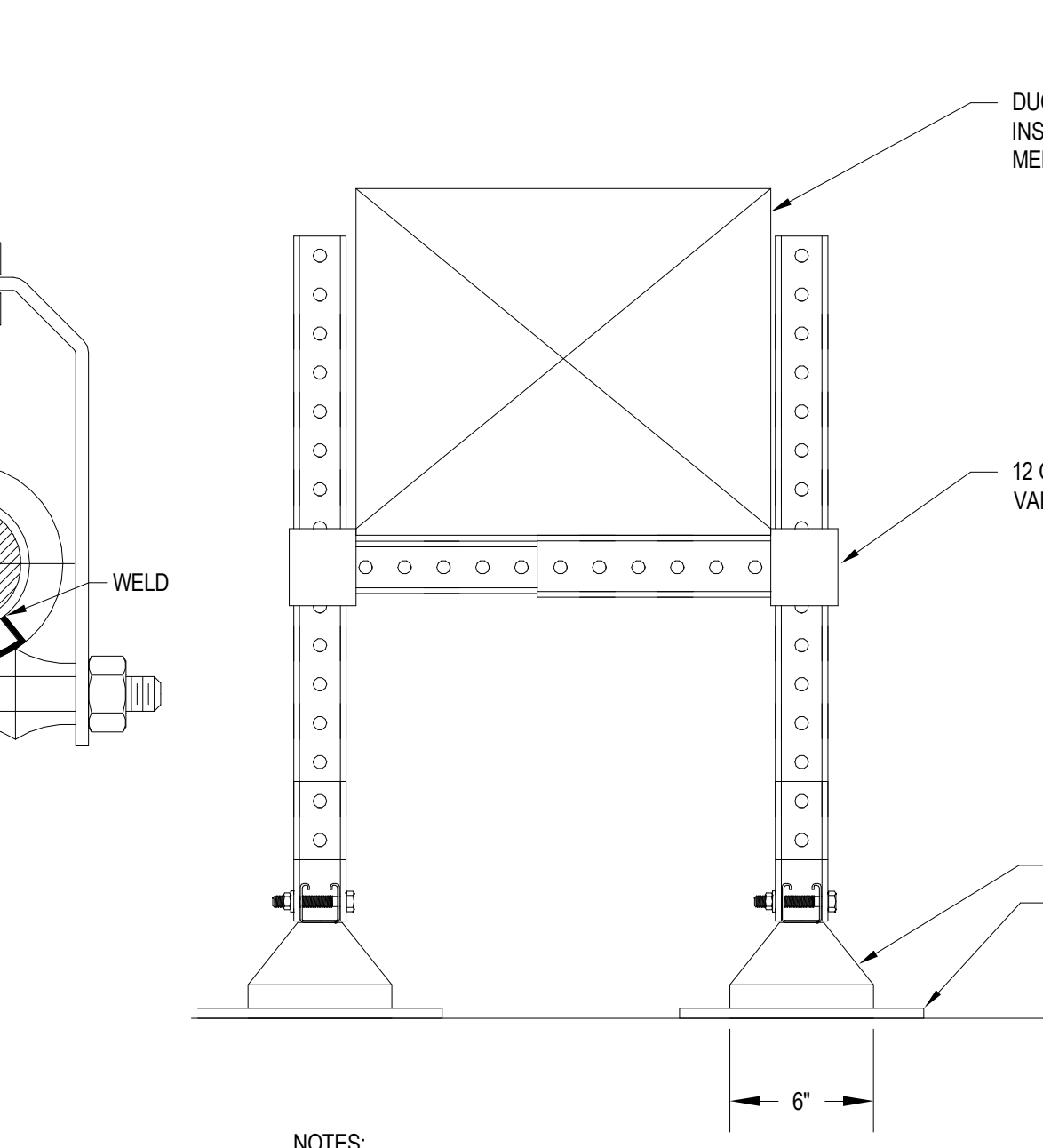
**10 STEEL PIPE HANGER DETAILS**  
 SCALE: NTS



**4 DUCT ROOF PENETRATION DETAIL**  
 SCALE: NTS



**8 FLEXIBLE CONNECTION**  
 SCALE: NTS



- NOTES:**
1. SEE SPECIFICATIONS FOR INFORMATION ON ROOF TOP SUPPORT SYSTEM.

**13 Non Penetrating Roof Duct Support Detail**  
 SCALE: NTS

CONSULTANTS:

| MARK | DATE        | DESCRIPTION |
|------|-------------|-------------|
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PROJECT No.: BOME2201 DATE: NOV 3, 2023 SCALE: AS SHOWN

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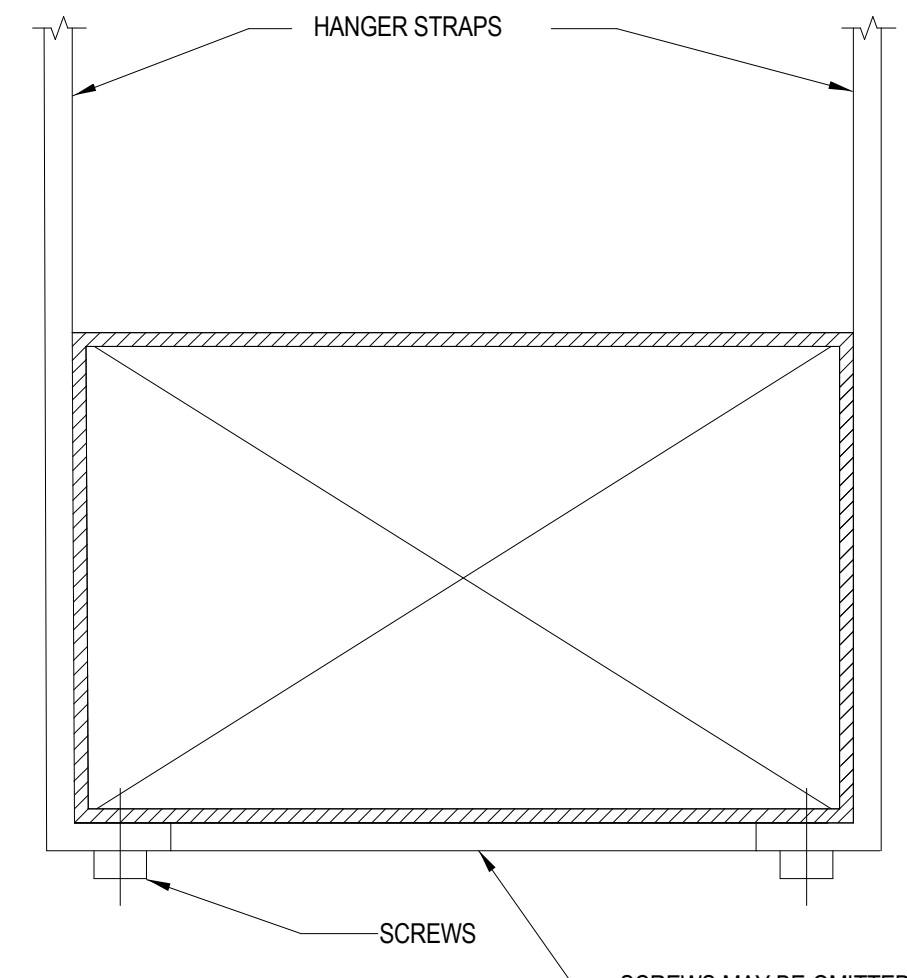


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METUCHEN, NJ 08840  
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COUNTY OF MIDDLESEX  
NEW JERSEY**

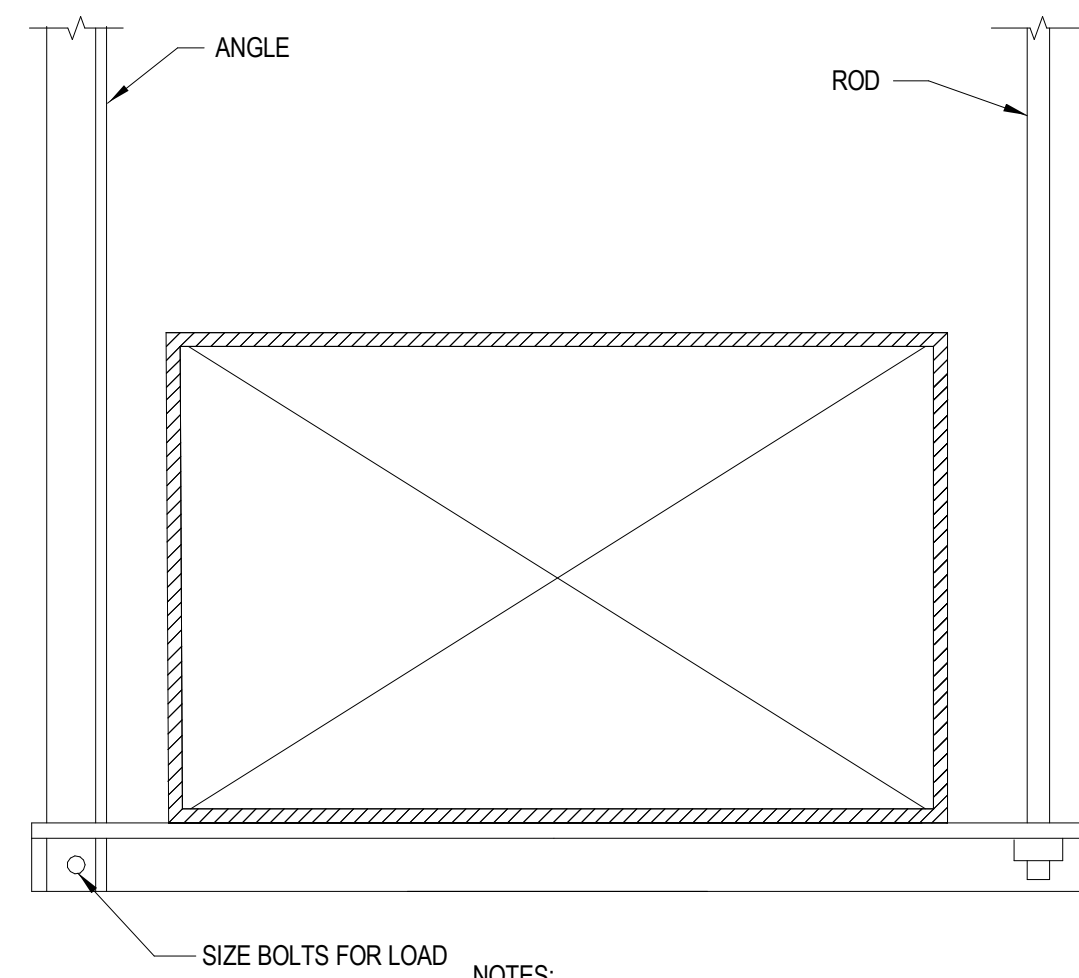
STATUS **90% - NFC**

SHEET TITLE  
**HVAC DETAILS**

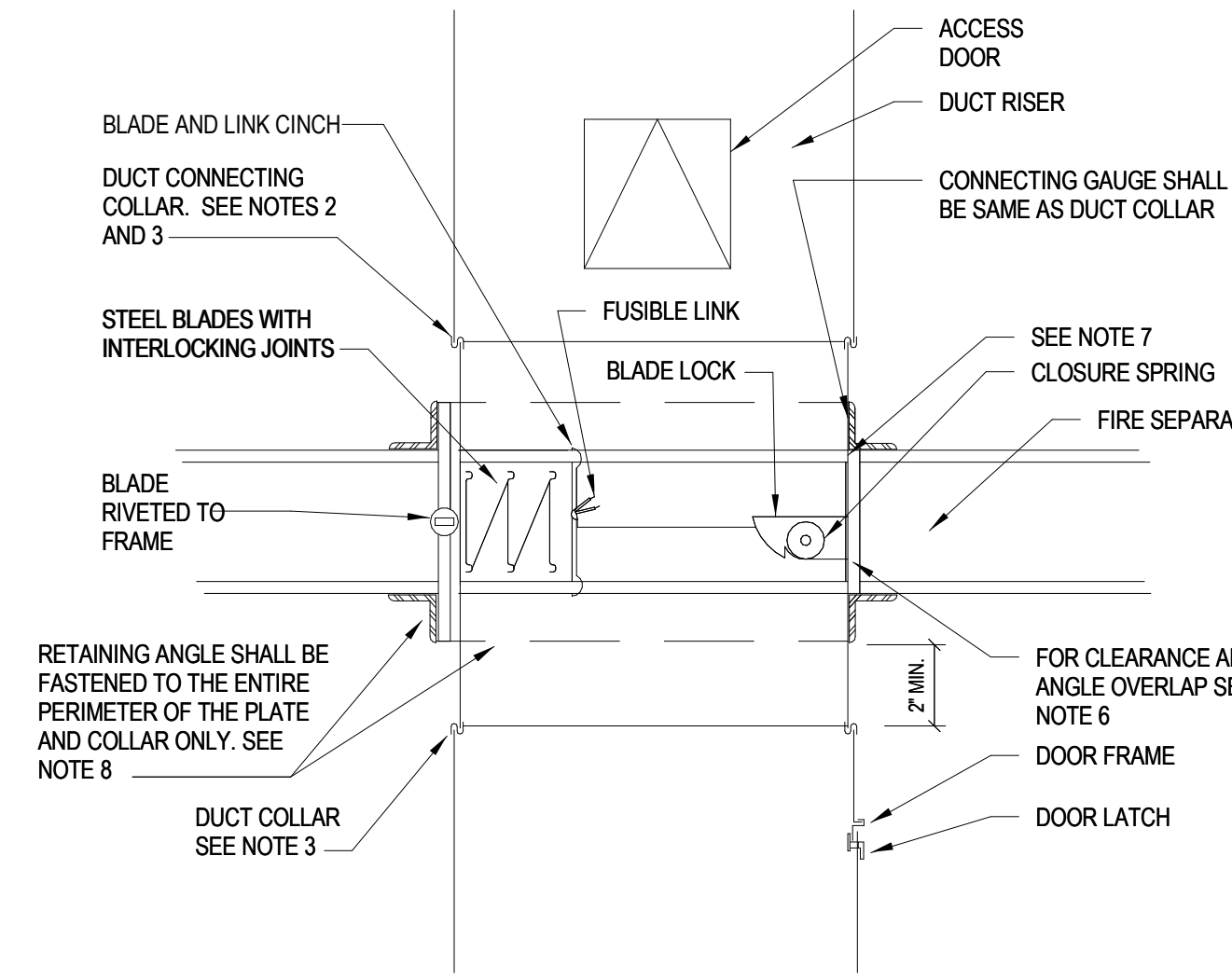
DRAWING No. **M 501.00**



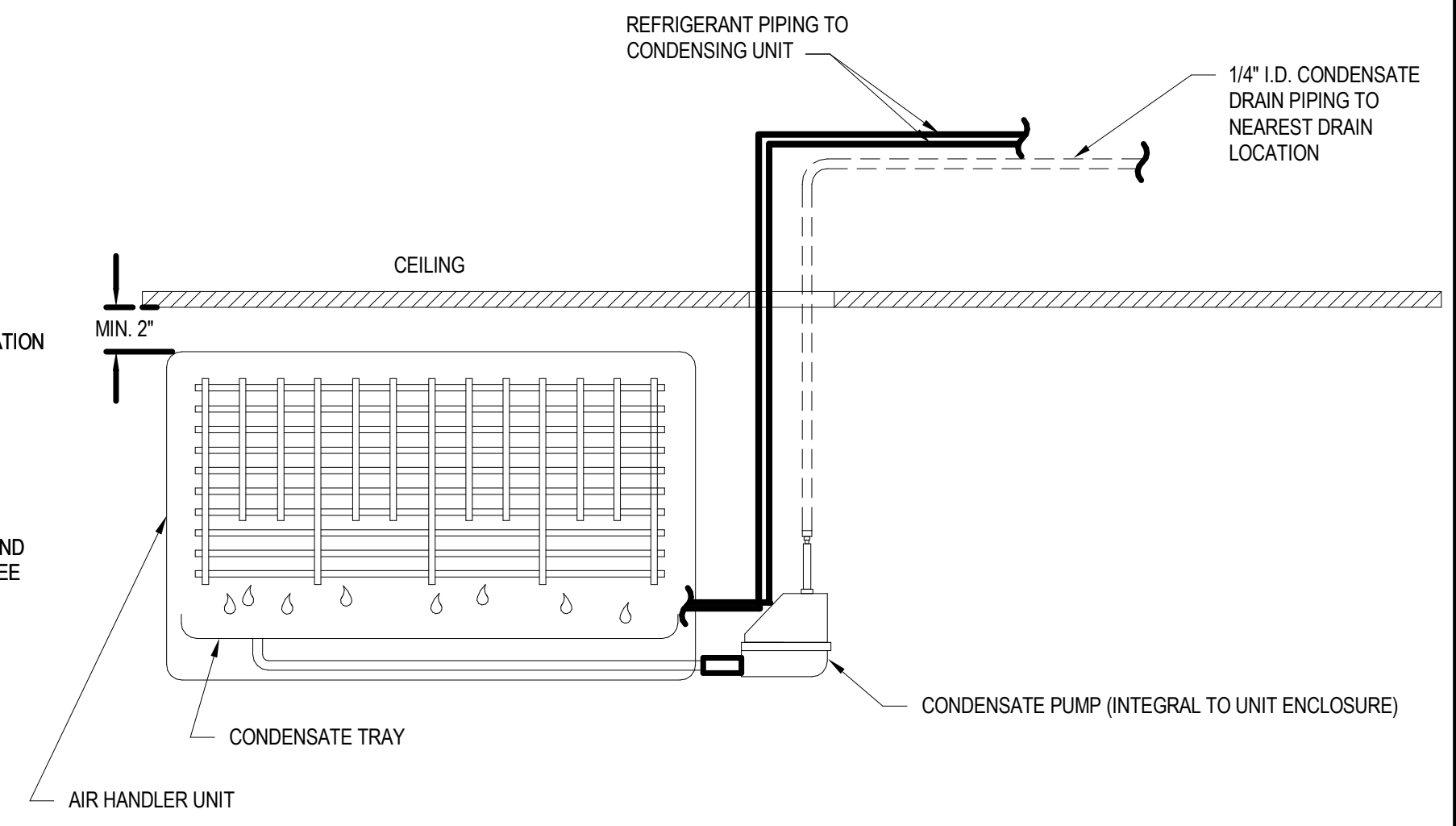
**STRAP HANGER**  
NOT TO SCALE



**TRAPEZE HANGER**  
NOT TO SCALE

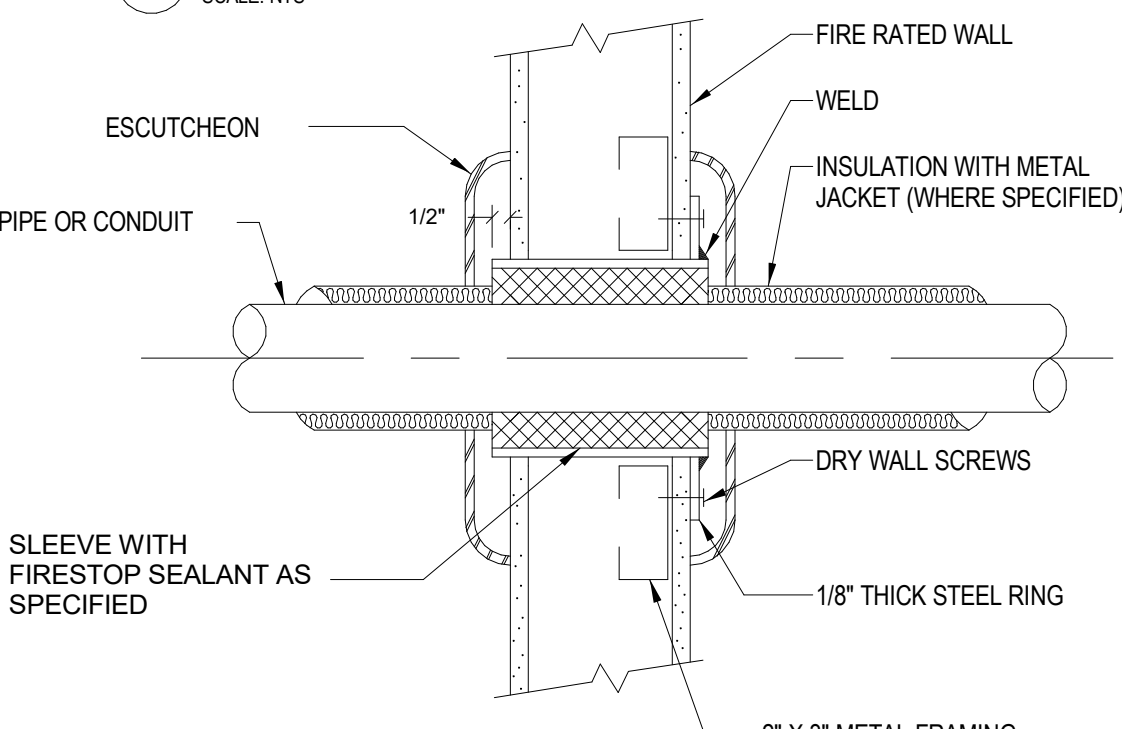


**HORIZONTAL FIRE DAMPER DETAIL**  
SCALE: NTS

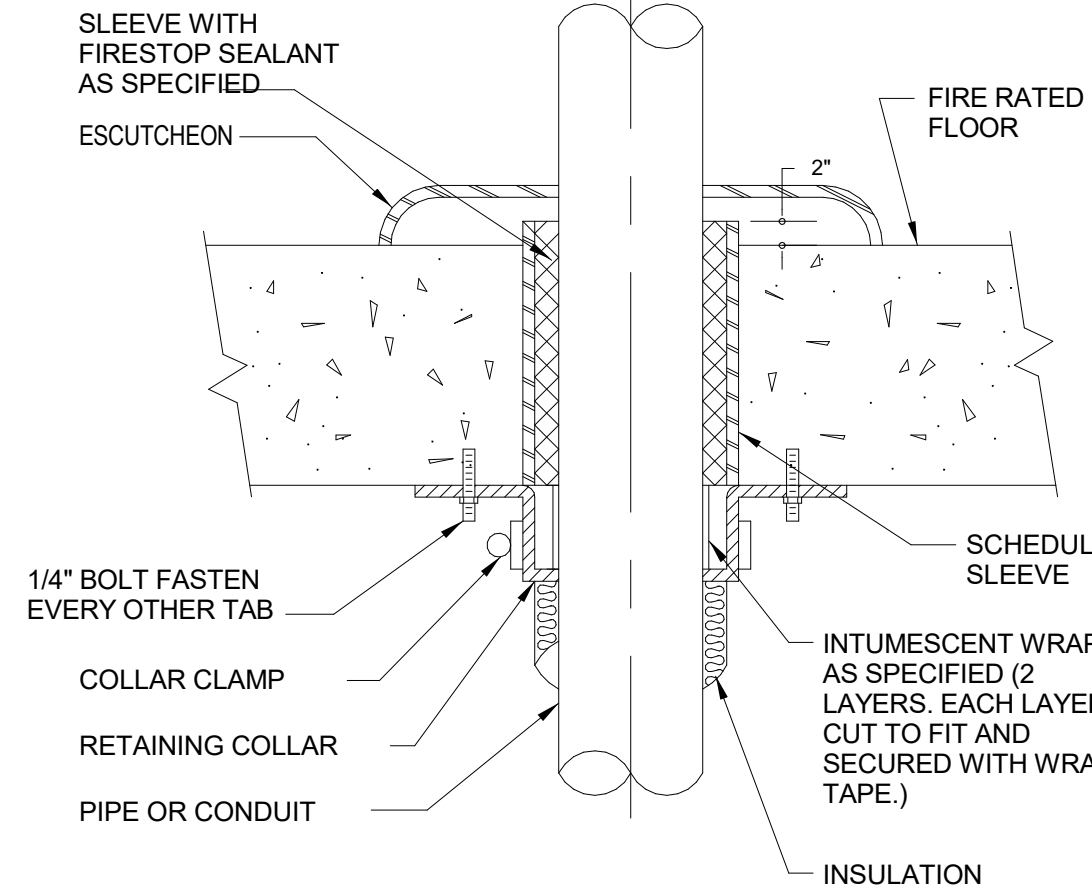


**DUCTLESS SPLIT CONDENSATE DRAIN PIPING DETAIL**  
SCALE: NTS

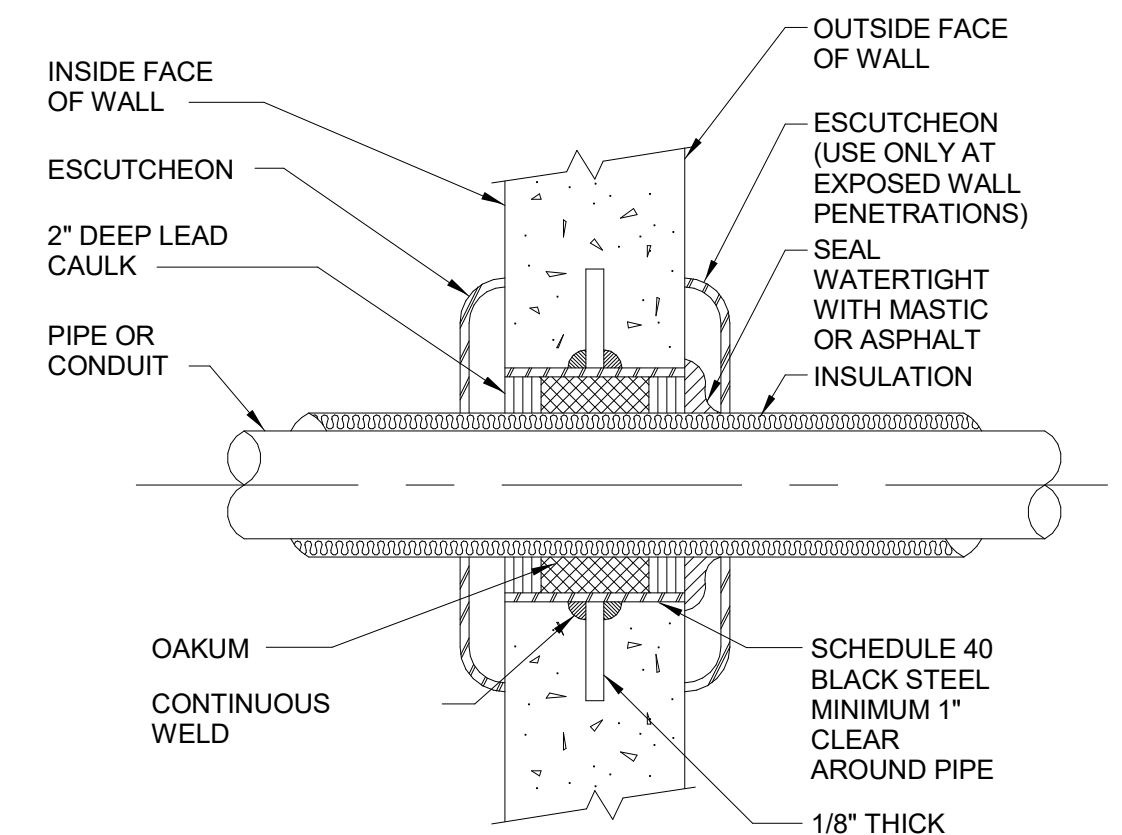
- NOTES:**
- DIMENSIONS OTHER THAN GAUGE ARE IN INCHES.
  - TABLES ALLOW FOR DUCT WEIGHT, 1 LB./SF INSULATION WEIGHT AND NORMAL REINFORCEMENT AND TRAPEZE WEIGHT, BUT NO EXTERNAL LOADS.
  - STRAPS ARE GALVANIZED STEEL.
  - ALLOWABLE LOADS FOR P/2 ASSUME THAT DUCTS ARE 16 GA. MAXIMUM, EXCEPT THAT WHEN MAXIMUM DUCT DIMENSION (W) IS OVER 60" THEN P/2 MAXIMUM IS 1.25 W.



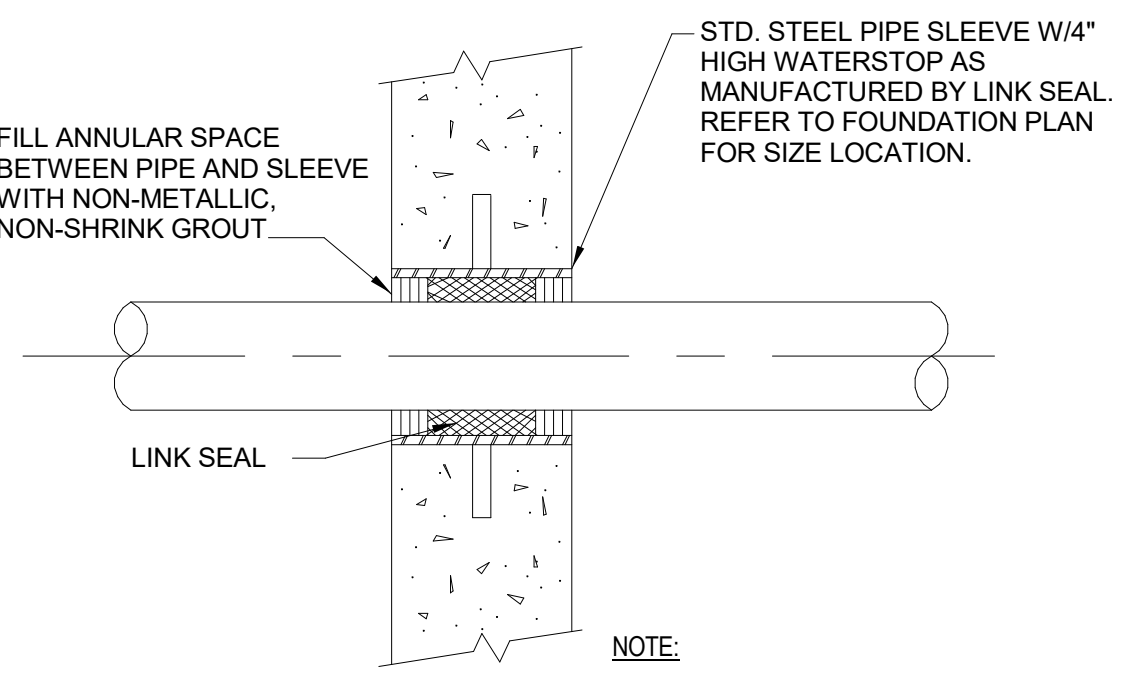
**PIPE OR CONDUIT PENETRATION THROUGH FIRE RATED WALLS**  
SCALE: NTS



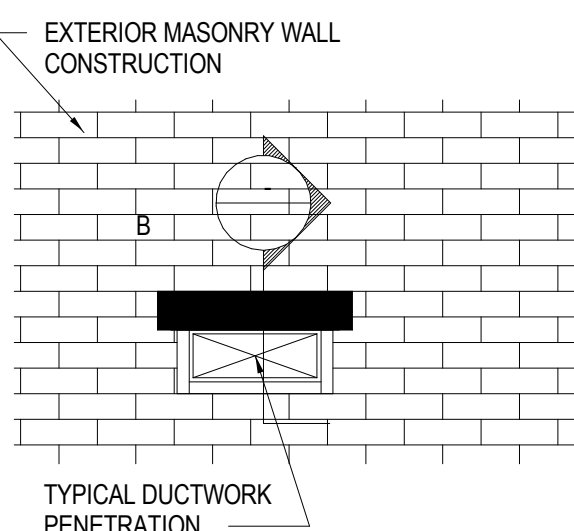
**PIPE PENETRATION THROUGH FLOORS**  
SCALE: NTS



**PIPE OR CONDUIT PENETRATION THROUGH EXTERIOR WALLS**  
SCALE: NTS



**PIPE SLEEVE THRU FOUNDATION WALL DETAIL**  
SCALE: NTS

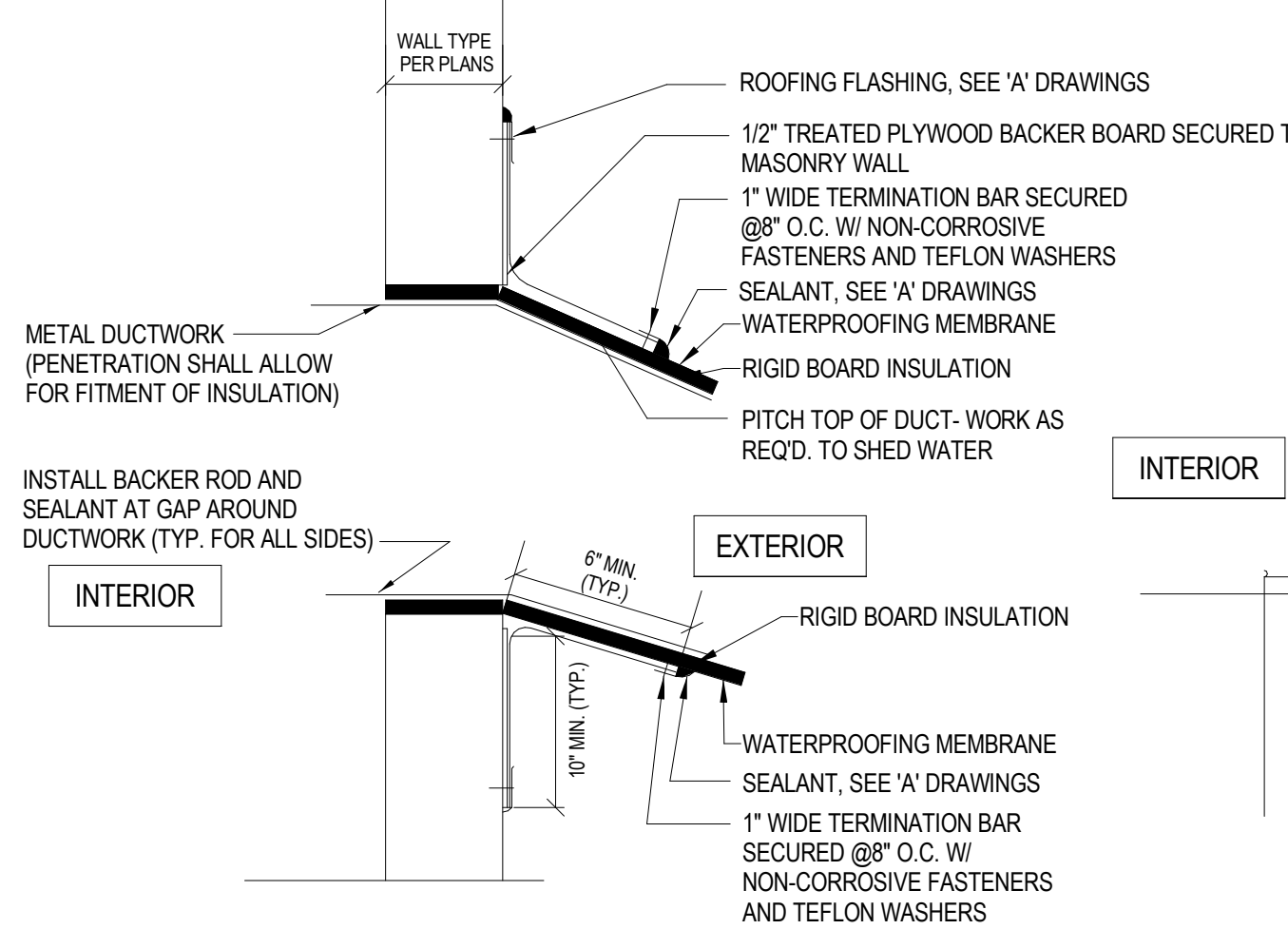


**PIPE HANGER SUPPORT DETAIL**  
SCALE: NTS

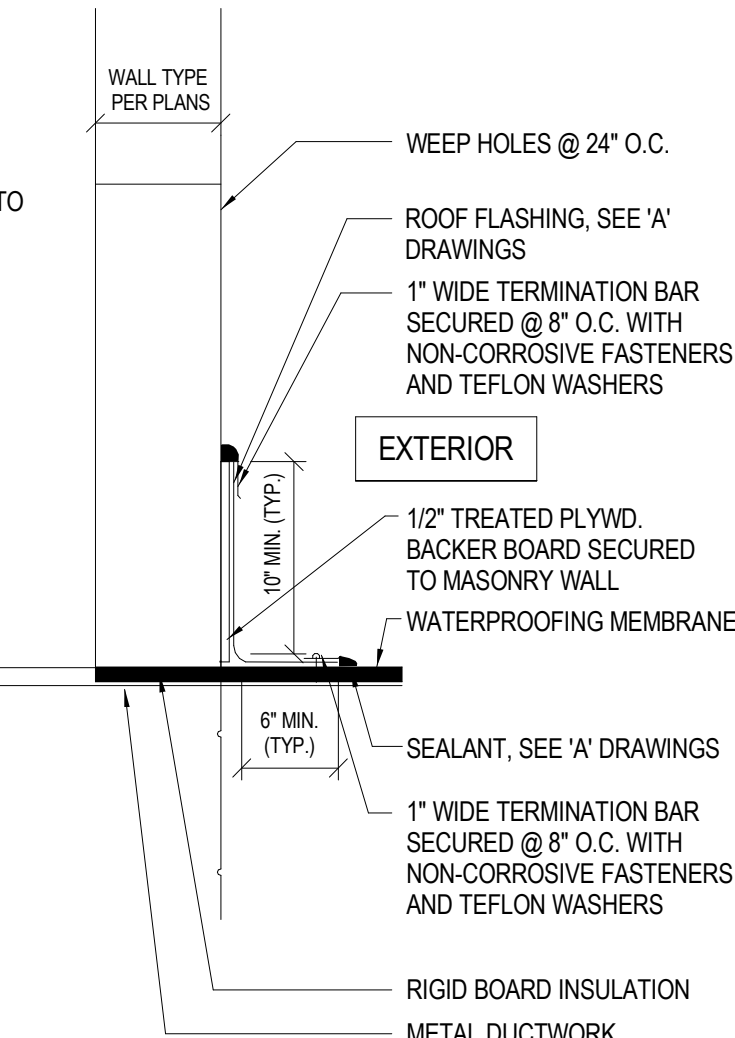
**10 Exterior Ductwork Penetrations**  
SCALE: NTS

- NOTES:**
- GC SHALL PREPARE OPENING AND FURNISH & INSTALL ALL FLASHING AND ACCESSORIES AS REQ'D. FOR WEATHERTIGHT SEAL GC SHALL PITCH EXTERIOR DUCTWORK TO PREVENT ACCUMULATION OF WATER ON TOP OF DUCT.

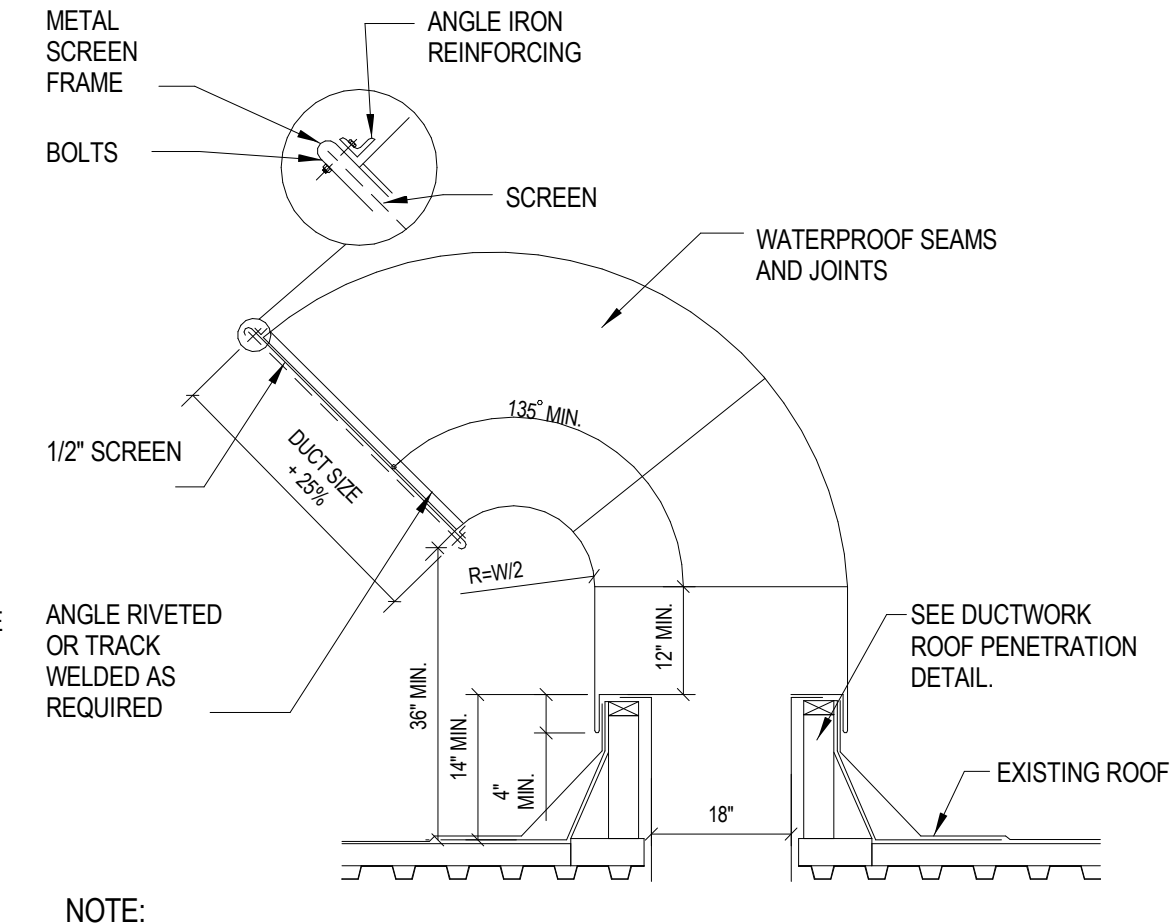
**Vertical Section**



**Vertical Section**

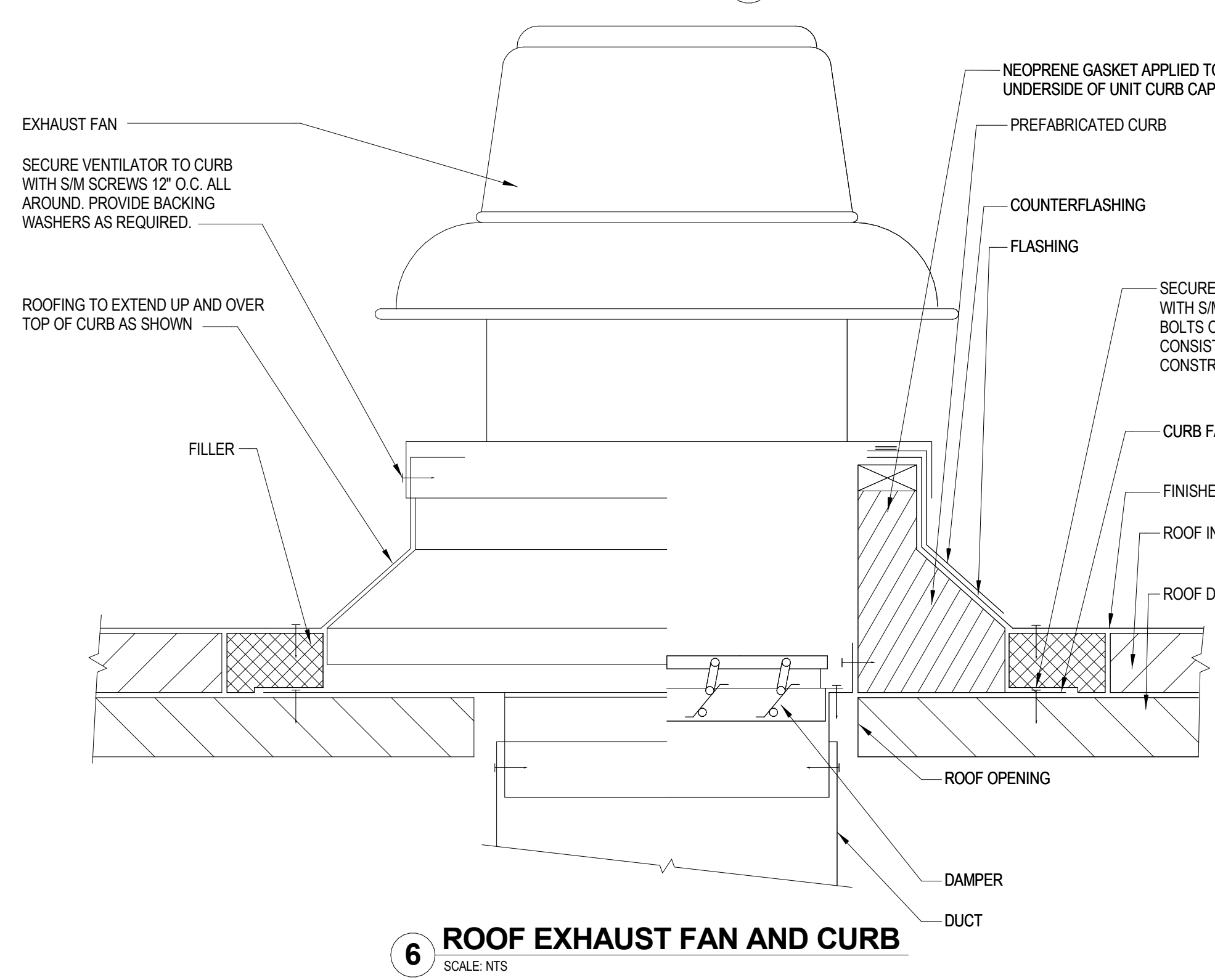


**Horizontal Section**



**Gooseneck Detail**  
SCALE: NTS

**NOTES:**  
CURBS ARE REQUIRED FOR ALL DUCT PENETRATIONS OF ROOFS.



**ROOF EXHAUST FAN AND CURB**  
SCALE: NTS

- NOTES:**
- CURBS AND FANS SHALL BE FROM THE SAME MANUFACTURER.
  - ROOF OPENING IN ACCORDANCE WITH MANUFACTURER'S APPROVED SHOP DRAWINGS.
  - SEE ARCHITECTURAL DRAWINGS FOR ROOFING & FLASHING INFORMATION.

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| PROJECT No:<br>BOME2201 | DATE:<br>NOV 3, 2023 | SCALE:<br>AS SHOWN |                     |

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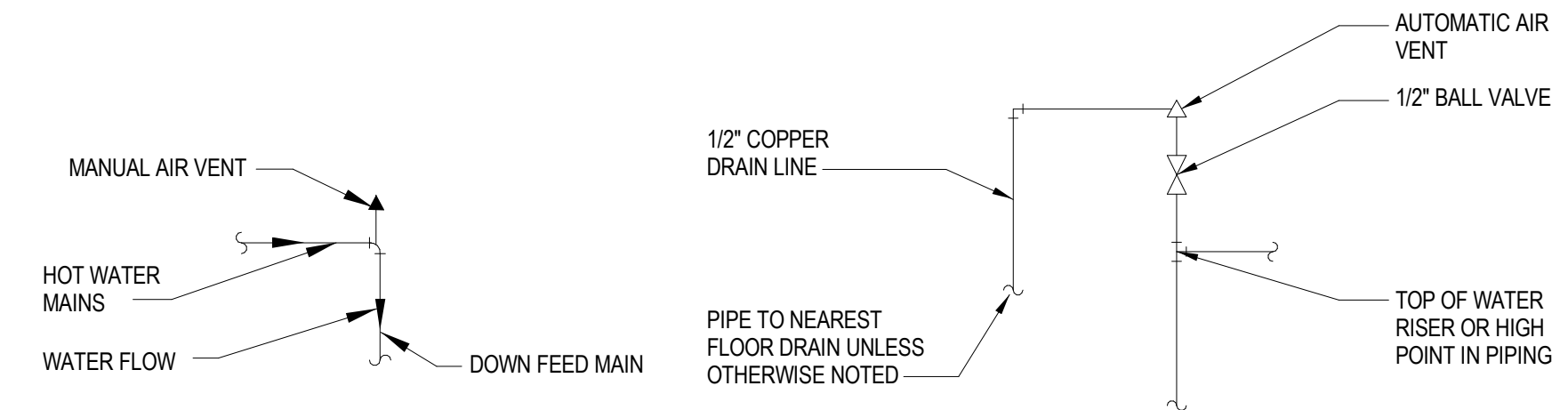


**1 SAFETY PLACE**  
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**NEW JERSEY**

STATUS: **90% - NFC**

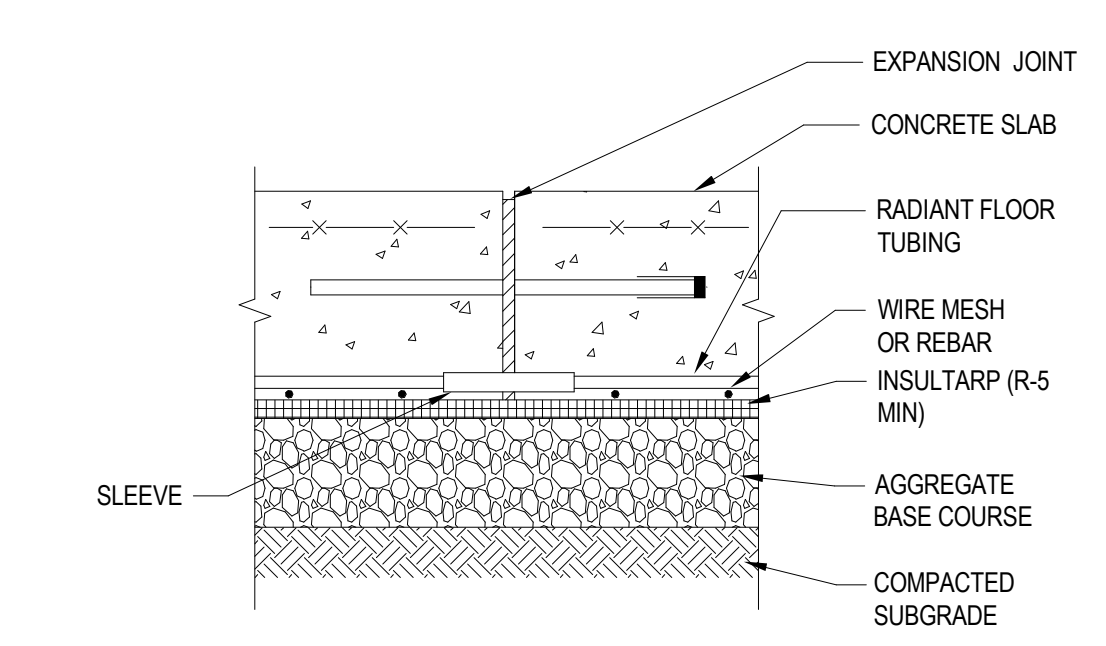
SHEET TITLE: **HVAC DETAILS**

DRAWING No.: **M 502.00**



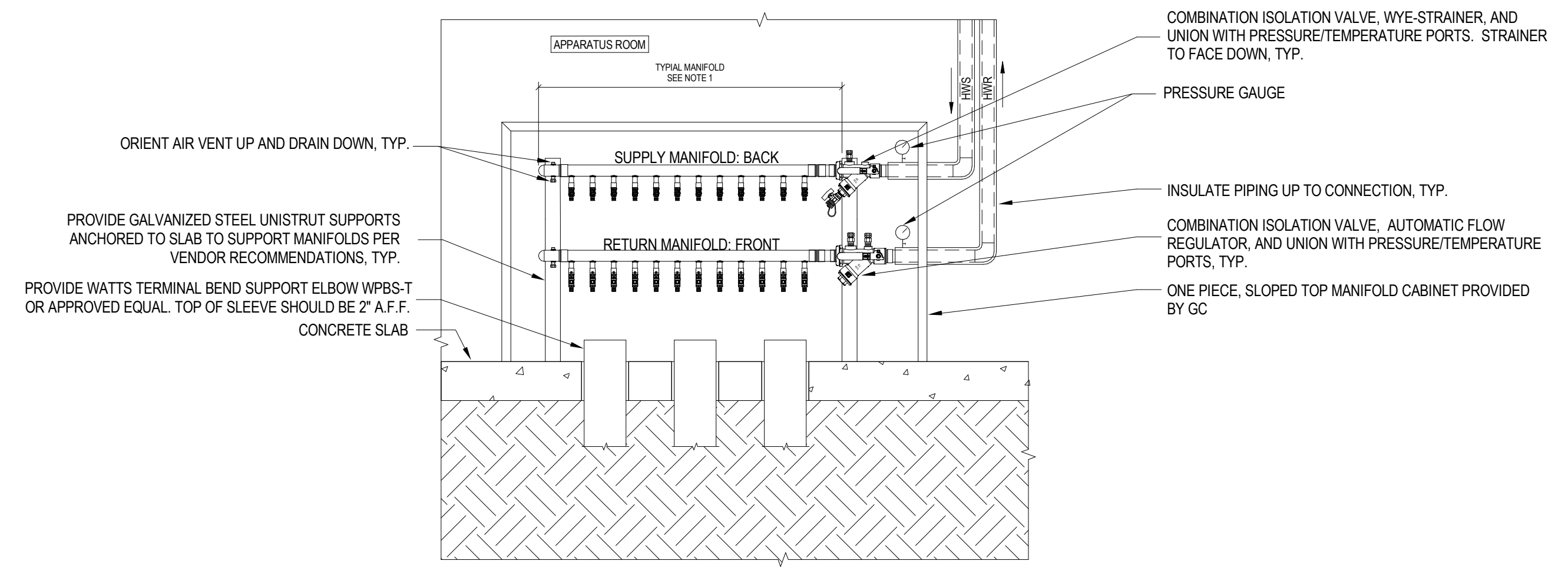
**1 Manual Air Vent**  
SCALE: NTS

**2 Automatic Air Vent**  
SCALE: NTS



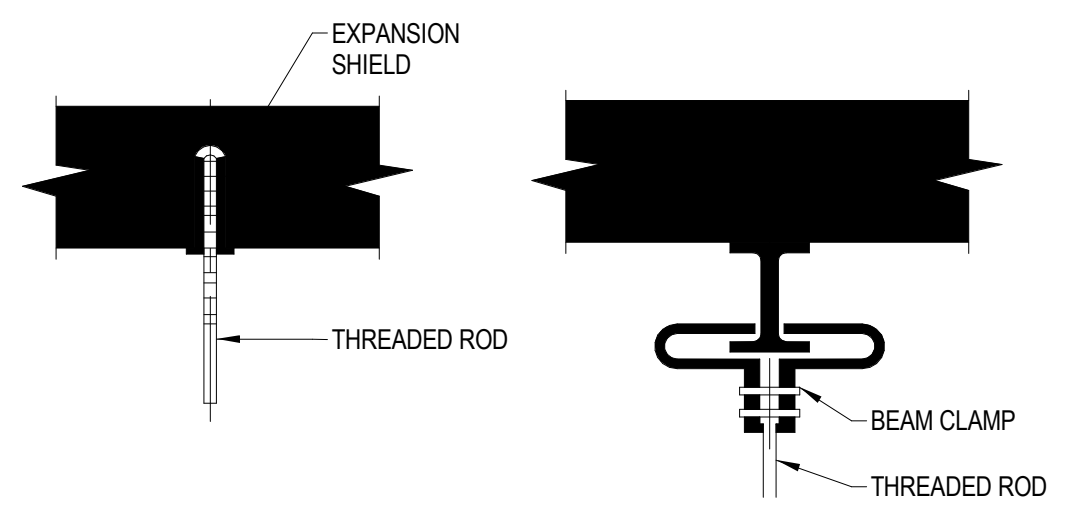
**3 Radiant Floor Tubing Installation Detail**  
SCALE: NTS

- NOTES:
- DETAIL FOR CONCRETE PAVEMENT - HEAVY DUTY SUCH AS APP BAYS.
  - REFER TO STRUCTURAL DRAWINGS FOR SLAB CONSTRUCTION AND DETAILS.
  - THIS DETAIL PROVIDES GENERAL INSTALLATION REQUIREMENTS AND IS PROVIDED FOR REFERENCE ONLY. INSTALL TUBING ACCORDING TO SPECIFIC VENDOR INSTRUCTION. IN CASE OF ANY CONFLICTING REQUIREMENTS, THE VENDOR REQUIREMENTS SHALL SUPERSEDE THIS DETAIL.

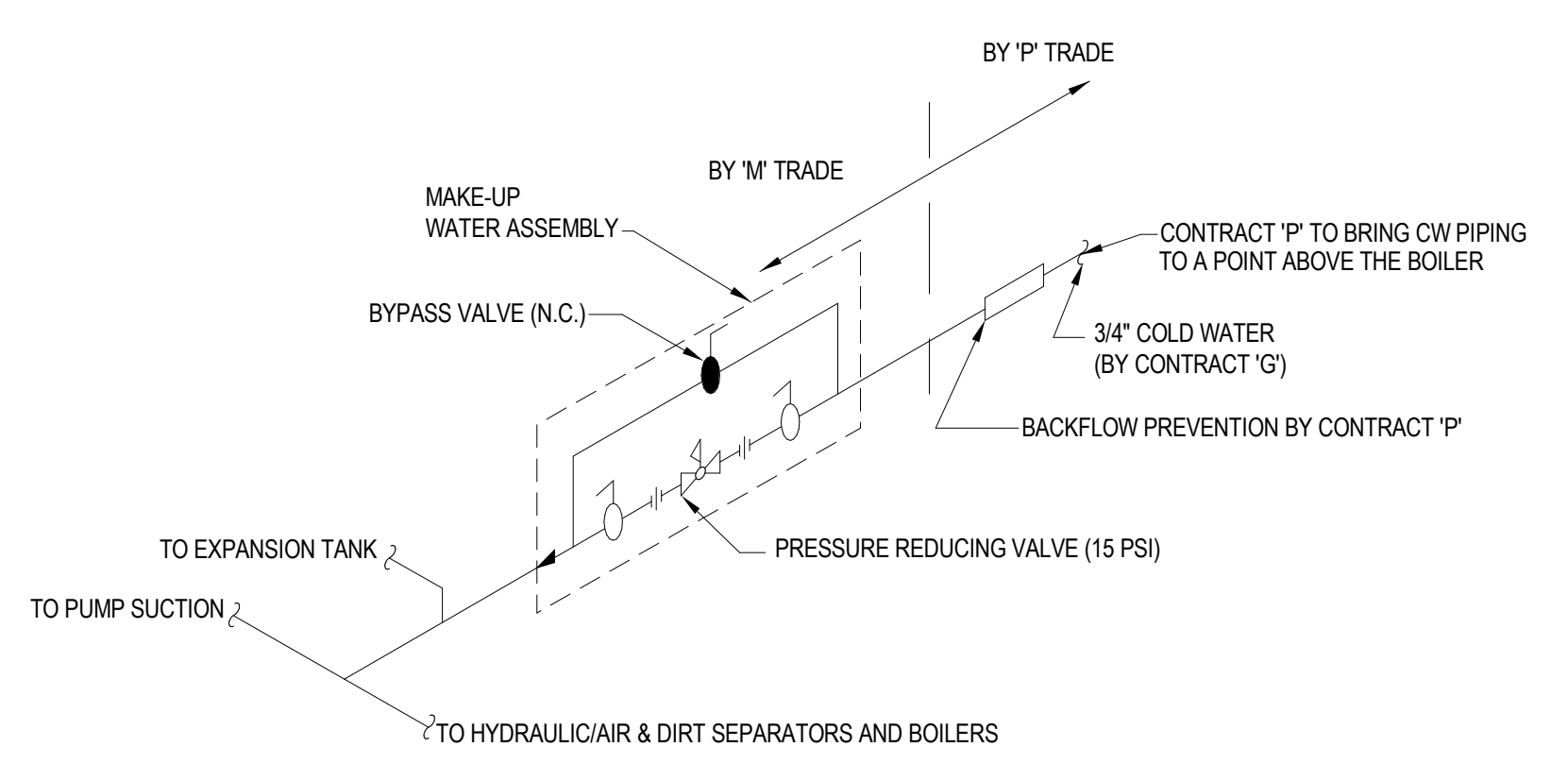


**4 Typical Radiant Manifolds**  
SCALE: NTS

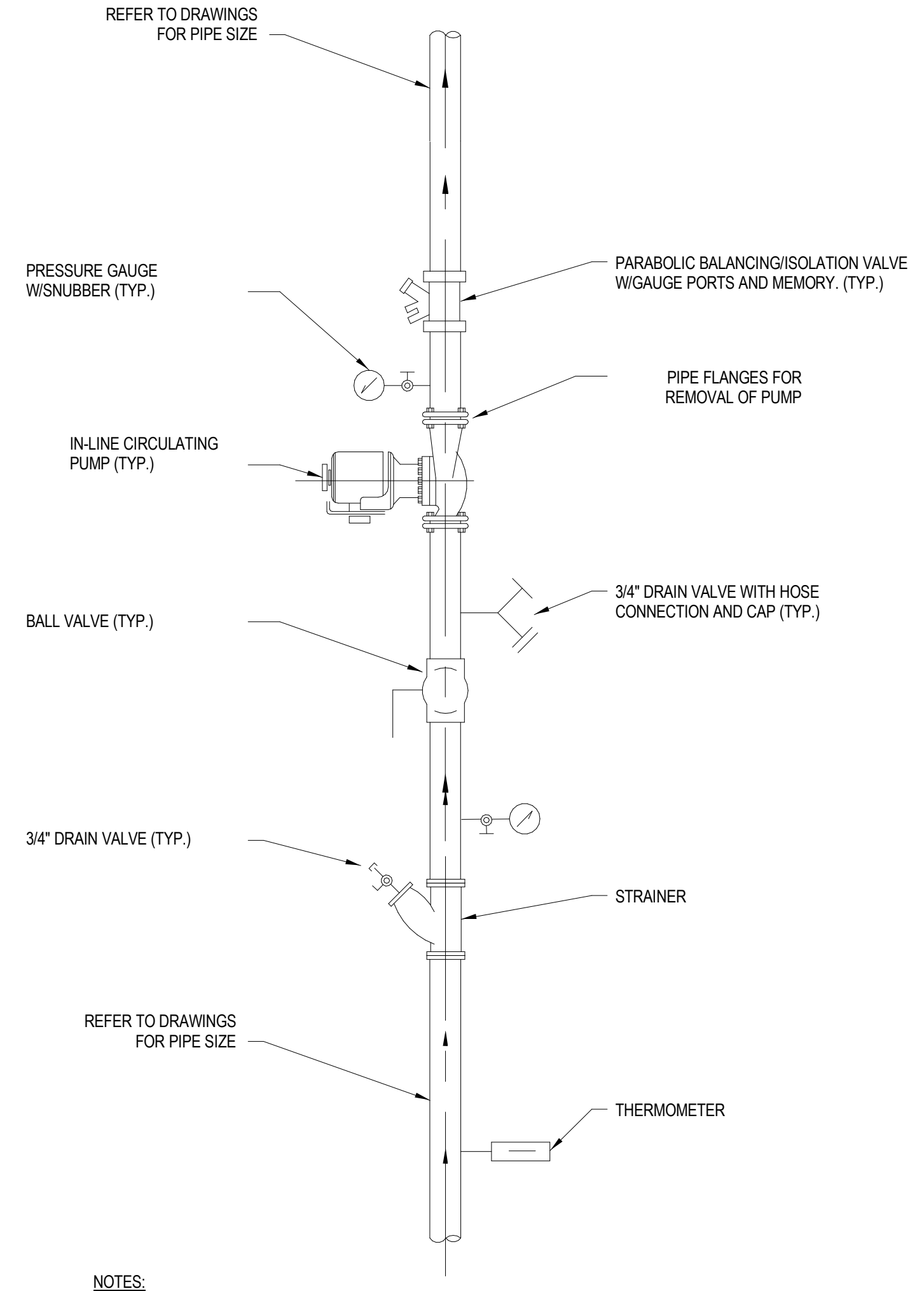
- NOTES:
- ALL DIMENSIONS AND QUANTITIES ARE FOR REFERENCE ONLY. MANIFOLD LENGTH TO BE DETERMINED BY VENDOR.
  - PROVIDE MANIFOLD LOOP THERMOMETERS ON SUPPLY AND RETURN FOR EACH MANIFOLD.
  - REFER TO FLOW DIAGRAM ON SHEET M-630 FOR CONTROL VALVE LOCATIONS



**5 Pipe Hanger Support Details**  
SCALE: NTS



**6 Make-Up Water Piping Detail**  
SCALE: NTS



**7 Radiant Zone Pump Piping Schematic**  
SCALE: NTS

- NOTES:
- PROVIDE TRANSITIONS AS NEEDED TO ACCOMMODATE PUMP FLANGE SIZES.
  - PROVIDE GASKET AND BRASS CAP FOR EACH HOSE CONNECTION.
  - PROVIDE TRANSITION TO MATCH EXISTING ZONE PIPE DIAMETER DOWNSTREAM OF FLOW CONTROL VALVE.
  - MOUNT PUMPS IN ORIENTATIONS RECOMMENDED BY MANUFACTURER.
  - OFFSET PUMP LOCATIONS AS NECESSARY TO PROVIDE ADEQUATE CLEARANCE FOR ACCESS TO PUMPS, VALVES, AND GAUGES.

Table with columns: MARK, DATE, DESCRIPTION. Contains project marking information.

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Borough of Metuchen EMERGENCY SERVICES CENTER



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STATUS 90% - NFC

SHEET TITLE HVAC SCHEDULES

DRAWING No. M 600.00

ELECTRIC UNIT HEATERS table with columns for equipment, location, area served, performance, and basis of design information.

NOTES for Electric Unit Heaters: 1. MT-1 INTERNAL THERMOSTAT 2. POWER DISCONNECT SWITCH (MPO5-25)

MOTORIZED DAMPERS table with columns for equipment, location, system served, performance, and basis of design information.

NOTES for Motorized Dampers: 1. 120V MOTORIZED DAMPER BELIMO MODEL NUMBER FSNF120-FC

DEDICATED OUTDOOR AIR UNITS table with columns for equipment, location, area served, units served, and performance.

NOTES for Dedicated Outdoor Air Units: 1. BACHNE CAPABLE FOR FUTURE BMS USE 2. FACTORY WIRING W/ FUSED DISCONNECT SWITCH

PACKAGED ROOFTOP UNITS table with columns for equipment, location, area served, and performance.

NOTES for Packaged Rooftop Units: 1. AVERAGING THERMOSTATS 2. ONE-7 DAY PROGRAMMABLE THERMOSTAT

AIR OUTLETS table with columns for designation, symbol, basis of design, description, face size, and air flow range.

NOTES for Air Outlets: 1. PROVIDE ALUMINUM CONSTRUCTION FOR ALL TERMINALS IN SHOWER ROOMS, TOILETS, JANITORS' CLOSETS AND OTHER HUMID AREAS.

VRF TERMINAL UNITS table with columns for equipment, type, area served, and performance.

NOTES for VRF Terminal Units: 1. CASSETTE PANEL (PT-G24N)

VRF AIR COOLED CONDENSING UNITS table with columns for equipment, location, system served, and performance.

NOTES for VRF Air Cooled Condensing Units: 1. PROVIDE AND INSTALL SUPPORT TEMS-1 WALL BY THYBAR

ERV UNIT table with columns for equipment, location, system served, and performance.

NOTES for ERV Unit: 1. SEE 'E' DRAWINGS FOR DISCONNECT AND POWER INFORMATION

EXHAUST FANS table with columns for equipment, location, system served, and performance.

NOTES for Exhaust Fans: 1. 115 VAC INPUT 2. NEMA 1 DISCONNECT SWITCH

DEMAND CONTROLLED VENTILATION SCHEDULE table with columns for equipment, minimum CO2 concentration, outdoor airflow, design CO2 concentration, outdoor airflow at design CO2 concentration, and remarks.

NOTES for Demand Controlled Ventilation Schedule: 1. SEE SPECIFICATION SECTION 23969 - SEQUENCE OF OPERATIONS FOR MORE INFORMATION.

ONE-TO-ONE SPLIT SYSTEMS table with columns for equipment, type, system served, and performance.

NOTES for One-to-One Split Systems: 1. OUTDOOR UNITS POWER RESPECTIVE INDOOR UNITS 2. MULTISITE CR2C REMOTE CONTROLLER (PREM7VC2)

CEILING FANS table with columns for equipment, location, system served, and performance.

NOTES for Ceiling Fans: 1. CF-1 & CF-2 TO BE CONTROLLED BY UNITARY REVERSIBLE SPEED CONTROLLER (CTL1200ARSP)

AIR SCRUBBER table with columns for equipment, area served, performance, and basis of design information.

NOTES for Air Scrubber: 1. PROVIDE AND INSTALL REMOTE 3-SPEED WALL SWITCH 2. DISCONNECT SWITCH BY ELECTRICAL TRADE

VRF BRANCH CONTROL BOXES table with columns for equipment, location, indoor units served, number of branches, and performance.

NOTES for VRF Branch Control Boxes: 1. SEE ASSOCIATED INDOOR UNIT FOR CONTROL OPTION INTERLOCKS 2. BCB-1 & BCB-2 SHALL BE INTERLOCKED WITH CU-1

ELECTRIC CABINET UNIT HEATERS table with columns for equipment, location, area served, and performance.

NOTES for Electric Cabinet Unit Heaters: 1. FRONT DISCHARGE, FRONT RETURN CONFIGURATION 2. BUILT IN THERMOSTAT

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CLIENT: Borough of Metuchen

EMERGENCY SERVICES CENTER. Includes Borough of Metuchen seal and address: 1 SAFETY PLACE, METUCHEN, NJ 08840.

STATUS: 90% - NFC. SHEET TITLE: HVAC SCHEDULES

DRAWING No. M 601.00

HEATING HOT WATER BOILERS

Table with columns: EQUIPMENT NO., LOCATION, RATED GROSS INPUT (MBH), RATED GROSS OUTPUT (MBH), BOILER EFFICIENCY (%), WATER DATA, GAS DATA, BASIS OF DESIGN INFORMATION, MECHANICAL NOTES.

- NOTES: 1. INTERNAL CIRCULATOR PUMP. 2. PROVIDE AND INSTALL TEXMAR 294 SMART BOILER CONTROLLER WITH 24 V TRANSFORMER (BC-1). 3. MODULATING BURNER: 1:1 TURN DOWN. 4. ASME RELIEF VALVE SET AT 30 PSI. 5. FLOOR STANDING BOILER. 6. TRIM CONTROLS TO HAVE INTERLOCK WITH BREAK GLASS STATION AND GAS DETECTION. 7. PROVIDE CONDENSATE TRAP AND NEUTRALIZATION ASSEMBLY. 8. PROVIDE AND INSTALL SEISMIC PEDESTAL ASSEMBLY. BOILER SHALL BE INSTALLED ON SEISMIC PEDESTAL. 9. BULK FILL WATER PRESSURE BYPASS. 10. PROVIDE OUTDOOR TEMPERATURE SENSOR. 11. SINGLE POINT POWER FEED. 12. TYPE 430 STAINLESS STEEL WATER TUBE HEAT EXCHANGER. 13. LOW WATER PRESSURE SWITCH. 14. PROVIDE FIELD INSTALLED LOW WATER CUT OFF. 15. PROVIDE PRESSURE AND TEMPERATURE GAUGES. 16. PROVIDE AND INSTALL CONDENSATE NEUTRALIZATION KIT.

HEATING HOT WATER PUMPS

Table with columns: EQMT. NO., LOCATION, QUANTITY, SYSTEM SERVED, PERFORMANCE/CONSTRUCTION REQUIREMENTS, BASIS OF DESIGN INFORMATION, MECHANICAL NOTES.

- NOTES: 1. CAST IRON ASSEMBLY. 2. BACNET CAPABLE. 3. EC MOTOR. 4. PROVIDE AND INSTALL MAGNA CLEAN COMMERCIAL MAGNETIC SEPARATOR UPSTREAM OF PUMP. (SEE PLANS MS-1 & MS-2). 5. PROVIDE AND INSTALL TEXMAR R2 WIRING CENTER 314 (PC-1). 6. INTERLOCK INTERLOCK PUMP WITH TEXMAR R2 WIRING CENTER 314 AND PROVIDE TEXMAR 099 TRANSFORMER FOR WIRING CENTER.

GAS DETECTION SYSTEM

Table with columns: EQMT. NO., LOCATION, SYSTEM SERVED, BASIS OF DESIGN INFORMATION, NOTES.

- NOTES: 1. INCLUDE FOUR CHANNEL DIGITAL CONTROLLER IN NEMA 4 ENCLOSURE FOR WALL MOUNT. 2. LED DISPLAY FOR ALL FOUR CHANNELS FOR NO2 AND CO. 3. INCLUDE (2) NITROGEN OXIDE SENSORS AND (2) CARBON MONOXIDE SENSORS. 4. PROVIDE CONFIGURABLE ALARM OUTPUTS WITH ISOLATION RELAYS FOR INTERLOCK WITH THE EF & FACP. 5. 115V LINE VOLTAGE POWER FEED. 6. INTERLOCK APPARATUS BAY EXHAUST FAN EF-6 WITH GAS DETECTION. 7. PROVIDE PANEL MOUNTED AUDIBLE ALARM AND SILENCING SWITCH. 8. PROVIDE ALARM HORN WITH STROBE. 9. PROVIDE STARTUP, TEST AND CALIBRATION REPORT. 10. INCLUDE DUAL CHANNEL DIGITAL CONTROLLER IN NEMA 4 ENCLOSURE FOR WALL MOUNT. 11. LED DISPLAY FOR BOTH CHANNELS FOR CO AND O2H. 12. INCLUDE (2) CARBON MONOXIDE SENSORS AND (2) METHANE SENSORS. 13. PROVIDE CONFIGURABLE ALARM OUTPUTS WITH ISOLATION RELAYS FOR INTERLOCK WITH THE BOILERS B-1 & B-2 & FACP. 14. 115V LINE VOLTAGE POWER FEED. 15. INTERLOCK BOILERS B-1 & B-2 TRIM CONTROLS WITH GAS DETECTION. 16. PROVIDE PANEL MOUNTED AUDIBLE ALARM AND SILENCING SWITCH. 17. PROVIDE ALARM HORN WITH STROBE. 18. PROVIDE STARTUP, TEST AND CALIBRATION REPORT.

EXPANSION TANKS

Table with columns: EQUIPMENT NO., LOCATION, SYSTEM SERVED, PERFORMANCE/CONSTRUCTION REQUIREMENTS, BASIS OF DESIGN INFORMATION, NOTES.

- NOTES: 1. EXPANSION TANK SHALL BE INDEPENDENTLY SUPPORTED FROM THE PIPING SYSTEM AND SHALL BE PRESSURIZED TO MEET THE INCOMING PRESSURE OF THE WATER SYSTEM. REFER TO MANUFACTURER INSTRUCTIONS FOR PROPER ORIENTATION.

"VIBRATION ISOLATION / SEISMIC & WIND RESTRAINTS SCHEDULE [2020 New Jersey Building Code, SDC = C, RISK CAT = IV"]

Table with columns: UNIT TAG, EQUIPMENT TYPE, LOCATION (FL LEVEL), MOUNTING METHOD, BASE TYPE, MANUF, ISOLATOR TYPE, NOM. DEF., IN., RESTRAINT REQ'D, SEISMIC COMPONENT IMPORTANCE FACTOR, Ip, NOTES (1,2, TYP.).

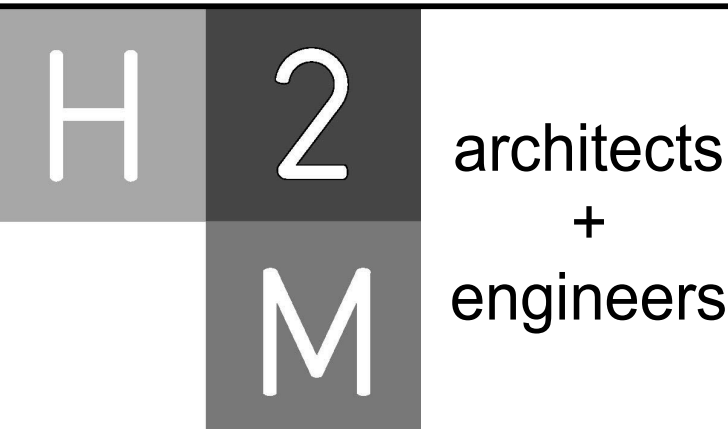
- NOTES: 1. BASIS OF DESIGN: VIBRO-ACOUSTICS. 2. SEISMICALLY RATED FOR PROJECT CONDITIONS. 3. STAND SUPPORT MUST BE ABLE TO MEET CALCULATED SEISMIC LOADS. 4. PROVIDE FLEXIBLE PIPING CONNECTORS. 5. PROVIDE TYPE SHR OR SFS ISOLATORS ON ADJACENT PIPING/DUCTWORK. 6. PROVIDE SEISMIC RESTRAINT CABLES. PROVIDE ROD STIFFENERS AS REQUIRED. 7. PROVIDE SEISMIC UPLIFT STOP WASHER. 8. SUPPORT INLINE PUMP AT FLANGE CONNECTION.

RADIANT FLOOR MANIFOLDS

Table with columns: EQMT. NO., AREA SERVED, ZONE, FLOOR AREA SERVED (FT²), PERFORMANCE/CONSTRUCTION REQUIREMENTS, NOTES.

- NOTES: 1. MANIFOLD TO BE CONSTRUCTED OF STAINLESS STEEL. 2. SURFACE MOUNT MANIFOLDS. 3. PROVIDE CONTROL VALVE FOR EACH MANIFOLD. 4. PROVIDE CONTROL VALVES FOR EACH ZONE. 5. GC TO PROVIDE REMOVABLE ALUMINUM COVER TO FLOOR W/ SLOPE TOP. 6. PROVIDE TERMINAL BEND SUPPORTS AT FLOOR TO WALL TRANSITIONS. 7. PROVIDE CIRCUIT ISOLATION CAPS. 8. PROVIDE ONE TERMARNET THERMOSTAT S32 FOR EACH MANIFOLD. EACH THERMOSTAT IS TO BE INTO T20 WIRING CENTER 314 LOCATED IN MECHANICAL ROOM.





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**JOHN CHRIS MORRIS III, P.E.**  
NJ PROFESSIONAL ENGINEER LIC. NO. G03029900

|             |             |          |
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| PROJECT No. | DATE        | SCALE    |
| BOME2201    | NOV 3, 2023 | AS SHOWN |

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## Borough of Metuchen

### EMERGENCY SERVICES CENTER

**1 SAFETY PLACE  
METUCHEN, NJ 08840  
BOROUGH OF METUCHEN  
COUNTY OF MIDDLESEX  
NEW JERSEY**

STATUS **90% - NFC**

SHEET TITLE **KITCHEN SCHEDULE 2**

DRAWING No. **M 631.00**

EXHAUST FAN INFORMATION - JOB#6187310

| FAN UNIT NO | TAG | QTY | FAN UNIT MODEL # | MANUFACTURER | CFM  | ESP   | RPM  | MOTOR ENCL  | HP    | BHP    | PHASE | VOLT | FLA | DISCHARGE VELOCITY | WEIGHT (LBS) | SONES |
|-------------|-----|-----|------------------|--------------|------|-------|------|-------------|-------|--------|-------|------|-----|--------------------|--------------|-------|
| 1           |     | 1   | DU180HFA         | CAPTIVEAIRE  | 2025 | 1.500 | 1132 | ODP,PREMIUM | 1.500 | 1.0680 | 3     | 208  | 6.6 | 468 FPM            | 177          | 13.1  |

CONDENSER DETAILS

| FAN UNIT NO | TAG | FAN UNIT MODEL # | CONDENSER NO | TONNAGE | VOLTAGE | PHASE   | FREQUENCY | MCA       | RLA       | MAX FUSE SIZE | MIN WIRE SIZE | SEER |
|-------------|-----|------------------|--------------|---------|---------|---------|-----------|-----------|-----------|---------------|---------------|------|
| 2           |     | A1-D.500-15D-MPU | 1            | 3       | 208-230 | 3 PHASE | 60 HZ     | 14.5 AMPS | 11.9 AMPS | 20 AMPS       | 14 AWG        | 14   |

MUA FAN INFORMATION - JOB#6187310

| FAN UNIT NO | TAG | QTY | FAN UNIT MODEL # | BLOWER     | HOUSING  | MIN CFM | DESIGN CFM | ESP   | RPM  | MOTOR ENCL  | HP    | BHP    | PHASE | VOLT | FLA | MCA  | MOCP | WEIGHT (LBS) | SONES |
|-------------|-----|-----|------------------|------------|----------|---------|------------|-------|------|-------------|-------|--------|-------|------|-----|------|------|--------------|-------|
| 2           |     | 1   | A1-D.500-15D-MPU | 15MF-1-MOD | A1-D.500 | 1100    | 1620       | 0.500 | 1888 | ODP,PREMIUM | 1.500 | 1.0390 | 3     | 208  | 4.4 | 5.5A | 15A  | 1050         | 17.4  |

COILS - JOB#6187310

| FAN UNIT NO | TAG | COIL TYPE | DESIGN CFM | COOLING          |                  |                 |                 |                     |                    |                 |                |                |                   |                 | HEATING          |                 |                     |                    |                 |                |                |                |                   |     |     |     |     |     |     |     |     |     |     |     |
|-------------|-----|-----------|------------|------------------|------------------|-----------------|-----------------|---------------------|--------------------|-----------------|----------------|----------------|-------------------|-----------------|------------------|-----------------|---------------------|--------------------|-----------------|----------------|----------------|----------------|-------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|             |     |           |            | ENTERING DB TEMP | ENTERING WB TEMP | LEAVING DB TEMP | LEAVING WB TEMP | ENTERING FLUID TEMP | LEAVING FLUID TEMP | FLUID FLOW RATE | PERCENT GLYCOL | TOTAL CAPACITY | SENSIBLE CAPACITY | LATENT CAPACITY | ENTERING DB TEMP | LEAVING DB TEMP | ENTERING FLUID TEMP | LEAVING FLUID TEMP | FLUID FLOW RATE | PERCENT GLYCOL | STEAM PRESSURE | TOTAL CAPACITY | SENSIBLE CAPACITY |     |     |     |     |     |     |     |     |     |     |     |
| 2           |     | DX        | 1620       | 91.0°F           | 74.0°F           | 77.8°F          | 68.5°F          | ---                 | ---                | ---             | ---            | ---            | ---               | ---             | ---              | ---             | ---                 | ---                | ---             | ---            | ---            | ---            | ---               | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

GAS FIRED MAKE-UP AIR UNIT(S)

| FAN UNIT NO | TAG | INPUT BTUs | OUTPUT BTUs | TEMP RISE | REQUIRED INPUT GAS PRESSURE | GAS TYPE | BURNER EFFICIENCY(%) |
|-------------|-----|------------|-------------|-----------|-----------------------------|----------|----------------------|
| 2           |     | 110503     | 101663      | 59°F      | 7 IN. W.C. - 14 IN. W.C.    | NATURAL  | 92                   |

FAN OPTIONS

| FAN UNIT NO | TAG                   | QTY | DESCRIPTION   |   |  |
|-------------|-----------------------|-----|---|---|--|
| 1           |                       | 1   | GREASE BOX  |   |  |
|             |                       | 1   | 2 YEAR PARTS WARRANTY   |   |  |
|             |                       | 1   | INLET PRESSURE GAUGE, 0-35"   |   |  |
|             |                       | 1   | MANIFOLD PRESSURE GAUGE, -5 TO 15" WC   |   |  |
|             |                       | 1   | SHIP LOOSE GAS STRAINER 3/4"  |   |  |
|             |                       | 1   | CASLINK BUILDING MONITORING SYSTEM - INTERNET OR CELLULAR CONNECTION REQUIRED |   |  |
|             |                       | 2   |   | 1 | MOTORIZED BACKDRAFT DAMPER FOR A1-D HOUSING - MEETS AMCA CLASS 1A RATING 3 TON SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION FOR SIZE 1 DF/EH MUA (1,100 TO 1,800 CFM). |
|             |                       |     |   | 1 | 208V/230V, 3 PHASE COOLING THERMOSTAT OR PROGRAMMABLE STAT REQUIRED FOR PROPER OPERATION   |
|             |                       |     |   | 1 | DOWNTURN PLENUM FOR SIZE 1 DX COIL MODULE  |
|             |                       |     |   | 1 | SEPARATE 120V WIRING PACKAGE (REQUIRED AND USED ONLY FOR DCV OR PREWIRE WITH VFD) - THREE PHASE ONLY   |
| 1           | 2 YEAR PARTS WARRANTY |     |   |   |  |

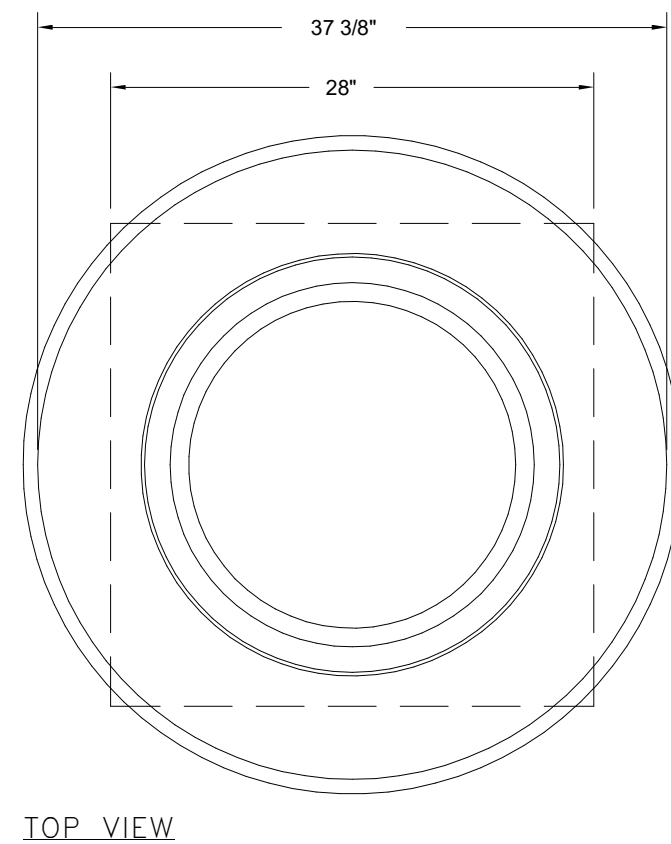
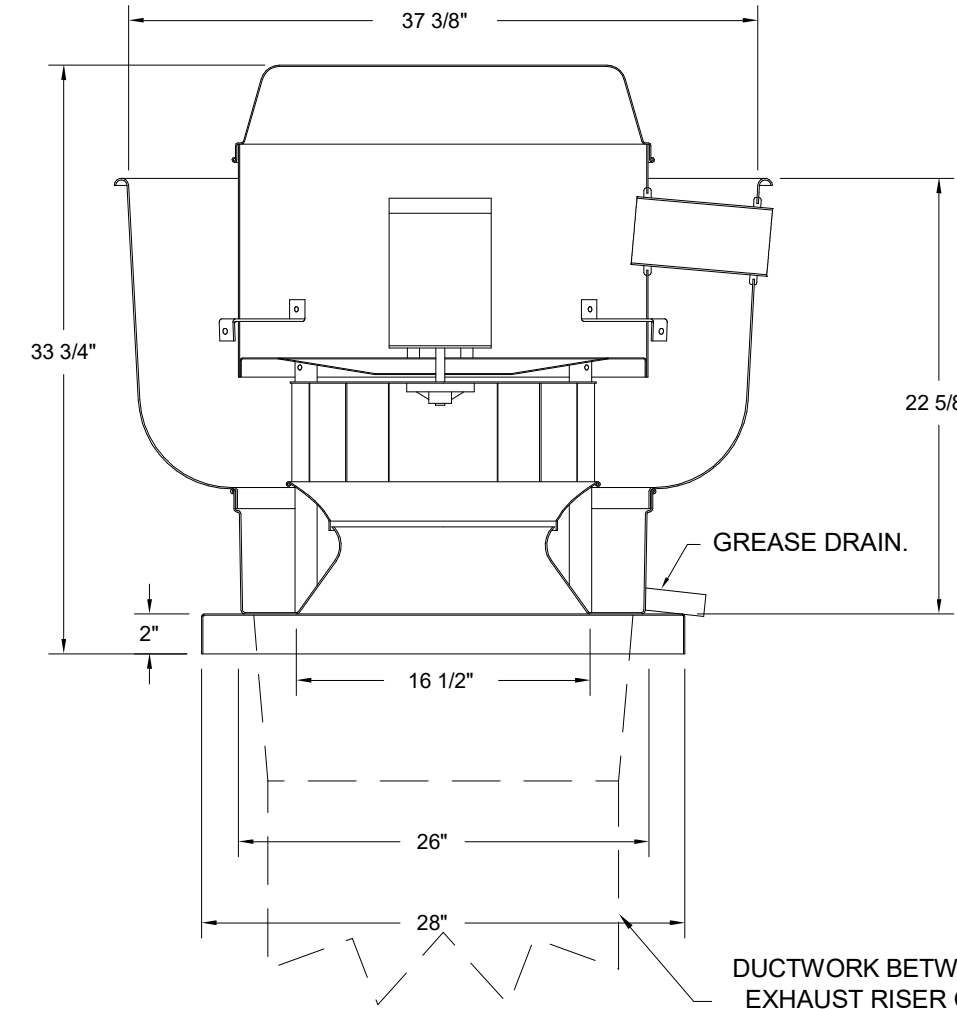
FAN ACCESSORIES

| FAN UNIT NO | TAG | EXHAUST    |                |            | SUPPLY         |                |                  |            |
|-------------|-----|------------|----------------|------------|----------------|----------------|------------------|------------|
|             |     | GREASE CUP | GRAVITY DAMPER | WALL MOUNT | SIDE DISCHARGE | GRAVITY DAMPER | MOTORIZED DAMPER | WALL MOUNT |
| 1           |     | YES        |                |            |                |                |                  |            |
| 2           |     |            |                |            |                | YES            |                  |            |

CURB ASSEMBLIES

| NO | ON FAN | WEIGHT | ITEM | SIZE  |
|----|--------|--------|------|---|
| 1  | # 1    | 41 LBS | CURB | 26.500"W X 26.500"L X 20.000"H VENTED HINGED. |
| 2  | # 2    | 85 LBS | CURB | 21.000"W X 71.000"L X 20.000"H INSULATED.     |
|    | # 2    |        | RAIL | 6.000"W X 21.000"L X 20.000"H.                |

FAN #1 DU180HFA - EXHAUST FAN



FEATURES:

- DIRECT DRIVE CONSTRUCTION (NO BELTS/PULLEYS)
- ROOF MOUNTED FANS.
- RESTAURANT MODEL.
- UL705 AND UL762 AND ULC-S845
- VARIABLE SPEED CONTROL.
- INTERNAL WIRING.
- THERMAL OVERLOAD PROTECTION (SINGLE PHASE).
- HIGH HEAT OPERATION 300°F (149°C).
- GREASE CLASSIFICATION TESTING.
- NEMA 3R SAFETY DISCONNECT SWITCH.

NORMAL TEMPERATURE TEST

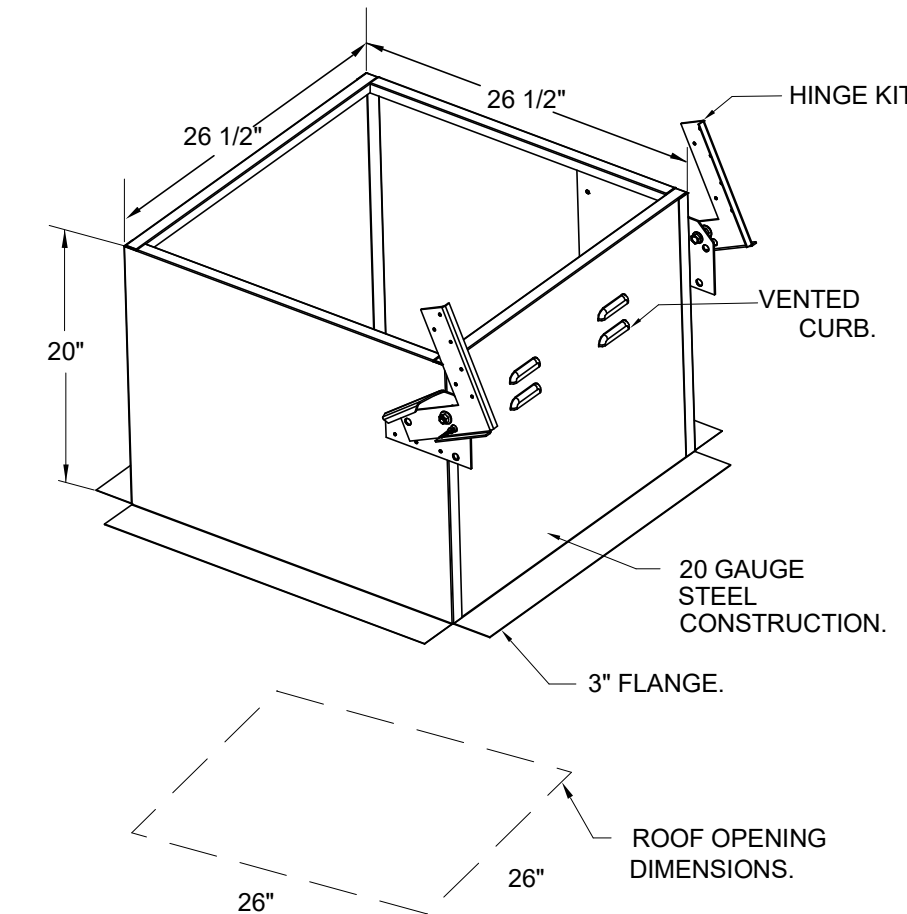
EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING AIR AT 300°F (149°C) UNTIL ALL FAN PARTS HAVE REACHED THERMAL EQUILIBRIUM, AND WITHOUT ANY DETERIORATING EFFECTS TO THE FAN WHICH WOULD CAUSE UNSAFE OPERATION.

ABNORMAL FLARE-UP TEST

EXHAUST FAN MUST OPERATE CONTINUOUSLY WHILE EXHAUSTING BURNING GREASE VAPORS AT 600°F (316°C) FOR A PERIOD OF 15 MINUTES WITHOUT THE FAN BECOMING DAMAGED TO ANY EXTENT THAT COULD CAUSE AN UNSAFE CONDITION.

OPTIONS

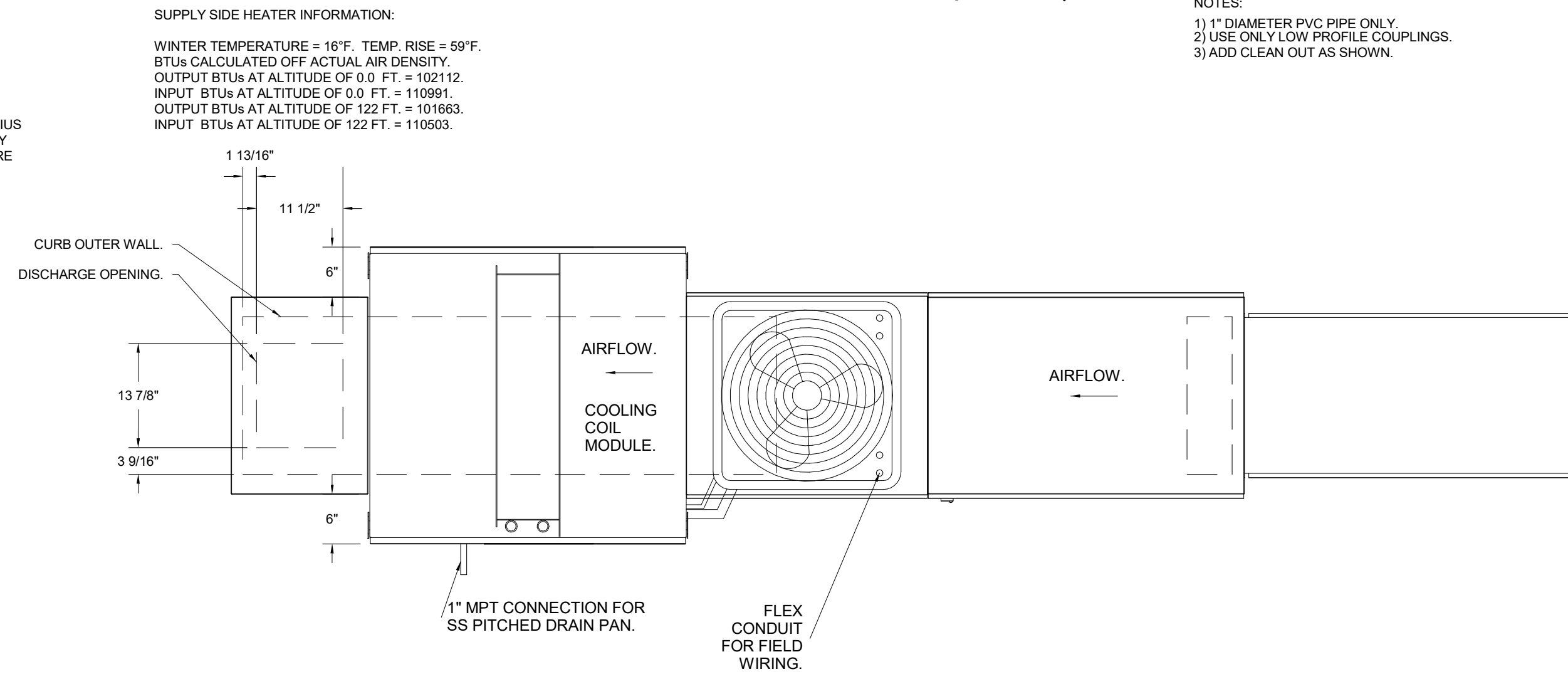
- GREASE BOX
- 2 YEAR PARTS WARRANTY.



FAN #2 A1-D-500-15D-MPU - HEATER

- DIRECT GAS FIRED HEATED MAKE UP AIR UNIT WITH 15" MIXED FLOW DIRECT DRIVE FAN.
- INTAKE HOOD WITH EZ FILTERS
- DOWN DISCHARGE - AIR FLOW RIGHT -> LEFT.
- GAS PRESSURE GAUGE, 0-35" 2.5" DIAMETER, 1/4" THREAD SIZE.
- GAS PRESSURE GAUGE, -5 TO +15 INCHES W.C., 2.5" DIAMETER, 1/4" THREAD SIZE.
- SHIP LOOSE GAS STRAINER, TO BE INSTALLED UPSTREAM OF UNIT CONNECTION. 3/4" CONNECTION.
- CASLINK BUILDING MONITORING SYSTEM COMMUNICATIONS MODULE, REQUIRES INTERNET & FIELD WIRED ETHERNET CONNECTION OR 3G CELLULAR SERVICE. INCLUDES REV 3 COMM MODULE, RJ45 TO MODBUS CONVERTER, 3 FT CAT5 CABLE, AND 1 FT OF SHIELDED TWISTED PAIR.
- MOTORIZED BACK DRAFT DAMPER 16" X 18" FOR SIZE 1 STANDARD & MODULAR HEATER UNITS W/EXTENDED SHAFT, STANDARD GALVANIZED CONSTRUCTION, 3/4" REAR FLANGE, LOW LEAKAGE, TFB120S ACTUATOR INCLUDED.
- 3 TON, SINGLE CIRCUIT MODULAR PACKAGED COOLING OPTION FOR SIZE 1 DF/EH MODULAR PACKAGED UNIT. INCLUDES CONDENSER, DX COIL, FILTER DRYER KIT, THERMAL EXPANSION VALVE, R410A REFRIGERANT, AND REFRIGERANT PIPING (1,100 TO 1,800 CFM) WHEN ORDERED WITH OPPOSITE AIRFLOW CONDENSERS ACCESS AND COIL PIPING WILL REMAIN IN STANDARD POSITION. DRAIN AND SLEDS WILL MOVE TO THE OPPOSITE SIDE. ANY OTHER CHANGE WILL REQUIRE CL. CONDENSERS REQUIRE SEPARATE 208V, 3 PHASE POWER SUPPLY UNLESS ORDERED WITH SINGLE POINT CONNECTION. COIL = 2EZ1001N.
- DOWNTURN PLENUM FOR SIZE 1 COOLING COIL MODULE - REQUIRED FOR DOWN DISCHARGE COOLING COIL APPLICATIONS.
- SEPARATE 120VAC WIRING PACKAGE FOR MAKE-UP AIR UNITS. OPTION MUST BE SELECTED WHEN MOUNTING VFD IN PREWIRE PANEL OR WITH DCV PACKAGE. PROVIDES SEPARATE 120VAC INPUT TO SUPPLY FAN. THIS 120V SIGNAL MUST BE RUN BY ELECTRICIAN FROM DCV TO NJIA SWITCH.
- HINGED DOUBLE WALL INSULATED DOOR ASSEMBLY (BURNER/LOWER/MPU SECTION).
- 2 YEAR PARTS WARRANTY

\*NOTE: SUPPLY DUCT MUST BE INSTALLED TO MEET SMACNA STANDARDS. A MINIMUM STRAIGHT DUCT LENGTH MUST BE MAINTAINED DOWNSTREAM OF UNIT DISCHARGE AS OUTLINED IN AMCA PUBLICATION 201. WHEN USING RECTANGULAR DUCTWORK, ELBOWS MUST BE RADIUS THROAT, RADIUS BACK WITH TURNING VANES. FLEXIBLE DUCTWORK AND SQUARE THROAT/SQUARE BACK ELBOWS SHOULD NOT BE USED. ANY TRANSITION AND/OR TURNS IN THE DUCTWORK WILL CAUSE SYSTEM EFFECT. SYSTEM EFFECT WILL PRACTICALLY INCREASE STATIC PRESSURE AND REDUCE AIRFLOW. DO NOT RELY ON UNIT TO SUPPORT DUCT IN ANY WAY. FAILURE TO PROPERLY SIZE DUCTWORK MAY CAUSE SYSTEM EFFECTS AND REDUCE PERFORMANCE OF THE EQUIPMENT. SUGGESTED STRAIGHT DUCT SIZE IS 14" X 14".



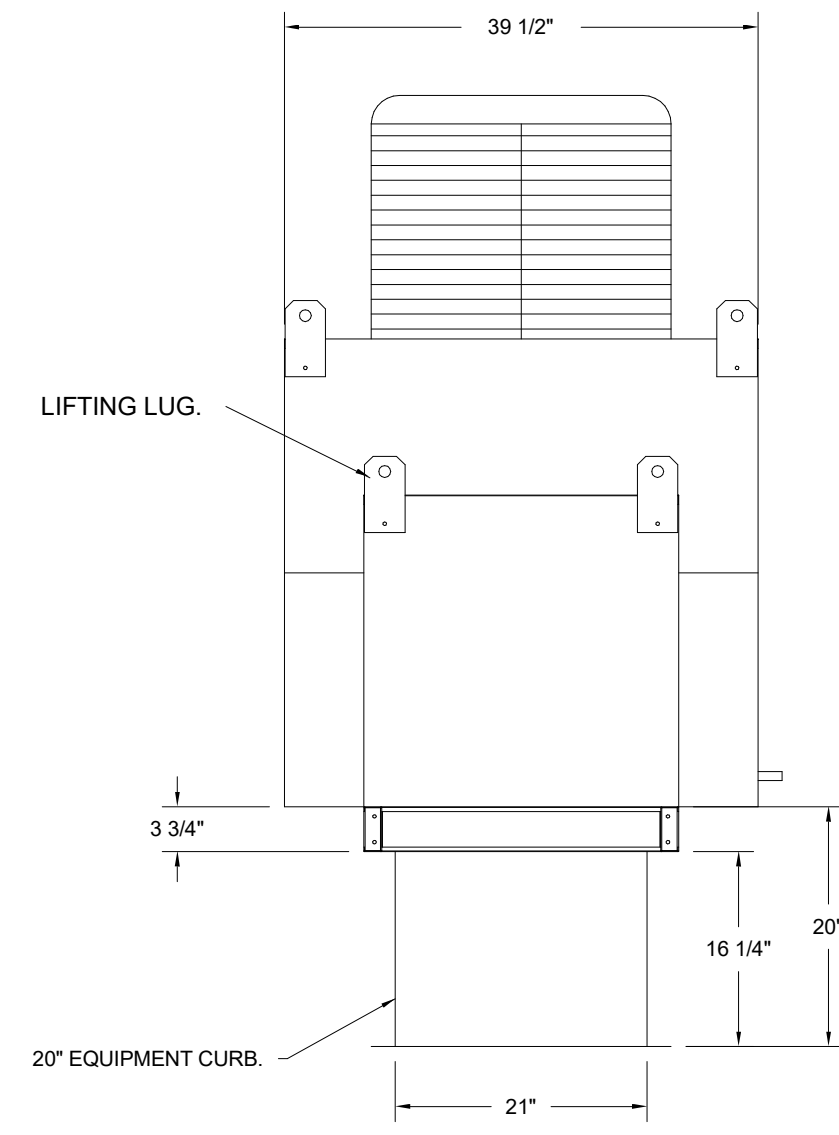
**SUPPLY SIDE HEATER INFORMATION:**  
 WINTER TEMPERATURE = 16°F. TEMP. RISE = 59°F.  
 BTUs CALCULATED OFF ACTUAL AIR DENSITY.  
 OUTPUT BTUs AT ALTITUDE OF 0.0 FT. = 102112.  
 INPUT BTUs AT ALTITUDE OF 0.0 FT. = 110991.  
 OUTPUT BTUs AT ALTITUDE OF 122 FT. = 101663.  
 INPUT BTUs AT ALTITUDE OF 122 FT. = 110503.

TYPICAL DRAIN TRAP INSTALL

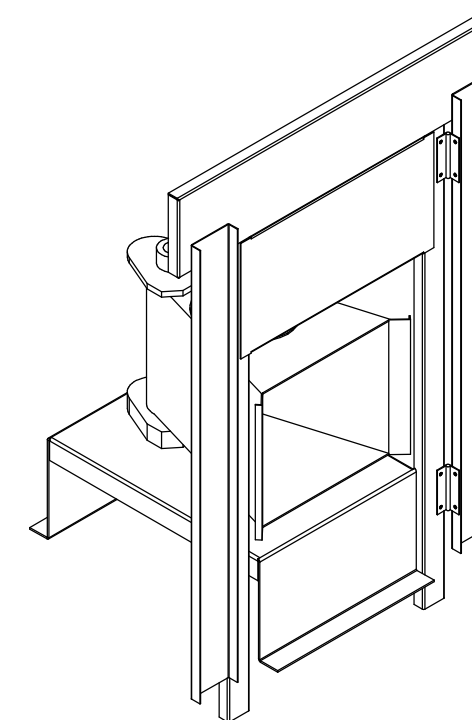
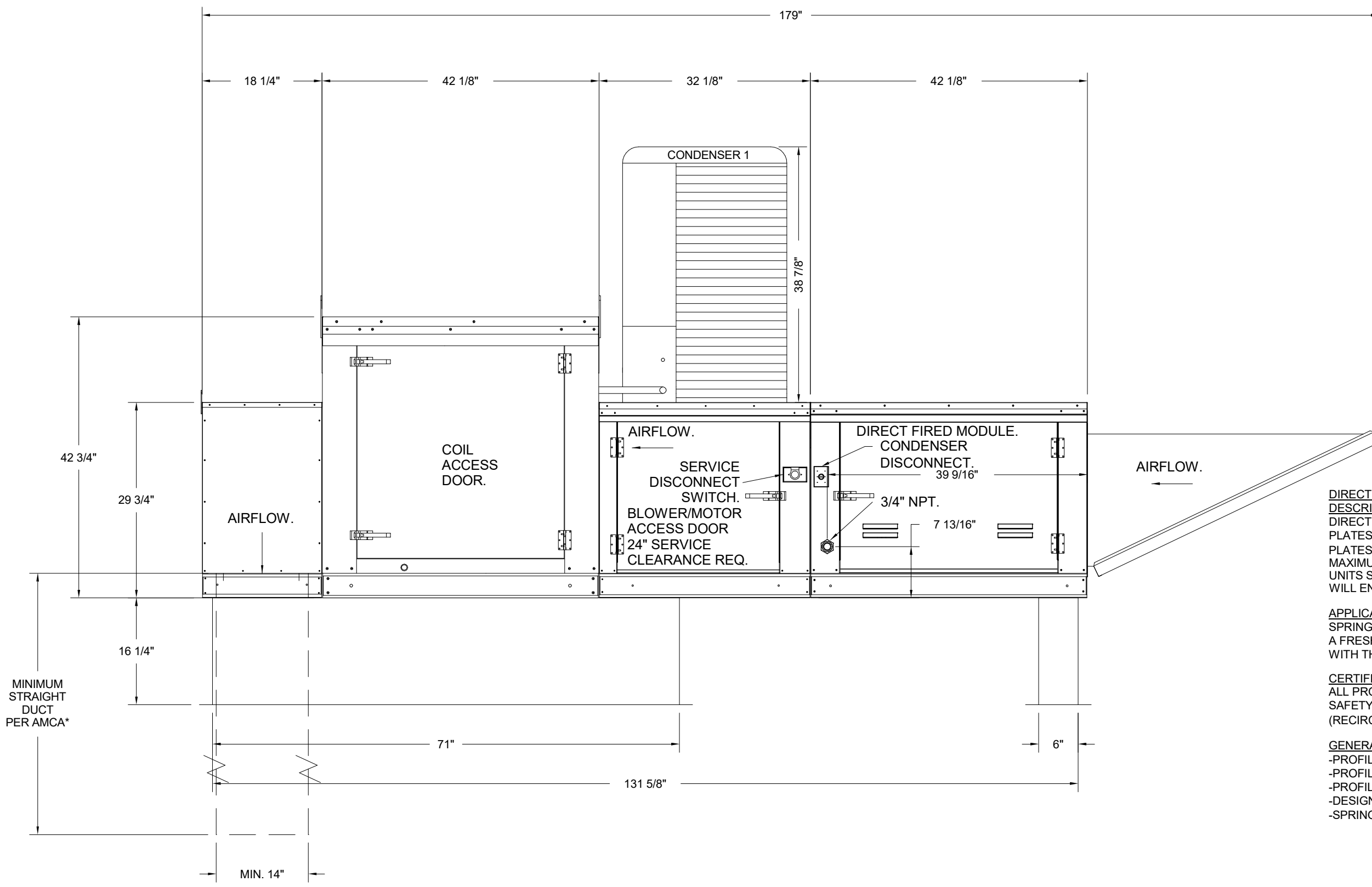
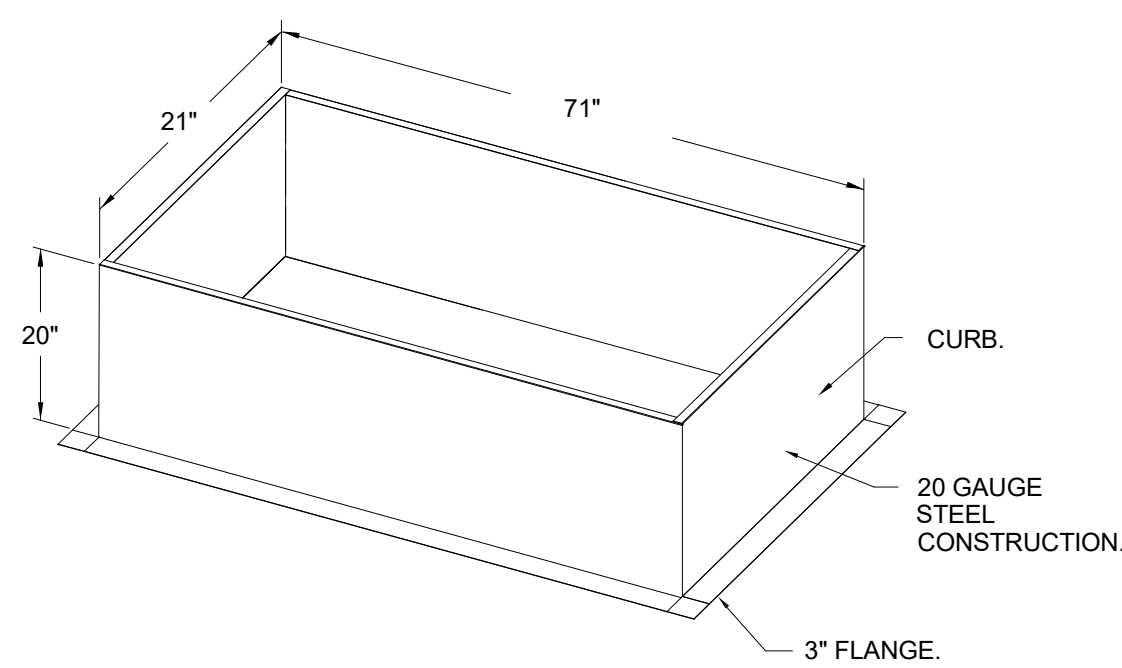
RECOMMENDED COOLING COIL DRAIN TRAP CONFIGURATION.



- NOTES:
- 1" DIAMETER PVC PIPE ONLY.
  - USE ONLY LOW PROFILE COUPLINGS.
  - ADD CLEAN OUT AS SHOWN.



OPTIONS:  
 - FULL BOTTOM CORNERS.



DIRECT FIRED (DF) PROFILE PLATE ASSEMBLY

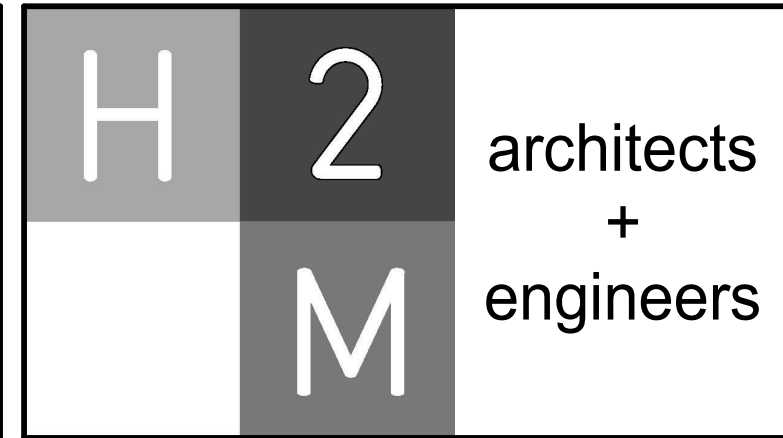
**DIRECT FIRED PROFILE PLATE SPECIFICATIONS:**  
**DESCRIPTION:**  
 DIRECT FIRED BURNERS SHALL HAVE PATENTED (US PATENT NO. US6629523B2), SELF-ADJUSTING PROFILE PLATES DESIGNED TO ENSURE PROPER AIR VELOCITY AND PRESSURE DROP ACROSS THE BURNER. PROFILE PLATES SHALL ALLOW BURNERS TO ACHIEVE CLEAN COMBUSTION BY LIMITING BY-PRODUCT LEVELS TO A MAXIMUM OF 5PPM OF CARBON MONOXIDE (CO), AND 0.5PPM OF NITROGEN DIOXIDE (NO2). DIRECT FIRED UNITS SHALL BE CONFIGURED WITH THE BLOWER MOUNTED DOWNSTREAM OF THE BURNER. THIS ARRANGEMENT WILL ENSURE A CONSISTENT AIRFLOW, REGARDLESS OF INLET AIR TEMPERATURE.

**APPLICATION:**  
 SPRING-LOADED BURNER PROFILE PLATES ARE ENGINEERED TO AUTOMATICALLY REACT TO THE MOMENTUM OF A FRESH AIR STREAM, WITHOUT THE NEED FOR ANY MOTORS OR ACTUATORS TO MECHANICALLY ADJUST THEM. WITH THIS FEATURE, ALL DF UNITS ARE DESIGNED FOR DEMAND CONTROL VENTILATION (DCV) REQUIREMENTS.

**CERTIFICATIONS:**  
 ALL PROFILE PLATE ASSEMBLIES SHALL BE INCLUDED IN THE DF UNITS ETL LISTING AND COMPLY WITH COMBINED SAFETY STANDARDS ANSI Z83.4 AND CSA 3.7 (NON-RECIRCULATING DF HEATERS) AND ANSI Z83.16 (RECIRCULATING DF HEATERS).

**GENERAL CONSTRUCTION:**  
 -PROFILE PLATES SHALL BE FORMED FROM G90 GALVANIZED STEEL.  
 -PROFILE PLATES SHALL VARY IN SIZE PER UNIT.  
 -PROFILE PLATES SHALL BE MOUNTED ALONG THE SAME PLANE AS THE DISCHARGE OF THE BURNER.  
 -DESIGN SHALL INCORPORATE PROPERLY TORQUED, PERMANENTLY MOUNTED SPRING HINGES.  
 -SPRING HINGES SHALL BE MADE FROM PLATED STEEL.

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CONSULTANTS:

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| PROJECT No: BOME2201 |  | DATE: NOV 3, 2023 |  | SCALE: AS SHOWN |  |                  |  |

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## Borough of Metuchen

### EMERGENCY SERVICES CENTER

**1 SAFETY PLACE  
 METUCHEN, NJ 08840  
 BOROUGH OF METUCHEN  
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 NEW JERSEY**

STATUS **90% - NFC**

SHEET TITLE **KITCHEN SCHEDULE 3**

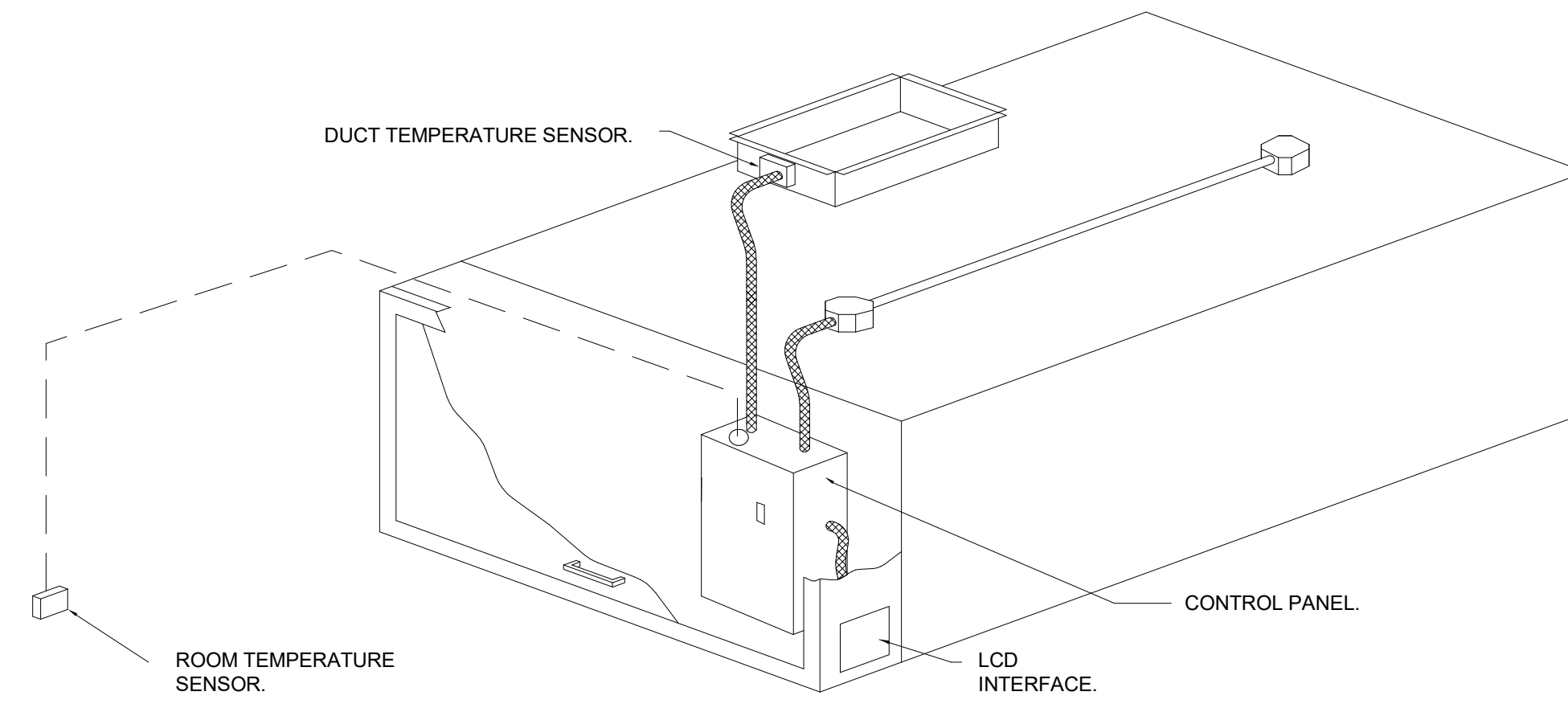
DRAWING No. **M 632.00**



| NO | TAG | PACKAGE # | LOCATION                   | SWITCHES                      |          | OPTION             | FANS CONTROLLED |   |       |      |     |
|----|-----|-----------|----------------------------|-------------------------------|----------|--------------------|-----------------|---|-------|------|-----|
|    |     |           |                            | LOCATION                      | QUANTITY |                    | TYPE            | φ | HP    | VOLT | FLA |
| 1  |     | DCV-1111  | WALL UTILITY CABINET RIGHT | FACE MOUNT RIGHT SIDE OF HOOD | 1 LIGHT  | SMART CONTROLS DCV | EXHAUST         | 3 | 1.500 | 208  | 6.6 |
|    |     |           |                            | HOOD # 1                      | 1 FAN    |                    | SUPPLY          | 3 | 1.500 | 208  | 4.4 |

**DEMAND CONTROL VENTILATION HOOD CONTROL PANEL SPECIFICATIONS:**

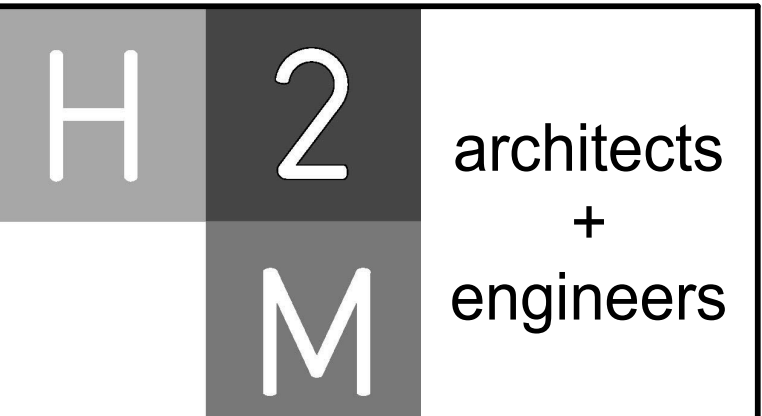
- CONTROLS SHALL BE LISTED BY ETL (UL 508A) AND SHALL COMPLY WITH DEMAND VENTILATION SYSTEM TURNDOWN REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
- THE CONTROL ENCLOSURE SHALL BE NEMA 1 RATED AND LISTED FOR INSTALLATION INSIDE OF THE EXHAUST HOOD UTILITY CABINET. THE CONTROL ENCLOSURE MAY BE CONSTRUCTED OF STAINLESS STEEL OR PAINTED STEEL.
- TEMPERATURE PROBE(S) LOCATED IN THE EXHAUST DUCT RISER(S) SHALL BE CONSTRUCTED OF STAINLESS STEEL.
- A DIGITAL CONTROLLER SHALL BE PROVIDED TO ACTIVATE THE HOOD EXHAUST FANS DYNAMICALLY BASED ON A FIXED DIFFERENTIAL BETWEEN THE AMBIENT AND DUCT TEMPERATURES SENSORS. THIS FUNCTION SHALL MEET THE REQUIREMENTS OF IMC 507.1.1.
- A DIGITAL CONTROLLER SHALL PROVIDE ADJUSTABLE HYSTERESIS SETTINGS TO PREVENT CYCLING OF THE FANS AFTER THE COOKING APPLIANCES HAVE BEEN TURNED OFF AND/OR THE HEAT IN THE EXHAUST SYSTEM IS REDUCED.
- A DIGITAL CONTROLLER SHALL PROVIDE AN ADJUSTABLE MINIMUM FAN RUN-TIME SETTING TO PREVENT FAN CYCLING.
- VARIABLE FREQUENCY DRIVES (VFDS) SHALL BE PROVIDED FOR FANS AS REQUIRED. THE DIGITAL CONTROLLER SHALL MODULATE THE VFDS BETWEEN A MINIMUM SETPOINT AND A MAXIMUM SETPOINT ON DEMAND. THE DUCT TEMPERATURE SENSOR INPUT(S) TO THE DIGITAL CONTROLLER SHALL BE USED TO CALCULATE THE SPEED REFERENCE SIGNAL.
- THE VFD SPEED RANGE OF OPERATION SHALL BE FROM 0% TO 100% FOR THE SYSTEM, WITH THE ACTUAL MINIMUM SPEED SET AS REQUIRED TO MEET MINIMUM VENTILATION REQUIREMENTS.
- AN INTERNAL ALGORITHM TO THE DIGITAL CONTROLLER SHALL MODULATE SUPPLY FAN VFD SPEED PROPORTIONAL TO ALL EXHAUST FANS THAT ARE LOCATED IN THE SAME FAN GROUP AS THE SUPPLY FAN.
- THE SYSTEM SHALL OPERATE IN PREP MODE DURING LIGHT COOKING LOAD OR COOL DOWN MODE WHEN SUFFICIENT HEAT REMAINS UNDERNEATH THE HOOD SYSTEM AFTER COOKING OPERATIONS HAVE COMPLETED. OPERATION DURING EITHER OF THESE PERIODS WILL DISABLE THE SUPPLY FANS AND PROVIDE AN EXHAUST FAN SPEED THAT IS EQUAL TO THE MINIMUM VENTILATION REQUIREMENT.
- A DIGITAL CONTROLLER SHALL DISABLE THE SUPPLY FAN(S), ACTIVATE THE EXHAUST FAN(S), ACTIVATE THE APPLIANCE SHUNT TRIP, AND DISABLE AN ELECTRIC GAS VALVE AUTOMATICALLY WHEN FIRE CONDITION IS DETECTED ON A COVERED HOOD.
- A DIGITAL CONTROLLER SHALL ALLOW FOR EXTERNAL BMS FAN CONTROL VIA DRY CONTACT (EXTERNAL CONTROL SHALL NOT OVERRIDE FAN OPERATION LOGIC AS REQUIRED BY CODE).
- AN LCD INTERFACE SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:
  - ON/OFF PUSH BUTTON FAN & LIGHT SWITCH ACTIVATION.
  - INTEGRATED GAS VALVE RESET FOR ELECTRONIC GAS VALVES (NO RESET RELAY REQUIRED).
  - VFD FAULT DISPLAY WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  - DUCT TEMPERATURE SENSOR FAILURE DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  - MIS-WIRED DUCT TEMPERATURE SENSOR DETECTION WITH AUDIBLE & VISUAL ALARM NOTIFICATION.
  - A SINGLE LOW VOLTAGE CAT-5 RJ45 WIRING CONNECTION.
  - AN ENERGY SAVINGS INDICATOR THAT UTILIZES MEASURED KWH FROM THE VFDS.



TYPICAL HOOD CONTROL PANEL INSTALLATION

**SEQUENCE OF OPERATIONS:**

- THE HOOD CONTROL PANEL IS CAPABLE OF OPERATING IN ONE OR MORE OF THE FOLLOWING STATES AT ANY GIVEN TIME:
- **AUTOMATIC:** THE SYSTEM OPERATES BASED ON THE DIFFERENTIAL BETWEEN ROOM TEMPERATURE AND THE TEMPERATURE AT THE HOOD CAVITY OR EXHAUST DUCT COLLAR. FANS ACTIVATE AT A CONFIGURABLE TEMPERATURE DIFFERENTIAL THRESHOLD. DEPENDING ON THE JOB CONFIGURATION EACH FAN ZONE CAN BE CONFIGURED AS STATIC OR DYNAMIC. THESE TERMS REFER TO WHETHER A VARIABLE MOTOR (SUCH AS EC MOTORS OR VFD DRIVEN MOTORS) MODULATE WITH TEMPERATURE. IF THE PANEL IS EQUIPPED WITH VARIABLE SPEED FANS AND THE ZONE IS DEFINED AS "DYNAMIC", THESE WILL MODULATE WITHIN A USER-DEFINED RANGE BASED ON THE TEMPERATURE DIFFERENTIAL. PANELS EQUIPPED WITH VARIABLE SPEED FANS AND A FAN ZONE DEFINED AS "STATIC", FANS WILL RUN AT A SET SPEED CALCULATED FOR THE DRIVE. DEMAND CONTROL VENTILATION SYSTEMS ARE CAPABLE OF MODULATING EXHAUST AND MAKE UP AIR FAN SPEEDS PER THE REQUIREMENTS OUTLINED IN IECC 403.7.5 (2021).
  - **MANUAL:** THE SYSTEM OPERATES BASED ON HUMAN INPUT FROM AN HMI.
  - **SCHEDULE:** A WEEKLY SCHEDULE CAN BE SET TO RUN FANS FOR A SPECIFIED PERIOD THROUGHOUT THE DAY. THERE ARE THREE OCCUPIED TIMES PER DAY TO ALLOW FOR THE USER TO SET UP A TIME THAT IS SUITABLE TO THEIR NEEDS. ANY TIME THAT IS WITHIN THE DEFINED OCCUPIED TIME, THE SYSTEM WILL RUN AT MODULATION MODE AND FOLLOW THE FAN PROCEDURE ALGORITHM BASED ON TEMPERATURE DURING THIS TIME. DURING UNOCCUPIED TIME, THE SYSTEM WILL HAVE AN EXTRA OFFSET TO PREVENT UNINTENDED ACTIVATION OF THE SYSTEM DURING A TIME WHERE THE SYSTEM IS NOT BEING OCCUPIED.
  - **OTHER:** THE SYSTEM OPERATES BASED ON THE INPUT FROM AN EXTERNAL SOURCE (DDC, BMS OR HARD-WIRED INTERLOCK).
  - **FIRE:** UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM, THE EXHAUST FAN WILL COME ON OR CONTINUE TO RUN, THE HOOD MAKEUP AIR WILL SHUTDOWN, AND A SIGNAL WILL BE SENT FOR ACTIVATING THE SHUNT TRIP BREAKER PROVIDED BY THE ELECTRICIAN. FUEL GAS WILL SHUT OFF VIA A MECHANICAL/ELECTRICAL GAS VALVE ACTUATED BY THE HOOD FIRE SUPPRESSION SYSTEM.



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CONSULTANTS:

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 DRAWN BY: JEB/PMG  
 CHECKED BY: JEB  
 REVIEWED BY: PDF  
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 SCALE: AS SHOWN

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**Borough of Metuchen**

**EMERGENCY SERVICES CENTER**

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 BOROUGH OF METUCHEN  
 COUNTY OF MIDDLESEX  
 NEW JERSEY

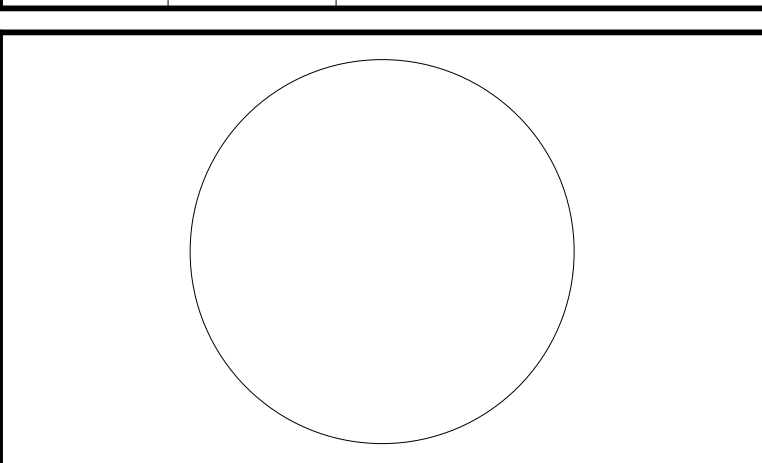
STATUS **90% - NFC**

SHEET TITLE **KITCHEN SCHEDULE 4**

DRAWING No. **M 633.00**

CONSULTANTS:

| MARK | DATE | DESCRIPTION |
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**JOHN CHRIS MORRIS III, P.E.** DATE: \_\_\_\_\_  
NJ PROFESSIONAL ENGINEER (Lic. No. 362009990)

|                         |                      |             |              |
|-------------------------|----------------------|-------------|--------------|
| DESIGNED BY:<br>JEB/PMG | DRAWN BY:<br>JEB/PMG | CHECKED BY: | REVIEWED BY: |
| PROJECT No:<br>BOME2201 | DATE:<br>NOV 3, 2023 | SCALE:      | AS SHOWN     |

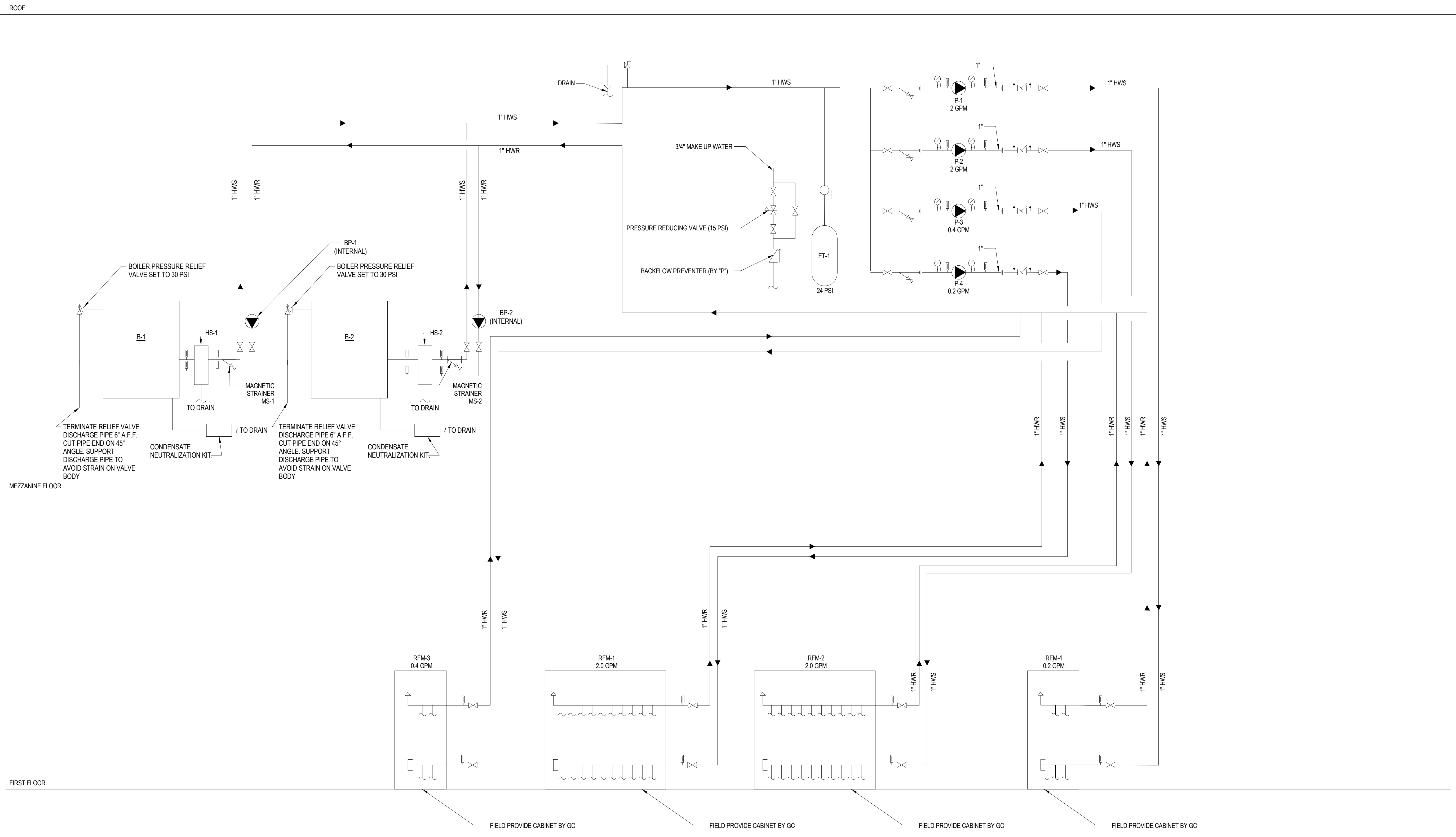
CLIENT  
**Borough of Metuchen**  
**EMERGENCY SERVICES CENTER**

**1 SAFETY PLACE  
METUCHEN, NJ 08840  
BOROUGH OF METUCHEN  
COUNTY OF MIDDLESEX  
NEW JERSEY**

STATUS **90% - NFC**

SHEET TITLE  
**RADIANT FLOOR PIPING DIAGRAM**

DRAWING No.  
**M 640.00**



**1 Radiant Flooring Piping Diagram**  
SCALE: NOT TO SCALE

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