

05.19.2023

Revisions

Project No. CBA22009

Drawn By:

Date: 05/19/23

Sheet Title:
MECHANICAL SCHEDULES

Drawing No.

M-1.01

10LH-1-2022

MECHANICAL SYMBOLS, LEGENDS

NOTE: THIS IS A MASTER LEGEND AND NOT ALL SYMBOLS, ETC. ARE NECESSARILY USED ON THE DRAWINGS.

PIPING

— CD —	CONDENSATE DRAIN (CD)
— ACD —	AUXILIARY CONDENSATE DRAIN (ACD)
— RL —	REFRIGERANT LIQUID (RL)
— RD —	REFRIGERANT DISCHARGE (HOT GAS) (RD)
— RS —	REFRIGERANT SUCTION (RS)
— — — —	EXISTING PIPING TO BE REMOVED
— — — —	EXISTING PIPING TO REMAIN

HVAC EQUIPMENT & DUCTWORK

NOTE: ALL DUCT DIMENSIONS SHOWN ON DRAWINGS ARE INSIDE DIMENSIONS. SEE SECTION 15250 OF THE SPECIFICATION FOR DUCTWORK TO RECEIVE INSULATION OR LINER.

	EXISTING DUCTWORK OR EQUIPMENT TO REMAIN
	EXISTING DUCTWORK OR EQUIPMENT TO BE REMOVED
	BRANCH DUCT WITH 45° RECTANGLE-ROUND BRANCH FITTING AND MANUAL VOLUME DAMPER
	ELBOW WITH TURNING VANES
	RETURN, EXHAUST, OR OUTSIDE AIR DUCT UP
	RETURN, EXHAUST, OR OUTSIDE AIR DUCT DOWN
	SUPPLY AIR DUCT UP
	SUPPLY AIR DUCT DOWN
	EQUIPMENT WITH FLEXIBLE DUCT CONNECTION
	10" CSD-1 300 CFM NECK SIZE, TYPE, CFM OF SUPPLY DIFFUSER OR REGISTER
	MANUAL VOLUME DAMPER
	SQUARE TO ROUND TRANSITION
	DUCT MOUNTED SMOKE DETECTOR (SD=SUPPLY/RD=RETURN)
	FIRE DAMPER
	FIRE SMOKE DAMPER
	SMOKE DAMPER
	VOLUME DAMPER
	MOTORIZED DAMPER
	BACKDRAFT DAMPER
	CARBON DIOXIDE SENSOR
	HUMIDITY SENSOR
	PULL STATION
	STATIC PRESSURE SENSOR
	TEMPERATURE SENSOR
	HUMIDISTAT
	THERMOSTAT

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	MC	MECHANICAL CONTRACTOR
BAS	BUILDING AUTOMATION SYSTEM	MIN	MINIMUM
BD	BACKDRAFT DAMPER	NC	NOISE CRITERIA
CFM	CUBIC FEET PER MINUTE	OA	OUTSIDE AIR
DDC	DIRECT DIGITAL CONTROL	RA	RETURN AIR
DX	DIRECT EXPANSION	SA	SUPPLY AIR
EA	EXHAUST AIR	SD	SMOKE DUCT DETECTOR
FFA	FROM FLOOR ABOVE	TFA	TO FLOOR ABOVE
FFB	FROM FLOOR BELOW	TFB	TO FLOOR BELOW
GPM	GALLONS PER MINUTE	TYP	TYPICAL
IN WC	INCHES OF WATER COLUMN	UNO	UNLESS NOTED OTHERWISE
MAX	MAXIMUM	W/	WITH
MBH	1000 BTU PER HOUR	W/O	WITHOUT

STANDARD MOUNTING HEIGHTS

MECHANICAL THERMOSTATS (USER ADJUSTABLE)	(AFF, AFG, UNLESS NOTED OTHERWISE)	48"
CONTROLS (CENTERLINE)		48"

ANNOTATION

	MECHANICAL PLAN CULLOUT
	MECHANICAL EQUIPMENT DESIGNATION (CONTRACTOR FURNISHED AND INSTALLED UNLESS NOTED OTHERWISE)
	CONNECTION POINT OF NEW WORK TO EXISTING
	DETAIL REFERENCE UPPER NUMBER INDICATES DETAIL NUMBER LOWER NUMBER INDICATES SHEET NUMBER
	SECTION CUT DESIGNATION

AIR HANDLER UNIT SCHEDULE (NATURAL GAS)

MARK	MANUFACTURER	MODEL	SUPPLY FAN			COOLING COIL					HEATING COIL		ELECTRICAL		NOTES				
			CFM	ESP (IN)	MIN. HP	REFR. TYPE	TC (MBH)	SC (MBH)	EAT (DB/WB)	LAT (DB)	MODEL	INPUT (MBH)	OUTPUT (MBH)	%EFF		V/PH	MCA	MOCP	
AHU-1	TRANE	TUD2C080A9	1,600	0.80	1.0	140	R-410A	47.5	34.4	80/67	58	4TCC090S3	80	64	80.0	120/1	11.4	15	A,B,C,D,E,F,G,H,J

NOTES:
 A. EQUIPMENT COMPONENTS SHALL BE BY THE SAME MANUFACTURER.
 B. EQUIPMENT SIZED FOR 95° F AMBIENT TEMPERATURE.
 C. PROVIDE 1" PLEATED THROWAWAY AIR FILTERS.
 D. PROVIDE IN HORIZONTAL CONFIGURATION.
 E. PROVIDE WITH 7-DAY PROGRAMMABLE THERMOSTAT WITH OCCUPIED/UNOCCUPIED SETTINGS AND STAGED HEATING AND COOLING CAPABILITY AS REQUIRED FOR OPERATION OF AUXILIARY HEATING AND COOLING CONTROLS WITH A 5° DEADBAND. PROVIDE THERMOSTAT KEYPAD LOCK CAPABILITY.
 F. DIVISION 16 CONTRACTOR TO FURNISH AND INSTALL A SMOKE DETECTOR IN THE RETURN AIR DUCT.
 G. DISCONNECT SWITCH FURNISHED BY DIVISION 16 CONTRACTOR.
 H. PROVIDE WITH SPRING VIBRATION ISOLATION AND ALL-THREAD HANGING RODS.
 I. SPECIFIED FAN ESP DOES NOT INCLUDE LOSSES FOR DIRTY FILTERS.
 J. NO SUBSTITUTIONS ALLOWED.

CONDENSING UNIT SCHEDULE

MARK	SERVICE	MANUFACTURER	MODEL	NOMINAL CAPACITY (TONS)	REFR. TYPE	TC (MBH)	SC (MBH)	MIN. NO. OF STAGES	SEER	MCA	MOCP	V/PH	NOTES
CU-1	AHU-1	TRANE	4TIA3048A3	4	R-410A	47.5	34.4	1	14.0	18	30	208/3	A,B,C,D,E,F,G,H,I

NOTES:
 A. PROVIDE LOW AMBIENT CONTROL TO 30° F.
 B. EQUIPMENT SIZED FOR 95° F AMBIENT TEMPERATURE.
 C. CONTRACTOR SHALL VERIFY WITH EQUIPMENT SUPPLIER EXACT QUANTITY AND SIZE OF REFRIGERANT PIPING.
 D. PROVIDE LIQUID LINE FILTER DRYER AND SIGHT GLASS.
 E. PROVIDE CONCRETE HOUSEKEEPING PAD PER SPECIFICATIONS.
 F. DISCONNECT SWITCH FURNISHED BY DIVISION 16 CONTRACTOR.
 G. STARTERS FOR ALL MOTORS SHALL BE FURNISHED INTEGRAL WITH UNIT.
 H. COORDINATE SIZE OF CONDUCTOR TERMINATION LUGS WITH CONDUCTOR SIZES SHOWN ON ELECTRICAL DRAWINGS.
 I. NO SUBSTITUTIONS ALLOWED.

GRILLE, REGISTER AND DIFFUSER SCHEDULE

MARK	MANUFACTURER	MODEL	FACE TYPE	MOUNTING LOCATION	FACE SIZE (IN)	MAX. NC	MAX. PRESS. DROP (IN. W.C.)	NOTES
CSD1	TITUS	250AA	LOUVERED	SURFACE	12"x12"	30	0.1	A,B,C,D,E,F
CS2D	TITUS	250AA	LOUVERED	SURFACE	6"x6"	30	0.1	A,B,C,D,E,F
CRG1	TITUS	4FL	LOUVERED	SURFACE	12"x12"	30	0.05	D,F
CRG2	TITUS	55FL	LOUVERED	SURFACE	24"x24"	34	0.09	D,F

NOTES:
 A. NECK SIZE SHOWN ON DRAWINGS.
 B. 4-WAY THROW PATTERN UNLESS OTHERWISE SHOWN ON DRAWINGS.
 C. BRANCH DUCT SIZE SHALL BE SAME AS NECK SIZE UNLESS OTHERWISE SHOWN ON DRAWINGS.
 D. BAKED ENAMEL FINISH, WHITE.
 E. PROVIDE NECK FOR DUCT CONNECTION.
 F. FRAME TYPE TO MATCH CONSTRUCTION TYPE, COORDINATE WITH ARCHITECTURAL REFLECTED CEILING PLAN.

FAN SCHEDULE

MARK	SERVICE (EA, RA, SA)	MANUFACTURER	MOUNTING	MODEL	CFM	ESP (IN)	DRIVE (BELT/DIRECT)	MIN. HP	FAN RPM	V/PH	NOTES
EF-1	EA	GREENHECK	SURFACE	SP-A110	100	0.25	DIRECT	18 WATTS	950	115/1	A,B,C,D
EF-2	EA	GREENHECK	SURFACE	SP-A110	100	0.25	DIRECT	18 WATTS	950	115/1	A,B,C,D
EF-3	EA	GREENHECK	ATTIC	BDF-90-7	2000	0.5	BELT	3/4	1050	115/1	A,B,H,I
EF-4	EA	GREENHECK	ATTIC	BDF-90-7	2000	0.5	BELT	3/4	1050	115/1	A,B,H,I
EF-5	EA	GREENHECK	SURFACE	SP-A110	100	0.25	DIRECT	80 WATTS	950	115/1	A,B,C,D,J
SF-1	SA	GREENHECK	WALL	ICO-24-B5-J1-QD	6400	--	DIRECT	1/2	1,075	115/1	B,E,F,G
SF-2	SA	GREENHECK	WALL	ICO-24-B5-J1-QD	6400	--	DIRECT	1/2	1,075	115/1	B,E,F,G
SF-3	SA	GREENHECK	WALL	ICO-24-B5-J1-QD	6400	--	DIRECT	1/2	1,075	115/1	B,E,F,G
SF-4	SA	GREENHECK	WALL	ICO-24-B5-J1-QD	6400	--	DIRECT	1/2	1,075	115/1	B,E,F,G

NOTES:
 A. PROVIDE RUBBER IN SHEAR ISOLATION AND ALL-THREAD HANGING RODS.
 B. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH.
 C. NOT USED.
 D. PROVIDE MANUFACTURER'S SPRING-LOADED BACKDRAFT DAMPER.
 E. MOUNT WALL MOUNTING BRACKET.
 F. PROVIDE WALL SWITCH AND COORDINATE HEIGHT WITH OWNER AND ARCHITECT.
 G. FANS TO BE OSCILLATING.
 H. PROVIDE MOTORIZED DAMPER SIMILAR TO GREENHECK VCD-23 AND ACTUATOR EQUAL TO HONEYWELL MS8110A1206. PROVIDE ON/OFF WALL SWITCH AND INTERLOCK OPERATION OF DAMPER WITH EF-3 AND EF-4.
 I. NOTE: VENTILATION SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS. NOTE: IT IS THE INTENTION OF THIS FACILITY THAT NO HYDROGEN GAS OR HYDROGEN FUELED VEHICLES ARE TO BE REPAIRED.
 J. INTERNAL THERMAL OVERLOAD PROTECTION.
 K. PROVIDE LINE VOLTAGE HONEYWELL THERMOSTAT MODEL T4054B. INTERLOCK FAN'S OPERATION WITH ADJUSTABLE TEMPERATURE SET POINT. SET INITIAL SET POINT AT 80° F.

RADIANT TUBE HEATER

MARK	AREA SERVED	V/PH	MBH INPUT	OVERALL LENGTH	IGNITION CURRENT	RUNNING CURRENT	MOUNT HEIGHT TO BOTTOM (FT.)	MANUFACTURER	MODEL	WEIGHT	ACCESSORIES
RH-1	SEE PLAN	120/1	100	20'-0"	4.8 AMPS	0.14 AMPS	12' - 13'	SCHWANK	STS-JZ-100-20	111	1,2,3,4,5,6,7
RH-2	SEE PLAN	120/1	100	20'-0"	4.8 AMPS	0.14 AMPS	12' - 13'	SCHWANK	STS-JZ-100-20	111	1,2,3,4,5,6,7
RH-3	SEE PLAN	120/1	100	20'-0"	4.8 AMPS	0.14 AMPS	12' - 13'	SCHWANK	STS-JZ-100-20	111	1,2,3,4,5,6,7
RH-4	SEE PLAN	120/1	100	20'-0"	4.8 AMPS	0.14 AMPS	12' - 13'	SCHWANK	STS-JZ-100-20	111	1,2,3,4,5,6,7

ACCESSORIES:
 1. PROVIDE 24 VOLT DIGITAL THERMOSTAT SCHWANK JS-0569-WR ALONG WITH RELAY SWITCH, JS-0568-CC, FOR SECOND CONNECTED BURNER - ONE THERMOSTAT FOR TWO HEATERS.
 2. PROVIDE 45 DEGREE MOUNTING ANGLE, CEILING SUSPENSION KIT
 3. TITANIUM COMBUSTION CHAMBER
 4. PROVIDE 4" TYPE B VENT CAP THRU ROOF SCHWANK JA-0528-XX
 5. PROVIDE 4" FRESH AIR INTAKE THRU ROOF.
 6. PROVIDE MANUFACTURER'S 24V RELAY.
 7. INSTALL PER MANUFACTURER'S RECOMMENDATIONS AND LOCAL & STATE CODES.

OUTSIDE AIR REQUIREMENTS

UNIT NO.	ROOM NO.	AREA S.F.	AREA SERVED	Rp - PERSONS PER 1000 S.F.	NO. OF PEOPLE	CFM PER PERSON	Rp - CFM PER S.F.	CFM PER S.F.	Rp+Rp OA REQUIRED	ZONE EFFECTIVENESS	O.A. REQUIRED	S.A. PROVIDED	O.A. PROVIDED	NOTES	
	101	275	RECEPTION/WAITING	10	4	5	0.06	17	37	0.8	46	750	66	B	
	102	180	SERVICE	5	1	5	0.06	6	11	0.8	14	250	22	B	
	103	55	TOILET ROOM	--	--	--	--	--	--	--	50	4	--	--	
	104	100	MANAGER	5	1	5	0.06	6	12	0.8	15	200	18	B	
	105	145	LUNCH/ WORKROOM	25	3	5	0.06	9	24	0.8	30	200	18	B	
	107	45	TECH TOILET	--	--	--	--	--	--	--	50	4	--	--	
	109	45	COMPRESSOR ROOM	--	--	5	0.06	--	--	--	0	--	--	--	
	110	200	STORAGE ROOM	--	--	5	0.06	--	--	--	100	9	--	--	
TOTALS											80	105	1600	140	A

NOTES:
 A. BALANCE UNIT OUTSIDE AIR TO 8.75%
 B. AREAS COMMUNICATE WITH EACH OTHER

FOR ALL BIDDING QUESTIONS, CONTACT THE OWNER. DO NOT CONTACT THE ENGINEER.

BID PER PLANS - NO EQUALS OR SUBSTITUTIONS ALLOWED.

MECHANICAL SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
M1.01	MECHANICAL SCHEDULES
M2.01	MECHANICAL FLOOR PLAN
M3.01	MECHANICAL DETAILS
M4.01	MECHANICAL SPECIFICATIONS

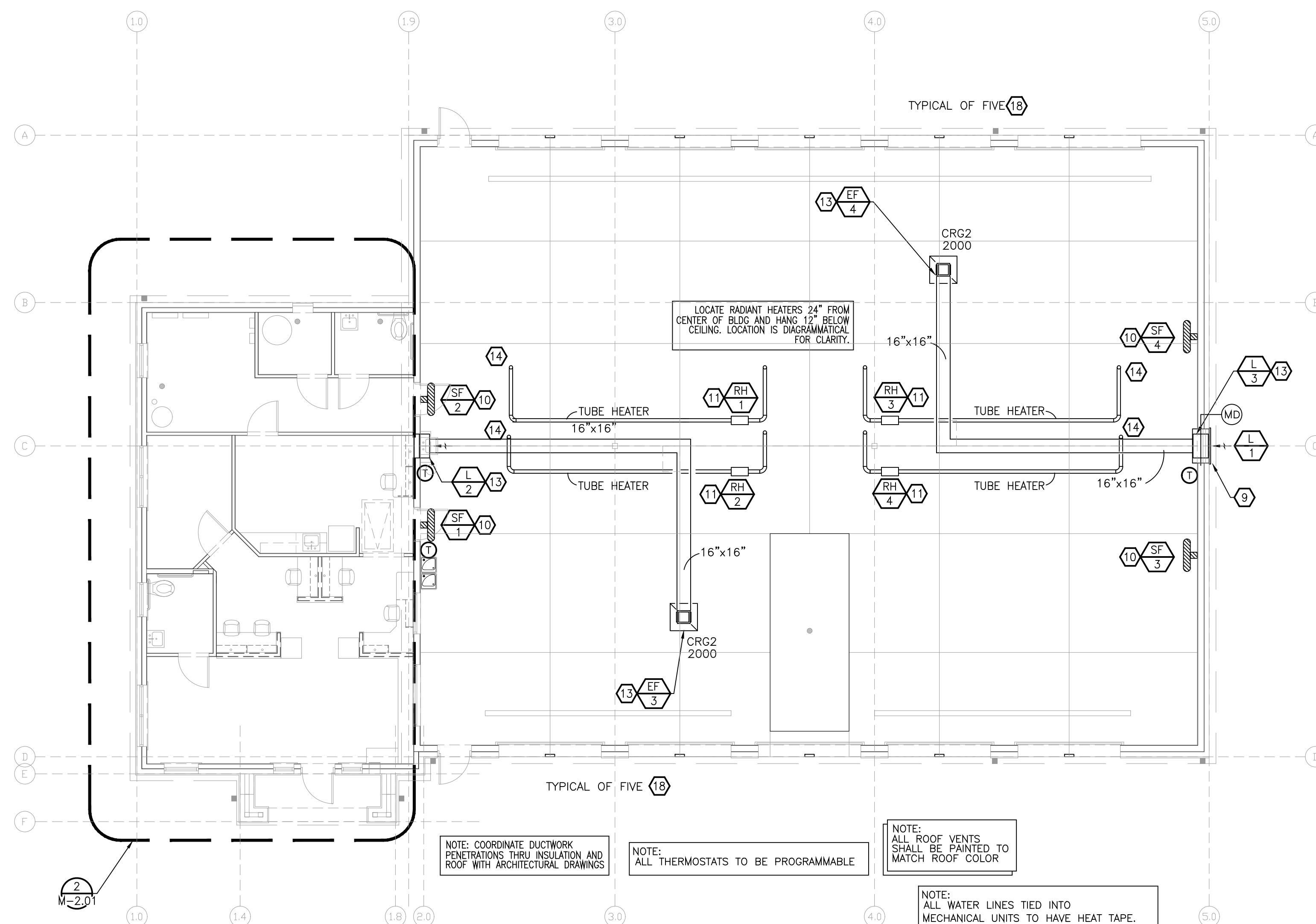
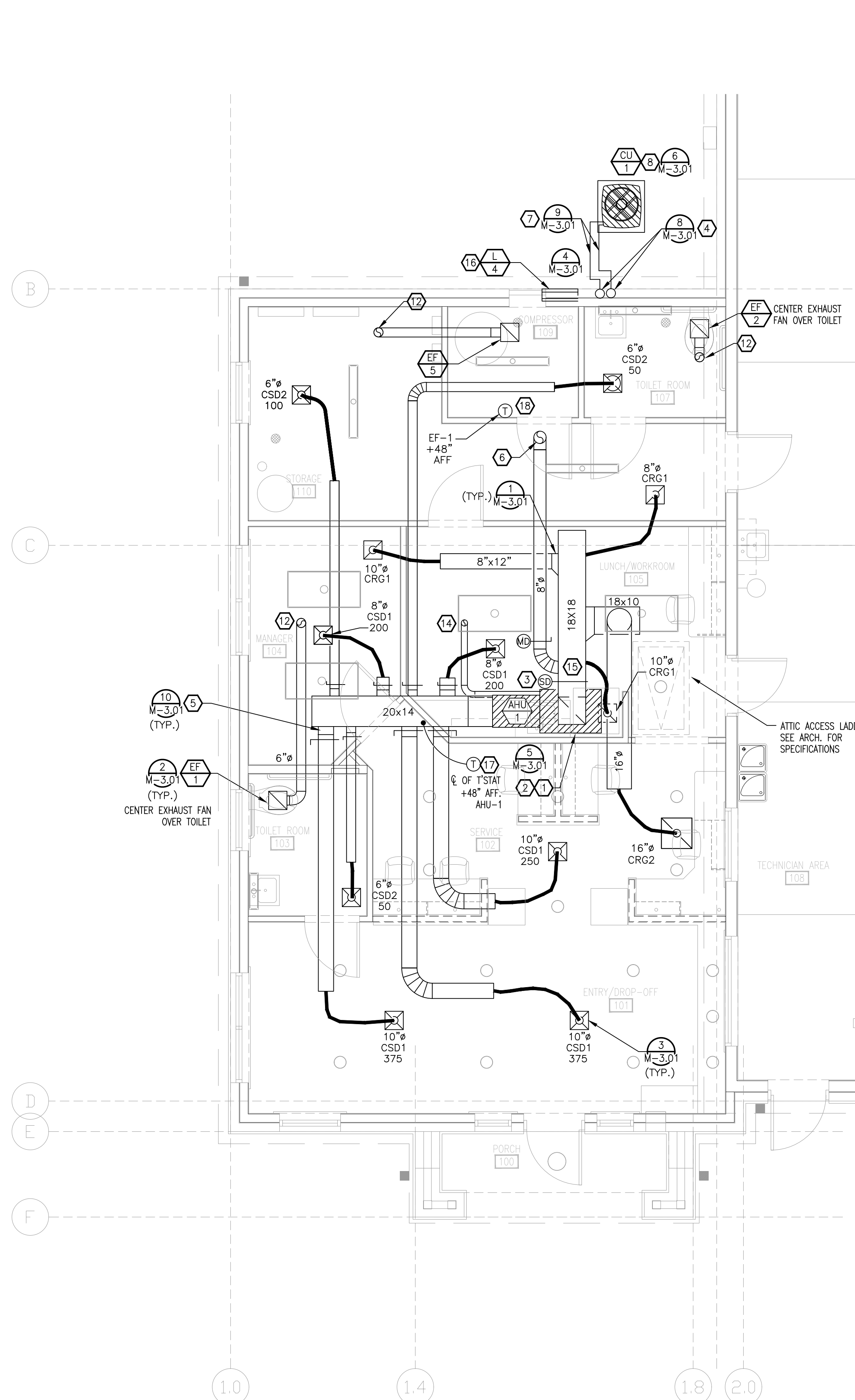
GARAGE VENTILATION CALCS PER IMC 403.3

SPACE	OCCUPANCY CLASSIFICATION	REQUIRED EXH CFM/SF.	AREA SQ. FT.	EXH. AIRFLOW REQUIRED	EXH. AIRFLOW PROVIDED
TECHNICIAN AREA	REPAIR GARAGE	0.75	4475	3356	4000

LOUVER SCHEDULE

MARK	MFR.	MODEL NO.	LISTED SIZE LxW (IN.)	FREE AREA (%)	WATER PENETRATION (FPM)	SERVICE	NOTES
L-1	RUSKIN	ELF375X	40x40	54	803	INTAKE	1,2
L-2	RUSKIN	ELF375X	28x24	54	803	EXHAUST	2
L-3	RUSKIN	ELF375X	28x24	54	803	EXHAUST	2
L-4	RUSKIN	ELF375X	16x16	54	803	INTAKE	2

NOTES:
 1. INTERLOCK OPEN AND CLOSE OPERATION OF MOTORIZED DAMPER WITH THE ON/OFF OPERATION OF EF-3 AND EF-4.
 2. LOUVER SHALL BE PROVIDED WITH A FACTORY PROVIDED 70% PVDF BLACK PAINT FINISH. PROVIDE WITH BIRDSCREEN.

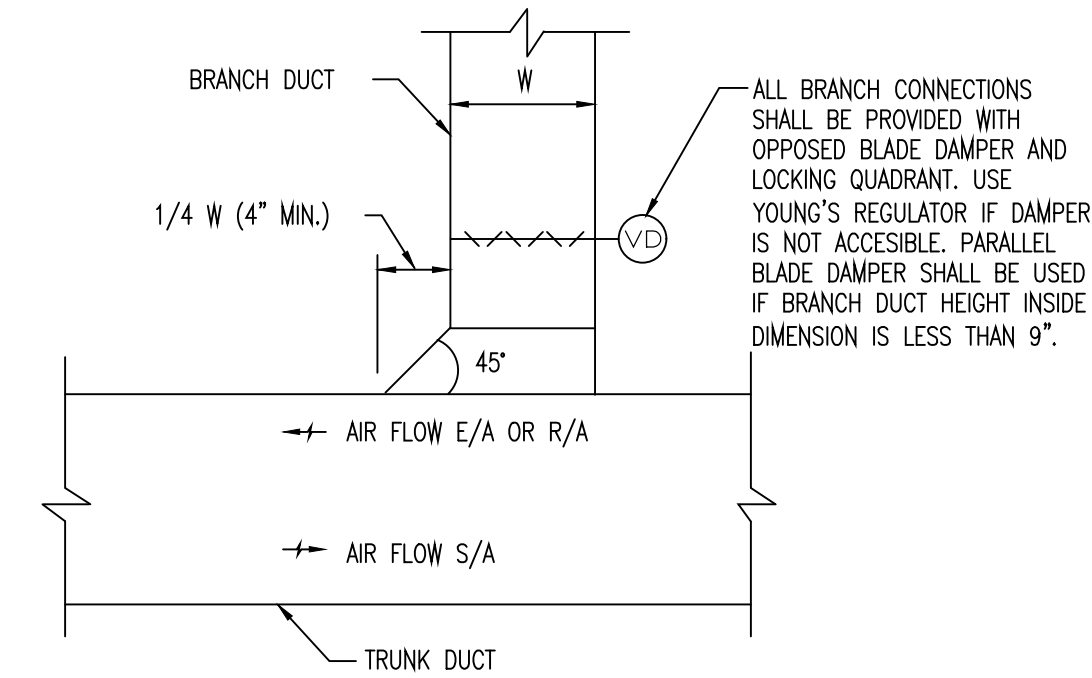


MECHANICAL GENERAL NOTES:

- A. PRIOR TO SUBMITTING BID, THE CONTRACTOR AND SUBCONTRACTORS SHALL VISIT THE JOB SITE AND BECOME FULLY ACQUAINTED WITH THE EXISTING CONDITIONS OF THE PROJECT. THE CONTRACTOR AND SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REVIEW OF THE GENERAL NOTES, SPECIFICATIONS AND ALL OTHER DRAWINGS FOR ADDITIONAL REQUIREMENTS WHICH MAY NOT BE SPECIFICALLY CALLED OUT IN THIS PORTION OF THE CONSTRUCTION DOCUMENTS. NOTIFY ARCHITECT, ENGINEER AND/OR OWNER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO SUBMISSION OF BID.
- B. COORDINATE THE INSTALLATION OF THE MECHANICAL SYSTEMS WITH OTHER TRADES TO ENSURE A NEAT AND ORDERLY INSTALLATION. DUCTWORK AND PIPING SHALL BE ROUTED TO AVOID CONFLICTS WITH ELECTRICAL PANELS, LIGHTING FIXTURES, ETC.
- C. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGING EXISTING SURFACES AND EQUIPMENT DURING WORK. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED DURING CONSTRUCTION AT NO EXTRA COST TO THE OWNER.
- D. PROVIDE ALL MECHANICAL EQUIPMENT SHOWN ON THE MECHANICAL PLANS UNLESS OTHERWISE NOTED.
- E. NEW MECHANICAL EQUIPMENT, DUCTWORK AND PIPING IS SHOWN AT APPROXIMATE LOCATIONS. FIELD MEASURE FINAL DUCTWORK AND PIPING LOCATIONS PRIOR TO FABRICATION AND MAKE ADJUSTMENTS AS REQUIRED TO FIT THE DUCTWORK AND PIPING WITHIN THE AVAILABLE SPACE. FIELD VERIFY FINAL EQUIPMENT LOCATIONS TO INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS REGARDING SERVICE CLEARANCE AND PROPER AIRFLOW CLEARANCE AROUND EQUIPMENT.
- F. REFER TO ARCHITECTURAL DRAWINGS FOR ALL RELATED CONSTRUCTION DETAILS AS APPLICABLE TO THE HVAC SYSTEM. CHASES AND PENETRATIONS INTENDED FOR DUCTWORK AND PIPING ROUTINGS SHALL BE VERIFIED WITH ARCHITECT.
- G. INSTALL ALL DUCTWORK AND PIPING PARALLEL TO BUILDING COLUMN LINES UNLESS OTHERWISE SHOWN OR NOTED.
- H. SEAL ALL PENETRATIONS THROUGH THE BUILDING COMPONENTS IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS. FIREPROOF ALL PENETRATIONS THROUGH FIRE RATED COMPONENTS IN ACCORDANCE WITH U.L. REQUIREMENTS.
- I. COORDINATE REGISTERS AND GRILLES WITH THE SUPPLIER TO MEET THE CEILING, WALL AND DUCT INSTALLATION REQUIREMENTS.
- J. ALL AIR DEVICES THAT ARE LOCATED CLOSE TO WALL SHALL BE PLACED TO AS TO CLEAR CROWN MOULDING.
- K. LOCATE, WIRE AND SET THERMOSTATS/TEMPERATURE SENSORS. VERIFY EXACT LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION. MOUNTING HEIGHTS SHALL BE 54" AFF TO MEET ADA REQUIREMENTS UNLESS NOTED OTHERWISE ON PLANS.
- L. RIGID DUCTWORK INSULATION: PROVIDE 2" THICK, 3/4 LB DENSITY INSULATION WRAP ON ALL RIGID ROUND AND RECTANGULAR CONCEALED SUPPLY AIR DUCTS AND ON ALL OUTSIDE AIR DUCTS (ALL THAT ARE NOT LINED). PROVIDE 1-1/2" THICK, 3 LB DENSITY INTERNAL DUCT LINER ON THE FIRST 15 FEET OF RECTANGULAR SUPPLY AND RETURN AIR DUCTS FROM THE CONNECTION TO THE EQUIPMENT. ALSO PROVIDE INTERNAL DUCT LINER ON ALL EXPOSED DUCTWORK. SIZES ON MECHANICAL PLANS INDICATE CLEAR INSIDE AIRFLOW DIMENSIONS; INCREASE SHEETMETAL SIZES ACCORDINGLY.
- M. FLEXIBLE DUCTWORK SHALL BE THERMAFLEX TYPE MKE, FLEXMASTER TYPE SM, OR APPROVED EQUAL. SHALL BE LISTED UNDER U.L. 181 AS CLASS I AIR DUCT AND SHALL BE PROVIDED WITH INTEGRAL 2" THICK, 3/4 LB DENSITY FIBERGLASS INSULATION. FLEXIBLE DUCTWORK NOT TO EXCEED 5'-0" IN LENGTH. INSTALL AND SUPPORT TO AVOID SHARP BENDS AND SAGGING.
- N. PROVIDE A NEW SET OF AIR FILTERS IN ALL UNITS JUST BEFORE TURNING SYSTEMS OVER TO OWNER.
- O. MOTORIZED DAMPERS SHALL BE DRIVEN BY TWO-POSITION, 120-VOLT ACTUATORS. PROVIDE 24-VOLT RELAY AND CONNECT TO FAN WIRING FROM THERMOSTAT. REFER TO ELECTRICAL PLANS FOR 120-VOLT WIRING.
- P. INSTALL ALL DUCTWORK TIGHT TO STRUCTURE.
- Q. ALL WORK SHALL BE DONE IN STRICT COMPLIANCE WITH THE CITY'S ADOPTED INTERNATIONAL MECHANICAL CODE, INTERNATIONAL PLUMBING CODE, INTERNATIONAL ENERGY CONSERVATION CODE, ALL STATE REQUIREMENTS, AND LOCAL REQUIREMENTS.

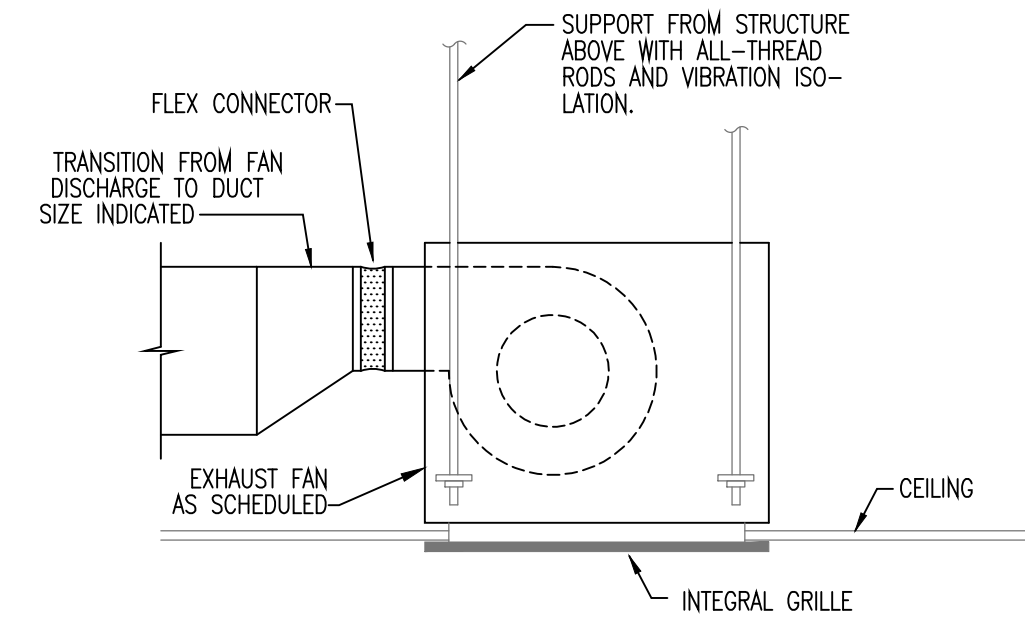
MECHANICAL KEYED NOTES:

- 1 LOCATE NEW AIR HANDLING UNIT AS INDICATED. UNIT SHALL BE ACCESSIBLE FOR SERVICE FROM ATTIC SPACE. MOUNT UNIT TIGHT TO STRUCTURE. SUSPEND UNIT FROM STRUCTURE PER MANUFACTURER'S RECOMMENDATIONS. COORDINATE MOUNTING HEIGHT/LOCATION OF THE UNIT WITH OTHER BUILDING SYSTEMS TO ALLOW WORKING CLEARANCES AS REQUIRED BY CODE AND UNIT MANUFACTURER. RE:#4,5/M-3.01. AIR HANDLING UNIT FILTER SECTION TO BE ACCESSIBLE IN ATTIC SPACE. COORDINATE INSTALLATION OF UNIT SUPPORTS AND PIPING TO MAINTAIN ACCESS AND CLEARANCE FOR FILTER REPLACEMENT.
- 2 REFER TO PLUMBING DRAWINGS FOR CONDENSATE DRAIN LINES.
- 3 MECHANICAL CONTRACTOR SHALL PROVIDE SMOKE DETECTOR IN THE RETURN DUCTWORK OF THE AIR HANDLING UNIT UPSTREAM OF OUTSIDE AIR CONNECTION POINT. SMOKE DETECTOR SHALL BE ACCESSIBLE IN ATTIC SPACE. RE:#5/M-3.01.
- 4 ROUTE REFRIGERANT PIPING IN THE ATTIC SPACE FROM THE AIR HANDLER UNIT OVER TO, DOWN THRU THE WALL, AND OVER TO THE GROUND-MOUNTED CONDENSING UNIT. RE: #4,8,9/M-3.01.
- 5 PROVIDE SPIN-IN CONNECTION WITH LOCKING QUADRANT DAMPER. TYPICAL ON ALL ROUND DUCTS TAPPED FROM RECTANGULAR BRANCH DUCTWORK ABOVE GYP. BD. CEILINGS, UNLESS OTHERWISE NOTED. RE:#10/M-3.01.
- 6 CONNECT 8" OUTSIDE AIR DUCT TO TOP OF RETURN AIR DUCT AND ROUTE UP. EXTEND DUCT AS SHOWN. PROVIDE MOTORIZED DAMPER IN DUCTWORK AND BALANCE TO CFM AS SCHEDULED IN AIR HANDLER UNIT SCHEDULE.
- 7 ALL HORIZONTAL EXTERIOR REFRIGERANT PIPING RUNS SHALL BE SUPPORTED FROM WALLS OR SET ON WOOD BLOCKS TO BE KEPT OFF THE GROUND. RE: #8,9/M-3.01. PIPING SHALL BE INSTALLED PERPENDICULAR TO BUILDING LINES IN AN ORDERLY MANNER.
- 8 LOCATE NEW CONDENSING UNIT AS INDICATED. MOUNT UNIT ON EQUIPMENT PAD PER MANUFACTURER'S RECOMMENDATIONS WHILE MAINTAINING WORKING CLEARANCES AS REQUIRED BY CODE AND UNIT MANUFACTURER. PAD SHALL BE A MINIMUM OF 3" ABOVE FINISHED GRADE AND SET LEVEL. RE: #6/M-3.01.
- 9 40"x40" RUSKIN INTAKE AIR LOUVER (MODEL ELF375X) WITH MOTORIZED DAMPER EQUAL TO GREENHECK VCD-23-40X40 AND ACTUATOR EQUAL TO HONEYWELL MS8110A1206. CENTER ON WALL. COORDINATE ELEVATION WITH ARCHITECT. INTERLOCK MOTORIZED DAMPER WITH EF-3 AND EF-4. NOTE: LOUVER SHALL BE PROVIDED WITH A FACTORY PROVIDED 70% PVDF BLACK PAINT FINISH.
- 10 WALL-MOUNTED SUPPLY FAN. MOUNT FAN AT 8'-6" AFF. COORDINATE WITH ELECTRICAL. PROVIDE WALL SWITCH AT EACH FAN TOGETHER WITH DUPLEX AT 54" AFF.
- 11 SUSPEND RADIANT TUBE HEATER FROM CEILING AT 45 DEGREE ANGLE PER MANUFACTURER'S RECOMMENDATIONS. MOUNT THERMOSTAT AT LOCATION SHOWN ON PLAN 54" AFF.
- 12 6" EXHAUST DUCT UP THROUGH REAR OF ROOF SO AS NOT TO BE SEEN FROM FRONT OF BLDG. PROVIDE WEATHER-PROOF ROOF CAP.
- 13 COORDINATE LOCATION OF INLINE EXHAUST FANS EF-3 AND EF-4, WITH STRUCTURAL TRUSS SPACING OF 24" FOR EACH FAN. LOCATE FAN ABOVE TOP OF TRUSS CORD. EXTEND 16"x16" EXHAUST DUCT FROM FAN AND CONNECT EXHAUST DUCT TO A 12" DEEP PLENUM AT BACK OF 28"x24" EXHAUST WALL LOUVER WITH BIRDSCREEN NEAR TOP OF GABLE. REFER TO ARCHITECTURAL SHEET A-4, FOR EXACT LOCATION OF LOUVER. PROVIDE 1-1/2" THICK, 3/4 LB DENSITY WRAP AROUND PLENUM. PROVIDE LOUVERED EXHAUST GRILLE IN CEILING AS SCHEDULED IN GRILLE SCHEDULE ON M-1.01 AND CONNECT 20"x20" DUCT FROM EXHAUST FAN DOWN TO GRILLE. PROVIDE GRAVITY BACKDRAFT DAMPER AT FAN. PROVIDE ON/OFF WALL SWITCH FOR EF-3 AND EF-4 AT THE ENTRANCE TO THE SHOP TO ENERGIZE AND DE-ENERGIZE BOTH FANS AT THE SAME TIME.
- 14 ROUTE FULL SIZE TYPE B FLUE UP THROUGH ROOF AND PROVIDE TYPE B ROOF CAP WITH INSECT SCREEN. TERMINATIONS MUST PENETRATE ROOF AT REAR OF BUILDING. AS NOT TO BE SEEN FROM FRONT OF THE BUILDING. SEE SCHEDULE ON SHEET M-1.01.
- 15 FULL SIZED RETURN AIR DUCT. ROUTE DUCT UP TO UNDERSIDE OF STRUCTURE.
- 16 16"x16" RUSKIN INTAKE AIR WALL LOUVER (MODEL ELF375X) WITH BIRDSCREEN SCREEN. REFER TO ARCHITECTURAL DRAWINGS FOR ELEVATION. NOTE: LOUVER SHALL BE PROVIDED WITH A FACTORY PROVIDED 70% PVDF BLACK PAINT FINISH.
- 17 PROVIDE LINE VOLTAGE HONEYWELL THERMOSTAT MODEL T4054B. INTERLOCK FAN'S OPERATION WITH ADJUSTABLE TEMPERATURE SET POINT. SET INITIAL SET POINT AT 80° F (ADJUSTABLE).
- 18 REFER TO ARCHITECTURAL SHEET, A-4, FOR CRUSHPROOF EXHAUST PORT PROVIDED AT CENTER OF EACH BOTTOM PANEL OF EACH BAY DOOR. CRUSHPROOF AD40 EXHAUST PORT PROVIDED AND INSTALLED BY DOOR MANUFACTURER.

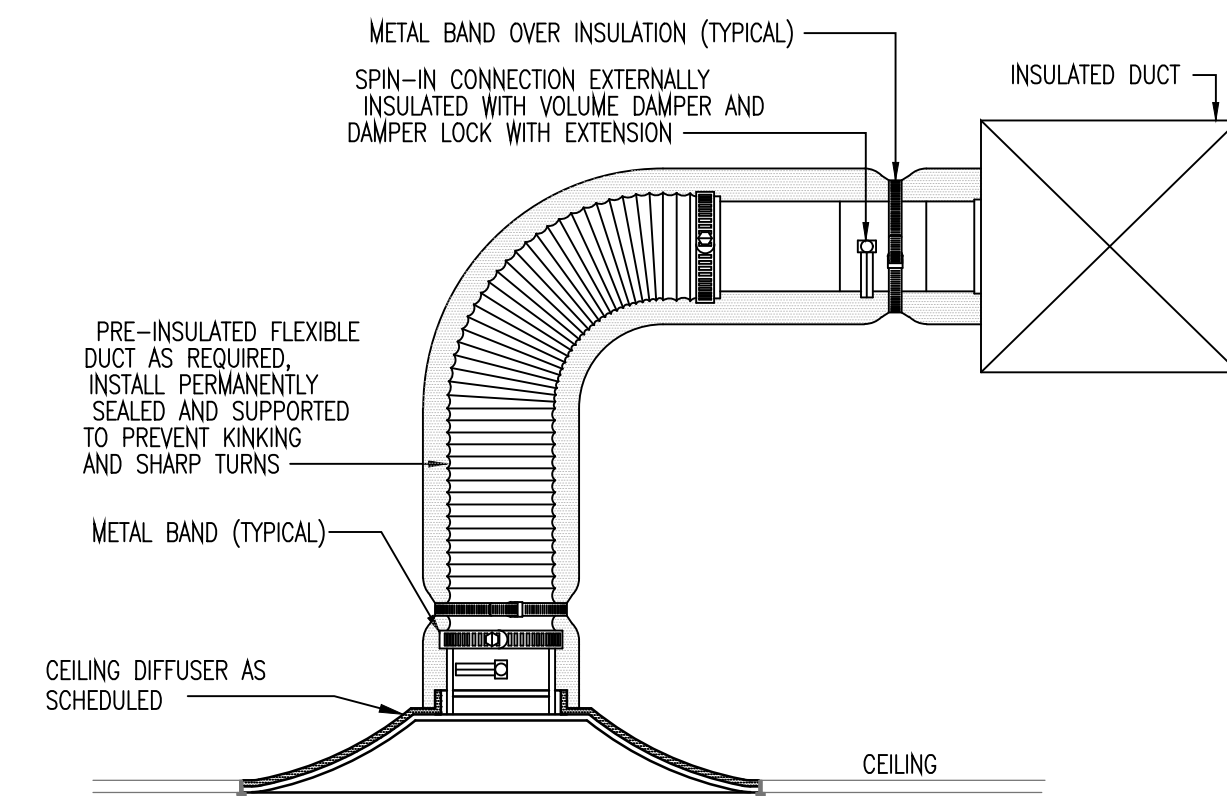


NOTE: THIS CONNECTION SHALL BE TYPICAL FOR ALL RECTANGULAR BRANCH DUCT CONNECTIONS TO RECTANGULAR TRUNK DUCTS, INCLUDING SUPPLY, RETURN, OUTSIDE AIR AND EXHAUST DUCTS.

1 RECTANGULAR BRANCH TAP DETAIL
NO SCALE

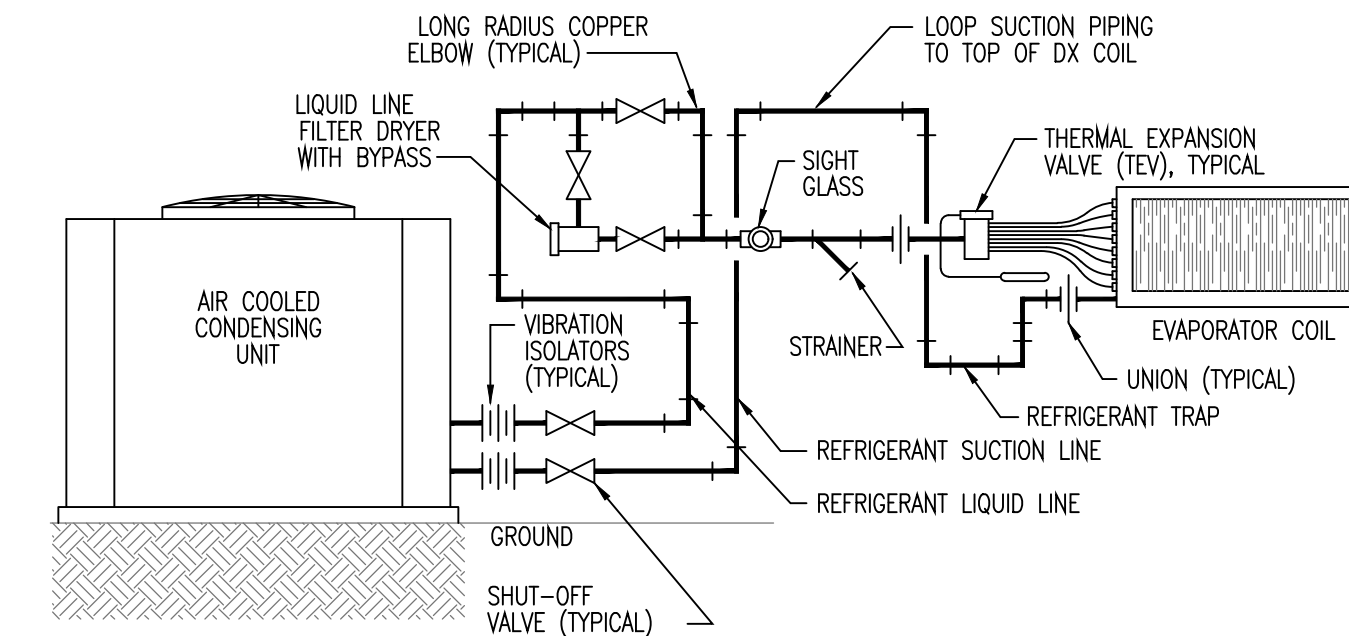


2 CEILING MOUNTED CABINET EXHAUST FAN DETAIL
NO SCALE



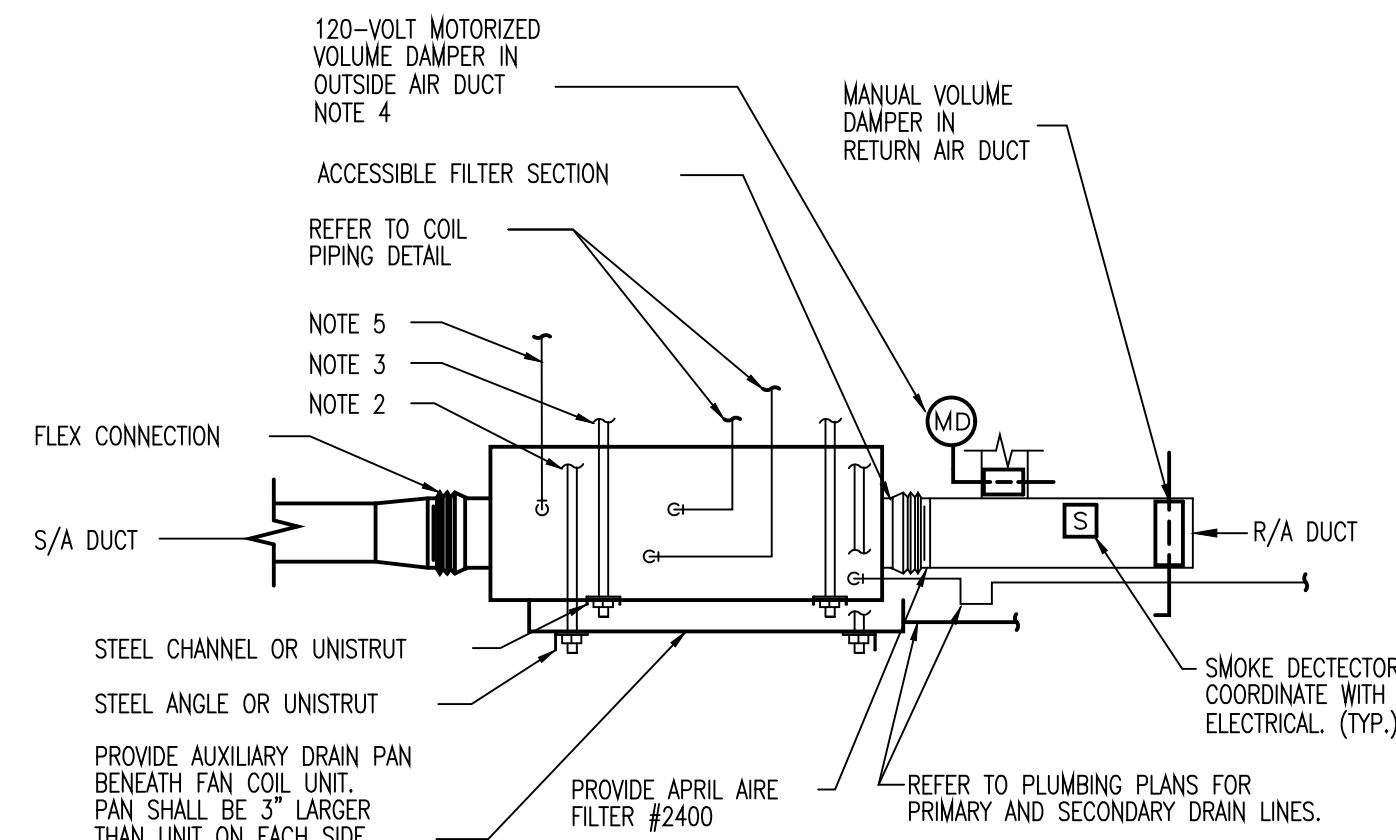
NOTE: EXTEND HARD METAL DUCT SO THAT MAXIMUM FLEXIBLE DUCT LENGTH DOES NOT EXCEED 5'-0". PROVIDE RIGID 90° ELBOW WHERE REQUIRED TO KEEP FLEXIBLE DUCT WITHIN 5'-0" LENGTH LIMITATION.

3 LAY-IN TYPE CEILING DIFFUSER DETAIL
NO SCALE



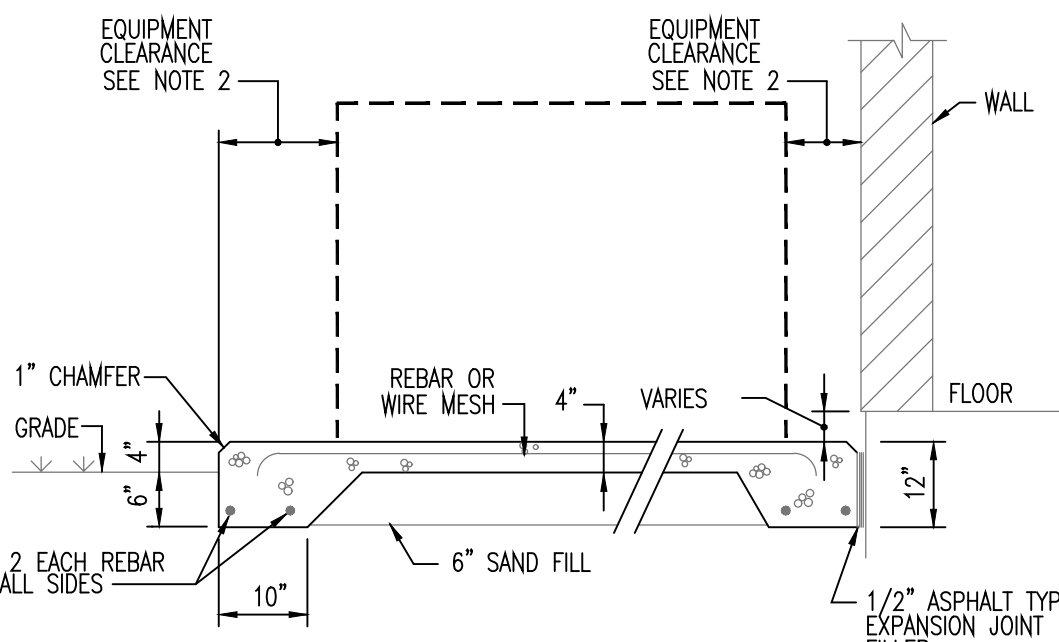
NOTES:
1. SUCTION LINE TRAP TO BE EXTENDED ABOVE EVAPORATOR COIL.
2. CONTRACTOR TO VERIFY PIPE SIZES REQUIRED WITH EQUIPMENT SUPPLIER.
3. PITCH SUCTION LINE TOWARDS CONDENSING UNIT.
4. SIGHT GLASS TO BE FULL LINE SIZE AND INSTALLED IN THE MAIN LIQUID LINE.
5. LOCATE TEV BULB 45° ABOVE BOTTOM OF PIPE.

4 REFRIGERANT PIPING DETAIL WITH COIL ABOVE CU (SINGLE CIRCUIT)
NO SCALE



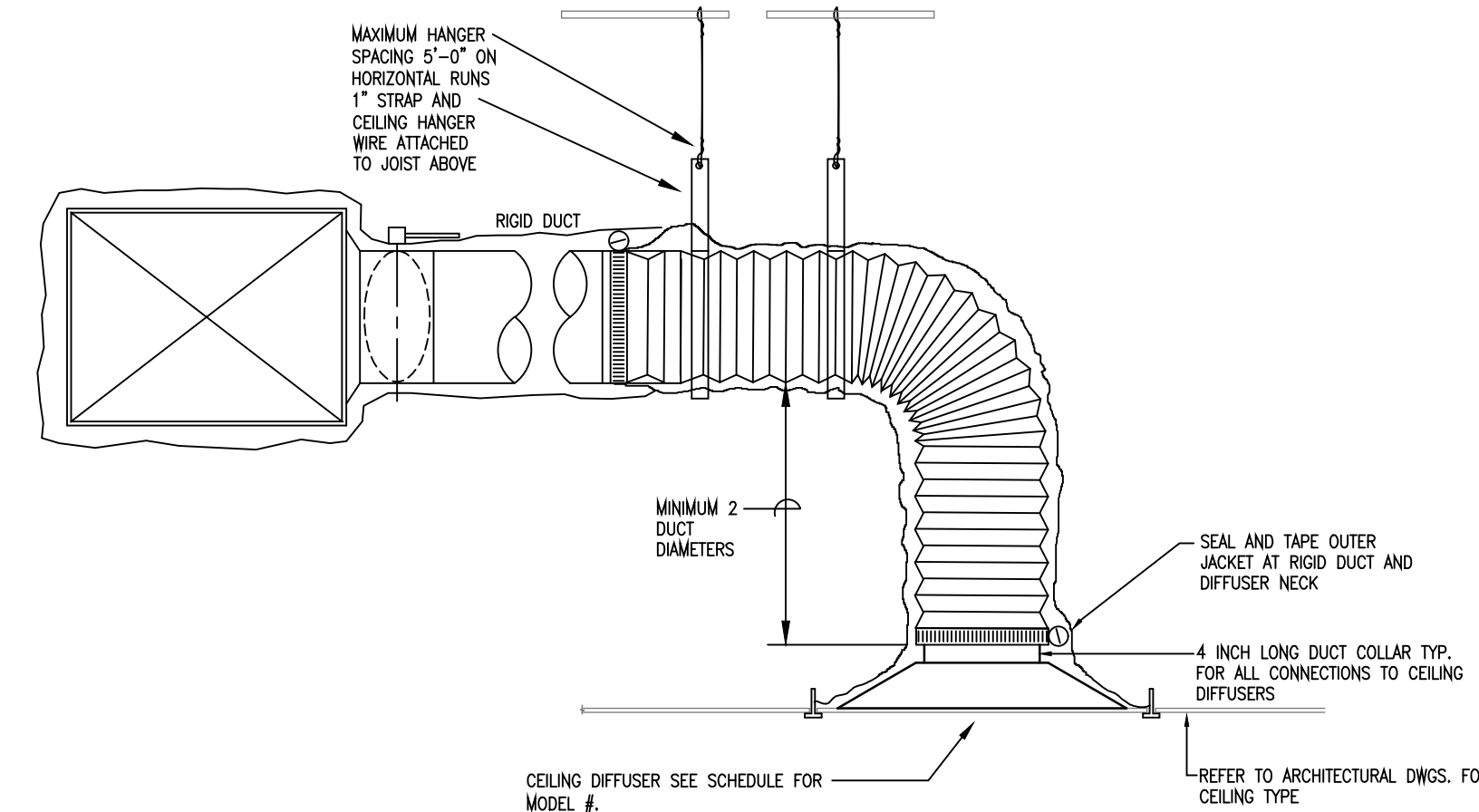
NOTES:
1. PROVIDE MISCELLANEOUS GALVANIZED SUPPORT ANGLE OR CHANNEL AS REQUIRED TO BRIDGE STRUCTURE FOR SUSPENDED AHU.
2. SUSPEND DRAIN PAN WITH SUPPORT RODS WHEN ATTACHED TO BUILDING STRUCTURE.
3. ATTACH TO STRUCTURE WITH VIBRATION ISOLATION.
4. INTERLOCK DAMPER ACTUATOR WITH FAN COIL UNIT THERMOSTAT.
* FAN ENERGIZED - OPEN DAMPER
* FAN DE-ENERGIZED - CLOSED DAMPER
5. GAS PIPING, REF: P3.02

5 AIR HANDLING UNIT MOUNTING
NO SCALE

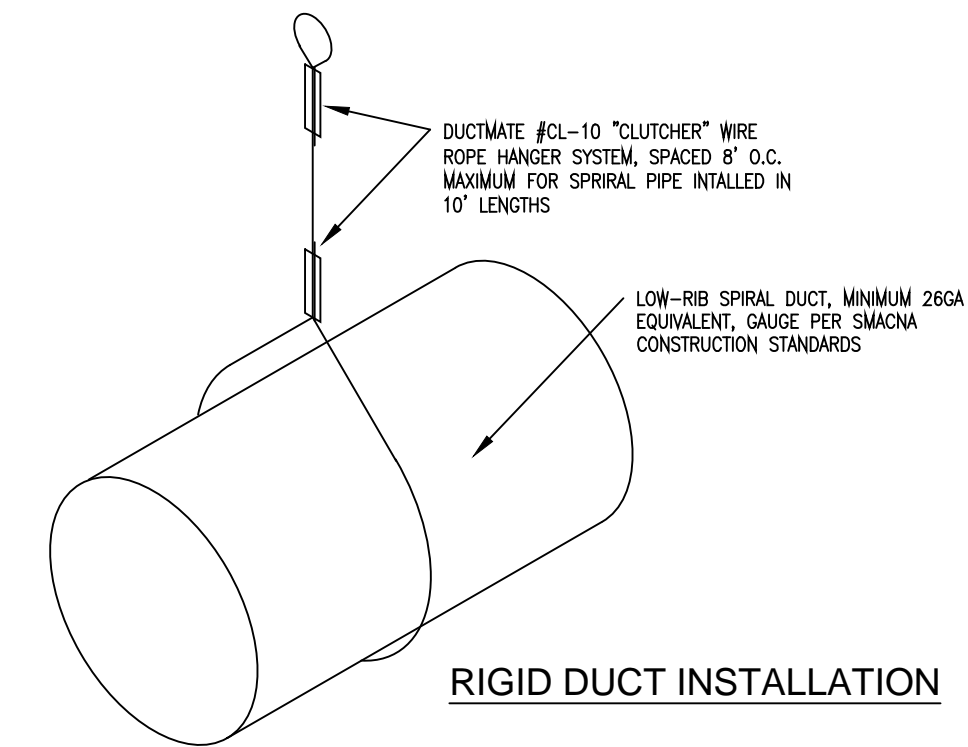


NOTES:
1. SLOPE SLAB A MINIMUM OF 1/2" FOOT BACK TO FRONT OR CENTER TO EDGE FOR DRAINAGE.
2. MINIMUM CLEARANCE AROUND EQUIPMENT, ALL SIDES, PER MANUFACTURER.
3. DIMENSIONS SHOWN ARE MINIMUM ACCEPTABLE; REVISE AS REQUIRED FOR EQUIPMENT BEING PROVIDED.
4. WHERE WALL DOES NOT EXIST, INSTALL EQUIPMENT IN CENTER OF PAD AND ENCLOSE AS SHOWN ON ARCHITECTURAL DRAWINGS.

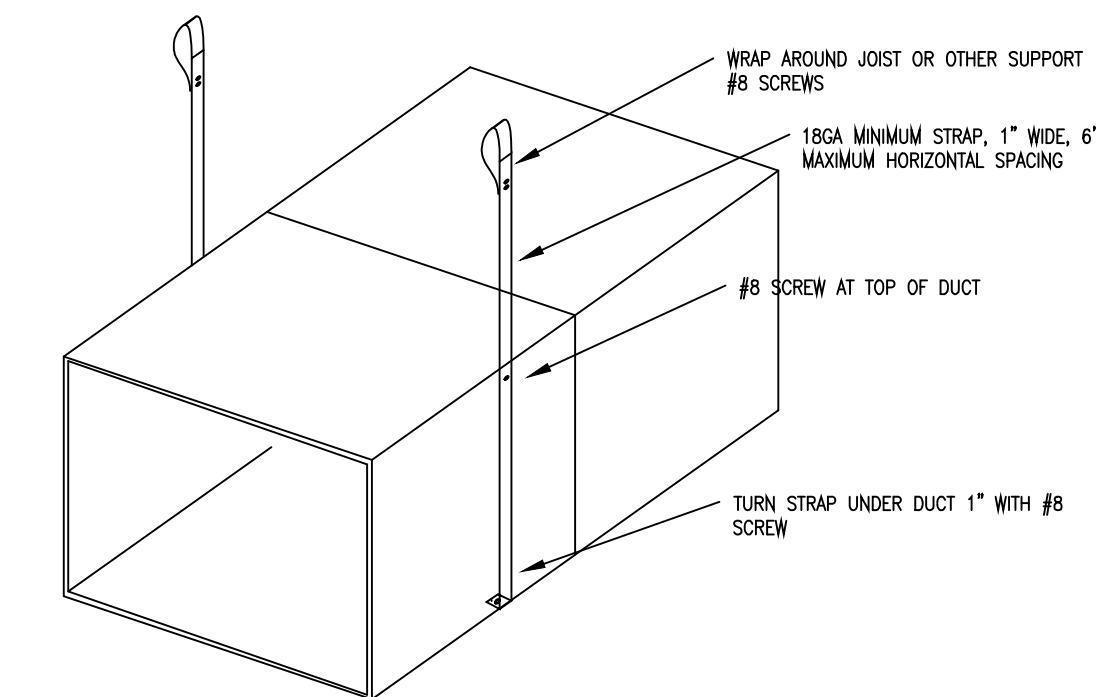
6 EXTERIOR EQUIPMENT PAD DETAIL
NO SCALE



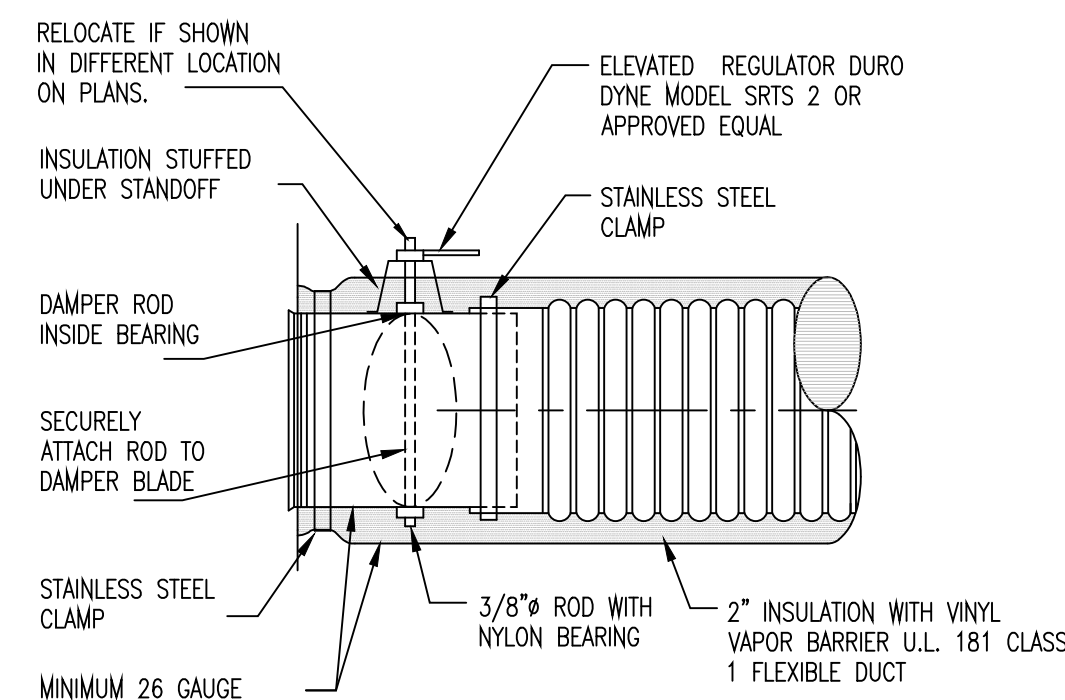
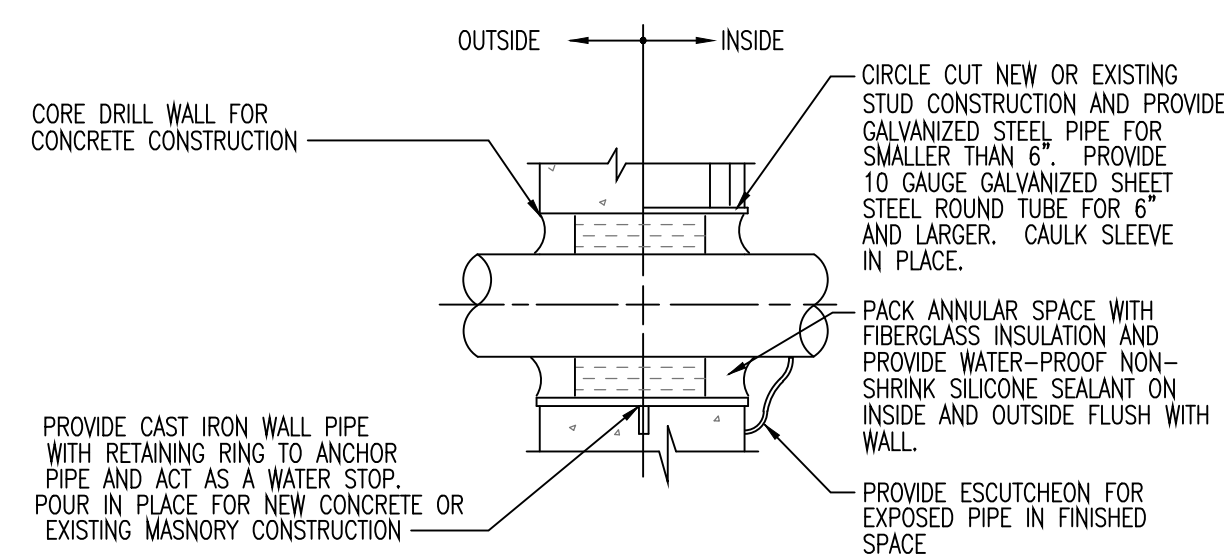
7 DUCT SUPPORT DETAIL
NO SCALE



RIGID DUCT INSTALLATION

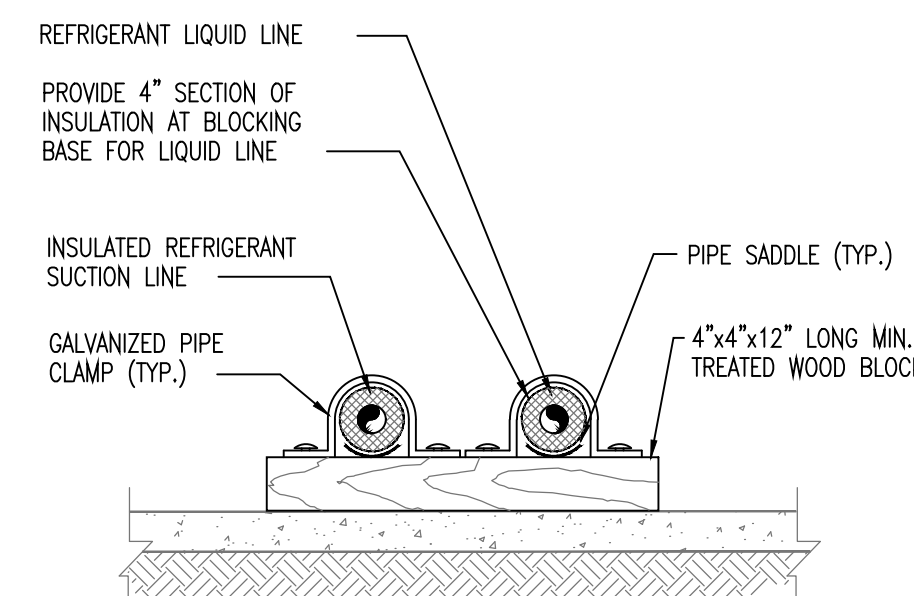


9 HEATER DETAIL
NO SCALE



PIPING ARRANGEMENT SHOWN IS SCHEMATIC. ADJUST TO SUIT FIELD CONDITIONS. REFER TO SPECIFICATIONS FOR MORE INFORMATION ON INSULATION AND SEALANT. COORDINATE SLEEVE INSTALLATION WITH GENERAL CONTRACTOR. PVC SLEEVES ARE ACCEPTABLE FOR USE IN AREAS WITHOUT RETURN AIR PLENUMS.

8 ABOVE GROUND EXTERIOR WALL PENETRATION DETAIL
NO SCALE

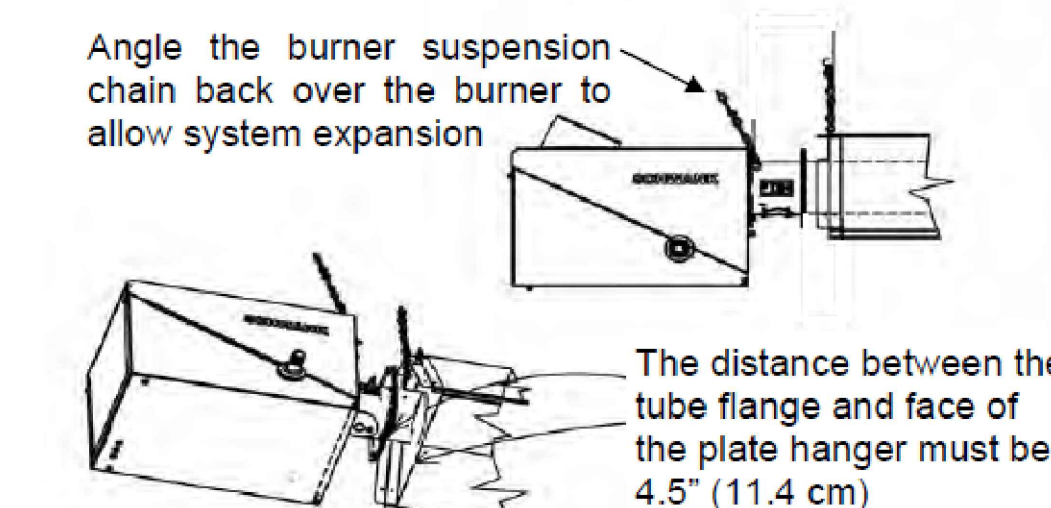
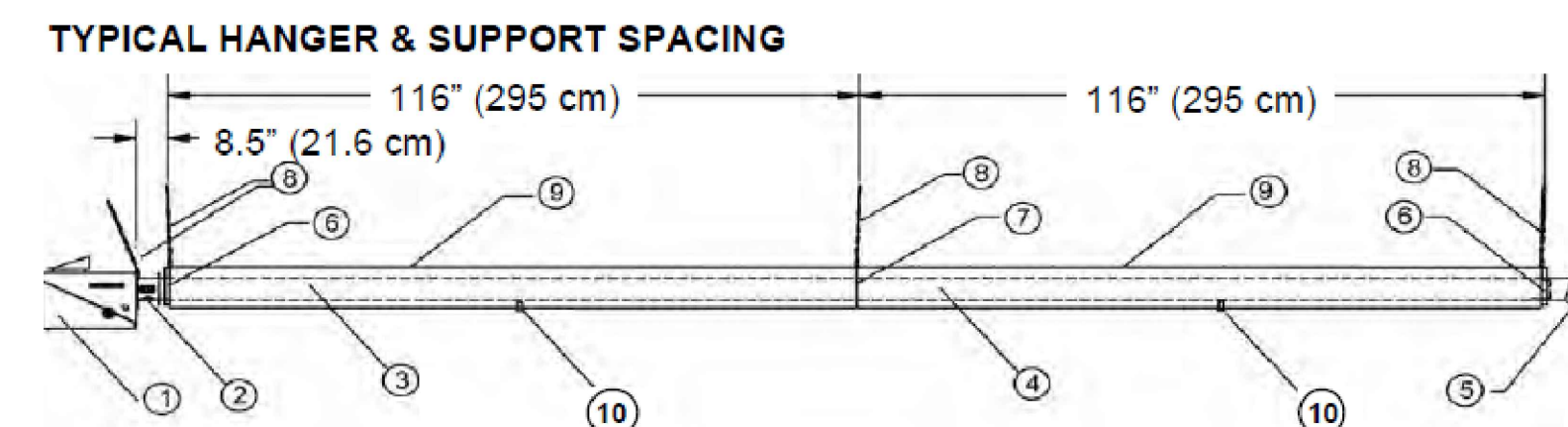


NOTE: PROVIDE SUPPORTS AT 3'-0" ON CENTERS AND WITHIN 1'-0" OF ALL CHANGES IN PIPE DIRECTION.

10 REFRIGERANT PIPING SUPPORT ON GROUND
NO SCALE

NOTE: 1. TYPICAL OF ALL ACCESSIBLE ROUND DUCT CONNECTIONS TO RECTANGULAR DUCT.

11 SPIN-IN CONNECTION
NO SCALE



1. Burner Assembly
2. Flange Adapter
3. Flanged Tube
4. Swaged Tube
5. Vent termination (optional: wall or roof)
6. End Plate Hanger
7. Webbed Hanger
8. Hanging Chains
9. Focus Shield Reflector
10. Reflector Stabilizer

11 HEATER DETAIL
NO SCALE

