

ADAMS ELEMENTARY SCHOOL BOILER REPLACEMENT

PROJECT LOCATION

ADAMS ELEMENTARY SCHOOL
950 WEST 22ND AVENUE
EUGENE, OR 97403

PROJECT TEAM

OWNER/PROJECT MANAGER/ELECTRICIAN

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G001 COVER SHEET
M001 MECHANICAL LEGEND, SCHEDULES
M101 MECHANICAL PLANS
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PROJECT DESCRIPTION

THE PROJECT CONSISTS OF THE REPLACEMENT OF TWO EXISTING GAS/OIL-FIRED HEATING WATER BOILERS WITH TWO NEW GAS-FIRED CONDENSING HOT WATER BOILER AT ADAMS ELEMENTARY SCHOOL.

WORK WILL INCLUDE DEMOLITION OF THE HEATING WATER BOILERS BEING REPLACED, ORIGINAL EXHAUST FLUE, PIPING CONNECTIONS, ELECTRICAL CONNECTIONS, AND CONTROLS; INSTALLATION OF NEW GAS SERVICE FROM UTILITY LOCATION AT 22ND AVE, AND INSTALLATION NEW GAS-FIRED BOILERS AND COMBUSTION AIR AND EXHAUST FLUE PIPING. NEW GAS SERVICE TO THE BOILER ROOM WILL UTILIZE AN EXISTING PIPE SLEEVE RUN UNDERGROUND FROM THE STREET TO THE BOILER ROOM LOCATION. WORK INCLUDES LIMITED MODIFICATIONS TO EXISTING HEATING WATER PIPING IN THE BOILER ROOM, AS REQUIRED TO CONNECT TO NEW BOILERS. EXISTING HEATING WATER DISTRIBUTION PUMPS ARE TO REMAIN UNDISTURBED.

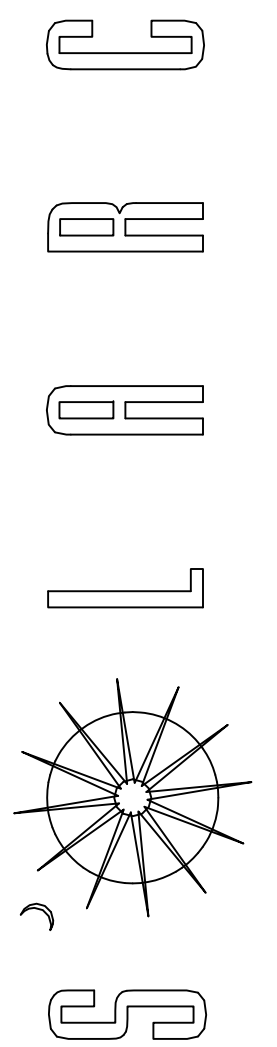
WORK WILL INCLUDE FACTORY STARTUP AND TRAINING FOR NEW BOILER EQUIPMENT.

WORK WILL NOT INCLUDE REMOVAL OR DECOMMISSIONING OF EXISTING FUEL STORAGE TANK(S), WHICH DISTRICT 4J WILL CONTRACT SEPARATELY.

WORK WILL NOT INCLUDE REINSTALLATION OF ELECTRICAL AND CONTROLS CONNECTIONS TO NEW BOILERS, WHICH DISTRICT 4J WILL CONTRACT SEPARATELY OR SELF-PERFORM.

APPLICABLE CODES

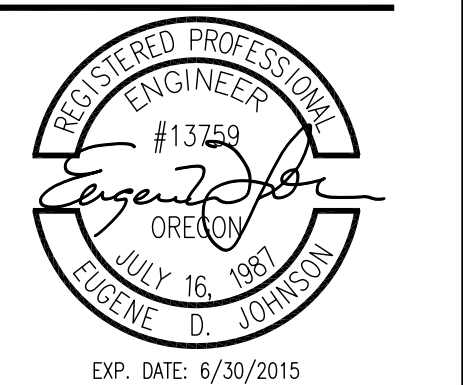
2011 OREGON ELECTRICAL SPECIALTY CODE
2011 OREGON PLUMBING SPECIALTY CODE
2014 OREGON MECHANICAL SPECIALTY CODE
2014 OREGON ENERGY EFFICIENCY SPECIALTY CODE
2014 OREGON STRUCTURAL SPECIALTY CODE



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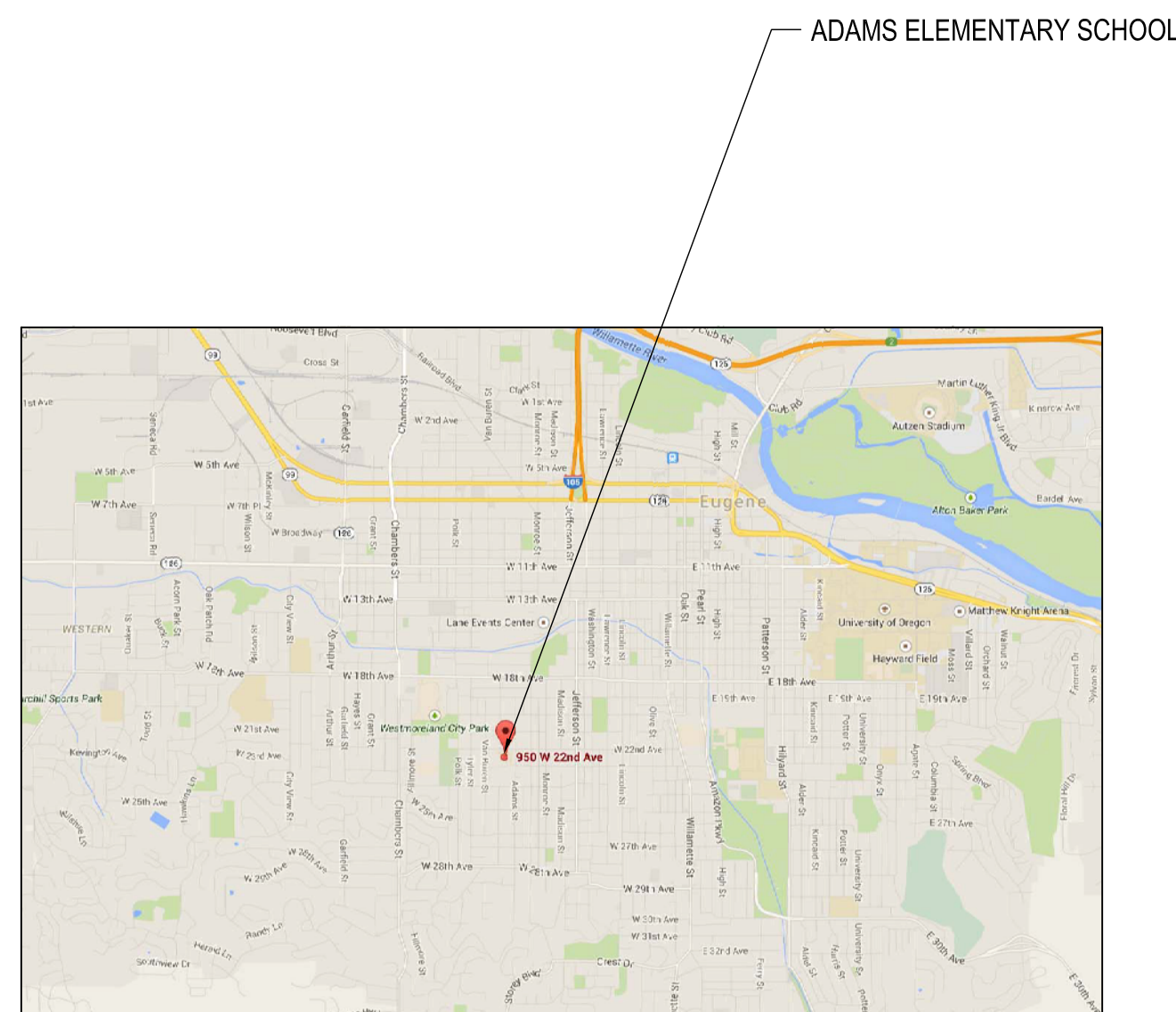


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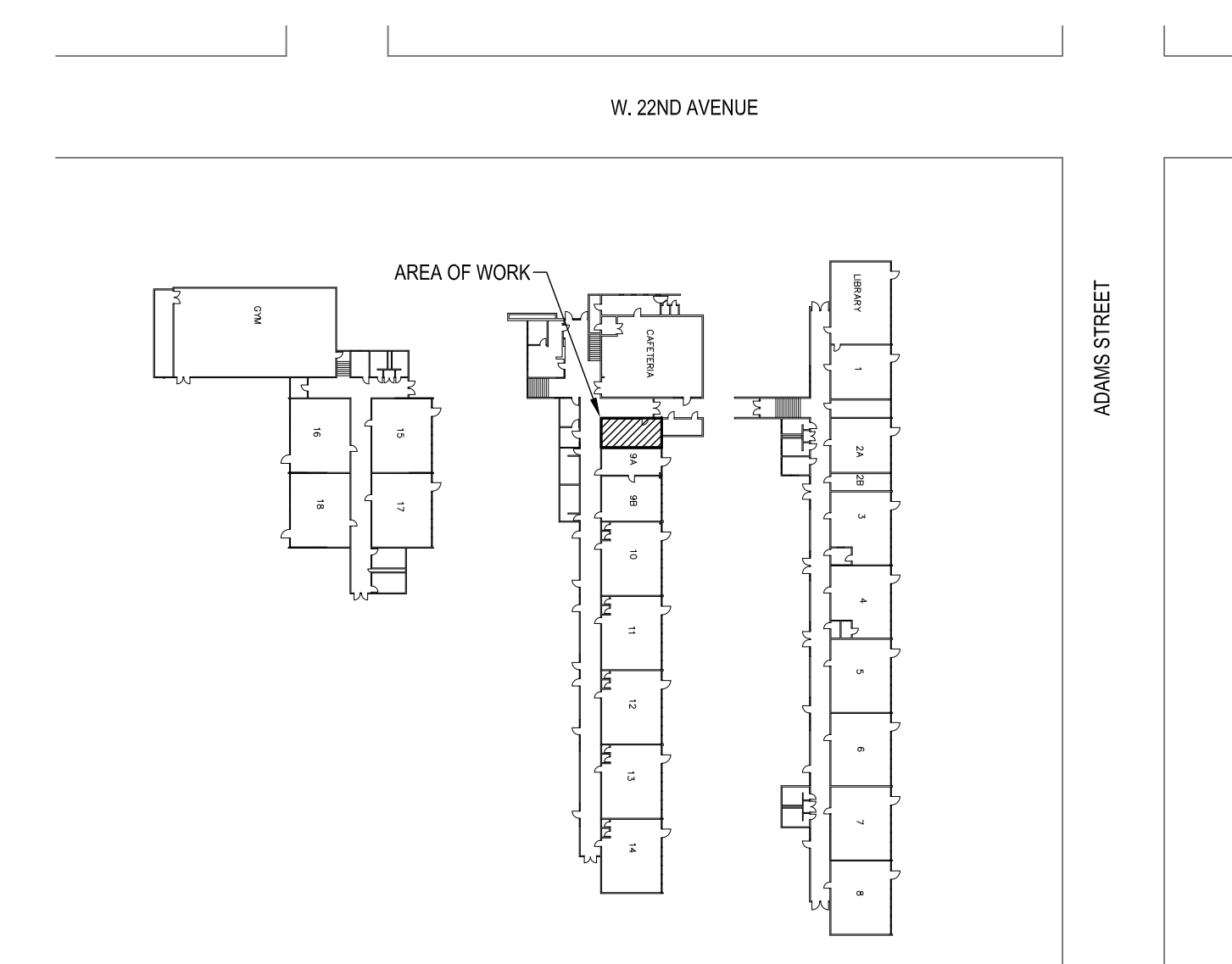
COVER
SHEET

G001

SHEET 1 OF 4



13 VICINITY MAP
NTS



16 SITE PLAN
SCALE: 1" = 100'



PIPING LABELS	
— HWS —	HEATING WATER SUPPLY
— HWR —	HEATING WATER RETURN
— LPS —	LOW PRESSURE STEAM SUPPLY
— LPC —	LOW PRESSURE CONDENSATE
— 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
— G —	NATURAL GAS - 1 PSI OR LESS
— G2 —	NATURAL GAS - 2 PSI
— G5 —	NATURAL GAS - 5 PSI
— NAME —	MISCELLANEOUS
— (E) NAME —	EXISTING PIPING
— (R) NAME —	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 M301	DETAIL OR DETAIL REFERENCE
10 M301	ELEVATION
6 M301	SECTION TAKEN AT
AH-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

HVAC SPECIALTIES	
	DUCT OR PIPE MOUNTED TEMPERATURE SENSOR
	THERMOSTAT OR TEMPERATURE SENSOR
	WALL MOUNTED CARBON DIOXIDE SENSOR
	DUCT SMOKE DETECTOR
	DDC BINARY INPUT
	DDC BINARY OUTPUT
	DDC ANALOG INPUT
	DDC ANALOG OUTPUT

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	G	NATURAL GAS	RPM	REVOLUTIONS PER MINUTE
ARCH	ARCHITECTURAL	GA	GAUGE	SA	SUPPLY AIR
ASSY	ASSEMBLY	GAL	GALLON	SAN	SANITARY
B	BOILER	GALV	GALVANIZED	SCH	SCHEDULE
BG	BELOW GRADE	GPM	GALLONS PER MINUTE	SF	SQUARE FEET
BHP	BRAKE HORSEPOWER	GSM	GALVANIZED SHEET METAL	SHT	SHEET
BI	BASKWARD INCLINED	HB	HOSE BIBB	SP	STATIC PRESSURE
BLDG	BUILDING	HP	HORSEPOWER, OR HEAT PUMP	SQ	SQUARE
BOP	BOTTOM OF PIPE	Hz	HERTZ	SR	SPRING RANGE
BS	BELOW SLAB	ID	INSIDE DIAMETER	SS	STAINLESS STEEL
BTU	BRITISH THERMAL UNIT	IN	INCHES	STD	STANDARD
BTUH	BRITISH THERMAL UNITS PER HOUR	IN	INCHES	TDH	TOTAL DYNAMIC HEAD
C	COMMON	KW	KILOWATTS	TEMP	TEMPERATURE, OR TEMPORARY
CA	COMPRESSED AIR, COMBUSTION AIR	KWH	KILOWATT HOURS	TOS	TOP OF SLAB
CAP	CAPACITY	L	LENGTH	TSP	TOTAL STATIC PRESSURE
CB	CIRCUIT BREAKER	LAT	LEAVING AIR TEMPERATURE	TTC	TIGHT TO CEILING
CC	COOLING COIL	LBS	POUNDS	TYP	TYPICAL
CD	CONDENSATE DRAIN	LRA	LOCKED ROTOR AMPS	UNO	UNLESS NOTED OTHERWISE
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	LTG	LIGHTING	V	VENT OR VOLTS
CFM	CUBIC FEET PER MINUTE	LWT	LEAVING WATER TEMPERATURE	VA	VOLT-AMPERE
CH	CHILLER	MAX	MAXIMUM	VAV	VARIABLE AIR VOLUME
CLG	CEILING	MBH	THOUSAND BTUH	VEL	VELOCITY
CMU	CONCRETE MASONRY UNIT	MCA	MINIMUM CIRCUIT AMPACITY	VFD	VARIABLE FREQUENCY DRIVE
COND	CONDENSER, CONDENSATE	MEZZ	MEZZANINE	VOL	VOLUME
CONT	CONTINUATION	MFR	MANUFACTURER	VV	VARIABLE VOLUME
COP	COEFFICIENT OF PERFORMANCE	MIN	MINIMUM	W/	WITH
CTE	CONNECT TO EXISTING	MISC	MISCELLANEOUS	WB	WET BULB
CW	COLD WATER	MTD	MOUNTED	WC	WATER COLUMN
D	DRAIN	MTG	MEETING	WG	WATER GAGE
DDC	DIRECT DIGITAL CONTROL	(N)	NEW	W/O	WITHOUT
DET	DETAIL	NC	NORMALLY CLOSED		
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				

CONDENSING BOILER SCHEDULE

TAG	SERVICE	BASIS OF DESIGN		INPUT CAPACITY BTU/HR		FLOW RATE GPM		AHRI EFF %	ELECTRICAL DATA			FUEL TYPE	OPERATING WT. LBS	NOTES
		MANUFACTURER	MODEL	MIN	MAX	MIN	MAX		VOLTS	PH	AMPS FLA			
BLR-1	HYDRONIC SPACE HEATING	LOCHINVAR	FBN1001	50,000	1,000,000	15	180	96.2	120	1	7.3	NAT GAS	1838	
BLR-2	HYDRONIC SPACE HEATING	LOCHINVAR	FBN1001	50,000	1,000,000	15	180	96.2	120	1	7.3	NAT GAS	1838	

GENERAL NOTES - MECHANICAL

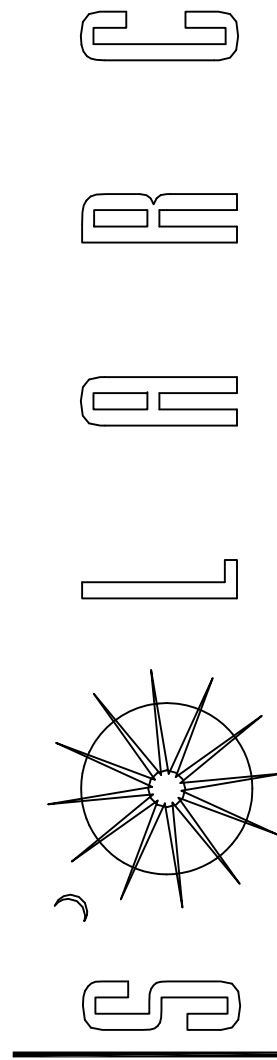
- COORDINATE VOLTAGE AND PHASE REQUIREMENTS FOR SCHEDULED MECHANICAL EQUIPMENT WITH DIVISION 26. REPORT CONFLICTS TO ENGINEER PRIOR TO SUBMITTAL REVIEW AND PURCHASE OF EQUIPMENT.
- PROVIDE ESCUTCHEON PLATES FOR EXPOSED PIPING PENETRATIONS.
- MECHANICAL CONTRACTOR SHALL PROVIDE PIPING OFFSETS AS NEEDED TO MAINTAIN NEC REQUIRED CLEARANCES AROUND ELECTRICAL PANELS.

MECHANICAL EQUIPMENT INSTALLATION NOTES

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

PIPING NOTES

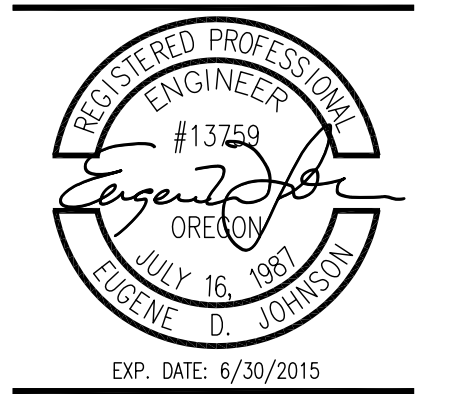
- PROVIDE UNIONS OR FLANGES AT PIPING CONNECTIONS FOR EQUIPMENT, CONTROL VALVES, AND OTHER COMPONENTS TO ALLOW DISASSEMBLY FOR MAINTENANCE.
- PIPE ROUTING INDICATED IS DIAGRAMMATIC IN NATURE AND IS NOT INTENDED TO SHOW EVERY OFFSET REQUIRED TO MAKE FINAL CONNECTION TO EQUIPMENT. CONTRACTOR SHALL DETERMINE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



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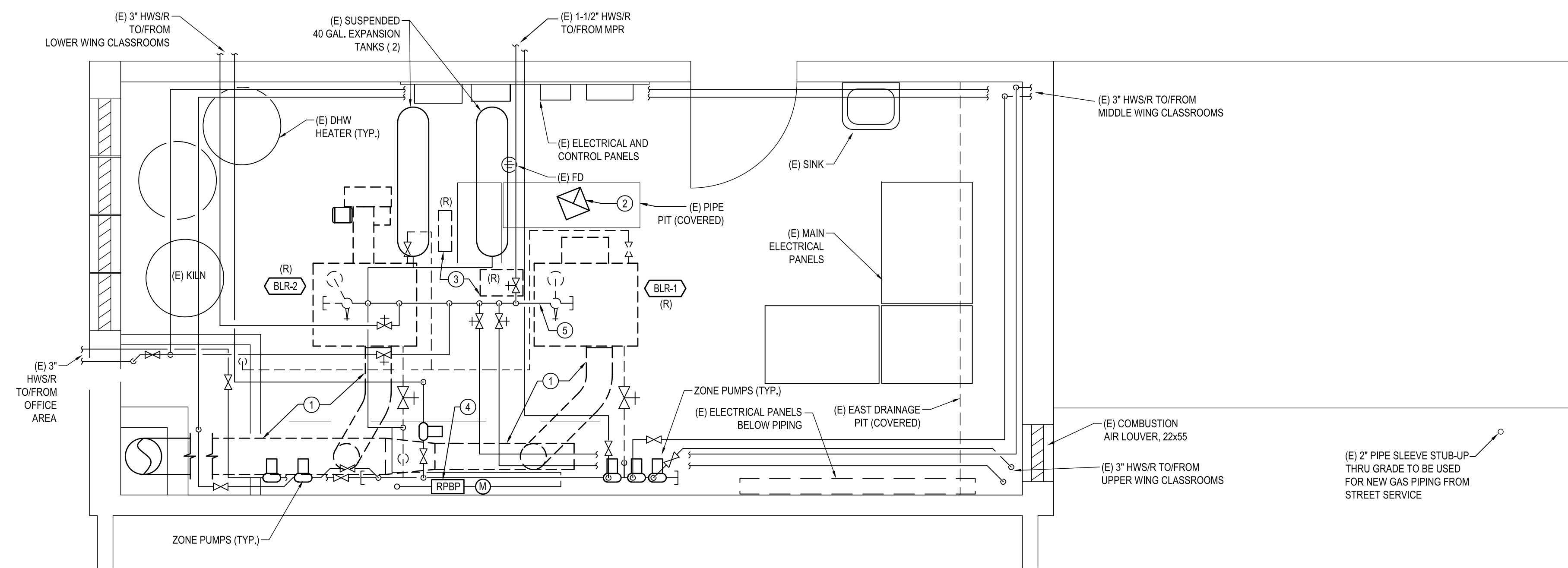
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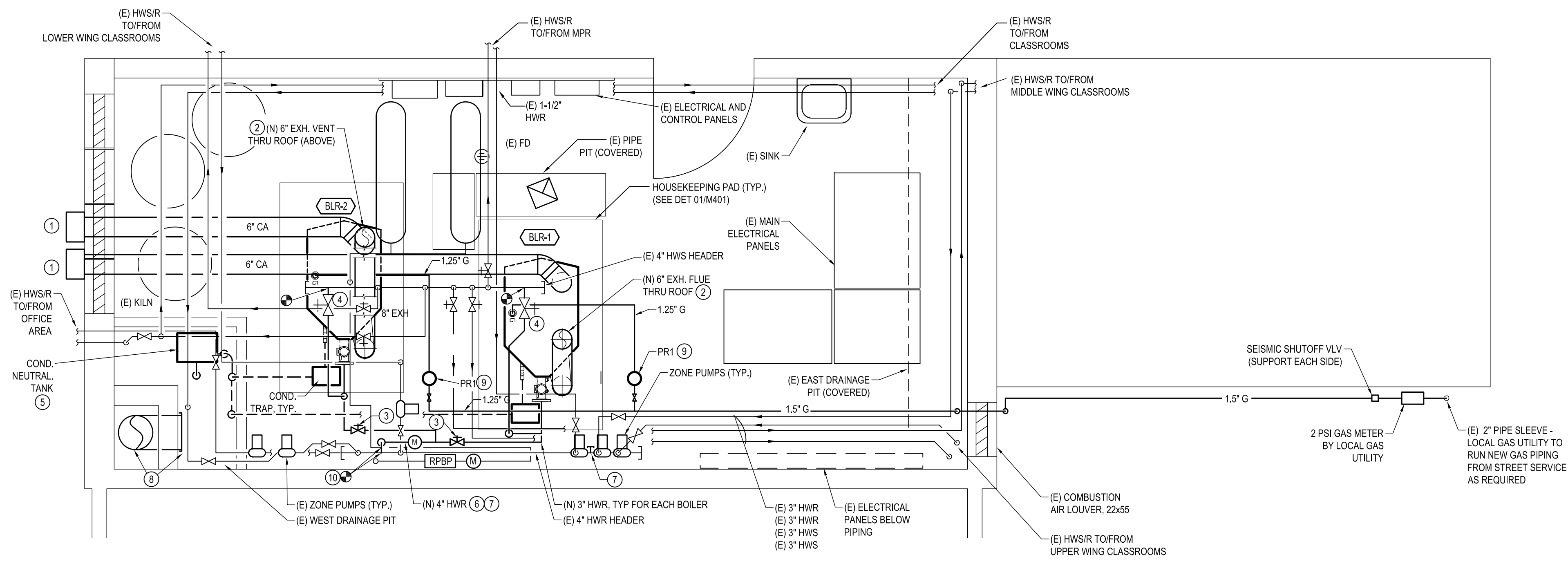


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MECHANICAL LEGEND



1 MECHANICAL DEMOLITION PLAN
SCALE: 3/8" = 1"



9 MECHANICAL PLAN
SCALE: 3/8" = 1"

GENERAL SHEET NOTES

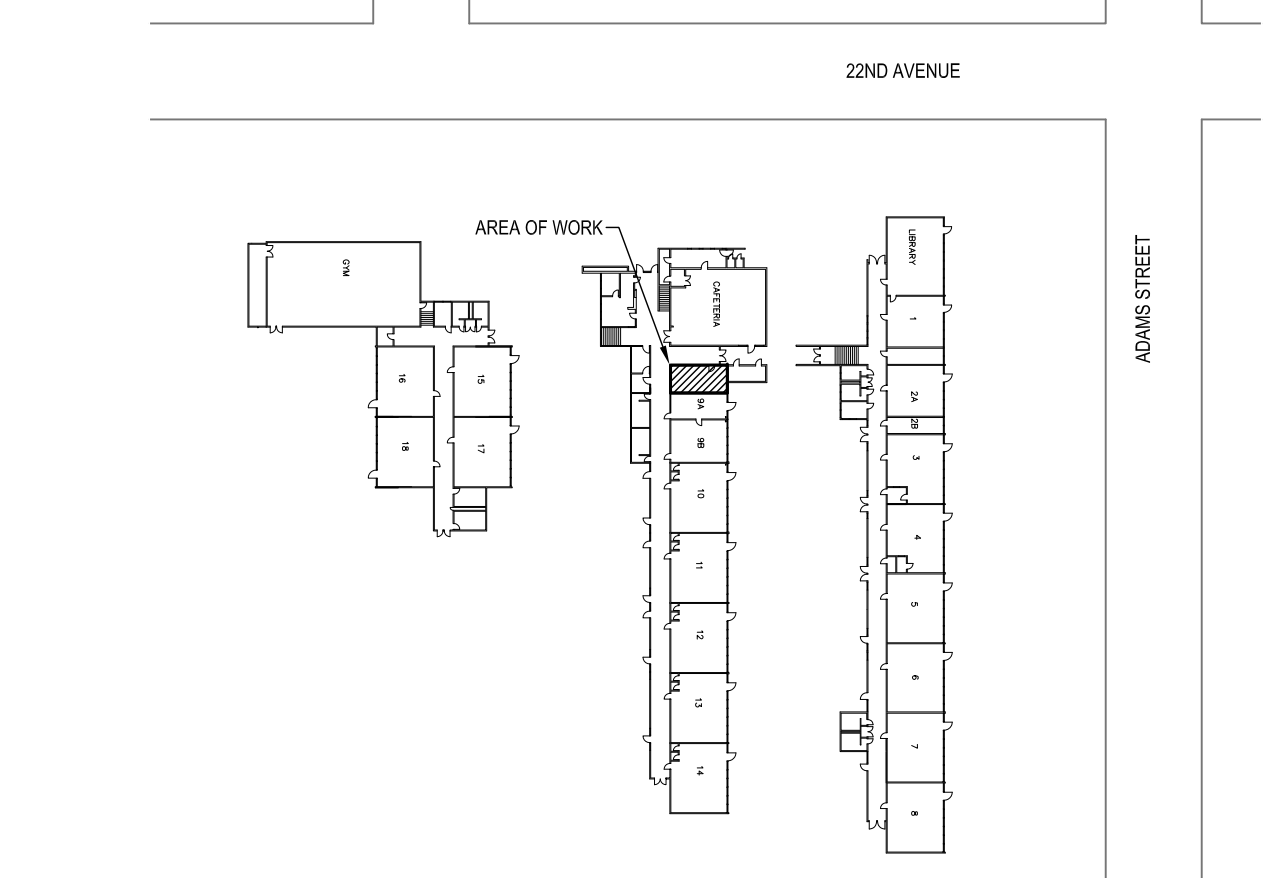
1. DEMO'D FLANGES AND VALVES MAY CONTAIN ASBESTOS. LEAVE ALL VALVES AND FLANGES IN A DESIGNATED LOCATION FOR OWNER'S DISPOSAL.
2. REMOVAL OF FUEL OIL PIPING AND FUEL OIL TANK ARE OUTSIDE THE SCOPE OF THIS PROJECT, AND WILL HAVE BEEN REMOVED BY DISTRICT PRIOR TO START OF THE WORK OF THIS PROJECT.
3. EXISTING COMBUSTION AIR LOUVERS (HIGH AND LOW) TO REMAIN FOR ROOM HEAT CONTROL.
4. CONTRACTOR TO VERIFY ALL FIELD CONDITIONS DURING PRE-BID PERIOD. CONTRACTOR'S BID SHALL INCLUDE ANY AND ALL ADJUSTMENTS TO LOCATIONS OF NEW WORK SHOWN ON THESE DRAWINGS TO AVOID INTERFERENCE WITH EXISTING DUCTWORK, PIPING, CONDUIT, EQUIPMENT, AND STRUCTURAL FEATURES.

KEYED SHEET NOTES - DEMOLITION (DET 01/M101)

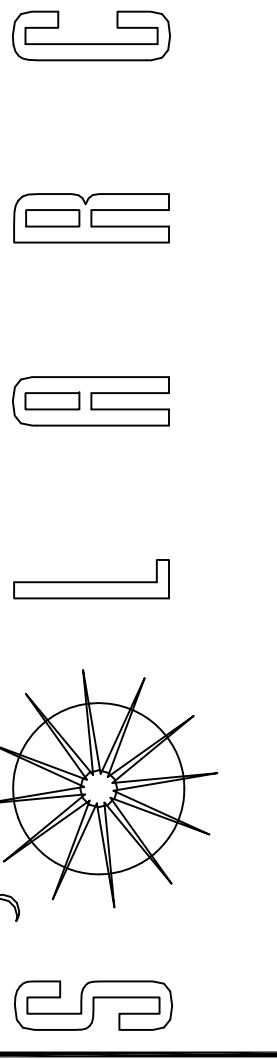
1. REMOVE FLUE FOR (E) BLR-1 & 2 & HORIZONTAL FLUE MANIFOLD BACK TO PENETRATION OF FLUE CHASE. PROVIDE SHEET METAL CAP AT PENETRATION OF CHASE (ABANDON FLUE RISER IN PLACE).
2. (E) CEILING EXHAUST GRILLE & FAN TO REMAIN.
3. (R) FUEL OIL DAY TANK, FUEL OIL SUPPLY ASSEMBLY & ASSOCIATED PIPING & APPURTENANCES IN PIT BELOW ACCESS COVER AND CAP PIPING AT SLAB.
4. (E) WATER METER, BACKFLOW ASSY AND FEEDWATER REGULATOR TO REMAIN.
5. (E) HWS HEADER AND APPURTENANCES TO REMAIN. REFER TO MECHANICAL PLAN 9/M101 FOR CONNECTIONS OF NEW BOILERS TO (E) MANIFOLD.

KEYED SHEET NOTES (DET 09/M101)

1. TERMINATE COMBUSTION AIR DUCT AT RAIN-PROOF WALL HOOD W/ SCREEN. AT (E) OPENING INFILL PANEL, PROVIDE TIGHT PENETRATION OF FRESH AIR DUCT, ATTACHING DUCT TO PANEL WITH ANGLE BRACKETS. SEAL ALL AROUND PENETRATION WITH SILICONE CAULK. IF REQUIRED, CUT (E) 3" HWS/R PIPING TO/ FROM NW ZONE AND DROP PIPING TO CLEAR COMBUSTION AIR DUCT AS SHOWN. RE-INSTALL AND RE-INSULATE HWS/R PIPING.
2. EXTEND (N) BOILER EXHAUST FLUE UP THRU ROOF. PROVIDE NEW CURB AND EXHAUST STACK. FLASH AND SEAL, AND TERMINATE STACK WITH 1/2" MESH WIRE SCREEN. NEW EXHAUST STACK SHALL EXTEND MIN. 3' ABOVE HIGHEST POINT OF SURROUNDING ROOF.
3. NEW BALANCING VALVE ON RETURN TO EACH BOILER.
4. (E) OS&Y VALVE AND STRAINER AT HWS TO REMAIN. REPOSITION AS REQUIRED TO ACCOMMODATE NEW BOILER INSTALLATION.
5. INSTALL CONDENSATE NEUTRALIZATION TANK AT FLOOR OF PIT. PROVIDE A CORROSION RESISTANT BASE MIN. 2" HIGH UNDER TANK. ROUTE CONDENSATE TUBING TO TANK AS SHOWN. REMOVE AND RE-INSTALL (E) IRON DRAIN PIPING AS REQUIRED. EXTEND COND. OUTLET PIPE TO TERMINATE AT (E) FLOOR DRAIN IN PIT.
6. INSTALL NEW VORTEX SHEDDING FLOWMETER. COOLPOINT CP16 OR APPROVED EQUAL.
7. CAP ONE EXISTING HWR TEE AT ORIGINAL CONNECTION TO BLR-2. PROVIDE NEW 4" TEE TO NEW 4" HWR HEADER TO BOILERS, AND 3" HWR BRANCH PIPING TO EACH BOILER, AS SHOWN.
8. PROVIDE 20GA SHEET METAL CAP. OVERLAPPING EDGES OF ORIGINAL FLUE PENETRATION BY A MINIMUM OF 2". CAULK WITH SILICONE. PROVIDE 20GA SHEET METAL CAP AT TOP OF CHIMNEY. OVERLAPPING SIDES OF CHIMNEY BY 2" ALL AROUND, AND HAVING A MINIMUM 1/2" CROWN TO PROVIDE RAIN RUNOFF. CAULK WITH SILICONE.
9. EXTEND VENT PIPING TO OUTDOORS IF REQUIRED FOR REGULATOR SPECIFIED. INSTALL PER MANUFACTURER REQUIREMENTS AND GUIDELINES.
10. RECONNECT (E) MAKEUP AND EXPANSION TANK PIPING TO NEW 4" HWR HEADER.



16 SITE/KEY PLAN
SCALE: 1" = 100'

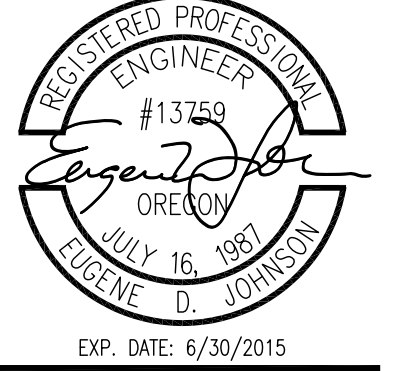


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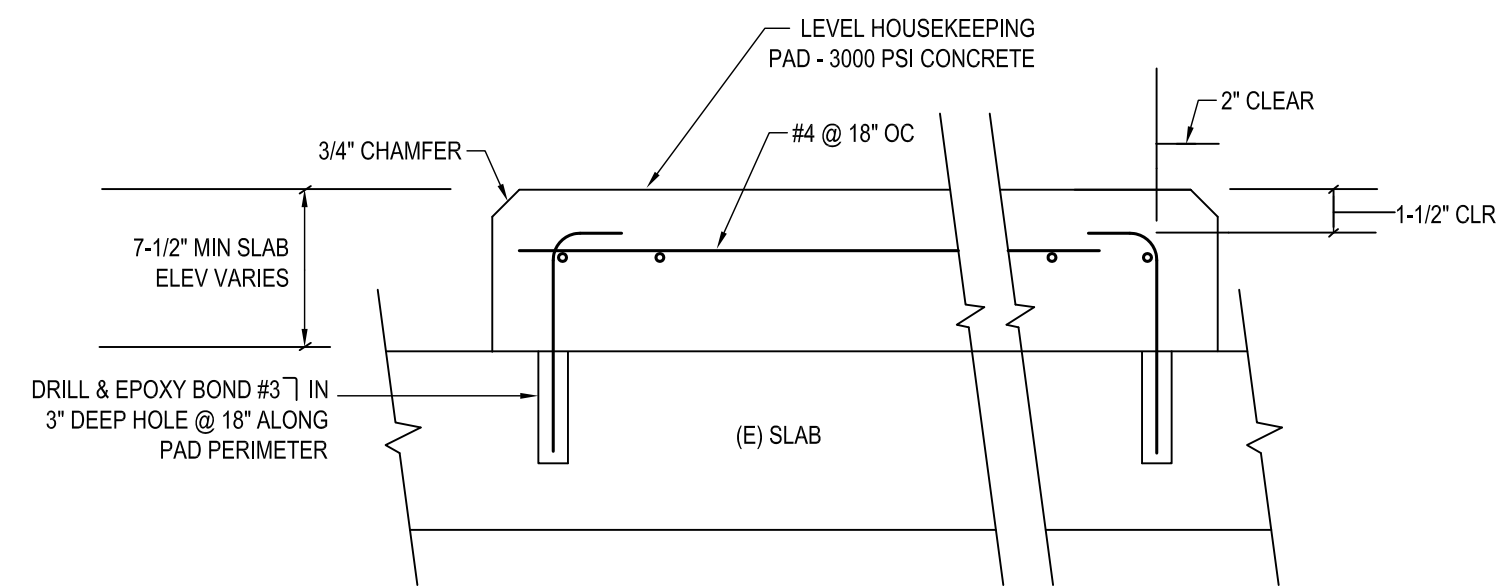


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MECHANICAL PLANS

M101
SHEET 3 OF 4

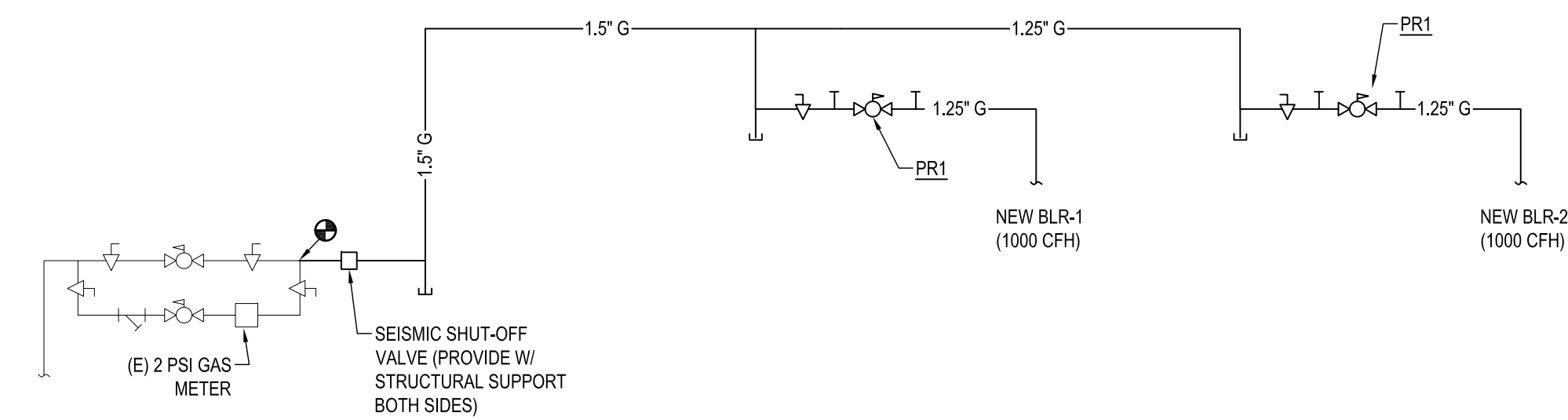
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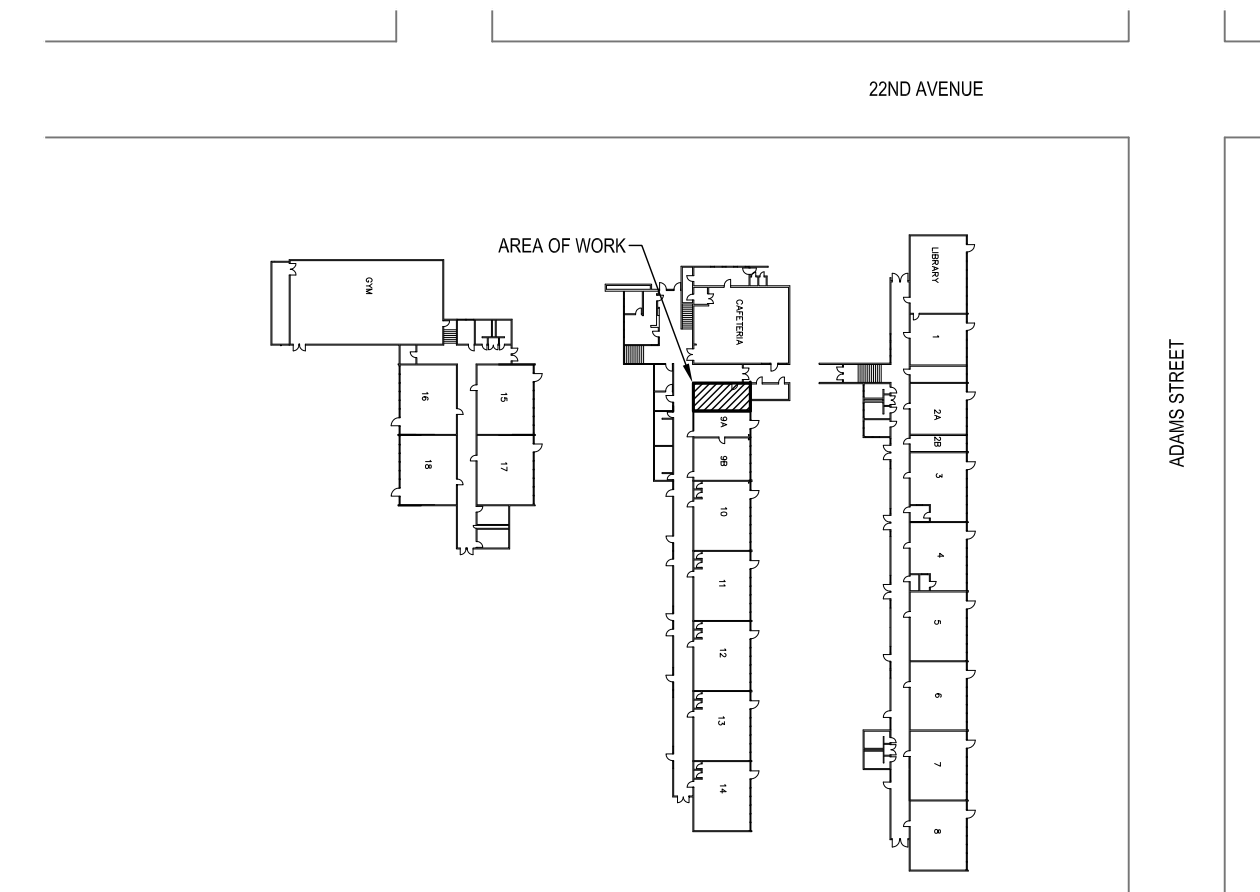
NOTES:

1. MOUNT BOILER TO HOUSEKEEPING PAD WITH ANCHOR BOLTS SIZED PER BOILER MANUFACTURER.

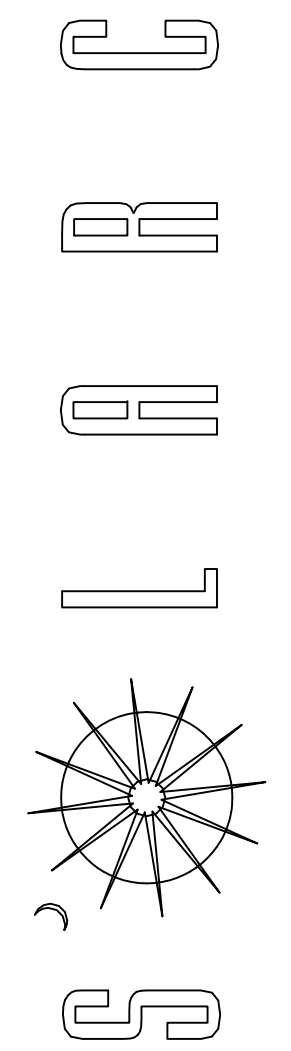
7 HOUSEKEEPING PAD AT BOILER
SCALE: 1/4" = 1'



11 GAS PIPING DIAGRAM
NTS



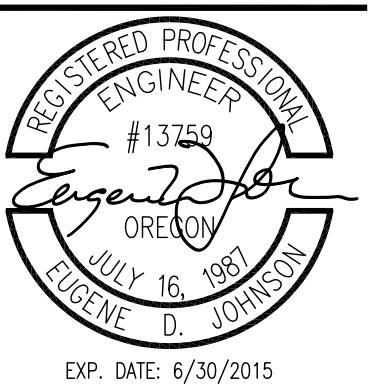
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M201

SHEET 4 OF 4