

GENERAL HVAC NOTES

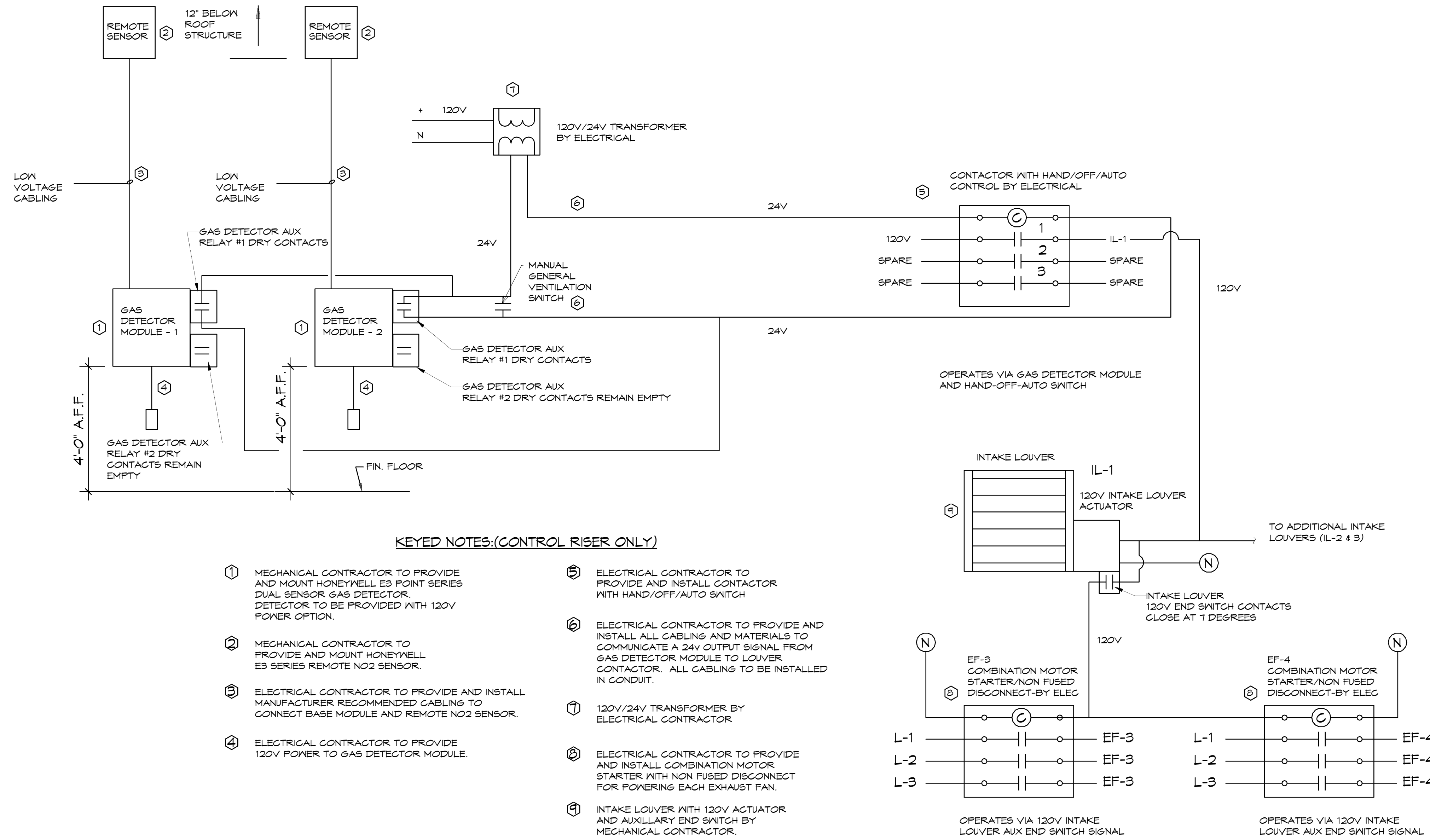
- COORDINATE GRILLE LOCATIONS WITH LIGHT FIXTURES, SPRINKLERS AND CEILING GRID.
- INDICATED DUCT SIZES ARE NET FREE AREA.
- ADJUST ALL AIR QUANTITIES AS SHOWN ON THE PLANS AFTER COMPLETION OF THE JOB.
- INSULATE THE SUPPLY, RETURN AIR GRILLE FLENUMS AND EXHAUST AIR FLENUMS WITH 2 IN., 3/4 LB DENSITY FOL BACKED INSULATION.
- FIRE AND/OR SMOKE DAMPERS ARE INDICATED ON MECHANICAL DRAWINGS. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE TO VERIFY LOCATIONS AND FIRE RATING REQUIREMENTS WHERE ANY DUCT PASSES THROUGH A PARTITION. REFER TO ARCHITECTURAL PLANS FOR LOCATION OF ALL FIRE AND SMOKE PARTITIONS. VERIFY REQUIRED DAMPER ASSEMBLY IN ALL DUCTS PENETRATING THESE WALLS PER ALL STATE AND LOCAL CODES.
- EXTERNALLY INSULATE ALL ROUND SUPPLY AND RETURN DUCT. INTERNALLY INSULATE ALL RECTANGULAR SUPPLY AND RETURN DUCT PER MECHANICAL CODE. ATTACH THE INTERNAL INSULATION TO THE DUCT WITH APPROVED ADHESIVE AND WELDED FASTENERS.
- MECHANICAL CONTRACTOR SHALL COORDINATE ALL DUCTWORK WITH FIELD CONDITIONS AND PROVIDE ALL OFFSETS, BENDS, TRANSITIONS AND SPECIAL FITTINGS FOR A COMPLETE INSTALLATION OF THE SYSTEMS.
- USE FLANGED AND GASKETED DUCT CONSTRUCTION FOR RECTANGULAR DUCT CONVEYING AIR AT STATIC PRESSURES ABOVE 2 IN. W.G. USE LOCKED SEAM SPIRAL DUCT CONSTRUCTION FOR ROUND DUCT CONVEYING AIR AT STATIC PRESSURES ABOVE 2 IN. W.G. ALL HIGH PRESSURE DUCT CONSTRUCTION SHALL ADHERE TO SMAGNA DUCT CONSTRUCTION STANDARDS (LATEST EDITION) FOR DUCT CLASSIFICATION UP TO 5 IN. W.G.
- INTERIOR OF ALL DUCT FLENUMS VISIBLE THROUGH GRILLE SHALL BE PAINTED MATTE BLACK PRIOR TO INSTALLATION.
- INTERLOCK EXHAUST FANS WITH LIGHT SWITCHES. REFER TO ELECTRICAL PLANS.
- PAINT ALL SUPPLY AND RETURN AIR GRILLES NOT SPECIFIED AS PRE-FINISHED, TO ARCHITECT'S SPECIFICATIONS UNLESS OTHERWISE SPECIFIED.
- MAINTAIN 10 FT. MINIMUM CLEARANCE BETWEEN FRESH AIR INTAKES AND ALL EXHAUST OUTLETS, GAS FLUES AND PLUMBING VENTS.
- INSTALL VOLUME CONTROL DAMPERS IN SUPPLY, RETURN, EXHAUST AND FRESH AIR BRANCH DUCT RUNS.
- REGULATING AIR SYSTEMS WITH A FAN CAPACITY GREATER THAN 2,000 NOMINAL CFM SHALL AUTOMATICALLY SHUT DOWN BY MEANS OF AN APPROVED SMOKE DETECTOR PLACED IN THE RETURN AIR STREAM PRIOR TO ANY EXHAUSTING FROM THE BUILDING OR MIXING WITH FRESH AIR MAKEUP. ALL CONTROLS SHALL BE LISTED. UPON ACTIVATION OF THE SAFETY CONTROL, THE SYSTEM SHALL NOT RESTART UNTIL THE SAFETY CONTROL IS MANUALLY RESET.
- ALL MECHANICAL INSTALLATIONS SHALL CONFORM TO THE LATEST ACCEPTABLE MECHANICAL CODE.
- SEAL ALL DUCT SEAMS WITH HARDCAST IRON GRIP 601 SEALANT SYSTEM OR AN APPROVED EQUAL. DUCT TAPE, WHETHER LISTED OR NOT, WILL NOT BE ACCEPTED.
- FABRICATE AND INSTALL ALL GALVANIZED DUCT SYSTEMS TO SMAGNA DUCT CONSTRUCTION STANDARDS, LATEST EDITION, AND MECHANICAL CODE.
- FABRICATE AND INSTALL AUXILIARY CONDENSATE DRAIN PAN UNDER ENTIRE AIR HANDLER WITH CONDENSATE PAN SWITCH INTERLOCKED WITH AIR HANDLER FOR SHUT DOWN WHEN CONDENSATE OVER FLOW IS SENSED.
- EVERY ATTIC OR FURRED SPACE IN WHICH MECHANICAL EQUIPMENT IS INSTALLED SHALL BE ACCESSIBLE BY AN OPENING AND PASSAGEWAY AS LARGE AS THE LARGEST PIECE OF THE EQUIPMENT AND IN NO CASE LESS THAN 22 X 36 INCHES CONTINUOUS FROM THE OPENING TO THE EQUIPMENT AND ITS CONTROLS. THE OPENING TO THE PASSAGEWAY SHALL BE LOCATED NOT MORE THAN 20 FT. FROM THE EQUIPMENT MEASURED ALONG THE CENTERLINE OF SUCH PASSAGEWAY. EVERY PASSAGEWAY SHALL BE UNOBSTRUCTED AND SHALL HAVE SOLID CONTINUOUS FLOORING NOT LESS THAN 24 IN. WIDE FROM THE EQUIPMENT. ON THE CONTROL SIDE AND OTHER SIDES WHERE ACCESS IS NECESSARY FOR SERVICING THE EQUIPMENT, A LEVEL PLATFORM EXTENDING A MINIMUM 30 IN. FROM THE EDGE OF THE EQUIPMENT WITH A 36 IN. HIGH CLEAR WORKING SPACE SHALL BE PROVIDED. TOP OR BOTTOM SERVICE EQUIPMENT SHALL HAVE A FULL CLEARANCE ABOVE OR BELOW THE UNIT FOR COMPONENT REMOVAL.
- SUPPLY AIR SYSTEMS AND RETURN AIR SYSTEMS INSTALLED IN AN ATTIC, VENTILATED CRAWL SPACE OR OTHER NON-CONDITIONED AREA SHALL BE INSULATED.
- SPRINKLER CONTRACTOR TO BE RESPONSIBLE FOR ROUTING ALL SPRINKLER PIPING TO AVOID ALL UNCONDITIONED SPACES.
- DO NOT SCALE DIRECTLY FROM THE HVAC DRAWINGS. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONAL INFORMATION.
- MECHANICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT, FANS AND APPLIANCES A MINIMUM OF 10 FEET FROM A ROOF EDGE OR OPEN SIDE WHERE SUCH EDGE OR OPEN SIDE IS GREATER THAN 30 INCHES ABOVE A FLOOR, ROOF OR GRADE BELOW. GUARD RAILS A MINIMUM OF 42 INCHES ABOVE THE ELEVATED SURFACE SHALL BE PROVIDED AND INSTALLED BY THE GENERAL CONTRACTOR AND EXTENDED A MINIMUM OF 30 INCHES BEYOND EACH END OF SUCH EQUIPMENT, FAN OR APPLIANCE WHERE APPLIANCES, EQUIPMENT, FANS OR OTHER COMPONENTS ARE LOCATED WITHIN THE REQUIRED 10 FOOT CLEARANCE REQUIREMENT. THE GUARD SHALL BE CONSTRUCTED SO AS TO PREVENT THE PASSAGE OF A 21 INCH DIAMETER SPHERE AND COMPLY WITH THE LOADING REQUIREMENTS FOR GUARDS SPECIFIED IN THE LATEST ACCEPTED INTERNATIONAL BUILDING CODE.

HVAC KEYED NOTES

- MAINTAIN A MINIMUM OF 10 FT. CLEARANCE BETWEEN ALL EXHAUST OUTLETS, FLUES, PLUMBING VENTS AND ANY FRESH AIR INTAKES. IF 10 FT. CLEARANCE CAN NOT BE MAINTAINED EXHAUST OUTLET, FLUE, OR VENT MUST TERMINATE AT A POINT AT LEAST 36 IN. ABOVE HIGHEST FRESH AIR INTAKE WITHIN 10 FT. LIMIT.
- ELECTRICAL CONTRACTOR TO INTERLOCK IL-1, IL-3 & IL-3 WITH EF-3 AND EF-4 PROVIDE END SWITCH ON LOUVER THAT ALLOWS IL-1, IL-2 & IL-3 TO FULLY OPEN PRIOR TO ACTIVATING EXHAUST FANS.
- LOCATE THERMOSTAT OR HUMIDISTAT AS INDICATED WITH THE CENTER OF THE THERMOSTAT AT 48 IN. ABOVE FINISHED FLOOR. SEAL ALL THERMOSTAT CONDUITS AT TOP AND BOTTOM OF CONDUIT. PROVIDE INSULATED BACKING FOR MOUNTING THERMOSTATS.
- MECHANICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT, FANS AND APPLIANCES A MINIMUM OF 10 FEET FROM A ROOF EDGE OR OPEN SIDE WHERE SUCH EDGE OR OPEN SIDE IS GREATER THAN 30 INCHES ABOVE A FLOOR, ROOF OR GRADE BELOW. GUARD RAILS A MINIMUM OF 42 INCHES THE ELEVATED SURFACE SHALL BE PROVIDED AND INSTALLED BY THE GENERAL CONTRACTOR AND EXTENDED A MINIMUM OF 30 INCHES BEYOND EACH END OF SUCH EQUIPMENT, FAN OR APPLIANCE WHERE APPLIANCES, EQUIPMENT, FANS OR OTHER COMPONENTS ARE LOCATED WITHIN THE REQUIRED 10 FOOT CLEARANCE REQUIREMENT. THE GUARD SHALL BE CONSTRUCTED SO AS TO PREVENT THE PASSAGE OF A 21 INCH DIAMETER SPHERE AND COMPLY WITH THE LOADING REQUIREMENTS FOR GUARDS SPECIFIED IN THE LATEST ACCEPTED INTERNATIONAL BUILDING CODE.
- ROUTE SUPPLY AIR DUCT THROUGH IN BETWEEN JOISTS, COORDINATE DUCT WITH LIGHT FIXTURES AND BUILDING STRUCTURE.

MECHANICAL LEGEND

- ☒ SUPPLY DUCT SECTION
- ☒ RETURN OR EXHAUST DUCT SECTION
- ☒ CEILING SUPPLY GRILLE
- ☒ CEILING RETURN GRILLE
- ☒ CEILING EXHAUST GRILLE
- ☒ SIDEWALL SUPPLY OR RETURN GRILLE
- ① SEE KEYED NOTES
- ▬ SUPPLY, RETURN, OR EXHAUST DUCT
- ▨ SPIRAL DUCT
- ▨ EXISTING SUPPLY, RETURN, OR EXHAUST DUCT
- ▨ DEMO DUCT
- ☒ VOLUME DAMPER
- ☒ ROUND DUCT FIRE DAMPER (NUMBER DENOTES FIRE RATING OF 4FD WALL. EXAMPLE: 4FD = ONE HR. RATED WALL)
- ☒ FLEX DUCT CONNECTION MAXIMUM OF 5 FT.
- RTU-① THERMOSTAT. MOUNT AT 48" A.F.F. TO TOP (NUMBER DENOTES FURNACE OR ROOFTOP UNIT)



KEYED NOTES: (CONTROL RISER ONLY)

- MECHANICAL CONTRACTOR TO PROVIDE AND MOUNT HONEYWELL E3 POINT SERIES DUAL SENSOR GAS DETECTOR. DETECTOR TO BE PROVIDED WITH 120V POWER OPTION.
- MECHANICAL CONTRACTOR TO PROVIDE AND MOUNT HONEYWELL E3 SERIES REMOTE NO2 SENSOR.
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL MANUFACTURER RECOMMENDED CABLING TO CONNECT BASE MODULE AND REMOTE NO2 SENSOR.
- ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER TO GAS DETECTOR MODULE.
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL CONTACTOR WITH HAND/OFF/AUTO SWITCH.
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL ALL CABLING AND MATERIALS TO COMMUNICATE A 24V OUTPUT SIGNAL FROM GAS DETECTOR MODULE TO LOUVER CONTACTOR. ALL CABLING TO BE INSTALLED IN CONDUIT.
- 120V/24V TRANSFORMER BY ELECTRICAL CONTRACTOR.
- ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL COMBINATION MOTOR STARTER WITH NON FUSED DISCONNECT FOR POWERING EACH EXHAUST FAN.
- INTAKE LOUVER WITH 120V ACTUATOR AND AUXILIARY END SWITCH BY MECHANICAL CONTRACTOR.

① GAS DETECTION DETAIL

NTS

NOTES:
REFER TO SHEET M2.1 FOR HVAC PLANS. REFER TO SHEET M3.1 FOR HVAC DETAILS. REFER TO M4.1 FOR HVAC CONTROL. REFER TO SHEET M5.1 FOR HVAC SCHEDULES.

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A REMODEL AND ADDITION FOR
BENTON CO. DETENTION CENTER
BENTONVILLE, AR

DRAWN BY:
DCN
CHECK BY:
NEW
ISSUE DATE:
06/10/2024

PROJECT NO:
2404

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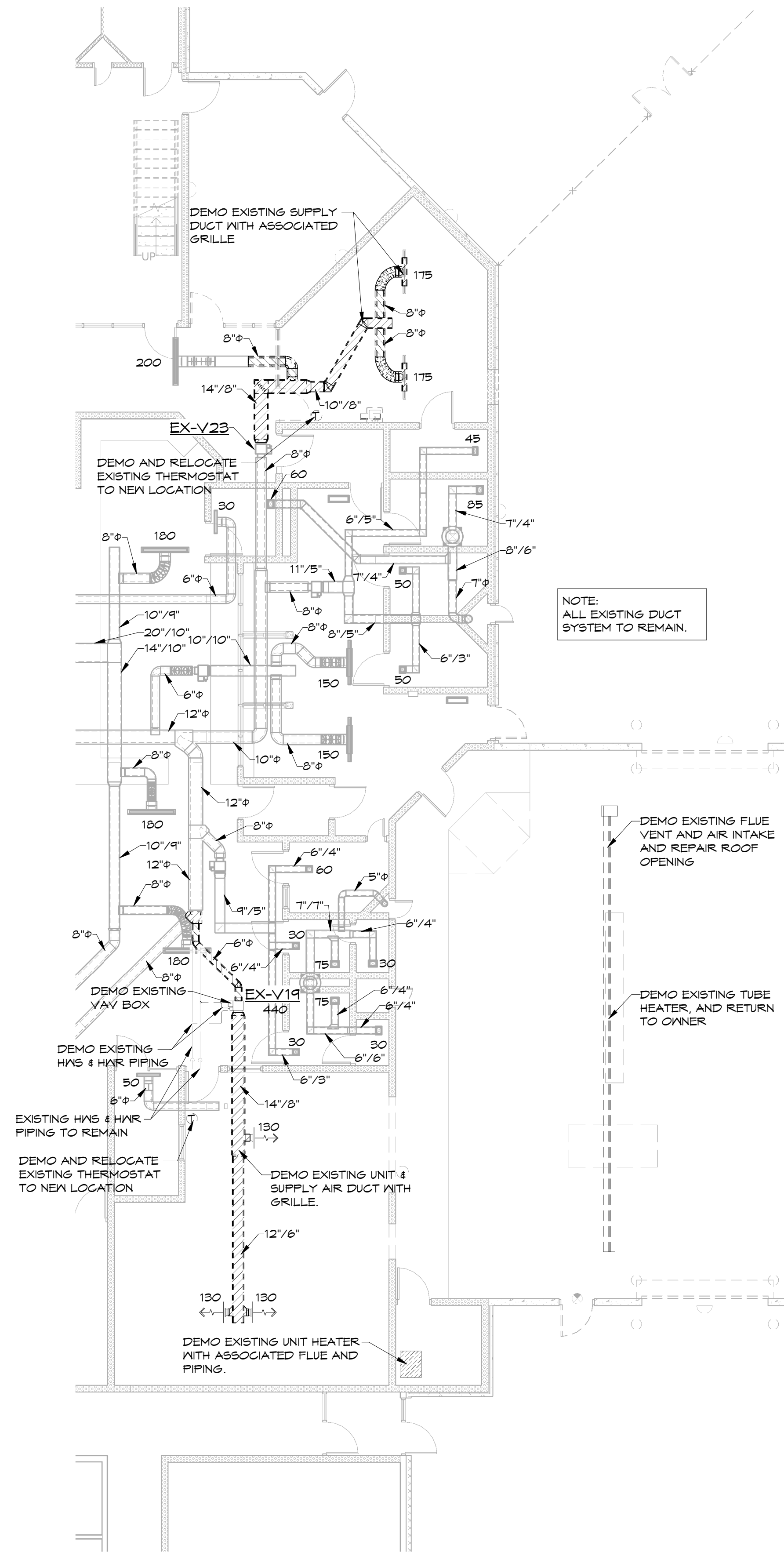
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1 FIRST FLOOR HVAC DEMOLITION PLAN
1/8" = 1'-0"



NOTE:
ALL EXISTING DUCT
SYSTEM TO REMAIN.

DEMO EXISTING FLUE
VENT AND AIR INTAKE
AND REPAIR ROOF
OPENING

DEMO EXISTING TUBE
HEATER, AND RETURN
TO OWNER



NOTES:
REFER TO SHEET M1.1 FOR HVAC LEGEND, GENERAL AND KEYED
NOTES. REFER TO M2.1 FOR HVAC PLANS. REFER TO SHEET M3.1
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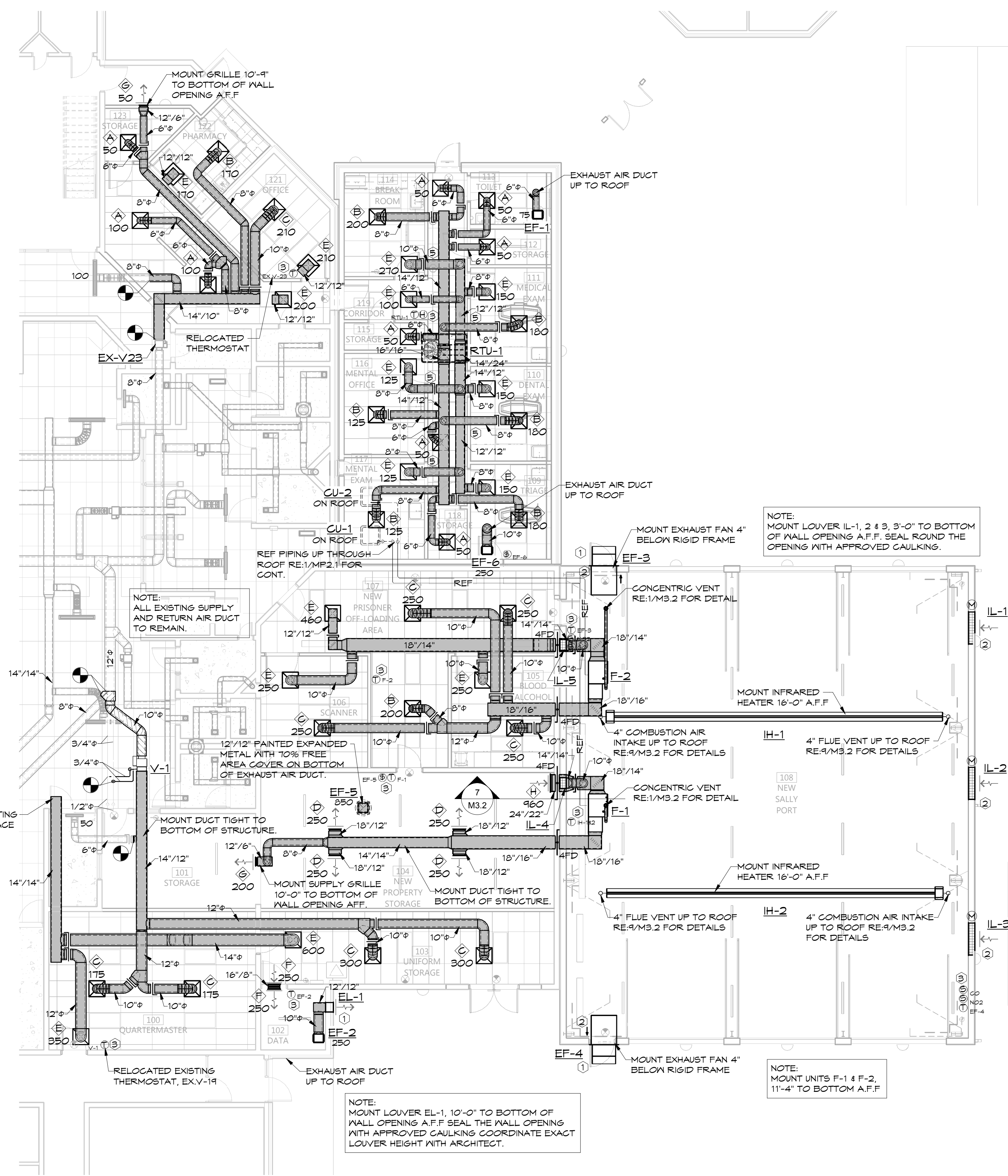
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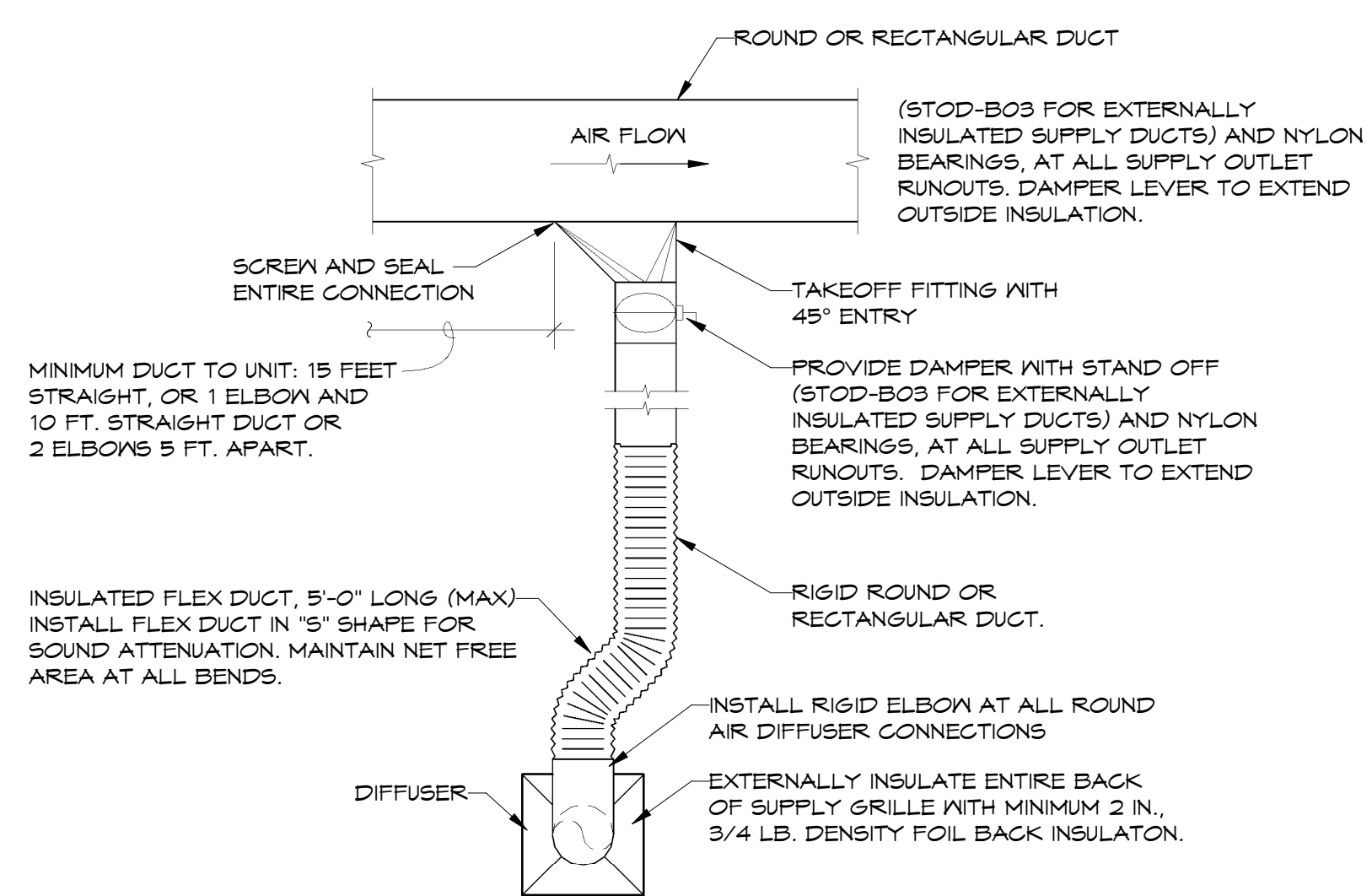
1 FIRST FLOOR HVAC PLAN
1/8" = 1'-0"



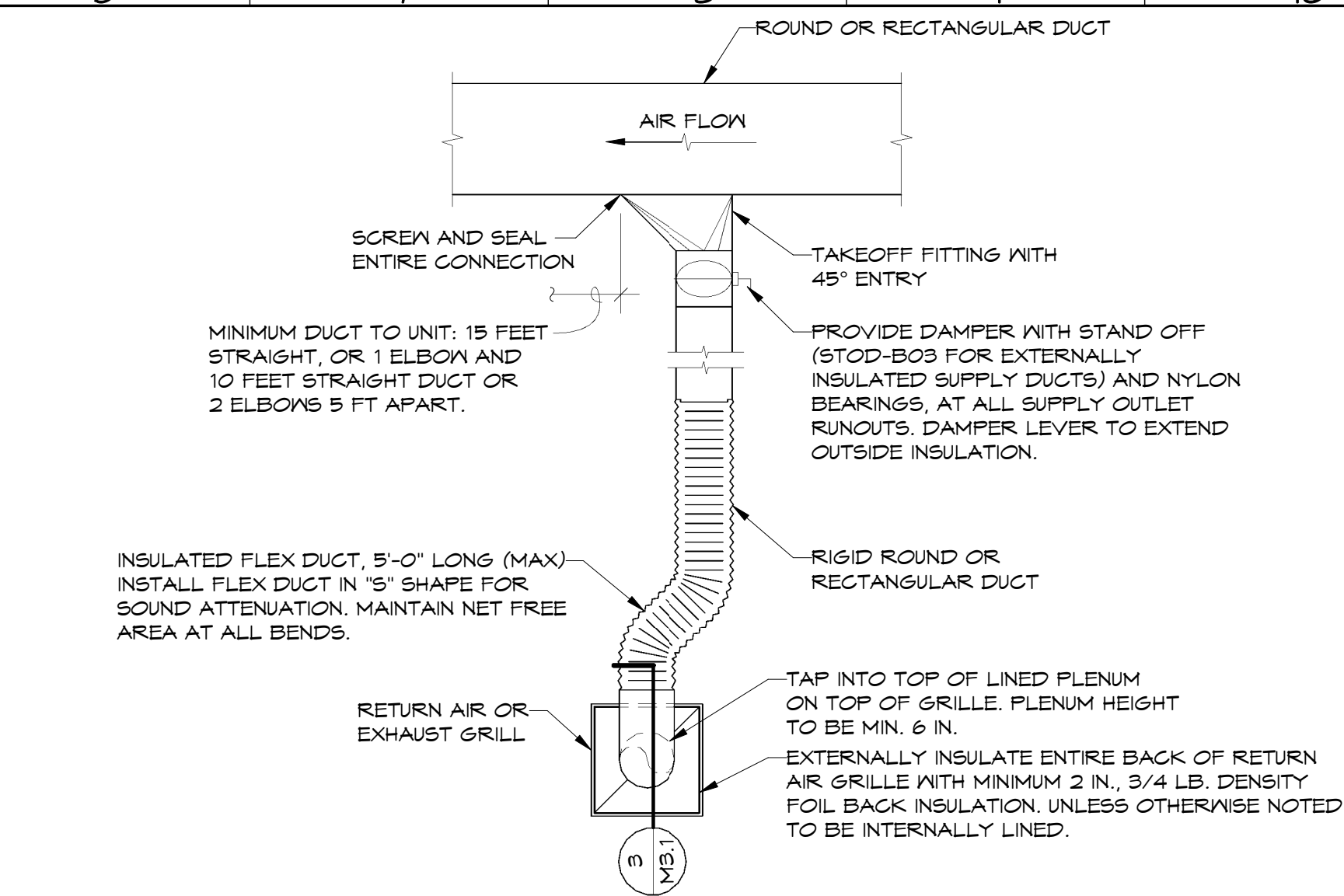
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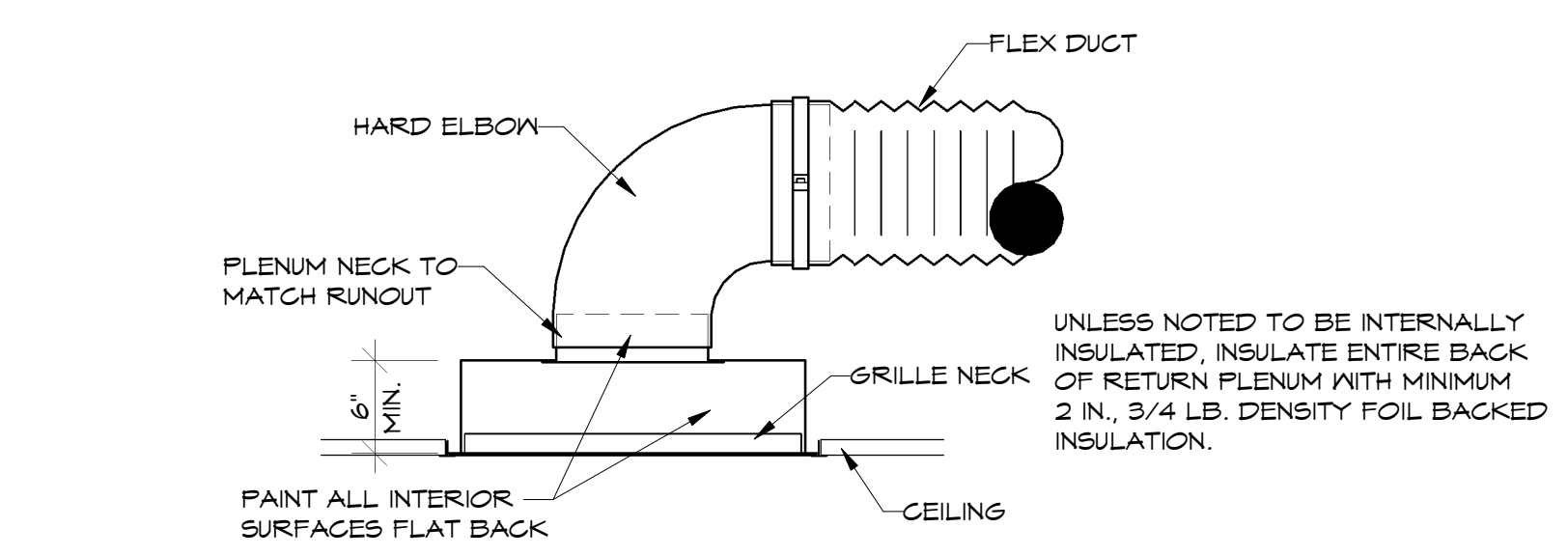
1 SUPPLY DUCT CONNECTION DETAIL
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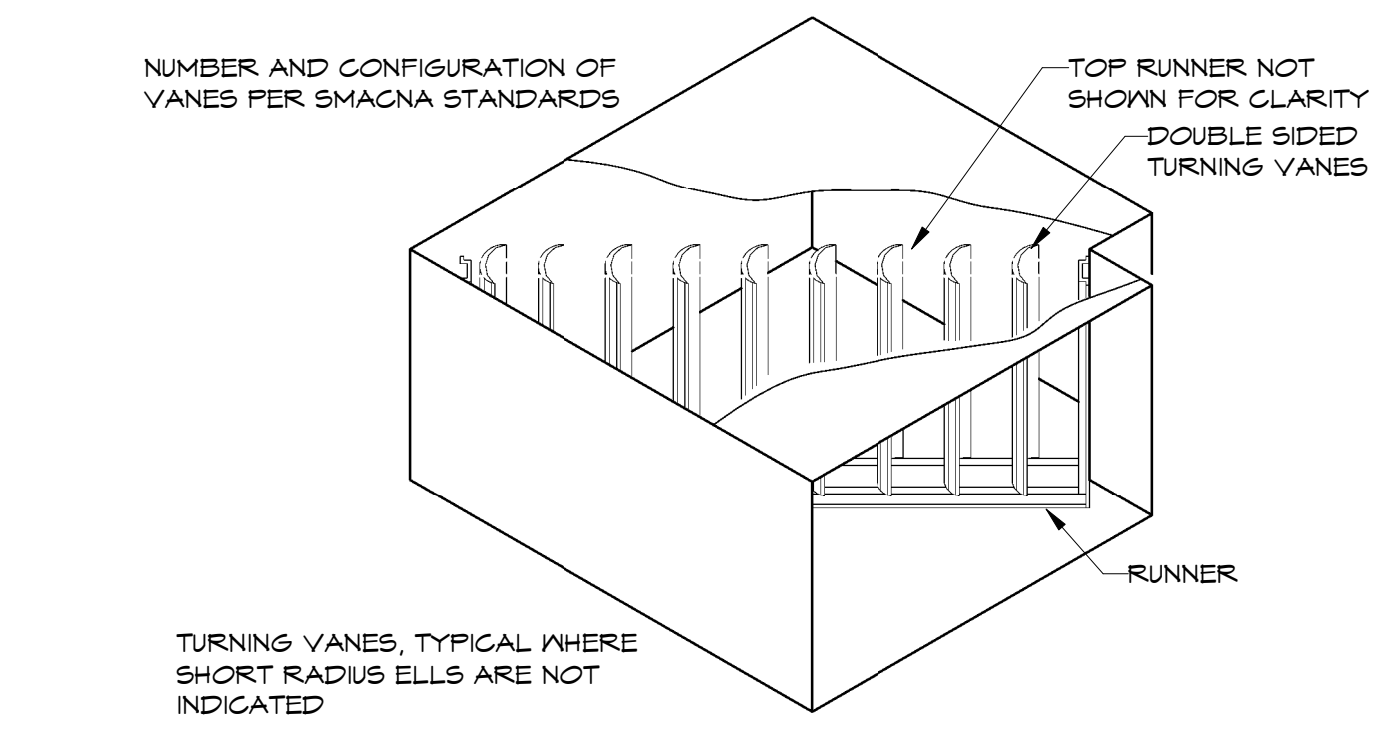
2 RETURN DUCT CONNECTION DETAIL
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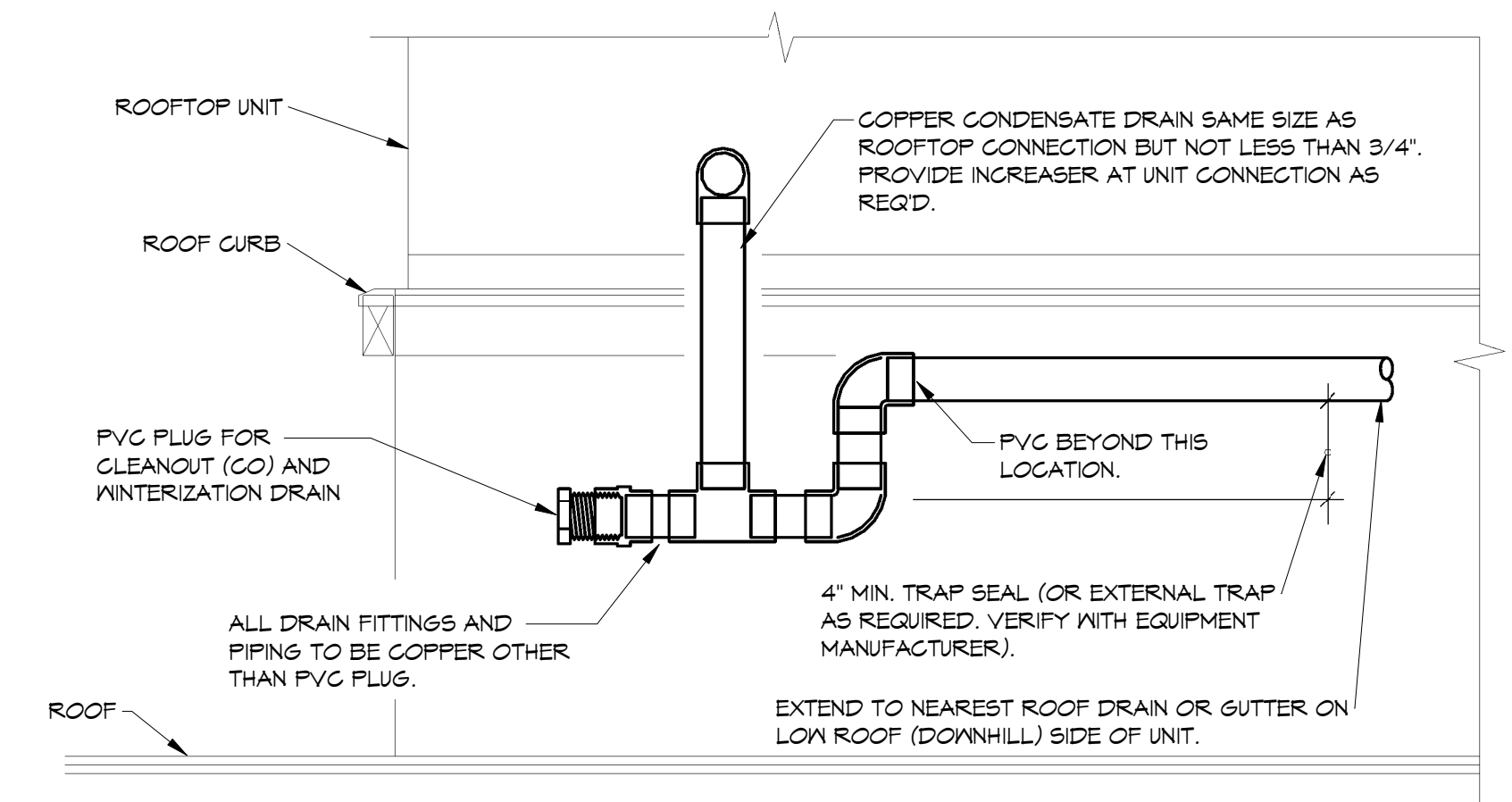
3 RETURN GRILLE CONNECTION SECTION
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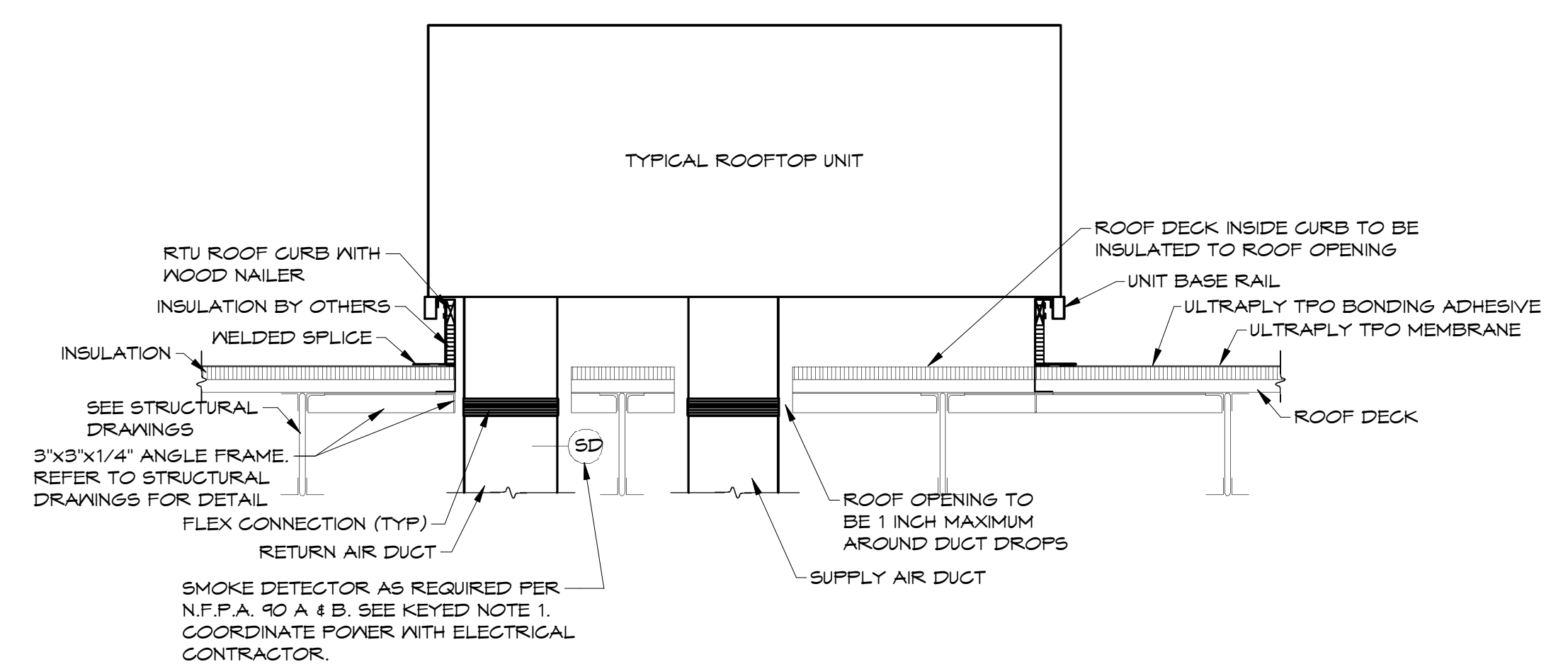
4 TURNING VANE DETAIL
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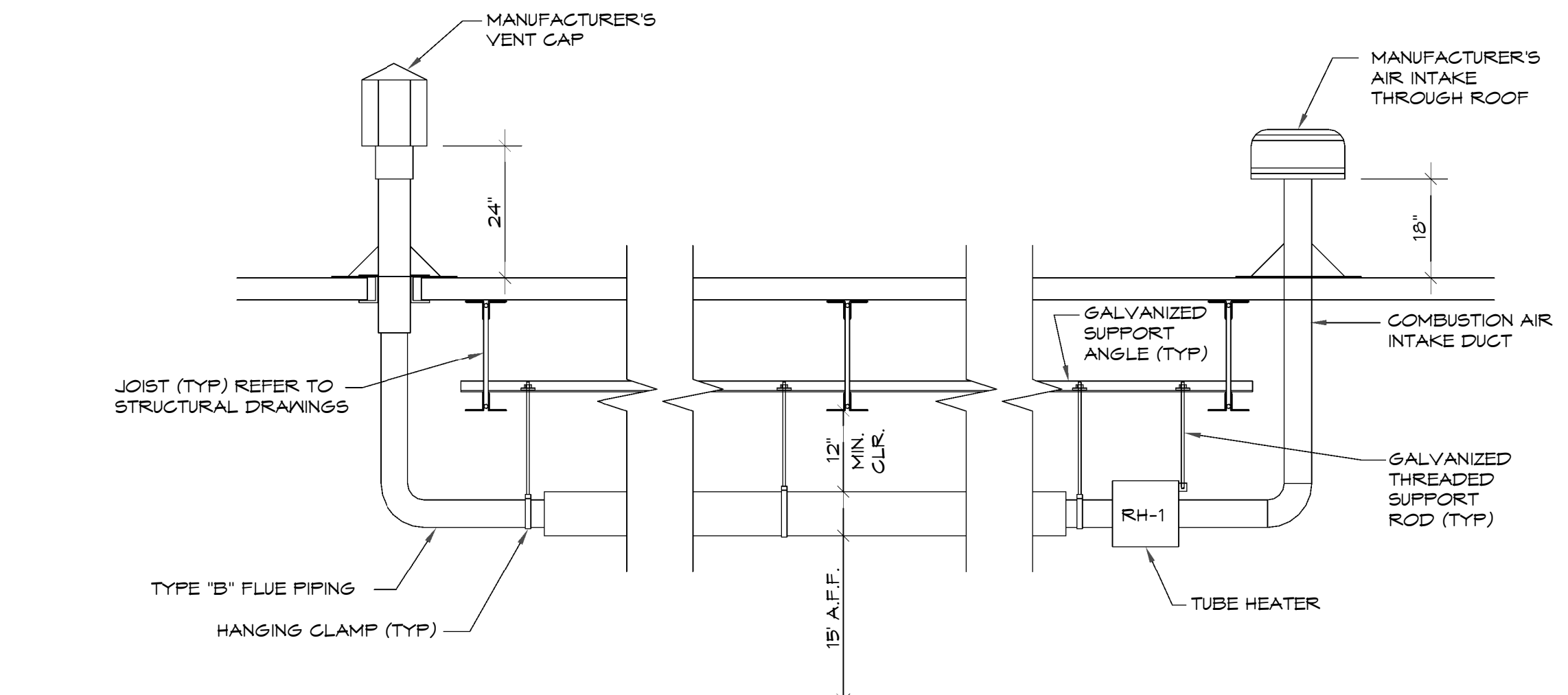
5 ROOFTOP UNIT CONDENSATE DETAIL
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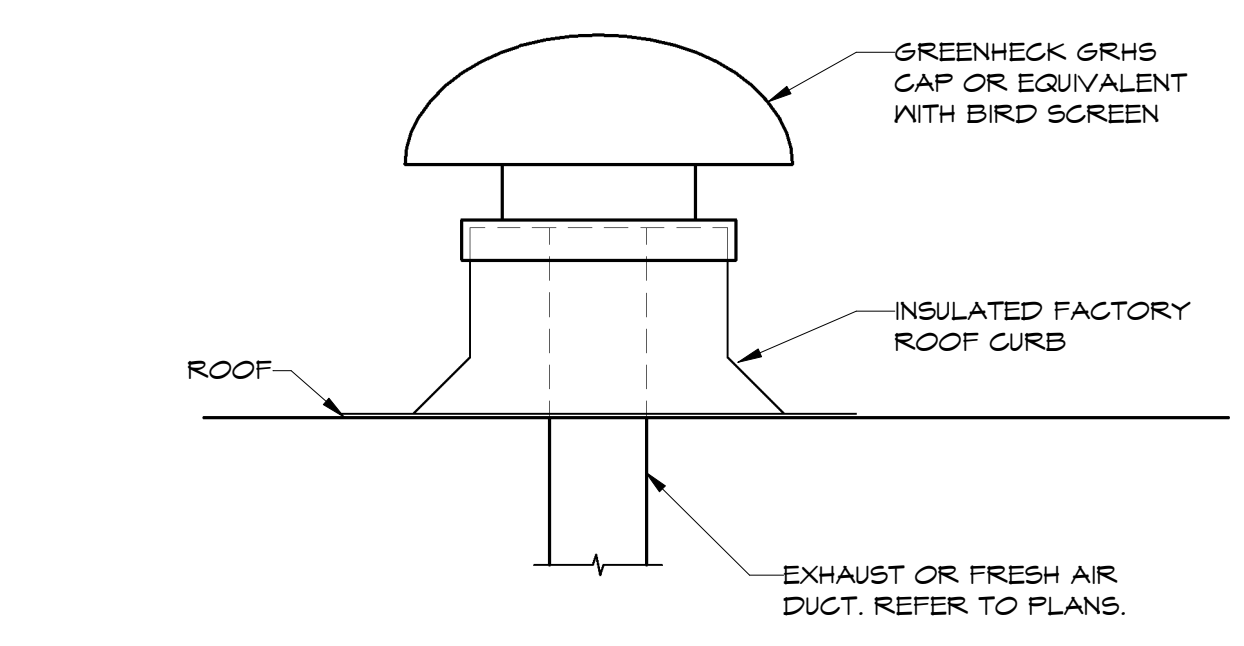
6 ROOFTOP UNIT CURB DETAIL
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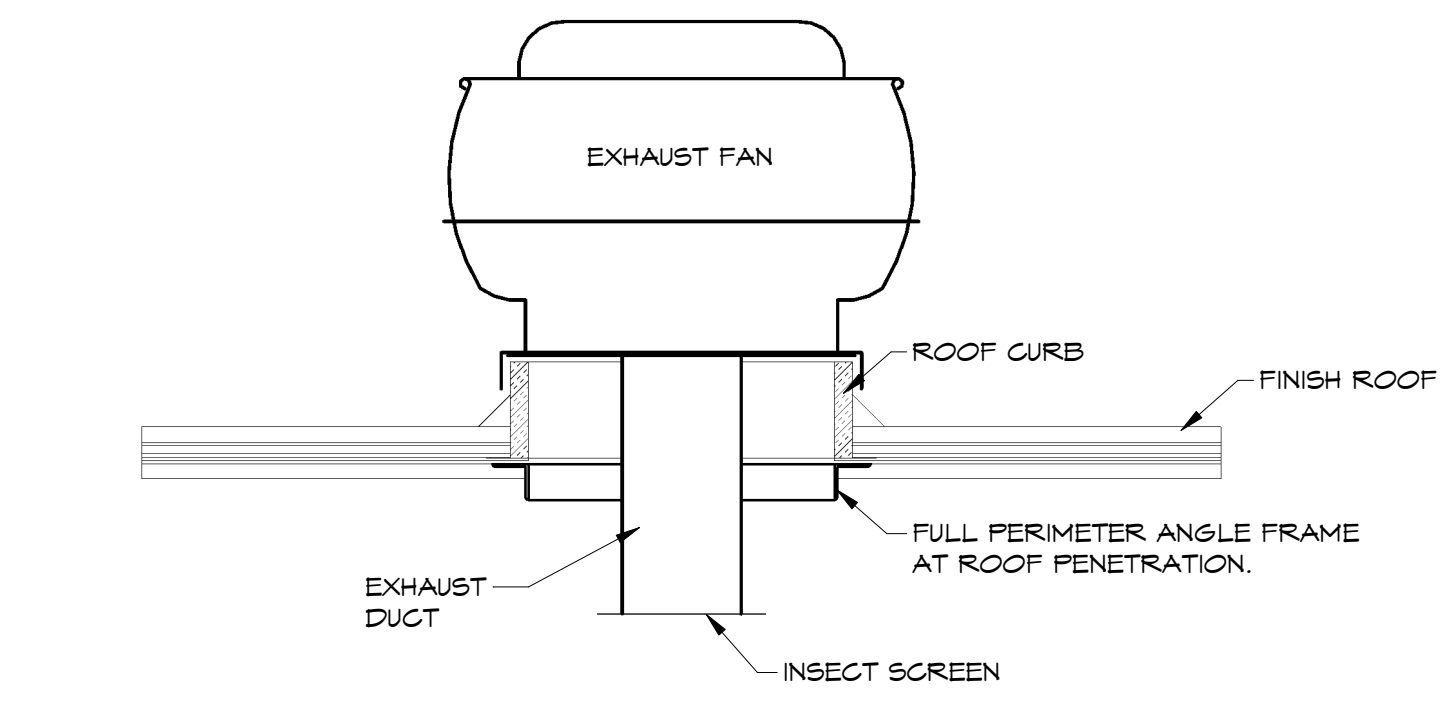
7 RADIANT HEATER DETAIL
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8 ROOF GAP DETAIL
NTS



9 EXHAUST FAN UPBLAST DETAIL
NTS



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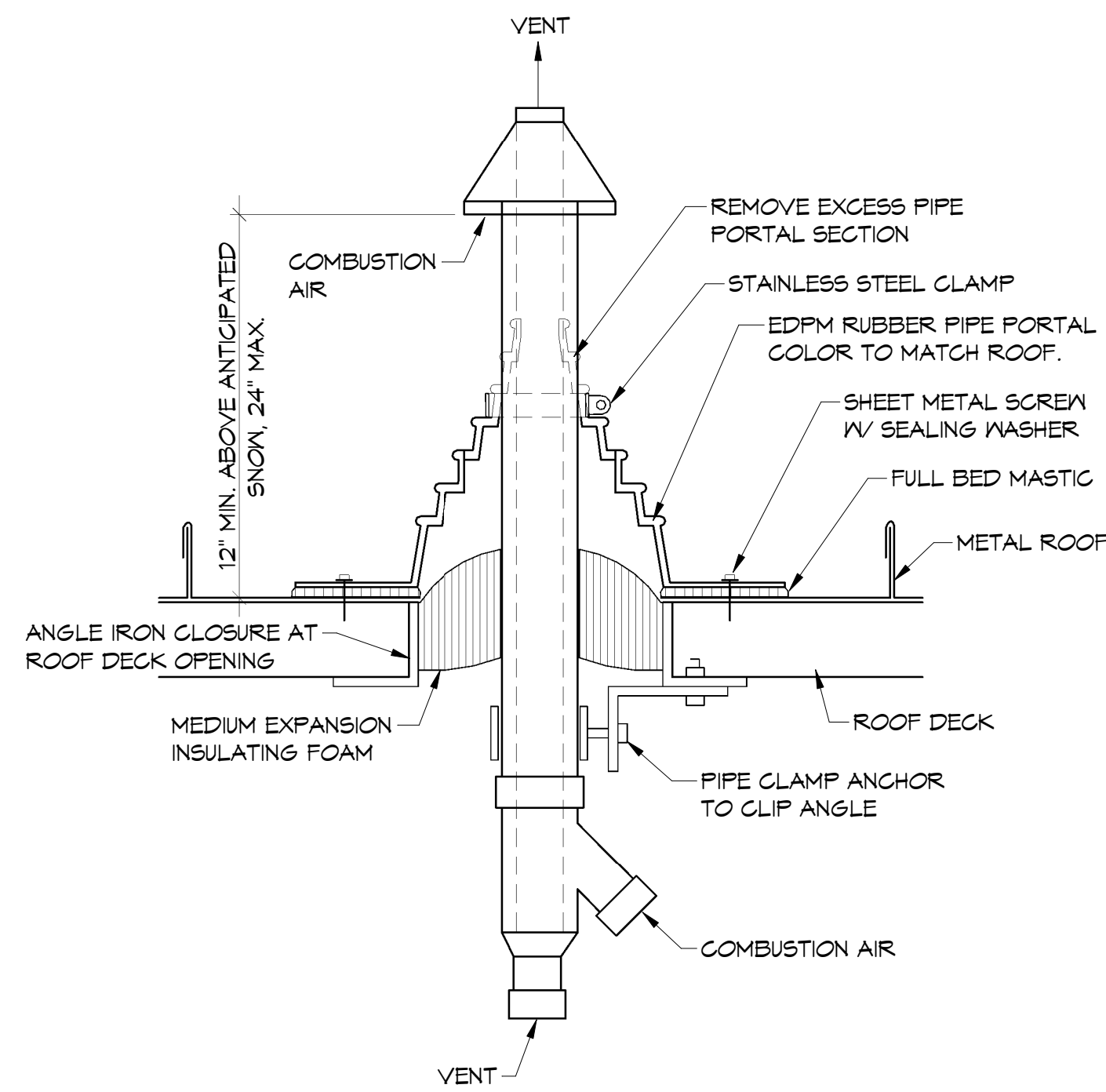
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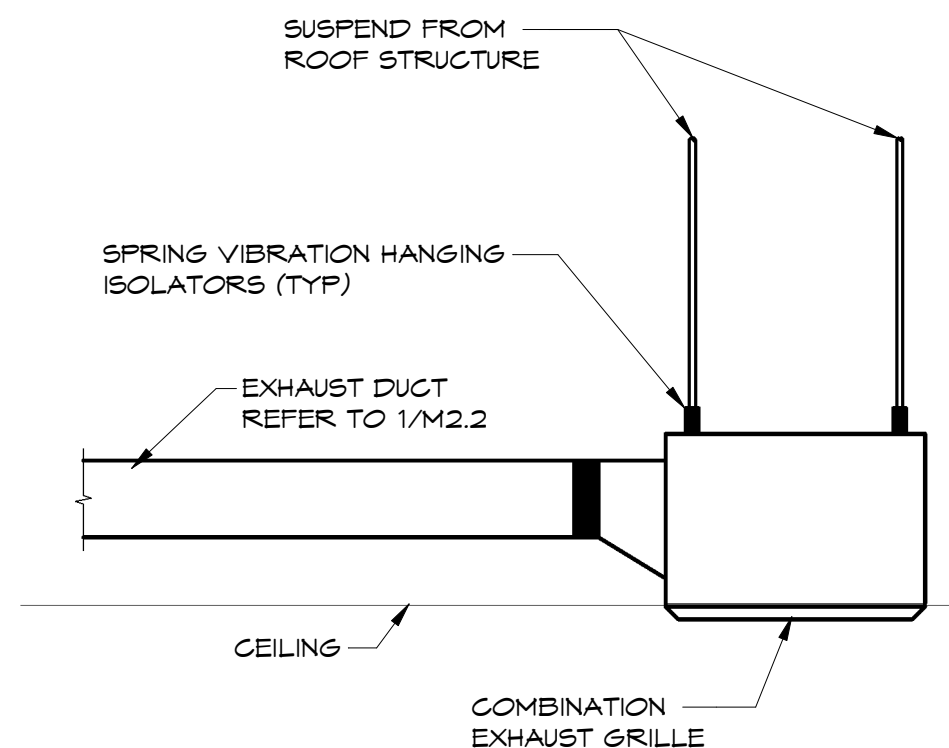
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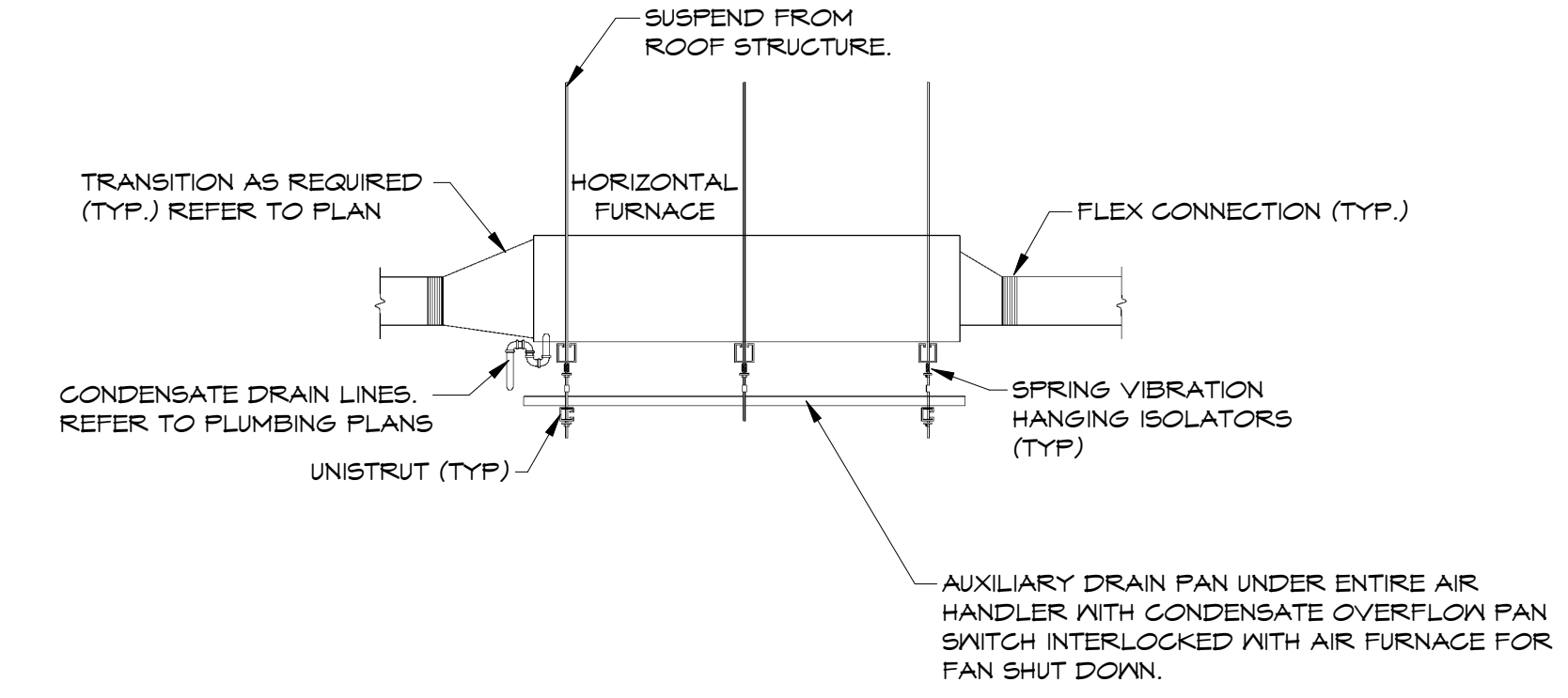
1 CONCENTRIC STANDING SEAM
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2 EXHAUST FAN DETAIL
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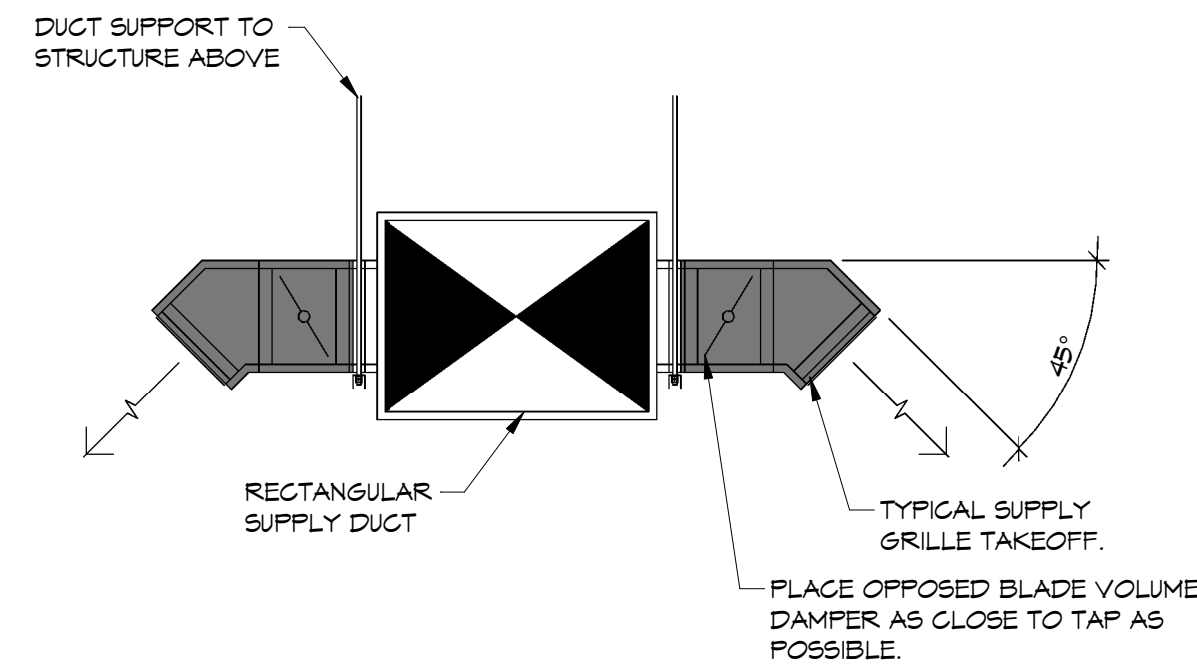


3 HORIZONTAL FURNACE DETAIL
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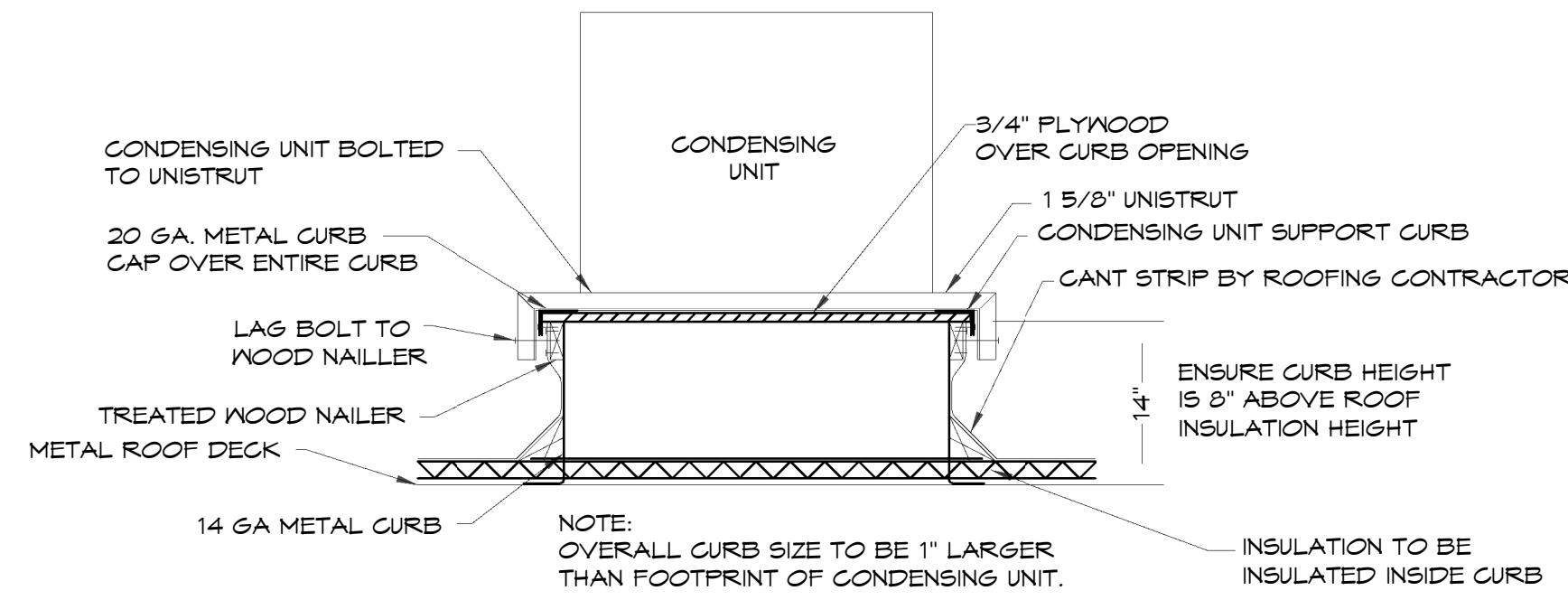


NOTE:
MECHANICAL CONTRACTOR SHALL INSTALL HORIZONTAL AIR FURNACE ON SUPPORT RODS WITH VIBRATION ISOLATOR PADS.

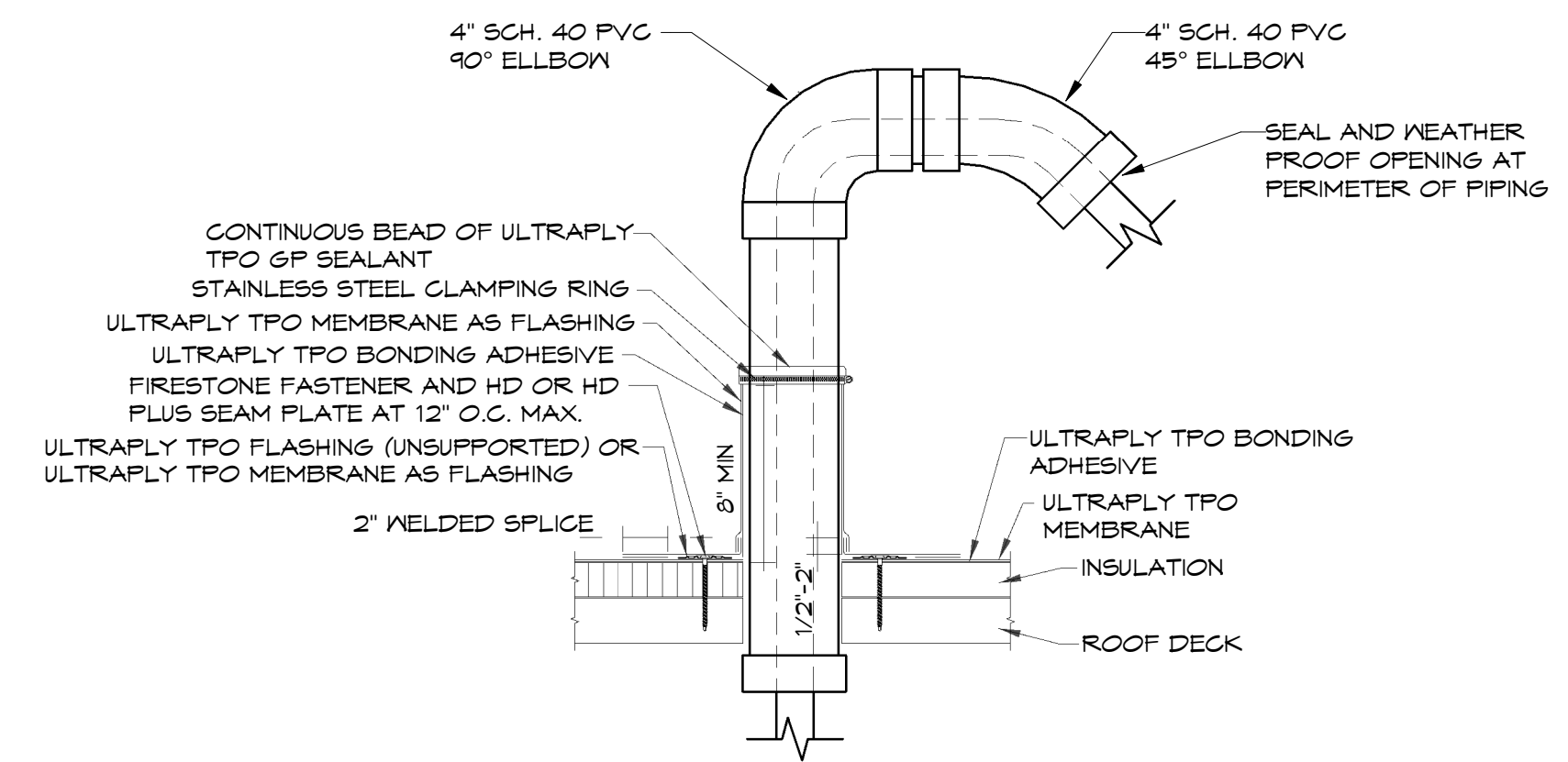
4 DUCT MOUNTED SUPPLY GRILLE DETAIL
NTS



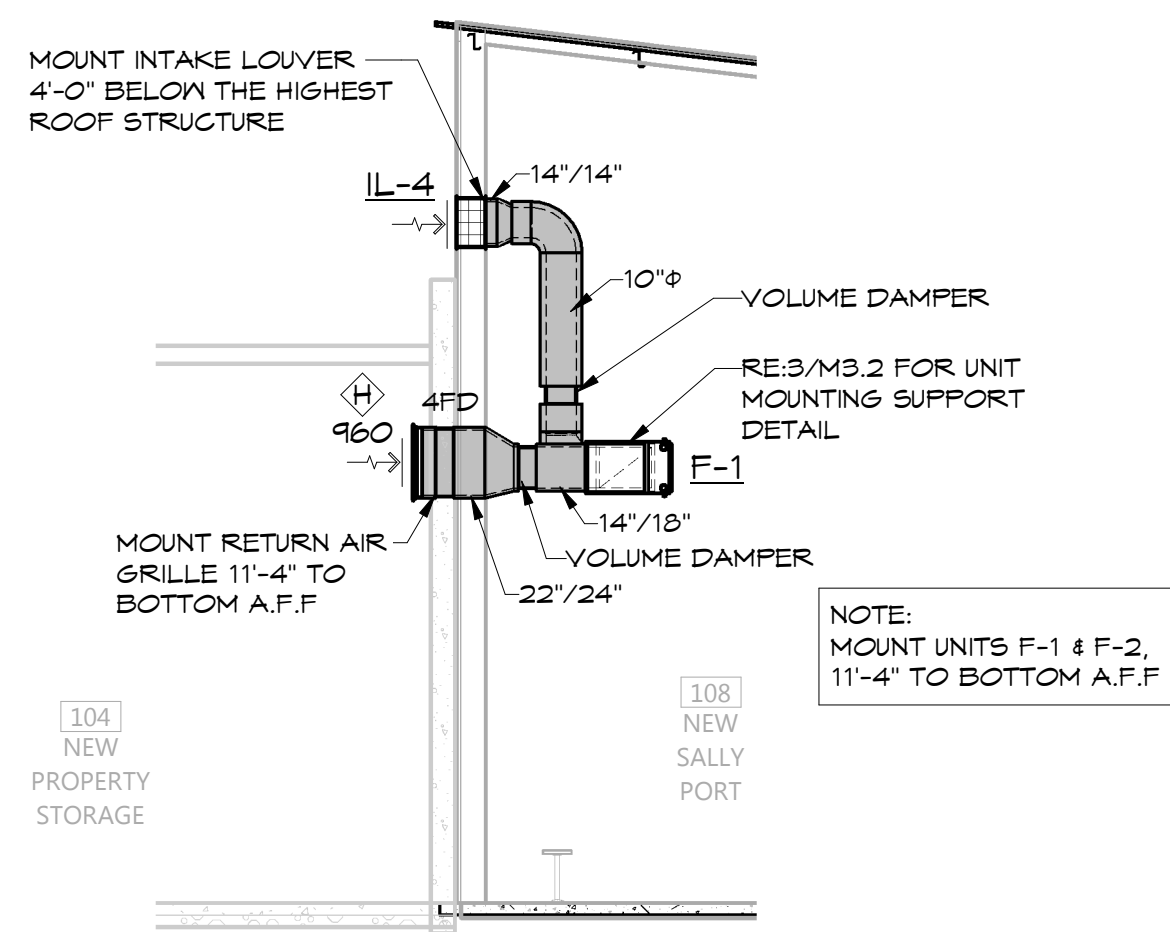
5 CONDENSING UNIT SUPPORT CURB DETAIL
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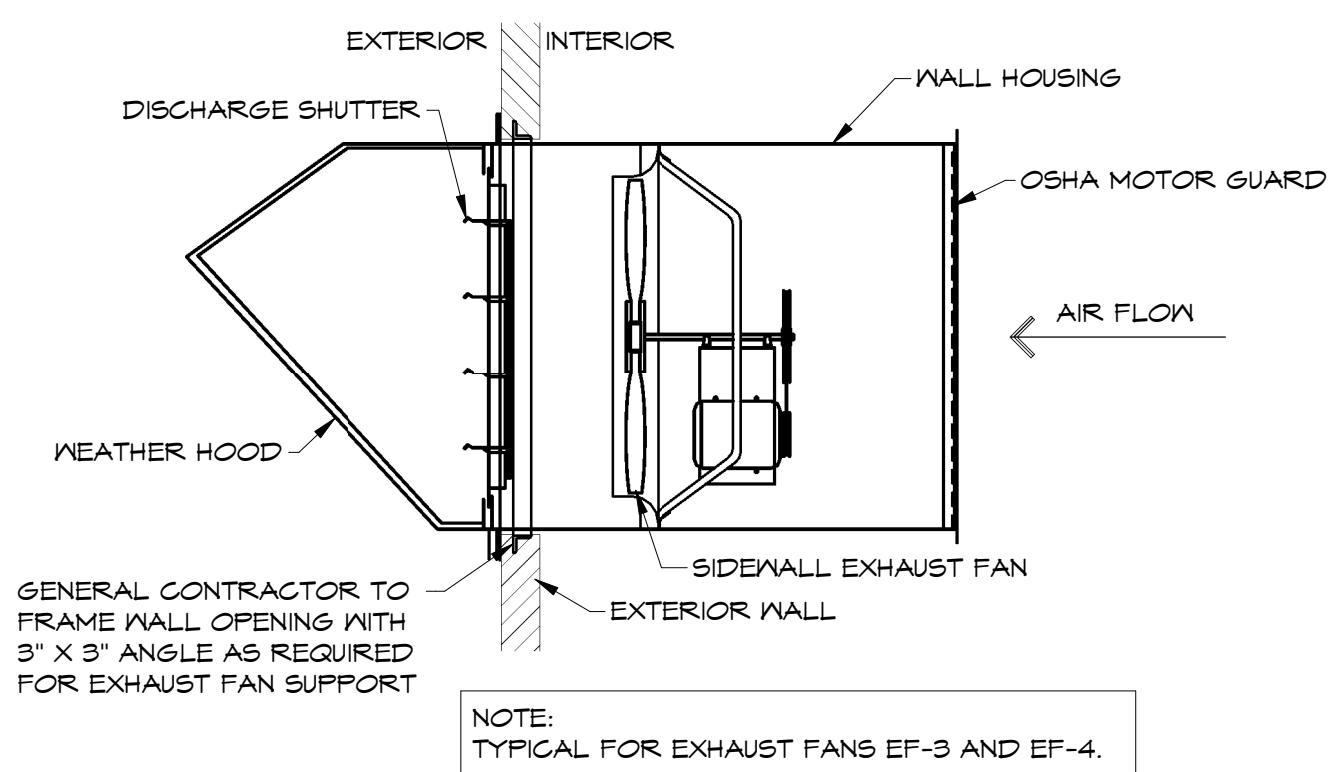
6 REFRIGERANT PIPING ROOF PENETRATION DETAIL
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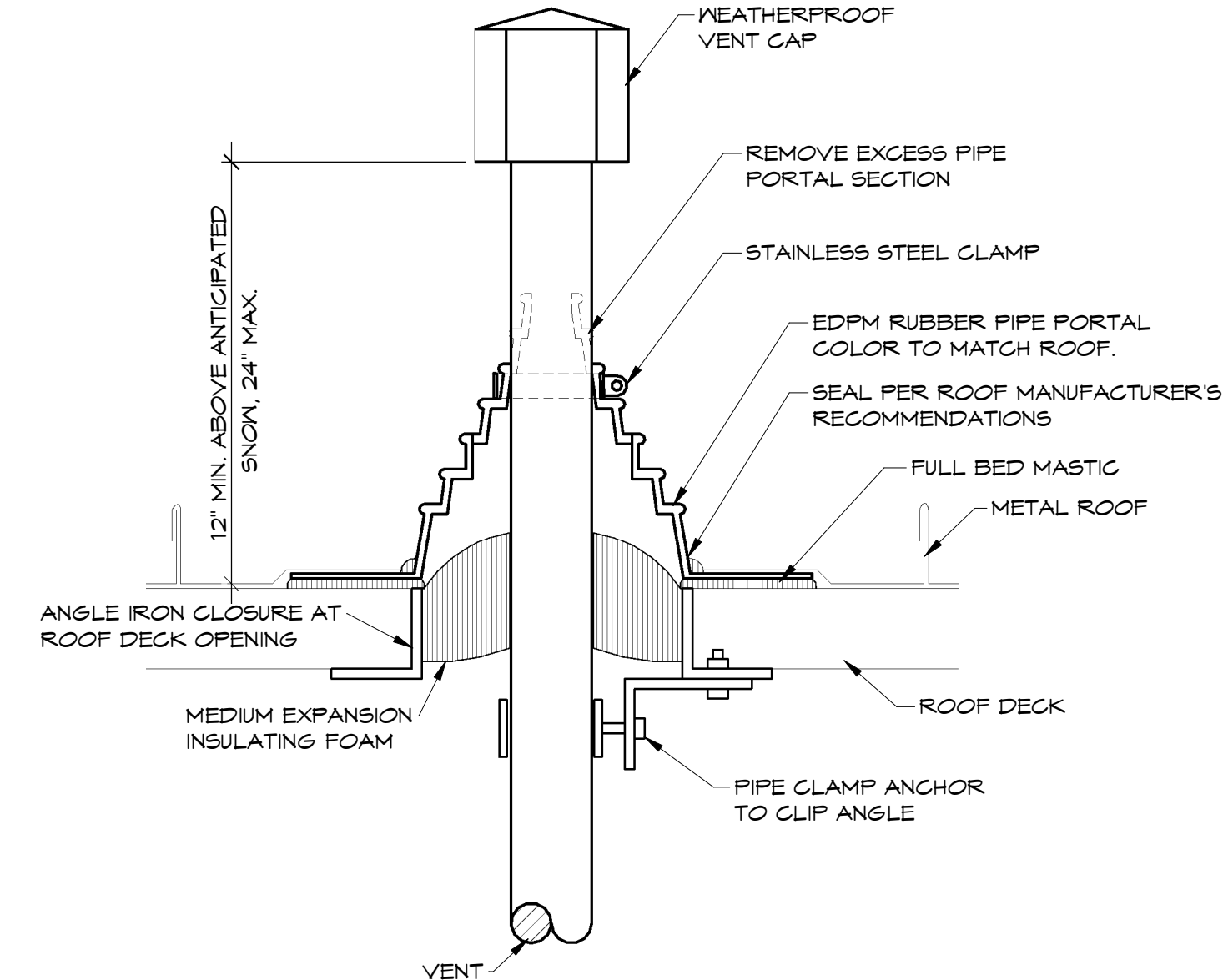
7 FURNACE UNIT SECTIONAL DETAIL
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8 WALL-MOUNTED EXHAUST FAN DETAIL
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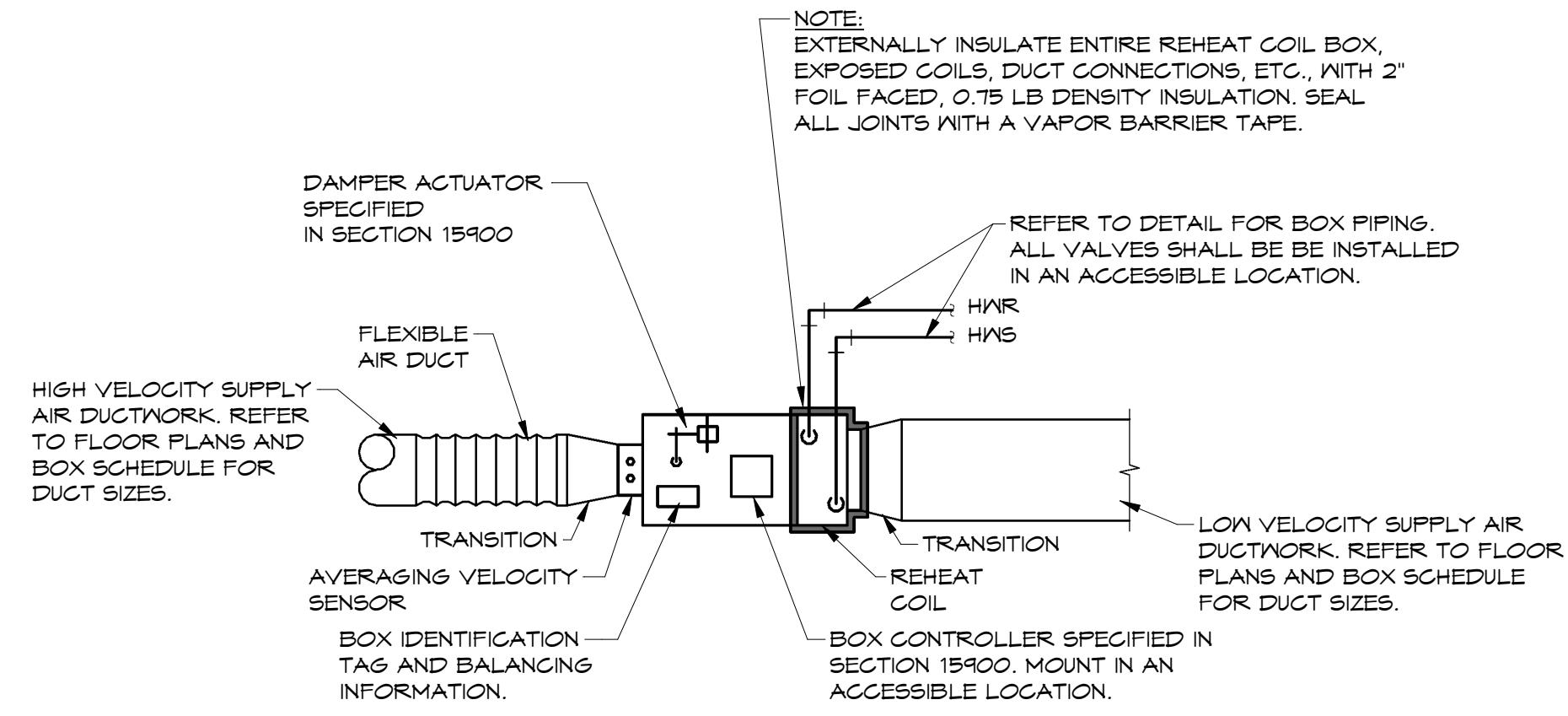


9 B VENT DETAIL
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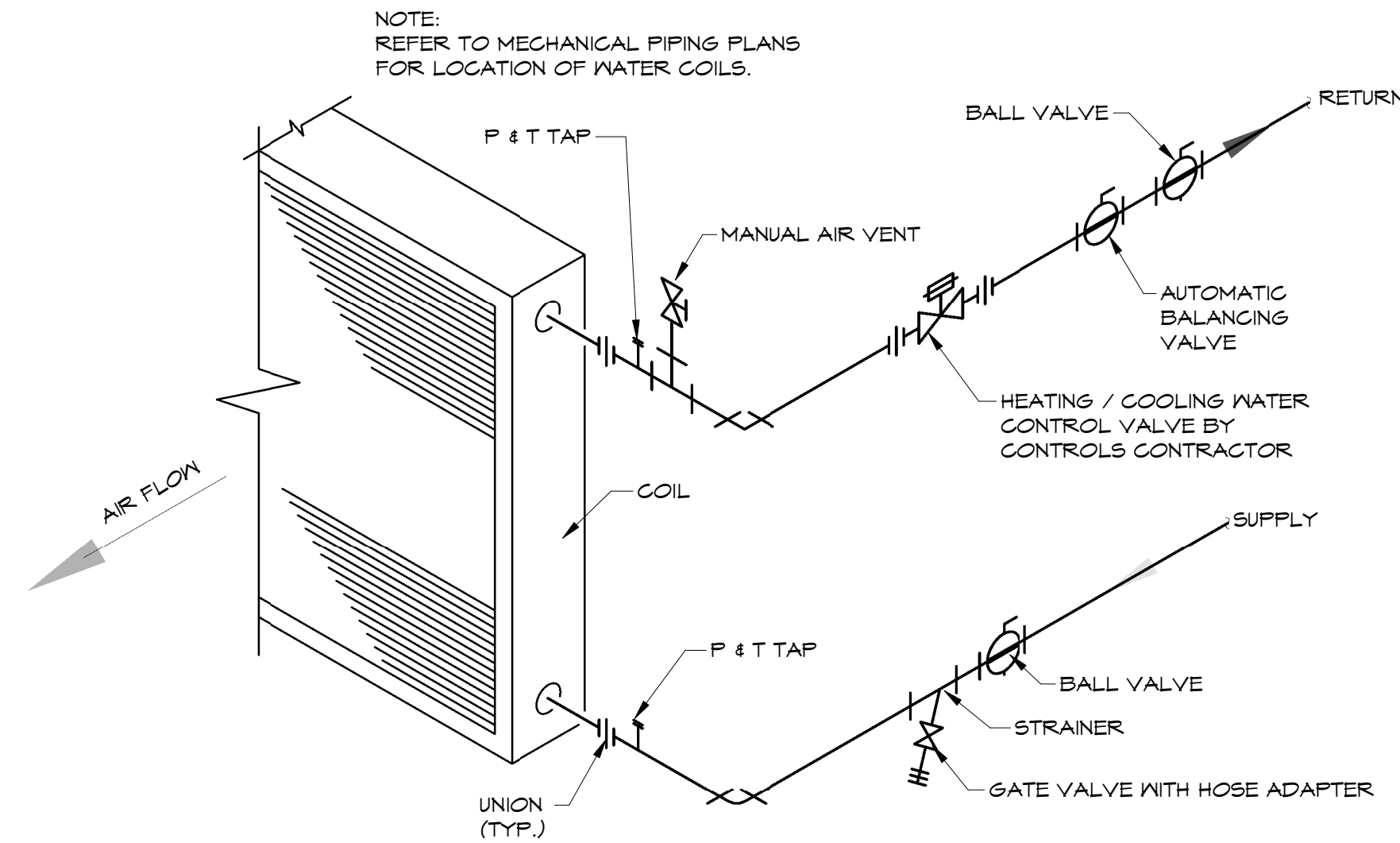


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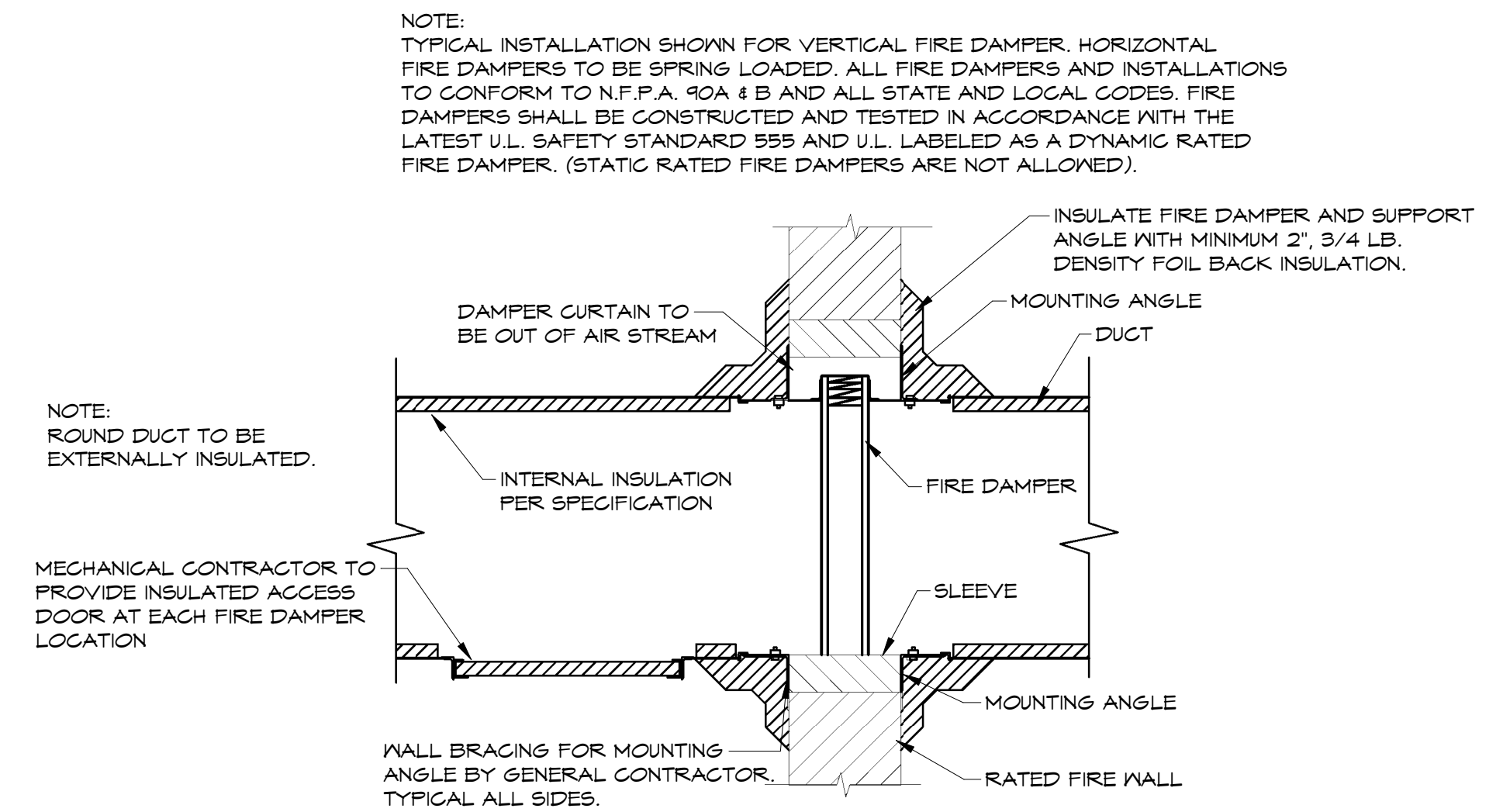
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1 REHEAT-BOX-HOT WATER DETAIL
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2 2 WAY COIL PIPING DETAIL
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3 INTERNALLY LINED FIRE DAMPER DETAIL
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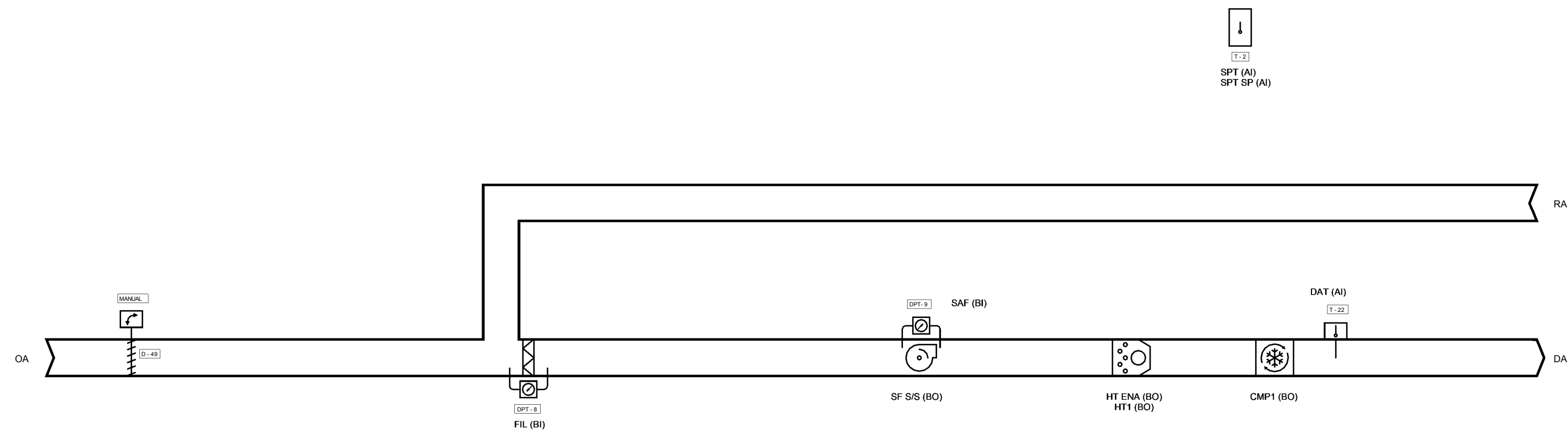
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M3.3

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Flow Diagram: AHU



Sequence of Operation: AHU

Building Automation System Interface:

The Building Automation System (BAS) shall send the controller Occupied Bypass, Morning Warm-up/Pre-Cool, Occupied/Unoccupied and Heat/Cool modes. If a BAS is not present, or communication is lost with the BAS the controller shall operate using default modes and setpoints.

Occupied:

During occupied periods, the supply fan shall run continuously.

The DX cooling and the gas heat shall control to maintain the active space temperature setpoint. If the discharge air temperature sensor and the space temperature sensor fail, the DX cooling shall be disabled, the gas heat shall be disabled, and an alarm shall annunciate at the BAS.

Unoccupied:

When the space temperature is below the unoccupied heating setpoint of 60.0 deg. F (adj.) the supply fan shall start, and the gas heat shall be enabled. When the space temperature rises above the unoccupied heating setpoint of 60.0 deg. F (adj.) plus the unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop and the gas heat shall be disabled.

When the space temperature is above the unoccupied cooling setpoint of 85.0 deg. F (adj.) the supply fan shall start, and the DX cooling shall be enabled. When the space temperature falls below the unoccupied cooling setpoint of 85.0 deg. F (adj.) minus the unoccupied differential of 4.0 deg. F (adj.) the supply fan shall stop, the DX cooling shall be disabled and the outside air damper shall remain closed.

Optimal Start:

The BAS shall monitor the scheduled occupied time, occupied space setpoints and space temperature to calculate when the optimal start occurs.

Optimal Stop:

The BAS shall monitor the scheduled unoccupied time, occupied setpoints and space temperature to calculate when the optimal stop occurs. When the optimal stop mode is active the unit controller shall maintain the space temperature to the space temperature offset setpoint.

Occupied Bypass:

The BAS shall monitor the status of the ON and CANCEL buttons of the space temperature sensor. When an occupied bypass request is received from a space sensor, the unit shall transition from its current occupancy mode to occupied bypass mode and the unit shall maintain the space temperature to the occupied setpoints (adj.).

Heat/Cool Mode:

When the space temperature rises above the occupied cooling setpoint the mode shall transition to cooling. When the space temperature falls below the occupied heating setpoint the mode shall transition to heating. When the space temperature is above the occupied cooling setpoint or below the occupied heating setpoint the mode shall remain in its last state. If the space temperature sensor fails the mode shall remain in its last state and an alarm shall annunciate at the BAS. If the local and communicated setpoints fail the controller shall disable the supply fan and an alarm shall annunciate at the BAS.

Supply Fan:

The supply fan shall be off in the unoccupied mode. The supply fan shall be on if the control is heating or cooling in the unoccupied mode. When the controller is in the occupied mode, the supply fan shall operate continuously.

Filter Status:

A differential pressure switch shall monitor the differential pressure across the Filter(s) when the fan is running. If the switch closes during normal operation a dirty filter alarm shall annunciate at the BAS.

Points List: AHU

System Point Description	POINTS							ALARMS						
	GRAPHIC	ANALOG HARDWARE INPUT (AI)	BINARY HARDWARE INPUT (BI)	ANALOG HARDWARE OUTPUT (AO)	BINARY HARDWARE OUTPUT (BO)	SOFTWARE POINT (SPT)	HARDWARE INTERLOCK (HDW)	WIRELESS (WLS)	NETWORK (NET)	HIGH ANALOG LIMIT	LOW ANALOG LIMIT	BINARY LATCH DIAGNOSTIC	SENSOR FAIL	COMMUNICATION FAIL
SUPPLY FAN START STOP SF S/S					X									
COMPRESSOR 1 COMMAND CMP1		X		X										
COOLING COIL LEAVING TEMPERATURE CC LAT		X	X						X	X			X	
DISCHARGE AIR TEMPERATURE DAT		X	X						X	X			X	
FINAL FILTER ALARM FIL ALM		X							X					
FILTER ALARM FIL ALM		X							X					
FILTER STATUS FIL		X	X									X		
HEAT ENABLE HT ENA		X		X										
HEAT OUTPUT 1 HT1		X		X										
OUTDOOR AIR DAMPER COMMAND OAD		X	X											
OUTDOOR AIR FILTER ALARM OA FIL ALM		X							X					
RELIEF AIR FAN SPEED OUTPUT COMMAND RLF		X		X										
RELIEF AIR FAN START STOP RLF		X		X										
RETURN AIR DAMPER COMMAND RAD		X		X										
RETURN AIR FILTER ALARM RA FIL ALM		X							X					
RETURN AIR TEMPERATURE LOCAL RAT		X	X											
RETURN FAN AIR FLOW LOCAL RAF FLW		X	X											
RETURN FAN HIGH STATIC ALARM INTERLOCK RAF HSP INTLK							X							
SPACE TEMPERATURE LOCAL SPT		X	X						X	X		X		
SPACE TEMPERATURE SETPOINT LOCAL SPT SP		X	X											
SUPPLY FAN AIR FLOW LOCAL SF FLW		X	X											
SUPPLY FAN START STOP COMMAND SAF		X		X										
SUPPLY FAN STATUS SAF		X	X											
BAS COMMUNICATION STATE BAS COM							X						X	
DISCHARGE AIR COOLING SETPOINT DA CL SP							X							
DISCHARGE AIR HEATING SETPOINT DA HT SP							X							
MAINTENANCE REQUIRED MNT REQ							X					X		
OCCUPIED COOLING SETPOINT OCC CLG STPT		X		X										
SUPPLY FAN FAILURE SF FAIL		X		X								X		
UNOCCUPIED COOLING SETPOINT UNOCC CLG STPT		X		X										

1 AHU CONTROL
NTS

NOTES:
REFER TO SHEET M1.1 FOR HVAC LEGEND, GENERAL AND KEYED NOTES. REFER TO SHEET M2.1 FOR HVAC PLANS. REFER TO SHEET M3.1 FOR DETAIL. REFER TO SHEET M5.1 FOR HVAC SCHEDULES.

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A REMODEL AND ADDITION FOR
BENTON CO. DETENTION CENTER
BENTONVILLE, AR

DRAWN BY:
DCN
CHECK BY:
NEW
ISSUE DATE:
06/10/2024

PROJECT NO:
2404

REVISION DATES

DATE DESCRIPTION

SHEET
M4.2

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ROOF TOP UNIT SCHEDULE																				
MARK	MFG	MODEL #	NOM. TONS	TMBH	SMBH	EER	CFM	ESP IN. WG	INPUT (MBH)	OUTPUT (MBH)	AFUE %	OUTSIDE AIR (CFM)	FAN MOTOR HP	M.C.A.	MOP	VOLT/PH/HZ	WEIGHTS			REMARKS/ ACCESSORIES
																	CURB (lbs)	UNIT (lbs)	TOTAL (lbs)	
RTU-1	TRANE	YHC036E4	3	33.4	21.9	12.7	1240	0.7	60	48	80	170	1	10 A	15	460 / 3 / 60	180	800	980	1, 2, 3, 4, 5, 6, 7, 8

REMARKS/ACCESSORIES

- FULLY MODULATION ECONOMIZER WITH BAROMETRIC RELIEF AND DUAL ENTHALPY CONTROL.
- PROVIDE FACTORY DISCONNECT AND SINGLE POINT POWER CONNECTION.
- FACTORY HOT GAS REHEAT.
- LOW AMBIENT KIT TO 0°F.
- FACTORY INSTALLED 2" FARR 30/30 FILTERS.
- PROVIDE FACTORY HAIL GUARDS.
- PROVIDE NON POWERED GFCI CONVENIENCE RECEPTACLE.
- PROVIDE WITH MINIMUM 14" TALL ROOF CURB. ADJUST CURB ORDERED HEIGHT AS REQUIRED TO PROVIDE 3" ABOVE FINISHED ROOF HEIGHT.

EXHAUST FAN SCHEDULE													
MARK	MFG.	MODEL	CFM	ESP. IN WC	MOTOR H.P	WATTS	INLET SONES	FAN RPM	ELECTRICAL			UNIT WEIGHT	REMARKS / ACCESSORIES
									VOLT	PH	HZ		
EF-1	GREENHECK	SP-B110	75	0.5	0.00	80	2.6	812	115	1	60	10 lb	1, 2, 3, 4, 5
EF-2	GREENHECK	SP-A390	250	0.5	0.00	135	4.3	1164	115	1	60	25 lb	1, 2, 4, 5, 12
EF-3	GREENHECK	SBE-3H30	4500	0.5	1.00	-	24	874	460	3	60	107 lb	1, 8, 9, 10
EF-4	GREENHECK	SBE-3H30	4500	0.5	1.00	-	24	874	460	3	60	107 lb	1, 8, 9, 10
EF-5	GREENHECK	G-099-A	850	0.5	0.25	-	10.8	1594	115	1	60	50 lb	1, 2, 6, 11
EF-6	GREENHECK	SP-A390	250	0.5	0.00	135	4.3	1164	115	1	60	25 lb	1, 2, 4, 5, 11

REMARKS/ACCESSORIES

- PROVIDE FACTORY BACK DRAFT DAMPER.
- PROVIDE DIRECT DRIVE MOTOR WITH FAN SPEED CONTROLLER.
- INTERLOCK EXHAUST FAN WITH LIGHT SWITCH BY ELECTRICAL CONTRACTOR.
- PROVIDE FACTORY CEILING HUNG VIBRATION ISOLATORS.
- PROVIDE STANDARD GRILLE CONSTRUCTION.
- PROVIDE FACTORY 14 INCH ROOF CURB.
- PROVIDE INDIVIDUAL SWITCH FOR EXHAUST FAN CONTROL.
- PROVIDE FACTORY BELT GUARD & MOTOR SHAFT COVER.
- PROVIDE BELT DRIVE MOTOR WITH AUTOMATIC BELT TENSIONER.
- PROVIDE WITH FACTORY DISCHARGE WEATHER HOOD, AND WALL SLEEVE, AND INLET GUARD.
- PROVIDE 1 HOUR TIMER SWITCH BY ELECTRICAL CONTRACTOR.
- PROVIDE WITH LINE VOLTAGE THERMOSTAT. INSTALLED BY ELECTRICAL CONTRACTOR.

LOUVER SCHEDULE								
MARK	CFM	NECK SIZE	MFG	MODEL	TYPE	FINISH	FRAME	ACCESSORIES
EL-1	150	16" X 16"	GREENHECK	ESD-635	EXHAUST LOUVER	BAKED ENAMEL	FLANGED	1, 3, 4, 5, 7
IL-1	3000	48" X 30"	GREENHECK	EACA-601	INTAKE LOUVER	BAKED ENAMEL	FLANGED	1, 2, 3, 4, 5, 6, 7
IL-2	3000	48" X 30"	GREENHECK	EACA-601	INTAKE LOUVER	BAKED ENAMEL	FLANGED	1, 2, 3, 4, 5, 6, 7
IL-3	3000	48" X 30"	GREENHECK	EACA-601	INTAKE LOUVER	BAKED ENAMEL	FLANGED	1, 2, 3, 4, 5, 6, 7
IL-4	240	16" X 16"	GREENHECK	ESD-635	INTAKE LOUVER	BAKED ENAMEL	FLANGED	1, 3, 4, 5, 7
IL-5	320	16" X 16"	GREENHECK	ESD-635	INTAKE LOUVER	BAKED ENAMEL	FLANGED	1, 3, 4, 5, 7

REMARKS/ACCESSORIES

- ALUMINUM CONSTRUCTION.
- PROVIDE 120 VOLT DAMPER ACTUATOR WITH SPRING RETURN, REQUIRED DAMPER LINSAGE AND END SWITCH.
- PROVIDE BIRD SCREEN.
- PROVIDE INTERGRAL FLANGE FRAME.
- PROVIDE LOUVER WITH LESS THAN 0.1" STATIC PRESSURE LOSS.
- PROVIDE COMBINATION LOUVER/DAMPER WITH VINYL EDGE AND JAMB SEALS.
- FINISH COLOR TO BE SELECTED BY ARCHITECT.

VAV SCHEDULE																
MARK	MFG	MODEL#	COOLING				HEATING WATER COIL							REMARKS/ ACCESSORIES		
			CFM	MIN CFM	INLET DIA. (IN.)	MAX A.P.D. (IN.)	CFM	ROWS	UNIT EAT °F	LAT °F	ENT °F	DELTA T °F	GPM		WPD (FT.)	MBH
V-1	TRANE	VGMF	1000	200	10	0.4	600	2	55	105	160	30	3	1.13	32.53	1, 2, 3, 4, 5, 6, 7, 8

REMARKS/ACCESSORIES

- MAX INLET VELOCITY = 2500 FT/MIN.
- BOX SHALL HAVE 1/2" FOIL FACE INTERNAL LINING.
- DDC ACTUATOR PROVIDED BY CONTROL CONTRACTOR AND FACTORY MOUNTED.
- PROVIDE FACTORY INSTALLED 120/24 VOLT TRANSFORMER.
- PROVIDE HORIZONTAL HANGING KIT.
- PROVIDE AIR FLOW MEASUREMENT DEVICE.
- PROVIDE FACTORY DISCONNECT AND POWER FUSE.
- HYDRONIC CONTROL VALVE PROVIDED BY CONTRACTOR.

AIR DISTRIBUTION SCHEDULE								
MARK	CFM	NECK SIZE	MFG.	MODEL	TYPE	FINISH	FRAME	REMARKS/ ACCESSORIES
A	50-100	6"Ø	TITUS	TMS	4-WAY SUPPLY	WHITE	LAY-IN	1
B	105-200	8"Ø	TITUS	TMS	4-WAY SUPPLY	WHITE	LAY-IN	1
C	225-300	10"Ø	TITUS	TMS	4-WAY SUPPLY	WHITE	LAY-IN	1
D	250	18" X 6"	TITUS	212RL	SUPPLY	WHITE	SURFACE	2, 3, 4, 6
E	200-1200	22" X 22"	TITUS	355RL	RETURN	WHITE	LAY-IN	1
F	250	16" X 8"	TITUS	355RL	SIDEWALL TRANSFER	WHITE	SURFACE	1, 6
G	200	12" X 6"	TITUS	212RL	SIDEWALL SUPPLY	WHITE	SURFACE	2, 3, 4, 6
H	460	26" X 24"	TITUS	355RL	SIDEWALL RETURN	WHITE	SURFACE	1, 5

REMARKS/ACCESSORIES

- STEEL CONSTRUCTION.
- ALUMINUM CONSTRUCTION.
- PROVIDE DOUBLE DIRECTIONAL BLADES.
- OPPOSED BLADE DAMPERS.
- NO SCREEN HOLES.
- PROVIDE WITH COUNTER-SUNK SCREEN HOLES.

INFRARED HEATER SCHEDULE							
MARK	MFG	MODEL	HEATING		ELECTRICAL		ACCESSORIES
			INPUT MBH	TYPE OF FUEL	MCA	VOLT/PH/HZ	
IH-1	RE-VERBERRY	HL3-40	75	GAS	0.6	120 / 1 / 60	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
IH-2	RE-VERBERRY	HL3-40	75	GAS	0.6	120 / 1 / 60	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

REMARKS/ACCESSORIES

- TOTAL 40 FT. REVERBERRY RADIANT PRODUCTS HEATER SECTION.
- PROVIDE TWO STAGE HEATERS.
- PROVIDE WITH PRE-PURGE AND POST-PURGE.
- ELECTRONIC CONTROLS TO BE OUT OF AIRSTREAM.
- DIRECT SPARK IGNITION.
- PROVIDE WITH STAINLESS STEEL FLEX GAS CONNECTORS, AND SHUT OFF.
- PROVIDE FACTORY 24V WALL MOUNTED THERMOSTAT.
- PROVIDE FACTORY HEAT TREATED ALUMINIZED COMBUSTION AND EMITTER TUBES.
- PROVIDE PARABOLIC ALUMINUM REFLECTORS WITH 99% EFFICIENCY.
- PROVIDE SHIELDING WHERE NECESSARY TO PROTECT ANY COMBUSTIBLES.
- INSTALL HEATER IN ACCORDANCE WITH MANUFACTURE CABLE HANGERS.

FURNACE SCHEDULE											
MARK	MFG.	MODEL	ESP IN. WG	CFM	HEATING			OUTSIDE AIR (CFM)	FAN MOTOR HP	VOLT/PH/HZ	REMARKS / ACCESSORIES
					INPUT (MBH)	OUTPUT (MBH)	FUEL TYPE				
F-1	TRANE	59X1B080U4PSBA	0.5	1200	80	77	GAS	240	0.75	115 / 1 / 60	1, 2, 3, 4, 5, 6, 7, 8, 10
F-2	TRANE	59X1B060U4PSB	0.5	1140	60	58	GAS	320	0.75	115 / 1 / 60	1, 2, 3, 4, 5, 6, 7, 8, 9, 10

REMARKS/ACCESSORIES

- 95% MIN. AFUE FURNACE.
- ELECTRONIC SPARK IGNITION.
- PROVIDE WITH FILTER HOUSING EQUAL TO MCDANIEL METAL "ACCOMODATOR" FILTER HOUSING. MUST ACCEPT UP TO 2 INCH FILTER.
- PROVIDE FACTORY VERTICAL CONCENTRIC VENT TERMINATION KITS REFER TO 1/M3.2 FOR DETAIL.
- 10 YEAR MIN. NON-PRORATED HEAT EXCHANGER.
- HORIZONTAL FURNACE.
- PROVIDE 2" FARR 30/30 FILTERS.
- PROVIDE 4TXGB004D53 MULTI-POSITION GASED "A" TYPE COIL WITH TXV REFRIGERANT CONTROL.
- PROVIDE 4TXGB006D53 MULTI-POSITION GASED "A" TYPE COIL WITH TXV REFRIGERANT CONTROL.
- THERMOSTAT BY CONTROL CONTRACTOR.

CONDENSER SCHEDULE									
MARK	MFG.	MODEL	TMBH	SMBH	MCA	MOP	VOLT/PH/HZ	UNIT WEIGHT	REMARKS / ACCESSORIES
CU-1	TRANE	4TTA4036A4	36	28	8	15	460 / 3 / 60	190	1, 2, 3, 4, 5, 6
CU-2	TRANE	4TTR4020N1	31	22	16	25	208 / 1 / 60	190	2, 3, 4, 5, 6, 7

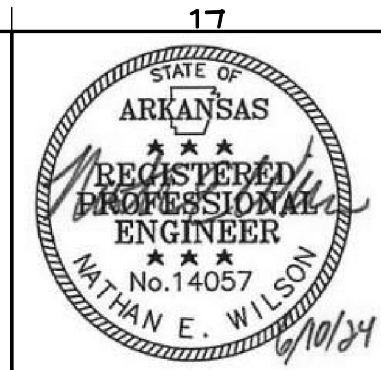
REMARKS/ACCESSORIES

- MINIMUM 16.0 SEER CONDENSER.
- MINIMUM 14.0 SEER CONDENSER.
- PROVIDE LOW AMBIENT TO 0°F CONTROL WITH TXV AND GRANK CASE HEATERS.
- PROVIDE LIQUID LINE FILTER DRYER.
- PROVIDE FACTORY HAIL GUARD.
- SIZE AND INSTALL REFRIGERANT LINES PER MANUFACTURERS RECOMMENDATIONS.
- INSULATE SUCTION REFRIGERANT PIPING WITH 3/4 INCH ARMAFLEX OR EQUAL.

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