

### PIPING LABELS

— HWS —	HEATING WATER SUPPLY
— HWR —	HEATING WATER RETURN
— PC —	PUMPED CONDENSATE
— FOS —	FUEL OIL SUPPLY
— FOR —	FUEL OIL RETURN
— FOV —	FUEL OIL VENT
— MU —	MAKEUP WATER
— D —	EQUIPMENT DRAIN
— CD —	CONDENSATE DRAIN
— —	DOMESTIC COLD WATER
— —	DOMESTIC HOT WATER SUPPLY
— — (140) —	DOMESTIC HOT WATER SUPPLY - 140 F
— —	DOMESTIC HOT WATER RETURN
— TW —	TEPID WATER (60 F TO 100 F)
— NPW —	NON-POTABLE WATER
— NG —	NATURAL GAS
— G2 —	(NOT USED)
— G5 —	(NOT USED)
— NAME —	MISCELLANEOUS
— (E) NAME —	EXISTING PIPING
— X (R) NAME — X —	EXISTING PIPING TO BE REMOVED
— (R) NAME —	EXISTING PIPING TO BE REMOVED
— 1-1/4" PIPE —	PIPE WITH SIZE CALLOUT

### GENERAL SYMBOLS

∅	AT
∅	DIAMETER
"	INCHES
&	AND
X °	X DEGREES (ANGLE)
1	KEYED NOTE DESIGNATION
3	OWNER'S EQUIPMENT NUMBER
10 M307	DETAIL OR DETAIL REFERENCE
10 M307	ELEVATION
6 M307	SECTION TAKEN AT
WH-1	EQUIPMENT TAG

### PIPE FITTINGS

	FLANGE
	UNION
	PIPING REDUCER
	PIPE SLEEVE
	PIPE ANCHOR
	ELBOW INTO PAPER PLANE
	ELBOW OUT OF PAPER PLANE
	TEE OUT OF PAPER PLANE
	TEE INTO PAPER PLANE
	PIPE CAP OR PLUG
	FLOW ARROW
	BREAK IN LINE

### VALVES

	TWO WAY CONTROL VALVE
	THREE WAY CONTROL VALVE
	BALL VALVE
	GATE VALVE
	GATE VALVE - OS&Y
	GLOBE VALVE
	BUTTERFLY VALVE
	NEEDLE VALVE
	GAS COCK
	CHECK VALVE
	SOLENOID VALVE
	PRESSURE REDUCING VALVE
	RELIEF (R), OR SAFETY (S) VALVE
	BALANCING VALVE
	AUTOMATIC FLOW LIMITING VALVE
	STRAINER, STRAINER W/BLOWOFF
	HOSE END DRAIN VALVE
	VALVE IN RISER
	REDUCED PRESSURE BACKFLOW PREVENTER
	DOUBLE CHECK VALVE

### PIPING SPECIALTIES

	FLEXIBLE PIPE CONNECTOR
	EXPANSION JOINT
	PRESSURE GAUGE
	THERMOMETER
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	TEMPERATURE/PRESSURE TEST PORT
	SENSOR WELL
	HOSE BIBB
	PUMP, IN SCHEMATIC PRESENTATION
	STEAM TRAP
	POINT OF CONNECTION

### ABBREVIATIONS

AC	AIR CONDITIONING	F	FAHRENHEIT	(R)	REMOVE
ACH	AIR CHANGES PER HOUR	FC	FORWARD CURVED	R	RADIUS
AD	ACCESS DOOR	FCU	FAN COIL UNIT	RA	RETURN AIR
AF	AIR FOIL	FLA	FULL LOAD AMPS	RAD	RETURN AIR DAMPER
AFF	ABOVE FINISHED FLOOR	FLR	FLOOR	(RL)	RELOCATE
AH	AIR HANDLING UNIT	FPM	FEET PER MINUTE	REQD	REQUIRED
ALT	ALTERNATE	FPS	FEET PER SECOND	RF	RETURN FAN
AMP	AMPERE	FT	FEET	RP	REDUCED PRESSURE BACKFLOW PREVENTER
AP	ACCESS PANEL			RPM	REVOLUTIONS PER MINUTE
ARCH	ARCHITECTURAL	G	NATURAL GAS	SA	SUPPLY AIR
ASSY	ASSEMBLY	GA	GAUGE	SAN	SANITARY
B	BOILER	GAL	GALLON	SCH	SCHEDULE
BG	BELOW GRADE	GALV	GALVANIZED	SF	SQUARE FEET
BHP	BRAKE HORSEPOWER	GPM	GALLONS PER MINUTE	SHT	SHEET
BI	BASKWARD INCLINED	GSM	GALVANIZED SHEET METAL	SP	STATIC PRESSURE
BLDG	BUILDING	HB	HOSE BIBB	SQ	SQUARE
BOP	BOTTOM OF PIPE	HP	HORSEPOWER, OR HEAT PUMP	SR	SPRING RANGE
BS	BELOW SLAB	HZ	HERTZ	SS	STAINLESS STEEL
BTU	BRITISH THERMAL UNIT	ID	INSIDE DIAMETER	STD	STANDARD
BTUH	BRITISH THERMAL UNITS PER HOUR	IN	INCHES		
C	COMMON	KW	KILOWATTS	TDH	TOTAL DYNAMIC HEAD
CA	COMPRESSED AIR, COMBUSTION AIR	KWH	KILOWATT HOURS	TEMP	TEMPERATURE, OR TEMPORARY
CAP	CAPACITY	L	LENGTH	TOS	TOP OF SLAB
CB	CIRCUIT BREAKER	LAT	LEAVING AIR TEMPERATURE	TSP	TOTAL STATIC PRESSURE
CC	COOLING COIL	LBS	POUNDS	TTC	TIGHT TO CEILING
CD	CONDENSATE DRAIN	LRA	LOCKED ROTOR AMPS	TYP	TYPICAL
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	LTG	LIGHTING	UNO	UNLESS NOTED OTHERWISE
CFM	CUBIC FEET PER MINUTE	LWT	LEAVING WATER TEMPERATURE	V	VENT OR VOLTS
CH	CHILLER	MAX	MAXIMUM	VA	VOLT-AMPERE
CLG	CEILING	MBH	THOUSAND BTUH	VAV	VARIABLE AIR VOLUME
CMU	CONCRETE MASONRY UNIT	MCA	MINIMUM CIRCUIT AMPACITY	VEL	VELOCITY
COND	CONDENSER, CONDENSATE	MEZZ	MEZZANINE	VFD	VARIABLE FREQUENCY DRIVE
CONT	CONTINUATION	MFR	MANUFACTURER	VOL	VOLUME
COP	COEFFICIENT OF PERFORMANCE	MIN	MINIMUM	VV	VARIABLE VOLUME
CTE	CONNECT TO EXISTING	MISC	MISCELLANEOUS	W/	WITH
CW	COLD WATER	MTD	MOUNTED	WB	WET BULB
D	DRAIN	MTG	MEETING	WC	WATER COLUMN
DDC	DIRECT DIGITAL CONTROL	(N)	NEW	WG	WATER GAGE
DET	DETAIL	NC	NORMALLY CLOSED	W/O	WITHOUT
DHW	DOMESTIC HOT WATER	NO	NORMALLY OPEN, OR NUMBER		
DHR	DOMESTIC HOT WATER RETURN	NPT	NATIONAL PIPE THREAD		
DIA	DIAMETER	NTS	NOT TO SCALE		
DIM	DIMENSION	OC	ON CENTER		
DN	DOWN	OD	OUTSIDE DIAMETER		
DWG	DRAWING	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED		
(E)	EXISTING	OFOI	OWNER FURNISHED, OWNER INSTALLED		
EA	EACH, OR EXHAUST AIR	OSA	OUTSIDE AIR		
EAD	EXHAUST AIR DAMPER	OSAD	OUTSIDE AIR DAMPER		
EAT	ENTERING AIR TEMPERATURE	P	PUMP		
EF	EXHAUST FAN	PD	PRESSURE DROP		
EFF	EFFICIENCY	PH	PHASE		
EG	EXHAUST GRILLE	PLBG	PLUMBING		
ELEV	ELEVATION	PLC	PROGRAMMABLE LOGIC CONTROL		
ENT	ENTERING	PRV	PRESSURE REDUCING VALVE		
EQUIP	EQUIPMENT	PSI	POUNDS PER SQUARE INCH		
ESP	EXTERNAL STATIC PRESSURE	PSIG	POUNDS PER SQUARE INCH GAGE		
ET	EXPANSION TANK				
ETR	EXISTING TO REMAIN				
EWT	ENTERING WATER TEMPERATURE				
EXT	EXTERIOR				

### GENERAL NOTES - MECHANICAL

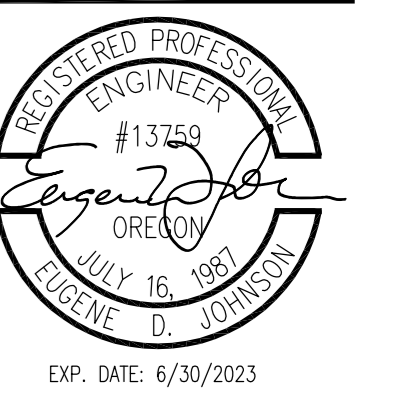
1. PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS.
2. MECHANICAL CONTRACTOR SHALL PROVIDE PIPING OFFSETS AS NEEDED TO MAINTAIN NEC REQUIRED CLEARANCES AROUND ELECTRICAL PANELS.

### MECHANICAL EQUIPMENT INSTALLATION NOTES

1. VERIFY LAYOUT, INSTALLATION REQUIREMENTS, AND PHYSICAL DIMENSIONS OF ACTUAL EQUIPMENT PROVIDED TO ENSURE THAT ACCESS CLEARANCES CAN BE MET.
2. PROVIDE SEISMIC BRACING FOR EQUIPMENT AND PIPING WEIGHING GREATER THAN 75 POUNDS. USE CABLE SYSTEM TO ENSURE THAT BRACING DOES NOT SHORT-CIRCUIT VIBRATION ISOLATION, WHERE APPLICABLE.

### PIPING NOTES

1. PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS FOR EQUIPMENT, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.
2. PIPE ROUTING INDICATED IS DIAGRAMMATIC IN NATURE AND IS NOT INTENDED TO SHOW EVERY OFFSET REQUIRED TO MAKE FINAL CONNECTION TO EQUIPMENT. CONTRACTOR SHALL DETERMINE THE EXACT ROUTE OF PIPING, INCLUDING OFFSETS, TO MAKE THE SIMPLEST AND MOST EFFICIENT PIPING SYSTEM.
3. PROVIDE DIELECTRIC NIPPLES AT CONNECTIONS OF DISSIMILAR PIPE MATERIALS.



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**4J MONROE MIDDLE SCHOOL  
 BOILER REPLACEMENT - 2023**  
 EUGENE SCHOOL DISTRICT 4J  
 2800 BAILEY LANE  
 EUGENE, OREGON 97401

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MECHANICAL  
 SYMBOLS,  
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 & NOTES