

ABBREVIATIONS

AC	AIR CONDITIONING UNIT	ESP	EXTERNAL STATIC PRESSURE	NC	NORMALLY CLOSED
AD	ACCESS DOOR	ET	EXPANSION TANK	NO	NORMALLY OPEN
AFF	ABOVE FINISHED FLOOR	EWT	ENTERING WATER TEMPERATURE	NIC	NOT IN CONTRACT
AH	AIR HANDLER (SPLIT REFRIG)	EWC	ELECTRIC WATER COOLER	NK	NECK
AHU	AIR HANDLING UNIT	FA	FREE AREA	OA	OUTSIDE AIR
AL	ACOUSTICAL LINING	FX	FLEXIBLE CONNECTION	OAI	OUTSIDE AIR INTAKE
AP	ACCESS PANEL	FC	FAN COIL UNIT	OAT	OUTSIDE AIR TEMPERATURE
BB	ELECTRIC BASEBOARD RADIATION	FD	FIRE DAMPER	OC	ON CENTER
B	BOILER	FLR	FLOOR	OD	OUTSIDE DIAMETER
BDD	BACK DRAFT DAMPER	FOB	FLAT ON BOTTOM	OBD	OPPOSED BLADE DAMPER
BFC	BELOW FINISHED CEILING	FOT	FLAT ON TOP	PBD	PARALLEL BLADE DAMPER
BOB	BOTTOM OF BEAM	FOP	FUEL OIL PUMP	PRV	PRESSURE REDUCING VALVE
BOD	BOTTOM OF DUCT	FP	FIRE PUMP	PTAC	PACKAGED TERMINAL AIR CONDITIONER
BOP	BOTTOM OF PIPE	FRM	FEET PER MINUTE	RA	RETURN AIR
C	CHILLER	FTR	FINNED TUBE RADIATION	RAG	RETURN AIR GRILLE
CD	CEILING DIFFUSER	GC	GENERAL CONTRACTOR	RAR	RETURN AIR REGISTER
CFM	CUBIC FEET PER MINUTE	GPH	GALLONS PER HOUR	RCP	REFLECTED CEILING PLAN
CHWP	CHILLED WATER PUMP	GRM	GALLONS PER MINUTE	RHC	REHEAT DAMPER
CHWR	CHILLED WATER RETURN	HD	HAND DAMPER	RF	RETURN FAN
CHWS	CHILLED WATER SUPPLY	HP	HEAT PUMP	SA	SUPPLY AIR
CO	CLEAN OUT	HV	HEATING AND VENTILATING UNIT	SAR	SUPPLY AIR REGISTER
CP	CONDENSATE PUMP	HWC	HOT WATER CON-VERTER	SCG	SMOKE CONTROL GRILLE
CWR	CONDENSER WATER RETURN	HWP	HOT WATER PUMP	SD	SMOKE DAMPER
CWS	CONDENSER WATER SUPPLY	HWR	HEATING HOT WATER RETURN	SEF	SMOKE EXHAUST FAN
CT	COOLING TOWER	HWS	HEATING HOT WATER SUPPLY	SF	SUPPLY FAN
CU	CONDENSING UNIT	HX	HEAT EXCHANGER	SP	STATIC PRESSURE
CUH	CABINET UNIT HEATER	HZ	HERTZ	TG	TRANSFER GRILLE
CVB	CONSTANT VOLUME BOX	ID	INSIDE DIAMETER	TYP	TYPICAL
CWP	CONDENSER WATER PUMP	LAT	LEAVING AIR TEMPERATURE	UH	UNIT HEATER
DB	DRY BULB	LWT	LEAVING WATER TEMPERATURE	UON	UNLESS OTHERWISE NOTED
DS	DUCT SILENCER	LD	LINEAR DIFFUSER	VAV	VARIABLE AIR VOLUME UNIT
DWP	DOMESTIC WATER PUMP	LF	LINEAR FEET	VD	VOLUME DAMPER
EAT	ENTERING AIR TEMPERATURE	MC	MECHANICAL CONTRACTOR	VTR	VENT THRU ROOF
EC	ELECTRICAL CONTRACTOR	MTD	MOUNTED	WB	WET BULB
EF	EXHAUST FAN	MOD	MOTOR OPERATED DAMPER	WMS	WIRE MESH SCREEN
EJ	EXPANSION JOINT	MUA	MAKE-UP AIR UNIT		
ER	EXHAUST REGISTER				

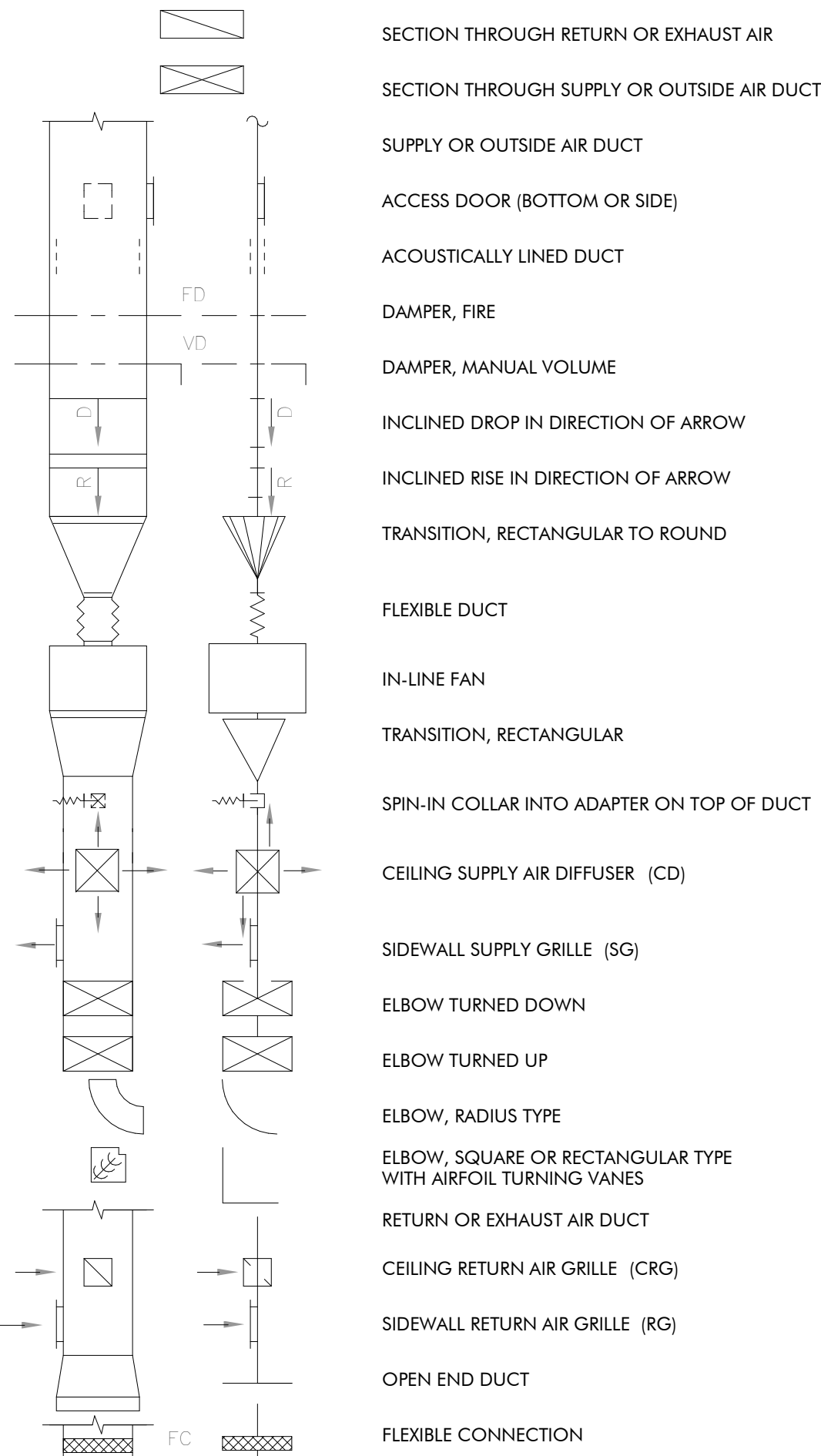
HVAC CONTROL SYMBOLS

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	GATE VALVE		ROOM OR ZONE THERMOSTAT
	GLOBE VALVE		DUCT THERMOSTAT
	GAS COCK		THERMOMETER
	SOLENOID VALVE		EXPANSION VALVE
	CONTROL VALVE , 2-WAY		DAMPER MOTOR
	PRESSURE REDUCING VALVE		DAMPER
	CHECK VALVE		MOTOR
	CENTRIFUGAL FAN		PLUG VALVE
	FLOW SWITCH		PRESSURE GAGE
	FIRE SAFETY SWITCH		PRESSURE SWITCH
	HUMIDISTAT, ROOM		PUMP
	HUMIDISTAT, DUCT		RELAY
	BALL VALVE		PRESS./TEMP. RELIEF VALVE
	CONTROL VALVE , 3-WAY		SMOKE DETECTOR
	FLOW SWITCH		CONTROL WIRING
	STEAM TRAP		STATIC PRESSURE CONTROLLER

PIPING SYSTEM SYMBOLS

	RL	REFRIGERANT LIQUID
	RS	REFRIGERANT SUCTION

DUCTWORK SYMBOLS



GENERAL MECHANICAL NOTES:

- INSTALL EQUIPMENT TO PROVIDE SERVICE CLEARANCE AS RECOMMENDED BY THE MANUFACTURER, AND AS REQUIRED BY CODE AND LOCAL INSPECTOR. PROVIDE CLEAR LABELING OF FILTER PANELS TO VERIFY ADEQUATE ACCESS FOR MAINTENANCE.
- TEST HVAC CONTROL DEVICES, COMPONENTS, EQUIPMENT AND SYSTEMS TO ENSURE THEY ARE CALIBRATED, ADJUSTED AND OPERATE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. SEQUENCES OF OPERATION SHALL BE FUNCTIONALLY TESTED TO ENSURE THEY OPERATE IN ACCORDANCE WITH THE APPROVED PLANS AND SPECIFICATIONS. A COMPLETE REPORT OF THE TEST PROCEDURES AND RESULTS SHALL BE PREPARED AND FILED WITH THE OWNER PRIOR TO OCCUPANCY.
- PROVIDE RECORD DRAWINGS OF ACTUAL INSTALLATION WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE TO BUILDING OWNER. PROVIDE OPERATING AND MAINTENANCE MANUAL CONTAINING SUBMITTAL DATA AND OTHER INFORMATION REQUIRED BY SPECIFICATIONS AND ENERGY CODE.
- COORDINATE FINAL LOCATION OF EQUIPMENT, DUCTS, DIFFUSERS, AND GRILLES WITH STRUCTURE, REFLECTED CEILING PLANS, AND THE LIGHTING LAYOUT PRIOR TO ROUGH-IN. FOLLOW ARCHITECTURAL RCP FOR ALL FINAL GRILLE & DIFFUSER LOCATIONS.
- PROVIDE VOLUME DAMPERS IN BRANCH DUCTS TO SUPPLY, EXHAUST, AND RETURN GRILLES, AND LOCATE DAMPERS AS CLOSE TO BRANCH CONNECTION AS POSSIBLE. PROVIDE CONCEALED DAMPER OPERATOR IN LOCATIONS WHERE DAMPER IS INACCESSIBLE.
- ALL DUCTWORK TO BE MINIMUM 24 GAUGE SHEET METAL WHEN TRAVELLING BETWEEN RATED OCCUPANCY SEPARATIONS, AREA SEPARATIONS, OR COVER RATED EXIT CORRIDORS AND PASSAGEWAYS.
- MOUNT ALL SENSORS, SWITCHES, AND THERMOSTATS PER ARCHITECTURAL DETAILS.
- TRANSITION FROM DUCT SIZES SHOWN TO DIFFUSER NECK SIZES SHOWN A MINIMUM OF 2 FEET BEFORE OUTLET, OR INSTALL A DUCT THE SAME SIZE AS THE GRILLE NECK, AT CONTRACTORS OPTION.
- ANCHOR ALL MECHANICAL UNITS IN EXCESS OF 400 LBS. TO STRUCTURE, AND PROVIDE THE DESIGN OF THIS ANCHORAGE AS A DEFERRED SUBMITTAL IN ACCORDANCE WITH THE DIVISION 23 SPECIFICATIONS. PROVIDE A SEISMIC BRACING DESIGN FOR ANY SUSPENDED APPLIANCE OR PIECE OF EQUIPMENT WEIGHING 75 LBS. OR MORE AS WELL. ALL DRAWINGS AND CALCULATIONS SUBMITTED FOR THIS WORK SHALL BE SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF OREGON.
- CONSTRUCT AND SEAL ALL DUCTWORK PER IMC REQUIREMENTS. ALL DUCTWORK ON THIS PROJECT FALLS UNDER THE LOW PRESSURE CLASSIFICATION.

MECHANICAL SHEET LIST

M001	GENERAL NOTES AND ABBREVIATIONS
M401	PARTIAL MECHANICAL FLOOR PLAN
M402	PARTIAL MECHANICAL DEMO FLOOR PLAN



Project

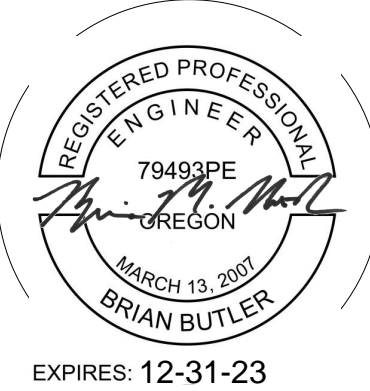
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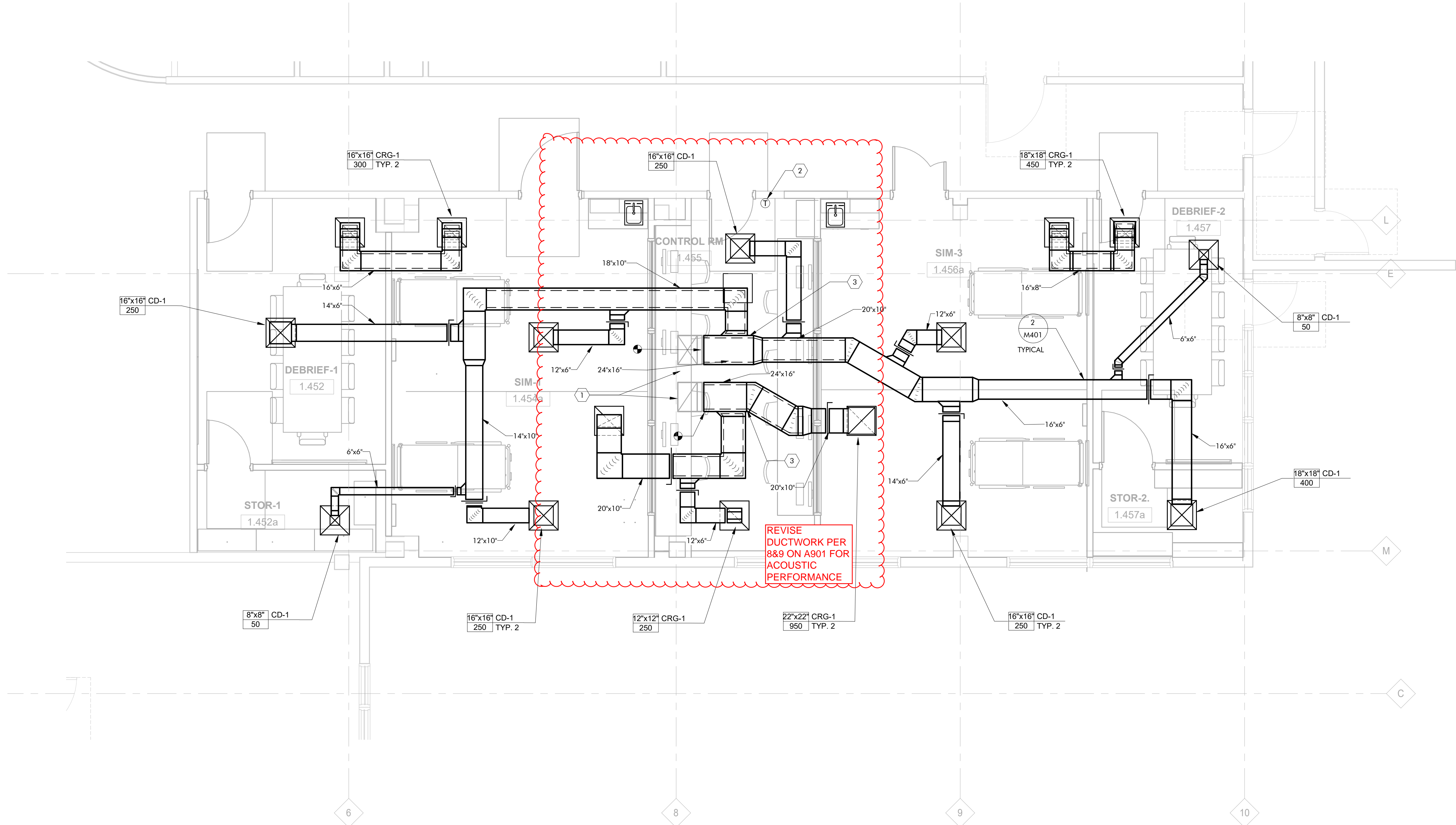
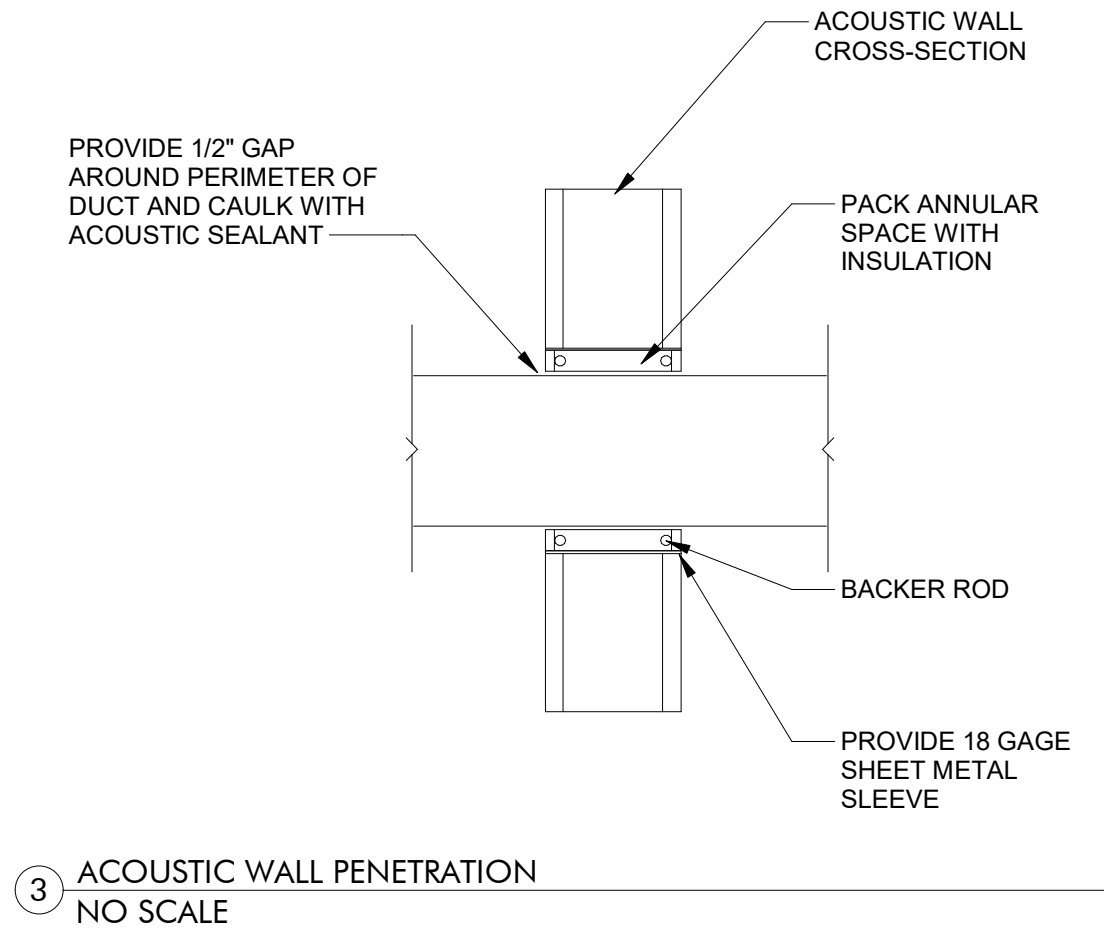
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M001

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2022 OREGON MECHANICAL SPECIALTY CODE OUTSIDE AIR VENTILATION SCHEDULE																	
ZONE	UNIT	ROOM NAME	OCCUPANT LOAD	PEOPLE OUTDOOR AIR RATE	AREA OUTDOOR AIR RATE	ZONE POPULATION (AVERAGE)	ACTUAL ZONE POPULATION	ZONE FLOOR AREA	BREATHING ZONE OUTDOOR AIRFLOW _a	ZONE AIR DISTRIBUTION EFFECTIVENESS _b	ZONE OUTDOOR AIRFLOW REQUIRED _c	ZONE OUTDOOR AIRFLOW PROVIDED	EXHAUST AIRFLOW RATE	EXHAUST AIRFLOW RATE	ZONE FIXTURE COUNT	ZONE EXHAUST AIRFLOW REQUIRED	ZONE EXHAUST AIRFLOW PROVIDED
			people/1000 ft2	R _p cfm/person	R _a cfm/ft2	PZ people	people	AZ ft2	V _{bz} cfm	EZ	VOZ cfm	cfm	cfm/ft2	cfm/fixture	#	cfm	cfm
NURSING SIMULATION LAB	EXISTING RTU	DEBRIEF 1	50	5	0.06	7	10	280	67	0.8	84	90	-	-	-	0	0
		STORAGE A180	-	-	0.12	0	0	90	11	0.8	14	20	-	-	-	0	0
		STORAGE A182	-	-	0.12	0	0	90	11	0.8	14	20	-	-	-	0	0
		SIM ROOM	25	10	0.12	7	4	500	100	0.8	125	130	-	-	-	0	0
		CONTROL ROOM	5	5	0.06	1	8	260	56	0.8	70	70	-	-	-	0	0
		SIM ROOM	25	10	0.12	7	4	500	100	0.8	125	130	-	-	-	0	0
		DEBRIEF 2	50	5	0.06	7	10	280	67	0.8	84	90	-	-	-	0	0
NOTES:																	
CALCULATION IS BASED ON 2022 OR MECH CODE VENTILATION RATE PROCEDURE (VENTILATION FOR ACCEPTABLE INDOOR AIR QUALITY). ALL FORMULAS, VARIABLES, AND TERMINOLOGY USED IN THE CALCULATION TABLES ARE REPRESENTATIVE OF THOSE USED IN 2022 OR MECH CODE																	
a. BREATHING ZONE OUTDOOR AIRFLOW: V _{bz} = R _p P _z + R _a A _z																	
b. ZONE AIR DISTRIBUTION EFFECTIVENESS IS DETERMINED USING TABLE IN 2022 OR MECH CODE.																	
c. ZONE OUTDOOR AIRFLOW: V _{oz} = V _{bz} /E _z . V _{oz} REPRESENTS THE OUTDOOR AIRFLOW THAT MUST BE SUPPLIED TO THE ZONE BY THE SUPPLY AIR DISTRIBUTION SYSTEM.																	
d. TOTAL OUTDOOR INTAKE FOR 100% OUTDOOR AIR SYSTEMS: V _{ot} = ∑all zones V _{oz}																	

DIFFUSER, REGISTER AND GRILLE SCHEDULE							
SYMBOL	TYPE	FACE	FRAME	DAMPER	FINISH	BASIS OF DESIGN	NOTES
CD-1	CEILING DIFFUSER	LOUVER	SURFACE	NONE	WHITE	TITUS TDC	-
SG-1	SIDEWALL SUPPLY GRILLE	DOUBLE DEFLECTION	1/4" BORDER	NONE	WHITE	TITUS 300RL	-
RG-1	RETURN GRILLE	FIXED BAR	1/4" BORDER	NONE	WHITE	TITUS 350RL	-
CRG-1	CEILING RETURN GRILLE	PERFORATED	SURFACE	NONE	WHITE	TITUS PAR	1
CRG-2	CEILING RETURN GRILLE	PERFORATED	LAY-IN	NONE	WHITE	TITUS PAR	1
<div>NOTES:</div> <div>1 PROVIDE 12X12 GRILLE FACE FOR 6" ROUND NECK SIZE, AND PROVIDE 24X24 GRILLE OTHERWISE.</div>							



1 Mechanical Floor Plan
1/4" = 1'-0"

SHEET KEYNOTES

- REUSE EXISTING DUCTWORK DROPS FROM EXISTING ROOFTOP UNIT, AND EXTEND NEW SUPPLY & RETURN DUCTWORK AS SHOWN. REBALANCE EXISTING RTU CSA DAMPER MINIMUM POSITION TO MATCH AIRFLOW SHOWN IN CODE VENTILATION CALC (550 CFM).
- RELOCATE EXISTING T-STAT (AUTOMATED LOGIC) TO NEW LOCATION SHOWN, AND EXTEND EXISTING CONTROL WIRING AS NEEDED TO MAINTAIN CONNECTION TO BUILDING DDC SYSTEM.
- PROVIDE 1" THICK DUCT LINER ON THE FIRST 13' OF SUPPLY & RETURN DUCTWORK IN ALL DIRECTIONS INCLUDING BRANCH DUCTS.



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FLOOR PLAN

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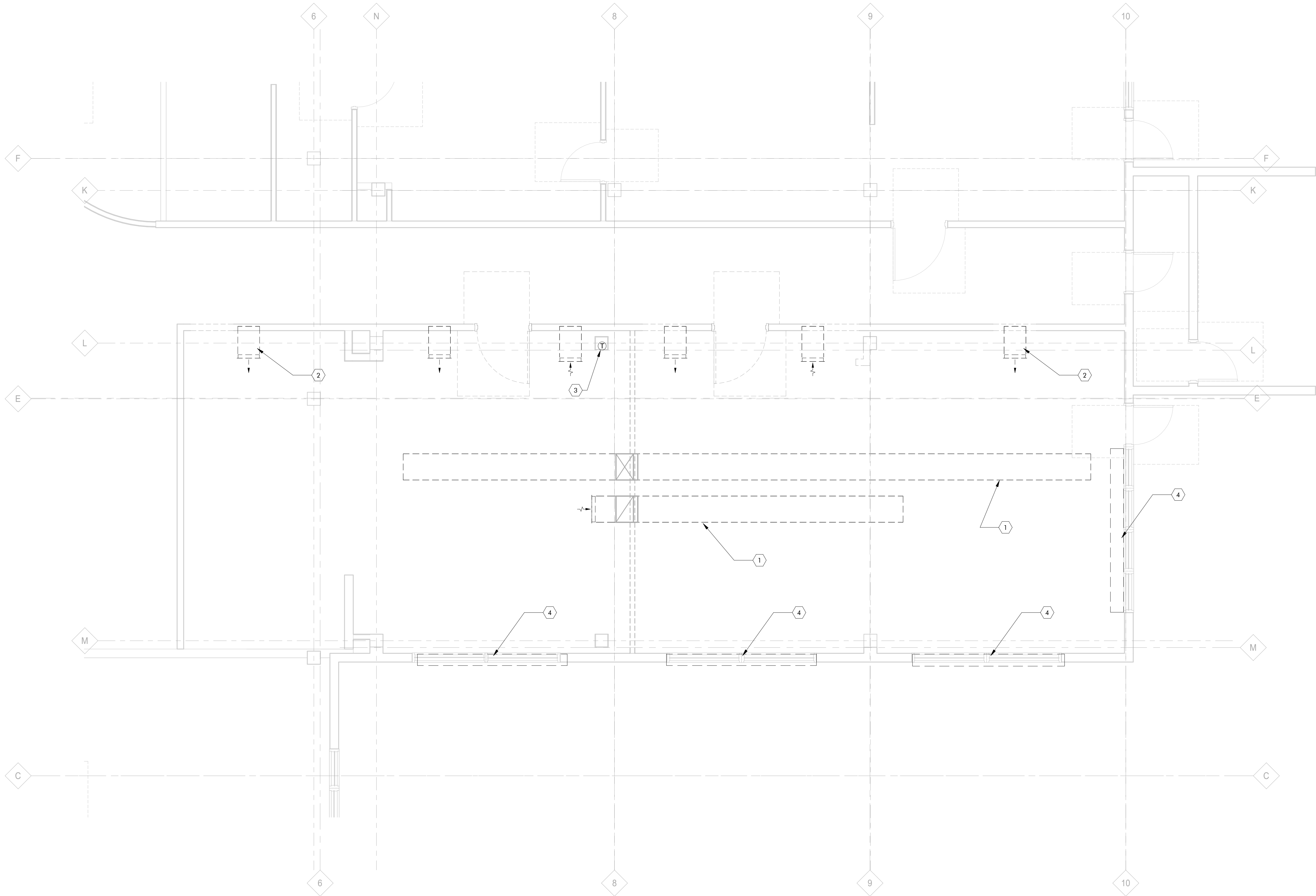
**PARTIAL
MECHANICAL DEMO
FLOOR PLAN**

Sheet No

M402

SHEET KEYNOTES

- 1 DEMOLISH EXISTING DUCTWORK BACK TO DROPS FROM EXISTING ROOFTOP UNIT INCLUDING DAMPERS, DUCT MOUNTED DIFFUSERS, HANGERS, AND ACCESSORIES, TYPICAL.
- 2 DEMOLISH EXISTING SUPPLY AND EXHAUST DUCTWORK AND GRILLES IN SOFFIT, AND CAP DUCTS ABOVE CORRIDOR CEILING, TYPICAL OF 6.
- 3 RELOCATE EXISTING T-STAT TO NEW LOCATION SHOWN, AND EXTEND EXISTING CONTROL WIRING AS NEEDED.
- 4 DEMOLISH EXISTING PERIMETER FINNED TUBE RADIATORS INCLUDING ASSOCIATED VALVES, PIPING, & CONTROLS, AND CAP PIPING BEHIND WALL, TYPICAL. COORDINATE PATCHING OF WALL WITH THE G.C.



1 Mechanical Demo Floor Plan
1/4" = 1'-0"