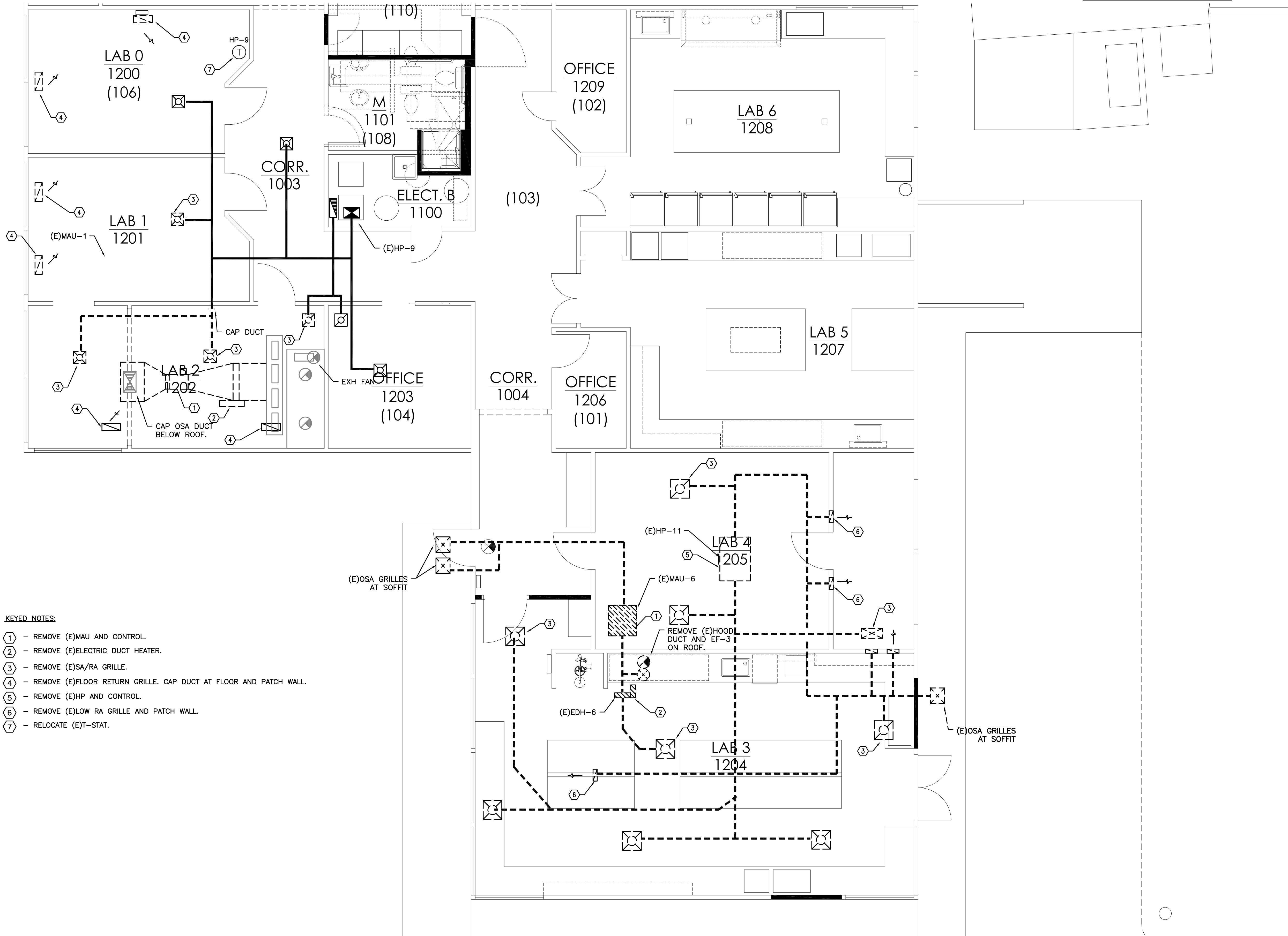


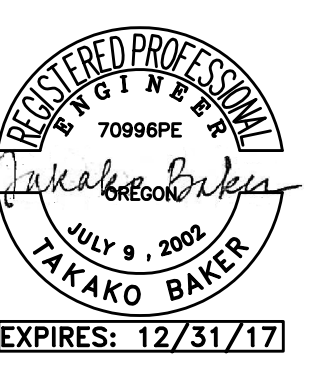
PLAN REVIEW APPROVAL STAMP



- KEYED NOTES:**
- ① - REMOVE (E)MAU AND CONTROL.
 - ② - REMOVE (E)ELECTRIC DUCT HEATER.
 - ③ - REMOVE (E)SA/RA GRILLE.
 - ④ - REMOVE (E)FLOOR RETURN GRILLE. CAP DUCT AT FLOOR AND PATCH WALL.
 - ⑤ - REMOVE (E)HP AND CONTROL.
 - ⑥ - REMOVE (E)LOW RA GRILLE AND PATCH WALL.
 - ⑦ - RELOCATE (E)T-STAT.

1 MECHANICAL DEMO PLAN
 M1.0 SCALE: 1/4" = 1'-0"

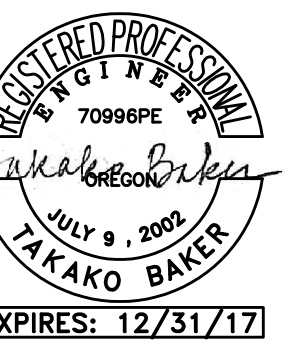
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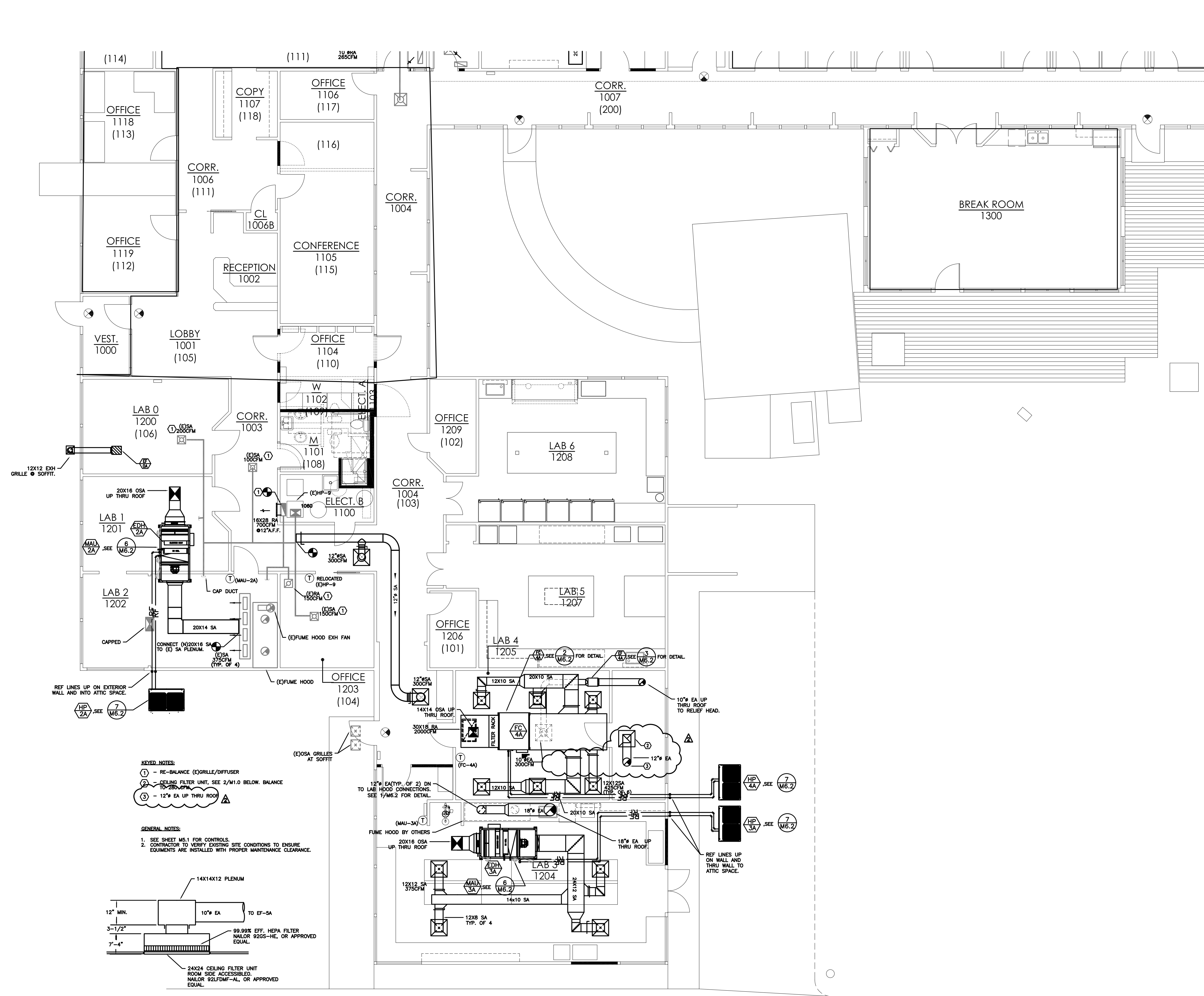
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FFU REVISION - 12/27/16

MECHANICAL PLAN

M2.0



PLAN REVIEW APPROVAL STAMP

SECTION 23 00 00 - HVAC MATERIALS

1.1 SHEET METAL

- A. Quality Assurance: Comply with requirements of Chapter 10 of the Oregon State Mechanical Fire and Life Safety Code. Galvanized steel sheet metal except where otherwise indicated. Metal gauges, joints and reinforcement in accordance with ASHRAE and SMACNA tables and recommendations.
- B. Acoustical Duct Lining: Line ducts with 1" thick, Manville "Line-Coustic," Gustin Bacon "Ultra-Liner," or Owens Corning "Aeroflex" meeting NFPA 90A requirements for maximum flame spread and smoke developed. Mechanically attach lining to sheet metal duct with Manville Grip Nails or Gramshield welding pins. Provide fire retardant type adhesive similar to Manville No. 44 adhesive, Benjamin Foster 81-99, Insul-Coustic 22 or 3M equivalent.
- C. Exterior and Roof Mounted Ductwork: Construct roof mounted ductwork and other ductwork exposed to outside weather of galvanized steel outer jacket, two gauges heavier than equivalent ductwork with all joints soldered in a weather-proof manner with 2" of internal duct lining.
- D. Exposed to View Spiral Seam Duct: Round and flat oval spiral seam duct shall be manufactured of galvanized steel sheet metal with spiral lock seam. Sizes up to 36" diameter or 36" wide shall be 22 gauge; sizes over 36" shall be 20 gauge. Reinforcement or bracing shall be as detailed on the Drawings. Matching fittings shall be manufactured of galvanized steel with continuous welded seams. Fittings up to 36" diameter or width shall be 20 gauge, fittings larger than 36" shall be 18 gauge.
- E. Grease Hood Exhaust Ductwork and Enclosure:
 1. Ductwork: Duct and plenums less than four square feet in cross-sectional area shall be constructed of 16 gauge galvanized steel. Ducts greater than four square feet in area shall be constructed of 14 gauge galvanized steel. All welded grease-tight construction. Slope horizontal ducts toward hood. Construct exhaust ducts exposed in the kitchen of type 304, 16 gauge stainless steel with smooth welded joints and No. 4 finish. Provide cleanouts per Code.
 2. Enclosure: Enclosure shall have a fire resistance rating of not less than two hour and be constructed of 3" thick Pabco Super Firetemp-L calcium silicate fireproofing board, or accepted substitute, with UL and ICBO approval.

F. Combination Fire/Smoke Dampers:

1. Constructed and installed in accordance with NFPA No. 90A, UL labeled. Provide dampers with rating equal to surrounding construction where penetrations are made through fire-resistant rated construction per applicable codes.
2. Provide access panels of proper fire rating. Size dampers to maintain free area through damper same as unobstructed run of duct or opening.
3. Each damper shall be classified by UL as a "corridor damper" for installation in tunnel corridors, shall be rated for one hour fire resistance under UL555, and shall have a minimum leakage rating of Class II under UL555S for use in smoke control systems. Each damper shall bear a UL label designating the damper as "corridor damper".
4. In addition to the leakage rating specified herein, the dampers and their actuators shall be classified under UL555S to an elevated temperature of 250 degrees F (121 degrees C). Appropriate electric motorized operators shall be installed by the damper manufacturer at time of fabrication and damper/actuator assembly shall be factory cycled 10 times to assure operation. Assembly shall meet all applicable UL555 and UL555S criteria for both damper and actuators. Damper shall be power operated close design.
5. Damper manufacturer shall provide factory assembled minimum 20 gauge steel sleeve. Damper shall be sealed to the sleeve with a 2550 flame spread smoke developed sealant material. Each corridor damper shall be equipped as standard with an electric fusible link. These fusible links shall be rated for 165 deg. F (14 deg. C) and shall be easily replaceable for system testing.
6. Provide necessary relay to drop power to smoke damper motor when smoke detector at associated unit detects smoke and when unit is not running.

2.2 GRILLES, REGISTERS AND DIFFUSERS

- A. Description: Provide grilles, registers and diffusers as shown on the Drawings.
- B. Finishes:
 1. Steel: Flat white enamel prime coat, factory applied on ceiling diffusers. Others are to have a baked enamel finish, color as selected by Architect.
 2. Aluminum: Anodized clear finish unless indicated otherwise.
- C. Manufacturers: Air Devices, Carnes, Kraeger, Titas, Metalaire. Titas model numbers are listed. Where other manufacturer's products are listed, only that product or an approved substitute for that item shall be provided.
- D. Ceiling Matched Return and/or Exhaust Register: To match adjacent ceiling outlets. Use in spaces containing ceiling diffusers and/or Tee-bar ceilings. Provide with damper except where dampers are indicated. Match manufacturer of supply.
- E. Sidewall Supply Grille or Register: Double deflection grille with face bars parallel to long dimension on ceiling type and horizontal on wall type; bars to be individually adjustable, spaced on 0.66' to 0.75' centers; key operated opposed blade volume damper. Titas 3008RL.
- F. Sidewall or Ceiling Return or Exhaust Register: Face bars parallel to long dimension on ceiling type and horizontal on wall type; bars set at 35 degrees to 45 degrees, spaced on 0.66' to 0.75' centers; key operated opposed blade volume damper. Titas 350.
- G. Sidewall or Ceiling Return, Exhaust or Relief Grille: Face bars parallel to long dimension on ceiling type and horizontal on wall type; bars set at 35 degrees to 45 degrees, spaced on 0.66' to 0.75' centers. Titas 23-RL.
- H. Louver Face Ceiling Diffusers: Rectangular type with pattern of distribution as indicated. Provide with opposed blade volume dampers. Titas TDC.
- I. Heavy Duty, Adjustable Bars Low Return Register: All welded construction with heavy 14 gauge, adjustable round edge steel horizontal face bars at 1/2" on centers and reinforced every 6" to 8". Provide with key-operated, opposed blade volume damper.
- J. Reinforcement: Installing contractor to reinforce all return or exhaust grilles or registers with either dimension greater than 36" on rear of face both ways with 1" x 1" x 1/8" angle spaced 12" on center.
- K. Steel Door Transfer Grilles and Sidewall Transfer grilles: All welded construction with 20 gauge, fixed inverted V-blades with a deflection angle of 77 so as to provide a slight proof down.

2.8 DUCTWORK INSULATION

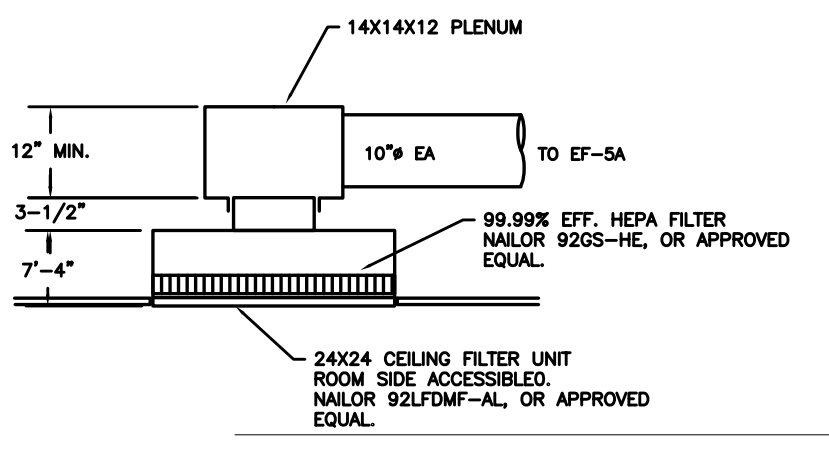
- A. Above Grade Interior Ductwork: Insulate with 1-1/2", one pound density glass fiber blanket with "FSK" (Foil-Skrim-Kraft) jacket. Wire and duct adhesive as required on fittings. Manville "Microth" or approved substitute.
- B. Above Grade Exterior Ductwork: Insulate with 2", three pound density glass fiber board, Manville "1000 Series Spin-Glas" or approved substitute, with 0.016" thick weatherproof aluminum outer jacket.

2.9 DUCTWORK INSULATION

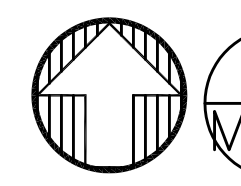
- A. Ductwork: Insulate per Oregon Energy Code as follows:
 1. All supply ducts with cooling.
 2. All supply and return ducts in systems routed in unheated spaces or exposed to the outside conditions.
- B. Internally Lined Ductwork: No exterior insulation required where ducts are internally lined. Carefully lap the ends of the exterior insulation a minimum of 6" past the interior insulation unless otherwise shown. Seal the end of vapor barrier jacket to the duct with mastic where the vapor barrier is required.

END OF SECTION

2 CEILING FILTER UNIT
 M1.0 SCALE:



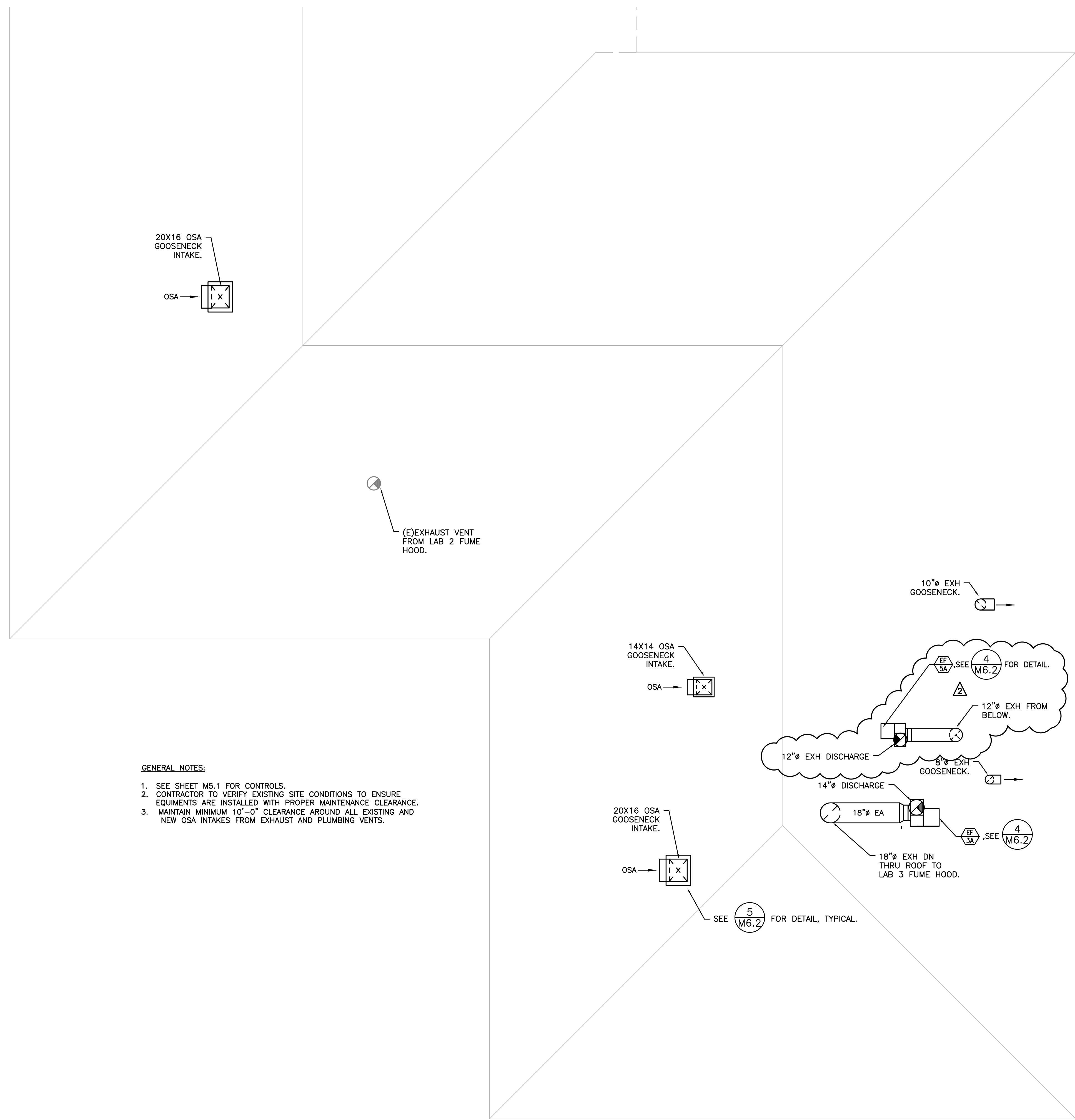
1 LABS 0, 1 & 2
 M1.0 SCALE:



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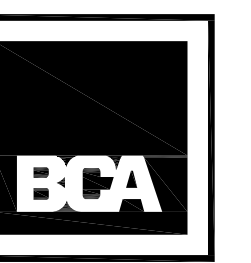
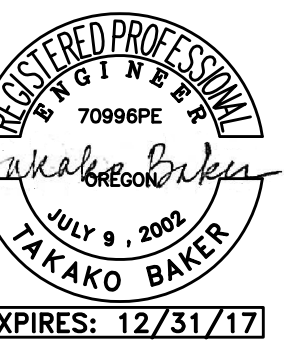


GENERAL NOTES:

1. SEE SHEET M5.1 FOR CONTROLS.
2. CONTRACTOR TO VERIFY EXISTING SITE CONDITIONS TO ENSURE EQUIPMENTS ARE INSTALLED WITH PROPER MAINTENANCE CLEARANCE.
3. MAINTAIN MINIMUM 10'-0" CLEARANCE AROUND ALL EXISTING AND NEW OSA INTAKES FROM EXHAUST AND PLUMBING VENTS.

1
M3.1 MECHANICAL ROOF PLAN
SCALE: 1/4" = 1'-0"

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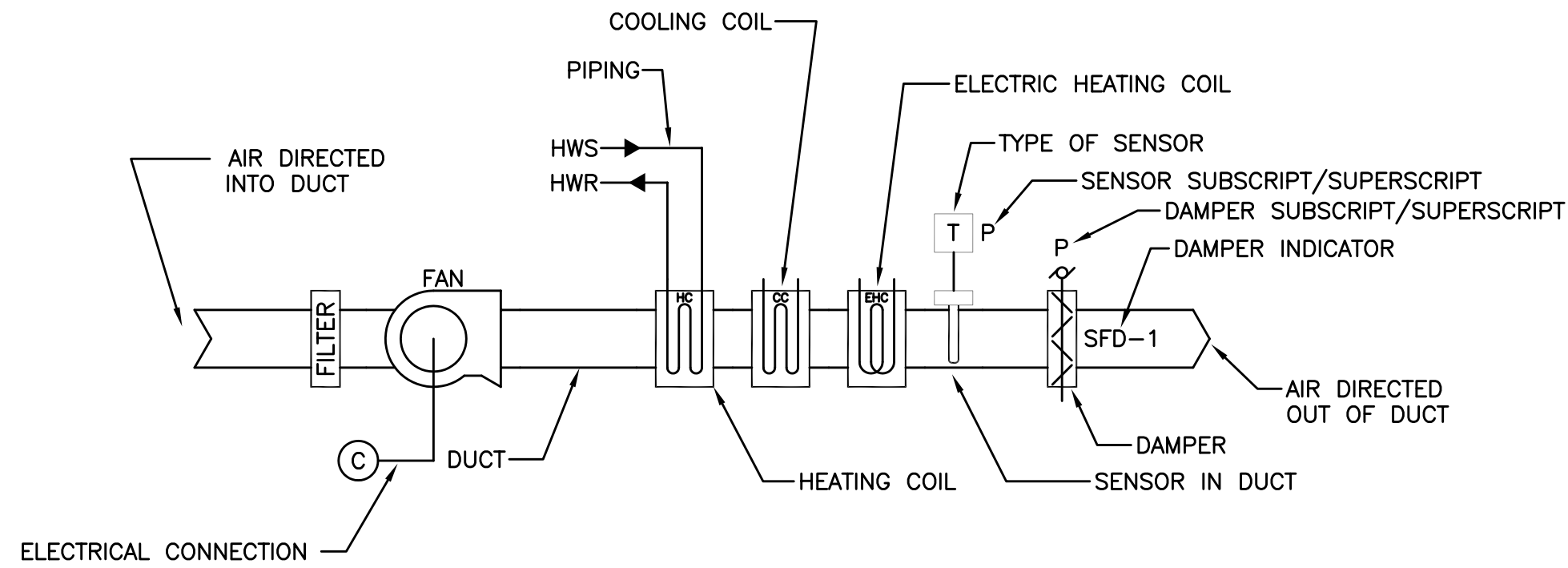


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 CONSULTING ENGINEERS
 CONTACT: TAKAKO BAKER



- | | | |
|------------------------------------|---|----------------------------|
| (T) SPACE TEMPERATURE SENSOR | (CT) CURRENT TRANSFORMER | — CAPPED LINE |
| (P) SPACE PRESSURE SENSOR | (M) MANOMETER | — PUMP |
| (H) SPACE HUMIDITY SENSOR | (VFD) VARIABLE FREQUENCY DRIVE | — FLOW DIRECTION INDICATOR |
| (DP) DIFFERENTIAL PRESSURE SENSOR | (C) CONTACTOR/STARTER | — MULTI VALVE |
| (H) HUMIDITY SENSOR | (MCC) MOTOR CONTROL CENTER | — 3-WAY VALVE |
| (T) TEMPERATURE SENSOR | (SD) SMOKE DETECTOR | — 2-WAY VALVE |
| (LL) TEMPERATURE LOW LIMIT SENSOR | (F) FLOW SENSOR (WATER OR AIR) | |
| (FL) FLUID LEVEL SENSOR | (P) DUCT PRESSURE SENSOR | |
| (AQ) AIR QUALITY SENSOR | (CO2) CO2 SENSOR @ 48" AFF UNLESS NOTED OTHERWISE | |
| (OS) OCCUPANCY SENSOR (SEE DIV 26) | (FS) FLOW SWITCH | |

LEGEND

EQUIPMENT ABBREVIATIONS :

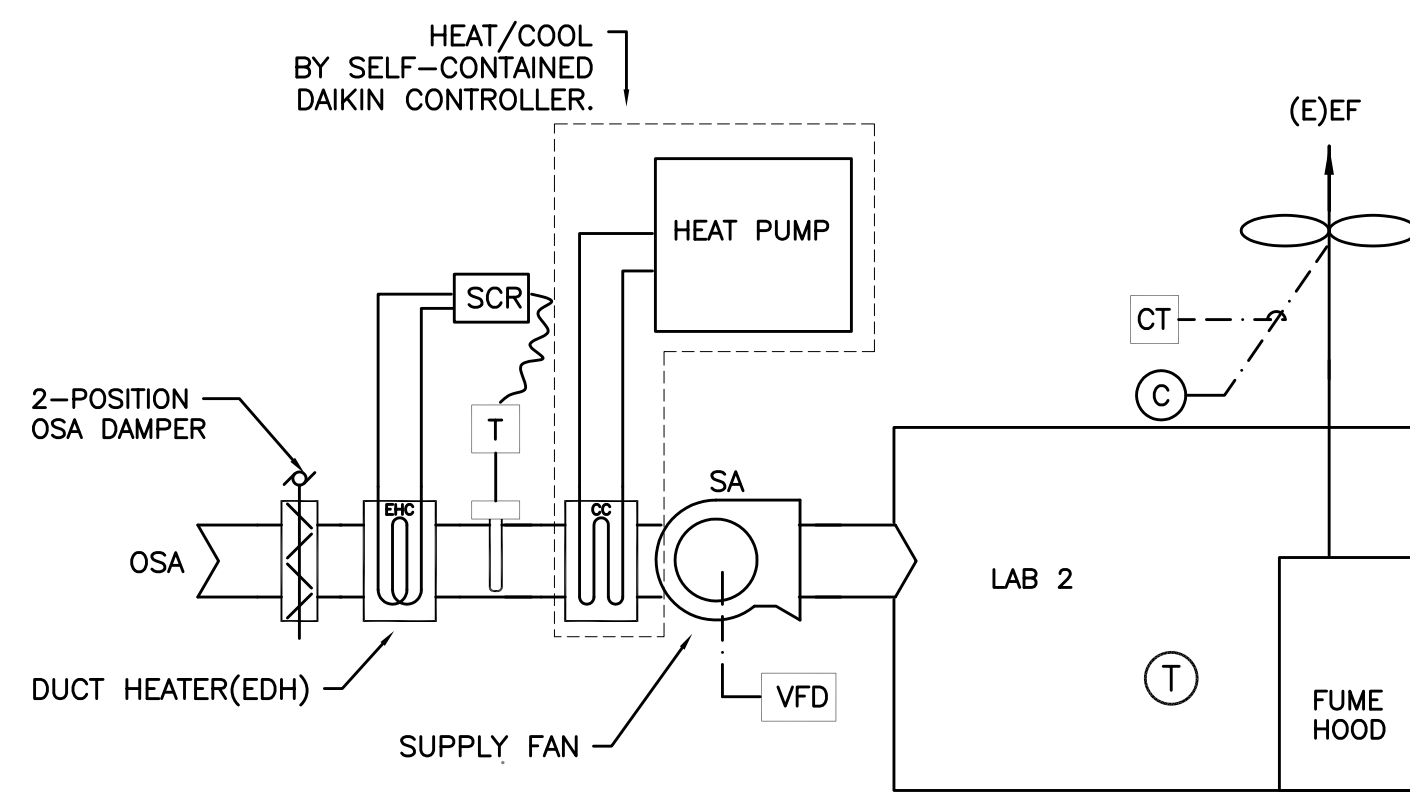
- P - PUMP
- SP - SUMP PUMP
- BP - BOOSTER PUMP
- HWP - HEATING WATER PUMP
- CHP - CHILLED WATER PUMP
- E - EXHAUST FAN
- CWP - CONDENSING WATER PUMP
- CSP - COOLING TOWER SUMP PUMP
- HWRP - DOMESTIC HOT WATER RECIRCULATION
- VFD - VARIABLE FREQUENCY DRIVE
- CT - CONTACTOR
- CC - CONTROL COMPRESSOR
- CH - CHILLER
- B - BOILER
- EF - EXHAUST FAN
- RF - RETURN/RELIEF FAN
- AH - AIR HANDLER
- VAV - VARIABLE AIR VOLUME DAMPER BOX
- AD - AREA DAMPER
- SD - SMOKE DAMPER
- SFD - FIRE SMOKE COMBINATION DAMPER
- H - HUMIDIFIER
- V - VALVE
- WH - WATER HEATER
- BAS - BUILDING AUTOMATION SYSTEM

PLUMBING ABBREVIATIONS:

- HWS - HEATING WATER SUPPLY
- HWR - HEATING WATER RETURN
- HW - DOMESTIC HOT WATER
- CW - DOMESTIC COLD WATER
- GPM - GALLONS PER MINUTE
- DB - DOUBLE VALVE OPERATOR

AIR FLOW ABBREVIATIONS :

- OSA - OUTSIDE AIR
- RA - RETURN AIR
- SA - SUPPLY AIR
- EXH - EXHAUSTED AIR



SEQUENCE OF OPERATION:

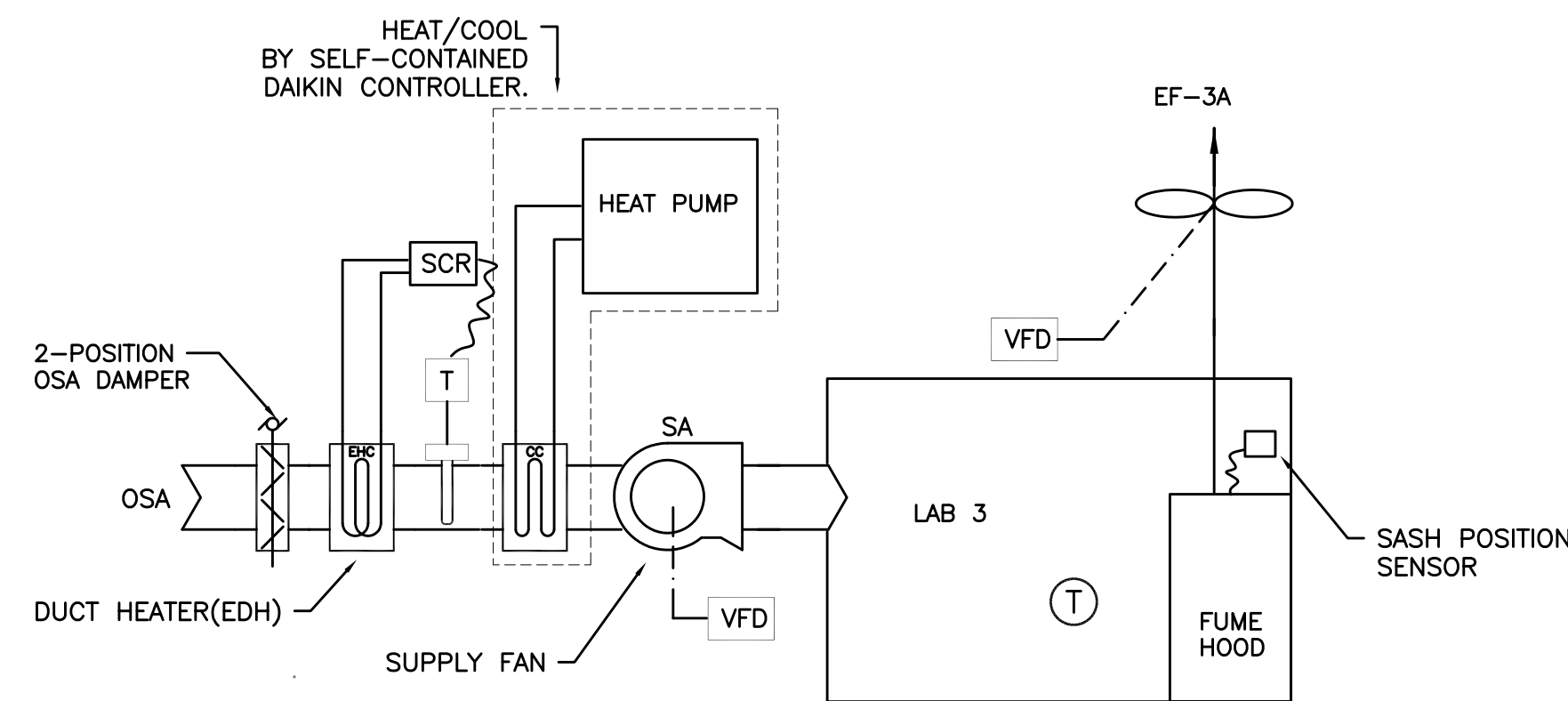
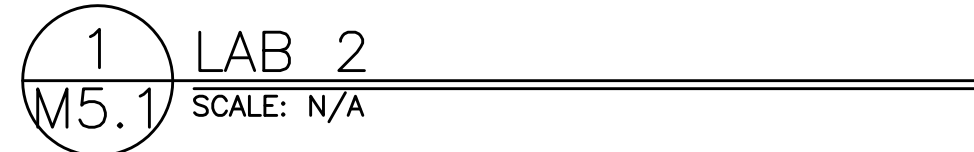
THIS SYSTEM OPERATES TO MAINTAIN SPACE TEMPERATURE 24/7. COORDINATE SCHEDULE AND OFF HOURS TEMP SET POINT WITH OWNER. SASH POSITION SENSOR AND VFD ON THE EXH FAN WILL BE ADDED IN FUTURE TO REDUCE THE EXH AIRFLOW WHEN SASH IS CLOSED.

DUCT HEATER (EDH): OPERATE TO MAINTAIN 55 DEGREE F DISCHARGE TEMPERATURE. WHEN OSA < 50°F.

2-POSITION CONTROL DAMPER: OPEN/CLOSE WITH FAN OPERATION.

EF-3A: ON 24/7 @ 100% DESIGN CAPACITY.

SUPPLY FAN: ON 24/7 @ 100% DESIGN CAPACITY.



SEQUENCE OF OPERATION:

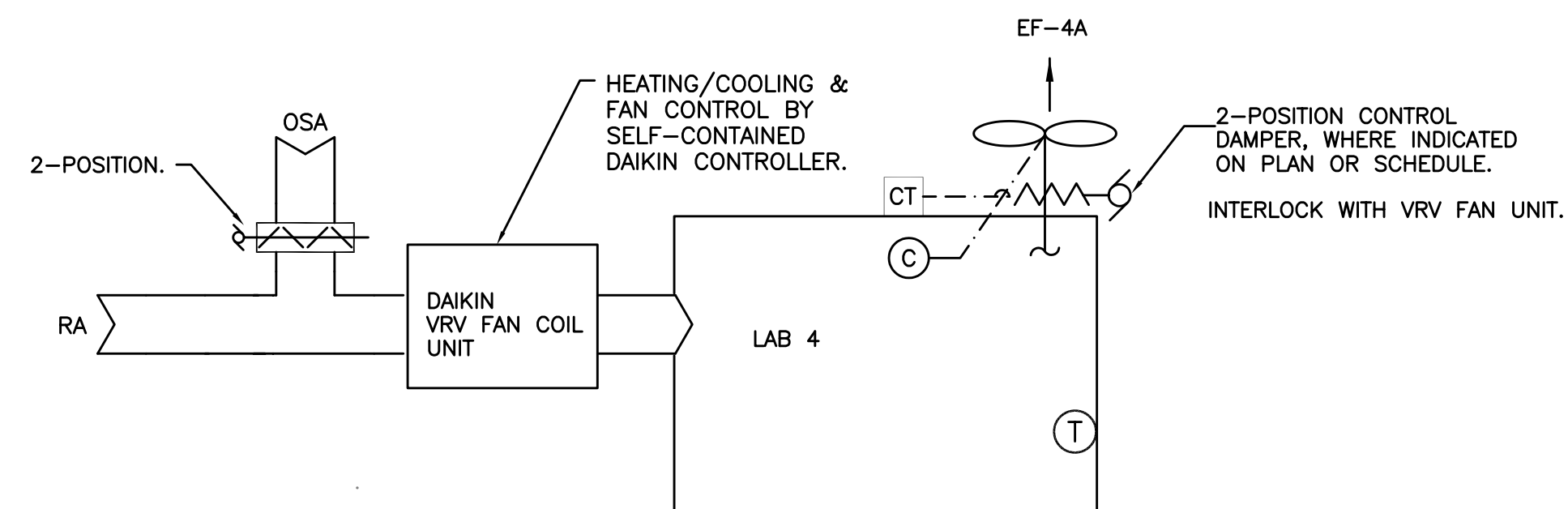
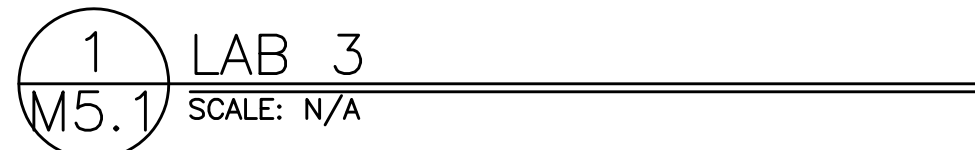
THIS SYSTEM OPERATES TO MAINTAIN SPACE TEMPERATURE 24/7. COORDINATE SCHEDULE AND OFF HOURS TEMP SET POINT WITH OWNER.

DUCT HEATER (EDH): OPERATE TO MAINTAIN 55 DEGREE F DISCHARGE TEMPERATURE. WHEN OSA < 50°F.

2-POSITION CONTROL DAMPER: OPEN/CLOSE WITH FAN OPERATION.

EF-3A: OPERATE @ 100% DESIGN (1800CFM) WHEN HOOD SASH IS OPEN. OPERATE @ 50% DESIGN (900CFM) WHEN HOOD SASH IS CLOSED.

SUPPLY FAN: OPERATE @ 100% DESIGN HOOD SASH IS OPEN. OPERATE @ 50% DESIGN WHEN HOOD SASH IS CLOSED.

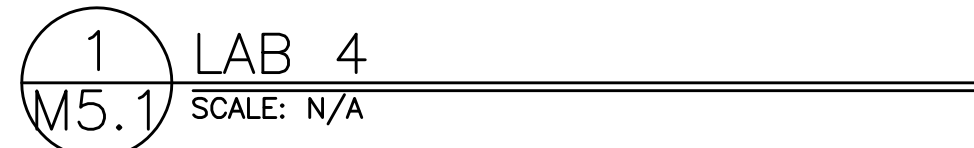


SEQUENCE OF OPERATION:

THIS SYSTEM OPERATES DURING OCCUPIED HOURS (SCHEDULE TO BE COORDINATED WITH OWNER) TO MAINTAIN ROOM TEMPERATURE.

2-POSITION CONTROL DAMPER: OPEN/CLOSE WITH FAN OPERATION.

EF-4A: ON 24/7 @ 100% CAPACITY.



CONTROLS FOR LAB 2

POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
OSA DAMPER			X		
DUCT HEATER				X	
PRE-HEAT DISCHARGE TEMP		X			
SA FAN VFD SPEED				X	

CONTROLS FOR LAB 3

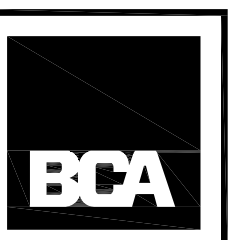
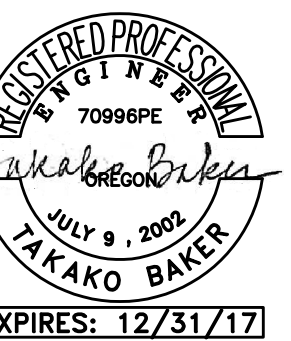
POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
OSA DAMPER			X		
DUCT HEATER				X	
PRE-HEAT DISCHARGE TEMP		X			
SASH POSITION		X			
SA FAN VFD SPEED				X	
EF-3A VFD SPEED				X	

CONTROLS FOR LAB 4

POINT DESCRIPTION	INPUT		OUTPUT		ALARM
	DIGITAL	ANALOG	DIGITAL	ANALOG	
OSA DAMPERS				X	
EF-4A ON/OFF			X		
EF-4A DAMPER			X		

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DRAWN/ CHECKED:

ISSUED:

MECHANICAL DEMO PLAN

M5.1

MECHANICAL LEGEND

	SUPPLY AIR DIFFUSER	AFF	ABOVE FINISH FLOOR
	RETURN AIR GRILLE	AHU	AIR HANDLING UNIT
	EXHAUST AIR GRILLE	B.D.	BOTTOM OF DUCT
	PERFORATED RETURN AIR PANEL	BHP	BRAKE HORSEPOWER
	DIRECTIONAL AIR FLOW	BTU	BRITISH THERMAL UNITS
	MANUAL VOLUME DAMPER	CFM	CUBIC FEET PER MINUTE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	CONN.	CONNECTION
	RETURN AIR DUCT UP & DOWN	CONT.	CONTINUATION
	EXHAUST AIR DUCT UP & DOWN	CW	DOMESTIC COLD WATER
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	DB	DRY BULB
	RETURN AIR DUCT UP & DOWN	DIA.	DIAMETER
	EXHAUST AIR DUCT UP & DOWN	DIST.	DISTRIBUTION
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	EA	EXHAUST AIR
	RETURN AIR DUCT UP & DOWN	EDB	ENTERING DRY BULB TEMPERATURE
	EXHAUST AIR DUCT UP & DOWN	EWB	ENTERING WET BULB TEMPERATURE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	EWT	ENTERING WATER TEMPERATURE
	RETURN AIR DUCT UP & DOWN	FF	FINISH FLOOR
	EXHAUST AIR DUCT UP & DOWN	FXKT.	FIXTURE
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	FPM	FEET PER MINUTE
	RETURN AIR DUCT UP & DOWN	FPS	FEET PER SECOND
	EXHAUST AIR DUCT UP & DOWN	FT.	FEET / FOOT
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	GA.	GAUGE
	RETURN AIR DUCT UP & DOWN	GPM	GALLONS PER MINUTE
	EXHAUST AIR DUCT UP & DOWN	H	HEIGHT
	SUPPLY OR OUTSIDE AIR DUCT UP & DOWN	HP	HORSEPOWER
	RETURN AIR DUCT UP & DOWN	I.D.	INSIDE DIAMETER
	EXHAUST AIR DUCT UP & DOWN	IN.	INCHES
	VAV TERMINAL UNIT	L	LENGTH
	WT TERMINAL UNIT	LBS.	POUNDS
	EXISTING	LDB	LEAVING DRY BULB
	CONNECT TO EXISTING	LWB	LEAVING WET BULB
	THERMOSTAT OR TEMP. SENSOR	LWT	LEAVING WATER TEMPERATURE
	NOTE	MAX.	MAXIMUM
	EQUIPMENT DESIGNATOR	MBH	THOUSANDS OF BTUs PER HOUR
	BALL VALVE	MIN.	MINIMUM
	GATE VALVE	NC	NOISE CRITERIA
	CHECK VALVE	N.C.	NORMALLY CLOSED
	BALANCING VALVE	N.I.M.	NOT IN MECHANICAL
	THERMOMETER	NO.	NUMBER
	DIRECTION OF FLOW	N.O.	NORMALLY OPEN
	PUMP	O.A.	OUTSIDE AIR
	STRAINER	P	PERSON
	PRESSURE GAUGE	PSI	POUNDS PER SQUARE INCH
	PETE'S PLUG	P/T	PRESSURE / TEMPERATURE
	DOUBLE CHECK ASSEMBLY	R.A.	RETURN AIR
	PRESSURE REDUCING VALVE	RECT.	RECTANGULAR
	UNION	REQ'D	REQUIRED
	2-WAY CONTROL VALVE	S.A.	SUPPLY AIR
	3-WAY CONTROL VALVE	S.P.	STATIC PRESSURE
	CAP	SQ.	SQUARE
	SMOKE DETECTOR	TEMP.	TEMPERATURE
	MOTORIZED DAMPER	TYP.	TYPICAL
	SEISMIC BRACING	VAV	VARIABLE AIR VOLUME
	LATERAL BRACING	W	WIDTH
	LONGITUDINAL BRACING	WB	WET BULB
	LONGITUDINAL & LATERAL BRACING	WPD	WATER PRESSURE DROP
	LONGITUDINAL & LATERAL BRACING	Ø	DIAMETER

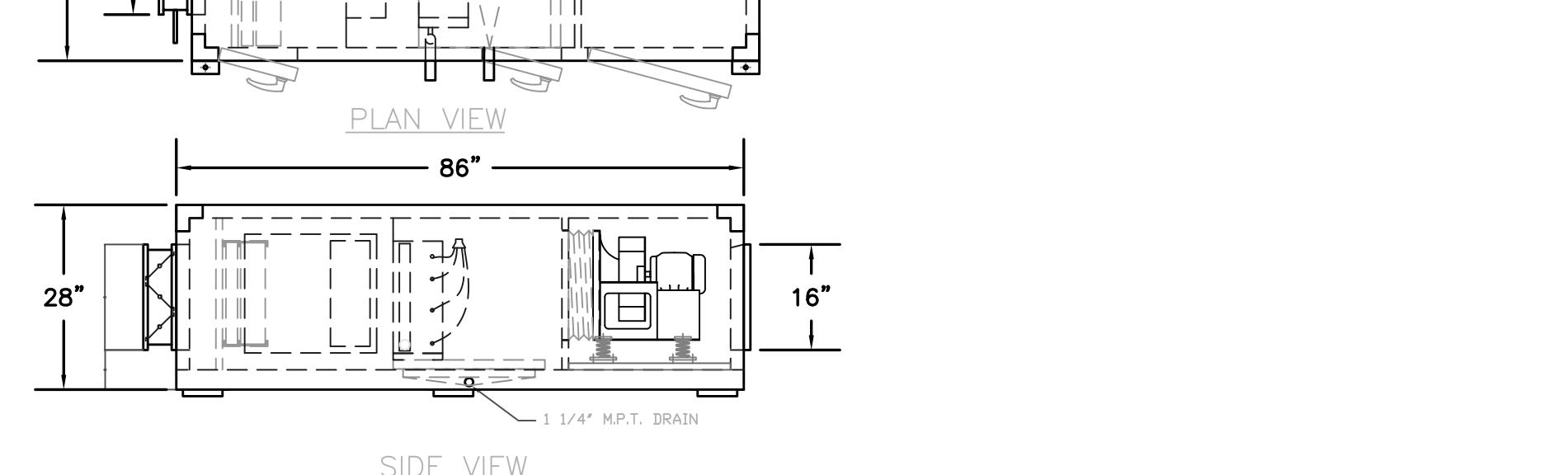
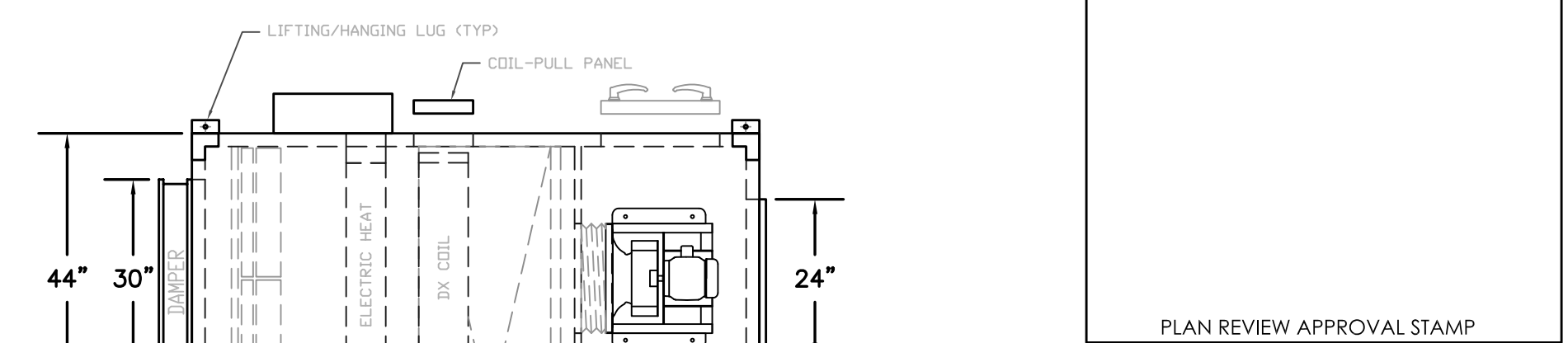
HEAT PUMP(VRF)

OUTDOOR MARK NUMBER	HP 2A	HP 3A	HP 4A
SYSTEM	LABS 2	LABS 3	LABS 4
TYPE	VRV HEAT PUMP	VRV HEAT PUMP	VRV HEAT PUMP
RATED COOLING CAPACITY	96,000 BTUH	96,000 BTUH	96,000 BTUH
RATED HEATING CAPACITY	103,000	103,000	103,000
EFFICIENCY SEER	13.0	13.0	13.0
EFFICIENCY /COP	4.0	4.0	4.0
REFRIGERANT	410 A	410 A	410 A
MAX PIPING LENGTH	230	230	230
MAX PIPING HEIGHT	49.0	49.0	49.0
VOLTS-PHASE	208/3	208/3	208/3
MCA/MOP	36.3/45	36.3/45	36.3/45
COMPRESSOR	INVERTER	INVERTER	INVERTER
WEIGHT	525	525	525
BASIS OF DESIGN - DAIKIN	RXYQ96TJU	RXYQ96TJU	RXYQ96TJU
INDOOR UNIT	MAU-2A*	MAU-3A*	FC-4A

* NON-DAIKIN VRV FAN COIL UNIT. PROVIDE DAIKIN "AHU INTEGRATION KIT" FOR CONTROL OF THESE UNITS.

INDOOR MARK NUMBER	MAU 2A	MAU 3A	FC 4A
SERVICE	LAB 2	LAB 3	LAB 4
OUTDOOR UNIT	HP-2A	HP-3A	HP-4A
TYPE	100% MAU	100% MAU	RECIRCULATING
AIRFLOW(CFM)	1500 CFM	1500 CFM	2540 CFM
OUTSIDE AIR (CFM)	1500 CFM/100%	1500 CFM/100%	-
ESP ("W.G.)	0.75"	0.75"	0.50"
FAN HP	1.5 HP	1.5 HP	760 WATTS
FAN RPM/BHP	2479/0.86	2479/0.86	-
VFD (MODEL ABB ACH550)	YES	YES	NO
FILTER	2" 30 %	2" 30 %	30% *
EAT (DB/WB) - COOLING	92/62	92/62	80/67
LAT (DB/WB) - COOLING	53.5/46.4	53.5/46.4	-
SENSIBLE COOLING CAPACITY	62,300 BTUH	62,300 BTUH	76,970 BTUH
EAT (DB/WB) - HEATING	32	32	70/70
LAT (DB/WB) - HEATING	94	94	-
HEATING CAPACITY	100,920 BTUH	100,920 BTUH	108,000 BTUH
AUXILIARY HEAT	EDH 2A	EDH 3A	
TYPE	ELECT DUCT HEATER	ELECT DUCT HEATER	
KW	28.5 KW	28.5 KW	
CONTROL	SCR*	SCR*	
TOTAL UNIT WEIGHT	500 LBS	500 LBS	305 LBS
BASIS OF DESIGN	THERMAL/FBC-2	THERMAL/FBC-2	DAIKIN FXMQ96MVJU

* CONTROL TO MAINTAIN DISCHARGE TEMP @ 55°F WHEN OSA < 50°F.



1 MAU-2A/3A DETAILS/DIMENSIONS
 M6.1 SCALE:DETAIL

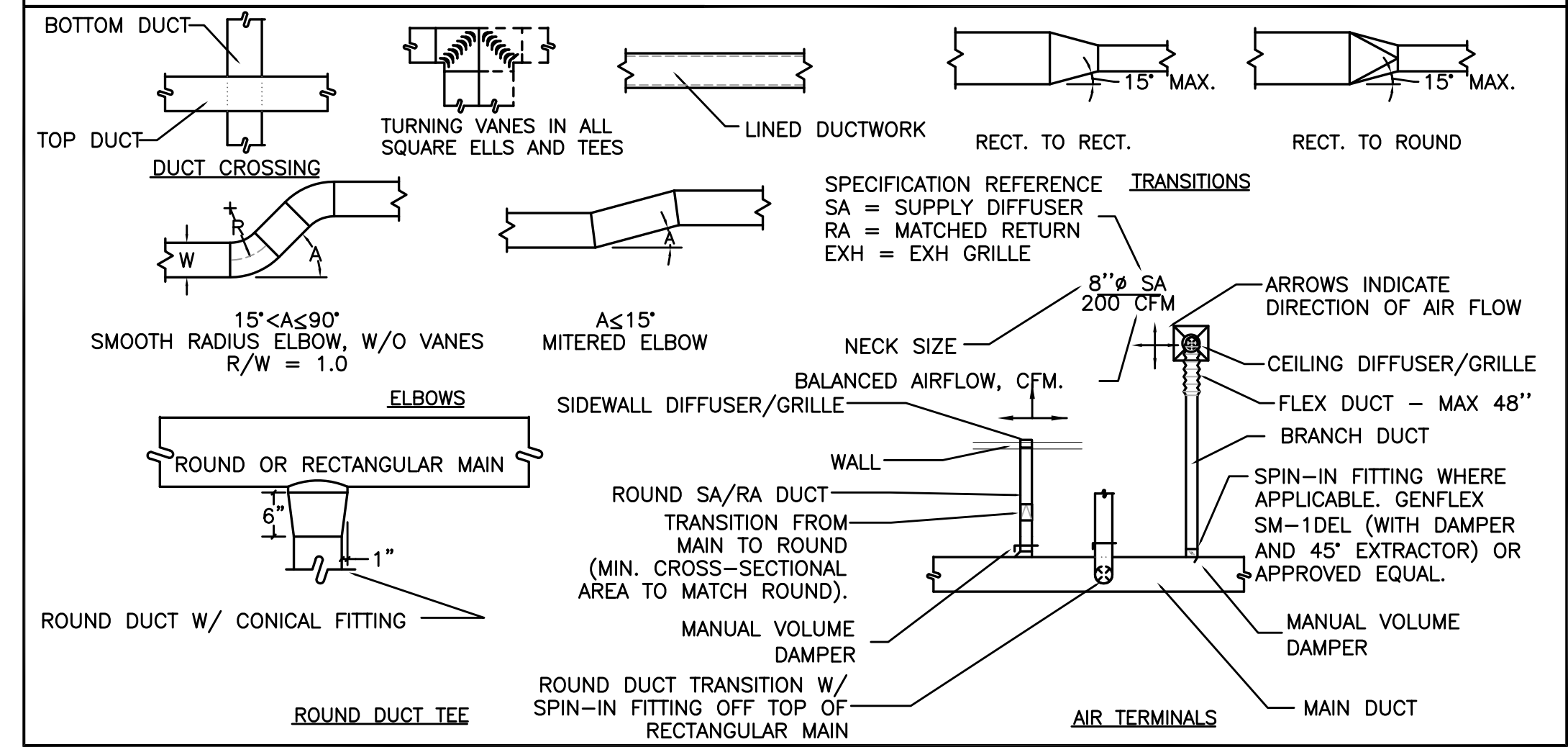
EXHAUST FANS

MARK NUMBER	EF 0A	EF 3A	EF 4A	EF 5A
TYPE	CEILING	EXP-PROOF UTILITY SET	IN-LINE CABINET	UTILITY SET
SYSTEM	LAB 0	LAB 3-HOOD	LAB 4	WEIGH ROOM
CFM	250	1800	300	280
TOTAL SP. (IN H2O)	0.375	0.75"	0.375	1.75"
RPM	874	1557	1206	2570
MOTOR WATTS OR HP	45.8 WATTS	3/4 HP	90 WATTS	1/2 HP
CONTROLLED BY	CONTINUOUS	SASH SENSOR*	CONTINUOUS	CONTINUOUS
INTERLOCK WITH	-	-	-	-
FAN SPEED CONTROLLER	S.S. SPD CTRL**	YES, VFD	S.S. SPD CTRL**	-
WHEEL TYPE	BI	BI	BI	BI
BACK DRAFT DAMPER	NO	YES	NO	NO
ISOLATION	R.I.S.	SPRING RAILS	R.I.S.	R.I.S.
DESIGN WEIGHT (LBS)	25	185	25	110
MAX. SONES	1.3	18.6	3.0	17
POWER (VOLTS/PHASE/HZ)	115/1	208/3	115/1	115/1
BASIS OF DESIGN:	GREENHECK SP-A200	TWIN CITY BCV-135	GREENHECK CSP-A390	GREENHECK USF-306

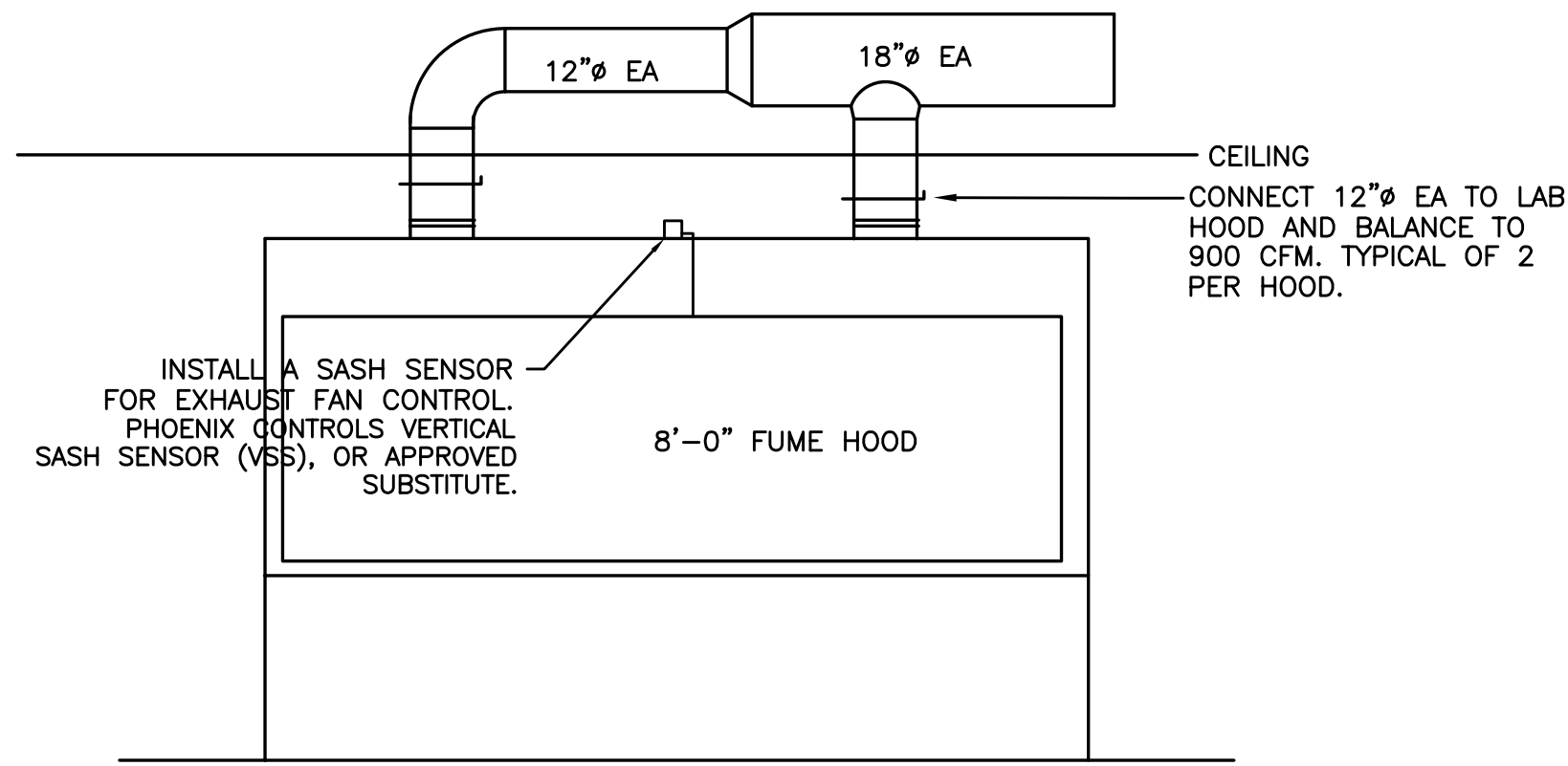
* - FAN TO RUN AT 50% SPEED WHEN HOOD IS CLOSED AND 100% WHEN SASH IS OPEN.
 ** - FOR BALANCING.

BASIS OF DESIGN:
AMBIENT TEMPS:
 SUMMER: 95°F/64°F
 WINTER: -5°F
DESIGN SPACE TEMPS:
 ROOM TEMP TEMP = 68°F - 75°F
 OFF HOURS TEMP SET POINT: (ADJUSTABLE, COORD. WITH OWNER)
SPACE PRESSURE:
 LABS 2, 3 4: NEGATIVE WITH RESPECT TO ADJACENT CORRIDOR.
 WEIGHT ROOM (LAB 4): 0.025" WITH RESPECT TO LAB 4.
AIRFLOWS:
 SEE VENTILATION SCHEDULE # OF ACH'S AND CODE REQUIREMENTS.

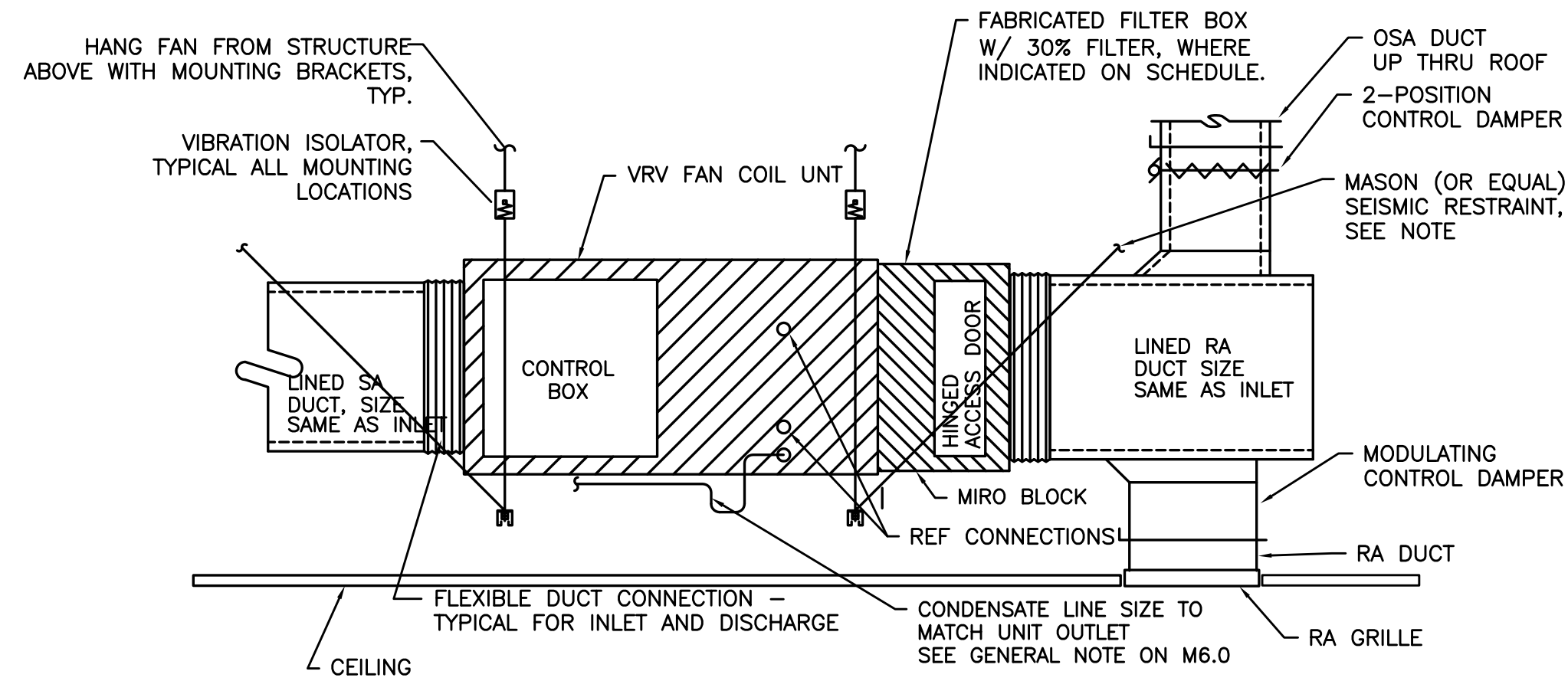
AIR DISTRIBUTION DETAILS



SPACE INFO		MECHANICAL CODE REQUIREMENT					DESIGN AIRFLOW			AIR CHANGES			
ROOM NUMBER AND NAME	AREA (SQFT)	CEILING HEIGHT (FT)	OCCUPANT LOAD (#/1000 SQ. FT.)	NUMBER OF OCCUPANTS (#)	OUTSIDE AIR REQUIREMENT (CFM/PERSON)	OUTSIDE AIR REQUIREMENT (CFM/SQ.FT.)	OUTSIDE AIR REQUIRED (CFM)	REQUIRED EXHAUST (1 CFM/SQFT)	SUPPLY AIR (CFM)	RETURN AIR (CFM)	EXHAUST AIR (CFM)	SUPPLY AIR ACH	EXHAUST AIR ACH
EX. HP-9 & EF-0A Lab 0	195	9	25	5	10	0.18	85	195	200	0	250	7	9
MAU-2A/EX EXH FAN Lab 1/2	272	9	25	7	10	0.18	119	272	1500	0	1800	37	44
MAU-3A/EF-3A Lab 3	720	9	25	18	10	0.18	310	720	1500	1000	1800	14	17
FC-RA/EF-4A/FFU-1 Lab 4	300	9	25	8	10	0.18	134	300	2545	1960	300	57	7
WEIGH ROOM	100	9						100			285		19

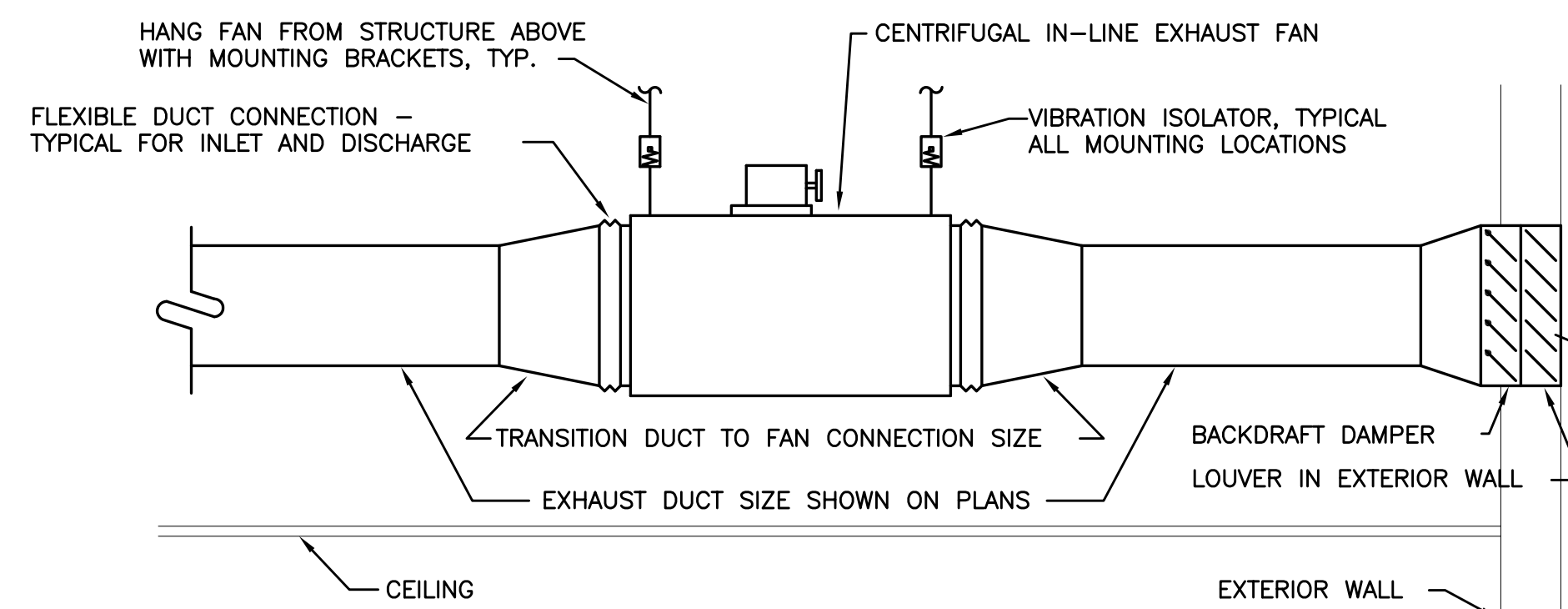


1 LAB HOOD EXHAUST
M6.2 SCALE: DETAIL

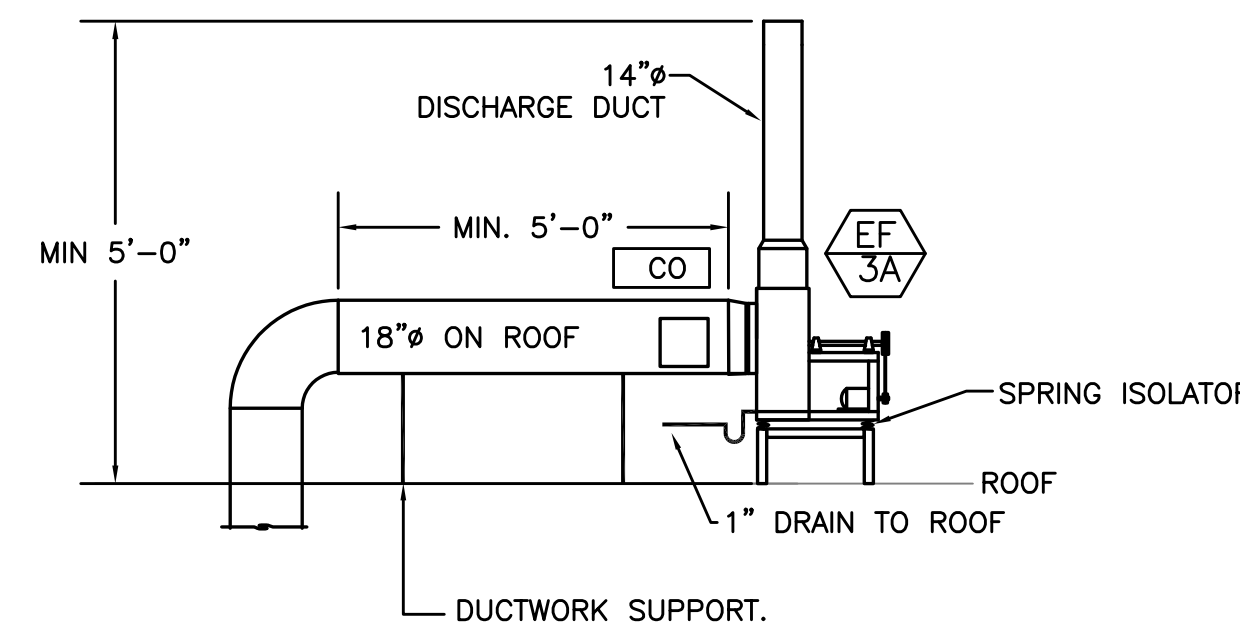


NOTE: LOCATE SUPPORT & SIESMIC TO MAINTAIN UNHINDERED ACCESS FOR MAINTENANCE OF UNIT.

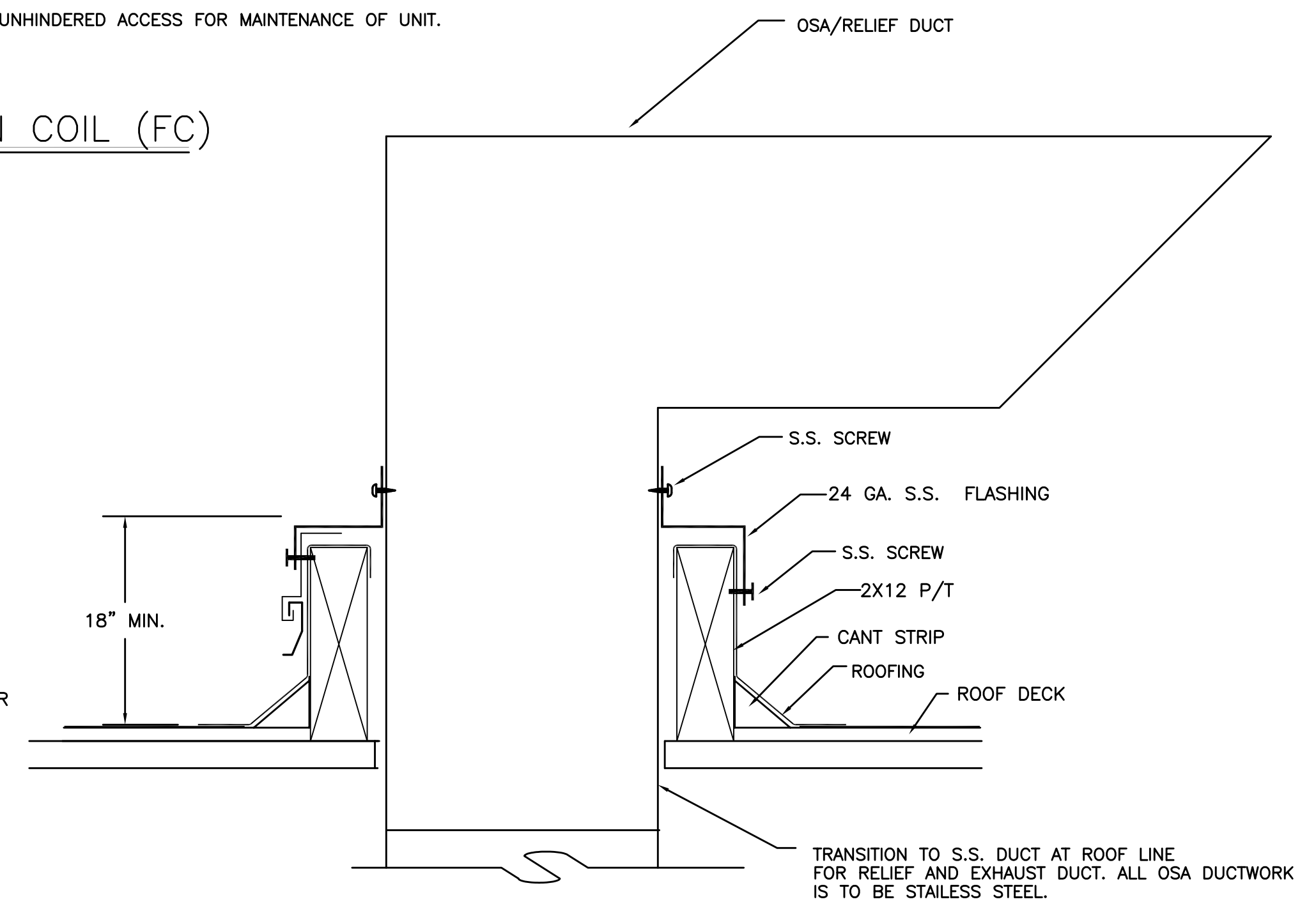
2 VRV DUCTED FAN COIL (FC)
M6.2 SCALE: DETAIL



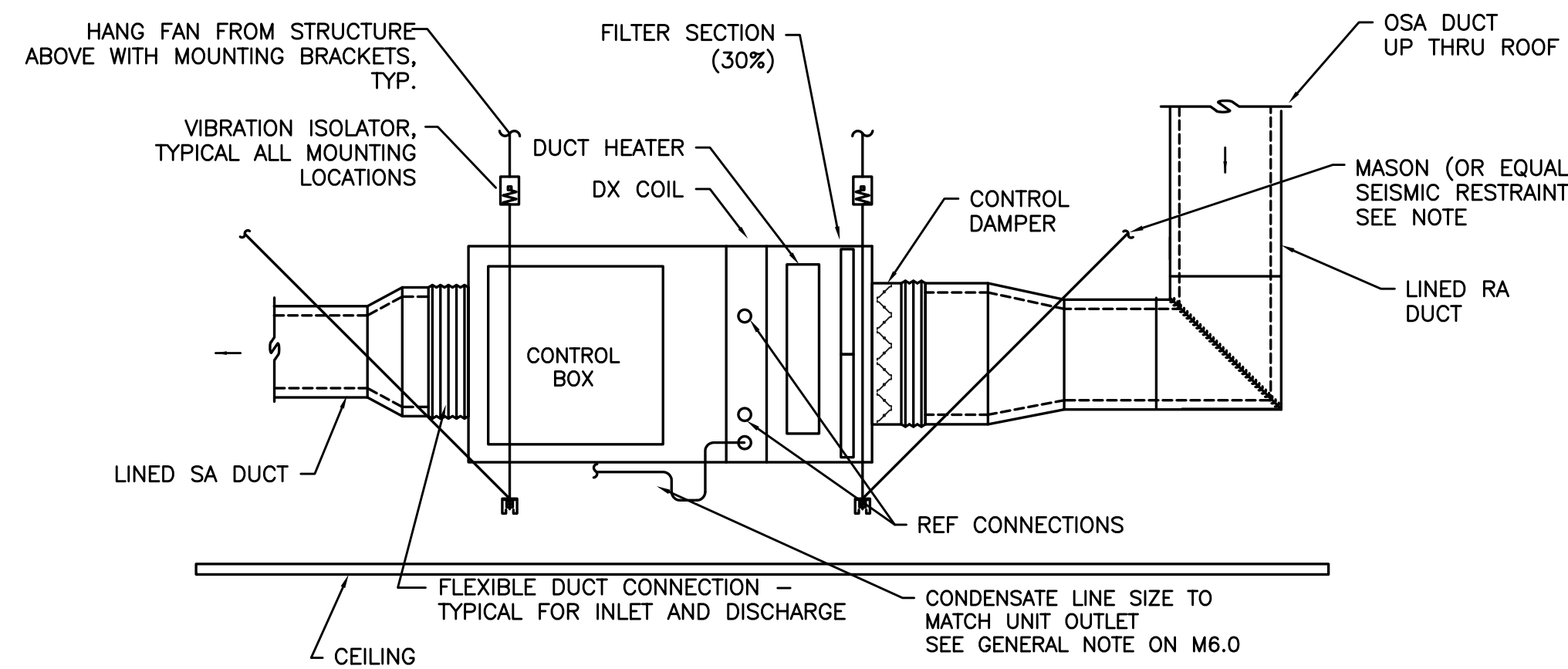
3 IN-LINE EXH FAN
M6.2 SCALE: DETAIL



4 UTILITY SET EXH FAN
M6.2 DETAIL

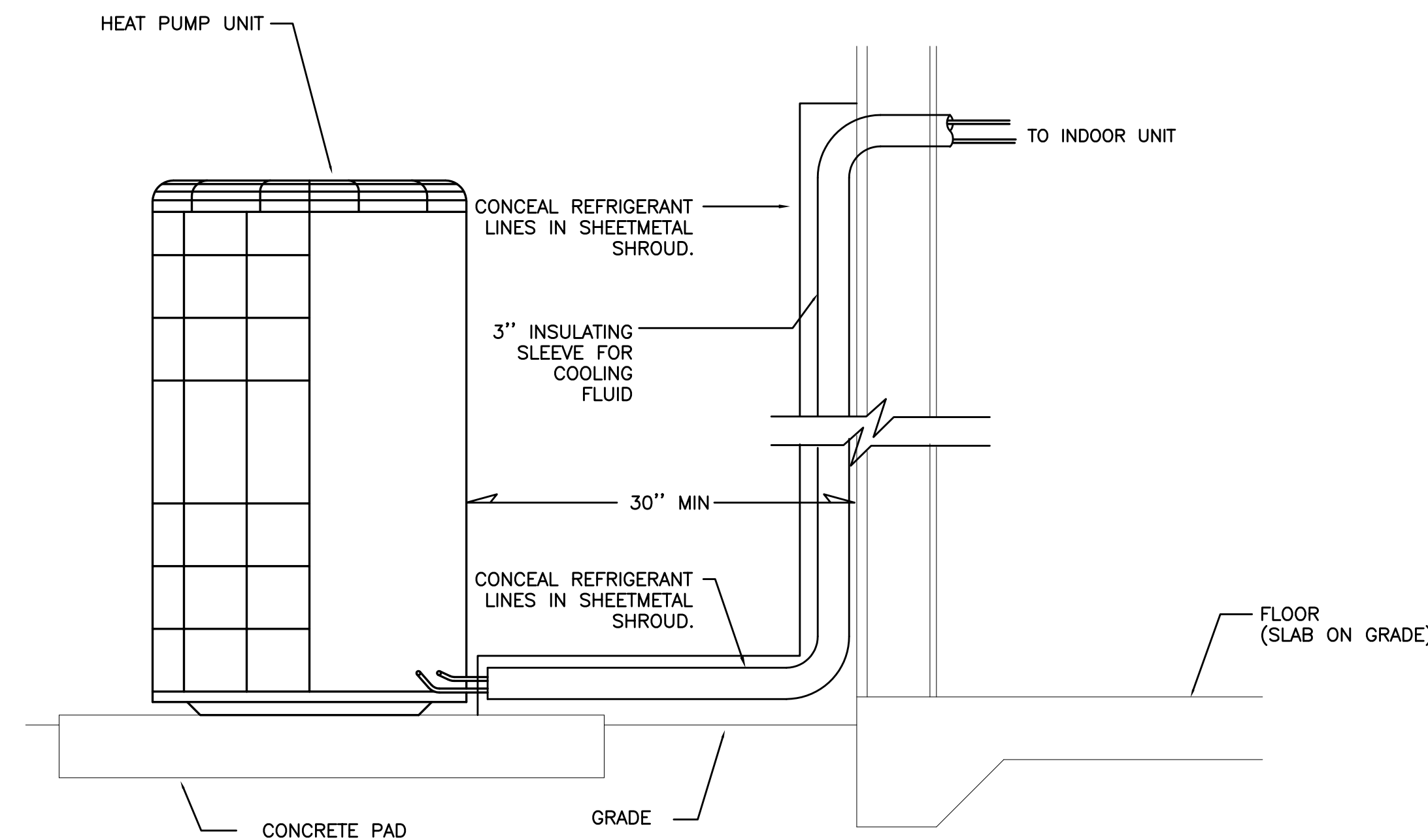


5 DUCT PENETRATION DETAIL
M6.2 DETAIL



NOTE: LOCATE SUPPORT & SIESMIC TO MAINTAIN UNHINDERED ACCESS FOR MAINTENANCE OF UNIT. SEE 1/M6.1 FOR DIMENSIONS.

6 MAKE-UP AIR UNIT
M6.2 SCALE: DETAIL



3 TYP. CONDENSER INSTALLATION
M6.2 DETAIL