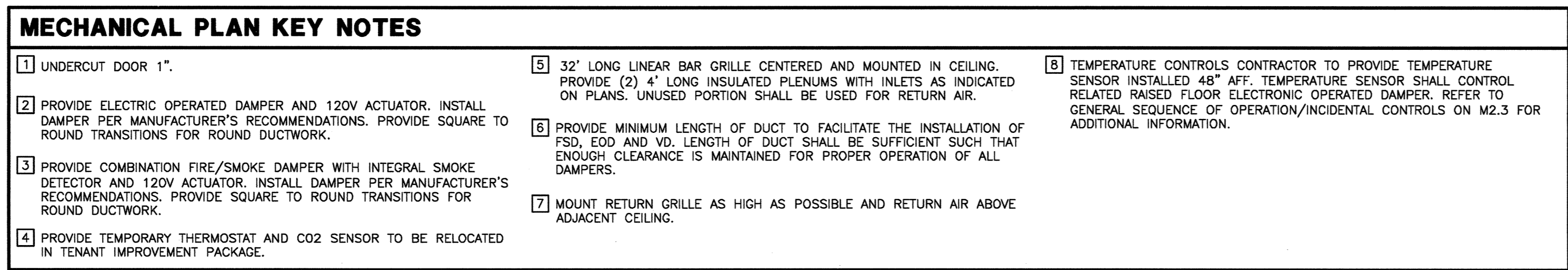
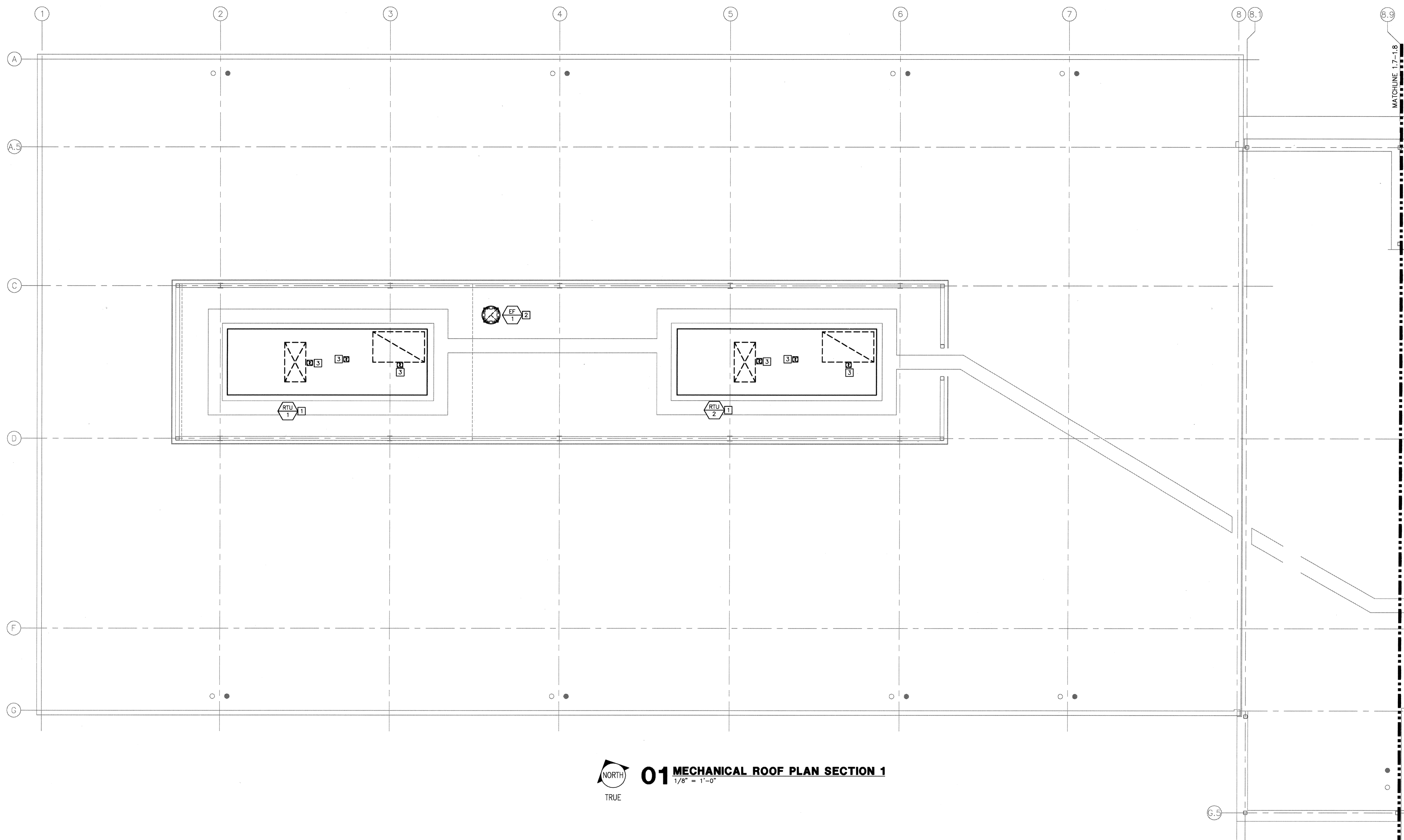


01 MECHANICAL SECOND FLOOR PLAN SECTION 1
 1/8" = 1'-0"
 NORTH
 TRUE

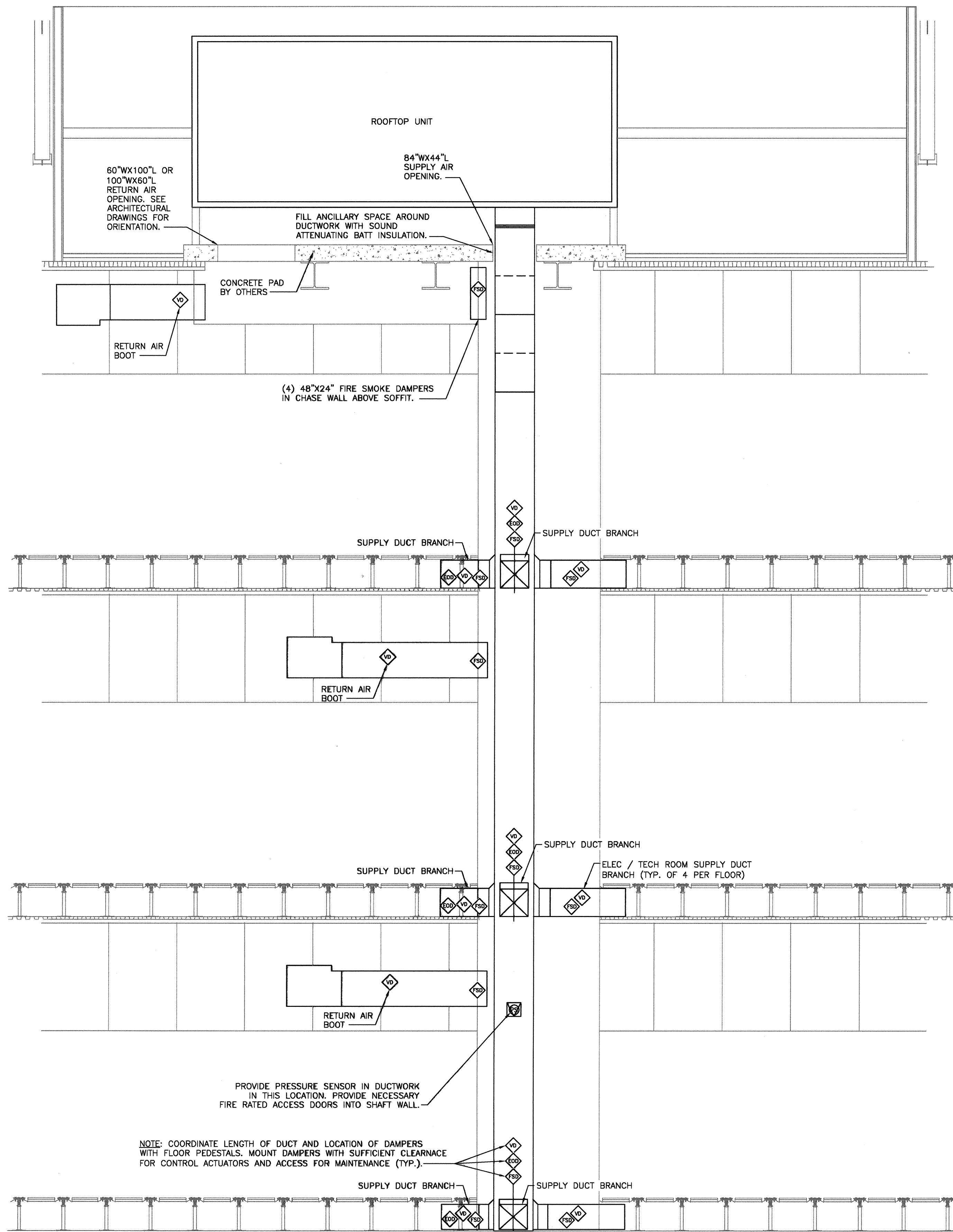
MECHANICAL PLAN KEY NOTES		
1 UNDERCUT DOOR 1".	5 20' LONG LINEAR BAR GRILLE CENTERED AND MOUNTED IN CEILING. PROVIDE (3) 4" LONG INSULATED PLENUMS WITH INLETS AS INDICATED ON PLANS. UNUSED PORTION SHALL BE USED FOR RETURN AIR.	8 MOUNT RETURN GRILLE AS HIGH AS POSSIBLE AND RETURN AIR ABOVE ADJACENT CEILING.
2 PROVIDE ELECTRIC OPERATED DAMPER AND 120V ACTUATOR. INSTALL DAMPER PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SQUARE TO ROUND TRANSITIONS FOR ROUND DUCTWORK.	6 34' LONG LINEAR BAR GRILLE CENTERED AND MOUNTED IN CEILING. PROVIDE (2) 4" LONG INSULATED PLENUMS WITH INLETS AS INDICATED ON PLANS. UNUSED PORTION SHALL BE USED FOR RETURN AIR.	9 TEMPERATURE CONTROLS CONTRACTOR TO PROVIDE TEMPERATURE SENSOR INSTALLED 48" AFF. TEMPERATURE SENSOR SHALL CONTROL RELATED RAISED FLOOR ELECTRONIC OPERATED DAMPER. REFER TO GENERAL SEQUENCE OF OPERATION/INCIDENTAL CONTROLS ON M2.3 FOR ADDITIONAL INFORMATION.
3 PROVIDE COMBINATION FIRE/SMOKE DAMPER WITH INTEGRAL SMOKE DETECTOR AND 120V ACTUATOR. INSTALL DAMPER PER MANUFACTURER'S RECOMMENDATIONS. PROVIDE SQUARE TO ROUND TRANSITIONS FOR ROUND DUCTWORK.	7 PROVIDE MINIMUM LENGTH OF DUCT TO FACILITATE THE INSTALLATION OF FSD, EOD AND VD. LENGTH OF DUCT SHALL BE SUFFICIENT SUCH THAT ENOUGH CLEARANCE IS MAINTAINED FOR PROPER OPERATION OF ALL DAMPERS.	
4 PROVIDE TEMPORARY THERMOSTAT AND CO2 SENSOR TO BE RELOCATED IN TENANT IMPROVEMENT PACKAGE.		



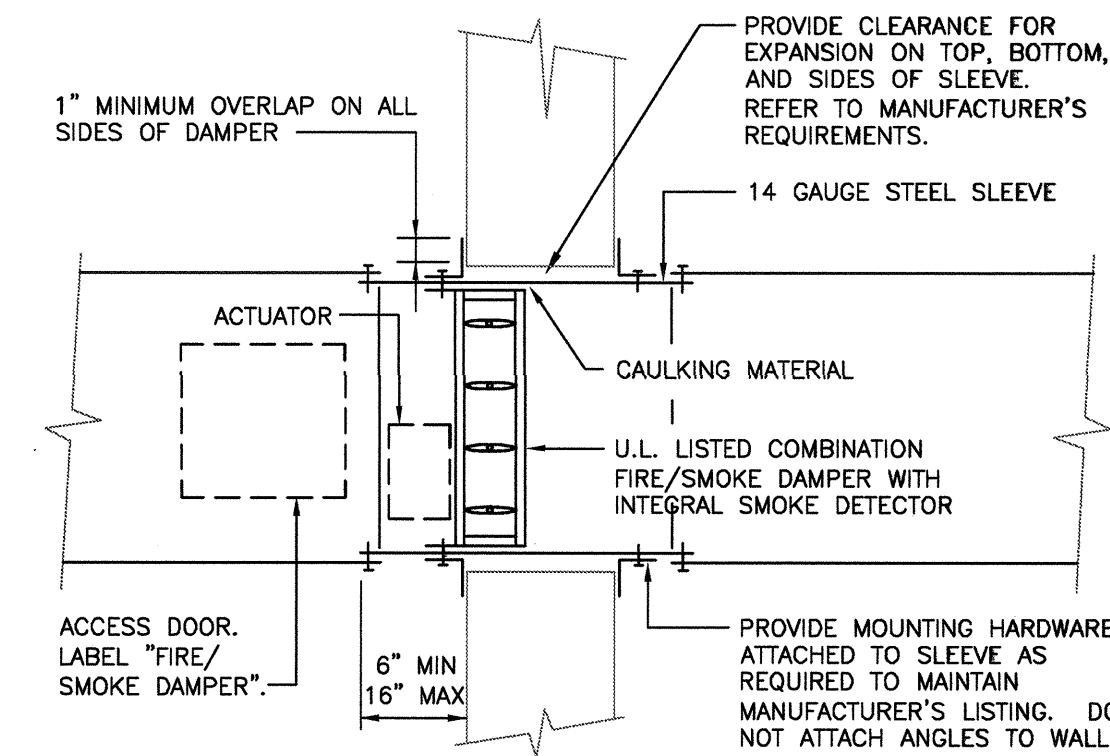



01 MECHANICAL ROOF PLAN SECTION 1
 1/8" = 1'-0"

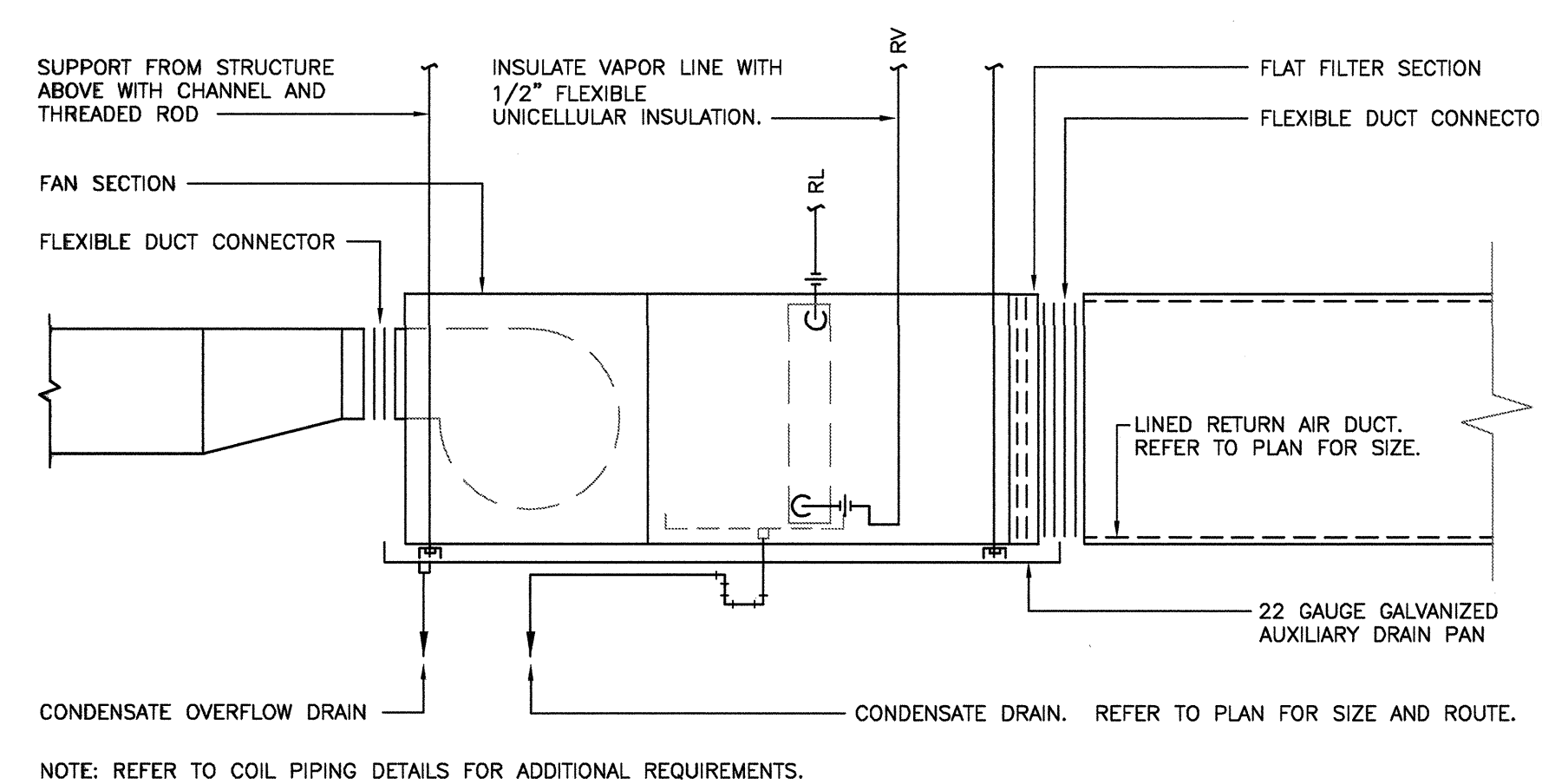
- MECHANICAL PLAN KEY NOTES**
- [1] PROVIDE ROOFTOP UNIT AND CURB. COORDINATE UNIT WITH STRUCTURE. SHIM UNIT AND CURB LEVEL FOR PROPER CONDENSATE DRAINAGE. PROVIDE FLEXIBLE CONNECTORS ON SUPPLY AIR DUCT CONNECTION. TRANSITION TO DUCT SIZES SHOWN. PROVIDE DUCTWORK AND AIR DISTRIBUTION DEVICES AS INDICATED ON THE PLAN. REFER TO ROOFTOP UNIT SCHEDULE FOR ADDITIONAL REQUIREMENTS.
 - [2] PROVIDE ROOF MOUNTED EXHAUST FAN AND CURB. REFER TO EXHAUST AND VENTILATION FAN SCHEDULE FOR ADDITIONAL REQUIREMENTS.
 - [3] SUPPLY, BYPASS AND RETURN AIR SMOKE DETECTOR FURNISHED BY FIRE ALARM CONTRACTOR AND INSTALLED IN UNIT BY HVAC SUPPLIER TECHNICIAN. POWER WIRING SHALL BE PROVIDED BY HVAC SUPPLIER TECHNICIAN. INTERLOCK TO SHUT DOWN UNIT ON SIGNAL FROM FIRE ALARM SYSTEM.



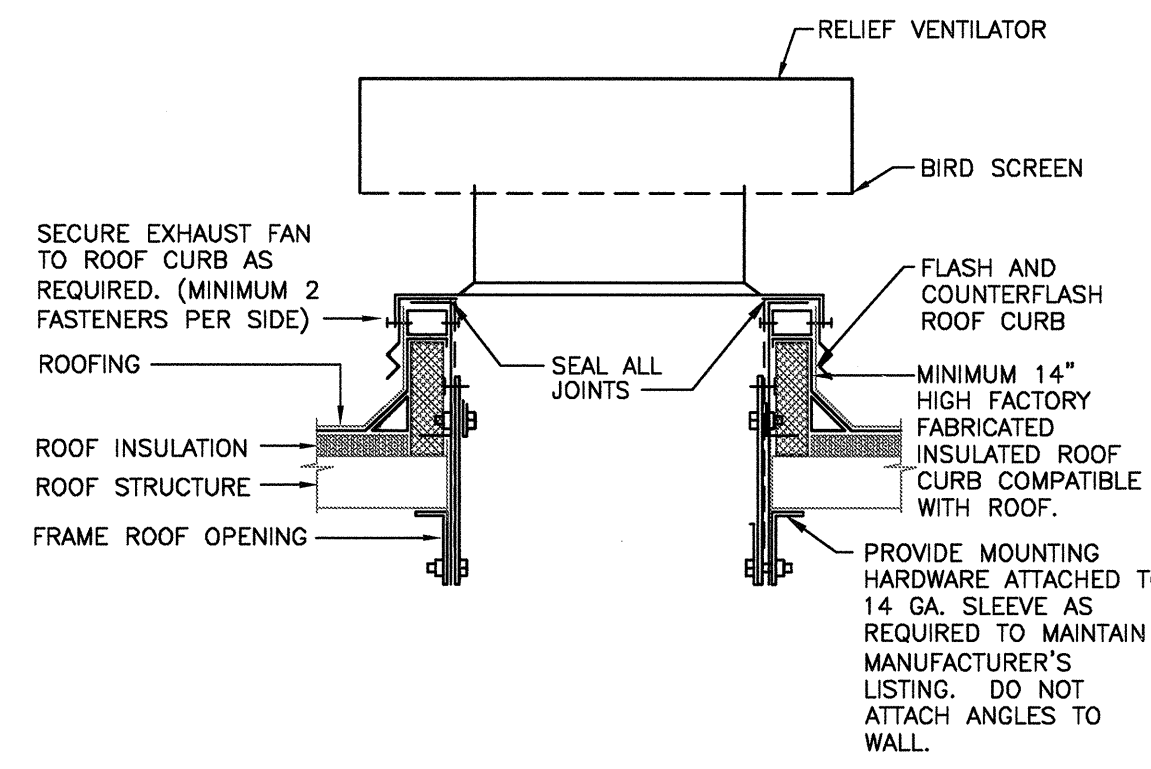
01 RTU DUCT DROP SCHEMATIC
SCALE: NOT TO SCALE



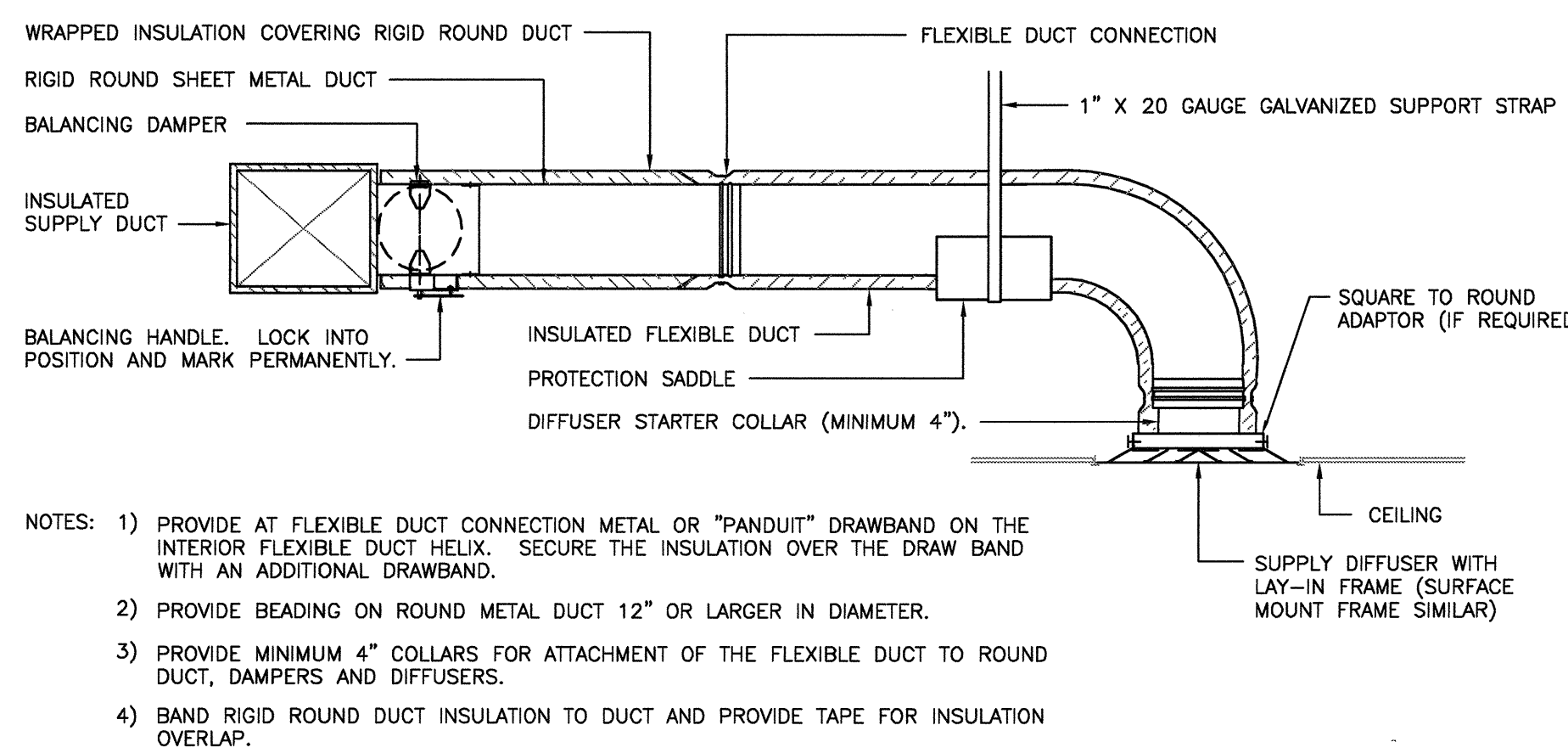
10 COMBINATION FIRE/SMOKE DAMPER
NOT TO SCALE



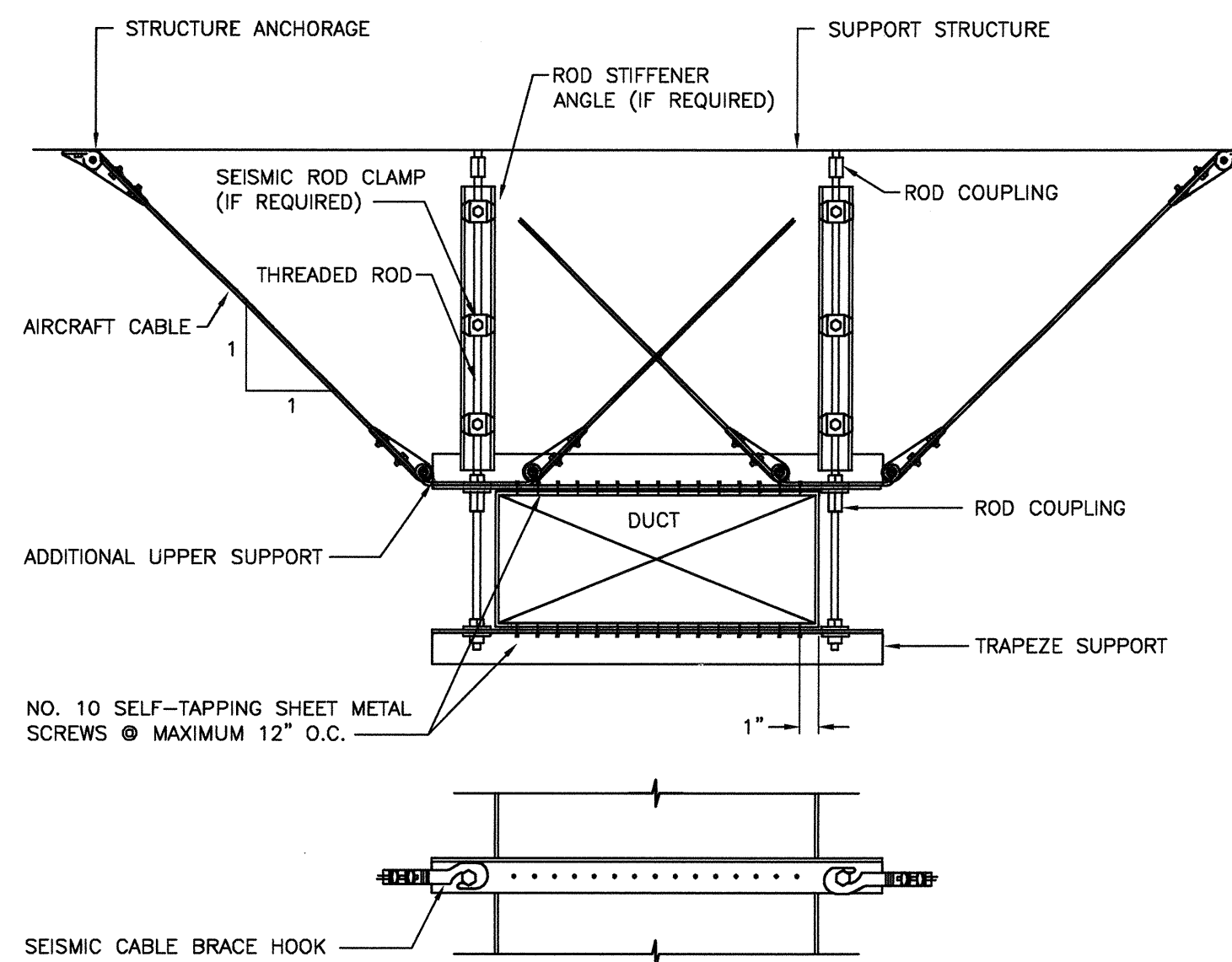
11 AIR HANDLING UNIT INSTALLATION DETAIL
NOT TO SCALE



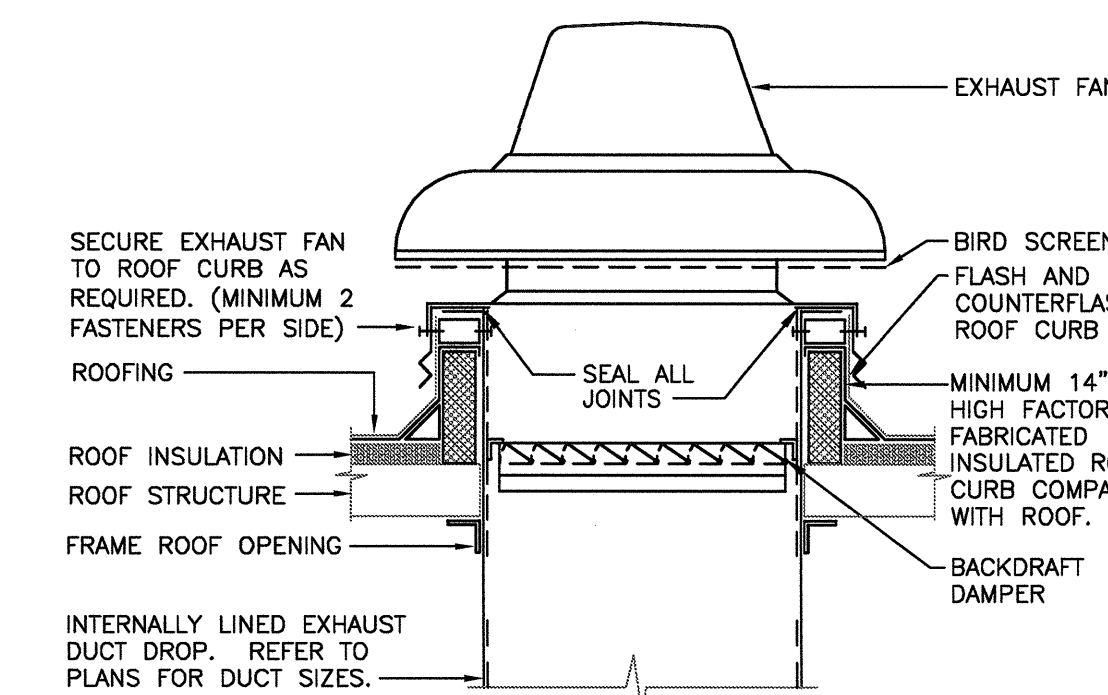
02 ELEVATOR HOISTWAY VENTING DETAIL
NOT TO SCALE



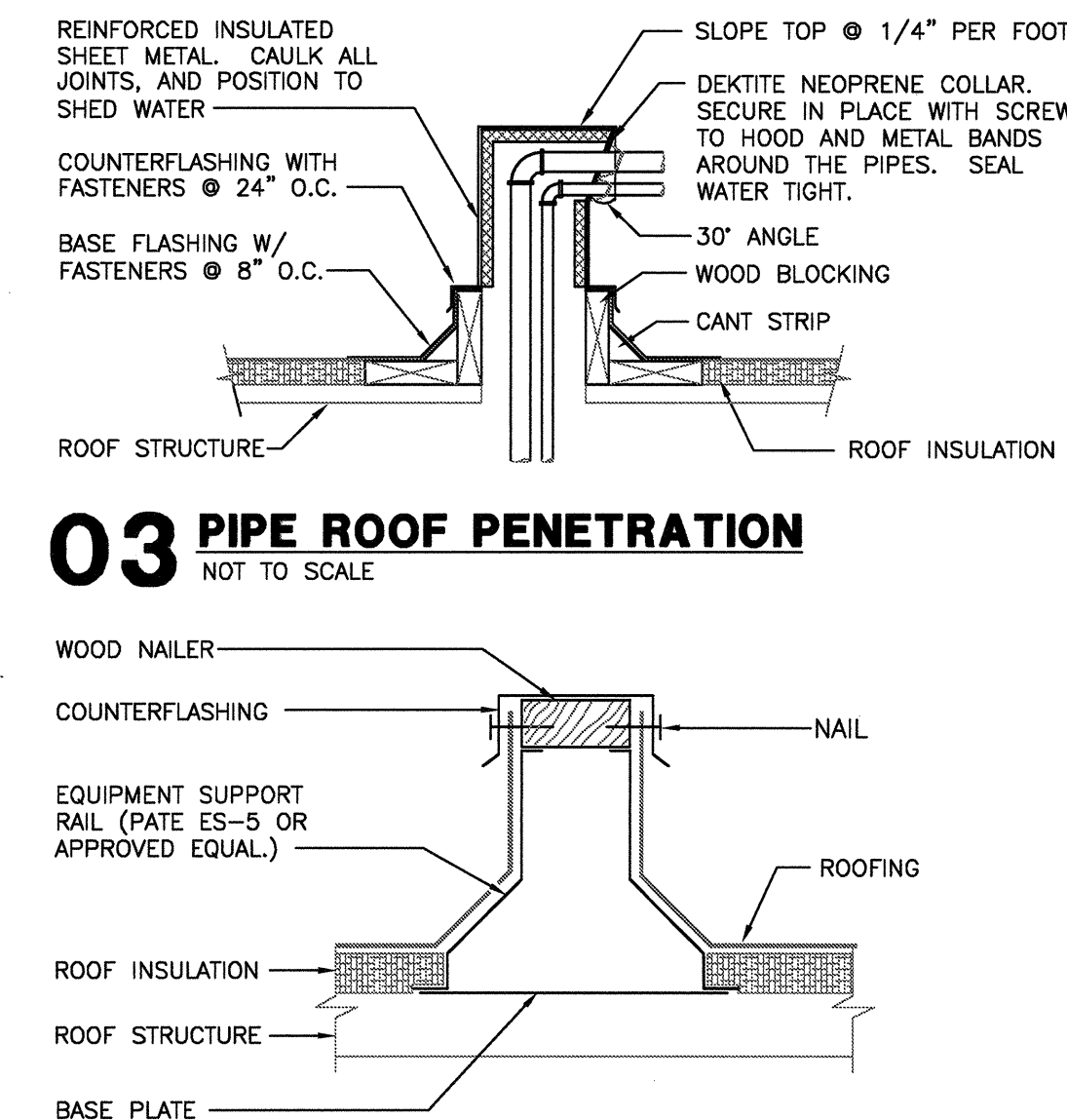
06 DIFFUSER CONNECTION DETAIL- FLEX DUCT
NOT TO SCALE



08 TRANSVERSE SEISMIC CABLE RESTRAINT DETAIL
NOT TO SCALE

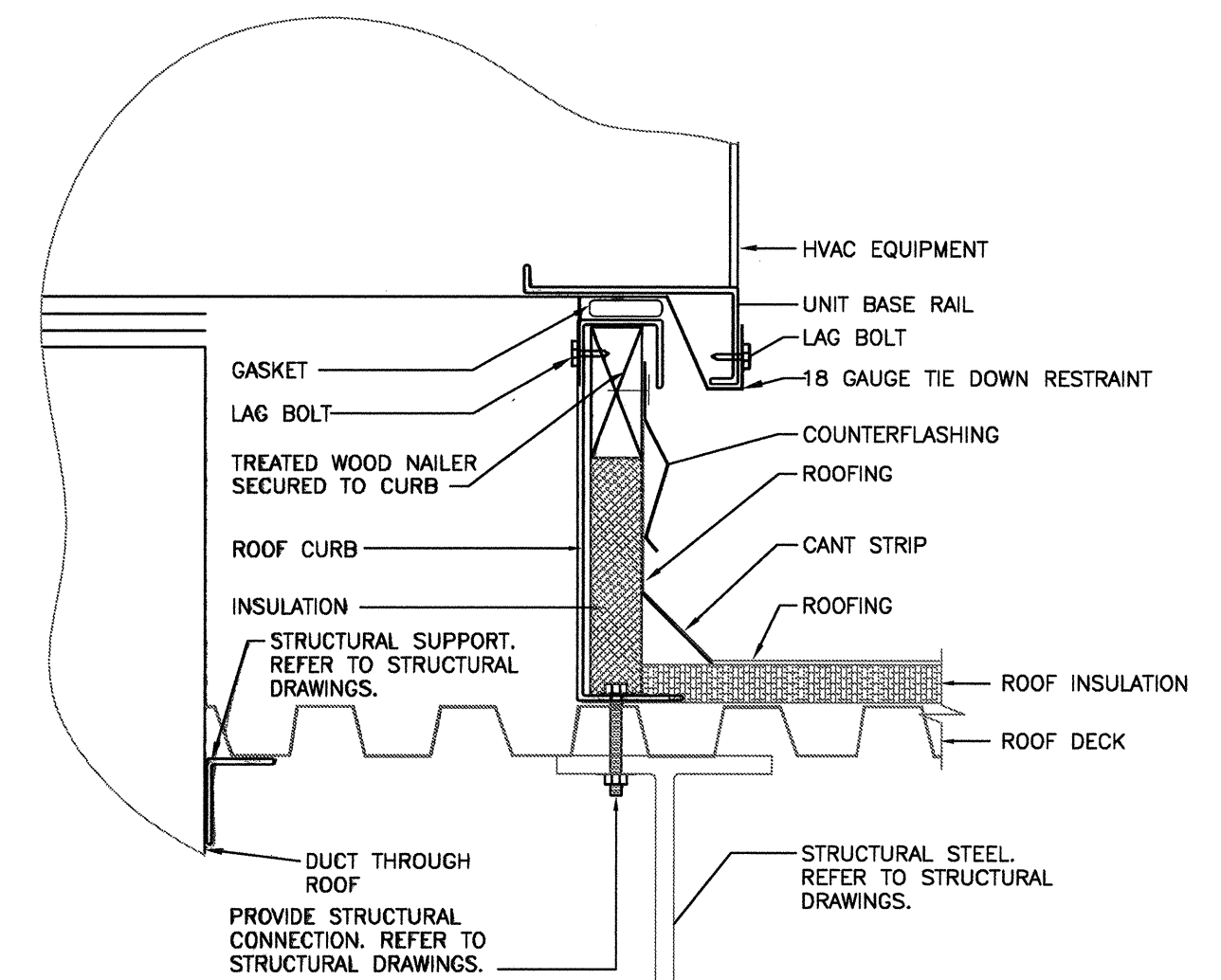


12 EXHAUST FAN DETAIL
NOT TO SCALE

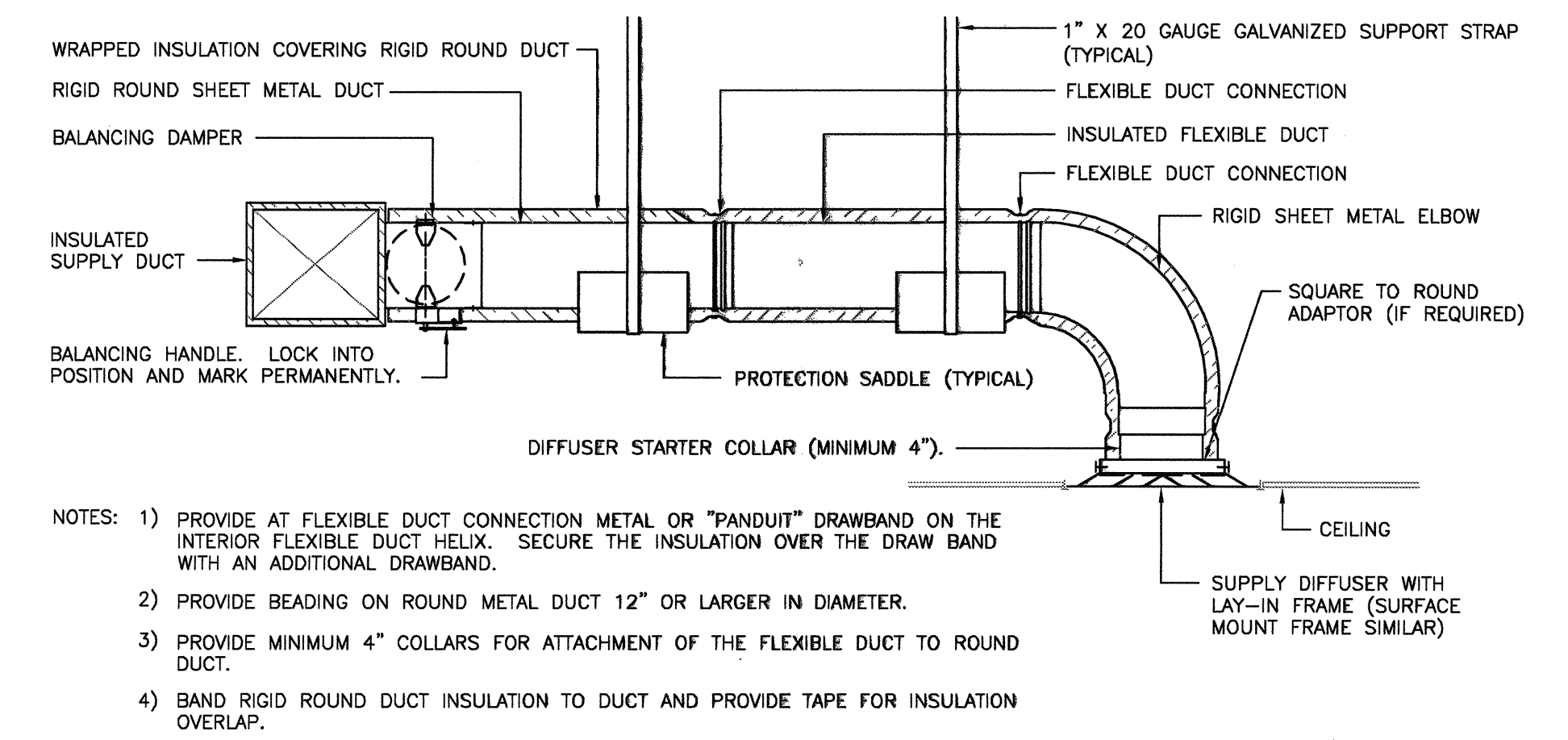


03 PIPE ROOF PENETRATION
NOT TO SCALE

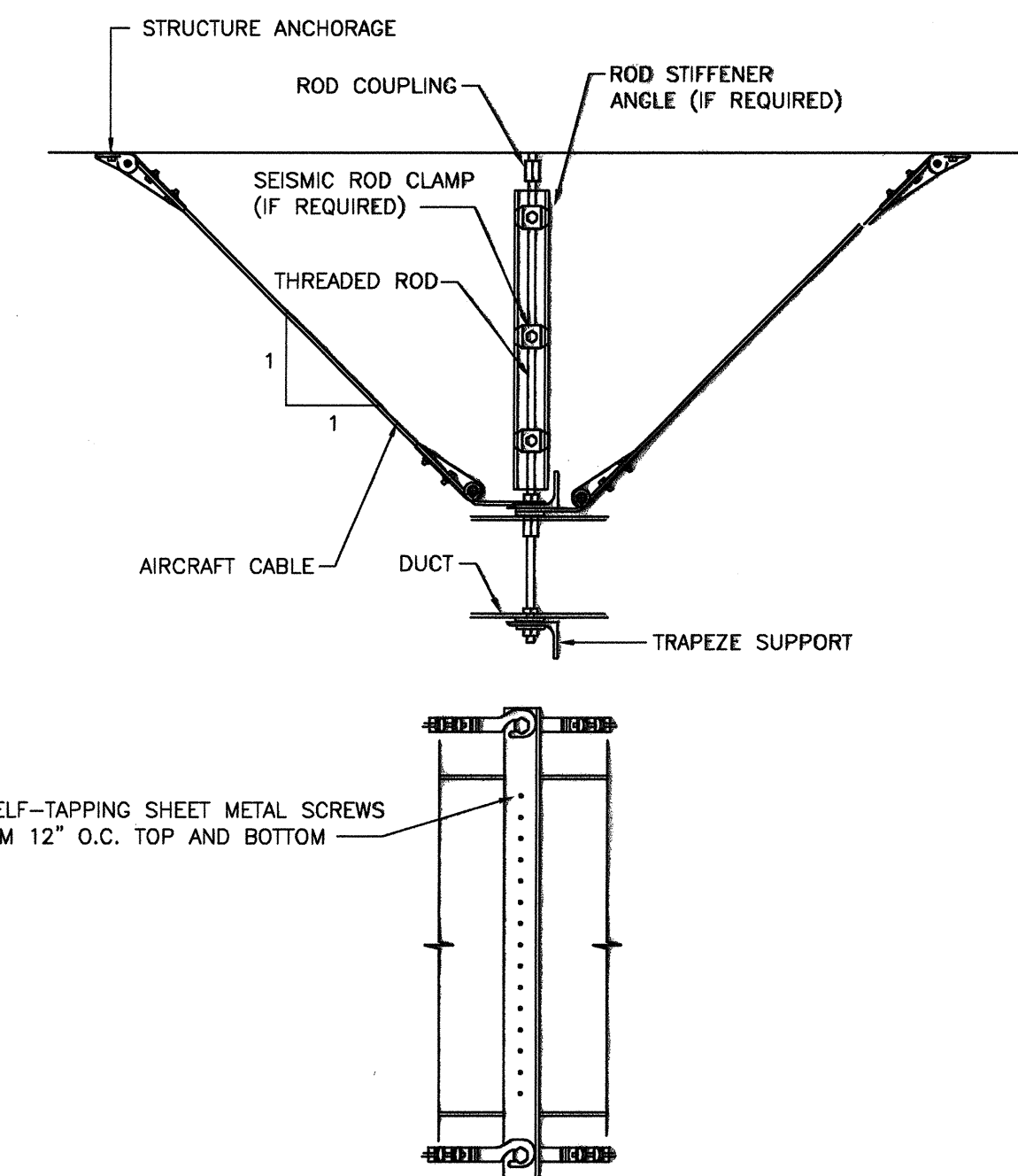
04 EQUIPMENT SUPPORT RAIL DETAIL
NOT TO SCALE



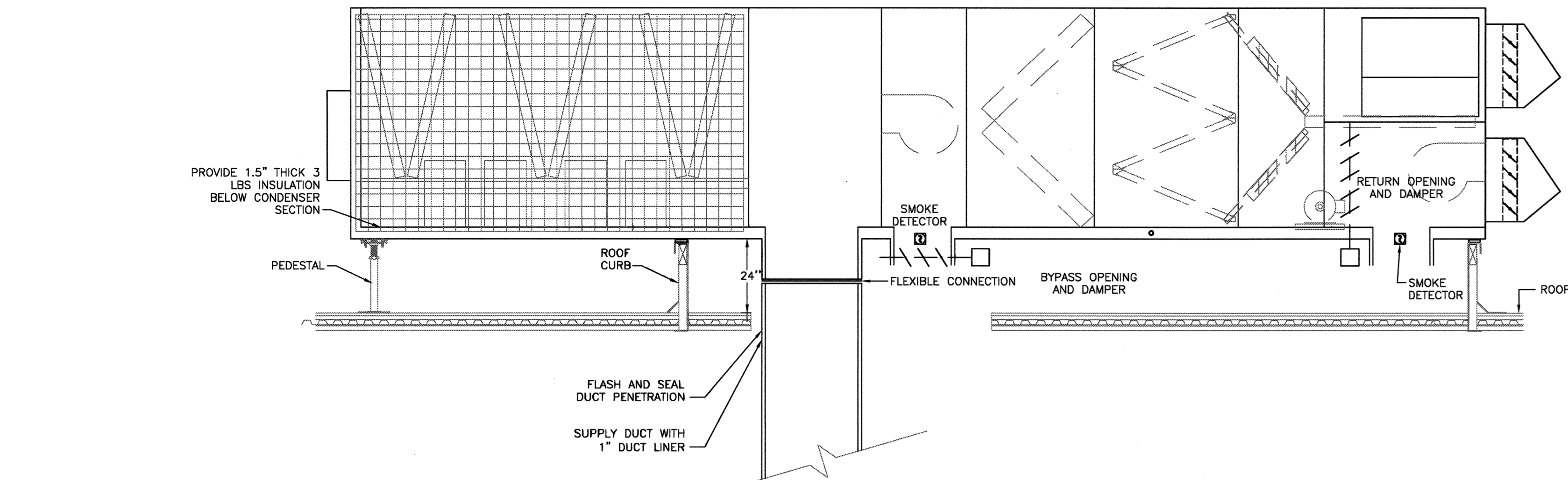
05 ROOFTOP UNIT 5 CURB DETAIL
NOT TO SCALE



07 DIFFUSER CONNECTION DETAIL- ALL RIGID DUCT
NOT TO SCALE

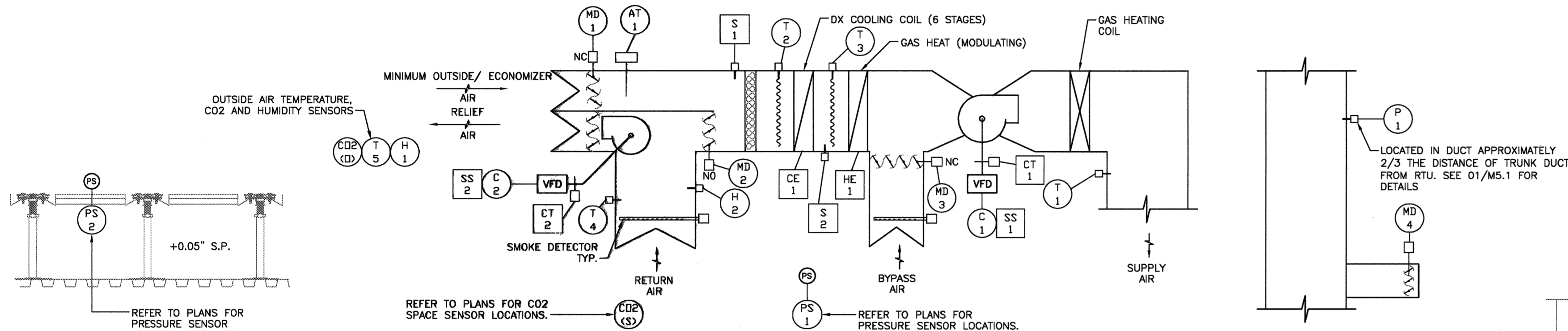


09 LONGITUDINAL SEISMIC CABLE RESTRAINT DETAIL
NOT TO SCALE



02 TYPICAL RTU 1-4 SCHEMATIC

NOT TO SCALE



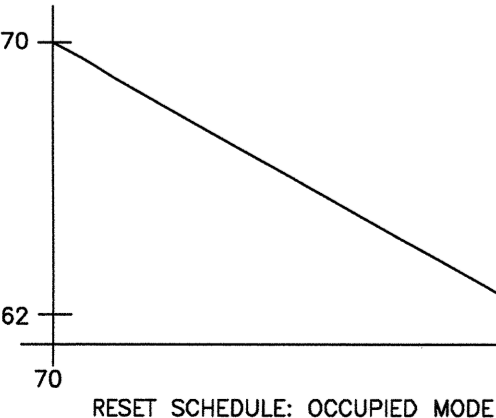
ROOFTOP UNIT (ID) INPUT/OUTPUT POINT SUMMARY TABLE					
POINT DESIGNATION	HARDWARE POINT DESCRIPTION	HARDWARE PROVIDE NUMBER OF POINTS FOR EACH PIECE OF EQUIPMENT			
		INPUT (I)		OUTPUT (O)	
		ANALOG	DIGITAL	ANALOG	DIGITAL
T1	ROOFTOP UNIT LEAVING AIR TEMPERATURE SENSOR	X			
T2	MIXED AIR TEMPERATURE SENSOR	X			
T3	COOLING COIL LEAVING AIR TEMPERATURE SENSOR	X			
T4	RETURN AIR AVERAGING TEMPERATURE SENSOR	X			
T5	OUTSIDE AIR TEMPERATURE SENSOR	X			
T6	COOLING COIL LEAVING AIR FREEZE STAT		X		
H1	OUTSIDE AIR HUMIDITY SENSOR	X			
H2	RETURN AIR HUMIDITY SENSOR	X			
AT1	MINIMUM OUTSIDE AIRFLOW TRANSMITTER	X			
P1	SUPPLY DUCT PRESSURE SENSOR	X			
MD1	MODULATING OUTSIDE AIR DAMPER			X	
MD2	MODULATING RETURN AIR DAMPER			X	
MD3	MODULATING BYPASS DAMPER			X	
MD4(S)	MODULATING FLOOR DAMPER			X	
C1	EVAPORATOR FAN VARIABLE FREQUENCY DRIVE CONTROL			X	
C2	RELIEF FAN VARIABLE FREQUENCY DRIVE CONTROL			X	
S1	LOW STATIC PRESSURE SENSOR		X		
CT	CURRENT TRANSDUCERS		X		
CE1	COOLING ENABLE (6 STAGES)				X
SS1	EVAPORATOR FAN VARIABLE FREQUENCY DRIVE START/STOP				X
SS2	RELIEF FAN VARIABLE FREQUENCY DRIVE START/STOP				X
PS1	BUILDING SPACE PRESSURE SENSOR/TRANSDUCER	X			
PS2	UNDERFLOOR STATIC PRESSURE SENSOR				X
HE1	HEATING (MODULATING)			X	
CO2(O)	OUTDOOR CO2 SENSOR	X			
CO2(S)	SPACE CO2 SENSOR	X			

01 VAV ROOFTOP UNIT CONTROL SCHEMATIC

NTS

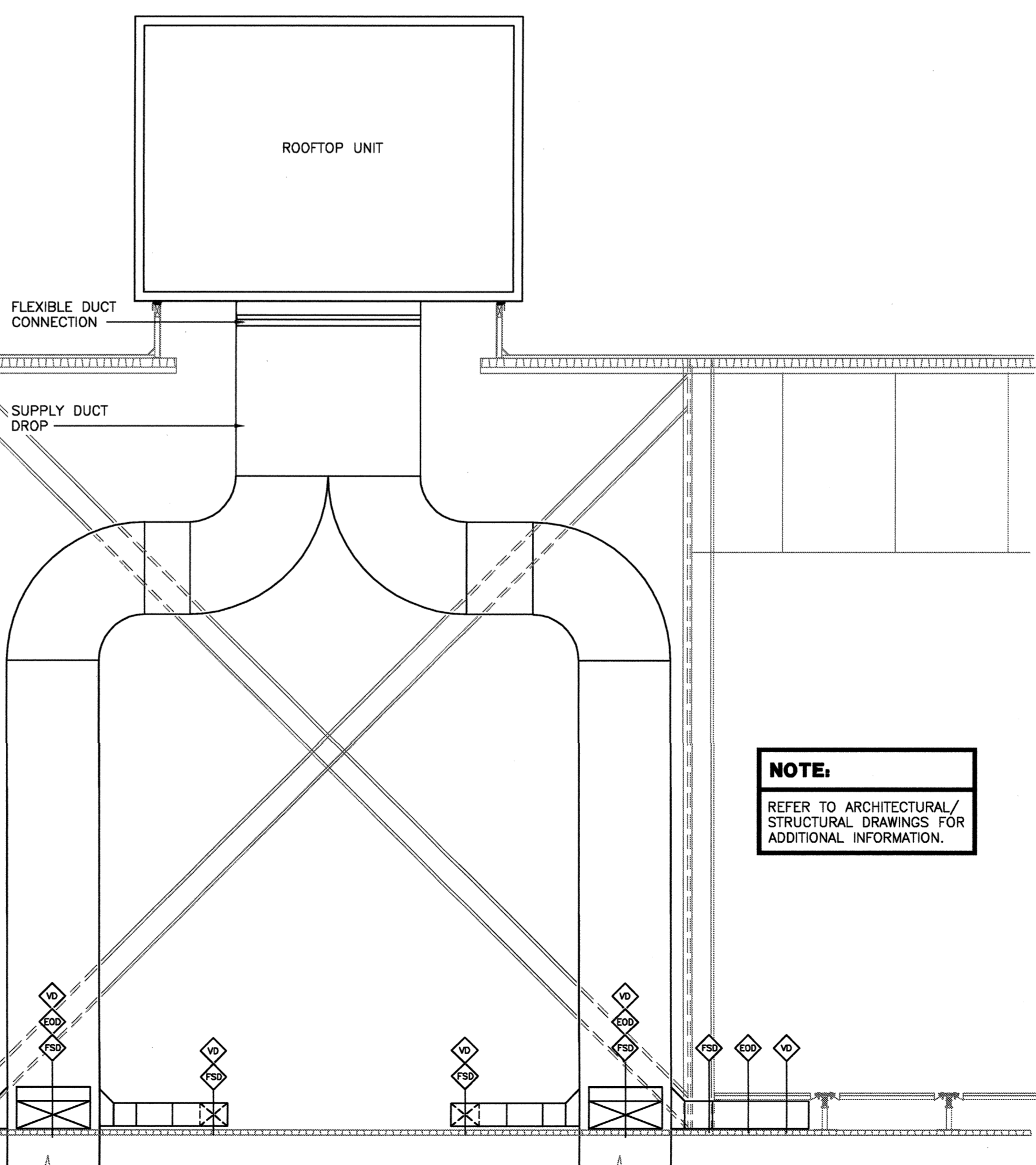
PACKAGED VAV RTU'S UNITS WITH DX COOLING, GAS HEAT, COIL BYPASS AND VARIABLE SPEED DRIVE FANS SEQUENCE OF OPERATION

- THE ROOFTOP UNIT'S (RTU'S) EVAPORATOR FANS SHALL BE MODULATED FROM MINIMUM TO MAXIMUM BASED ON DUCT STATIC PRESSURE MEASURED THROUGH AN ANALOG OUTPUT TO THE VARIABLE SPEED DRIVE, WITH RESPECT TO THE SPACE.
 - DUCT STATIC PRESSURE SHALL BE MONITORED THROUGH A DUCT STATIC PRESSURE SENSOR LOCATED 2/3 TO THE END OF THE TOTAL DUCT LENGTH FROM RTU.
 - THE PRESSURE SENSOR'S OUTPUT SHALL BE TO THE RTU BAS CONTROLLER.
- THE SMOKE DETECTOR SHALL BE HARD WIRED WITH THE RTU FANS. WHEN THE RETURN AIR SMOKE DETECTORS SENSES SMOKE PARTICULATE IN THE RETURN AIR SAMPLING TUBE IT SHALL SHUT DOWN THE RTU AND ALARM THE FIRE ALARM PANEL. THE BUILDING FIRE ALARM SYSTEM WILL SEND A SIGNAL TO STOP ALL ROOFTOP UNITS IN THE BUILDING. UPON FIRE ALARM RELEASE ALL ROOFTOP UNITS WILL OPERATE NORMALLY.
- LEAVING AIR TEMPERATURE SENSORS SHALL MONITOR THE LEAVING AIR DRY-BULB TEMPERATURE IN THE SUPPLY DUCT.
- PROVIDE A MIXED AIR AVERAGING TEMPERATURE SENSOR IN THE MIXING CHAMBER UPSTREAM OF ALL COILS.
- PROVIDE A COIL LEAVING AIR AVERAGING LOW-LIMIT TEMPERATURE SENSOR OVER THE OUTLET OF THE COOLING COIL WITH A 35°F SETPOINT. IF THIS IS REACHED SEND AN ALARM TO THE BAS AND DISABLE THE MECHANICAL COOLING AND ENGAGE HEAT.
- PROVIDE A RETURN AIR HUMIDITY SENSOR. HUMIDITY SENSORS SHALL HAVE AN ACCURACY OF 2% RH WITH A RANGE OF 5 TO 95%.
- PROVIDE SPLIT CORE CURRENT TRANSDUCER DESIGNED FOR THE VARIABLE SPEED EVAPORATOR AND RELIEF FANS TO VERIFY FAN OPERATION (H804 VERIS HAWKEYE 5-34HZ OR EQUAL ON/OFF SET @ VFD MINIMUM SPEED DETERMINED BY MANUFACTURER AND BALANCING CONTRACTOR).
- DURING THE OCCUPIED MODE BAS SHALL MAINTAIN THE RAISED FLOOR SUPPLY AIR PRESSURE FROM 0.05 INCHES OF STATIC PRESSURE AT A RETURN AIR TEMPERATURE OF 70 DEGREES F OR LESS TO 0.075 INCHES STATIC PRESSURE AT RETURN AIR TEMPERATURE OF 80 DEGREES F OR MORE. THE UNIT SUPPLY FAN SHALL MODULATE TO MAINTAIN DUCT STATIC PRESSURE SET BY BALANCING CONTRACTOR AND THE FLOOR DUCT DAMPERS (MD4) MODULATE TO MAINTAIN FLOOR PRESSURE.
 - REFER TO PLAN FOR ACTUAL NUMBER OF SUPPLY BRANCH DUCT ACTUATORS MD4(S).
- DURING THE OCCUPIED MODE THE SUPPLY AIR TEMPERATURE SHALL BE 70 DEGREES F WHEN OUTSIDE TEMPERATURE IS 70 DEGREES F AND SHALL BE 62 DEGREES F WHEN OUTSIDE TEMPERATURE IS 80 DEGREES F AND ABOVE.
- OCCUPIED HEATING: DURING OCCUPIED SCHEDULE THE UNIT SHALL PROVIDE LEAVING AIR TEMPERATURE AS DECODD BY THE SUPPLY AIR TEMPERATURE RESET SCHEDULE. WHENEVER THE UNIT IS PROVIDING MECHANICAL COOLING THE GAS HEAT SHALL REMAIN DEACTIVATED. WHEN IN ECONOMIZER MODE, AS THE MIXED AIR TEMPERATURE REDUCES TO 61°F OR BELOW, THE GAS HEAT SHALL BE ACTIVATED AND MODULATE TO MAINTAIN LEAVING AIR TEMPERATURE.
- UNOCCUPIED HEATING: DURING UNOCCUPIED TIMES THE UNIT SHALL STOP. THE OUTDOOR AIR DAMPER SHALL CLOSE AND THE FAN SHALL STOP. WHEN THE RETURN AIR AVERAGING TEMPERATURE SENSOR REACHES 72°F, THEN THE UNIT FAN SHALL START. THE GAS HEAT SHALL BE ACTIVATED AND UNIT SUPPLY AIR TEMPERATURE SHALL BE MAINTAINED AT 80°F UNTIL THE RETURN AIR AVERAGING TEMPERATURE SENSOR REACHES 72°F. THEN THE GAS HEAT SHALL BE DEACTIVATED AND 2 MINUTES FOLLOWING, THE FAN SHALL STOP.
- OCCUPIED COOLING: THE FAN SHALL START AND COOLING REFRIGERATION STEPS OF CONTROL WITH HOT GAS BYPASS OR ECONOMIZER CONTROL SHALL BE STARTED TO MAINTAIN THE LEAVING AIR TEMPERATURE AS DECODD BY THE SUPPLY AIR TEMPERATURE RESET SCHEDULE.
- UNOCCUPIED COOLING: THE FAN SHALL STOP. COOLING DEACTIVATES, AND OUTDOOR AIR DAMPER SHALL REMAIN CLOSED. IF ANY SPACE TEMPERATURE SERVED BY THIS UNIT RISES ABOVE 82°F (ADJ.) THE FAN WILL START. THE MIXING DAMPERS WILL MODULATE OPEN PROVIDING THE SYSTEM IS IN THE ECONOMIZER MODE AND COOLING SHALL BE ENABLED UNTIL ALL OF THE SPACE TEMPERATURES SERVED BY THIS UNIT DROPS TO 78°F. THEN THE FAN WILL STOP, OUTSIDE DAMPERS CLOSE, AND MECHANICAL COOLING IS DISABLED.
- MORNING WARM UP: WHENEVER THE OUTDOOR AIR TEMPERATURE IS BELOW 63°F, THE SYSTEM SHALL BE OPTIMALLY STARTED TO BRING THE SPACE TEMPERATURE FROM UNOCCUPIED HEATING TEMPERATURES TO OCCUPIED SPACE TEMPERATURE AIDED BY THE GAS HEAT. THE GAS HEAT SHALL BE ACTIVATED AND THE SUPPLY AIR TEMPERATURE SENSOR SHALL LIMIT SUPPLY AIR TEMPERATURE TO 100°F BY GAS MODULATION. THE BUILDING SHALL BE TO OPERATIONAL TEMPERATURES AS DETERMINED BY THE OWNER AND THEIR SYSTEMS INTEGRATION CONSULTANTS.
- ECONOMIZER OPERATION: WHEN IN THE OCCUPIED MODE AND THE OUTDOOR AIR ENTHALPY IS LESS THAN 24 BTU/LB FOR MORE THAN ONE HOUR, THE OUTDOOR AIR TEMPERATURE IS BELOW 65 DEGREES F (ADJUSTABLE), AND WHERE THERE IS A DEMAND FOR COOLING, THE COMPRESSORS SHALL STOP. THE BYPASS DAMPER SHALL CLOSE, AND THE OUTDOOR AIR AND RETURN AIR DUCT DAMPERS (MD4) MODULATE TO MAINTAIN FLOOR PRESSURE. LEAVING AIR TEMPERATURE, MODULATE THE POWER RELIEF FAN IN THE UNIT TO MAINTAIN A POSITIVE SPACE PRESSURE OF 0.03" WITH RESPECT TO THE OUTDOORS (PS1).
- COIL BYPASS DAMPER CONTROL: WHEN THE RETURN AIR RELATIVE HUMIDITY RISES ABOVE 55% RH THE DX COOLING WILL BE ENERGIZED. THE BYPASS DAMPER WILL MODULATE TO MAINTAIN 62°F DISCHARGE TEMPERATURE. WHEN THE BYPASS DAMPER HAS BEEN CLOSED FOR 10 MINUTES AND THE RETURN RELATIVE HUMIDITY REMAINS BELOW 55% RH THE DX COOLING WILL BE DE-ENERGIZED.
- A MIXED AIR LOW LIMIT CONTROL OF 48°F WILL BE MAINTAINED REGARDLESS OF ANY OTHER COMPETING ALGORITHM TO THE MIXING DAMPERS. IN THE EVENT THAT THE MIXED AIR TEMPERATURE SENSOR FALLS BELOW 44°F AN ALARM WILL BE SENT TO THE BAS AND THE UNIT WILL BE SHUTDOWN.
- POWER RELIEF: RELIEF FAN SHALL MODULATE TO MAINTAIN A POSITIVE SPACE PRESSURE OF 0.03" W.G. WITH RESPECT TO OUTDOORS AS SENSED BY THE BUILDING SPACE PRESSURE SENSOR PS1.
- PROVIDE A LOW STATIC PRESSURE SENSOR/RELAY WITH MANUAL RESET WIRED DIRECTLY TO THE FAN SPEED CONTROL TO STOP THE FAN MOTOR IF THE STATIC PRESSURE IN THE MIXING BOX INCREASES BELOW A NEGATIVE 1.0" STATIC PRESSURE WITH RESPECT TO THE OUTDOORS.
- THE OUTDOOR AIR DAMPER SHALL MODULATE FROM MINIMUM AIR CIRCULATION AS INDICATED BY THE AIRFLOW STATION, TO THE UNIT'S SCHEDULED MAXIMUM VENTILATION FROM AN AVERAGE CO2 READING OF 200 PPM TO 600 PPM ABOVE AMBIENT CO2. OUTDOOR AIR DAMPER SHALL MODULATE CLOSED AS REQUIRED TO LIMIT A COOLING COIL DISCHARGE TEMPERATURE TO NO LESS THAN 35°F AND A WARNING ALARM SHALL BE INITIATED IF REACHED. A WARNING ALARM ALSO SHALL BE INITIATED IF CO2 LEVELS RISE OR FALL MORE THAN 10% OF THE SYSTEM CO2 SETPOINTS FOR DEMAND CONTROLLED VENTILATION OR WHEN THE MINIMUM OUTSIDE AIR SETPOINT HAS BEEN EXCEEDED BY 10% WHEN CO2 LEVELS RISE ABOVE 600 PPM OVER AMBIENT.



03 FLOOR PENETRATION DETAIL

NOT TO SCALE



NOTE:
REFER TO ARCHITECTURAL/STRUCTURAL DRAWINGS FOR ADDITIONAL INFORMATION.

02 MECHANICAL SHAFT SECTION

NTS

EXHAUST FAN CONTROL REQUIREMENTS

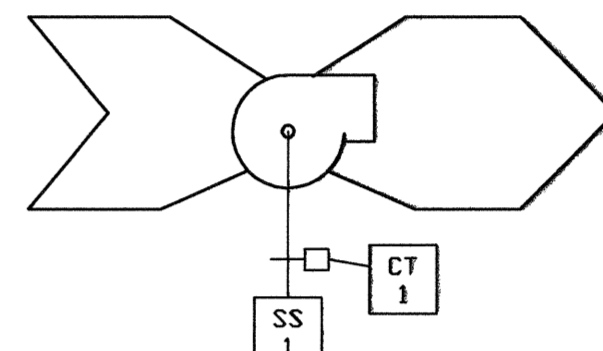
EF	EXHAUST FAN CONTROLLED BY.					
	SERVES	BAS ***	SWITCH *	LINE VOLTAGE T-STAT**	BAS/VFD (PRESSURE SENSOR)	OTHER
EF-1	RR BLOCK	X				
EF-2	RR BLOCK	X				

- * FAN CONTROLLED BY SWITCH-REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- ** FURNISH LINE VOLTAGE THERMOSTAT TO ELECTRICAL FOR INSTALLATION-SETPOINT=85°F.
- *** PROVIDE CONTROL RELAY TO CONTROL FAN FROM BAS. COORDINATE POWER WIRING WITH ELECTRICAL CONTRACTOR.

EXHAUST FANS INPUT/OUTPUT POINT SUMMARY TABLE

POINT DESIGNATION	HARDWARE POINT DESCRIPTION	HARDWARE PROVIDE NUMBER OF POINTS FOR EACH PIECE OF EQUIPMENT			
		INPUT (I)		OUTPUT (O)	
		ANALOG	DIGITAL	ANALOG	DIGITAL
CT1	FAN CURRENT TRANSDUCER				
SS1	FAN START/STOP		X		X

EF-1 THROUGH EF-2 CONTROL SCHEMATIC DIAGRAM



OCCUPIED/UNOCCUPIED CONTROL SEQUENCE OF OPERATION

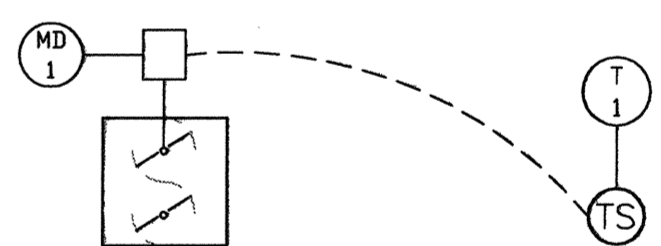
- PROVIDE NEW SPLIT CORE CURRENT TRANSDUCER DESIGNED FOR THE FAN TO VERIFY FAN OPERATION (H804 VERIS HAWKEYE 5-34HZ ON/OFF SET SPEED DETERMINED BY MANUFACTURER AND BALANCING CONTRACTOR).
- FAN SHALL BE ENERGIZED DURING OCCUPIED TIMES AND DEENERGIZED DURING UNOCCUPIED TIMES. OCCUPIED TIMES SHALL BE COORDINATED WITH OWNER.
- BAS SHALL MONITOR FAN STATUS.
- REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION RELATED TO EF-1/EF-2 CONTROL. COORDINATE AS REQUIRED.

04 EXHAUST FANS SEQUENCE OF OPERATION

NTS

GENERAL SEQUENCE OF OPERATIONS/INCIDENTAL CONTROLS INPUT/OUTPUT POINT SUMMARY TABLE

POINT DESIGNATION	HARDWARE POINT DESCRIPTION	HARDWARE PROVIDE NUMBER OF POINTS FOR EACH PIECE OF EQUIPMENT			
		INPUT (I)		OUTPUT (O)	
		ANALOG	DIGITAL	ANALOG	DIGITAL
PM1	BUILDING ELECTRICAL SERVICE GENERATOR		X		
FA1	FIRE ALARM INTERFACE SIGNAL				X
L1	EXTERIOR LIGHTING CONTROL				X
L2	INTERIOR LIGHTING CONTROL				X
T1	ELEVATOR EQUIPMENT ROOM SPACE TEMPERATURE SENSOR	X			
T2	MODULATING DAMPER SPACE TEMPERATURE SENSOR	X			
MD1	RAISED FLOOR MODULATING DAMPER			X	



TEMPERATURE CONTROLLED RAISED FLOOR MODULATING DAMPER SCHEMATIC

GENERAL SEQUENCE OF OPERATIONS/INCIDENTAL CONTROLS.

BUILDING ELECTRICAL SERVICE GENERATOR: PROVIDE A CONTROL POINT IN THE EVENT THAT A GENERATOR IS ADDED TO THE BUILDING. BAS SHALL MONITOR THE GENERATOR STATUS.

FIRE ALARM INTERFACE: ALL SMOKE DETECTORS SHALL BE FURNISHED AND INSTALLED WITH THE FIRE ALARM SYSTEM. WHEN THE SYSTEM IS IN ALARM, A SIGNAL SHALL BE PROVIDED TO THE BAS CONTROLLER. SHUT DOWN OF UNITS SHALL BE BY FIRE ALARM SYSTEM. WHEN THE SYSTEM IS CLEARED, ALL THE UNITS SHALL BE REACTIVATED BY EITHER THE FIRE ALARM PANEL OR BUILDING AUTOMATION SYSTEM UPON SIGNAL FROM FIRE ALARM PANEL, SUBJECT TO STAGGERED START SEQUENCE.

EXTERIOR LIGHTING AND CORRIDOR LIGHTING: PROVIDE CONTROL TO ENERGIZE/DEENERGIZE EXTERIOR AND CORRIDOR LIGHTING. ELECTRICAL CONTRACTOR TO PROVIDE TWO 24 VOLT CONTACTORS, ONE FOR THE EXTERIOR LIGHTS AND ONE FOR THE BUILDING'S CORE LIGHTS FOR THE BAS SYSTEM TO ENERGIZE/DEENERGIZE. REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

ENERGIZE/DEENERGIZE THE BUILDING'S CORE LIGHTING BASED ON A TIME SCHEDULE TO BE PROVIDED BY THE OWNER. A TOTAL OF THREE (3) OVERRIDE SWITCHES FOR INTERIOR LIGHTING ARE TO BE PROVIDED BY THE BAS CONTRACTOR. EXTERIOR LIGHTING SHALL ENERGIZE/DEENERGIZE BASED ON SIGNAL FROM A PHOTOCELL OR ASTRONOMICAL TIME SWITCH. SEE DETAIL ON E3.2 FOR HOW EXTERIOR LIGHTING WILL BE CIRCUITED AND CONTROLLED. THE PHOTOCELL SHALL BE PROVIDED BY ELECTRICAL CONTRACTOR BUT SHALL BE WIRED THROUGH A CONTACTOR PROVIDED BY THE BUILDING AUTOMATION SYSTEMS CONTRACTOR. THE ASTRONOMICAL TIME SWITCH USED TO CONTROL OUTDOOR LIGHTING SHALL BE INTEGRAL TO THE BAS CONTROLLER AND SHALL:

- BE CAPABLE OF PROGRAMMING DIFFERENT SCHEDULES FOR WEEKDAYS AND WEEKENDS
- HAVE PROGRAM BACKUP CAPABILITIES THAT PREVENT THE LOSS OF THE DEVICE'S PROGRAM AND TIME SETTING FOR AT LEAST 10 HOURS IF POWER IS INTERRUPTED
- CONTAIN AT LEAST 2 SEPARATELY PROGRAMMABLE CHANNELS PER FUNCTION AREA
- HAVE THE ABILITY TO INDEPENDENTLY OFFSET THE ON AND OFF TIMES FOR EACH CHANNEL BY 0 TO 99 MINUTES BEFORE OR AFTER SUNRISE OR SUNSET
- HAVE SUNRISE AND SUNSET PREDICTION ACCURACY WITHIN +/- 15 MINUTES
- TIMEKEEPING ACCURACY WITHIN 5 MINUTES PER YEAR
- STORE TIME, ZONE, LONGITUDE AND LATITUDE IN NON-VOLATILE MEMORY
- DISPLAY DATE/TIME, SUNRISE AND SUNSET TIMES
- HAVE AN AUTOMATIC DAY/
- HAVE AUTOMATIC TIME 5% NON-RESIDENTIAL COMPLI
- ELEVATOR EQUIPMENT ROOM: PROV
- PROVIDE ALARM SIGNAL TO BAS W
- SPACE TEMPERATURE SENSOR CONTI
- TEMPERATURE SENSOR TO MODULU
- DAMPER TO MAINTAIN SPACE TEMP

05 GENERAL SEQUENCE OF

NTS

UNIT HEATER SCHEDULE		
MARK (UH-#)	1	5
MANUFACTURER	TRANE	
MODEL	GHR0304	
TYPE	INDOOR UNIT	
AIR FLOW (CFM)	720	
VENT SIZE (IN)	4	
HEATER		
FUEL	NATURAL GAS	
INPUT (BTU/HR)	46,000	
OUTPUT (BTU/HR)	36,000	
ELECTRICAL		
VOLTS/Ø/Hz	120V/60	
MOTOR HP	1/30	
APPROX. WEIGHT (LBS)	94	
ACCESSORIES	DS, WMR	
NOTES	1-3	
ACCESSORIES:	DS-DISCONNECT SWITCH, XPMR-120V TO 24V CONTROL TRANSFORMER	
NOTES:	1) FACTORY FURNISHED SINGLE STAGE THERMOSTAT (FOR REMOTE MOUNTING). SET T-STAT TO 50 DEG F. 2) FACTORY FURNISHED MOUNTING BRACKETS. 3) FACTORY PROVIDED TIME DELAY ON SUPPLY FAN.	

CONDENSING UNIT SCHEDULE		
MARK (CU-#)	3	
MANUFACTURER	DAIKIN	
MODEL	PUY-A30R1A	
AMBIENT OA TEMP (°F DB)	95	
TOTAL CAPACITY (BTU/HR)	34,200	
PHYSICAL DATA		
NO. OF FANS	1	
NO. OF COMP.	1	
ELECTRICAL		
VOLTS/Ø/Hz	208/1/60	
MCA (AMPS)	25	
MOCF (AMPS)	30	
APPROX. WEIGHT (LBS)	185	
ACCESSORIES	LAWB	
NOTES	1	
ACCESSORIES:	LAWB-LOW AMBIENT WIND BAFFLES	
NOTES:	1) PROVIDE LIQUID LINE SIGHT GLASS, MOISTURE INDICATOR, AND FILTER DRYER.	

HEAT PUMP CONDENSING UNIT SCHEDULE		
MARK (HP-#)	12	
MANUFACTURER	TRANE	
MODEL	21WB3016	
AMBIENT OAT (°F)	95	
COOLING		
TOTAL CAPACITY (BTU/HR)	17,000	
EER	13.00 SEER	
HEAT PUMP HEATING		
OUTPUT @ 37°F	9,600	
OUTPUT @ 47°F	18,000	
COP	3.46	
PHYSICAL DATA		
NO. OF FANS	1	
NO. OF COMP.	1	
ELECTRICAL		
VOLTS/Ø/Hz	208/1/60	
MCA (AMPS)	7.45	
MOCF (AMPS)	15	
APPROX. WEIGHT (LBS)	185	
ACCESSORIES		
NOTES	1-2	
ACCESSORIES:		
NOTES:	1) PROVIDE LIQUID LINE SIGHT GLASS, MOISTURE INDICATOR, AND FILTER DRYER 2) PROVIDE 5 MINUTE TIME DELAY ON COMPRESSOR RESTART.	

AIR HANDLING UNIT SCHEDULE		
MARK (AHU-#)	1-2	3
MANUFACTURER	TRANE	DAIKIN
MODEL	ZTEC3F18	PKA-A36FAL
AIR FLOW (CFM)	600	300
OA FLOW (CFM)	-	-
EXT. SP. (IN W.C.)	0.8	0.1
DX COOLING COIL		
EAT (°F DB/°WB)	80.0 / 67.0	80.0 / 67.0
TOTAL (BTU/HR)	17000	34200
SENSIBLE (BTU/HR)	12600	-
ELECTRICAL		
VOLTS/Ø/Hz	208/1/60	208/1/60
MOTOR HP (WATTS)	1/4	(70W)
MCA (AMPS)	4.17	1
MOCF (AMPS)	15	15
APPROX. WEIGHT (LBS)	115	65
ACCESSORIES		RCOT, CP
NOTES		
ACCESSORIES:	RCOT-REMOTE CONTROLLER/THERMOSTAT, CP-OPTIONAL CONDENSATION PUMP	
NOTES:		

EXHAUST AND VENTILATION FAN SCHEDULE		
MARK (EF-#)	1,2	
MANUFACTURER	LOREN COOK	
MODEL	195 ACEB	
TYPE	ROOF MOUNTED EXHAUST FAN	
DRIVE TYPE	BELT	
PERFORMANCE		
AIR FLOW (CFM)	5025	
EXT. STATIC (IN W.C.)	0.625	
FAN SPEED (RPM)	1200	
ELECTRICAL		
VOLTS/Ø/Hz	208/3/60	
FAN MOTOR HP	1-1/2	
ACCESSORIES	BS, BD, DS	
APPROX. WEIGHT (LBS)	130	
SERVICES	RESTROOMS	
NOTES	1	
ACCESSORIES:	BS-BIRD SCREEN, BD-BACKDRAFT DAMPER, DS-DISCONNECT SWITCH	
NOTES:	1) FURNISH WITH INTEGRAL DISCONNECT SWITCH. FURNISH MAGNETIC TYPE STARTER WITH NEMA 1 ENCLOSURE TO ELECTRICAL CONTRACTOR FOR INSTALLATION NEAR TO THE PANEL THAT POWERS EXHAUST FAN. UNIT SHALL HAVE INTERNAL THERMAL OVERLOAD RELAYS WITH AUTO RESET, HAND/OFF/AUTO SWITCH WITH PILOT LIGHT, (110V OR 24V) TRANSFORMER & AUXILIARY CONTACTS AS REQUIRED.	

GRILLE, REGISTER, AND DIFFUSER SCHEDULE				
MARK	2	3	C	D
MANUFACTURER	TITUS	TITUS	TITUS	TITUS
MODEL	CT-480	FL-20-4T	TDC	365-RL
TYPE	LINEAR BAR DIFFUSER	FLOW BAR DIFFUSER	LOUVERED FACE DIFFUSER	SURFACE MOUNTED RETURN GRILLE
NECK SIZE (L"XW")	SEE PLAN	SEE PLAN	12" DIA	24"X12"
FACE SIZE (L"XW")	5" WIDE	2" SLCT	24"X24"	28"X14"
FRAME TYPE	FRAMELESS - BORDER 11	FRAMELESS - BORDER 11	LAY-IN	SURFACE
FINISH	WHITE	WHITE	WHITE	PAINT PER ARCHITECT
NOISE CRITERIA LEVEL	<30	<30	<30	<30
ACCESSORIES	SBD		STR, TRM	OBD
NOTES	1	1,4	2	
MARK	F	G	H	
MANUFACTURER	TITUS	TATE	TITUS	
MODEL	TDC	GRATE/ARE	TDC	
TYPE	LOUVERED FACE EXHAUST GRILLE	ALUMINUM FLOOR GRATE	LOUVERED FACE RETURN/TRANSFER GRILLE	
NECK SIZE (L"XW")	SEE PLAN	24"X24"	22"X22"	
FACE SIZE (L"XW")	12"X12"	24"X24"	24"X24"	
FRAME TYPE	SURFACE	LAY-IN	LAY-IN	
FINISH	WHITE	-	PAINT PER ARCHITECT	
NOISE CRITERIA LEVEL	<30	-	<30	
ACCESSORIES	OBD, TRM	AJD		
NOTES			2	
ACCESSORIES:	OBD-OPENED BLADE DAMPER, STR-SQUARE TO ROUND TRANSITION, TRM-RAPID MOUNT FRAME FOR GYPSUM CEILING			
NOTES:	1) BAR TYPE DIFFUSER WITH 4" LONG INSULATED PLENUM. TAP INTO PLENUM WITH DUCT SIZE SHOWN ON PLANS. 2) PROVIDE DIFFUSER WITH 4-WAY THROW. 3) PROVIDE GRILLE WITH 1-WAY THROW. LOUVERS TO FACE BACK WALL. 4) PROVIDE WITH 5020CC DAMPER AND 270-275 BOWDEN CABLE CONTROL SYSTEM. INSTALL PER MANUFACTURER'S RECOMMENDATION.			

ROOFTOP UNIT SCHEDULE			
MARK (RTU-#)	1-4	5	
MANUFACTURER	YORK	TRANE	
MODEL	YRAL105	03H02	
UNIT AIR FLOW (CFM)	38,550	2,975	
COIL AIR FLOW (CFM)	32,550	2,975	
BYPASS AIR FLOW (CFM)	4,000	N/A	
EXHAUST AIR FLOW (CFM)	38,550	2,975	
OA FLOW (CFM)	5,650	500	
AMBIENT OAT (°F)	105	105	
EXTERNAL STATIC (IN W.C.)	1.5	0.9	
DX COOLING COIL			
EAT (°F DB/°WB)	81.5 / 67.0	80.0 / 64.3	
TOTAL (BTU/HR)	1,169,000	80,000	
SENSIBLE (BTU/HR)	1,114,200	73,100	
GAS HEAT			
FUEL	NATURAL GAS	NATURAL GAS	
INPUT (BTU/HR)	1,125,000	180,000	
OUTPUT (BTU/HR)	900,000	144,000	
ELECTRICAL			
VOLTS/Ø/Hz	460/3/60	460/3/60	
FAN MOTOR HP	40	3	
EXHAUST FAN MOTOR HP	26	-	
UNIT MCA	273	25.1	
MOCF AMPS	300	30	
APPROX. WEIGHT (LBS)	20,000	1,400	
ACCESSORIES	DS	DS	
NOTES	1-7,9,11	1-2,8-10	
ACCESSORIES:	DS-DISCONNECT SWITCH		
NOTES:	1) FACTORY PROVIDED 100% COMPARATIVE ENTHALPY ECONOMIZER 2) FACTORY PROVIDED POWERED RELIEF 3) FACTORY PROVIDED HOT GAS BYPASS 4) FACTORY FURNISHED 24" SEISMIC ROOF CURB, REFERENCE SPECIFICATIONS 5) FACTORY FURNISHED MODULATED HEAT 6) VARIABLE VOLUME UNIT 7) FACTORY PROVIDE BYPASS AIR THROUGH THE CURB IN THE FAN SECTION. BALANCE TO AIR FLOWS LISTED ABOVE 8) FACTORY FURNISHED 14" STANDARD ROOF CURB 9) APPROVED RTU MANUFACTURER, YORK CALL JIM VAN HOECKE AT 913-620-0320 FOR RTU PRICING AND DELIVERY. INCLUDE IN BID ALL PRICING, SERVICE, WARRANTY, START UP, ETC. AS PER SPECIFICATIONS. 10) FACTORY FURNISHED STAGED HEAT 11) PROVIDE UNIT WITH CUSTOM PLUS FAN. CONTACT JIM VAN HOECKE AT 913-620-0320 FOR ADDITIONAL INFORMATION.		