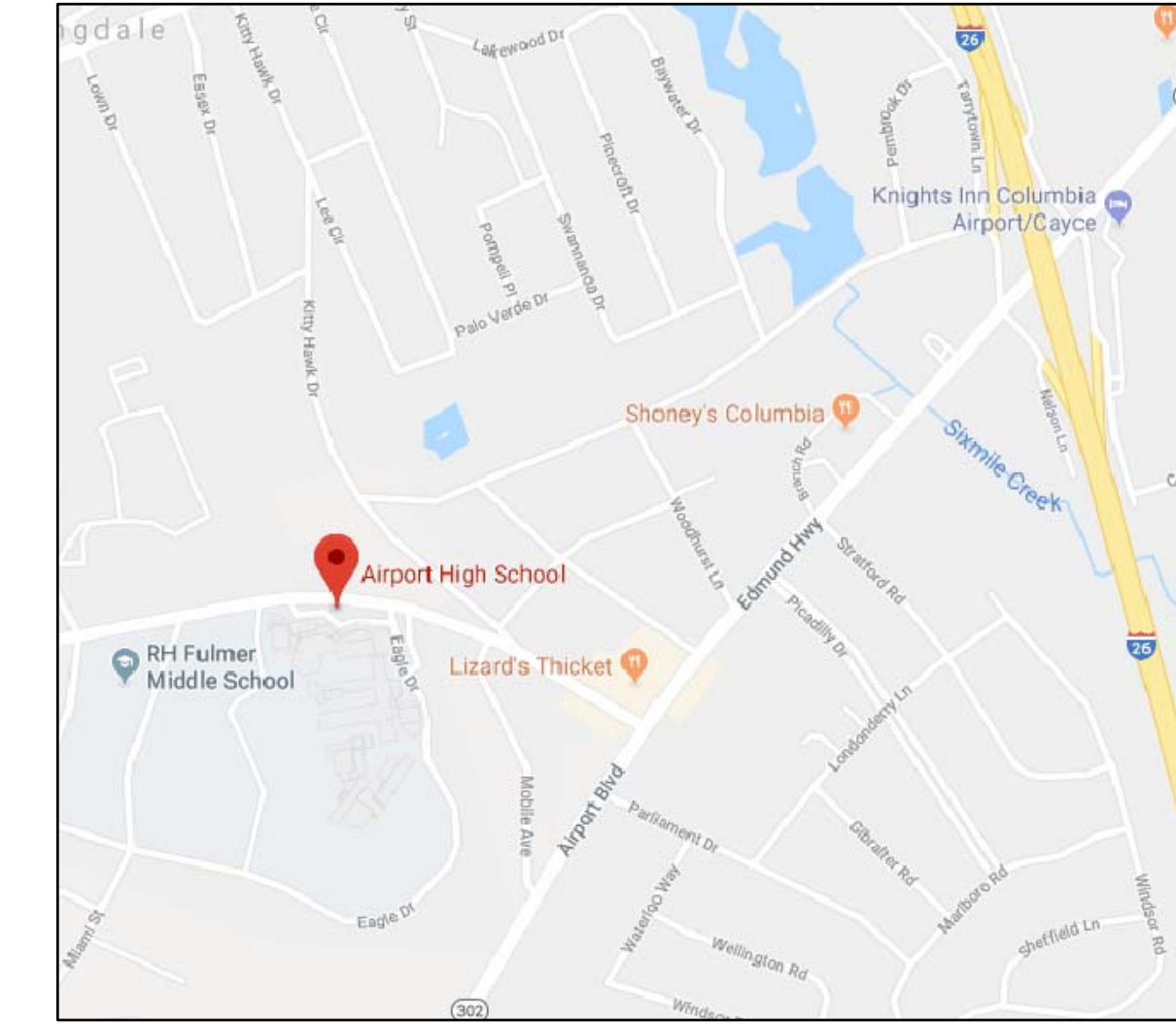


RH FULMER MIDDLE SCHOOL HVAC UNIT REPLACEMENT UPGRADE

1614 WALTERBORO STREET
WEST COLUMBIA, SOUTH CAROLINA 29170

LEXINGTON SCHOOL DISTRICT TWO

715 NINTH STREET
WEST COLUMBIA, SOUTH CAROLINA 29169



VICINITY MAP
NOT TO SCALE

MECHANICAL CODE INFORMATION		
GENERAL INFORMATION		
BUILDING LOCATION	WEST COLUMBIA, SOUTH CAROLINA	
CLIMATE ZONE	3	
OUTDOOR DESIGN CONDITIONS	SUMMER	91° F DB
		78° F WB
	WINTER	22° F DB
		-° F WB
INDOOR DESIGN CONDITIONS	SUMMER	74° F DB
		67° F WB
	WINTER	70° F DB
		-° F WB
OUTSIDE AIR = 10 CFM PER PERSON (SEE SCHEDULE)		
OCCUPIED MINIMUM OUTSIDE AIR: MINIMUM VENTILATION AIR REQUIREMENT IS PROVIDED IN ACCORDANCE WITH ASHRAE STANDARD 62.1-13. QUANTITY IS NOTED ON THE EQUIPMENT SCHEDULES.		
CO2 DEMAND MANAGEMENT: (YES WHERE APPLICABLE) DEMAND CONTROL VENTILATION IS PROVIDED WHERE APPLICABLE TO MINIMIZE ENERGY COSTS BY MONITORING CO2 LEVELS AND MODULATING THE OUTDOOR AIR DAMPER ACCORDINGLY TO MAINTAIN A MAXIMUM OF 1000PPM (ADJ).		
SUPERVISED CONTROL SYSTEM: YES		
MECHANICAL SYSTEMS, SERVICE SYSTEMS, & EQUIPMENT: REMOVE EXISTING FAILING PACKAGED ROOFTOP HEAT PUMPS AND CURB ADAPTERS. PROVIDE NEW PACKAGED ROOF MOUNTED HEAT PUMPS TO FIT EXISTING ROOF CURBS (TWO UNITS WILL REQUIRE NEW ROOF CURBS). UNITS SHALL BE FURNISHED WITH HOT GAS DEHUMIDIFICATION CONTROL AND CO2 BASED DEMAND VENTILATION.		

Codes of Record

INTERNATIONAL BUILDING CODE (IBC), 2015 EDITION
INTERNATIONAL MECHANICAL CODE (IMC), 2015 EDITION
NATIONAL ELECTRICAL CODE (NEC), 2014 EDITION
INTERNATIONAL ENERGY CONSERVATION CODE (IECC), 2009 EDITION

Classification of Work

ALTERATION - LEVEL 1 (HVAC)
LEVEL 1 ALTERATIONS INCLUDE THE REMOVAL AND REPLACEMENT OR THE COVERING OF EXISTING MATERIALS, ELEMENTS, EQUIPMENT, OR FIXTURES USING NEW MATERIALS, ELEMENTS, EQUIPMENT, OR FIXTURES THAT SERVE THE SAME PURPOSE.

OCCUPANCY

EDUCATIONAL
SEISMIC DESIGN CATEGORY
CATEGORY "C"

INDEX OF DRAWINGS	
M1	TITLE SHEET / SITE PLAN / DEMOLITION
M2	HVAC DEMOLITION PLAN
M3	HVAC RENOVATIONS
M4	HVAC NOTES, SYMBOLS, SCHEDULES AND DETAILS

TYPICAL DEMOLITION NOTES	
A.	ALL HVAC MATERIAL AND EQUIPMENT MADE OBSOLETE BY THE SCOPE OF THIS WORK SHALL BE REMOVED FROM THE WORK SPACE. EQUIPMENT AND MATERIAL OF VALUE (REFRIGERANT, CONTROL VALVES, CONTROL COMPONENTS, ETC.) SHALL BE TURNED OVER TO THE OWNER AND DELIVERED UNDAMAGED TO THE LOCATION ON SITE WHERE DIRECTED BY THE OWNER. ALL OTHER DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE.
B.	REMOVE EXISTING ROOFTOP HEAT PUMP UNITS AS NOTED COMPLETELY. PROVIDE NEW ROOFTOP HEAT PUMPS AS SCHEDULED AND AS DEFINED IN THE BASE BID AND ALTERNATE BID REQUIREMENTS. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL ADDITIONAL SUPPLEMENTARY SUPPORT STEEL REQUIRED FOR NEW INSTALLATION (SEE DETAIL).
C.	THE CONTRACTOR SHALL REMOVE AND RECOVER ALL REFRIGERANT FROM THE EXISTING AIR HANDLER PRIOR TO THE REMOVAL OF THE REFRIGERANT SYSTEM. THE REMOVAL OF REFRIGERANT SHALL MAXIMIZE RECOVERY AND RECYCLING OF OZONE DEPLETING SUBSTANCES (BOTH CHLOROFLOUROCARBONS (CFCs) AND HYDROCHLOROFLOUROCARBONS (HCFCs) AND THEIR BLENDS) DURING DISPOSAL OF ALL AIR CONDITIONING AND REFRIGERANT EQUIPMENT.

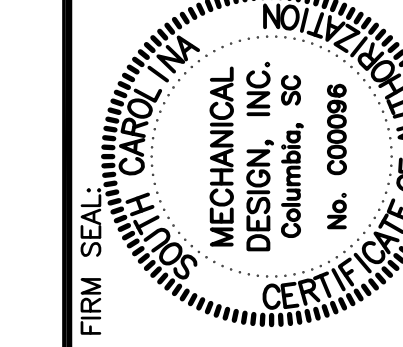
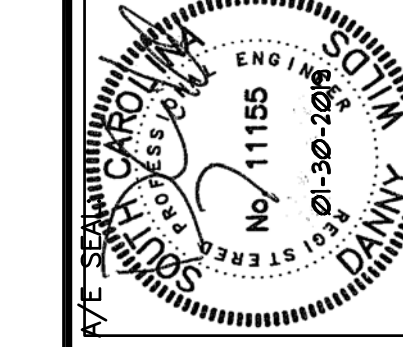
ELECTRICAL DEMOLITION NOTES	
E1	REMOVE EXISTING UNIT DISCONNECT AND CONDUIT COMPLETE TO ROOF LEVEL. EXISTING CONDUIT AND FEEDER FROM BREAKER PANEL TO BE RE-USED. SPLICE/EXTEND/REROUTE CIRCUIT AS REQUIRED TO CONNECT TO NEW UNIT.
E2	PROVIDE A NEW HEAVY DUTY, FUSED, DISCONNECT SWITCH AND CONDUIT TO NEW ROOFTOP UNIT (SEE DETAIL). FUSES IN NEW DISCONNECT SWITCH SHALL BE TIME DELAY TYPE FUSES, UL CLASS RK5. FUSES AND WIRE SIZING SHALL BE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S ELECTRICAL NAMEPLATE DATA.
E3	CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER IMMEDIATELY IF EXISTING WIRE SIZE AND/OR CIRCUIT BREAKER SIZE DO NOT MATCH MCA/MFS/MOCP OF NEW HVAC UNITS.

ISSUED FOR BID 01-30-2019

HVAC UNIT REPLACEMENT UPGRADE
RH FULMER MIDDLE SCHOOL
LEXINGTON SCHOOL DISTRICT TWO

Project:
SHEET NO.
M1

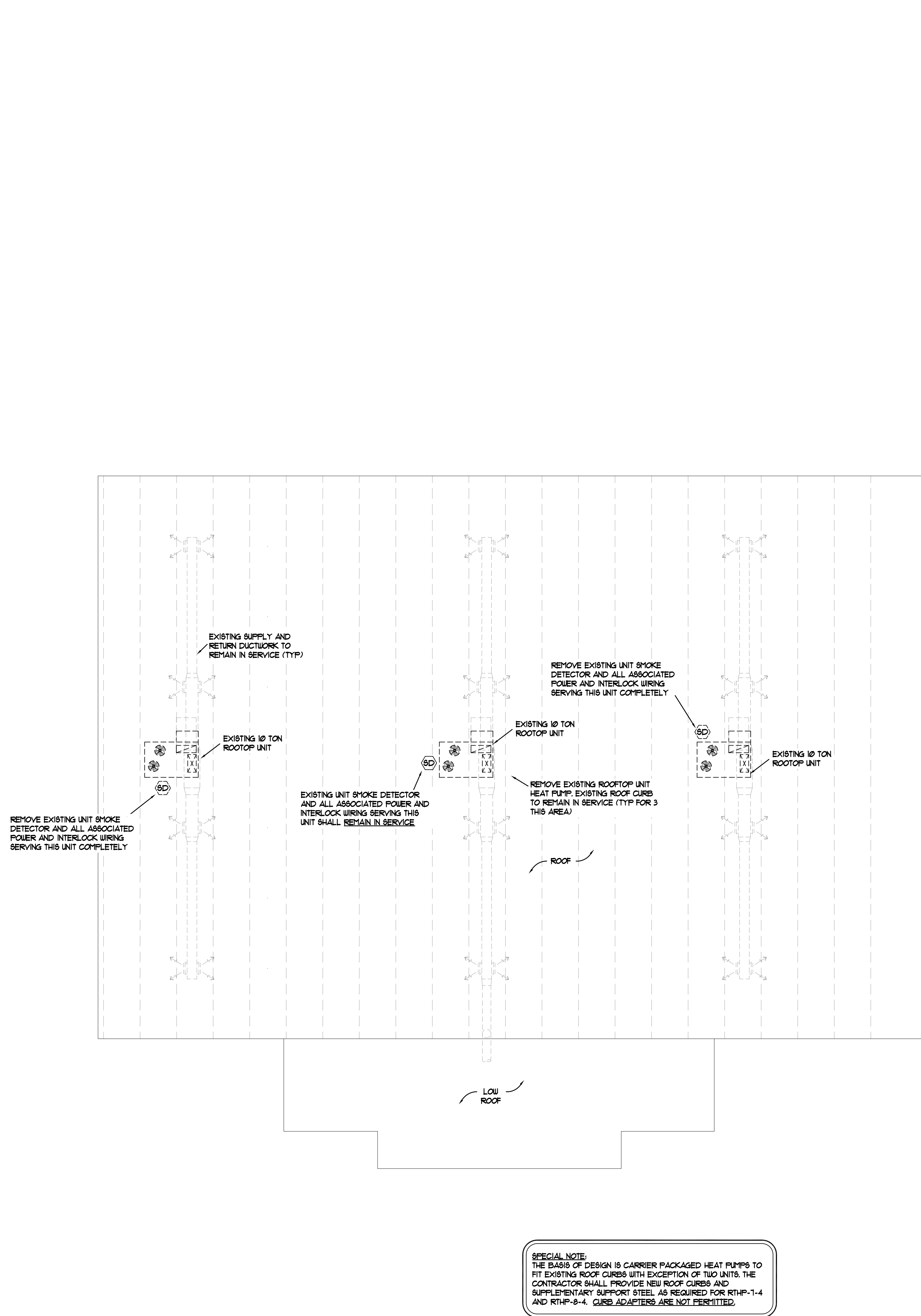
ISSUE NO.	REMARKS	BY	APPROV'D	DATE



MECHANICAL DESIGN INC.
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(803) 731-8887 FAX
CONTACT: M. BURGESS
COMM. NO. 183526

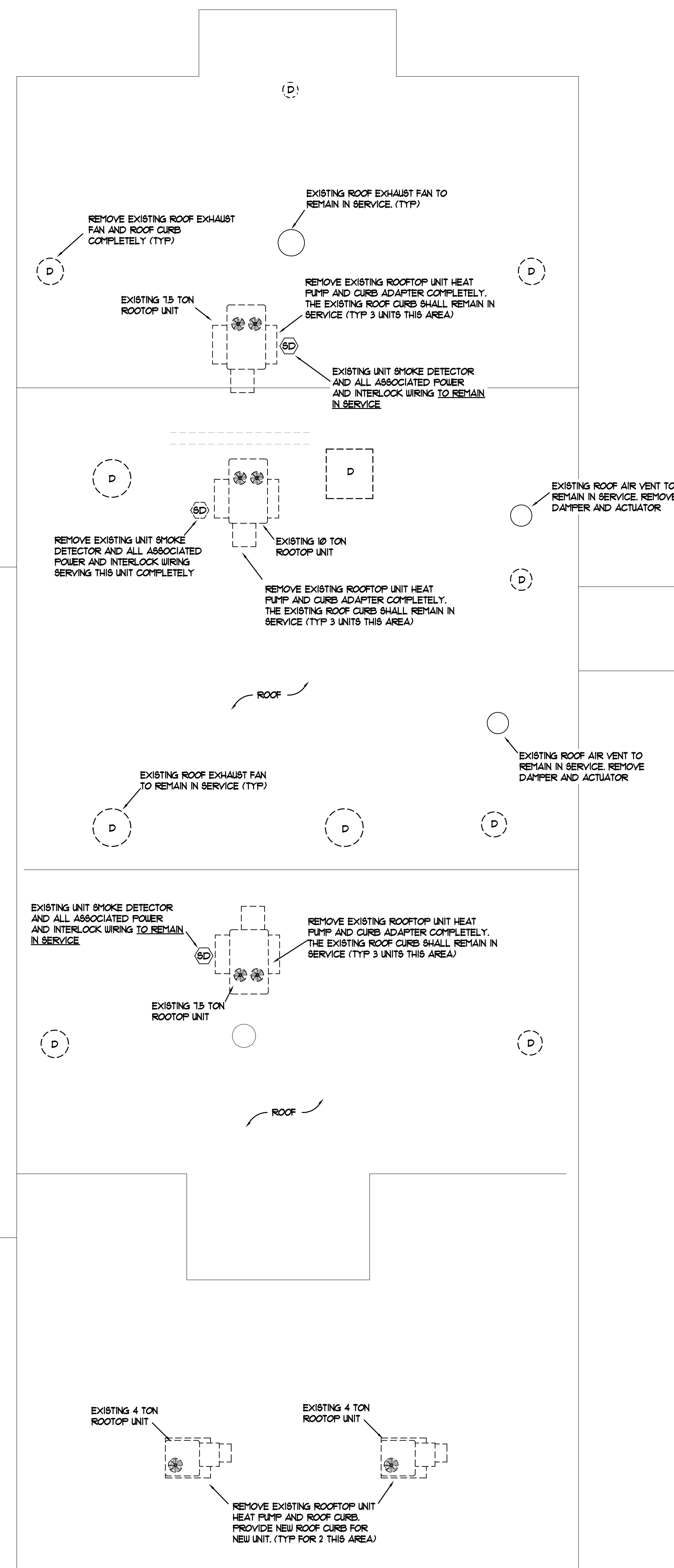
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SPECIAL NOTE:
 THE BASIS OF DESIGN IS CARRIER PACKAGED HEAT PUMPS TO FIT EXISTING ROOF CURBS WITH EXCEPTION OF TWO UNITS. THE CONTRACTOR SHALL PROVIDE NEW ROOF CURBS AND SUPPLEMENTARY SUPPORT STEEL AS REQUIRED FOR RTHP-1-4 AND RTHP-8-4. CURB ADAPTERS ARE NOT PERMITTED.

HVAC PARTIAL ROOF DEMOLITION PLAN
 SCALE: 1/16" = 1'-0"



HVAC DEMOLITION NOTES

GENERAL:

- IT IS NOT THE INTENT OF THESE DOCUMENTS TO INDICATE ALL HVAC ITEMS REQUIRED FOR DEMOLITION AND REMOVAL. IT IS THE INTENT TO IDENTIFY GENERAL DEMOLITION AND REMOVAL OF THE EXISTING HVAC SYSTEM AND ASSOCIATED SERVICES. REFER TO DEMOLITION PLANS AND COORDINATE ALL DEMOLITION AND REWORK REQUIRED INCLUDING SAUCUTTING, CUTTING, CORE DRILLING, REMOVAL OF EXISTING SLABS AND/OR EXISTING WALLS.
- ALL HVAC MATERIAL AND EQUIPMENT MADE OBSOLETE BY THE SCOPE OF THIS WORK SHALL BE REMOVED FROM THE SITE. EQUIPMENT AND MATERIAL OF VALUE (REFRIGERANT, CONTROL VALVES, CONTROL COMPONENTS, ETC) SHALL BE TURNED OVER TO THE OWNER AND DELIVERED UNHARMED TO THE LOCATION ON SITE WHERE DIRECTED BY THE OWNER. ALL OTHER DEMOLISHED ITEMS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED FROM THE SITE.
- THE CONTRACTOR SHALL REMOVE AND RECOVER ALL REFRIGERANT FROM THE EXISTING A/C UNITS PRIOR TO THE REMOVAL OF THE EQUIPMENT. REFRIGERANT RECLAMATION SHALL BE IN ACCORDANCE WITH CURRENT EPA GUIDELINES AND SHALL BE PERFORMED BY QUALIFIED SERVICE TECHNICIANS. THE REMOVAL OF REFRIGERANT SHALL MAXIMIZE RECOVERY AND RECYCLING OF OZONE DEPLETING SUBSTANCES (BOTH CHLOROFLUOROCARBONS (CFCs) AND HYDROCHLOROFLUOROCARBONS (HCFCs) AND THEIR BLENDS) DURING DISPOSAL OF ALL AIR CONDITIONING AND REFRIGERANT EQUIPMENT.

SPECIAL NOTE

THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THAT NO MORE THAN 100 SQ. FT. OF EXISTING SUSPENDED CEILING BE DISTURBED IN ANY ONE AREA DURING THE REMOVAL OF THE EXISTING COMPONENTS OR THE INSTALLATION OF NEW HVAC UNITS AND DUCTWORK. FAILURE TO COMPLY WITH THIS REQUIREMENT WILL RESULT IN A COMPLETE REPLACEMENT OF THE CEILING AND GRID. ANY COSTS ASSOCIATED WITH A FAILURE TO COMPLY WITH THIS REQUIREMENT WHETHER INTENTIONAL OR ACCIDENTAL SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR (TYPICAL).

ELECTRICAL DEMOLITION NOTES

- REMOVE EXISTING UNIT DISCONNECT AND CONDUIT COMPLETE TO ROOF LEVEL. EXISTING CONDUIT AND FEEDER FROM BREAKER PANEL TO BE RE-USED. SPLICE/EXTEND/REROUTE CIRCUIT AS REQUIRED TO CONNECT TO NEW UNIT.
- PROVIDE A NEW HEAVY DUTY, FUSED, DISCONNECT SWITCH AND CONDUIT TO NEW ROOFTOP UNIT (SEE DETAIL). FUSES IN NEW DISCONNECT SWITCH SHALL BE THE DELAY TYPE FUSES, UL CLASS RK5, FUSES AND WIRE SIZING SHALL BE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S ELECTRICAL NAMEPLATE DATA.
- CONTRACTOR SHALL NOTIFY OWNER AND ENGINEER IMMEDIATELY IF EXISTING WIRE SIZE AND/OR CIRCUIT BREAKER SIZE DO NOT MATCH MCA/MS/MOCP OF NEW HVAC UNITS.

ISSUED FOR BID 01-30-2019

HVAC UNIT REPLACEMENT UPGRADE
RH FULMER MIDDLE SCHOOL
LEXINGTON SCHOOL DISTRICT TWO

ISSUE NO.	REMARKS:	BY	APPROV'D	DATE:

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 (803) 731-8884
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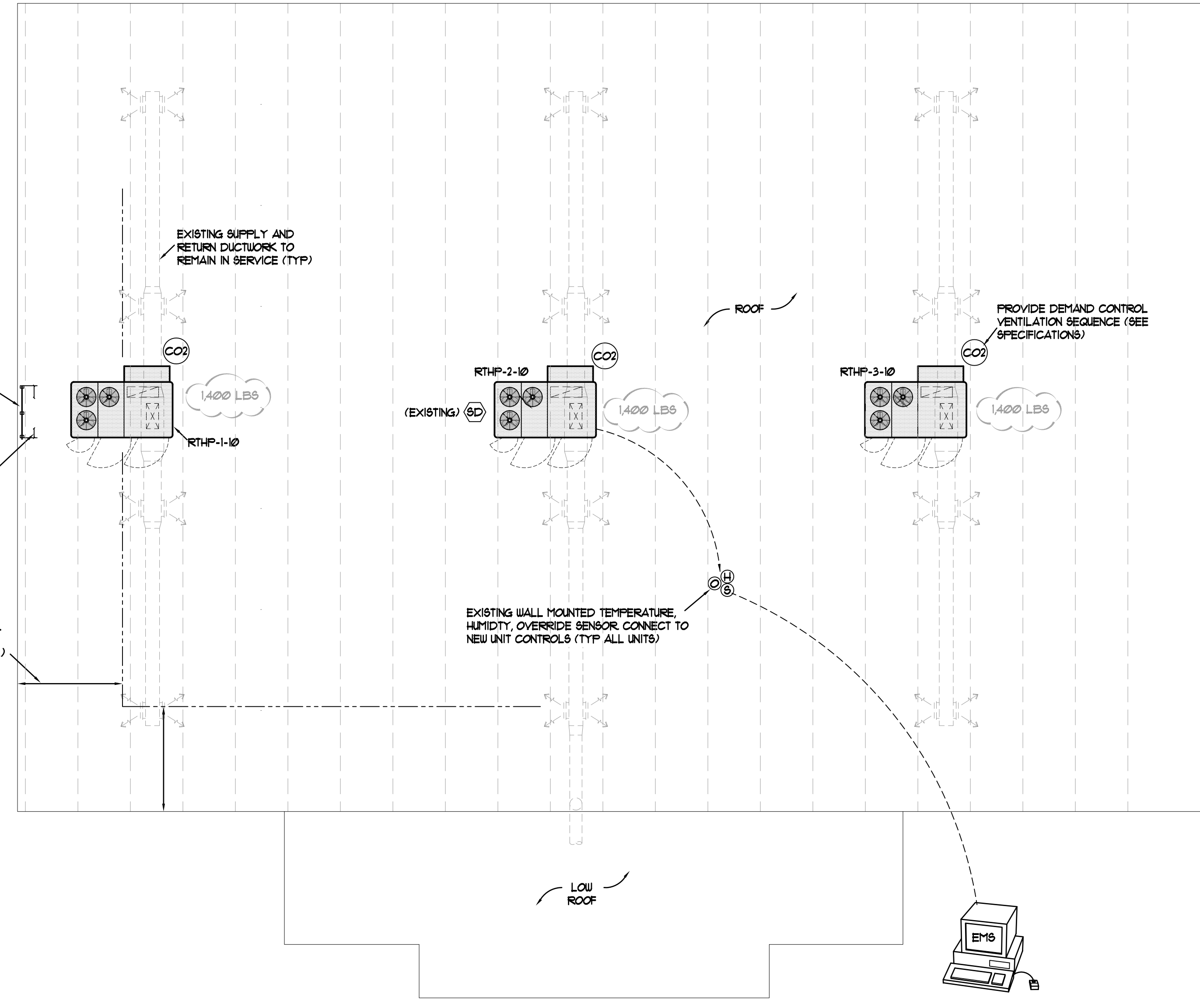
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SPECIAL NOTE:
 PROVIDE SAFETY GUARD RAIL AT ANY UNIT WITH LESS THAN 10'-0" FROM ROOF PARAPET TO UNIT SERVICE ACCESS REQUIREMENTS AS DEFINED BY THE UNIT MANUFACTURER.

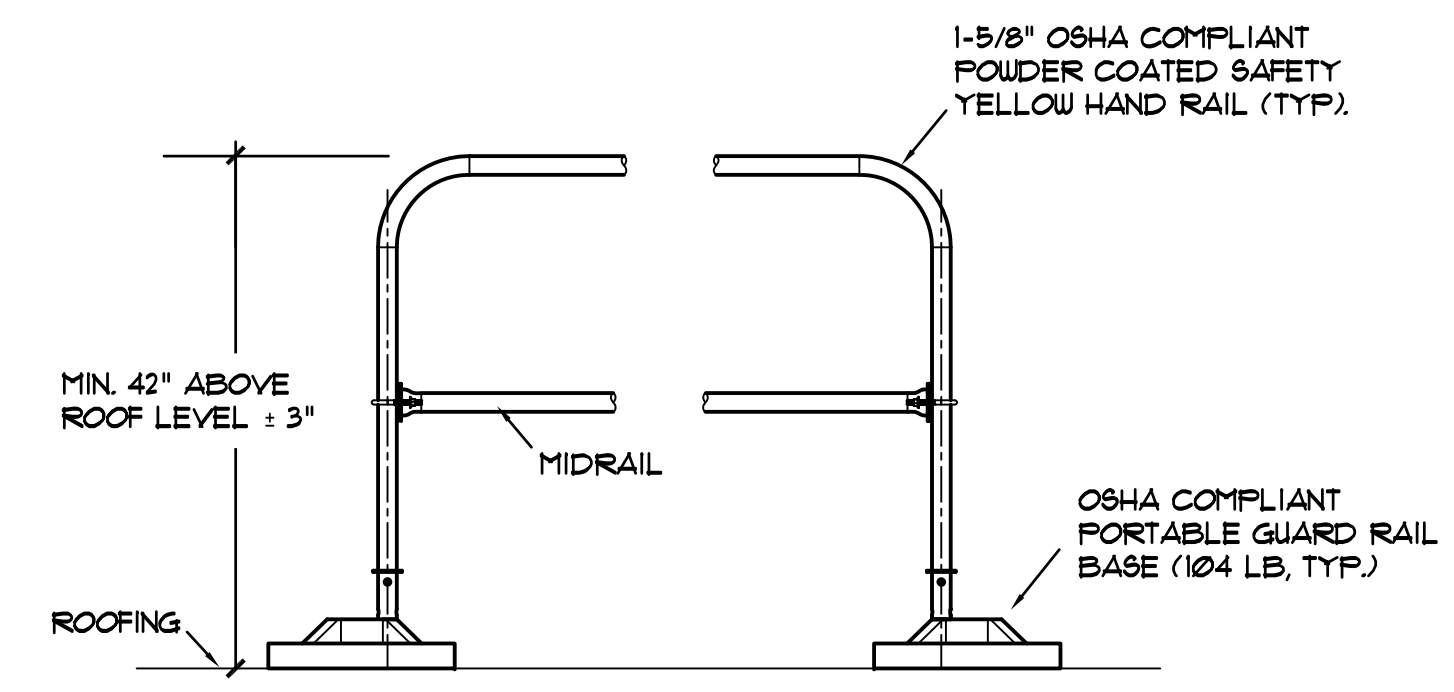
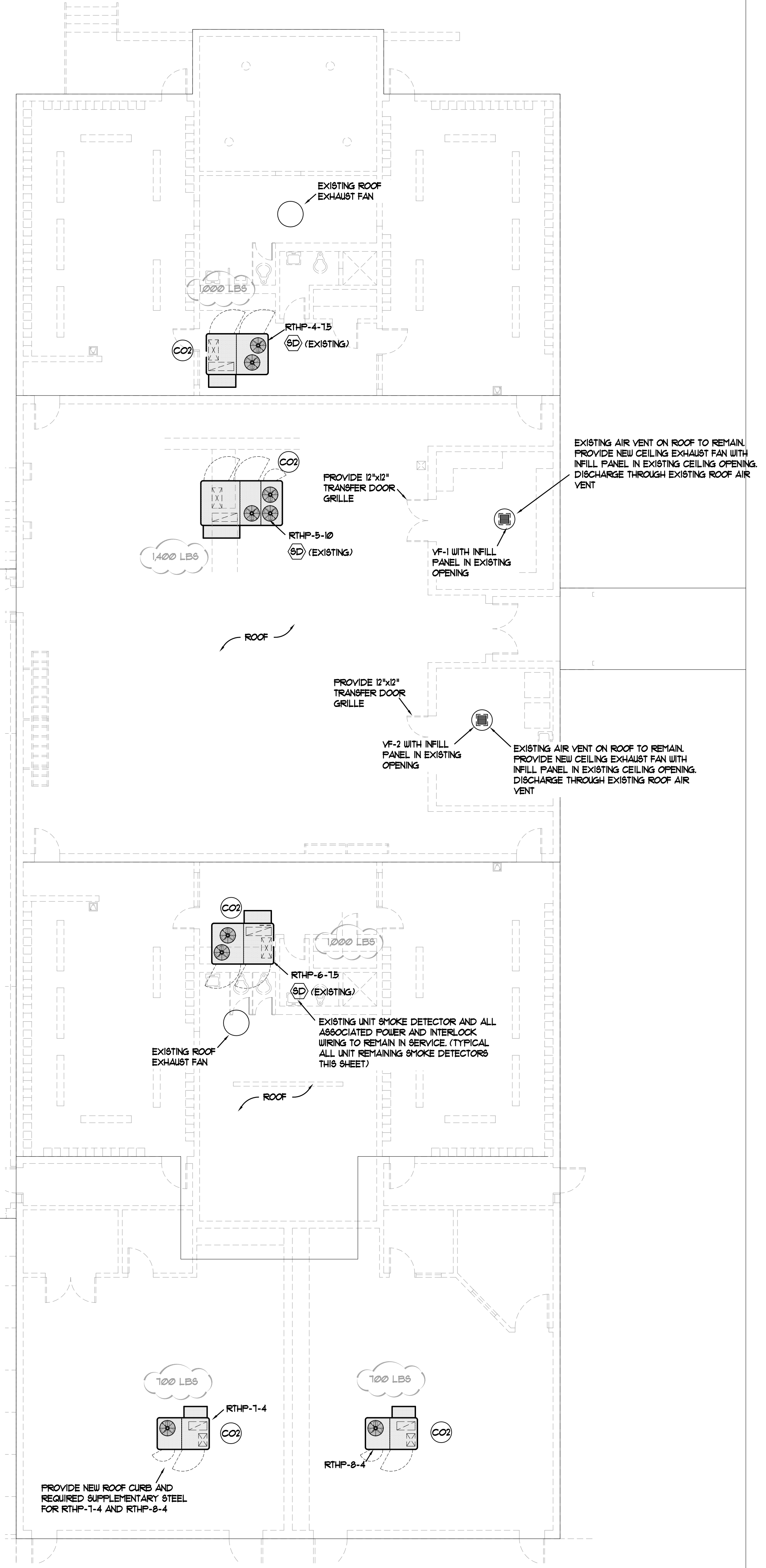
SAFETY GUARD RAIL (SEE DETAIL)
 MIN. 3'-0" BEYOND FURTHEST EDGE OF EQUIPMENT (TYPICAL)

EQUIPMENT AND FANS SHALL NOT BE LOCATED WITHIN 10'-0" OF PARAPET (TYPICAL)



SPECIAL NOTE:
 THE BASIS OF DESIGN IS CARRIER PACKAGED HEAT PUMPS TO FIT EXISTING ROOF CURBS WITH EXCEPTION OF TWO UNITS. THE CONTRACTOR SHALL PROVIDE NEW ROOF CURBS AND SUPPLEMENTARY SUPPORT STEEL AS REQUIRED FOR RTHP-1-4 AND RTHP-8-4. CURB ADAPTERS ARE NOT PERMITTED.

HVAC PARTIAL ROOF RENOVATION PLAN
 SCALE: 1/16" = 1'-0"

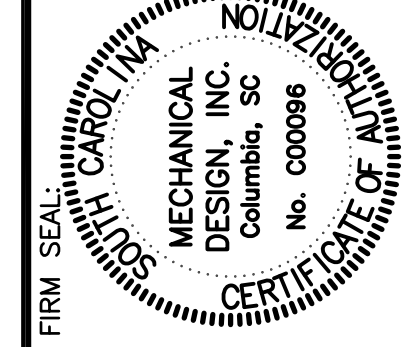
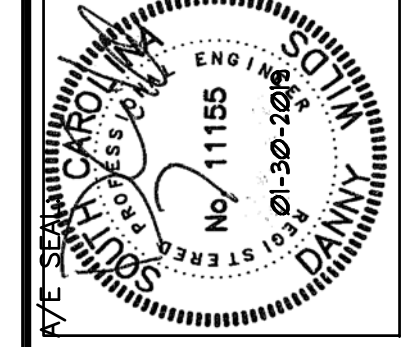


SPECIAL NOTE:
 PROVIDE SAFETY GUARD RAIL AT ANY UNIT WITH LESS THAN 10'-0" FROM ROOF PARAPET TO UNIT SERVICE ACCESS REQUIREMENTS AS DEFINED BY THE UNIT MANUFACTURER.

SAFETY GUARD RAIL DETAIL
 NOT TO SCALE

ISSUED FOR BID 01-30-2019

HVAC UNIT REPLACEMENT UPGRADE
RH FULMER MIDDLE SCHOOL
LEXINGTON SCHOOL DISTRICT TWO



MECHANICAL DESIGN INC.
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ISSUE NO.	REMARKS	BY	APPROV'D	DATE

PACKAGED HEAT PUMP SCHEDULE ③

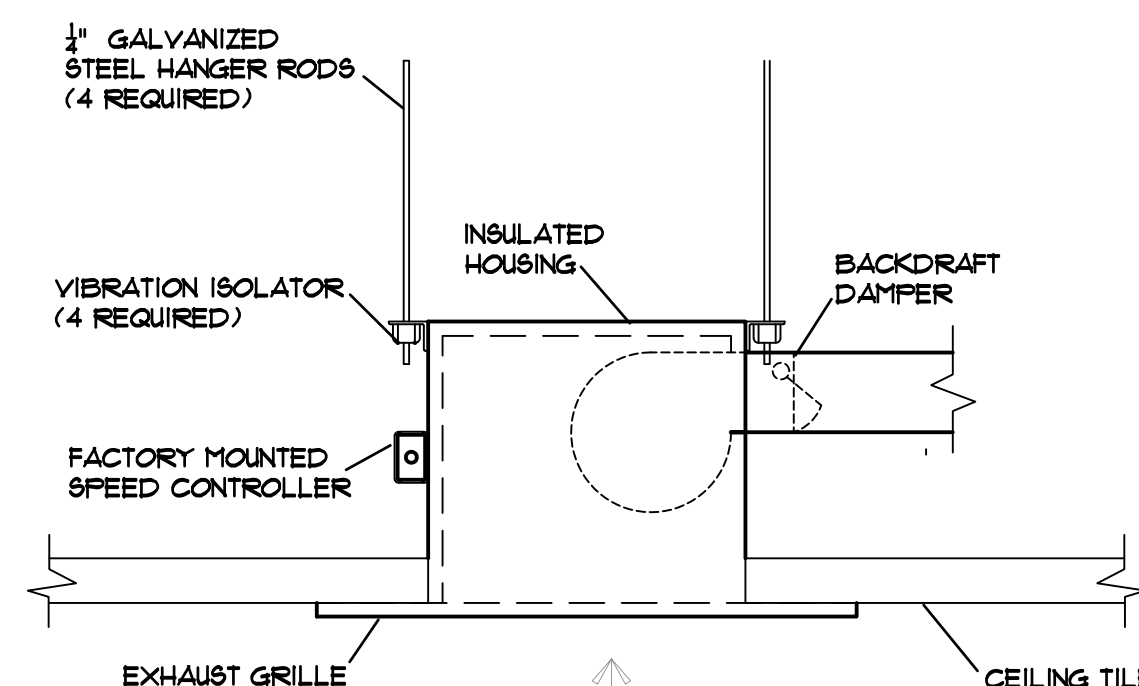
MARK	CARRIER MODEL ①	MAX OP WEIGHT LBS (NO CURB)	VOLT/ PHASE	INDOOR FAN			④ COOLING MBH			SEER / EER	HEATING MBH @41° FDB	COP / HSPFF 2-STAGE (NET)	AUXILIARY HEATER KW	O.A. CFM	EXISTING UNIT (CIRCA 2004)			
				CFM	SP" IN	HP	TOTAL	SENSIBLE	ENT AIR						MFR	MODEL	OP WEIGHT (LBS) ⑤	UNIT AMPS @ 208/3
RTHP-1-10	50TCQD12	1,400 LBS	②	4,000	0.35"	2	118.2	88.1	80/6.1	/ 10	115.9	3.3/	24	400	YORK	BF120	1,667	152.4
RTHP-2-10	50TCQD12	1,400 LBS	②	4,000	0.35"	2	118.2	88.1	80/6.1	/ 10	115.9	3.3/	24	400	YORK	BF120	1,667	152.4
RTHP-3-10	50TCQD12	1,400 LBS	②	4,000	0.35"	2	118.2	88.1	80/6.1	/ 10	115.9	3.3/	24	400	YORK	BF120	1,667	152.4
RTHP-4-1.5	50TCQD08	1,100 LBS	②	3,000	0.35"	1.5	90.5	69.2	80/6.1	/ 10	85.0	3.3/	18.6	400	YORK	BF090	1,558	138.5
RTHP-5-10	50TCQD12	1,400 LBS	②	4,000	0.35"	2	118.2	88.1	80/6.1	/ 10	115.9	3.3/	24	400	YORK	BF120	1,667	152.4
RTHP-6-1.5	50TCQD08	1,100 LBS	②	3,000	0.35"	1.5	90.5	69.2	80/6.1	/ 10	85.0	3.3/	18.6	400	YORK	BF090	1,558	138.5
RTHP-7-4	50KCAQ05	750 LBS	②	1,600	0.35"	3/4	49.4	36.8	80/6.1	12 /	49.9	2.1 /	12	225	YORK	BIH4048	909	60.8
RTHP-8-4	50KCAQ05	750 LBS	②	1,600	0.35"	3/4	49.4	36.8	80/6.1	12 /	49.9	2.1 /	12	225	YORK	BIH4048	909	60.8

- ① OR EQUAL BY TRANE
- ② VOLTAGE SHALL MATCH AVAILABLE VOLTAGE AT THE SITE. (SEE ELECTRICAL DRAWINGS)
- ③ FURNISH WITH ONE PIECE SLOPED WELDED ALUMINUM ROOF CURB (WHERE NOTED), 2" FILTER RACK, HAIL GUARD, STAINLESS STEEL DRAIN PAN, HINGED ACCESS PANELS, HARD WIRED SAFETY CONTROLS, CO2 SENSOR AND CONTROL, INTEGRAL DISCONNECT, INTERFACE FOR FULL EMS CONTROL, POWERED CONVENIENCE OUTLET, TIME GUARD, LOW AMBIENT CONTROL, MODULATING HOT GAS RE-HEAT, 100% ECONOMIZER (UNITS 5 TONS AND LARGER) WITH DIFFERENTIAL ENTHALPY CONTROL AND BAROMETRIC RELIEF. ALL UNITS 5 TONS AND LARGER SHALL BE FURNISHED WITH DUAL COMPRESSORS.
- ④ CAPACITIES ARE IN GROSS (FAN MOTOR HEAT NOT DEDUCTED)
- ⑤ WEIGHT INCLUDES EXISTING UNIT, ROOF CURB AND CURB ADAPTER

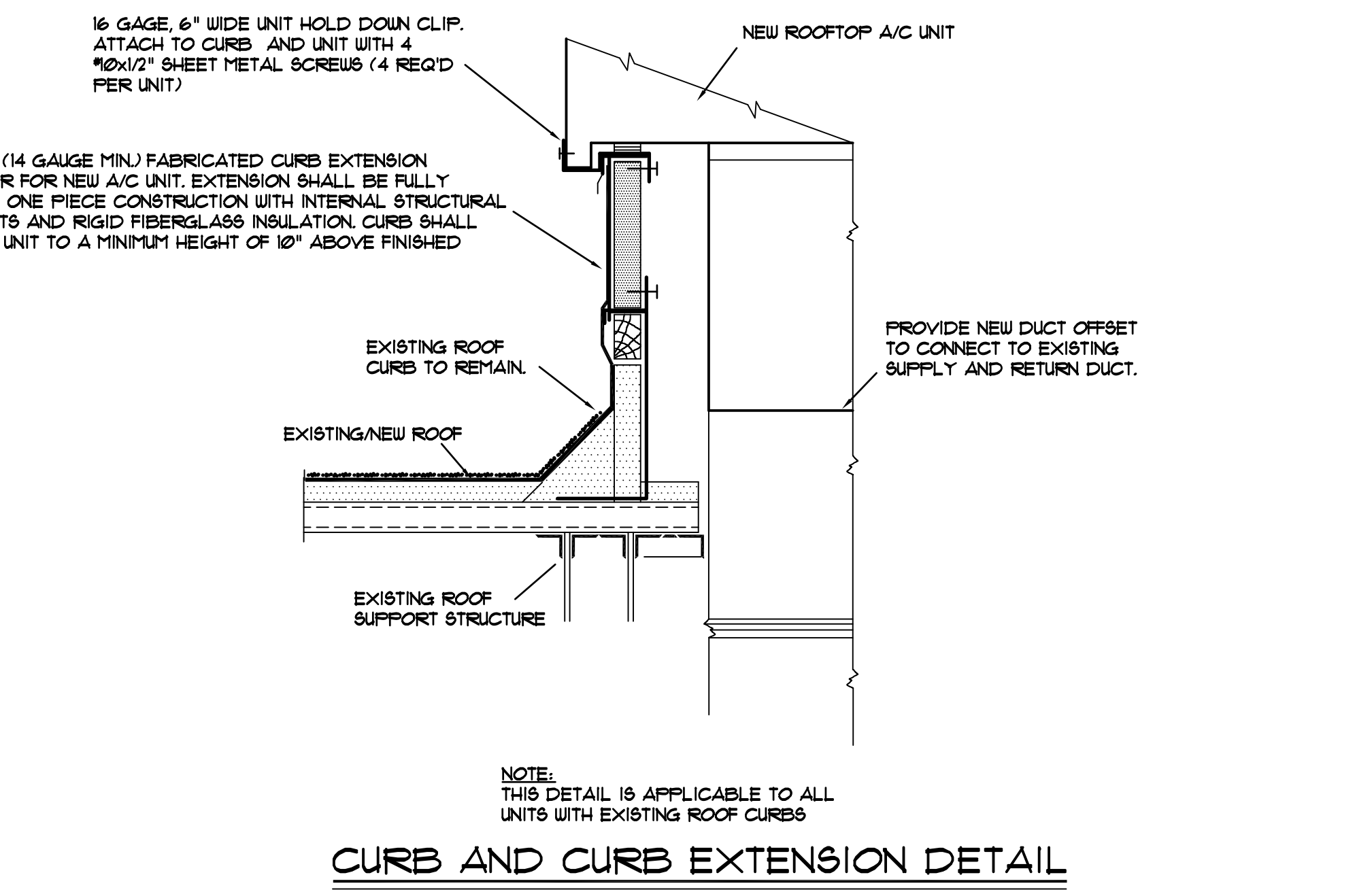
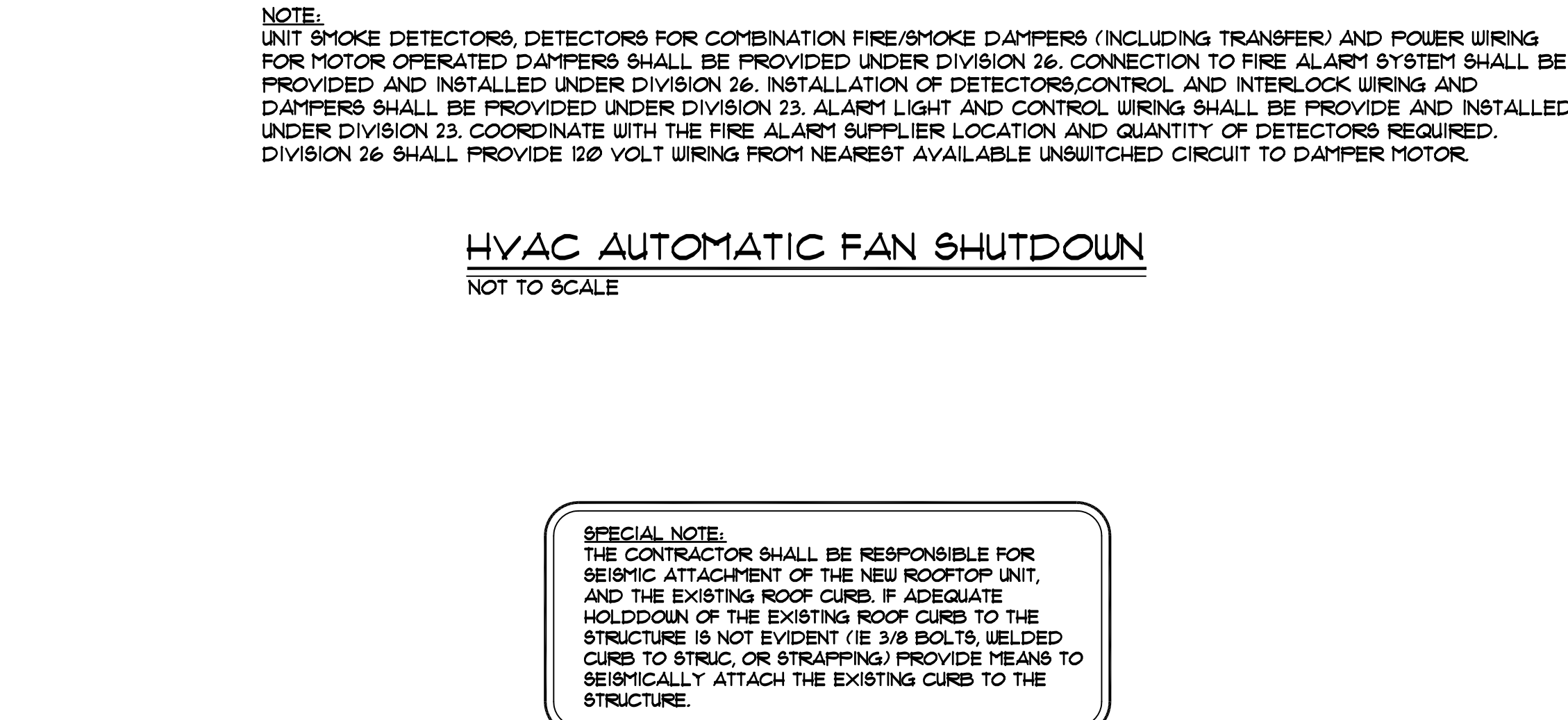
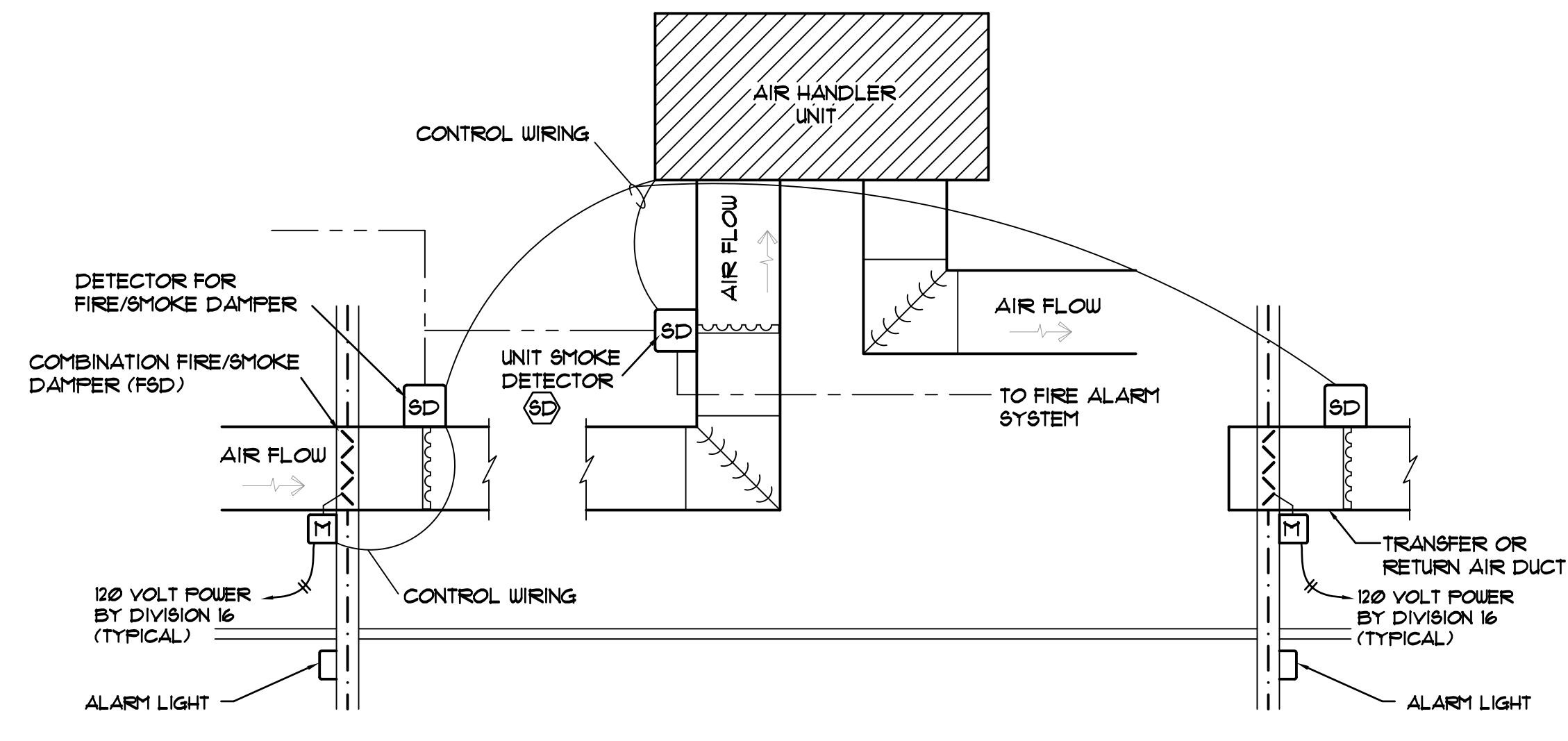
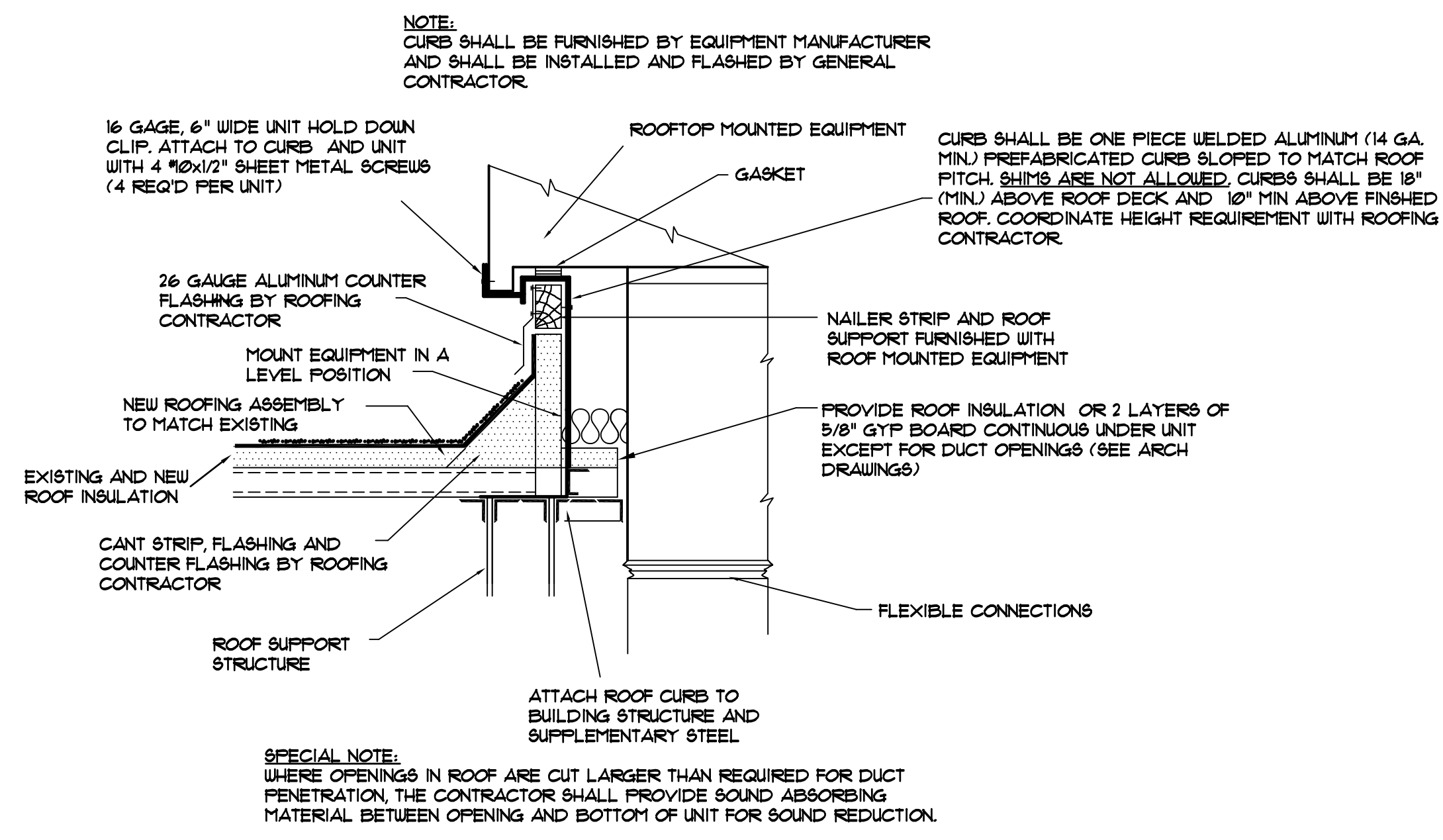
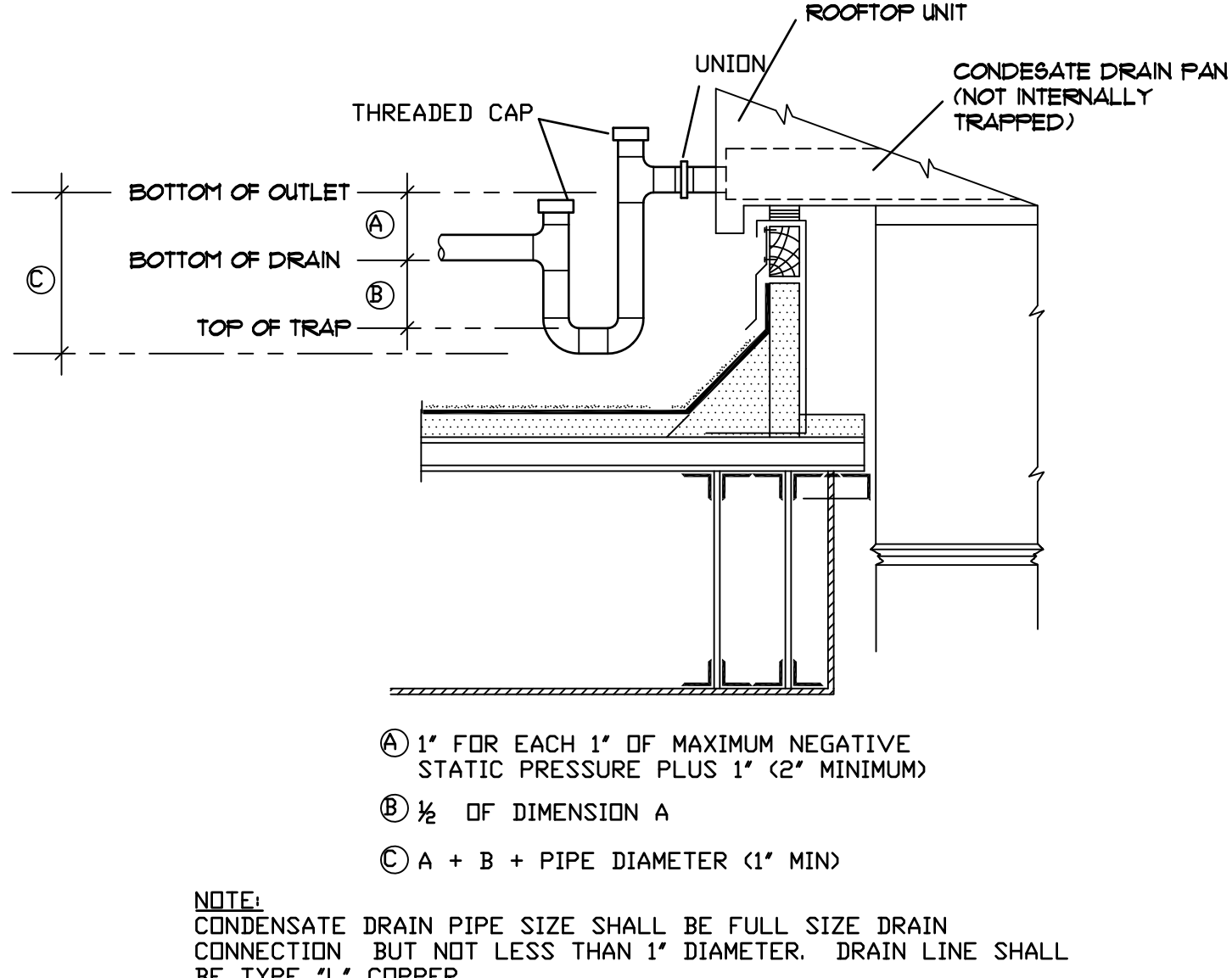
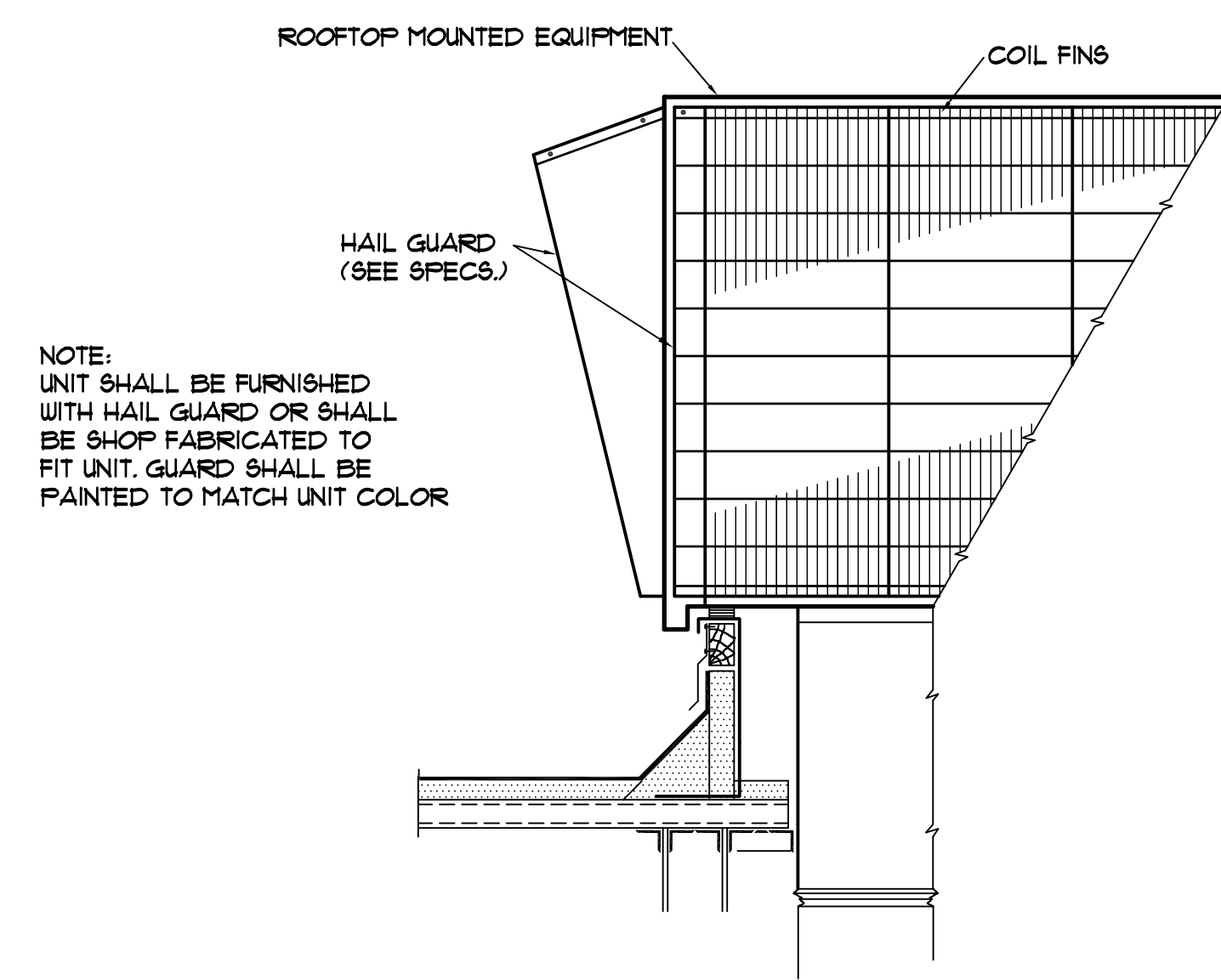
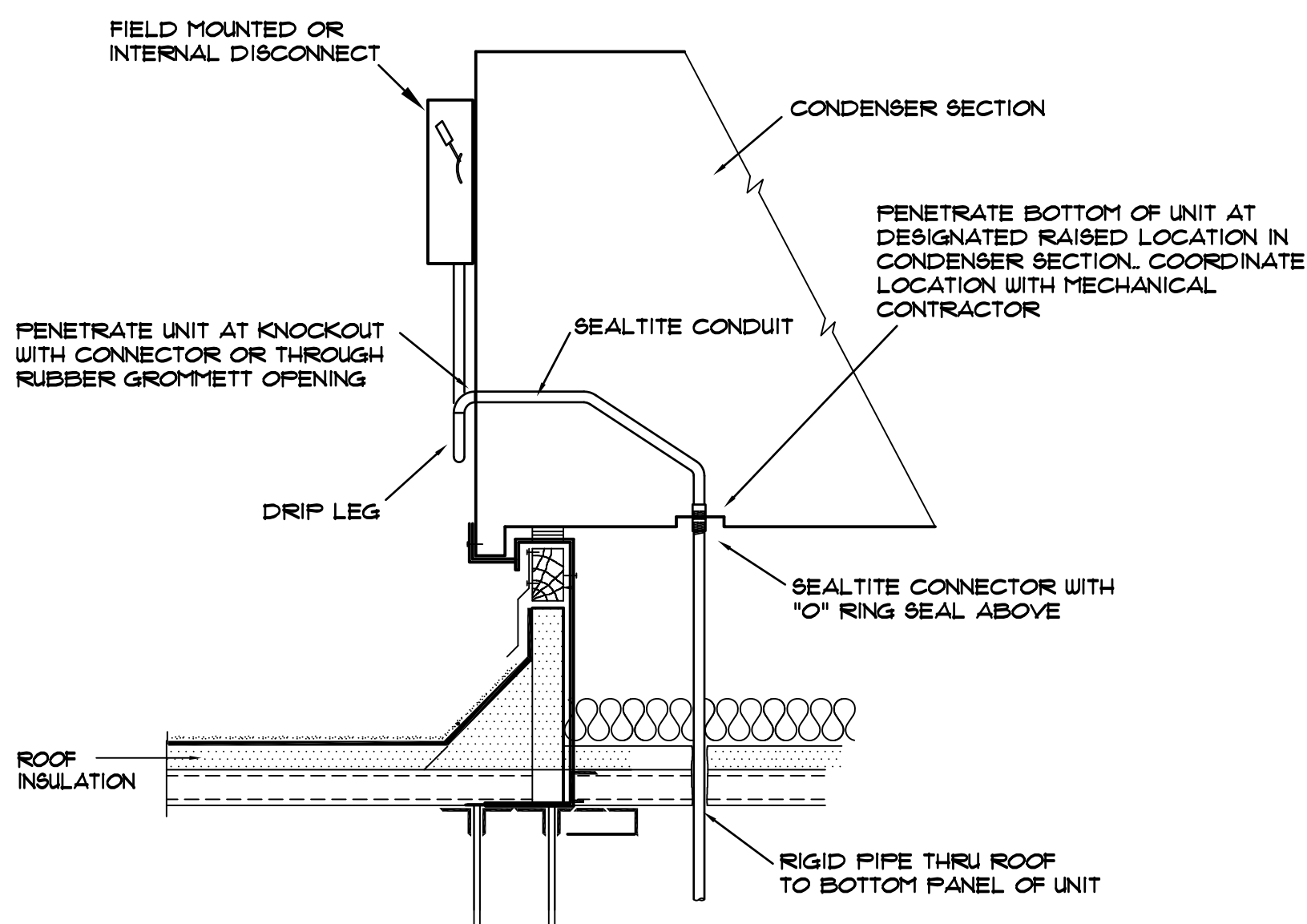
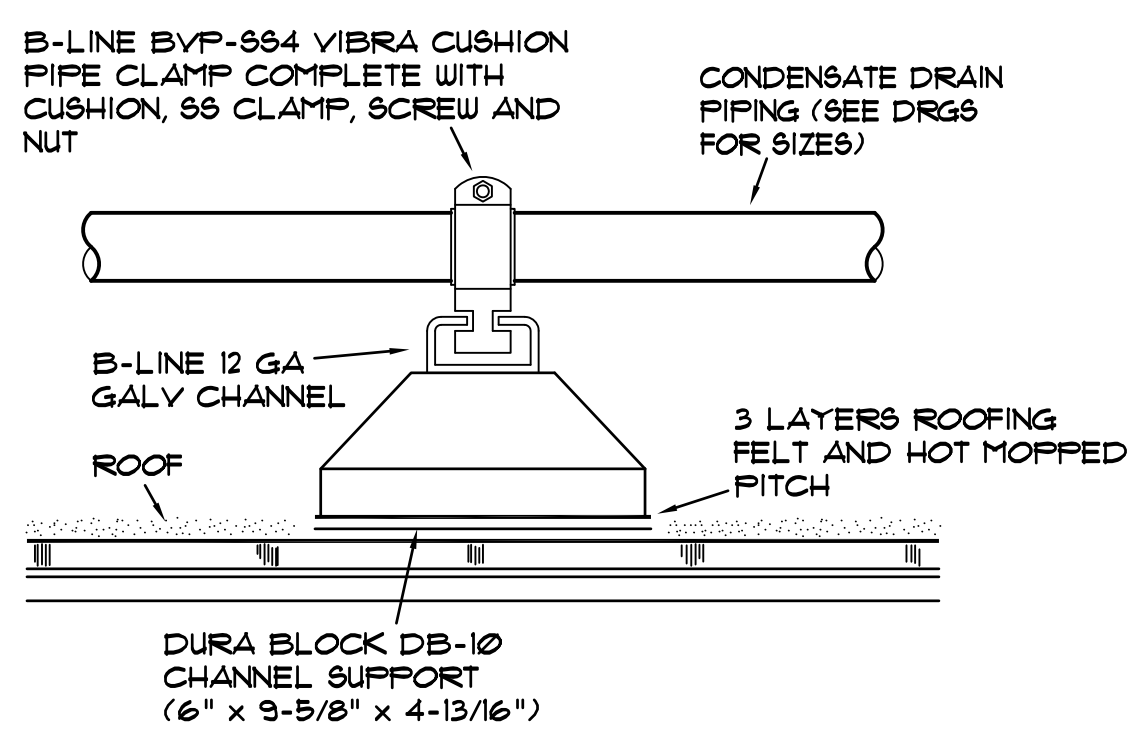
VENTILATING FAN SCHEDULE

MARK	GREENHECK MODEL ②	VOLTS/ PHASE	CFM		FAN SP.	FAN HP, OR WATTS	SONES	DRIVE	CONTROLLED BY
			MIN.	MAX.					
VF-1	8P-228	①	260	382	25	144 WATTS	3.2	DIRECT	LOW VOLTAGE THERMOSTAT LOW VOLTAGE THERMOSTAT
VF-2	8P-228	①	260	382	25	144 WATTS	3.2	DIRECT	

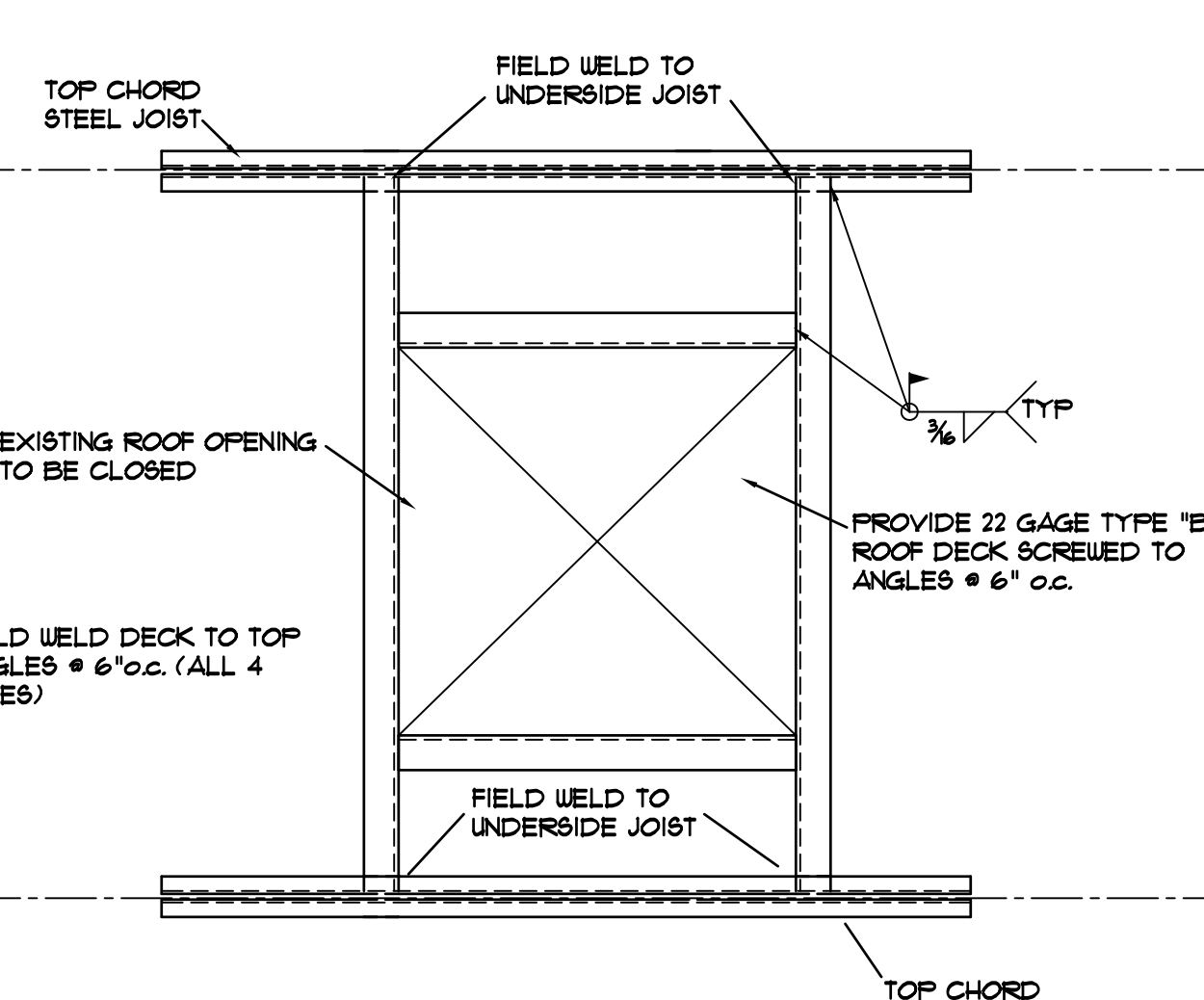
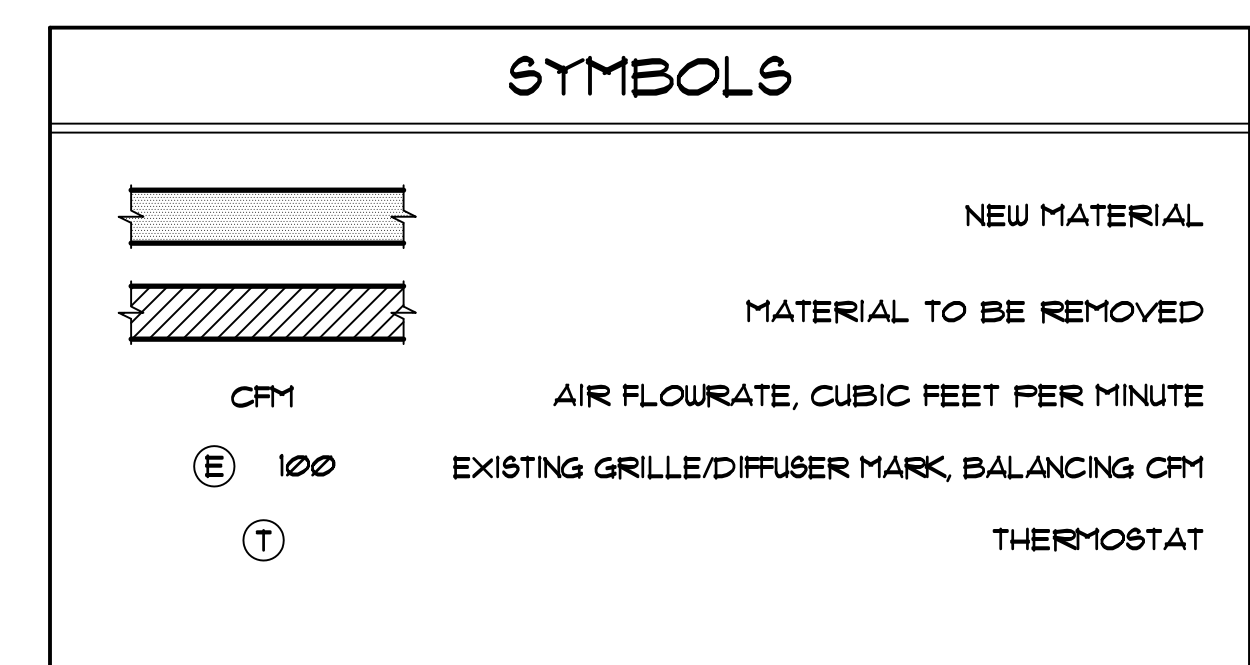
- ① FANS TO MATCH AVAILABLE ELECTRICAL SERVICE, SEE ELECTRICAL
- ② OR EQUAL, SEE SPECIFICATIONS
- ③ BALANCE FANS TO MINIMUM CFM SCHEDULED, FANS SHALL BE CAPABLE OF MAXIMUM CFM
- ④ FURNISH WITH ALUMINUM EGG CRATE GRILLE, DISCONNECT, BACKDRAFT DAMPER.



- NOTES:**
- LOCATE PIPE SUPPORTS MAXIMUM 8'-0" ON CENTERS AND AT EACH FITTING.
 - POLYETHYLENE FOAM AND WOOD TIMBERS WILL NOT BE ACCEPTED.



- GENERAL NOTES**
- DO NOT SCALE DRAWINGS. ROUGH FROM ARCHITECTURAL AND EQUIPMENT MANUFACTURER'S DRAWINGS.
 - DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED.
 - WHENEVER THE WORD PROVIDE IS USED IT SHALL MEAN "FURNISH AND INSTALL COMPLETE AND READY FOR USE".
 - ELECTRICAL CHARACTERISTICS SHOWN ON SCHEDULES OR DRAWINGS ARE DESIGN VALUES ONLY AND SHALL BE VERIFIED BEFORE ORDERING EQUIPMENT.
 - PROVIDE 1" TRAP FOR ALL CONDENSATE DRAINS AND SAFETY DRAINS. PROVIDE INSULATED DRAIN LINES FROM ALL DRAIN CONNECTIONS TO FLOOR DRAINS OR DRAINAGE SYSTEM. CONDENSATE DRAIN LINES SHALL BE TYPE "L" COPPER.
 - DUCT SIZES SHOWN ON DRAWINGS ARE INTERIOR DIMENSIONS.
 - CONSTRUCT DUCTWORK AS JOB PROGRESSES AND AFTER COORDINATING WITH ALL CONCERNED TRADES AND CONTRACTORS.
 - UNLESS OTHERWISE NOTED, CEILING RETURN GRILLES SHALL BE THE SAME SIZE AS CEILING SUPPLY GRILLE.
 - PROVIDE GALVANIZED UNI-STRUT SUPPORT HANGERS AND PIPE CLAMP FOR ALL REFRIGERANT PIPING INSIDE AND OUTSIDE OF BUILDING.
 - ALL SUPPLEMENTAL STEEL AND HANGERS REQUIRED FOR THIS PROJECT SHALL BE PROVIDED BY THE CONTRACTOR UNLESS SHOWN OTHERWISE IN BID DOCUMENTS.
 - PROVIDE ACCESS DOOR FOR ALL EQUIPMENT LOCATED ABOVE INACCESSIBLE CEILING. DOOR SHALL BE OF ADEQUATE SIZE TO FACILITATE SERVICE, REPAIR OR REMOVAL OF EQUIPMENT.
 - PROVIDE FULL SIZE TYPE "L" COPPER CONDENSATE DRAIN LINE. ROUTE TO NEAREST ROOF DRAIN. SUPPORT DRAIN LINES AT NOT MORE THAN 8'-0" O.C. AND AT EACH ELBOW.



ISSUED FOR BID 01-30-2019

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CONTRACT: M. BURGESS
COMM. NO. 1835256

PROJECT: HVAC UNIT REPLACEMENT UPGRADE
RH FULMER MIDDLE SCHOOL
LEXINGTON SCHOOL DISTRICT TWO

Project: _____
SHEET NO. _____

M4