

REVISIONS TO THIS SHEET

REV.	DATE	DESCRIPTION
1		

SET ISSUE DATE

BP	DATE
BP	2024.02.09
100% DD	2023.12.15
100% SD	2023.10.28

PROJECT TRACKING

RBA #:	2327
P.I.C.:	
PM / PA:	

OSU FRC

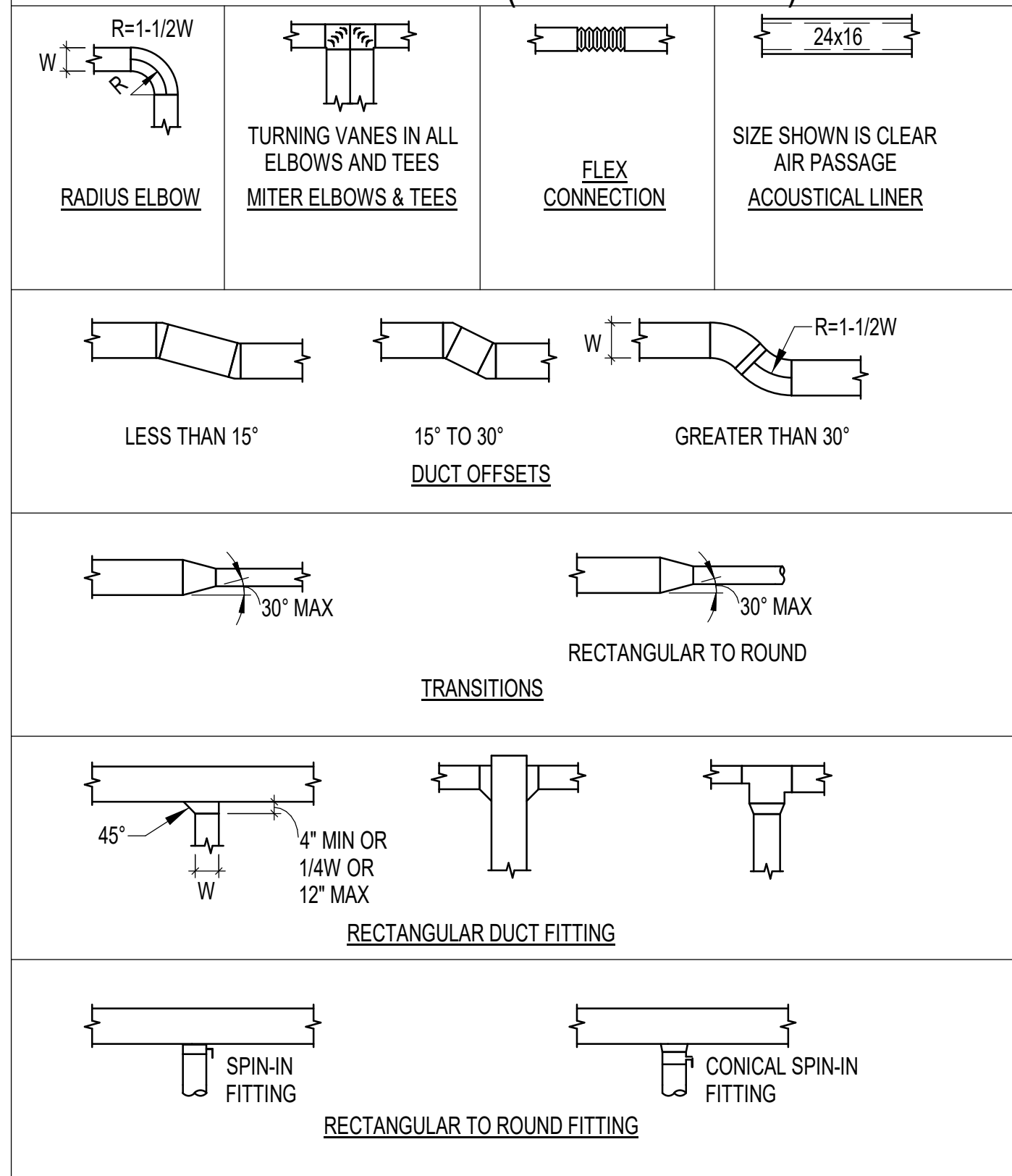
AZALEA EARLY CHILDHOOD CENTER

1050 SW MADISON AVE,
CORVALLIS OR 97333

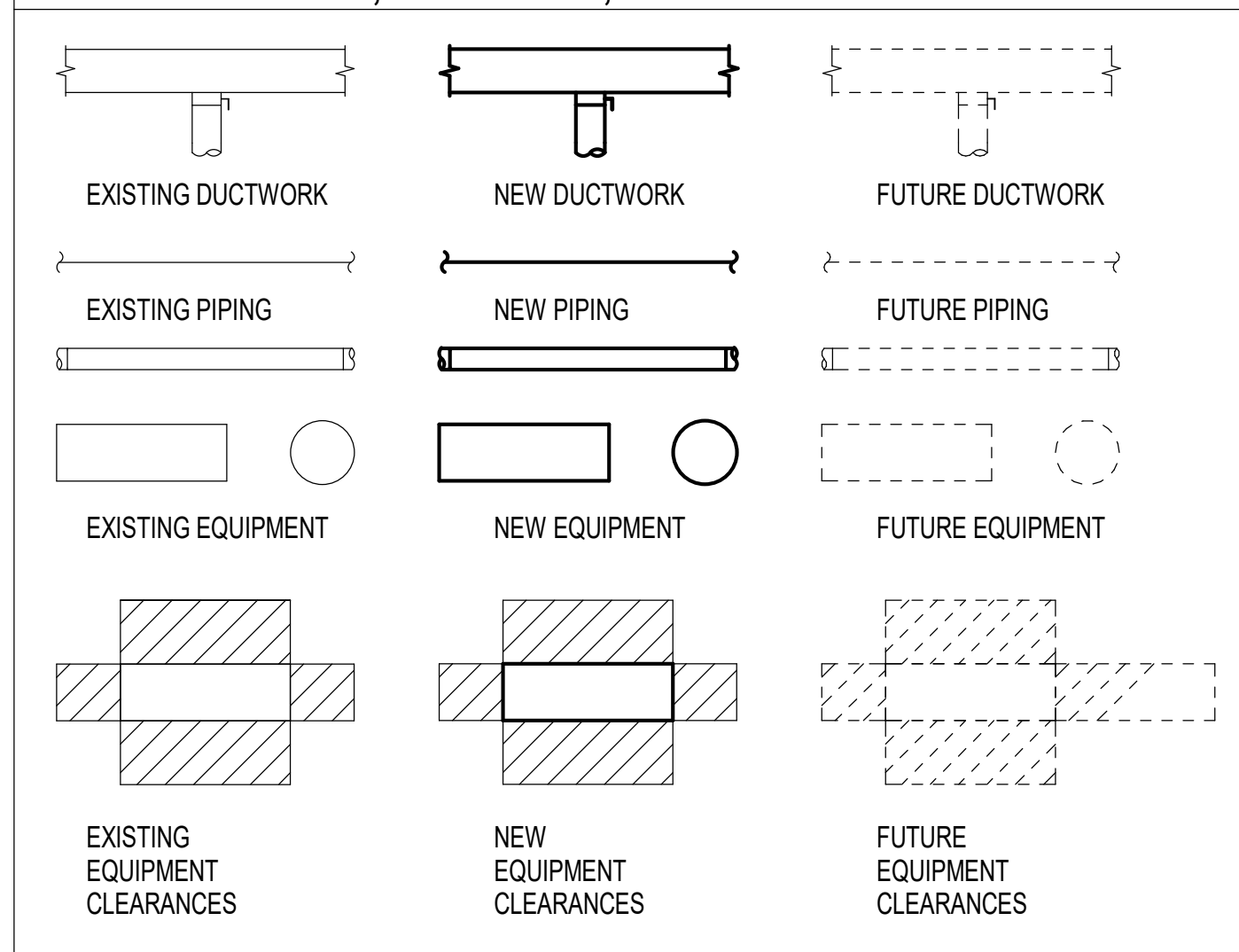
SYMBOLS, LEGENDS AND ABBREVIATIONS - MECHANICAL

M-001

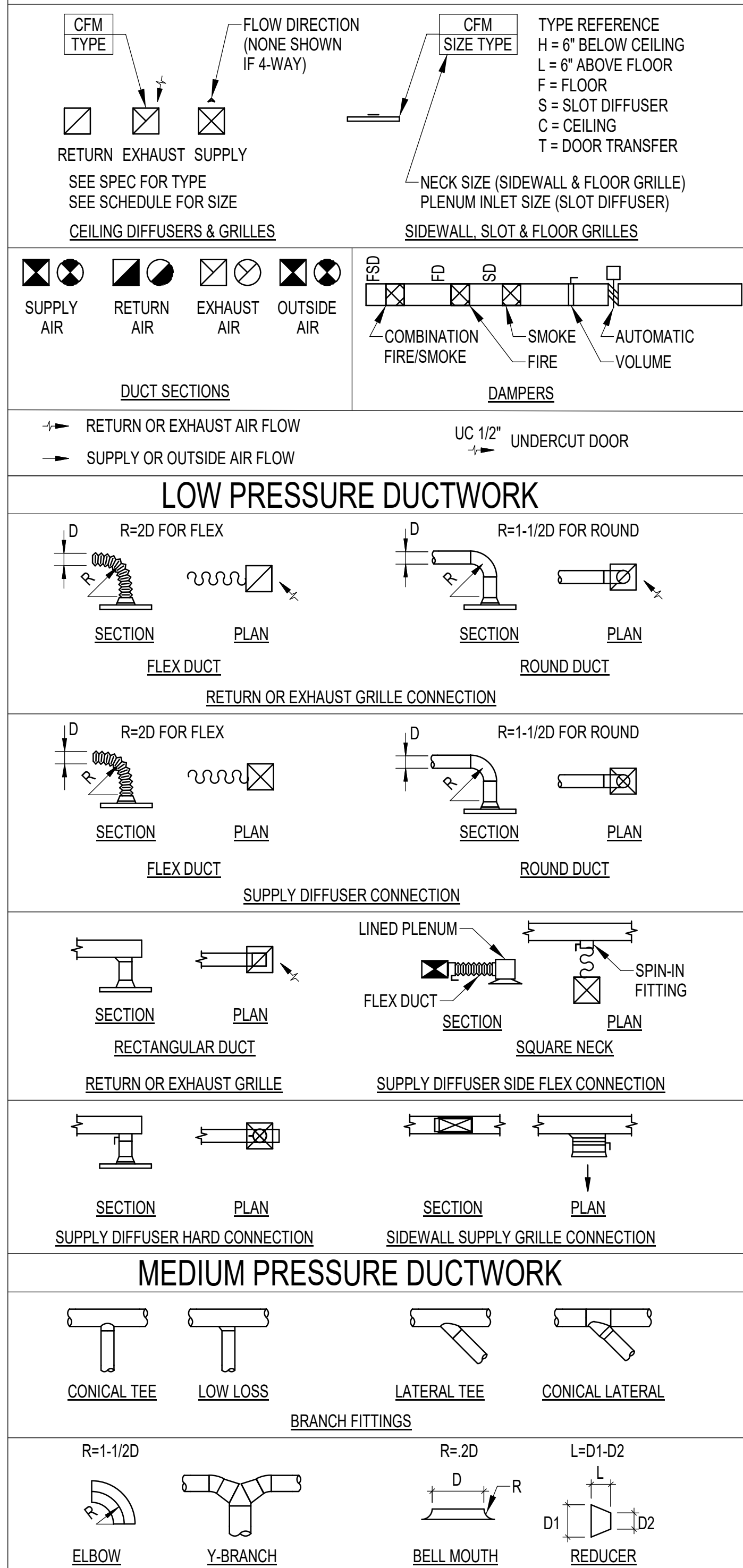
DUCT DETAILS (LOW VELOCITY)



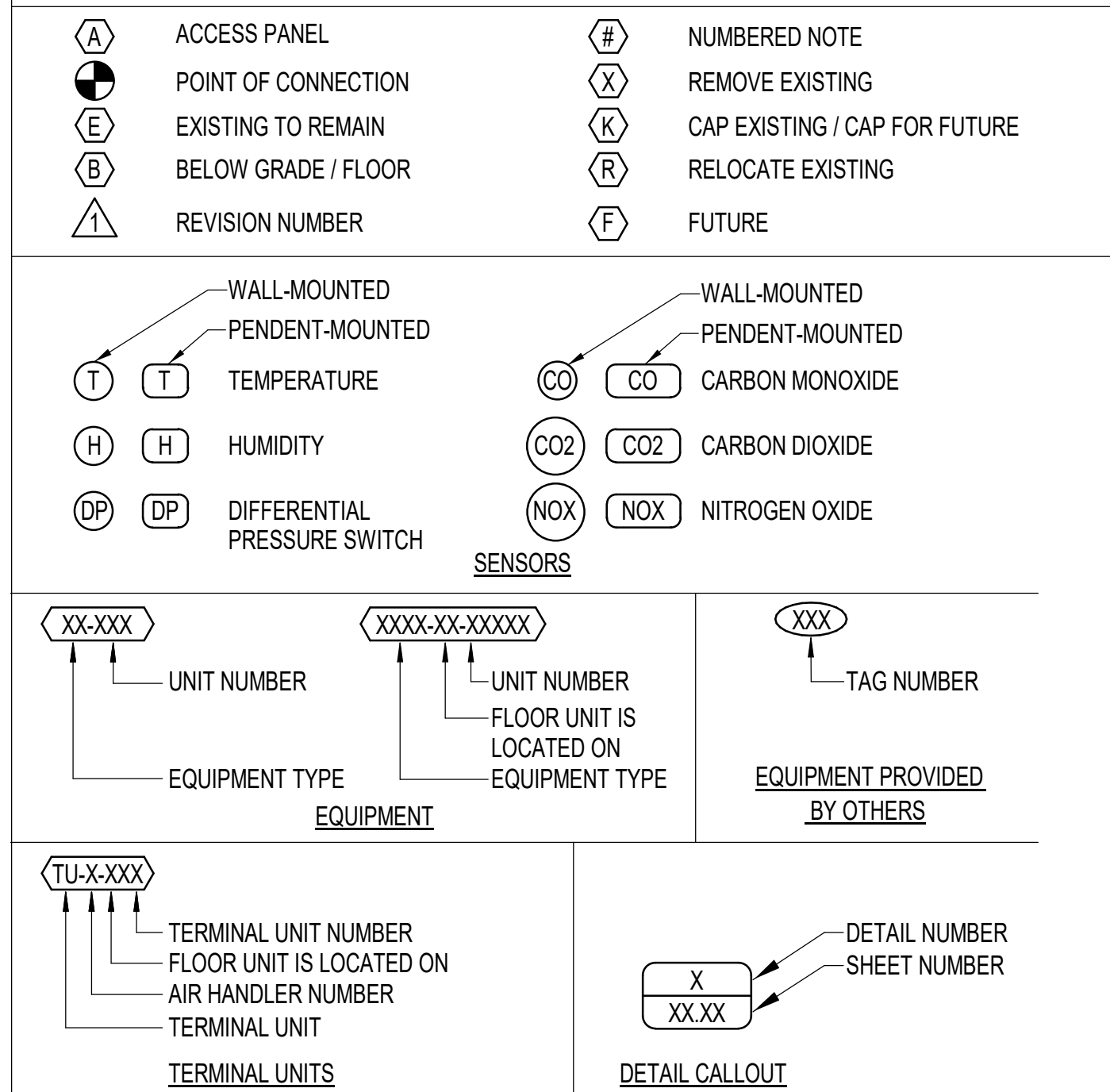
NEW, EXISTING, & FUTURE WORK



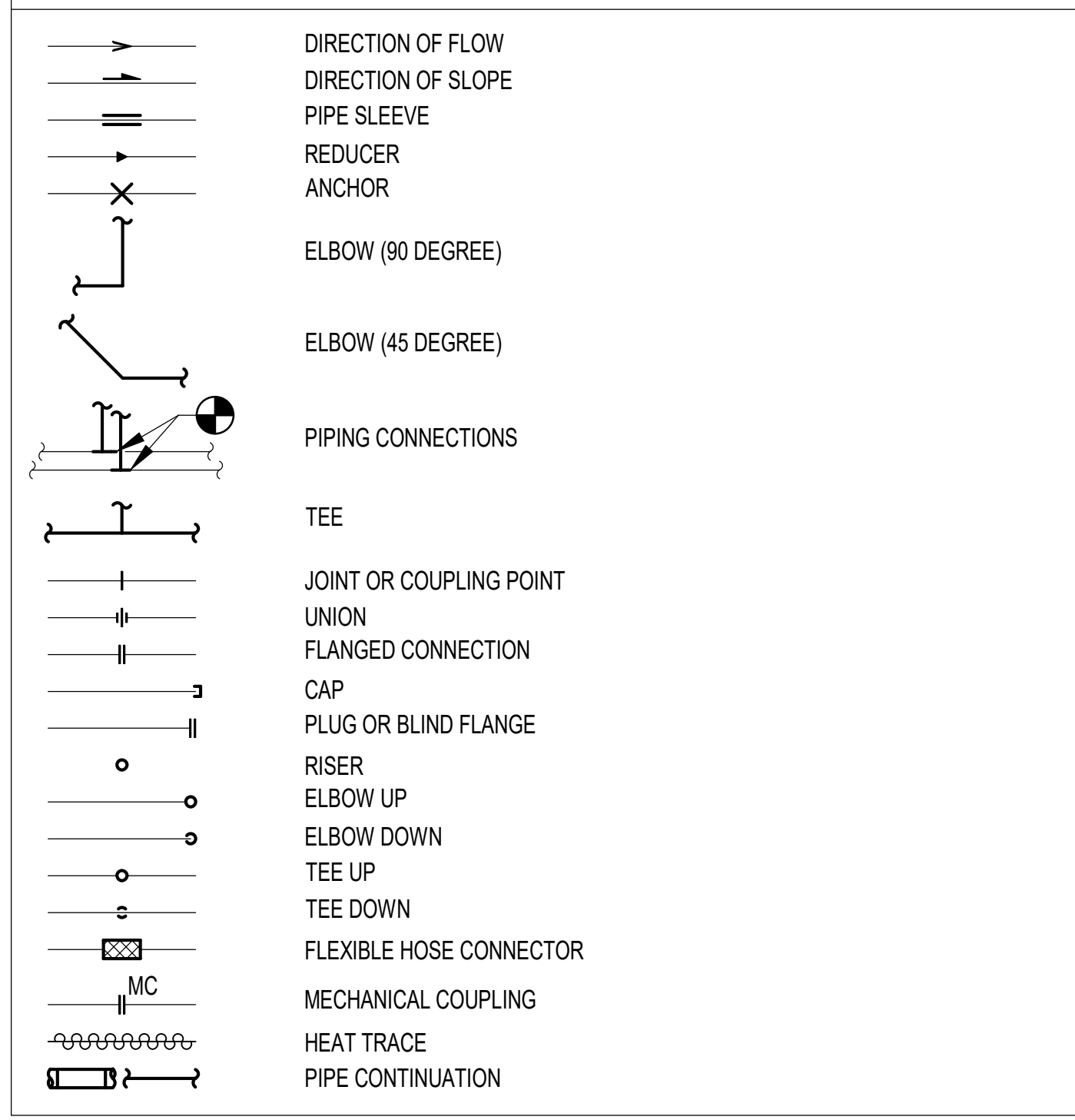
DUCT LEGEND



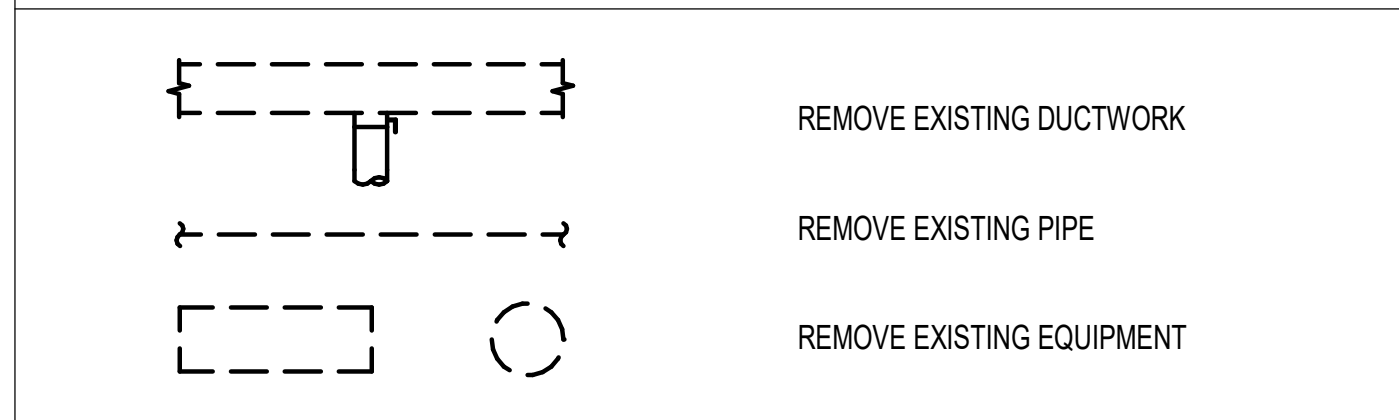
SYMBOLS



MISC. FITTINGS & SYMBOLS



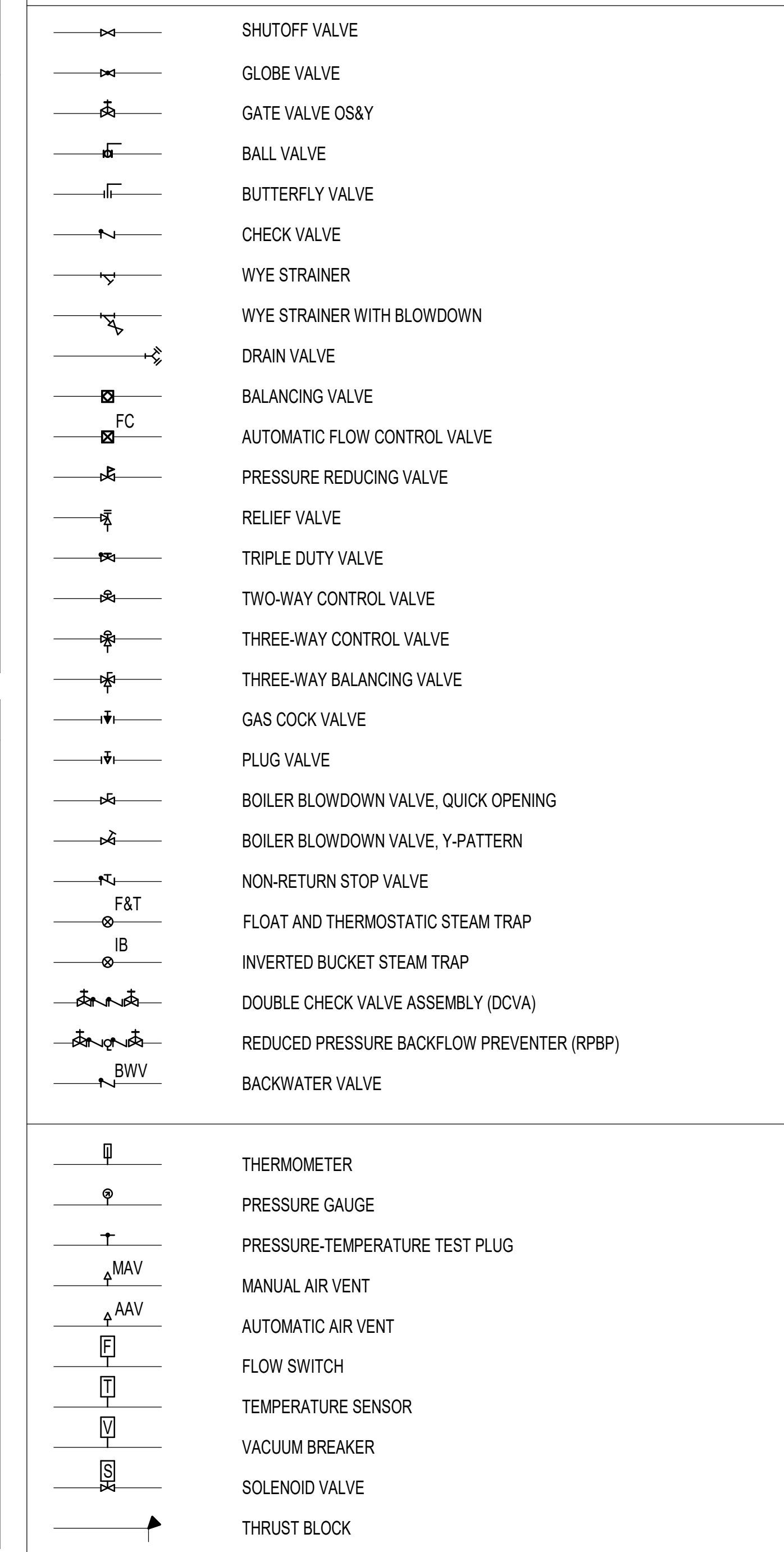
DEMOLITION LEGEND



GENERAL NOTES:

A. THIS IS A STANDARD LEGEND SHEET. THEREFORE, SOME SYMBOLS MAY APPEAR ON THIS SHEET THAT DO NOT APPEAR ON THE DRAWINGS.

MISC. VALVES & COCKS



MECHANICAL SHEET LIST

SHEET #	SHEET NAME
M-001	SYMBOLS, LEGENDS AND ABBREVIATIONS - MECHANICAL
M-002	SYMBOLS, LEGENDS AND ABBREVIATIONS - MECHANICAL
M-003	EQUIPMENT SCHEDULE - MECHANICAL
M-004	EQUIPMENT SCHEDULE - MECHANICAL
M-010	SITE PLANS - MECHANICAL
M-100	DEMO FLOOR PLANS - 1ST AND 2ND - MECHANICAL
M-101	DEMO FLOOR PLANS - ATTIC AND ROOF - MECHANICAL
M-221	SCHEMATIC 1ST FLOOR PLAN - MECHANICAL
M-222	SCHEMATIC 2ND FLOOR PLAN - MECHANICAL
M-223	SCHEMATIC ATTIC PLAN - MECHANICAL
M-224	SCHEMATIC ATTIC PLAN - MECHANICAL PIPING
M-501	DETAILS - MECHANICAL
M-701	CONTROL DIAGRAMS - MECHANICAL
Grand total: 13	

HVAC PIPING		
_____	D	DRAIN (CONDENSATE/INDIRECT)
_____	ICW	INDUSTRIAL COLD WATER (MAKE-UP)
_____	HWS	HEATING WATER SUPPLY
_____	HWR	HEATING WATER RETURN
_____	RL	REFRIGERANT LIQUID
_____	RS	REFRIGERANT SUCTION

GENERAL NOTES:

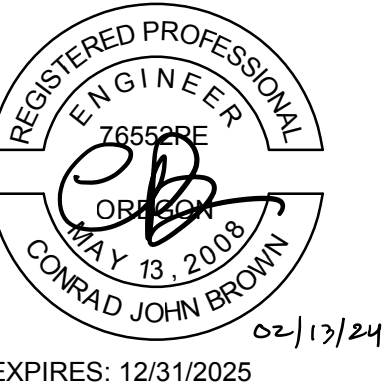
- A. PROVIDE SHEET METAL DUCTWORK AND COMPONENTS INCLUDING HANGING, SEALING, PLENUMS, AND ACCESSORIES IN ACCORDANCE WITH THE LATEST EDITION OF SMACNA STANDARDS FOR HVAC DUCT CONSTRUCTION, NFPA 90A, AND 90B STANDARDS.
- B. DUCT DIMENSIONS SHOWN ARE INSIDE SHEET METAL DIMENSIONS OR CLEAR OPENING INSIDE LINED DUCT. THE FIRST NUMBER REPRESENTS THE WIDTH OF DUCT IN PLAN VIEW.
- C. PROVIDE VOLUME DAMPERS WHERE INDICATED AND IN EACH BRANCH DUCT SERVING INDIVIDUAL DIFFUSERS AND GRILLES.
- D. SIZE BRANCH DUCTWORK TO MATCH EQUIPMENT CONNECTION SIZE, UNLESS OTHERWISE NOTED.
- E. SIZE BRANCH DUCTWORK TO DIFFUSERS AND GRILLES TO MATCH DIFFUSER OR GRILLE CONNECTION SIZE, UNLESS OTHERWISE NOTED.
- F. PROVIDE CABLE OPERATED VOLUME DAMPERS AT INACCESSIBLE VOLUME DAMPERS.
- G. APPLIANCES AND EQUIPMENT ABOVE HARD LID CEILINGS: PROVIDE CEILING ACCESS PANEL NOT LESS THAN 24-INCHES WIDE AND LARGE ENOUGH TO ALLOW REMOVAL OF THE LARGEST APPLIANCE IN THE SPACE.
- H. RUN DUCTS CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS. INSTALL DUCTWORK AS CLOSE AS POSSIBLE TO WALL AND UNDERSIDE OF BEAMS AND JOISTS.
- I. COORDINATE WORK WITH OTHER TRADES. PROVIDE OFFSETS IN DUCTS AND TRANSITIONS AROUND OBSTRUCTIONS AT NO ADDITIONAL COST TO THE OWNER.
- J. VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. VERIFY AND PROVIDE DUCT TRANSITIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE DIMENSIONS PRIOR TO FABRICATION.
- K. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF AIR DEVICES.
- L. PROVIDE SLEEVES WHERE DUCTWORK PASSES THROUGH WALLS, FLOORS, OR ROOFS. FILL ANNULAR SPACE WITH MINERAL FIBER (OR FIRE STOPPING MATERIAL WHERE FIRE RATED) AND SEAL WATERTIGHT.
- M. PROVIDE WALL SLEEVES FLUSH WITH FINISHED SURFACE.
- N. PROVIDE FLOOR SLEEVES EXTENDING A MINIMUM OF 2-INCHES ABOVE FINISHED FLOOR WITHIN EQUIPMENT ROOMS AND SHAFTS.
- O. COORDINATE LOCATIONS OF WALL MOUNTED CONTROLS SENSORS WITH ARCHITECTS PRIOR TO INSTALLATION.
- P. PROVIDE INDEPENDENT 3/4-INCH SUPPLY AND RETURN HYDRONIC PIPING FROM BRANCH LINES TO TERMINAL EQUIPMENT UNLESS OTHERWISE NOTED.
- Q. RUN PIPING CONCEALED, UNLESS SPECIFIED OTHERWISE, AND CLEAR OF CEILING INSERTS.
- R. VERIFY EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. FIELD VERIFY AND COORDINATE DIMENSIONS PRIOR TO FABRICATION.
- S. PROVIDE SLEEVES WHERE PIPING PASSES THROUGH WALLS, FLOORS, OR ROOFS. FILL ANNULAR SPACE WITH MINERAL FIBER (OR FIRE STOPPING MATERIAL WHERE FIRE RATED) AND SEAL WATERTIGHT.
- T. PROVIDE WALL SLEEVES FLUSH WITH FINISHED SURFACE.
- U. PROVIDE FLOOR SLEEVES EXTENDING A MINIMUM OF 2-INCHES ABOVE FINISHED FLOOR WITHIN EQUIPMENT ROOMS AND SHAFTS. DO NOT SUPPORT PIPING BY RESTING PIPE CLAMPS ON FLOOR SLEEVES.
- V. PROVIDE ROOF SLEEVES EXTENDING A MINIMUM OF 8-INCHES ABOVE ROOF.
- W. PROVIDE WALL AND CEILING PLATES AT EACH PIPE PENETRATION THROUGH ARCHITECTURAL WALLS AND CEILINGS.

STANDARD ABBREVIATIONS			
ADA	AMERICANS WITH DISABILITIES ACT	KWH	KILOWATT HOUR
AF	AIRFOIL	L	LENGTH
AFF	ABOVE FINISHED FLOOR	LAT	LEAVING AIR TEMP
AHP	APPARATUS HOUSING PLENUM	LAV	LAVATORY
AL	ALUMINUM	LB	POUND
ALT	ALTERNATIVE	LDB	LEAVING DRY BULB
AP	ACCESS PANEL	LF	LINEAR FEET
APD	AIR PRSSURE DROP	LFT	LEAVING FLUID TEMPERATURE
APPROX	APPROXIMATELY	LVG	LEAVING
ARCH	ARCHITECT, ARCHITECTURAL	LWB	LEAVING WET BULB
AS	AUTOMATIC SPRINKLER	LWT	LEAVING WATER TEMPERATURE
AUTO	AUTOMATIC	MAX	MAXIMUM
BDD	BACKDRAFT DAMPER	MBH	THOUSAND BTU PER HOUR
BFF	BELOW FINISHED FLOOR	MCA	MINIMUM CIRCUIT AMPACITY
BHP	BREAK HORESPOWER	MECH	MECHANICAL
BI	BACKWARD INCLINED	MERV	MINIMUM EFFICIENCY REPORTING VALUE
BLDG	BUILDING	MFR	MANUFACTURER
BOP	BOTTOM OF PIPE	MIN	MINIMUM
BOS	BOTTOM OF STRUCTURE	MISC	MISCELLANEOUS
BSMT	BASEMENT	MOCPP	MAXIMUM OVERCURRENT PROTECTION
BTU	BRITISH THERMAL UNIT	MS	MOP SINK
BTUH	BRITISH THERMAL UNITS PER HOUR	MTD	MOUNTED
BTV	BUTTERFLY VALVE	NC	NORMALLY CLOSED
BV	BALANCING VALVE	NIC	NOT IN CONTRACT
CALC	CALCULATION	NO	NORMALLY OPEN
CB	CATCH BASIN	NPS	NOMINAL PIPE SIZE
CFH	CUBIC FEET PER HOUR	NRS	NON-RISING STEM
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CFS	CUBIC FEET PER SECOND	OAT	OUTSIDE AIR TEMPERATURE
CL	CENTERLINE	OC	ON CENTER DISTANCE
CLG	CEILING OR COOLING	OD	OVERFLOW DRAIN
CO	CLEANOUT	OS&Y	OUTSIDE SCREW & YOKE GATE VALVE
CONC	CONCRETE	OSA	OUTSIDE AIR
CONN	CONNECT, CONNECTION	PD	PLANTER DRAIN
CONT	CONTINUED, CONTINUATION	P/FT	PITCH PER FOOT
CP	CIRCULATING PUMP	PG	PRESSURE GAUGE
CTG	CLEANOUT TO GRADE	PH	PHASE
CV	CHECK VALVE	PIV	POST INDICATING VALVE
DB	DRY BULB	PP	POLYPROPYLENE
DDC	DIRECT DIGITAL CONTROL	PRV	PRESSURE REDUCING VALVE
DEFL	DEFLECTION	PS	PRESSURE SWITCH
DIA	DIAMETER	PSI	POUNDS PER SQUARE INCH
DIP	DUCTILE IRON PIPE	PSIG	POUNDS PER SQUARE INCH (GAUGE)
DN	DOWN (PENETRATES FLOOR)	PVC	POLYVINYL CHLORIDE
DP	DEW POINT	R, RAD	RADIUS
DR	DRAIN	RA	RELIEF AIR
DV	DRAIN VALVE	RD	ROOF DRAIN
DROP	DROP (WITHIN FLOOR)	RET	RETURN AIR
DWDI	DOUBLE WIDTH DOUBLE INLET	REV	REVISION
DWG	DRAWING	RH	RELATIVE HUMIDITY
(E), EXIST	EXISTING	RISE	RISE (WITHIN FLOOR)
EAT	ENTERING AIR TEMPERATURE	RM	ROOF MANIFOLD
EC	EXTENDED COVERAGE	RN	RISER NIPPLE
ECM	ELECTRONICALLY COMMUTATED MOTOR	RPM	REVOLUTIONS PER MINUTE
EDB	ENTERING DRY BULB	S	SINK
EFF	EFFICIENCY	SA	SUPPLY AIR
EFT	ENTERING FLUID TEMPERATURE	SAD	SEE ARCHITECTURAL DRAWINGS
ELEC	ELECTRIC, ELECTRICAL	SB	SWAY BRACE
ELEV	ELEVATION	SCD	SEE CIVIL DRAWINGS
ENGR	ENGINEER	SCFM	STANDARD CUBIC FEET PER MINUTE
EQ	EQUAL	SD	SMOKE DAMPER (MECHANICAL)
EQUIP	EQUIPMENT	SECT	SECTION
ES	EMERGENCY SHOWER	SED	SEE ELECTRICAL DRAWINGS
ESP	EXTERNAL STATIC PRESSURE	SENS	SENSIBLE
ET	EXPANSION TANK	SF	SQUARE FOOT, SQUARE FEET
EWB	ENTERING WET BULB	SH	SHOWER
EWT	ENTERING WATER TEMPERATURE	SIM	SIMILAR
EX	EXTRACTOR	SOV	SHUTOFF VALVE
EXP	EXPANSION	SP	STATIC PRESSURE
EXH	EXHAUST OR EXHAUST AIR	SPD	SEE PLUMBING DRAWINGS
F	DEGREES FAHRENHEIT	SPEC	SPECIFICATION
FC	FORWARD CURVED	SQ	SQUARE
FD	FIRE DAMPER (MECHANICAL)	SQ IN	SQUARE INCH, SQUARE INCHES
FDC	FIRE DEPARTMENT CONNECTION	SS	STAINLESS STEEL (ALL)
FFE	FINISHED FLOOR ELEVATION	SSD	SEE STRUCTURAL DRAWINGS
FIG	FIGURE	STL	STEEL
FL	FLOOR	STRUCT	STRUCTURE, STRUCTURAL
FLA	FULL LOAD AMPACITY	SWP	SINGLE WALL PLENUM
FLEX	FLEXIBLE	SWSI	SINGLE WIDTH SINGLE INLET
FPD	FLUID PRESSURE DROP	TEMP	TEMPERATURE
FPM	FEET PER MINUTE	TMV	THERMOSTATIC MIXING VALVE
FPS	FEET PER SECOND	TSP	TOTAL STATIC PRESSURE
FSD	FIRE SMOKE DAMPER	TYP	TYPICAL
FT	FEET/FOOT	U	URINAL
FTR	FINNED TUBE RADIATOR	UG	UNDERGROUND
(F)	FUTURE	UP	UP (PENETRATES FLOOR SLAB)
G	GRADE	UON	UNLESS OTHERWISE NOTED
GA	GAGE/GAUGE	V	VOLTS
GAL	GALLON	VD	VOLUME DAMPER
GALV	GALVANIZED	VEL	VELOCITY
GPM	GALLONS PER MINUTE	VERT	VERTICAL
GV	GATE VALVE	VFD	VARIABLE FREQUENCY DRIVE
H	HEIGHT	W	WIDTH
HP	HORSEPOWER	WB	WET BULB
HR	HOUR	WFU	WATER FIXTURE UNITS
HTG	HEATING	WG	WATER GAUGE
ID	INSIDE DIAMETER, INSIDE DIMENSION	WPD	WATER PRESSURE DROP
IE	INVERT ELEVATION	WTD	WATER TEMPERATURE DROP
IN	INCH, INCHES	WTR	WATER TEMPERATURE RISE
INSUL	INSULATION	W/	WITH
JP	JOCKEY PUMP	W/O	WITHOUT
KW	KILOWATT		

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PROJECT TRACKING

RBA #:	2327
P.I.C.:	
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Owner
OSU FRC

Project Name
AZALEA EARLY CHILDHOOD CENTER

Project Address
**1050 SW MADISON AVE,
CORVALLIS OR 97333**

SYMBOLS, LEGENDS AND ABBREVIATIONS - MECHANICAL

M-002

DESIGN CONDITIONS (CORVALLIS, OR)

GENERAL NOTES: A. OUTDOOR CONDITIONS BASED ON ASHRAE FUNDAMENTALS 2013 99.6% AND 0.4% DATA.				
	WINTER		SUMMER	
	TEMPERATURE	HUMIDITY	TEMPERATURE	HUMIDITY
	25.0° F DB	15.6° F DB / 12.2 HR / 29.1° F MCDB	92.9° F DB / 67.0° F MCWB	61.0° F DP / 80.7 HR / 76.7° F MCDB
OUTDOOR				
INDOOR	70° F ± 2° F DB		75° F ± 2° F DB 50% RH MAX, NO MINIMUM	

VRF OUTDOOR UNIT SCHEDULE

GENERAL NOTES: A. MINIMUM EFFICIENCY IS AT AHRI STANDARD CONDITIONS. B. SIZE REFRIGERANT PIPING PER MANUFACTURER'S INSTRUCTIONS. C. REFRIGERANT CHARGE INDICATED IS FOR THE EQUIPMENT ONLY. PROVIDE NECESSARY REFRIGERANT QUANTITY TO MEET THE REQUIREMENTS FOR THE SPECIFIC INSTALLATION. D. SUPPLEMENTAL HEATING IS AUTOMATICALLY DISABLED AT OA TEMPERATURES ABOVE 40° F. E. LISTED CAPACITIES REFLECT TOTAL CAPACITY OF ALL MODULES IN UNIT. F. LISTED REFRIGERANT CHARGE IS FOR CU ONLY. FULL SYSTEM CHARGE TO BE COORDINATED WITH FINAL PIPE LAYOUT. NOTES: 1. UNIT COMPRISED OF 2 MODULES WITH SEPARATE ELECTRICAL CONNECTIONS & DISCONNECTS. SEE ELECTRICAL SHEETS FOR COORDINATION. ELECTRICAL DATA NOTED IS FOR A SINGLE MODULE.																		
TAG	LOCATION	SERVICE	CAPACITY		MIN EFFICIENCY		REFRIGERANT		ELECTRICAL						APPROX. WEIGHT (LBS)	MANUFACTURER	MODEL	NOTES
			COOLING (TON)	HEATING (MBH)	COOLING IEER (SEER)	HEATING COP	TYPE	CHARGE (LBS)	VOLTAGE (V)	PHASE	MCA (A)	MOC (A)	SCCR (A)	GENERATOR (Y/N)				
OU-101	GRADE	VRF SYSTEM	24	320	16.9	3.2	410a	52	208	3	49	60	5000	N	1500	mitsubishi	PURY-EP288TSNU-A	1

VRF INDOOR UNIT SCHEDULE

GENERAL NOTES: A. MINIMUM EFFICIENCY IS AT AHRI STANDARD CONDITIONS. B. ALL DUCTED AND CASSETTE UNITS ARE PROVIDED WITH AN INTEGRAL CONDENSATE PUMP CAPABLE OF 24 IN WG OF LIFT. C. ALL FAN MOTORS ARE EC TYPE. D. DUCTWORK CONNECTED TO DUCTED FAN-COIL UNITS IS LOW PRESSURE. E. MINIMUM AND MAXIMUM ALLOWABLE SUPPLY AIR TEMPERATURES ARE 55° F AND 105° F, RESPECTIVELY. NOTES: 1. PROVIDE WITH AUXILIARY CONDENSATE PUMP. 2. MODEL REQUIRES FILTER BOX. 3. INTEGRAL CONDENSATE PUMP.																
TAG	LOCATION	OUTDOOR UNIT	TYPE	AIRFLOW (CFM)	COOLING (MBH)		HEATING TOTAL (MBH)		ELECTRICAL				APPROX. WEIGHT	MANUFACTURER	MODEL	NOTES
					TOTAL	HEATING	VOLTAGE (V)	PHASE	MCA	MOC (A)	SCCR (A)					
FCU-101	INFANT A	OU-101	WALL	350	18	20	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-102	INFANT B	OU-101	WALL	500	30	34	208	1	0.63	15	50	mitsubishi	PKFY	1		
FCU-103	INFANT C	OU-101	WALL	350	18	20	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-104	COMMON	OU-101	WALL	450	24	30	208	1	0.63	15	50	mitsubishi	PKFY	1		
FCU-105	KITCHEN	OU-101	WALL	200	8	10	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-106	TODDLER 108	OU-101	WALL	350	18	20	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-107A	TODDLER 106	OU-101	WALL	350	18	20	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-107B	TODDLER 106	OU-101	WALL	350	18	20	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-108	TEACHER	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-201	LACTATION	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-202	WAITING	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-203	BREAK	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-204	CONFERENCE	OU-101	WALL	350	12	14	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-205	OFFICE 206	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-206	OFFICE 207	OU-101	WALL	200	8	10	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-207	OFFICE 208	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-208	OFFICE 210	OU-101	WALL	200	6	9	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-209	OFFICE 211	OU-101	WALL	200	8	10	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-210	SHARED 212	OU-101	WALL	350	12	14	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-211	TEACHER WORK	OU-101	WALL	350	12	14	208	1	0.3	15	50	mitsubishi	PKFY	1		
FCU-212	PRE-SCHOOL 216	OU-101	DUCTED	1200	48	50	208	1	2.5	15	85	mitsubishi	PEFY	2,3		
FCU-213	PRE-SCHOOL 218	OU-101	DUCTED	1200	48	50	208	1	2.5	15	85	mitsubishi	PEFY	2,3		
FCU-214	TEACHER WORK	OU-101	WALL	450	24	0	208	1	0.63	15	50	mitsubishi	PKFY	1		

DUCT COIL SCHEDULE

TAG	LOCATION	SERVICE	AIRFLOW (CFM)	HEATING		COOLING		DIMENSIONS		APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES
				CAPACITY (MBH)	FLOW (GPM)	CAPACITY (MBH)	FLOW (GPM)	WIDTH (IN)	HEIGHT (IN)			
HC-201	ATTIC	FCU-201	1,000	21.7	2.2	-	-	24	12	50	AEROFIN	
HC-202	ATTIC	FCU-202	1,000	21.7	2.2	-	-	24	12	50	AEROFIN	

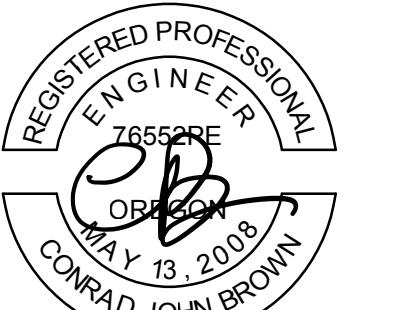
GENERAL NOTES:
A. HEATING CAPACITY BASED ON 55° F EAT, 140° F EWT, 20° F WTD
B. COOLING CAPACITY BASED ON 80° F EAT, 44° F EWT, 10° F WTD
C. MAXIMUM FINS PER INCH = 8
D. MAXIMUM WATER PRESSURE DROP = 3.4 FT WG
E. MAXIMUM AIR PRESSURE DROP = 0.21 IN WG
F. PROVIDE DRAIN PANS DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH ASHRAE STANDARD 62.1 INCLUDING BUT NOT LIMITED TO 1/8-INCH PER FOOT SLOPE TOWARD DRAIN OUTLET.
PAN LENGTH OF 1/2 THE INSTALLED VERTICAL DIMENSION OF THE COOLING COIL.

NOTES:
1. NONE

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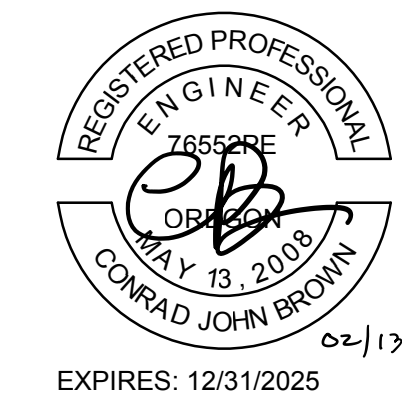
Owner OSU FRC

Project Name
AZALEA EARLY CHILDHOOD CENTER

Project Address
**1050 SW MADISON AVE,
CORVALLIS OR 97333**

EQUIPMENT SCHEDULE - MECHANICAL

M-003



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EQUIPMENT SCHEDULE - MECHANICAL

M-004

AIR HANDLING UNIT

TAG	LOCATION	SERVICE	FILTERS		SUPPLY AND EXHAUST FAN										ELECTRICAL										APPROX. WEIGHT (LBS)	MANUFACTURER & MODEL	NOTES							
			MIN OSA (CFM)	EXHAUST (MERV)	OSA (MERV)	AIRFLOW (CFM)	FAN TYPE	TSP (IN WG)	ESP (IN WG)	SPEED (RPM)	FAN ENERGY INDEX	MOTOR			WINTER				SUMMER															
												POWER (BHP)	RATING (WATTS)	VOLT/ PHASE	OSA EAT (*F DB)	OSA LAT (*F DB)	EXH EAT (*F DB)	EFF. (%)	OSA EAT (*F DBWB)	OSA LAT (*F DBWB)	EXH EAT (*F DBWB)	EFF. (%)	VOLT/ PHASE	FLA (A)				MCA (A)	MOC (A)	SCCR (A)				
HRV-2	ATTIC	FCU-212	575	8	13	575	PLUG	2.0	2.5	2,100		4.7	170.0	208/1	YES	2	5K	ENERGY PLATE	25	55	70	67	90/68	53/51	75/60	67	208/1	7	6	15	5K	300	RENEWAIRE HE07IN	1
HRV-3	ATTIC	FCU-213	500	8	13	500	PLUG	2.0	2.5	2,100		4.7	170.0	208/1	YES	2	5K	ENERGY PLATE	25	55	70	67	90/68	53/51	75/60	67	208/1	7	6	15	5K	300	RENEWAIRE HE07IN	1

GENERAL NOTES:

- A. UNITS MOUNTED ON ATTIC FLOOR WITH SUPPLEMENTARY STRUCTURE.
- B. MINIMUM OSA CALCULATED BASED ON CODE AND ASHRAE STANDARD 62.
- C. PROVIDE MANUFACTURER CONTROLLER TO BE INTERLOCKED WITH FCU OPERATION. INTEGRATE WITH EXISTING BAQNET BUILDING BMS SYSTEM.
- E. HEAT RECOVERY SECTION EFFECTIVENESS IS BASED ON AHRI 1060.

NOTES:

- 1. ARRANGE UNIT FOR SINGLE POINT POWER CONNECTION W/ DISCONNECT SWITCH. PROVIDE A SEPARATE, DEDICATED 120V CONNECTION FOR RECEPTACLE(S) AND LIGHTS.

RADIANT PANEL SCHEDULE

TAG	PLACEMENT	TYPE	HEATING			DIMENSIONS		MANUFACTURER & MODEL	NOTES
			CAPACITY (BTU/HLF)	GLYCOL (%)	FLOW (GPM)	WIDTH (IN)	LENGTH (IN)		
RP-1	PERIMETER	2-PIPE	100	0		12	456	TWA	1
RP-2	PERIMETER	2-PIPE	100	0		12	266	TWA	1
RP-3	PERIMETER	2-PIPE	100	0		12	384	TWA	1
RP-4	PERIMETER	2-PIPE	100	0		12	240	TWA	1

GENERAL NOTES:

- A. HEATING CAPACITY BASED ON EWT/LWT = 130/120°F

NOTES:

- 1. SURFACE MOUNTED.

DIFFUSERS AND GRILLES

TAG	TYPE	DESCRIPTION	AIRFLOW RANGE		INLET SIZE (IN)	FACE SIZE		MAX NC	THROW (FT)	MANUFACTURER & MODEL	NOTES
			MIN (CFM)	MAX (CFM)		T-BAR (IN)	HARD LID (IN)				
C-1	CEILING SUPPLY DIFFUSER	PERFORATED FACE, MODULAR CORE, ADJUSTABLE 4-WAY THROW	0	125	6x6	24x24	13x13	12	2-2.5	TITUS PMC	
			126	220	8x8	24x24	15x15	17	2-3-6		
			221	345	10x10	24x24	17x17	21	3-4-8		
			346	500	12x12	24x24	19x19	24	3-5-9		
			501	780	16x16	24x24	23x23	28	4-6-11		
C-2	CEILING RETURN/ EXHAUST GRILLE	PERFORATED FACE, STEEL, ROUND DUCT CONNECTION	0	340	10x10	24x24	12x12	17	-	TITUS PAR	
			341	780	15x15	24x24	17x17	22	-		
			781	1,125	18x18	24x24	20x20	24	-		
			1,129	1,670	22x22	24x24	24x24	26	-		
			1,671	3,500	22x46	24x48	24x48	25	-		
C-X	CEILING SUPPLY DIFFUSER	THREE CONE FACE, 360 DEGREE THROW, STEEL	0	150	6	24x24	12x12	18	2-4-7	TITUS TMS	
			151	250	8	24x24	12x12	17	3-5-9		
			251	425	10	24x24	24x24	22	5-7-14		
			426	550	12	24x24	24x24	21	5-8-16		
			551	750	14	24x24	24x24	22	6-10-19		
C-9	CEILING SUPPLY DIFFUSER	ROUND, FOUR CONE FACE, 360 DEGREE THROW	0	210	8	18	18	21	3-4-9	TITUS TMRA	
			211	325	10	22-1/2	22-1/2	22	4-6-11		
			326	470	12	27	27	23	4-7-13		
			471	635	14	31-1/2	31-1/2	23	5-8-15		
			636	850	16	36	36	24	6-9-18		
			851	1,050	18	40-1/2	40-1/2	24	7-10-20		
			1,051	1,300	20	45	45	25	7-11-22		
			1,301	1,900	24	54	54	25	9-13-26		
			1,901	2,900	30	67-1/2	67-1/2	26	11-17-33		
			2,901	3,500	36	67-1/2	67-1/2	22	11-17-33		
S-1	CEILING SUPPLY DIFFUSER	SLOT, FIXED BLADE, INSULATED PLENUM, ADJUSTABLE THROW	0	80	6	24x2	24x2	20	10-15-23	TITUS TDDI-10	1
			81	120	6	48x2	48x2	17	9-16-28		
			121	180	8	48x2	48x2	25	16-24-34		
			181	325	10	48x4	48x4	26	21-32-46		

GENERAL NOTES:

- A. NOISE CRITERIA (NC) BASED ON ROOM ABSORPTION OF 10 dB, MEASURED PER ANSI/ASHRAE STANDARD 70.
- B. THROW VALUES GIVEN FOR TERMINAL VELOCITIES 150, 100, AND 50 FPM FOR ISOTHERMAL CONDITIONS.
- C. ADJUST THROW DIRECTION AND QUANTITY PRIOR TO AIR BALANCING.

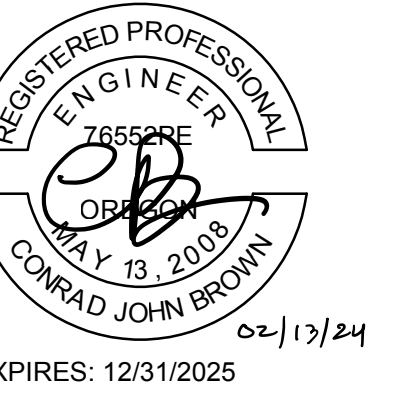
NOTES:

- 1. ONE 1-INCH SLOT.
- 2. TWO 1-INCH SLOTS.

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NOTES:

- REFRIGERANT LINES DROP BELOW GRADE AND ROUTE UNDER SIDEWALK. MEET MANUFACTURER'S RECOMMENDED DETAIL FOR BELOW GRADE REFRIGERANT LINE ROUTING.
- ROUTE EACH INSULATED REFRIGERANT LINE IN 4" CORRUGATED TUBING BELOW GRADE.
- ROUTE REFRIGERANT LINES UP SIDE OF BUILDING AND ENTER BUILDING AT ATTIC LEVEL. ALL EXPOSED REFRIGERANT PIPING INSULATION TO BE PROTECTED BY ALUMINUM JACKETING. SUPPORT LINES OFF OF GRADE WITH DURA-BLOCK SUPPORTS (OR SIMILAR).

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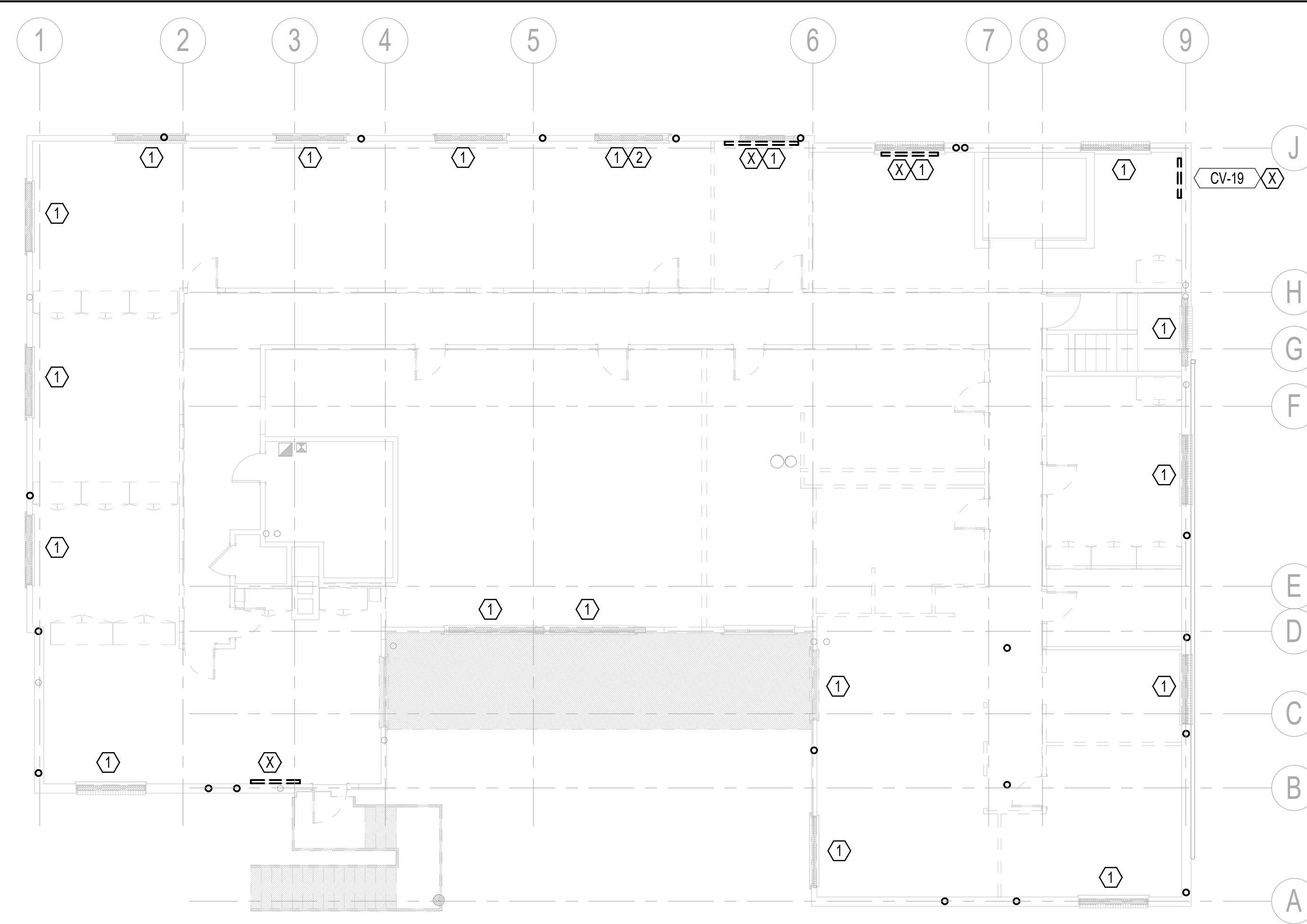
Project Name
AZALEA EARLY CHILDHOOD CENTER
Project Address
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CORVALLIS OR 97333**

**SITE PLANS -
MECHANICAL**

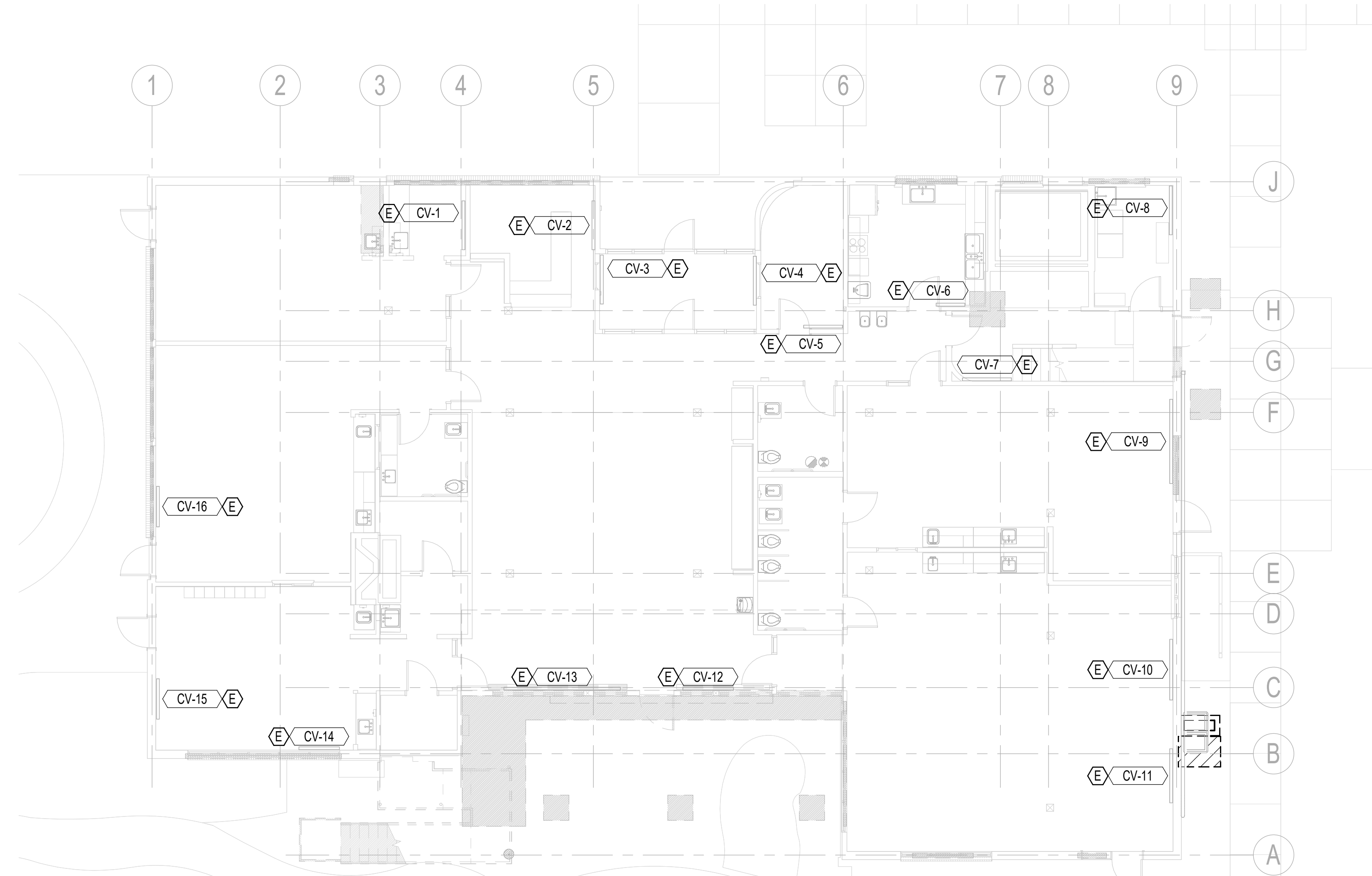
M-010



1 SITE PLAN - MECHANICAL
1/8" = 1'-0"



2 DEMO PLAN - 2ND FLOOR - MECHANICAL
1/8" = 1'-0"



1 DEMO PLAN - 1ST FLOOR - MECHANICAL
1/8" = 1'-0"

GENERAL NOTES:

- A. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
- B. OBTAIN THE AIRFLOW AND WATER FLOW MEASUREMENTS FOR THE EXISTING MECHANICAL SYSTEM SERVING THE PROJECT AREA PRIOR TO MODIFICATION OF THE EXISTING SYSTEM.
- C. PATCH AND REPAIR OPENINGS MADE BY REMOVALS.
- D. DEMOLITION WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING: REMOVAL OF EQUIPMENT, SUPPORTS, ANCHORS, PIPING, DUCTWORK AND APPURTENANCES.
- E. REMOVE MECHANICAL EQUIPMENT, DUCTS, PIPING, CONTROLS, LOW VOLTAGE WIRING, AND ASSOCIATED ITEMS AS SHOWN OR RELATED TO EQUIPMENT TO BE REMOVED. CAP DUCTWORK OR PIPING AT NEAREST LIVE BRANCH.
- F. COORDINATE WITH OTHER TRADES FOR REQUIRED DEMOLITION OF ELECTRICAL CONDUITS AND ROOFING WORK.
- G. REMOVE EXISTING WALL MOUNTED THERMOSTATS AND CONTROL WIRING ASSOCIATED WITH TERMINAL EQUIPMENT SHOWN TO BE DEMOLISHED.

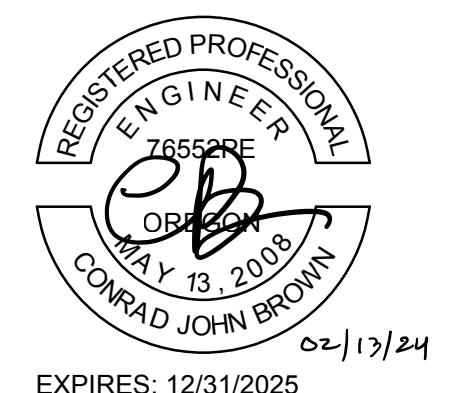
NOTES:

- 1. DEMOLISH CONVECTORS AND ASSOCIATED DISTRIBUTION PIPING AND VALVES. DEMOLISH PIPING BACK TO HW MAIN IN ATTIC. CAP AS REQUIRED.
- 2. DEMOLISH IN FLOOR CONVECTOR AND PATCH FLOOR.

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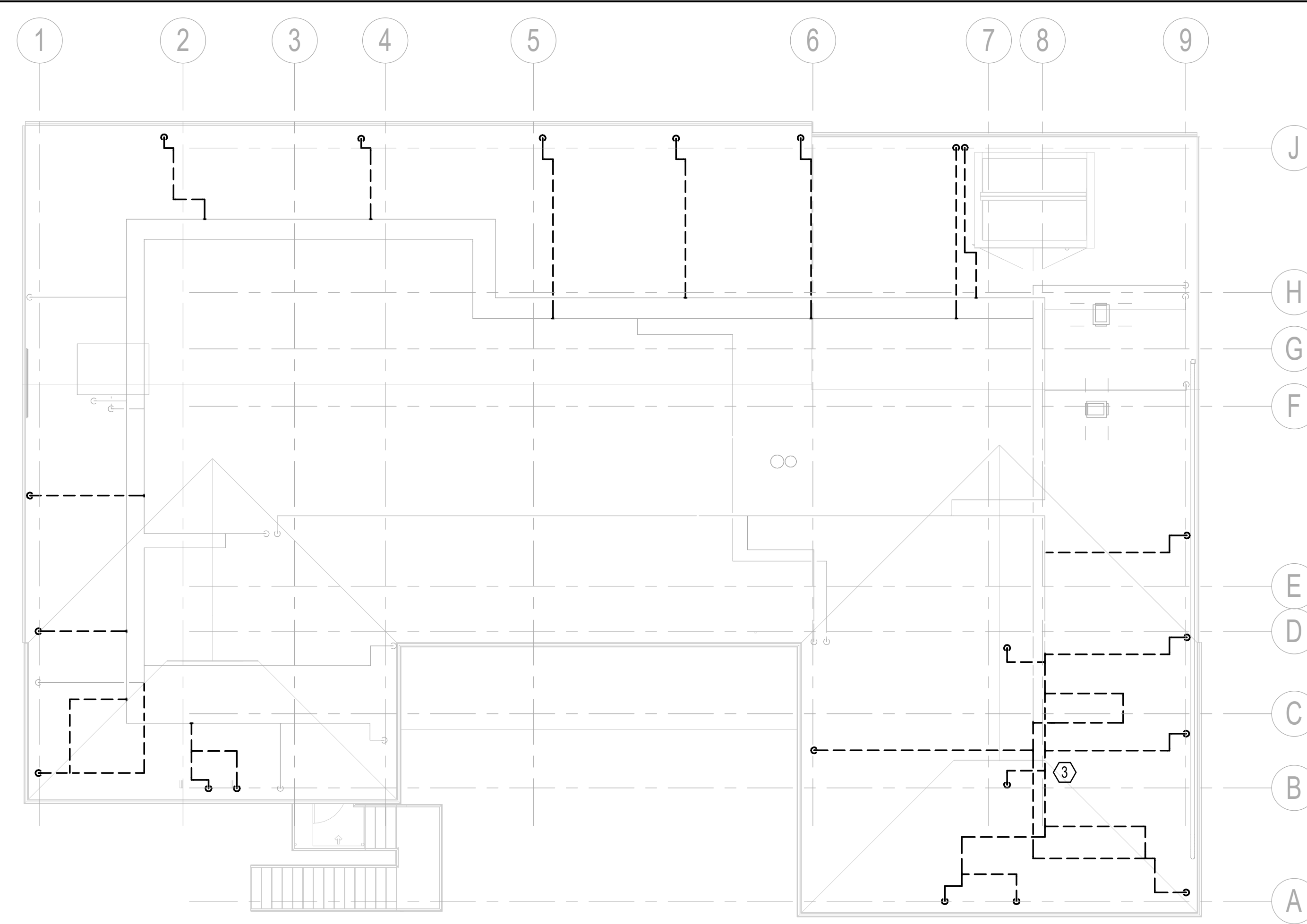
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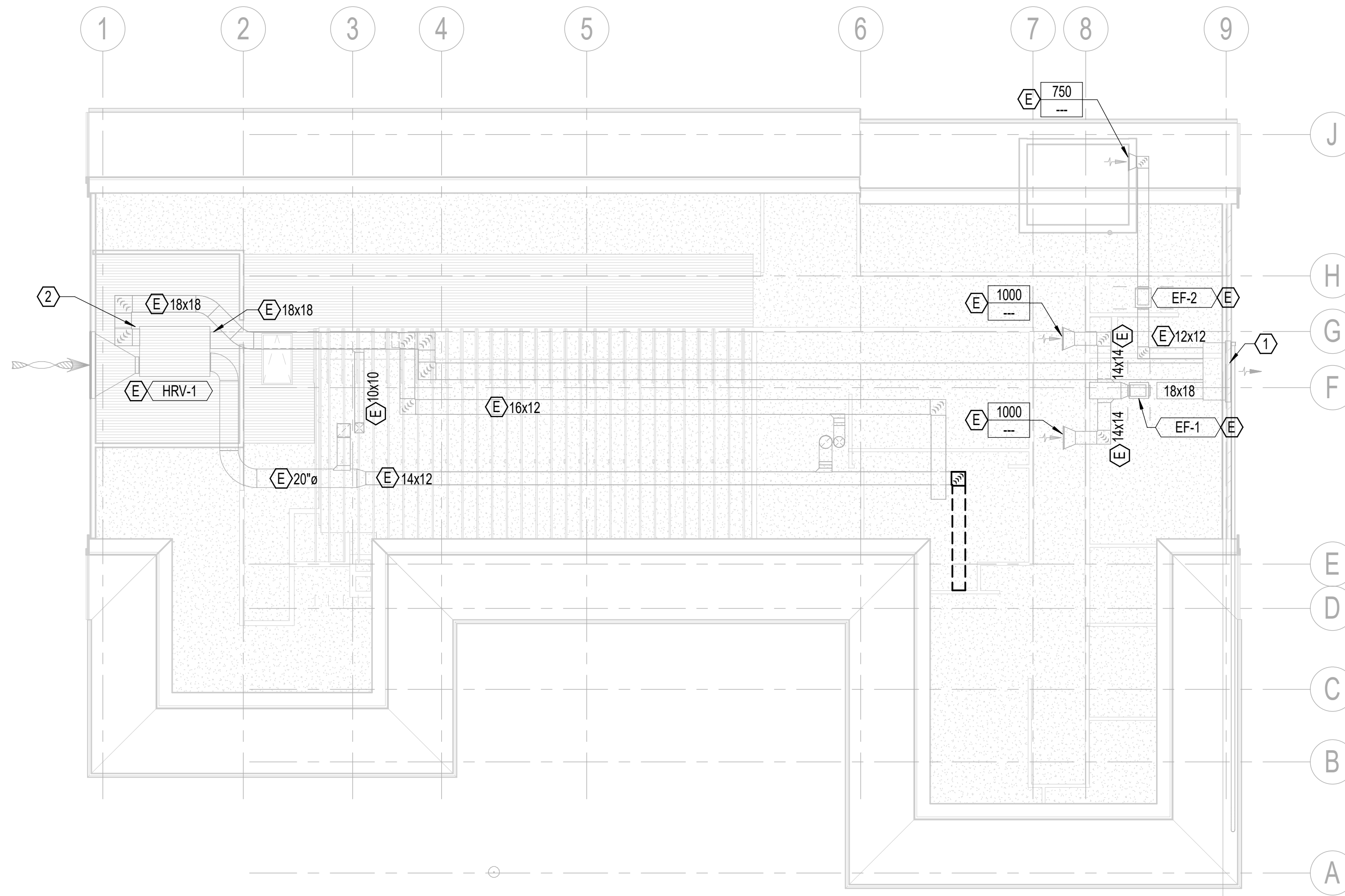
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**DEMO FLOOR PLANS -
1ST AND 2ND -
MECHANICAL**

M-100



2 DEMO PLAN - ROOF - MECHANICAL PIPING
1/8" = 1'-0"



1 DEMO PLAN - ATTIC - MECHANICAL
1/8" = 1'-0"

GENERAL NOTES:

- A. VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
- B. OBTAIN THE AIRFLOW AND WATER FLOW MEASUREMENTS FOR THE EXISTING MECHANICAL SYSTEM SERVING THE PROJECT AREA PRIOR TO MODIFICATION OF THE EXISTING SYSTEM.
- C. PATCH AND REPAIR OPENINGS MADE BY REMOVALS.
- D. DEMOLITION WORK INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING: REMOVAL OF EQUIPMENT, SUPPORTS, ANCHORS, PIPING, DUCTWORK AND APPURTENANCES.
- E. REMOVE MECHANICAL EQUIPMENT, DUCTS, PIPING, CONTROLS, LOW VOLTAGE WIRING, AND ASSOCIATED ITEMS AS SHOWN OR RELATED TO EQUIPMENT TO BE REMOVED. CAP DUCTWORK OR PIPING AT NEAREST LIVE BRANCH.
- F. COORDINATE WITH OTHER TRADES FOR REQUIRED DEMOLITION OF ELECTRICAL CONDUITS AND ROOFING WORK.
- G. REMOVE EXISTING WALL MOUNTED THERMOSTATS AND CONTROL WIRING ASSOCIATED WITH TERMINAL EQUIPMENT SHOWN TO BE DEMOLISHED.

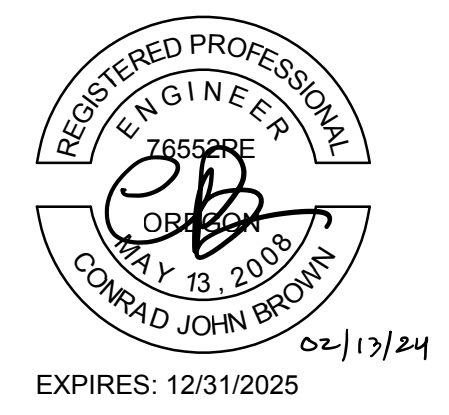
NOTES:

- 1. DEMOLISH HEAT RECOVERY UNIT SERVING THE FIRST FLOOR. IT IS CURRENTLY SIZED TO ONLY SERVE THE FIRST FLOOR VENTILATION PURPOSES. DEMOLISH ATTIC DUCTWORK BACK TO DUCT RISERS TO ALLOW A CLEAN, ACCESSIBLE ATTIC LAYOUT. THE CURRENT LAYOUT DID NOT TAKE INTO ACCOUNT THE USE OF THE ATTIC FOR VENTILATION/AIRFLOW DISTRIBUTION.
- 2. DEMOLISH CONVECTORS AND ASSOCIATED DISTRIBUTION PIPING AND VALVES.
- 3. DEMOLISH HHW PIPING BACK TO MAIN FROM DROPS TO DEMOLISHED WALL RADIATORS ON THE FLOOR BELOW.

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**DEMO FLOOR PLANS -
ATTIC AND ROOF -
MECHANICAL**

M-101

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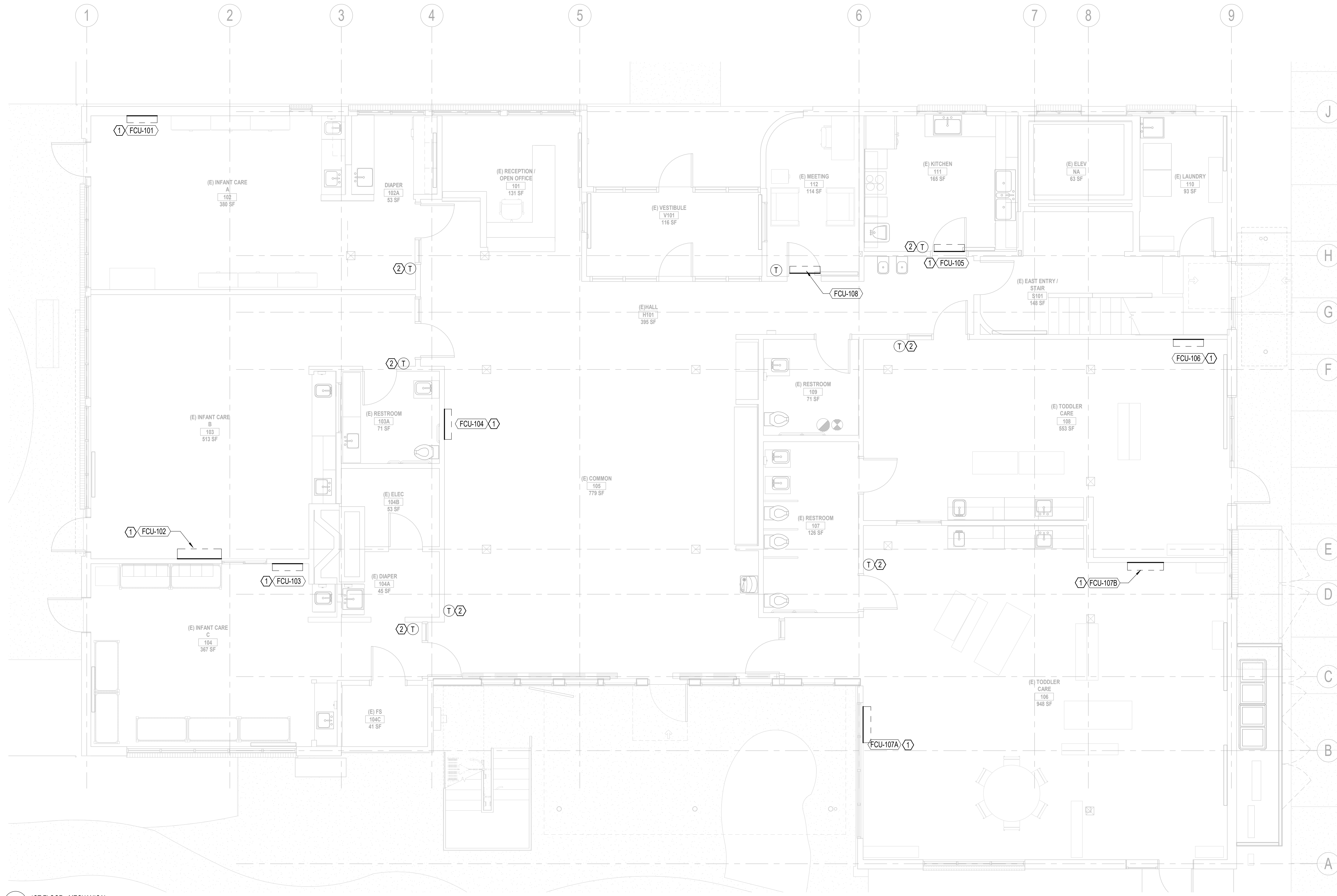
Project Address
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**SCHEMATIC 1ST FLOOR
PLAN - MECHANICAL**

M-221

NOTES:

- NEW WALL MOUNTED FAN COIL. REFRIGERANT PIPING ROUTED UP TO ATTIC, CONCEALED IN WALLS/SOFFITS. ROUTE CONDENSATE TO NEAR SINK/LAV TAIL PIECE.
- LOCATE NEW VRF THERMOSTAT ADJACENT TO EXISTING SPACE THERMOSTAT.



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1 1ST FLOOR - MECHANICAL
1/4" = 1'-0"

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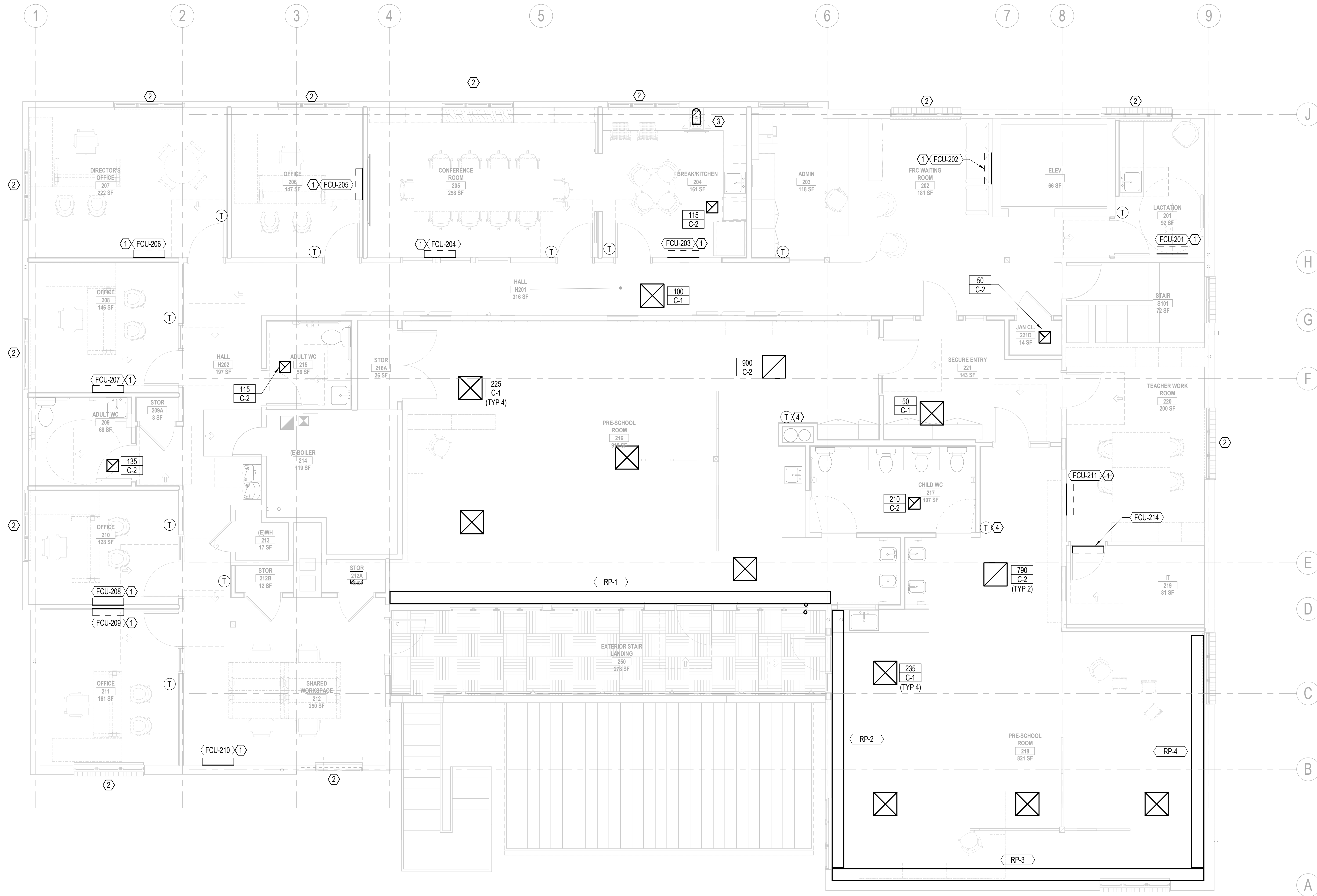
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**SCHEMATIC 2ND FLOOR
PLAN - MECHANICAL**

M-222

NOTES:

1. NEW WALL MOUNTED FAN COIL. REFRIGERANT PIPING ROUTED UP TO ATTIC. CONCEALED IN WALLS/SOFFITS. ROUTE CONDENSATE TO NEAR SINK/LAV TAIL PIECE.
2. OPERABLE WINDOW FOR VENTILATION.
3. ROUTE 3/4" CONDENSATE FROM FAN COIL INTO ATTIC TO LAVATORY TAIL PIECE.
4. BMS AND VRF THERMOSTATS LOCATED ADJACENT TO EACH OTHER.





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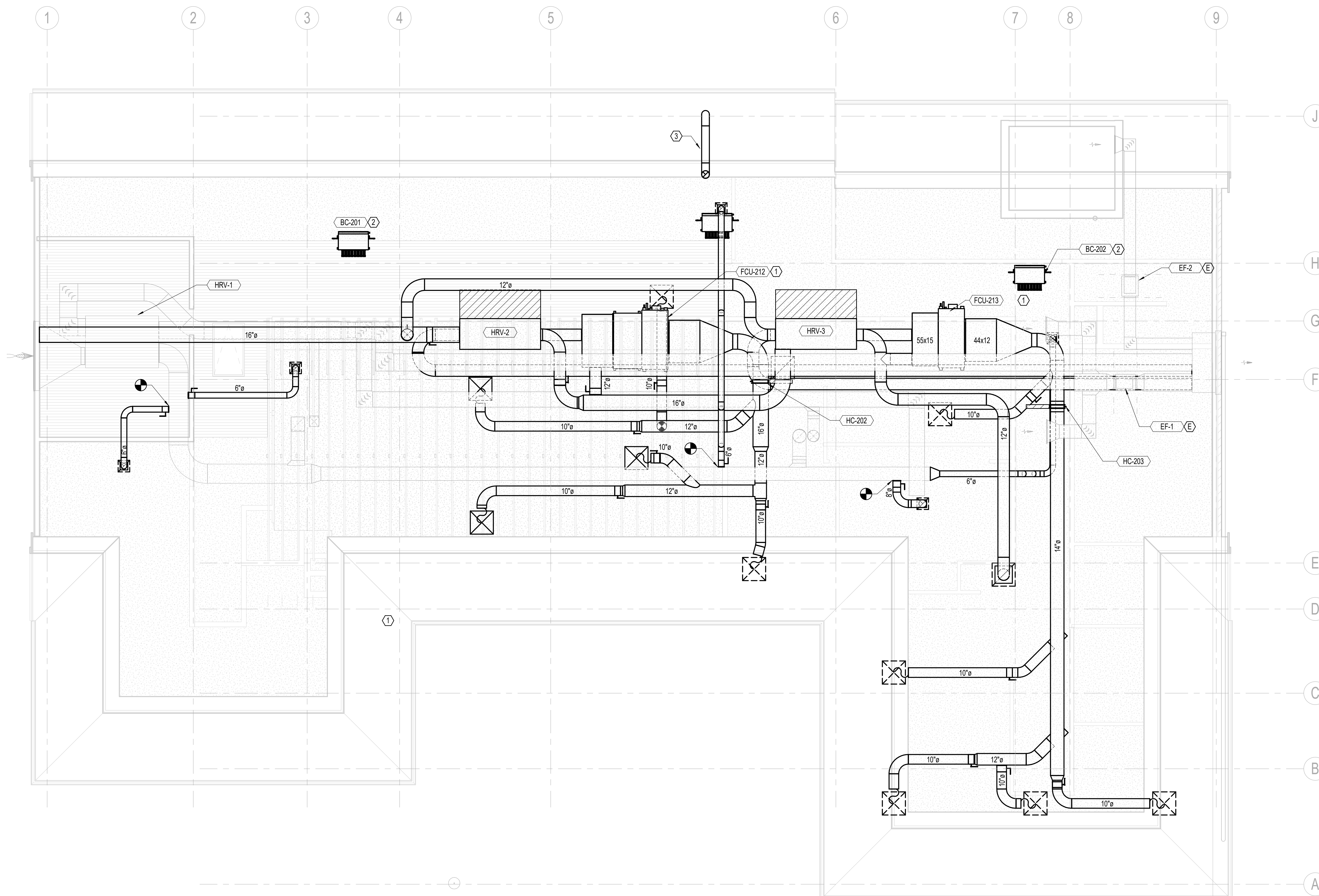
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**SCHEMATIC ATTIC PLAN
- MECHANICAL**

M-223

NOTES:

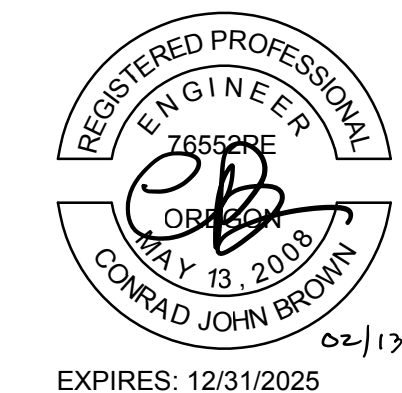
1. NEW DUCTED FAN COIL. ROUTE PRESSURIZED CONDENSATE TO SINK/LAV TAIL PIECE ON SECOND FLOOR.
2. NEW BRANCH CONTROLLER. ROUTE CONDENSATE TO SINK/LAV TAIL PIECE ON SECOND FLOOR.
3. BREAK ROOM DOMESTIC RANGE HOOD DUCT UP THRU ROOF TO ROOF



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**SCHEMATIC ATTIC PLAN
- MECHANICAL PIPING**

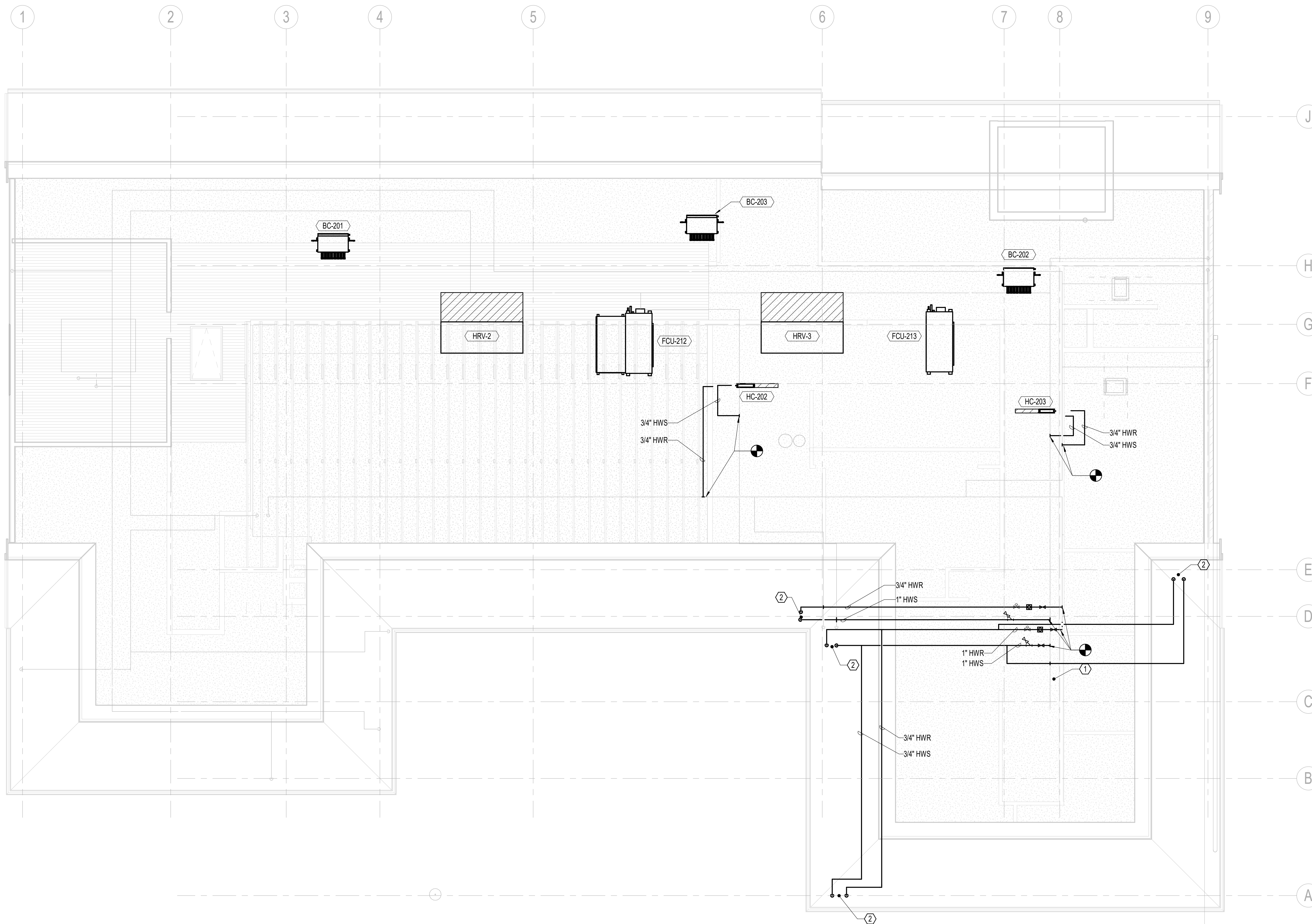
M-224

NOTES:

- KEEP EXISTING BYPASS CONTROL VALVE. VERIFY EXACT LOCATION.
- DN TO NEW CEILING RADIANT PANEL.

GENERAL SHEET NOTES:

- VERIFY EXISTING PIPE SIZES.

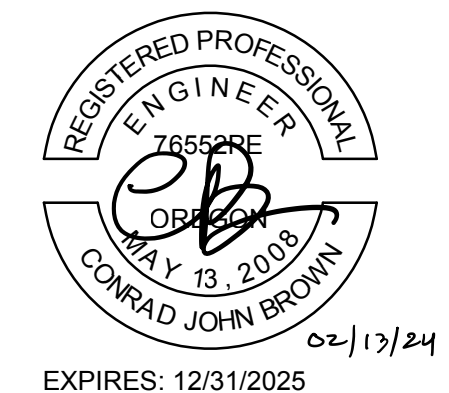


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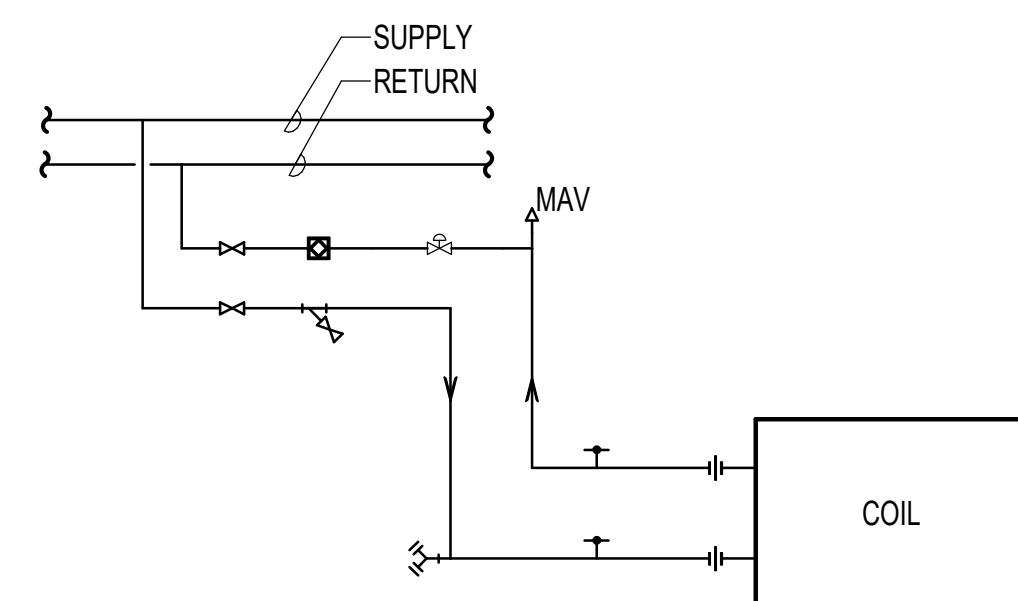
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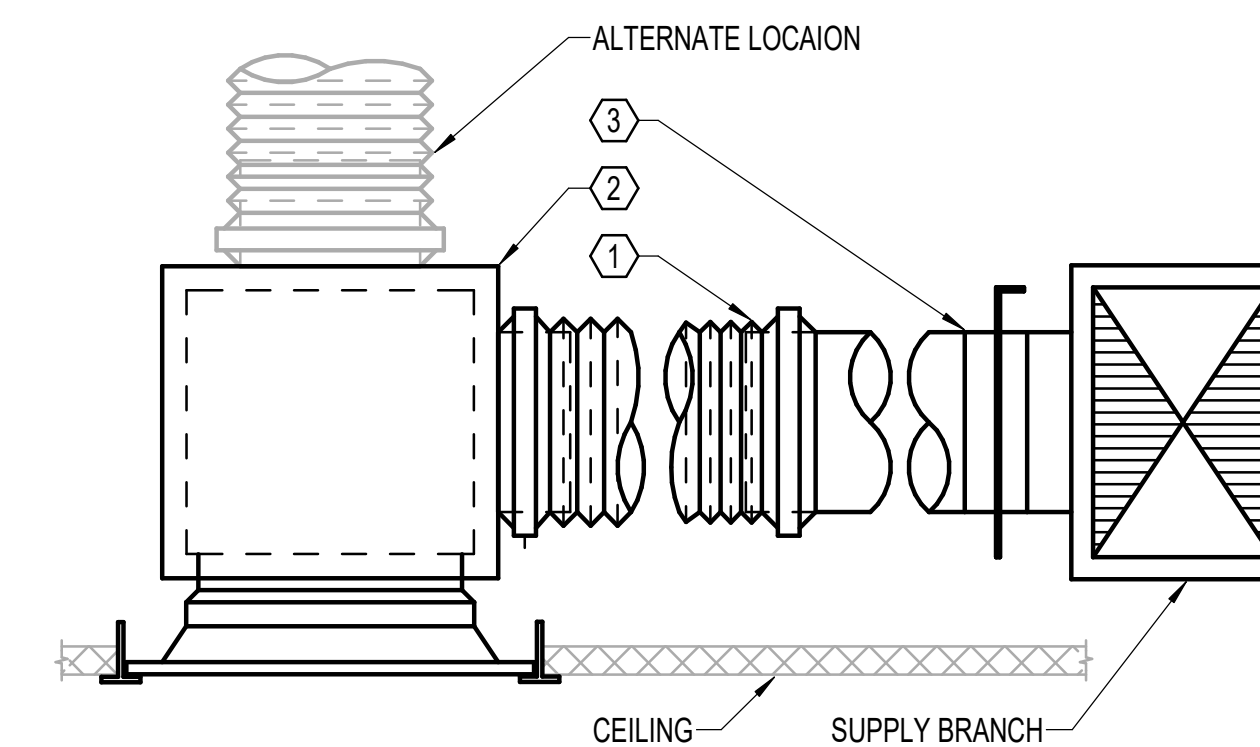
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DETAILS - MECHANICAL

M-501



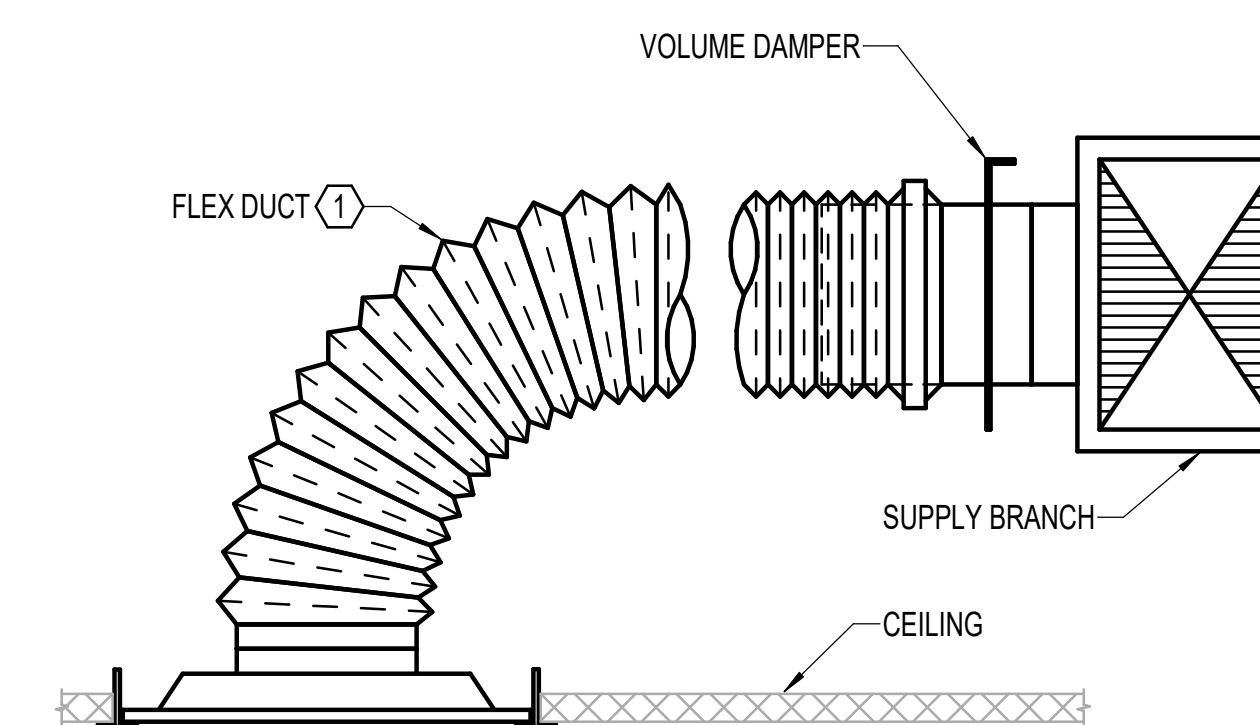
4 HYDRONIC COIL PIPING DETAIL - TWO-WAY
NONE



NOTES:

1. FLEX DUCT, 4' MAX LENGTH.
2. SHEETMETAL PLENUM SIZED 3-INCHES LARGER THAN DIFFUSER DUCT CONNECTION SIZE WITH 1-INCH BLACK DUCT LINER.
3. SPIN-IN FITTING WITH VOLUME DAMPER.

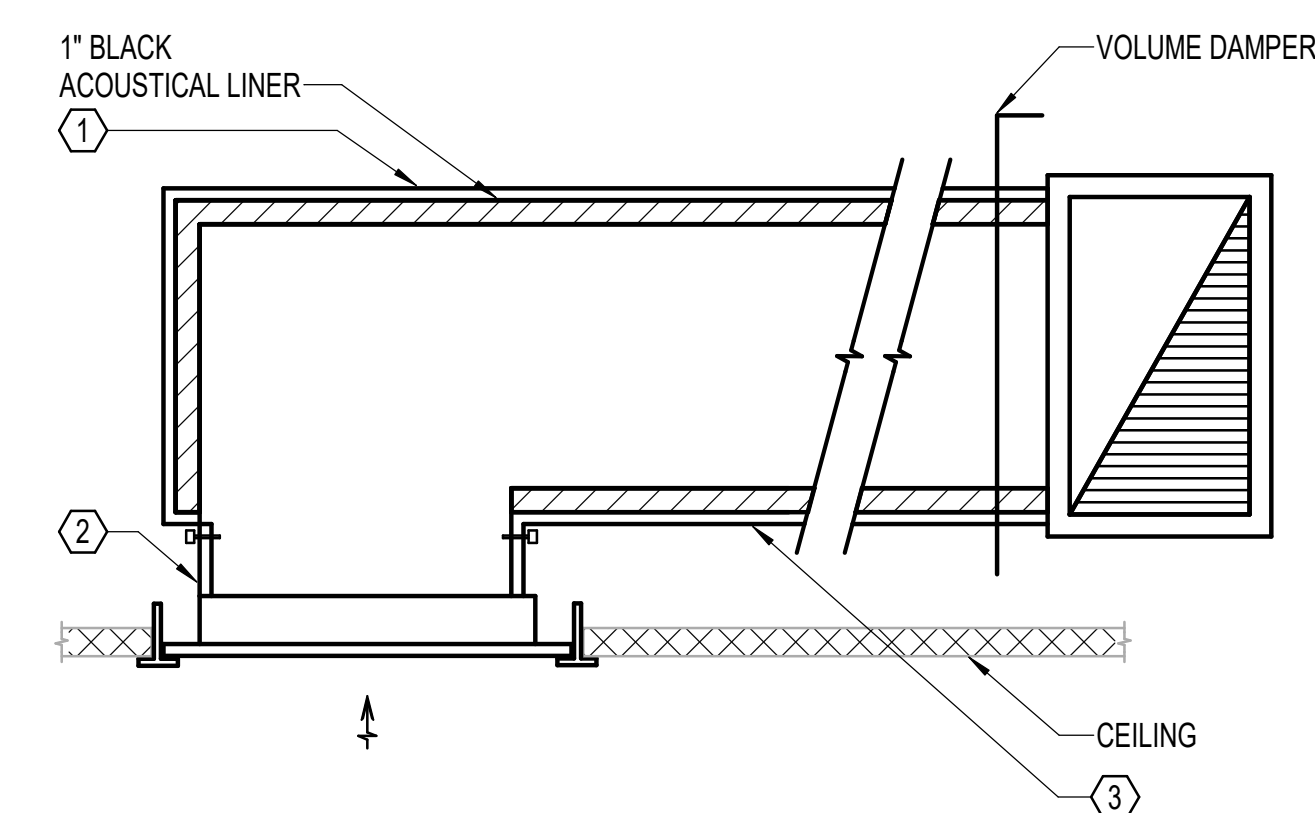
1 TYPICAL SQUARE NECK T-BAR DIFFUSER
NONE



NOTES:

1. 1.5 DIA MINIMUM FLEX DUCT RADIUS (4' MAX LENGTH).

2 DIFFUSER DETAIL - ROUND CONNECTION
NONE



NOTES:

1. SHEET METAL DUCT, SEE PLANS FOR SIZE.
2. NECK SIZE PER SCHEDULE.
3. EXTEND AND CONNECT TO RETURN/EXHAUST SYSTEM.

3 DUCTED RETURN/EXHAUST GRILLE
NONE



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CONTROL NOTES:

- INTEGRATE VRF SYSTEM INTO BMS UTILIZING BACNET INTERFACE.
- BMS TO PROVIDE SCHEDULING TO VRF CONTROLS.
- VRF CONTROLS TO SEND SPACE TEMPERATURE, GENERAL EQUIPMENT ALARMS, AND CONDENSATE SWITCH/PUMP ALARMS TO BMS.
- SPACE TEMPERATURE SETPOINT TO BE SET AT CENTRAL VRF CONTROLLER.

AutoCAD Piping & Wiring Diagrams

This drawing is schematic in nature. Final routing of piping & wiring shall be determined by the installing contractor and/or designer of record. Additional refrigerant charge is needed depending on the size and length of extended piping. Please refer to the amount of pre-charge and the formula of calculation which is mentioned on the SDD book.

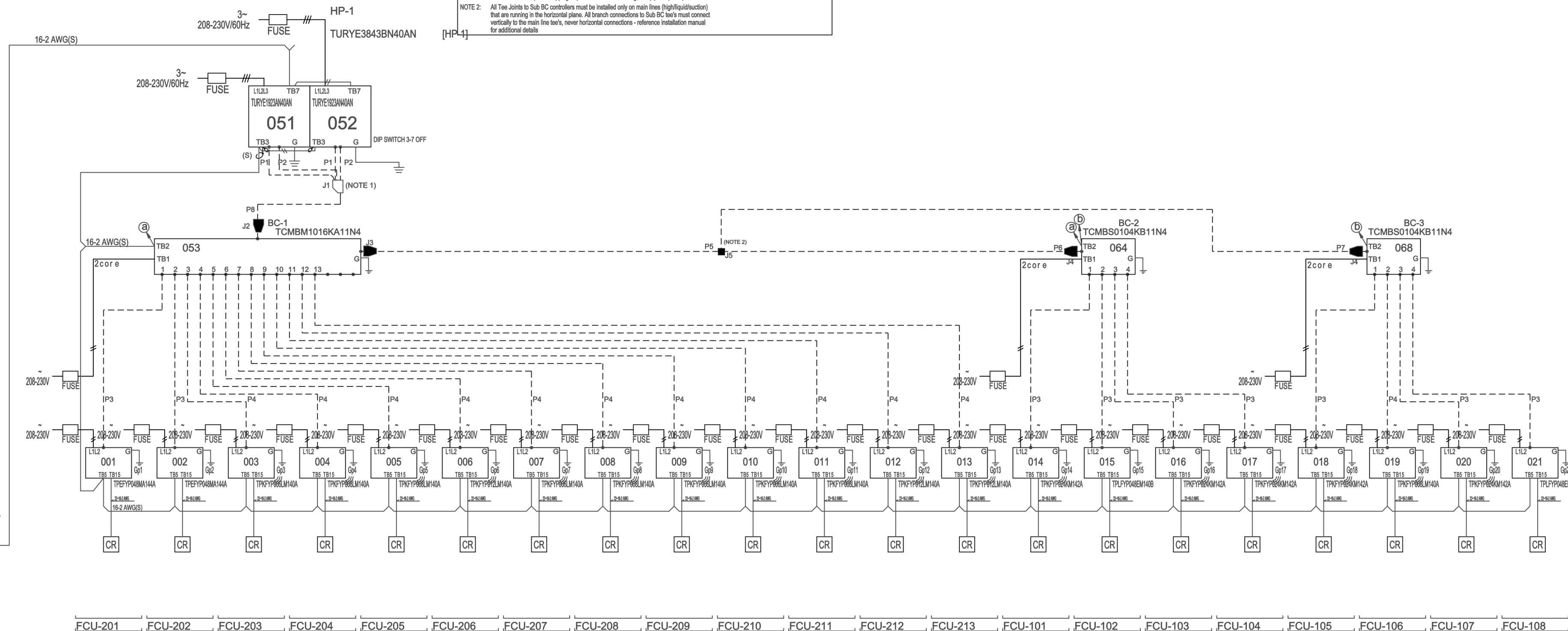
1.20mm(1/8 AWG); 1.25mm(1/8 AWG) or more. 0.75mm(21 AWG); between 1.5mm(1/4 AWG) and 1.75mm(21 AWG).

Code Notes:
NOTE 1: Install heating coils within 15 degrees of level and with 20 inches of straight pipe on connecting connection - reference installation manual for additional details including but not limited to special trapping requirements when heating, and pipe slope requirements.
NOTE 2: All the joints to Sub BC condensers must be installed only on main line (high pressure) that are running in the horizontal plane. All branch connections to Sub BC fan's must connect vertically to the main line back, never horizontal connections - reference installation manual for additional details.

DIAGRAM SYMBOL LEGEND	CONT. No.	PAGE
--- POWER WIRE		
--- CONTROL WIRE		
--- REF. PIPE		

CITY MULTI SYSTEM SCHEMATIC DWG.

PIPING AND CONTROLS	
SYMBOL	DESCRIPTION
J1	CMV-R300WS-2K
J2	CMV-R304S-G1
J3	CMV-R305S-G1
J4	CMV-R305S-G
J5	CMV-R305S-G
SYMBOL	LIQUID PREGAS PIPE SIZE
P1	1/8"
P2	3/8"
P3	1/2"
P4	3/4"
P5	1-1/8"
P6	1-1/2"
P7	1-3/4"
P8	2"
SYMBOL	MOVIE NUMBER
CR	TCMBS0104KB11N4



Diamond System Builder
sw: 5.2.0.33
dbr: 5.2.0.13
1/12/2024
7:27 AM

FCU-201 FCU-202 FCU-203 FCU-204 FCU-205 FCU-206 FCU-207 FCU-208 FCU-209 FCU-210 FCU-211 FCU-212 FCU-213 FCU-101 FCU-102 FCU-103 FCU-104 FCU-105 FCU-106 FCU-107 FCU-108

REMARKS
Originator: Will Ahneman
Comments:

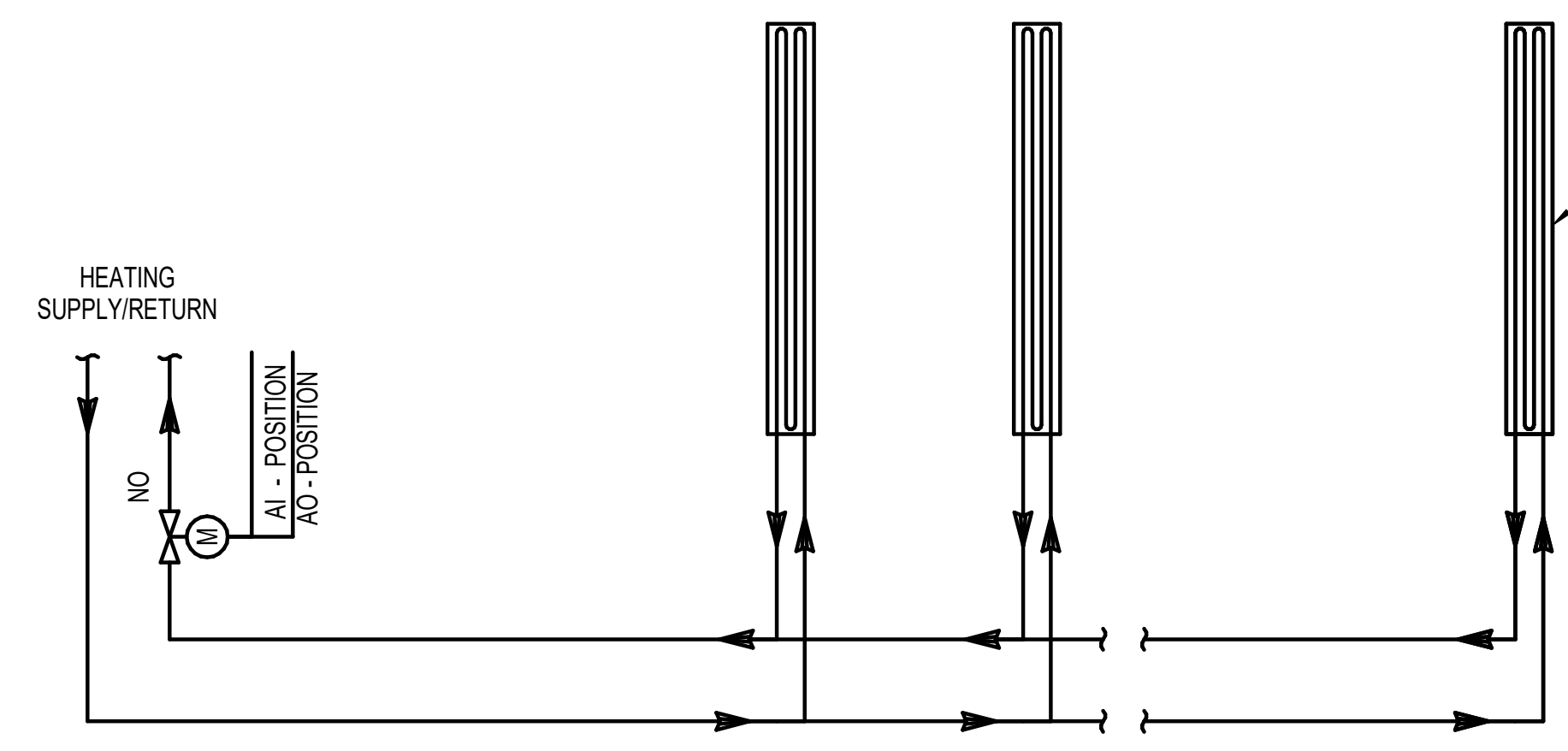
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CONTROL DIAGRAMS - MECHANICAL



THREE RADIANT PANELS SHOWN, ACTUAL QUANTITY PER ZONE VARIES

AI - ZONE TEMPERATURE

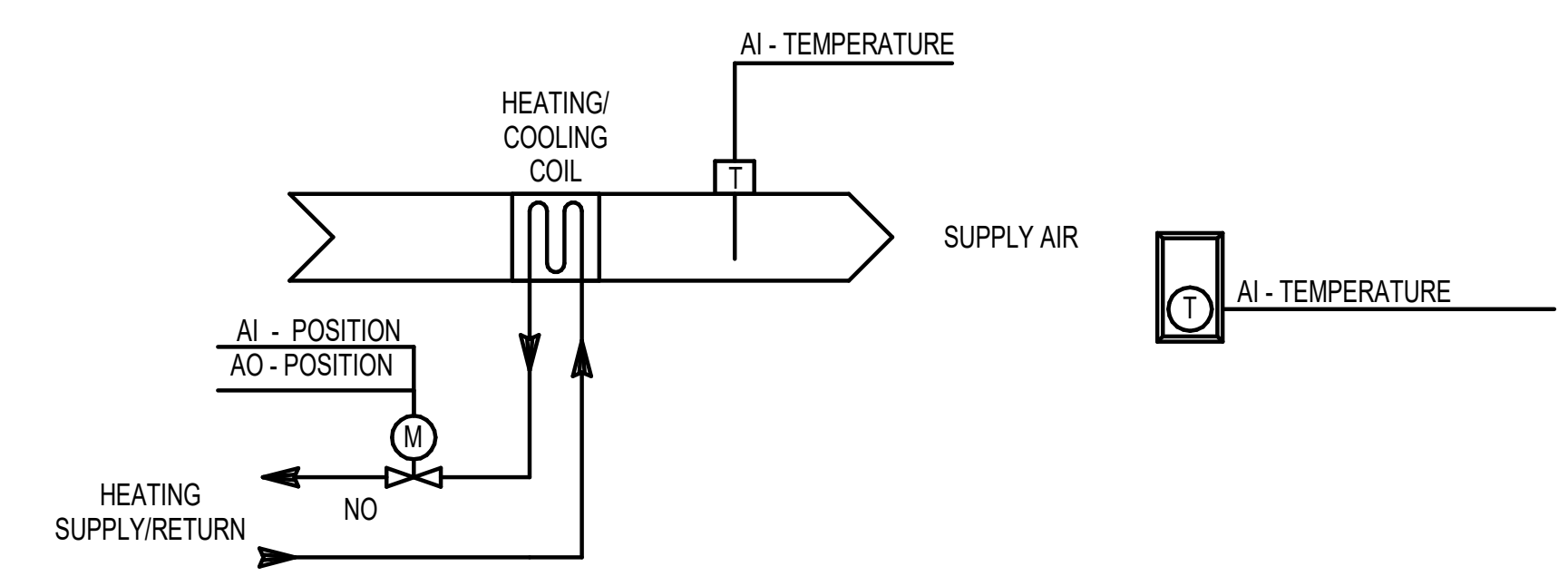
HEATING HOT WATER RADIANT PANEL SEQUENCE OF OPERATION

HEATING HOT WATER COIL IS INTENDED TO BE FIRST STAGE OF HEATING.

INTEGRATE NEW CONTROL VALVES AND SPACE TEMPERATURE SENSORS INTO EXISTING DDC BMS SYSTEM.

OCCUPIED MODE
SPACE TEMPERATURE CONTROL
DURING HEATING MODE(SPACE TEMPERATURE IS BELOW SETPOINT):
MODULATE CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE.
DURING COOLING MODE:
VALVE REMAINS CLOSED.

UNOCCUPIED MODE
SPACE TEMPERATURE CONTROL
DURING SETBACK HEATING MODE(SPACE TEMPERATURE IS BELOW SETBACK TEMPERATURE SETPOINT):
MODULATE CONTROL VALVE TO MAINTAIN SPACE TEMPERATURE.
DURING COOLING MODE:
VALVE REMAINS CLOSED.



HEATING HOT WATER COIL SEQUENCE OF OPERATION

HEATING HOT WATER COIL IS INTENDED TO BE FINAL STAGE OF HEATING.

INTEGRATE NEW CONTROL VALVE AND DUCT TEMPERATURE SENSORS INTO EXISTING DDC BMS SYSTEM.

SUPPLY AIR TEMPERATURE CONTROL
DURING HEATING MODE:
IF THE ENTERING AIR TEMPERATURE INTO THE COIL REMAINS BELOW 85DEGREES F FOR MORE THAN 10 MIN. (ADJ.) MODULATE HEATING CONTROL VALVE TO MAINTAIN A SUPPLY AIR TEMPERATURE OF 90 DEGREES F.
DURING COOLING MODE:
VALVE REMAINS CLOSED.

1 FINNED TUBE
NONE

2 DUCT MOUNTED HHW COIL - HC-XXX
NONE