



# KOHLER ARCHITECTURE INC.

1118 WEST FRONT STREET, MONROE, MICHIGAN 48161  
PHONE: (734)242-6880 FAX: (734)242-6883  
WWW.KOHLERARCHITECT.NET

REGISTERED:  
MICHIGAN  
OHIO

MEMBER:  
A.I.A.  
N.C.A.R.B.

## **ADDENDUM SET #1**

**PROJECT:** Boiler Replacement & Related Work  
at Several Buildings  
for Monroe Public Schools  
#26101, #26102

### **ATTACHMENTS:**

- 26101-26102 SPECIFICATIONS  
26101-26102 Addendum 1 SPECS.pdf
- 26101 HOLLYWOOD ELEMENTARY SCHOOL  
26101 Addendum 1 HWD.pdf
- 26102 ORCHARD CENTER HIGH SCHOOL  
26102 Addendum 1 OHS.pdf

The above plans and specifications are modified, corrected, augmented or supplemented as follows and this Addendum is hereby made a part of the contract documents. Contractor shall note on the Proposal Form that he has received this Addendum Set.

**-END-**



# KOHLER ARCHITECTURE

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## ADDENDUM #1

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PROJECT: Boiler Replacement & Related Work  
at Several Locations  
for Monroe Public Schools  
#26101-26102

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The above specifications are modified, corrected, augmented or supplemented as follows and this Addendum is hereby made a part of the contract documents. Contractor shall note on the Proposal Form that he has received this Addendum.

### ITEM 1: SPECIFICATIONS

- A. Refer to Specification Section 230519 METERS AND GAUGES FOR HVAC PIPING (RE-ISSUED HEREIN):
1. Added Paragraph 2.07 specifying liquid flow meter.
  2. Added Paragraph 3.01.K specifying installation for liquid flow meter.

-END-

Distribution: Monroe Public Schools  
Kleinfelder

**SECTION 230519  
METERS AND GAUGES FOR HVAC PIPING**

**PART 1 GENERAL**

**1.01 SECTION INCLUDES**

- A. Flow meters.
- B. Pressure gauges and pressure gauge taps.
- C. Thermometers and thermometer wells.
- D. Static pressure gauges.

**1.02 RELATED REQUIREMENTS**

- A. Section 230923 - Direct-Digital Control System for HVAC.
- B. Section 232113 - Hydronic Piping.

**1.03 REFERENCE STANDARDS**

- A. ASHRAE Std 135 - BACnet - A Data Communication Protocol for Building Automation and Control Networks; 2024, with Errata (2025).
- B. ASME B40.100 - Pressure Gauges and Gauge Attachments; 2022.
- C. ASTM E1 - Standard Specification for ASTM Liquid-in-Glass Thermometers; 2014 (Reapproved 2025).
- D. ASTM E77 - Standard Test Method for Inspection and Verification of Thermometers; 2014 (Reapproved 2021).
- E. UL 393 - Indicating Pressure Gauges for Fire-Protection Service; Current Edition, Including All Revisions.

**1.04 SUBMITTALS**

- A. See Section 013000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide list that indicates use, operating range, total range and location for manufactured components.
- C. Project Record Documents: Record actual locations of components and instrumentation.
- D. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  - 1. See Section 016000 - Product Requirements, for additional provisions.
  - 2. Extra Pressure Gauges: One of each type and size.

**1.05 FIELD CONDITIONS**

- A. Do not install instrumentation when areas are under construction, except for required rough-in, taps, supports and test plugs.

**PART 2 PRODUCTS**

**2.01 PRESSURE GAUGES**

- A. Pressure Gauges: ASME B40.100, UL 393 drawn steel case, phosphor bronze bourdon tube, rotary brass movement, brass socket, with front recalibration adjustment, black scale on white background.
  - 1. Case: Steel with brass bourdon tube.
  - 2. Size: 4-1/2 inch diameter.
  - 3. Mid-Scale Accuracy: One percent.
  - 4. Scale: Psi.

## 2.02 PRESSURE GAUGE TAPPINGS

- A. Gauge Cock: Tee or lever handle, brass for maximum 150 psi.
- B. Needle Valve: Brass, 1/4 inch NPT for minimum 150 psi.
- C. Pulsation Damper: Pressure snubber, brass with 1/4 inch connections.
- D. Syphon: Steel, Schedule 40, 1/4 inch angle or straight pattern.

## 2.03 STEM TYPE THERMOMETERS

- A. Thermometers - Fixed Mounting: Red- or blue-appearing non-toxic liquid in glass; ASTM E1; lens front tube, cast aluminum case with enamel finish.
- B. Thermometers - Adjustable Angle: Red- or blue-appearing non-toxic liquid in glass; ASTM E1; lens front tube, cast aluminum case with enamel finish, cast aluminum adjustable joint with positive locking device; adjustable 360 degrees in horizontal plane, 180 degrees in vertical plane.

## 2.04 THERMOMETER SUPPORTS

- A. Socket: Brass separable sockets for thermometer stems with or without extensions as required, and with cap and chain.
- B. Flange: 3 inch outside diameter reversible flange, designed to fasten to sheet metal air ducts, with brass perforated stem.

## 2.05 TEST PLUGS

- A. Test Plug: 1/4 inch or 1/2 inch brass fitting and cap for receiving 1/8 inch outside diameter pressure or temperature probe with Nordel core for temperatures up to 350 degrees F.
- B. Test Kit: Carrying case, internally padded and fitted containing one 2-1/2 inch diameter pressure gauges, one gauge adapters with 1/8 inch probes, two 1 inch dial thermometers.

## 2.06 STATIC PRESSURE GAUGES

- A. 3-1/2 inch diameter dial in metal case, diaphragm actuated, black figures on white background, front recalibration adjustment, 2 percent of full scale accuracy.
- B. Inclined manometer, red liquid on white background with black figures, front recalibration adjustment, 3 percent of full scale accuracy.
- C. Accessories: Static pressure tips with compression fittings for bulkhead mounting, 1/4 inch diameter tubing.

## 2.07 LIQUID FLOW METERS

- A. Manufacturers:
  - 1. Badger Meter
  - 2. Dwyer Instruments, Inc.
  - 3. Onicon
- B. Provide an insertion turbine flowmeter complete with NIST traceable, wet calibrated flow-measuring element, integral transmitter, installation valves, depth gage and calibration certificate. Flowmeter shall be wet tabppable, allowing insurrection and removal from the flow stream without system shutdown.
- C. Flowmeter shall be constructed, calibrated, and scaled for the intended application in terms of pipe size, pipe material, installation requirements, expected flow rate, ambient conditions, and fluid characteristics which include but are not limited to pressure, temperature, conductivity, and viscosity.

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- D. Sensing Technology: Axial Turbine flow-measuring element; either single or dual turbine based on application requirements.
- E. Design: Axial insertion turbine design with electronic impedance-based sensing circuit. Dual insertion turbine shall incorporate two contra rotating turbines and an averaging circuit to reduce measurement errors due to flow distortions, such as swirl, when installed in piping configurations with reduced straight run.
- F. Construction: Plated brass or 316L stainless steel with attached tag indicating calibration information.
- G. End Connections:
  - 1. For NPS 1" and Smaller: Threaded or sweat.
  - 2. For NPS 1.25" and Larger: 1" Male NPT for use with 1" full port Isolation Valve, Minimum.
- H. Flow Range: Flow-measuring element and transmitter shall cover operating range of equipment or system served.
- I. Accuracy: Flowmeter shall provide calibrated outputs, directly from the integral transmitter, throughout the operating range with the accuracy stated as follows:
- J. Calibration: Each flowmeter shall receive a wet calibration, within the expected operating range, against a primary volumetric standard that is traceable to NIST.
- K. Local display shall provide instantaneous flow rate information, totalized flow information and shall be factory configured for connection to a specific flowmeter.
- L. Warranty: Each flowmeter shall be covered by the manufacturer's one year no fault and three year warranty.
- M. Maximum Pressure Rating: 400 psig or greater.
- N. Maximum Temperature Rating: 280 degrees F or greater.
- O. Accuracy: Within 0.5 percent of value applied to manufacturer-specified velocity range.
- P. Furnish with controls compatible with Temperature Controls System. Refer to Specification Section 230923 and coordinate with Temperature Controls Contractor.

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### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install in accordance with manufacturer's instructions.
- B. Provide one pressure gauge per pump, installing taps before strainers and on suction and discharge of pump. Pipe to gauge.
- C. Install pressure gauges with pulsation dampers. Provide gauge cock to isolate each gauge. Provide siphon on gauges in steam systems. Extend nipples and siphons to allow clearance from insulation.
- D. Install thermometers in piping systems in sockets in short couplings. Enlarge pipes smaller than 2-1/2 inch for installation of thermometer sockets. Ensure sockets allow clearance from insulation.
- E. Install thermometer sockets adjacent to controls system thermostat, transmitter, or sensor sockets. Refer to Section 230943. Where thermometers are provided on local panels, duct or pipe mounted thermometers are not required.
- F. Coil and conceal excess capillary on remote element instruments.
- G. Provide instruments with scale ranges selected according to service with largest appropriate scale.

- H. Install gauges and thermometers in locations where they are easily read from normal operating level. Install vertical to 45 degrees off vertical.
- I. Adjust gauges and thermometers to final angle, clean windows and lenses, and calibrate to zero.
- J. Locate test plugs adjacent thermometers and thermometer sockets.

- K. Install positive displacement meters with isolating valves on inlet and outlet to AWWA M6. Provide full line size valved bypass with globe valve for liquid service meters.



**END OF SECTION 230519**



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## ADDENDUM #1

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PROJECT: Boiler Replacement & Related Work  
at Hollywood Elementary School  
for Monroe Public Schools  
#26101

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The above plans are modified, corrected, augmented or supplemented as follows and this Addendum is hereby made a part of the contract documents. Contractor shall note on the Proposal Form that he has received this Addendum.

### ITEM 1: MECHANICAL DRAWINGS

- A. Refer to Drawing M1.03 FLOW DIAGRAM (RE-ISSUED HEREIN):
  - 1. Updated Base Design and Alternate OHS-M1 flow diagrams to include makeup water meter.
  - 2. Added General Note 4 to Base Design and Alternate OHS-M1 flow diagrams.
  
- B. Refer to Drawing M2.01 HVAC PLAN BASE BID (RE-ISSUED HEREIN):
  - 1. Updated plan drawing to include makeup water meter.
  - 2. Changed existing compressors and temperature control panel to remain instead of being demolished.
  
- C. Refer to Drawing M2.01A HVAC PLAN BASE BID (RE-ISSUED HEREIN):
  - 1. Updated plan drawing to include makeup water meter.
  - 3. Changed existing compressors and temperature control panel to remain instead of being demolished.
  
- D. Refer to Drawing M6.01 TEMPERATURE CONTROLS (RE-ISSUED HEREIN):
  - 1. On Heating Water System Temperature Control System Point List, added makeup water flow meter.
  - 2. On Temperature Control System Scope and Sequences in the Hot Water System section, added Remark 6 for makeup water meter.

### ITEM 2: ELECTRICAL DRAWINGS

- A. Refer to Drawing E1.02 ELECTRICAL LEGEND SINGLE-LINE & PANEL SCHEDULES (RE-ISSUED HEREIN):
  - 1. Revised load summary for make-up water meter load.
  - 2. Revised panel LP-H to now include make-up water meter on circuit number 12.
  
- B. Refer to Drawing E2.01 BOILER ROOM LIGHTING AND POWER PLANS (RE-ISSUED HEREIN):

1. Updated plans to keep existing compressors and temperature control panel to remain instead of being demolished.
2. Added make-up water meter circuit.

**-END-**

# Mechanical Compliance Certificate

## Project Information

Energy Code: 2021 IECC  
 Project Title: Orchard Center High School Boiler Replacement  
 Location: Monroe, Michigan  
 Climate Zone: 5a  
 Project Type: Alteration

Construction Site: Owner/Agent: Designer/Contractor:

## Mechanical Systems List

Quantity	Component	Description
<b>HVAC Systems</b>		
1	Unit Heater HO-UH-1	Heating: 1 each - Unit Heater (HO-UH-1), Electric, Capacity - 25600 kBtu/h No minimum efficiency requirement applies Fan System: HO-UH-1   Boiler Room - Compliance (Motor nameplate HP and fan efficiency method)   Passes Fans: UH-1 Supply, Constant Volume, 700 CFM, 0.3 motor nameplate hp, 1.72 fan energy index SYSTEM VERIFICATION REQUIRED.
<b>HVAC Plants</b>		
2	Boiler HO-B-1 & 2	Heating: Hot Water Boiler, Capacity 725 kBtu/h, Unknown Proposed Efficiency: 97.20 % Et, Required Efficiency: 82.00 % Et PLANT COMPLIANCE REQUIREMENT UNKNOWN Alteration details have not been specified

## Mechanical Compliance Statement

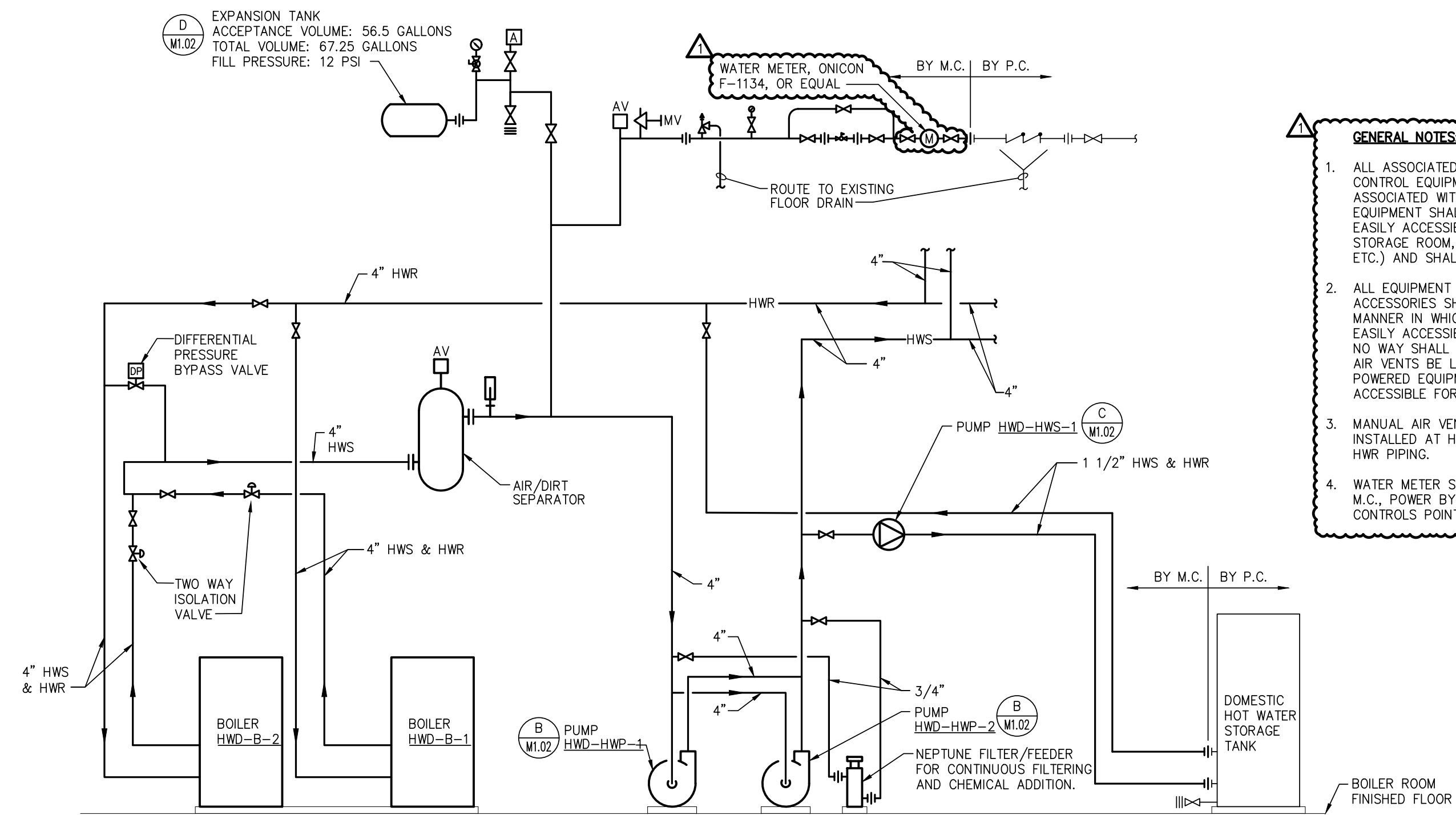
Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheckWeb and to comply with any applicable proprietary requirements listed in the Inspection Checklist.

A. SATTLER, MECHANICAL ENGINEER  
 Signature: [Signature]  
 Date: 01/14/2026

Report Title: MPS Hollywood Elem Boiler Replacement

Report Date: 1/14/26, 2:09 PM

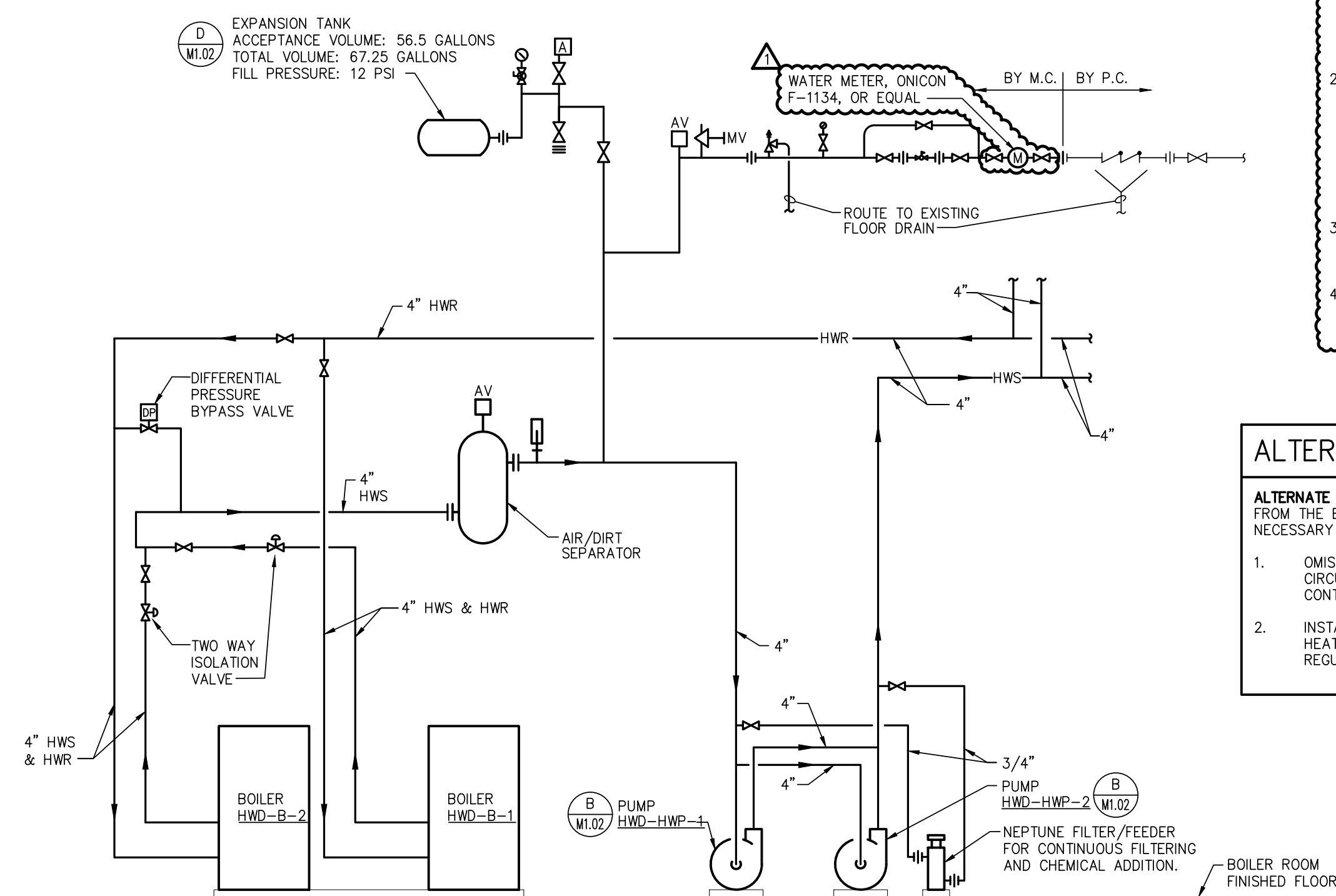
3 of 11



HEATING WATER SYSTEM FLOW DIAGRAM (BASE BID)

SCALE: NONE

- GENERAL NOTES:**
1. ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN EASILY ACCESSIBLE SPACE (I.E. STORAGE ROOM, MECHANICAL ROOM, ETC.) AND SHALL BE CLEARLY TAGGED.
  2. ALL EQUIPMENT AND PIPING ACCESSORIES SHALL BE INSTALLED IN A MANNER IN WHICH ALL ITEMS ARE EASILY ACCESSIBLE AND MAINTAINED. IN NO WAY SHALL MANUAL OR AUTOMATIC AIR VENTS BE LOCATED ABOVE POWERED EQUIPMENT OR NOT ACCESSIBLE FOR REPLACEMENT.
  3. MANUAL AIR VENTS SHALL BE INSTALLED AT HIGH POINTS IN HWS AND HWR PIPING.
  4. WATER METER SHALL BE FURNISHED BY M.C., POWER BY T.C.C., AND PROVIDED CONTROLS POINTS BY T.C.C.



HEATING WATER SYSTEM FLOW DIAGRAM (ALT HWD-M1)

SCALE: NONE

- GENERAL NOTES:**
1. ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN EASILY ACCESSIBLE SPACE (I.E. STORAGE ROOM, MECHANICAL ROOM, ETC.) AND SHALL BE CLEARLY TAGGED.
  2. ALL EQUIPMENT AND PIPING ACCESSORIES SHALL BE INSTALLED IN A MANNER IN WHICH ALL ITEMS ARE EASILY ACCESSIBLE AND MAINTAINED. IN NO WAY SHALL MANUAL OR AUTOMATIC AIR VENTS BE LOCATED ABOVE POWERED EQUIPMENT OR NOT ACCESSIBLE FOR REPLACEMENT.
  3. MANUAL AIR VENTS SHALL BE INSTALLED AT HIGH POINTS IN HWS AND HWR PIPING.
  4. WATER METER SHALL BE FURNISHED BY M.C., POWER BY T.C.C., AND PROVIDED CONTROLS POINTS BY T.C.C.

### ALTERNATE

**ALTERNATE HWD-M1:** STATE THE AMOUNT TO BE ADDED TO OR SUBTRACTED FROM THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE FOLLOWING:

1. OMISSION OF THE INSTALLATION OF INDIRECT WATER HEATER PIPING AND CIRCULATION PUMP HWD-HWP-1 AS WELL AS ASSOCIATED TEMPERATURE CONTROLS.
2. INSTALLATION OF N.G. CONNECTION TO DOMESTIC GAS-FIRED WATER HEATER, 1-1/4" GAS PIPING AS SHOWN ON PLANS, NEW GAS PRESSURE REGULATOR, AND TEMPERATURE CONTROLS.

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED, AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



**KOHLER ARCHITECTURE**  
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 MONROE, MICHIGAN 48161  
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 Perrysburg, OH 43051 | 419.352.7337

DATE	DESCRIPTION
02.09.2026	BIDDING & STATE REVIEW
03.06.2026	ADDENDUM #1

**BOILER REPLACEMENT & RELATED WORK**  
**HOLLYWOOD ELEMENTARY SCHOOL**  
 1135 RIVERVIEW AVE., MONROE, MICHIGAN 48162  
**MONROE PUBLIC SCHOOLS**  
 1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

JOB # 26101

FLOW DIAGRAM

**M1.03**

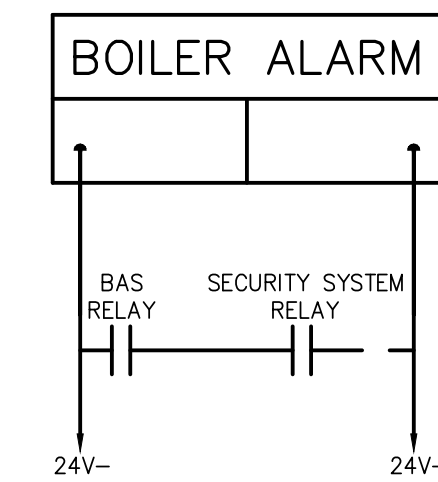
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TEMPERATURE CONTROL SYSTEM POINT LIST										
SYSTEM POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	
HEATING WATER SYSTEM										
BOILER HWD-B-1 HOT WATER RETURN TEMP	X						X		X	
BOILER HWD-B-1 HOT WATER SUPPLY TEMP	X						X		X	
BOILER HWD-B-2 HOT WATER RETURN TEMP	X						X		X	
BOILER HWD-B-2 HOT WATER SUPPLY TEMP	X						X		X	
BOILER HWD-B-1 & HWD-B-2 HOT WATER SUPPLY TEMP SETPOINT RESET (QTY. 2)		X					X		X	
BOILER HWD-B-1 STATUS			X				X		X	
BOILER HWD-B-2 STATUS			X				X		X	
BOILER HWD-B-1 ENABLE				X					X	
BOILER HWD-B-2 ENABLE				X					X	
BOILER HWD-B-1 FAILURE								X		
BOILER HWD-B-2 FAILURE								X		
BOILER HWD-B-1 RUNTIME EXCEEDED								X		
BOILER HWD-B-2 RUNTIME EXCEEDED								X		
BOILER HWD-B-1 HIGH HOT WATER SUPPLY TEMP								X		
BOILER HWD-B-2 HIGH HOT WATER SUPPLY TEMP								X		
BOILER HWD-B-1 LOW HOT WATER SUPPLY TEMP								X		
BOILER HWD-B-2 LOW HOT WATER SUPPLY TEMP								X		
BOILER HWD-B-1 ISOLATION VALVE CLOSE		X								
BOILER HWD-B-1 ISOLATION VALVE OPEN		X								
BOILER HWD-B-1 ISOLATION VALVE POSITION				X			X		X	
BOILER HWD-B-2 ISOLATION VALVE CLOSE		X								
BOILER HWD-B-2 ISOLATION VALVE OPEN		X								
BOILER HWD-B-2 ISOLATION VALVE POSITION				X			X		X	
HOT WATER DIFFERENTIAL PRESSURE	X						X		X	
HOT WATER DIFFERENTIAL PRESSURE SETPOINT					X		X		X	
HIGH HOT WATER DIFFERENTIAL PRESSURE								X		
LOW HOT WATER DIFFERENTIAL PRESSURE								X		
PRIMARY HOT WATER RETURN TEMP	X						X		X	
PRIMARY HOT WATER SUPPLY TEMP	X						X		X	
HIGH PRIMARY HOT WATER SUPPLY TEMP								X		
LOW PRIMARY HOT WATER SUPPLY TEMP								X		
HOT WATER PUMP HWD-HWP-1 VFD SPEED		X					X		X	
HOT WATER PUMP HWD-HWP-2 VFD SPEED		X					X		X	
HOT WATER PUMP HWD-HWP-1 VFD FAULT			X					X	X	
HOT WATER PUMP HWD-HWP-2 VFD FAULT			X					X	X	
HOT WATER PUMP HWD-HWP-1 STATUS			X				X		X	
HOT WATER PUMP HWD-HWP-2 STATUS			X				X		X	
HOT WATER PUMP HWD-HWP-1 START/STOP				X					X	
HOT WATER PUMP HWD-HWP-2 START/STOP				X					X	
HOT WATER PUMP HWD-HWP-1 FAILURE								X		
HOT WATER PUMP HWD-HWP-2 FAILURE								X		
HOT WATER PUMP HWD-HWP-1 RUNNING IN HAND								X		
HOT WATER PUMP HWD-HWP-2 RUNNING IN HAND								X		
HOT WATER PUMP HWD-HWP-1 RUNTIME EXCEEDED								X		
HOT WATER PUMP HWD-HWP-2 RUNTIME EXCEEDED								X		
MAKEUP WATER FILL			X			X		X	X	
MAKEUP WATER FLOW METER			X			X		X	X	

TEMPERATURE CONTROL SYSTEM POINT LIST												
SYSTEM POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC		
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND		ALARM	
DOMESTIC WATER HEATER (BASE BID)												
STORAGE TANK TEMPERATURE	X								X		X	
DOMESTIC HOT WATER SUPPLY TEMPERATURE	X								X		X	
DOMESTIC HOT WATER RETURN TEMPERATURE	X								X		X	
TANK SUPPLY TEMP SETPOINT RESET		X							X		X	
WATER HEATER STATUS			X						X		X	
WATER HEATER ENABLE				X					X		X	
HOT WATER DIFFERENTIAL PRESSURE	X								X		X	
HOT WATER DIFFERENTIAL PRESSURE SETPOINT						X			X		X	
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 STATUS			X						X		X	
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 START/STOP				X					X		X	
TANK CIRCULATION PUMP HWD-HWS-1 STATUS			X						X		X	
TANK CIRCULATION PUMP HWD-HWS-1 FAILURE										X		
TANK CIRCULATION PUMP HWD-HWS-1 IN HAND										X		
TANK CIRCULATION PUMP HWD-HWS-1 RUNTIME ALARM										X		
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 FAILURE										X		
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 STATUS			X						X		X	
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 IN HAND										X		
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 RUNTIME ALARM										X		
STORAGE TANK FAILURE										X		
STORAGE TANK RUNTIME EXCEEDED										X		
STORAGE TANK HIGH HOT WATER SUPPLY TEMP										X		
STORAGE TANK LOW HOT WATER SUPPLY TEMP										X		
HIGH HOT WATER DIFFERENTIAL PRESSURE										X		
LOW HOT WATER DIFFERENTIAL PRESSURE										X		

TEMPERATURE CONTROL SYSTEM POINT LIST												
SYSTEM POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC		
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND		ALARM	
DOMESTIC WATER HEATER (ALTERNATE HWD-M1)												
STORAGE TANK TEMPERATURE	X								X		X	
DOMESTIC HOT WATER SUPPLY TEMPERATURE	X								X		X	
DOMESTIC HOT WATER RETURN TEMPERATURE	X								X		X	
TANK SUPPLY TEMP SETPOINT RESET		X							X		X	
WATER HEATER STATUS			X						X		X	
WATER HEATER ENABLE				X					X		X	
HOT WATER DIFFERENTIAL PRESSURE	X								X		X	
HOT WATER DIFFERENTIAL PRESSURE SETPOINT						X			X		X	
STORAGE TANK FAILURE										X		
STORAGE TANK RUNTIME EXCEEDED										X		
STORAGE TANK HIGH HOT WATER SUPPLY TEMP										X		
STORAGE TANK LOW HOT WATER SUPPLY TEMP										X		
HIGH HOT WATER DIFFERENTIAL PRESSURE										X		
LOW HOT WATER DIFFERENTIAL PRESSURE										X		
GAS VALVE ISOLATION VALVE CLOSE		X										
GAS VALVE ISOLATION VALVE OPEN		X										
GAS VALVE ISOLATION VALVE POSITION					X				X		X	
AIR PRESSURE SWITCH			X									
BLOCKED DRAIN SWITCH			X									
GAS PRESSURE SWITCH			X									
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 FAILURE										X		
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 STATUS			X						X		X	
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 IN HAND										X		
DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 RUNTIME ALARM										X		

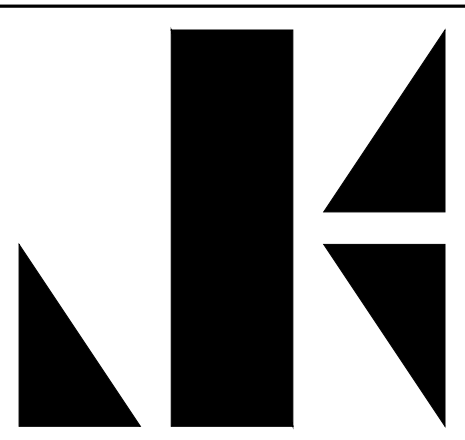
TEMPERATURE CONTROL SYSTEM SEQUENCE OF OPERATION												
<b>GENERAL NOTES:</b>												
THE TEMPERATURE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPERATURE CONTROL AND INTERLOCK WIRING REQUIRED FOR THE PROJECT. ALL EXPOSED TO VIEW 24V AND ALL 120V TEMPERATURE CONTROL WIRING SHALL BE ROUTED IN ITS OWN SEPARATE CONDUIT FOR ENTIRE ROUTING; REFER TO THE ELECTRICAL SPECIFICATIONS FOR CONDUIT MATERIAL AND INSTALLATION REQUIREMENTS.												
THE INTENT OF THIS SPECIFICATION IS TO VERBALLY DESCRIBE THE DESIRED ACTIONS OF THE HVAC EQUIPMENT SPECIFIED HEREIN FOR THIS FACILITY. EACH TEMPERATURE CONTROL CONTRACTOR (T.C.C.) AND EACH MECHANICAL CONTRACTOR (M.C.) SHALL FAMILIARIZE HIMSELF WITH THESE WRITTEN SEQUENCES, WHETHER OR NOT EXPLICITLY SHOWN ON THE DRAWINGS, ALL DEVICES AND ITEMS REQUIRED FOR THE EXECUTION OF THESE SEQUENCES ARE THE RESPONSIBILITY OF THE BIDDING CONTRACTOR.												
ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN EASILY ACCESSIBLE SPACE (I.E. STORAGE ROOM, MECHANICAL ROOM, ETC.) AND SHALL BE CLEARLY TAGGED.												
<b>TEMPERATURE CONTROL SYSTEM GRAPHICS SCOPE</b>												
1. THE TEMPERATURE CONTROL SCOPE SHALL INCLUDE BUT NOT BE LIMITED TO COMPLETE DEMOLITION OF EXISTING PNEUMATIC CONTROLS ASSOCIATED WITH BOILERS, INSTALLATION OF COMPLETE NEW OPEN PROTOCOL DDC CONTROL SYSTEM (IE INTO DISTRICTS ENERGY MANAGEMENT SYSTEM), GRAPHICS DISPLAY AND ALL ASSOCIATED ACCESSORIES.												
2. DISTRICT WIDE BOILER MONITOR PAGE: UPDATE EXISTING BUILDING BOILER AND SYSTEM PAGE FOR ASSOCIATED SCHOOL WITH NEW BOILER AND HEATING WATER SYSTEM.												
3. BUILDING PAGE: A. UPDATE BUILDING MAIN PAGE TO INCLUDE NEW BOILER MONITORING POINTS FOR ENABLE, HW PUMP STATUS AND HWS TEMP AND SETPOINT TEMPERATURE. INCLUDE LINK TO HOT WATER SYSTEM PAGE FOR ASSOCIATED BUILDING.												
4. ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN A READILY ACCESSIBLE LOCATION, I.E. STORAGE ROOM, CLOSET, MECHANICAL ROOM, AND BE CLEARLY LABELED.												
5. COORDINATE ALL SYSTEM ALARMS WITH APPROPRIATE MONROE PUBLIC SCHOOLS CONTACT. VERIFY WITH OWNER IN WRITING UPON COMPLETION.												
6. COORDINATE ALL SYSTEM SET POINTS AND SCHEDULES WITH APPROPRIATE MONROE PUBLIC SCHOOLS CONTACT. VERIFY WITH OWNER IN WRITING UPON COMPLETION.												
<b>BOILER ROOM HEATING AND VENTILATION (EXHAUST FAN HWD-FF-1, LOUVER L-E1 DAMPER, AND UNIT HEATER HWD-UH-1):</b>												
1. SPACE COOLING: SUPPLY FAN HWD-SF-1 SHALL ENERGIZE AND LOUVER HWD-L-1 DAMPER SHALL OPEN WHEN SPACE TEMP EXCEEDS 80 DEGREES F (ADJUSTABLE). WHEN SPACE TEMPERATURE DROPS BELOW SETPOINT, FAN SHALL DE-ENERGIZE AND DAMPERS SHALL CLOSE.												
2. SPACE HEATING: UNIT HEATER HWD-UH-1 SHALL ENERGIZE WHEN SPACE TEMPERATURE FALLS BELOW 55 DEGREES F (ADJUSTABLE). WHEN SPACE TEMPERATURE EXCEEDS SETPOINT, UNIT HEATER SHALL DE-ENERGIZE.												
<b>HOT WATER SYSTEM (BOILERS HWD-B-1 &amp; 2, HEATING WATER PRIMARY PUMPS HWD-HWP-1 &amp; 2, AND INDIRECT WATER HEATER CIRCULATION PUMP HWD-HWS-3):</b>												
1. EACH BOILER IS PROVIDED WITH ALL NECESSARY SAFETY AND OPERATING CONTROLS BY THE BOILER MANUFACTURER. EACH BOILER'S OPERATING TEMPERATURE IS MANUALLY SET TO MAINTAIN 180F (ADJ.) WATER TEMPERATURE. THE HIGH LIMIT AQUASTAT SUPPLIED WITH THE BOILER SHALL BE SET AT 210F (ADJ.).												
2. THE BOILER SYSTEM SHALL BE INITIATED BELOW 65F (ADJ.) OUTSIDE AIR TEMPERATURE. THE LEAD BOILER SHALL BE STARTED WITH THE FOLLOWING SEQUENCE: A. UPON A CALL FOR HEAT FROM THE BOILER CONTROLS AND UPON A PROOF OF FLOW FROM A CURRENT SWITCH ON THE LEAD HOT WATER PUMP, THE BOILER ISOLATION VALVE SHALL OPEN, THE BOILER SHALL BE ENABLED. B. SHOULD LEAD HOT WATER PUMP FAIL TO PROVE FLOW, LAG PUMP SHALL ENABLE. IF LAG PUMP FAILS, THE BOILER SHALL BE DISABLED AND AN ALARM SHALL BE GENERATED THROUGH THE DDC SYSTEM.												
3. HOT WATER LOOP SHALL BE LINEARLY RESET BASED ON OUTDOOR AIR TEMPERATURE.												
4. PROVIDE LEAD/LAG CONTROL TO ALLOW SELECTION OF LEAD/LAG BOILER. BOILERS SHALL ALTERNATE BETWEEN LEAD AND LAG AUTOMATICALLY ON A WEEKLY BASIS (BY TCC).												
5. LEAD BOILER'S ASSOCIATED ISOLATION VALVE SHALL OPEN, AND BOILER SHALL FIRE ON LOW FIRE. BOILER SHALL MODULATE AS REQUIRED TO MAINTAIN LOOP TEMPERATURE. IF LEAD BOILER CAN NOT MAINTAIN LOOP TEMPERATURE, LEAD BOILER SHALL RAMP DOWN TO LOW FIRE, AND ISOLATION VALVE FOR SECOND BOILER SHALL OPEN AND SECOND BOILER SHALL FIRE ON LOW FIRE. BOTH BOILERS SHALL MODULATE TO MAINTAIN LOOP TEMPERATURE. ONCE LOOP IS SATISFIED LAG BOILER SHALL DE-ENERGIZE. AFTER FIVE MINUTES ISOLATION VALVE SHALL CLOSE.												
6. PROVIDE LEAD/LAG CONTROL TO ALLOW SELECTION OF LEAD/LAG PUMP. PUMPS SHALL ALTERNATE BETWEEN LEAD AND LAG AUTOMATICALLY ON A WEEKLY BASIS (BY TCC).												
7. MAKEUP WATER FILL: IF SYSTEM MEASURES MAKEUP WATER FLOW RATE, GENERATE ALARM FOR POTENTIAL LEAK.												
<b>DOMESTIC HOT WATER:</b>												
1. BASE BID ONLY: ASSOCIATED DOMESTIC INDIRECT WATER HEATER TANK CIRCULATION PUMP HWD-HWS-1 SHALL ENERGIZE TO MAINTAIN INDIRECT HOT WATER STORAGE TANKS WATER TEMPERATURE. WHEN STORAGE TANK SET POINT IS MET, CIRCULATION PUMP SHALL DE-ENERGIZE. DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 SHALL OPERATE AS REQUIRED TO MEET DOMESTIC HOT WATER LOOP SETPOINTS.												
2. ALTERNATE HWD-M1 ONLY: ASSOCIATED DOMESTIC GAS-FIRED WATER HEATER SHALL MODULATE TO MAINTAIN HOT WATER TANK WATER TEMPERATURE SETPOINT. DOMESTIC HOT WATER CIRCULATION PUMP HWD-CP-1 SHALL OPERATE AS REQUIRED TO MEET DOMESTIC HOT WATER LOOP SETPOINTS.												



BOILER ALARM BAS AND SECURITY INTERFACE DIAGRAM		
1.	TEMPERATURE CONTROLS CONTRACTOR SHALL PROVIDE ALL NECESSARY ITEMS TO ALLOW OWNERS SECURITY SYSTEM TO TIE INTO BOILER ALARM.	
2.	TEMPERATURE CONTROL CONTRACTOR SHALL HIRE DIRECT OWNERS SECURITY CONTRACTOR TO PROVIDE FINAL INTERLOCK FROM RELAY TO THEIR CONTROL SYSTEM PANEL.	
3.	SECURITY CONTRACTOR CONTACT IS: NICK WERT AT HABITECH 419-205-1147	

ALTERNATE	
ALTERNATE HWD-M1: STATE THE AMOUNT TO BE ADDED TO OR SUBTRACTED FROM THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE FOLLOWING:	
1.	OMISSION OF THE INSTALLATION OF INDIRECT WATER HEATER PIPING AND CIRCULATION PUMP HWD-HWS-1 AS WELL AS ASSOCIATED TEMPERATURE CONTROLS.
2.	INSTALLATION OF N.G. CONNECTION TO DOMESTIC GAS-FIRED WATER HEATER, 1-1/4" GAS PIPING AS SHOWN ON PLANS, NEW GAS PRESSURE REGULATOR, AND TEMPERATURE CONTROLS.

THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED USING A DIGITAL SIGNATURE AND DATE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED, AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.



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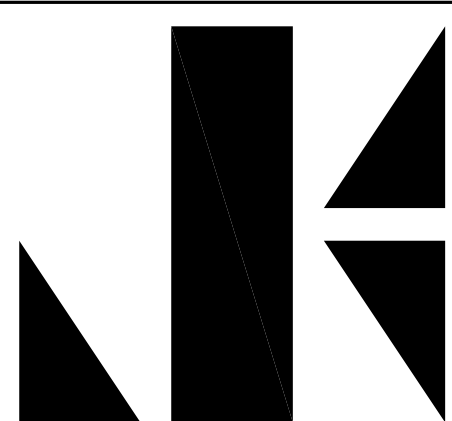
Mechanical, Electrical, Plumbing, Fire Protection  
5201 Levis Commons Blvd, Suite 5201  
Perrysburg, OH 43051 | 419.352.7537

DATE	DESCRIPTION
02.09.2026	BIDDING & STATE REVIEW
03.06.2026	ADDENDUM #1

**BOILER REPLACEMENT & RELATED WORK**  
**HOLLYWOOD ELEMENTARY SCHOOL**  
1135 RIVERVIEW AVE., MONROE, MICHIGAN 48162  
**MONROE PUBLIC SCHOOLS**  
1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

JOB # 26101

TEMPERATURE CONTROLS  
**M6.01**



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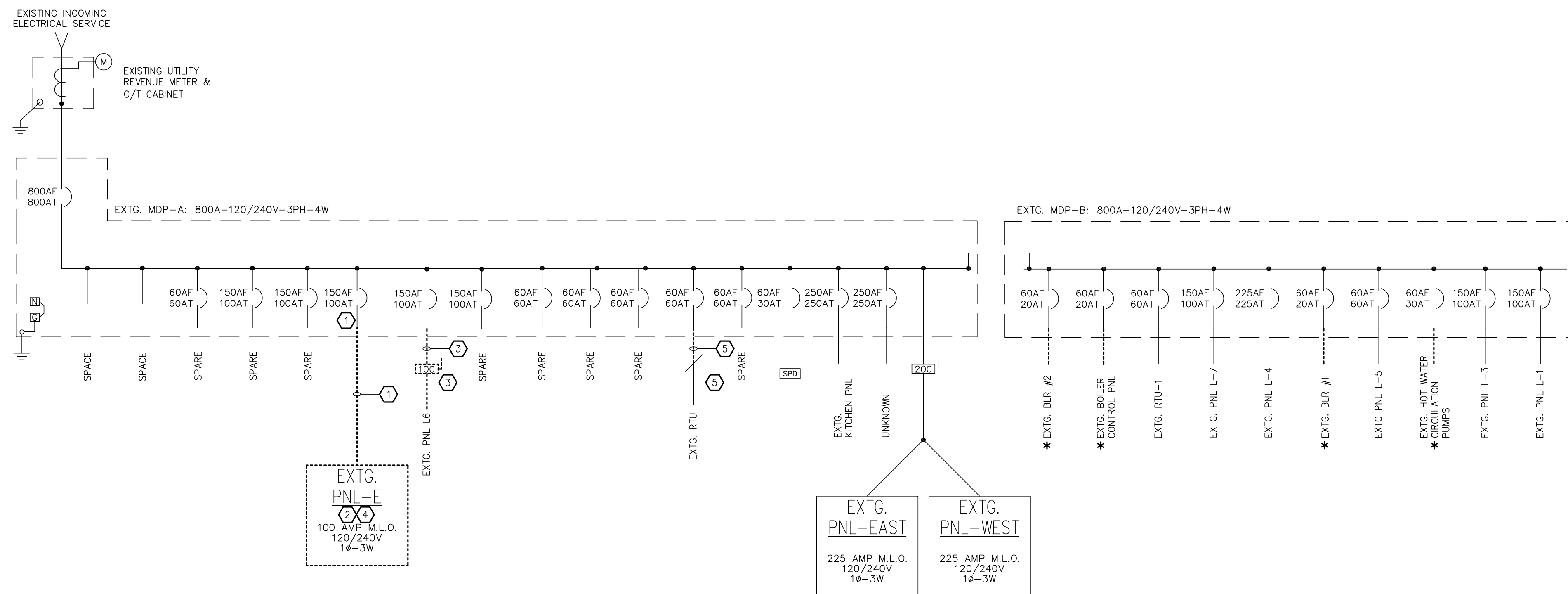


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"EXTG. 800A SERVICE" LOAD SUMMARY			
LOAD TYPE		CONNECTED VA	DEMAND FACTOR
EXISTING LOAD **	NEC 220.87	54167	125.00%
REMOVED LOADS		-8730	100%
HVAC EQUIPMENT	NEC 220.60	18339	100%
DEDICATED LOADS	NEC 220.14A	756	100%
LIGHTING LOADS	NEC 230.42	240	100%
TOTAL LOAD IN VA		64772	
TOTAL AMPS @ 240VOLT-3PHASE		156	189

\*\* EXISTING LOAD CONSIST OF HIGHEST ELECTRICAL DEMAND RECORDED IN FEBRUARY 2025 PLUS NEC 220.87 OF 125%.

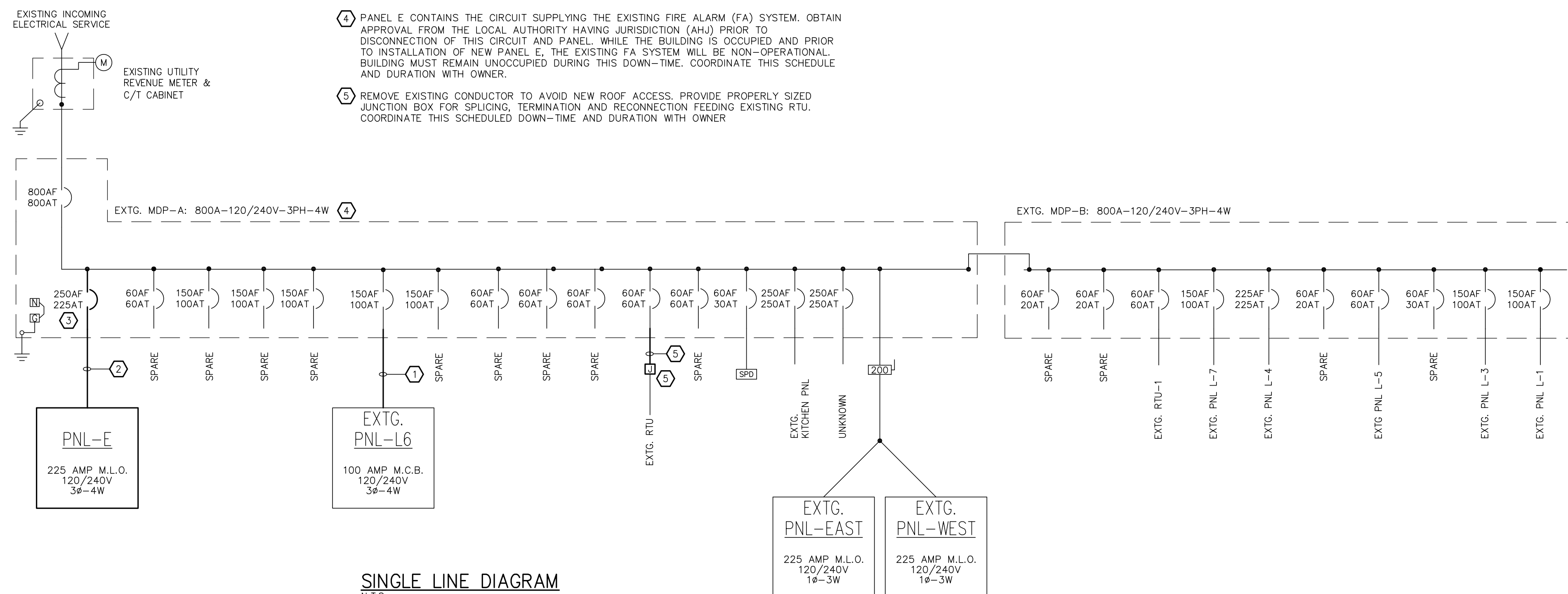
BRANCH CIRCUIT CONDUCTOR SIZING CHART		
MAX. CIRCUIT LENGTH TO FARTHEST OUTLET	CIRCUIT VOLTAGE	MINIMUM CIRCUIT SIZE
100 FEET	120	#12 AWG
165 FEET	120	#10 AWG
265 FEET	120	#8 AWG
400 FEET	120	#6 AWG
250 FEET	277	#12 AWG
400 FEET	277	#10 AWG
550 FEET	277	#8 AWG
750 FEET	277	#6 AWG



**SINGLE LINE DIAGRAM - DEMO**  
N.T.S.

**SINGLE-LINE NOTES**

- REMOVE EXISTING ITEM INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE. EXISTING BREAKER SHALL BE REMAIN AND BECOME A SPARE.
- REMOVE EXISTING PANEL E, RE-WORK AND RE-USE ALL EXISTING FEEDERS AND BRANCH CONDUCTORS. VERIFYING CONDUCTOR INTEGRITY AND AMPACITY, PROVIDE PROPERLY SIZED JUNCTION BOXES FOR SPLICING, TERMINATION, AND RECONNECTION. COORDINATE ALL CONNECTIONS WITH NEW PANEL SCHEDULE. REFERENCE SHEET E3.01 FOR EXACT PANEL LOCATION AND WIRING DETAILS.
- REMOVE EXISTING DISCONNECT, ASSOCIATED CONDUIT, AND WIRING NO LONGER IN SERVICE. EXISTING BREAKER SHALL BE REMAIN FOR RE-USE.
- PANEL E CONTAINS THE CIRCUIT SUPPLYING THE EXISTING FIRE ALARM (FA) SYSTEM. OBTAIN APPROVAL FROM THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) PRIOR TO DISCONNECTION OF THIS CIRCUIT AND PANEL. WHILE THE BUILDING IS OCCUPIED AND PRIOR TO INSTALLATION OF NEW PANEL E, THE EXISTING FA SYSTEM WILL BE NON-OPERATIONAL. BUILDING MUST REMAIN UNOCCUPIED DURING THIS DOWN-TIME. COORDINATE THIS SCHEDULE AND DURATION WITH OWNER.
- REMOVE EXISTING CONDUCTOR TO AVOID NEW ROOF ACCESS. PROVIDE PROPERLY SIZED JUNCTION BOX FOR SPLICING, TERMINATION AND RECONNECTION FEEDING EXISTING RTU. COORDINATE THIS SCHEDULED DOWN-TIME AND DURATION WITH OWNER.



**SINGLE LINE DIAGRAM**  
N.T.S.

**SINGLE-LINE NOTES**

- #2 + #8C - 1.5" - ROUTE CONDUIT ALONG THE BOILER ROOM STRUCTURE, AND PENETRATE THROUGH JANITOR ROOM 120, AVOIDING THE NEW ROOF ACCESS. MATCH THE EXISTING ROUTING WHERE POSSIBLE, AVOIDING THE NEW ROOF ACCESS.
- #4/0 + 1#4G - 2.5" -
- PROVIDE CIRCUIT BREAKER TO MATCH EXISTING IN AVAILABLE SPACES. NEW BREAKERS TO MATCH EXISTING IN TYPE, STYLE, MANUFACTURER, AND AIC RATING. (SQUARE D - JG250)
- UPDATE PANEL DIRECTORY AT COMPLETION OF PROJECT.
- #6 + #10C - 1" - INTERCEPT AND REWORK THE EXISTING CONDUIT AND CONDUCTOR TO AVOID THE NEW ROOF ACCESS. ELECTRICAL CONTRACTOR SHALL PROVIDE A SPLICE BOX LOCATED IN JANITOR ROOM 120 AND SIZE IN ACCORDANCE WITH NEC 314.28. ROUTE CONDUIT ALONG THE BOILER ROOM STRUCTURE AND PENETRATE THROUGH JANITOR ROOM 120, AVOIDING THE NEW ROOF ACCESS. MATCH EXISTING ROUTING WHERE POSSIBLE, AVOIDING THE NEW ROOF ACCESS.

**ELECTRICAL LEGEND**

ABBREVIATIONS	CIRCUIT ELECTRICAL (SUB) CONTRACTOR
E.C.	EXISTING
EXTG.	FURNISHED BY OTHERS, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR
F.B.O.	GENERAL (SUB) CONTRACTOR
G.C.	HORSEPOWER
HP	LOCATE AS DIRECTED
L.D.	MAXIMUM
MAX	MECHANICAL (HVAC, PLBG, FP, OR TC) (SUB) CONTRACTOR
M.C.	MOUNTING HEIGHT TO BOTTOM OF DEVICE, BOX, OR FIXTURE, UNO
MM	MINIMUM
MIN	NIGHT LIGHT, UNSWITCHED CIRCUIT
N/L	OR EQUAL
OREQ	REVIEW
R/M	REMOVE
R/L	RELOCATE/RELOCATED
UNO	UNLESS NOTED OTHERWISE
W/	COMPLETE WITH
WG	WITH WIRE GUARD
WP	WEATHERPROOF DEVICE, ENCLOSURE OR COVER PLATE.
XX.XXX	INDICATES MAXIMUM RMS SHORT CIRCUIT FAULT AT NOTED BUS PER ENGINEER'S CALCULATIONS VS. ASSUMPTIONS ON UTILITY FAULT INFORMATION.
2	INDICATES NOTE-SEE TABULATION ON SAME SHEET
[Symbol]	SINGLE LAMP STRIP-SEE SCHEDULE-SHOWN TO SCALE (APPROX.)
[Symbol]	EMERGENCY EGRESS OR COMBINATION EXIT EGRESS LIGHT-SEE SCHEDULE
[Symbol]	LOCAL SWITCH-1 POLE-20A-120/277V-W/STAINLESS STEEL C.P. - M.H. 44" HUBBELL #CSB120W OREQ.
[Symbol]	DUPLEX GFCI AND TAMPER RESISTANCE RECEPT-15A-125V-NEMA 5-15R W/STAINLESS STEEL C.P. - M.H. 16" IN READILY ACCESSIBLE LOCATION. HUBBELL #GTRST15BK OREQ.
[Symbol]	VARIABLE SPEED DRIVE W/DISCONNECT AND FUSES-FURNISHED AND INSTALLED BY OTHERS. POWER WIRING BY E.C. PER SUPPLIERS WIRING DIAGRAMS. VFD LINE AND LOAD CONDUCTORS SHALL NOT BE ROUTED IN THE SAME RACEWAY. PROVIDE NEW ENGRAVED LABEL. AT VFD TO MATCH MOTOR AND PANEL LABELING. COORDINATE FINAL VFD LOCATION IN FIELD.
[Symbol]	FUSED SAFETY SWITCH-AMP SIZE AS NOTED-VOLTAGE AS REQ-NEMA 1 ENCLOSURE U.N.O.-MH 6"0" TO TOP UNO (NF=NON-FUSED; 3R=NEMA 3R ENCL; GR=NEMA 12 GASKETED ENCL; 4X=NEMA 4X STAINLESS STEEL ENCL.)
[Symbol]	DISCONNECT SWITCH-HP RATED-TOGGLE TYPE-20 AMP-1 TO 3 POLES AS REQUIRED FOR EOP-600 VOLT-NEMA 1 ENCLOSURE U.N.O.-LOCATE ADJACENT TO EQUIPMENT SERVED. (WP=WEATHERPROOF ENCLOSURE) SQUARE D CLASS 2510 SERIES OREQ
[Symbol]	MOTOR-FRACTIONAL H.P.-120 VOLT (EF=EXH. FAN; UH=UNIT HEATER; MD=MOTORIZED DAMPER) MOTOR-SIZE AND FUNCTION AS NOTED-3 PHASE
[Symbol]	PRE-WIRED CONTROL PANEL WITH MAGNETIC STARTERS, CONTACTORS, ETC., PROVIDED WITH EQUIPMENT. WITH OR WITHOUT DISCONNECT AS SHOWN. POWER FEED WIRING BY E.C.
[Symbol]	SECURITY SYSTEM CARD/FOB READER/KEYPAD OR ENTRY CONTROL STATION-SHALL BE FURNISHED BY GENERAL TRADES. ONE GANG BOX, MH 44" UNO ON PLANS, WITH 3/4" CONDUIT STUB TO ABOVE ACCESSIBLE CEILING OR TO STRUCTURE BY ELECTRICAL CONTRACTOR. HARDWARE INSTALLATION AND WIRING SHALL BE BY ACCESS CONTROL SUPPLIER.
[Symbol]	ELECTRIC DOOR LOCK OR LATCH RELEASE-FLUSH IN DOOR FRAME-SHALL BE FURNISHED BY GENERAL TRADES. 3/4" CONDUIT STUB TO ABOVE ACCESSIBLE CEILING OR TO STRUCTURE BY ELECTRICAL CONTRACTOR. HARDWARE INSTALLATION AND WIRING SHALL BE BY ACCESS CONTROL SUPPLIER.
[Symbol]	SECURITY SYSTEM MAGNETIC DOOR CONTACT/SWITCH-FLUSH MOUNTED IN DOOR FRAME-SHALL BE FURNISHED BY GENERAL TRADES. 3/4" CONDUIT STUB TO ABOVE ACCESSIBLE CEILING OR TO STRUCTURE BY ELECTRICAL CONTRACTOR. HARDWARE INSTALLATION AND WIRING SHALL BE BY ACCESS CONTROL SUPPLIER.
[Symbol]	WIRE TICKS INDICATE BRANCH CIRCUIT PHASE, NEUTRAL, & GROUND WIRES, RESPECTIVELY CONDUIT-CONCEALED IN CEILING, WALL OR FLOOR OF NEW CONSTRUCTION. CONCEALED WHEREVER POSSIBLE IN EXISTING CONSTRUCTION (1/2" DIA. MIN.)
[Symbol]	HOMERUN TO PANEL OR LOCATION NOTED
[Symbol]	INDICATES CONCEALED CONDUIT UNDERGROUND/UNDERFLOOR - 3/4" MIN.
[Symbol]	SURFACE MOUNTED RACEWAY-W/MATCHING FITTINGS, BOXES, ACCESSORIES, ETC. WIREMOLD #1700 SERIES, HUBBELL #HBL75010W SERIES OREQ
[Symbol]	INDICATES LOW VOLT CABLING ROUTED THRU PLENUM OR CEILING SPACE.
[Symbol]	WORKING CLEARANCE AREA PER NEC 110.26.
[Symbol]	EXISTING CONDUIT & WIRING-TO REMAIN
[Symbol]	EXISTING 120 VOLT MOTOR-TO REMAIN-UNO
[Symbol]	EXISTING ITEMS ARE TO REMAIN-UNO
[Symbol]	ALL EXISTING ITEMS "DASHED" ARE TO BE REMOVED-UNO
[Symbol]	REMOVE EXISTING ITEM INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE BACK TO SOURCE.

**BOILER REPLACEMENT & RELATED WORK**  
**HOLLYWOOD ELEMENTARY SCHOOL**  
1135 RIVERVIEW AVE., MONROE, MICHIGAN 48162  
**MONROE PUBLIC SCHOOLS**  
1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

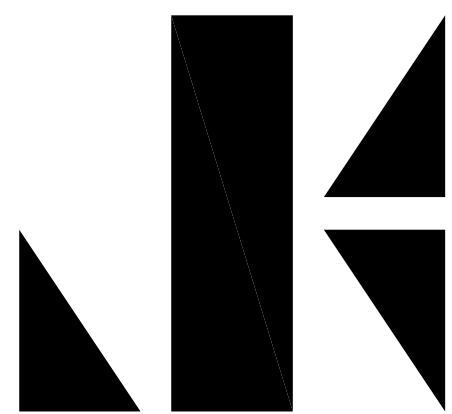
JOB # **26101**

ELECTRICAL LEGEND AND SINGLE-LINE

**E1.02**

**ALTERNATE**

- ALTERNATE HWD-E1: STATE THE AMOUNT TO BE ADDED/SUBTRACTED TO THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE FOLLOWING.
- ELECTRICAL WORK ASSOCIATED WITH THE GAS-FIRED DOMESTIC WATER HEATER (HWD-DWH-1) WITH THE DETAILS INDICATED ON THE DESIGN DOCUMENTS.
  - OMISSION OF ALL ELECTRICAL WORK ASSOCIATED WITH THE INLINE PUMP (HWD-HWS-1)



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DATE	DESCRIPTION
02.09.2026	BIDDING & STATE REVIEW
03.06.2026	ADDENDUM #1

**BOILER REPLACEMENT & RELATED WORK**  
AT  
FOR  
**HOLLYWOOD ELEMENTARY SCHOOL**  
1135 RIVERVIEW AVE., MONROE, MICHIGAN 48162  
**MONROE PUBLIC SCHOOLS**  
1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

JOB # **26101**

ELECTRICAL  
PANEL SCHEDULES

**E1.03**

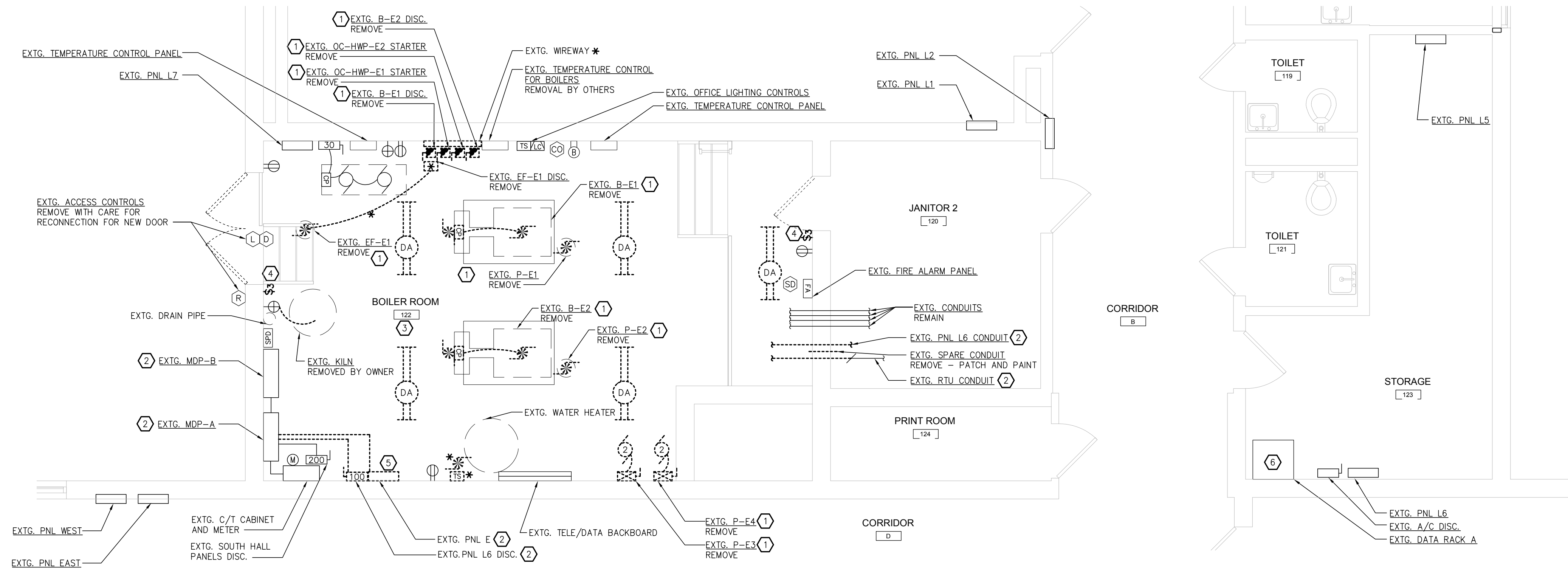
(EXISTING CIRCUITING)

PANELBOARD SCHEDULE											
EXISTING PANEL: E		NOTES:									
MAINS: 100A M.C.B.		<input type="checkbox"/> GFCI BREAKER		<input type="checkbox"/> ARC FAULT		___ KAIC					
VOLTS: 120/240V-1Ø-3W-SN		<input type="checkbox"/> 30 MILLIAMP EQUIPMENT		<input type="checkbox"/> SWITCHED NEUTRAL		<input type="checkbox"/> NON-CONSEQUENT LOAD					
MOUNTING: SURFACE		<input type="checkbox"/> GROUND FAULT TRIP		<input type="checkbox"/> SHUNT TRIP		<input type="checkbox"/> MOTOR OPERATED				<input type="checkbox"/>	
LOAD DESCRIPTION	NOTES	VOLT AMPS	C.B. AMP	A	B	C	C.B. AMP	VOLT AMPS	NOTES	LOAD DESCRIPTION	
1 SCHOOL EXIT LIGHT		1000	20 1	1800			1 20	800		UNKNOWN	7
2 GYM EXIT LIGHT		1000	20 1		1000		1 20	0		SPARE	8
3 HALL BATTERY PACKS		1000	20 1	1000			1 20	0		SPARE	9
4 FIRE ALARM PANEL		500	20 1		500		1 20	0		SPARE	10
5 SPARE		0	20 1	0			1 20	0		SPARE	11
6 SPARE		0	20 1	0			1 20	0		SPARE	12
<input type="checkbox"/> HANDLE TIE				2800		1500					
<input type="checkbox"/> HANDLE LOCK				130%		70%					
<b>TOTAL LOAD:</b>				4300				<b>TOTAL AMPS:</b>		17.9	

(NEW CIRCUITING)

PANELBOARD SCHEDULE ②											
PANEL: E		NOTES:									
MAINS: 225A M.L.O.		<input type="checkbox"/> GFCI BREAKER		<input type="checkbox"/> ARC FAULT		22_ KAIC RATING					
VOLTS: 120/240V-3Ø-4W-SN		<input type="checkbox"/> 30 MILLIAMP EQUIPMENT		<input type="checkbox"/> SWITCHED NEUTRAL		<input type="checkbox"/> NON-CONSEQUENT LOAD					
MOUNTING: SURFACE		<input type="checkbox"/> GROUND FAULT TRIP		<input type="checkbox"/> SHUNT TRIP		<input type="checkbox"/> MOTOR OPERATED				<input type="checkbox"/> RELAY CONTROLLED	
LOAD DESCRIPTION	NOTES	VOLT AMPS	C.B. AMP	A	B	C	C.B. AMP	VOLT AMPS	NOTES	LOAD DESCRIPTION	
1 SCHOOL EXIT LIGHT		1000	20 1	1800			1 20	800		UNKNOWN	2
3 (WILD LEG)		0			0			0		(WILD LEG)	4
5 GYM EXIT LIGHT		1000	20 1			1000	1 20	0		SPARE	6
7 HALL BATTERY PACKS		1000	20 1	1000			1 20	0		SPARE	8
9 (WILD LEG)		0			0			0		(WILD LEG)	10
11 FIRE ALARM PANEL		500	20 1			800	1 20	300		MAKE-UP WATER METER	12
13 BOILER LIGHTS		240	20 1	984			1 15	744		ALTERNATE HWD-E1	14
15 (WILD LEG)		0			0			0		(WILD LEG)	16
17 SPARE		0	20 1			600	1 15	600		B-1	18
19 SPARE		0	20 1	600			1 15	600		B-2	20
21 (WILD LEG)		0			0			0		(WILD LEG)	22
23 SPARE		0	20 1			0	1 20	0		SPARE	24
25 SPARE		0	20 1	0			1 20	0		SPARE	26
27 (WILD LEG)		0			0			0		(WILD LEG)	28
29 SPARE		0	20 1			800	1 15	800		DWH-1	30
31 SPARE		0	20 1	2947			3 30	2947		TUH-1	32
33 (WILD LEG)		0			2947		3 30	2947		-	34
35 HWS-1 & GP-1		1020	20 1			3967	3 30	2947		-	36
37 HWP-1		2103	30 3	4206			3 30	2103		HWP-2	38
39 -		2103	30 3		4206		3 30	2103		-	40
41 -		2103	30 3			4206	3 30	2103		-	42
<input type="checkbox"/> HANDLE TIE				11537		7153		11373			
<input type="checkbox"/> HANDLE LOCK				115%		71%		113%			
<b>TOTAL LOAD:</b>				30063				<b>TOTAL AMPS:</b>		72.4	

- PANEL SCHEDULE NOTES**
- RE-CIRCUIT EXISTING BRANCH CIRCUIT TO PANEL AS SHOWN. REFER TO PANEL SCHEDULE ON THIS SHEET. EXISTING BREAKER IN OFF POSITION SHALL BECOME SPARE AND/OR AVAILABLE FOR NEW CIRCUITING. NEW BRANCH CIRCUITS SHALL BE IN DEDICATED RACEWAYS AS PER THE SPECIFICATIONS.
  - E.C. SHALL UPDATE PANEL DIRECTORY AT COMPLETION OF PROJECT.
  - INDICATES EXISTING ITEM SHALL BE REMOVED INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE.
  - EXISTING BRANCH CIRCUIT SHALL BE RE-CIRCUITED TO NEW PANEL AS SHOWN.



**BOILER ROOM LIGHTING AND POWER PLAN - DEMOLITION**  
SCALE: 1/4" = 1'-0"

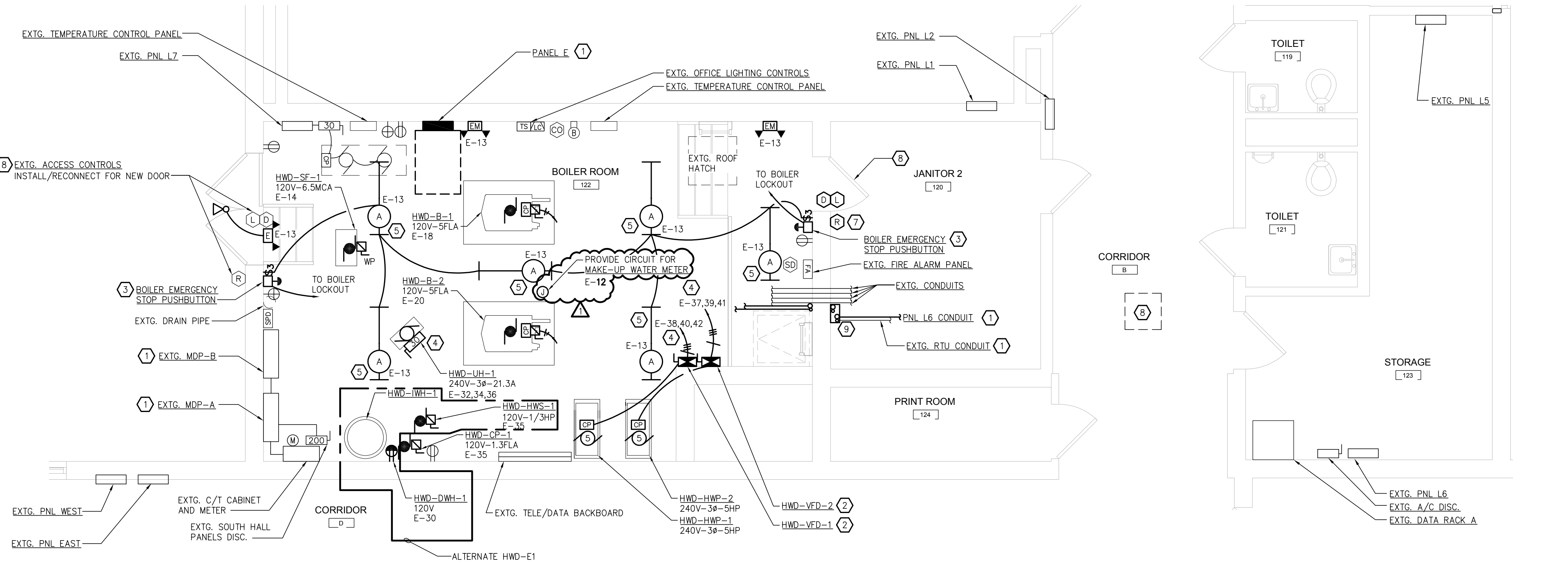
**ALTERNATE**

ALTERNATE HWD-E1: STATE THE AMOUNT TO BE ADDED/SUBTRACTED TO THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE FOLLOWING.

- ELECTRICAL WORK ASSOCIATED WITH THE GAS-FIRED DOMESTIC WATER HEATER (HWD-DWH-1) WITH THE DETAILS INDICATED ON THE DESIGN DOCUMENTS.
- OMISSION OF ALL ELECTRICAL WORK ASSOCIATED WITH THE INLINE PUMP (HWD-HWS-1)

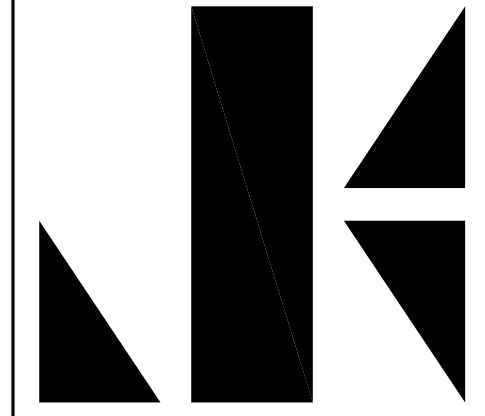
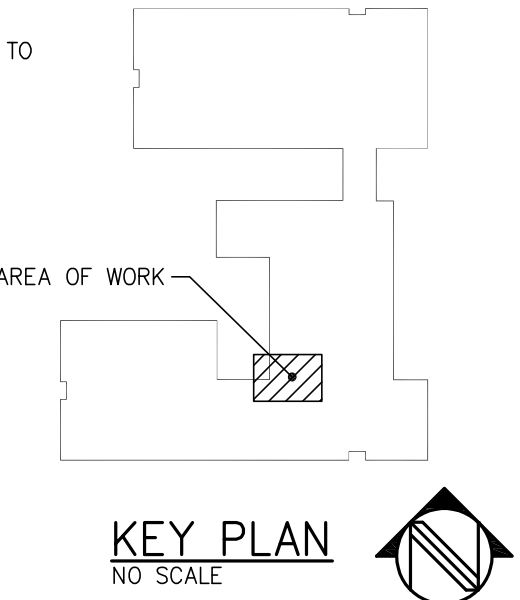
- PLAN NOTES**
- DISCONNECT EXISTING ELECTRICAL CONNECTIONS TO ACCOMMODATE REMOVAL OF MECHANICAL EQUIPMENT BY OTHERS. COORDINATE WITH M.C. BEFORE COMMENCEMENT OF WORK. EXISTING BRANCH CIRCUITS SHALL BE REMOVED BACK TO SOURCE. ASSUMED SOURCE IS EXISTING PANEL **MDP-B**.
  - REFERENCE SHEET E1.02 FOR MORE INFORMATION.
  - FIELD VERIFY EXISTING LIGHTING BRANCH CIRCUITS THAT SHALL BE REMOVED BACK TO SOURCE. ASSUMED SOURCE IS EXISTING PANEL **LP2**.
  - DISCONNECT AND REMOVE INDICATED LIGHTING CONTROLS. REMOVE ALL ASSOCIATED CABLING BACK TO SOURCE. EXISTING BACKBOX SHALL REMAIN IN PLACE AND SHALL BE REUSED FOR NEW LIGHTING CONTROLS IN SAME LOCATION.
  - RE-WORK AND RE-USE ALL EXISTING OVERHEAD BRANCH CONDUCTORS, VERIFYING CONDUCTOR INTEGRITY AND AMPACITY. PROVIDE PROPERLY SIZED JUNCTION BOXES FOR SPLICING, TERMINATION, AND RECONNECTION. OBTAIN AND REMOVE ANY EXPOSED CONDUIT GOING UNDERGROUND AT THE FLOOR. COORDINATE CUTTING, PATCHING AND PAINTING WITH GENERAL TRADES.
  - PANEL L6 CONTAINS THE DATA RACK "A" CIRCUIT SUPPLYING THE SYSTEM. COORDINATE WITH MPS IT DIRECTOR FOR PROJECT SCOPE AND SEQUENCE OF CONSTRUCTION BEFORE COMMENCING ANY WORK.

- GENERAL NOTES**
- COORDINATE WITH MECHANICAL DRAWINGS AND CONTRACTOR FOR PROJECT SCOPE AND SEQUENCE OF CONSTRUCTION BEFORE COMMENCING ANY WORK.
  - WHERE ACCESSIBLE CEILINGS ARE PRESENT, WIRING MAY BE RUN IN METAL RACEWAYS ONLY TO ABOVE ACCESSIBLE CEILINGS, WITH OPEN CABLING IN ACCESSIBLE CEILING AND PROPERLY SUPPORTED AS PER THE SPECIFICATIONS. WIRING IN AIR HANDLING PLENUMS SHALL BE PLENUM RATED AS REQUIRED. ALL WIRING RUN IN METAL RACEWAYS, SHALL BE IN RACEWAYS SEPARATE FROM ALL OTHER WIRING, UNLESS NOTED OTHERWISE. COORDINATE LAYOUT AND RACEWAY SIZES WITH FINAL FIRE ALARM VENDOR PRIOR TO INSTALLATION.
  - SEAL ALL PENETRATIONS THRU FIRE RATED ASSEMBLIES WITH APPROVED FIRE-STOPPING MATERIALS. REFER TO SPECIFICATIONS FOR FURTHER DETAILS AND SEE ARCHITECTURAL SHEET L51.00 FOR RATED ASSEMBLY LOCATIONS.
  - PATCH AND PAINT SHALL BE COVERED BY GENERAL TRADES. ALL RACEWAYS SHALL MATCH WALL FINISH. COORDINATE WITH ARCHITECT.



**BOILER ROOM LIGHTING AND POWER PLAN**  
SCALE: 1/4" = 1'-0"

- PLAN NOTES**
- REFERENCE SHEET E1.02 FOR MORE INFORMATION.
  - VFD LINE AND LOAD CONDUCTORS SHALL **NOT** BE ROUTED IN THE SAME RACEWAY. PROVIDE ENGRAVED LABEL AT VFD TO MATCH MOTOR AND PANEL LABELING.
  - PER THE REQUIREMENTS OF THE MICHIGAN BOILER CODE, EMERGENCY STOP PUSHBUTTON SHALL BE AT EACH BOILER ROOM DOOR (TWO REQUIRED) FOR EMERGENCY POWER SHUT-OFF OF BOTH HO-B-1 AND HO-B-2. PROVIDE AND INSTALL NECESSARY CONDUIT, WIRING AND RELAYS TO EACH PIECE OF EQUIPMENT FOR THE E-STOP PUSHBUTTON (CONNECTED IN SERIES), SO THAT THE PUSHBUTTON OF EACH E-STOP DE-ENERGIZES THE BOILERS. ADD RED NAMEPLATE ON EACH E-STOP PANEL "EMERGENCY BOILER DISCONNECT". DISCONNECT M.H. AT 6"0" AFF TO TOP.
  - 3#10 + #10G - 1/2" C
  - MOUNT LIGHTING FIXTURE AT 8'-0" A.F.F. COORDINATE WITH MECHANICAL CONTRACTOR PRIOR TO INSTALLATION TO ENSURE PROPER CLEARANCE WITH REGARDS TO MECHANICAL EQUIPMENT AND NEW DUCTWORK.
  - DOOR WILL BE LOCKED AT ALL TIMES. CARD READER ACCESS. **DOOR SHALL UNLOCK AUTOMATICALLY DURING FIRE ALARM AND POWER LOSS (FAIL-SAFE FROM CONTROLLER)**. LOCK OUT OF DOORS CAN BE OVERRIDDEN DURING FIRE DRILLS OR OTHER EVENTS. COORDINATE WITH DOOR INSTALLER AND SUPPLIER FOR EXACT ROUGH-IN REQUIREMENTS FOR ALL ELECTRICAL COMPONENTS.
  - REFERENCE ARCHITECTURAL DRAWINGS FOR LOCATION AND MOUNTING HEIGHT FOR DEVICES NOTED.
  - CEILING ACCESS POINT - 24"x24" ACCESS PANEL BY G.C. REFERENCE ARCHITECTURAL SET AND SPECIFICATIONS FOR MORE INFORMATION.
  - PULL BOX (12"x12"x6") NEMA 1, PULL BOX SECURED TO EXISTING WALL. CONDUIT ROUTES UP TO ROOF STRUCTURE.



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DATE	DESCRIPTION
02.09.2026	BIDDING & STATE REVIEW
03.06.2026	ADDENDUM #1

**BOILER REPLACEMENT & RELATED WORK**  
**HOLLYWOOD ELEMENTARY SCHOOL**  
1135 RIVERVIEW AVE., MONROE, MICHIGAN 48162  
**MONROE PUBLIC SCHOOLS**  
1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

JOB # **26101**

BOILER ROOM  
LIGHTING & POWER  
PLANS  
**E3.01**

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REGISTERED:  
MICHIGAN  
OHIO

MEMBER:  
A.I.A.  
N.C.A.R.B.

## ADDENDUM #1

---

PROJECT: Boiler Replacement & Related Work  
at Orchard Center High School  
for Monroe Public Schools  
#26102

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The above plans and specifications are modified, corrected, augmented or supplemented as follows and this Addendum is hereby made a part of the contract documents. Contractor shall note on the Proposal Form that he has received this Addendum.

### **ITEM 1: MECHANICAL DRAWINGS**

- A. Refer to Drawing M1.03 FLOW DIAGRAM (RE-ISSUED HEREIN):
  - 1. Updated Base Design and Alternate OHS-M1 flow diagrams to include makeup water meter.
  - 2. Added General Note 4 to Base Design and Alternate OHS-M1 flow diagrams.
  
- B. Refer to Drawing M2.01 HVAC PLAN BASE BID (RE-ISSUED HEREIN):
  - 1. Updated plan drawing to include makeup water meter.
  - 2. Changed existing compressors and temperature control panel to remain instead of being demolished.
  
- C. Refer to Drawing M2.01A HVAC PLAN BASE BID (RE-ISSUED HEREIN):
  - 1. Updated plan drawing to include makeup water meter.
  - 2. Changed existing compressors and temperature control panel to remain instead of being demolished.
  
- D. Refer to Drawing M6.01 TEMPERATURE CONTROLS (RE-ISSUED HEREIN):
  - 1. On Heating Water System Temperature Control System Point List, added makeup water flow meter.
  - 2. On Temperature Control System Scope and Sequences in the Hot Water System section, added Remark 6 for makeup water meter.

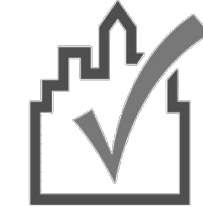
### **ITEM 2: ELECTRICAL DRAWINGS**

- A. Refer to Drawing E1.02 ELECTRICAL LEGEND SINGLE-LINE & PANEL SCHEDULES (RE-ISSUED HEREIN):
  - 1. Revised load summary for make-up water meter load.
  - 2. Revised panel LP-H to now include make-up water meter on circuit number 12.

- B. Refer to Drawing E2.01 BOILER ROOM LIGHTING AND POWER PLANS (RE-ISSUED HEREIN):
1. Updated plans to keep existing compressors and temperature control panel to remain instead of being demolished.
  2. Added make-up water meter circuit.

**-END-**

Distribution: Monroe Public Schools  
Kleinfelder



# Mechanical Compliance Certificate

## Project Information

Energy Code: 2021 IECC  
 Project Title: Orchard Center High School Boiler Replacement  
 Location: Monroe, Michigan  
 Climate Zone: 5a  
 Project Type: Alteration

Construction Site: Owner/Agent: Designer/Contractor:

## Mechanical Systems List

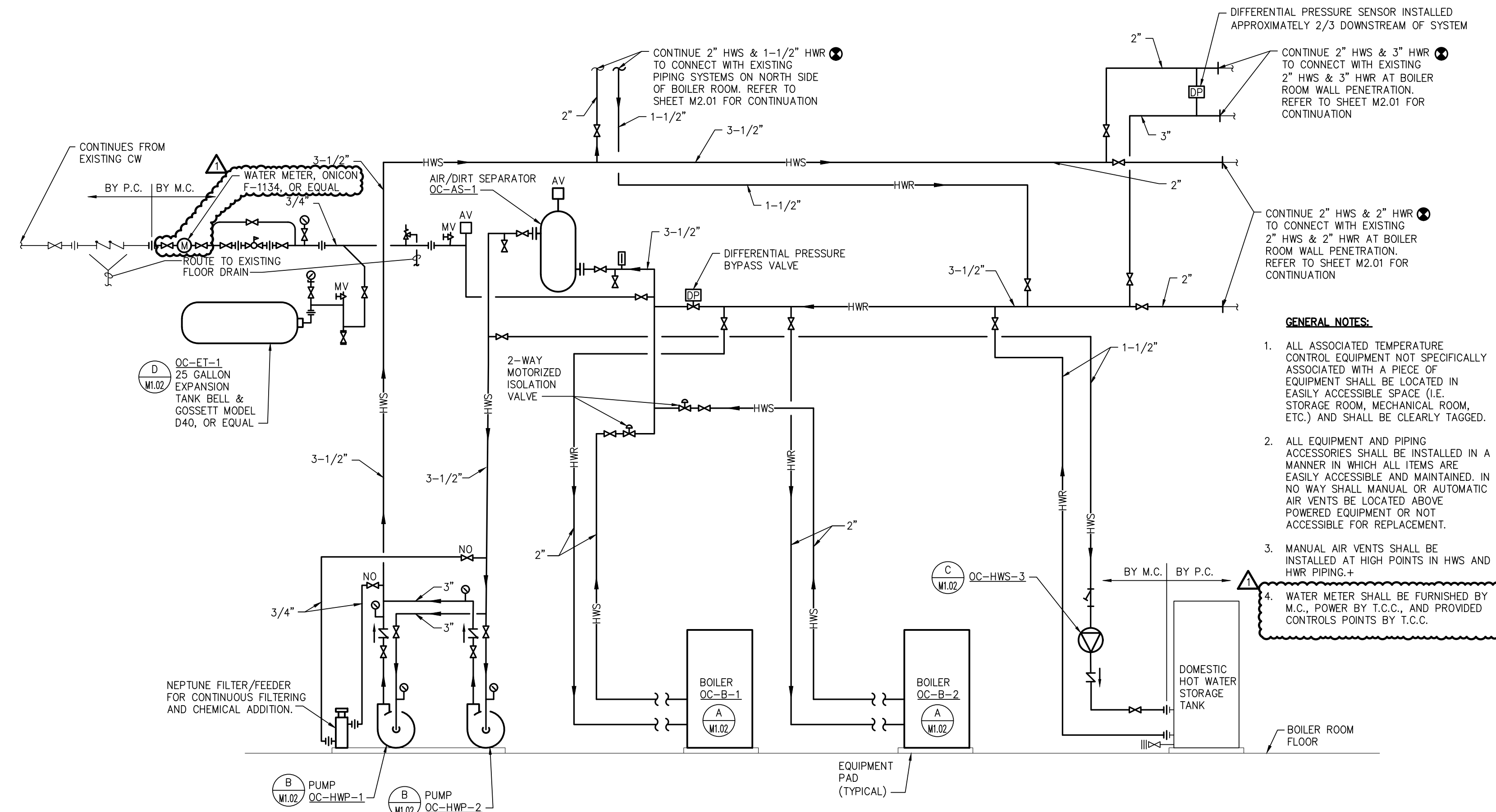
Quantity	Component	Description
<b>HVAC Systems</b>		
1	Unit Heater OC-UH-1 (Single Zone w/ Perimeter System):	Heating: 1 each - Unit Heater (Heating Equip), Electric, Capacity = 11 kBtu/h No minimum efficiency requirement applies Fan System: OC-UH-1   Boiler Room -- Compliance (Motor nameplate HP and fan efficiency method) : Passes  Fans: OC-UH-1 Supply, Constant Volume, 400 CFM, 0.0 motor nameplate hp, 0.00 fan energy index, fan exception: Single fan < 1 HP or < 0.89 kW
<b>HVAC Plants</b>		
2	Boilers OC-B-1 and OC-B-2:	Heating: Hot Water Boiler, Capacity 500 kBtu/h, Gas Proposed Efficiency: 97.80 % Et, Required Efficiency: 80.00 % Et

## Mechanical Compliance Statement

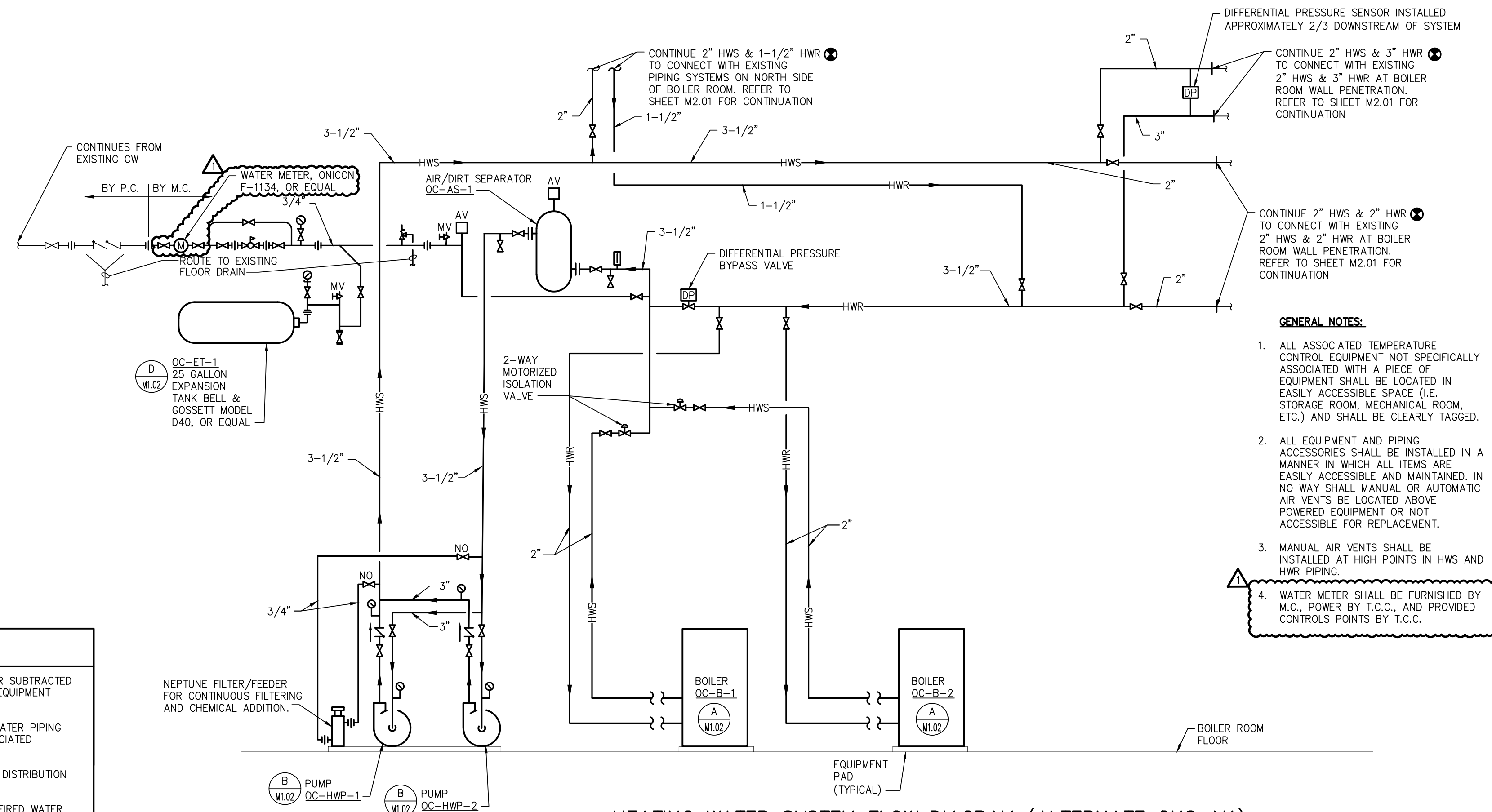
**Compliance Statement:** The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2021 IECC requirements in COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Emily R. Schwarzkopf - Mechanical Engineer *Emily R. Schwarzkopf* 02/04/2026

Name - Title Signature Date



HEATING WATER SYSTEM FLOW DIAGRAM (BASE DESIGN)  
SCALE: NONE



HEATING WATER SYSTEM FLOW DIAGRAM (ALTERNATE OHS-M1)  
SCALE: NONE

**ALTERNATE**

**ALTERNATE OHS-M1:** STATE THE AMOUNT TO BE ADDED TO OR SUBTRACTED FROM THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE FOLLOWING:

- OMISSION OF THE INSTALLATION OF INDIRECT WATER HEATER PIPING AND CIRCULATION PUMP OC-HWS-3 AS WELL AS ASSOCIATED TEMPERATURE CONTROLS..
- OMISSION OF THE DEMOLITION OF NATURAL GAS PIPING DISTRIBUTION TO EXISTING GAS-FIRED DOMESTIC WATER HEATER.
- INSTALLATION OF N.G. CONNECTION TO DOMESTIC GAS-FIRED WATER HEATER, 1" GAS PIPING AS SHOWN ON PLANS, NEW GAS PRESSURE REGULATOR, AND TEMPERATURE CONTROLS.

- GENERAL NOTES:**
- ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN EASILY ACCESSIBLE SPACE (I.E. STORAGE ROOM, MECHANICAL ROOM, ETC.) AND SHALL BE CLEARLY TAGGED.
  - ALL EQUIPMENT AND PIPING ACCESSORIES SHALL BE INSTALLED IN A MANNER IN WHICH ALL ITEMS ARE EASILY ACCESSIBLE AND MAINTAINED. IN NO WAY SHALL MANUAL OR AUTOMATIC AIR VENTS BE LOCATED ABOVE POWERED EQUIPMENT OR NOT ACCESSIBLE FOR REPLACEMENT.
  - MANUAL AIR VENTS SHALL BE INSTALLED AT HIGH POINTS IN HWS AND HWR PIPING.
  - WATER METER SHALL BE FURNISHED BY M.C., POWER BY T.C.C., AND PROVIDED CONTROLS POINTS BY T.C.C.



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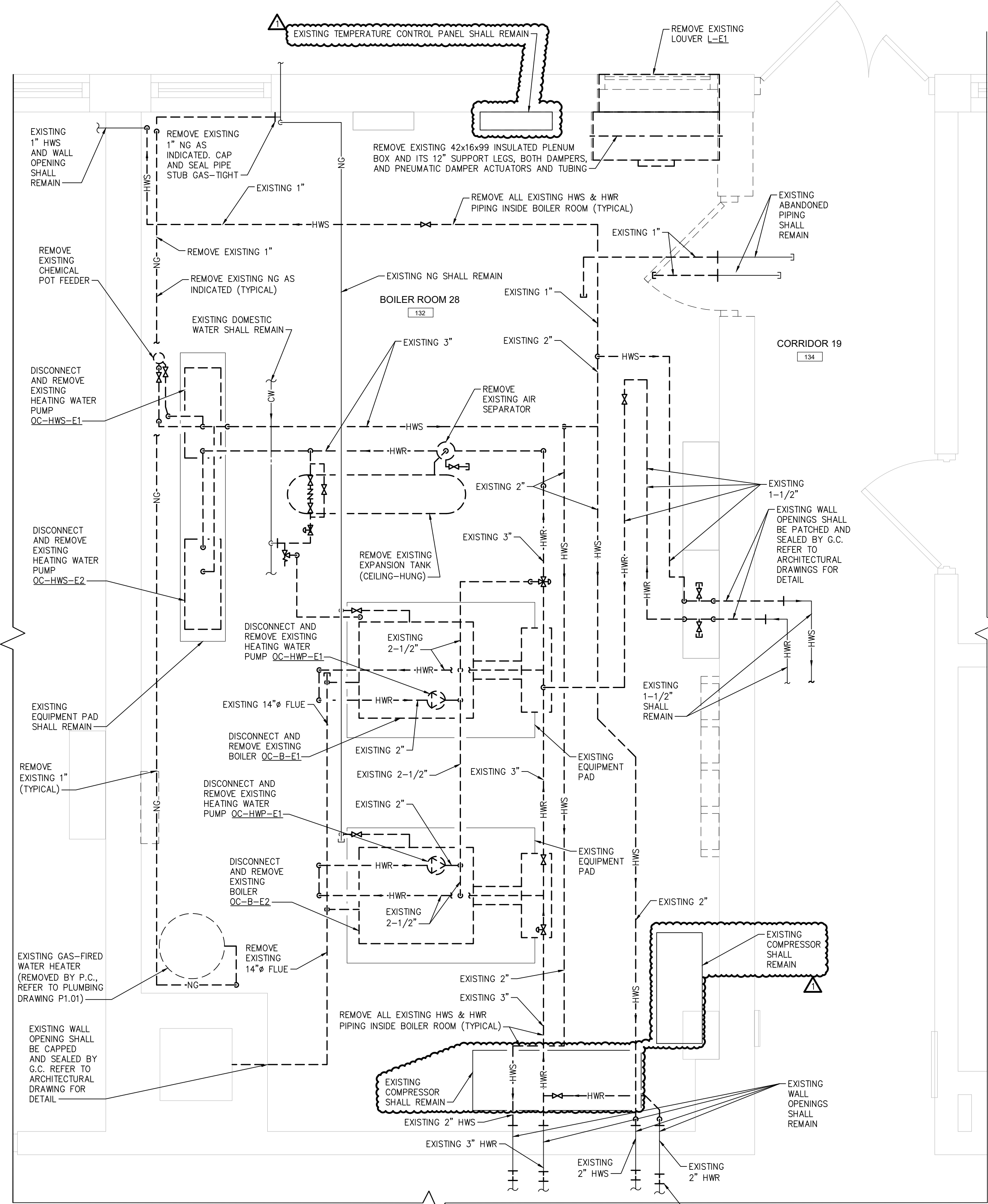
**BOILER REPLACEMENT & RELATED WORK**  
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 1750 OAK STREET, MONROE, MICHIGAN 48161  
**MONROE PUBLIC SCHOOLS**  
 1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

JOB # 26102

FLOW DIAGRAM

**M1.03**

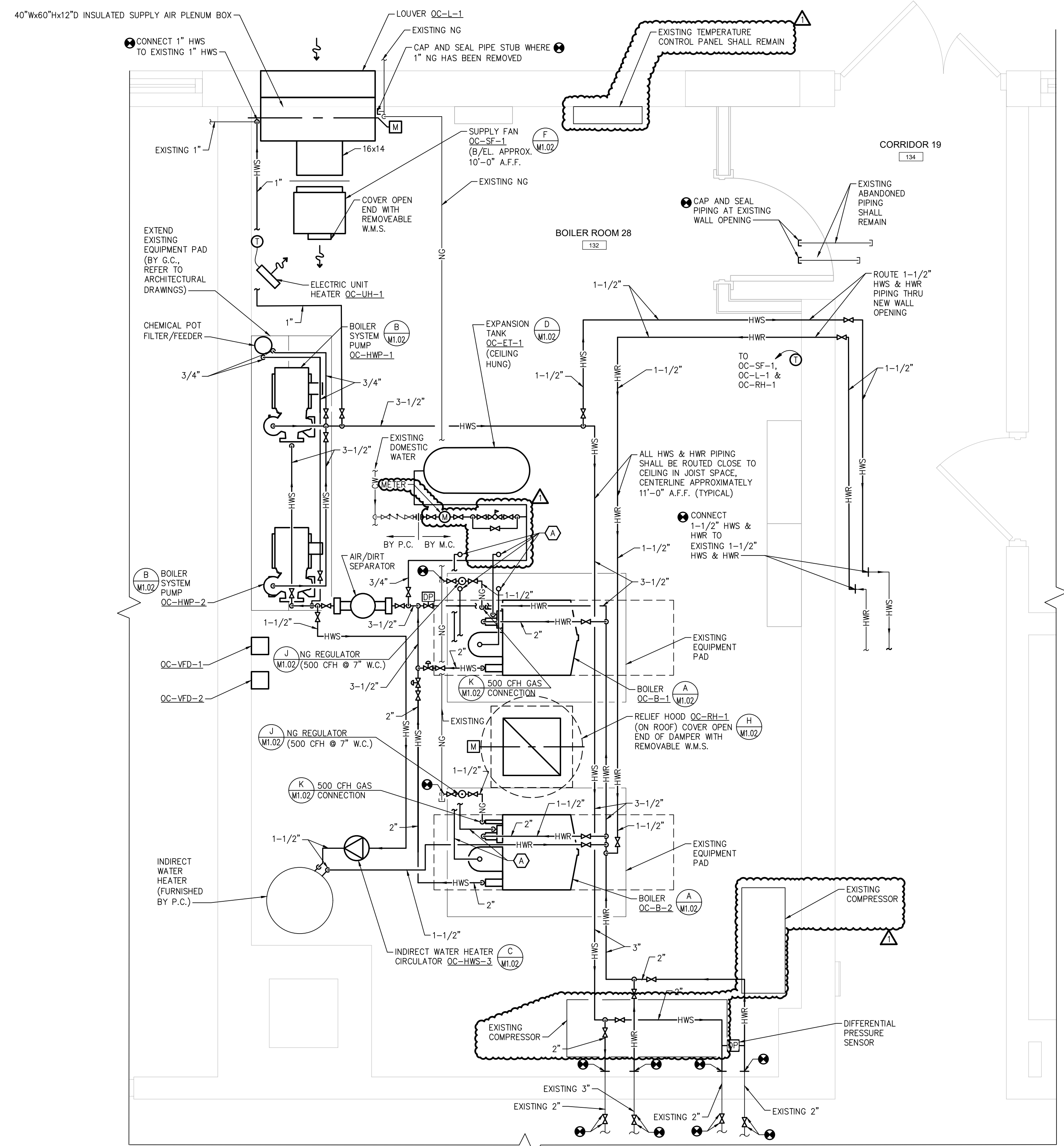
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**HVAC DEMOLITION PLAN - BASE BID**  
SCALE: 1/2" = 1'-0"

**GENERAL NOTES:**

- REFER TO DIVISION 23 SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- REFER TO DRAWINGS M1.01, M1.02, AND M1.03 FOR SCHEDULES, DETAILS AND PIPING FLOW DIAGRAMS.
- PIPE PENETRATIONS THRU ALL FIRE RATED WALLS SHALL BE SEALED BY THE MECHANICAL CONTRACTOR, TO PREVENT SPREAD OF FIRE AND SMOKE AND INGRESS OF MOISTURE.
- PROVIDE ALL HANGERS, SUPPORTS AND MISCELLANEOUS STEEL REQUIRED FOR THE PROPER INSTALLATION OF ALL PIPE AND EQUIPMENT.
- MAINTAIN REQUIRED MANUFACTURERS' CLEARANCES ON ALL EQUIPMENT. AT NO POINT SHALL HYDRONIC PIPING BE ROUTED OVER ELECTRICAL EQUIPMENT OR BELOW ELECTRICAL LIGHTING FIXTURES.
- PREP AND PAINT ALL BARE METAL.
- ALL PNEUMATIC PIPING AND PNEUMATIC CONTROLS IN THE BOILER ROOM SHALL BE REMOVED.
- EXISTING TEMPERATURE CONTROL SYSTEM SHALL BE EXPANDED AS REQUIRED TO INCLUDE ALL NEW EQUIPMENT INDICATED ON THESE DRAWINGS. ALL EQUIPMENT REMOVED SHALL HAVE ALL ASSOCIATED GRAPHICS REMOVED FROM CONTROL SYSTEM.
- ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN EASILY ACCESSIBLE SPACE (I.E. STORAGE ROOM, MECHANICAL ROOM, ETC.) AND SHALL BE CLEARLY TAGGED.
- ALL EQUIPMENT AND PIPING ACCESSORIES SHALL BE INSTALLED IN A MANNER IN WHICH ALL ITEMS ARE EASILY ACCESSIBLE AND MAINTAINED. IN NO WAY SHALL MANUAL OR AUTOMATIC AIR VENTS BE LOCATED ABOVE POWERED EQUIPMENT.
- ALL EXISTING CONDITIONS SHALL BE FIELD VERIFIED.
- ALL ROOF MOUNTED EQUIPMENT REQUIRING SERVICE SHALL BE LOCATED A MINIMUM OF 10'-0" FROM THE EDGE OF ROOF.
- ROOF CURBS SHALL BE FURNISHED BY THE MECHANICAL CONTRACTOR AND INSTALLED BY THE GENERAL CONTRACTOR. REFER TO ARCHITECTURAL DRAWINGS FOR ROOF CONSTRUCTION.
- COORDINATE DUCTWORK, PIPING AND EQUIPMENT LOCATIONS WITH ALL OTHER TRADES.



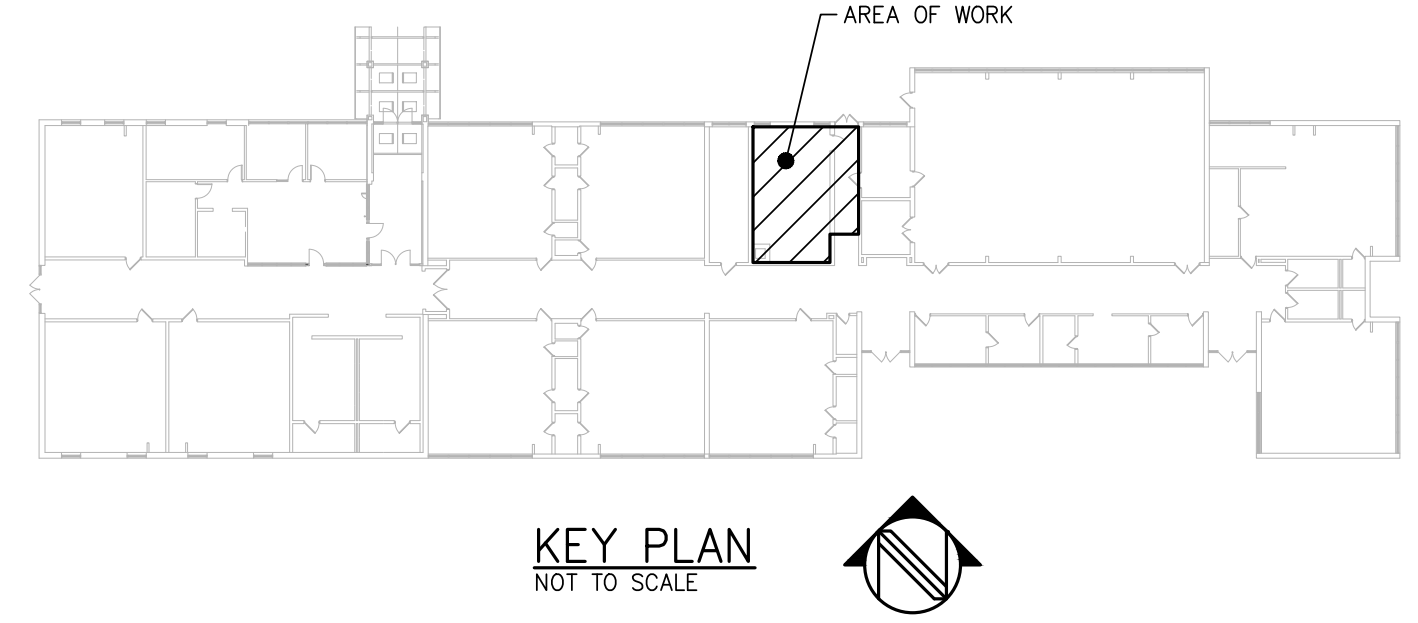
**HVAC PLAN - BASE BID**  
SCALE: 1/2" = 1'-0"

**PLAN NOTES:**

- ROUTE FLUE AND COMBUSTION AIR INTAKE UP THRU ROOF AND TERMINATE WITH MANUFACTURER-APPROVED ROOF TERMINATIONS. SIZE AND INSTALL IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. REFER TO DETAIL "L" ON DRAWING M1.03 FOR FLUE ROOF CURB DETAIL.

**ALTERNATE**

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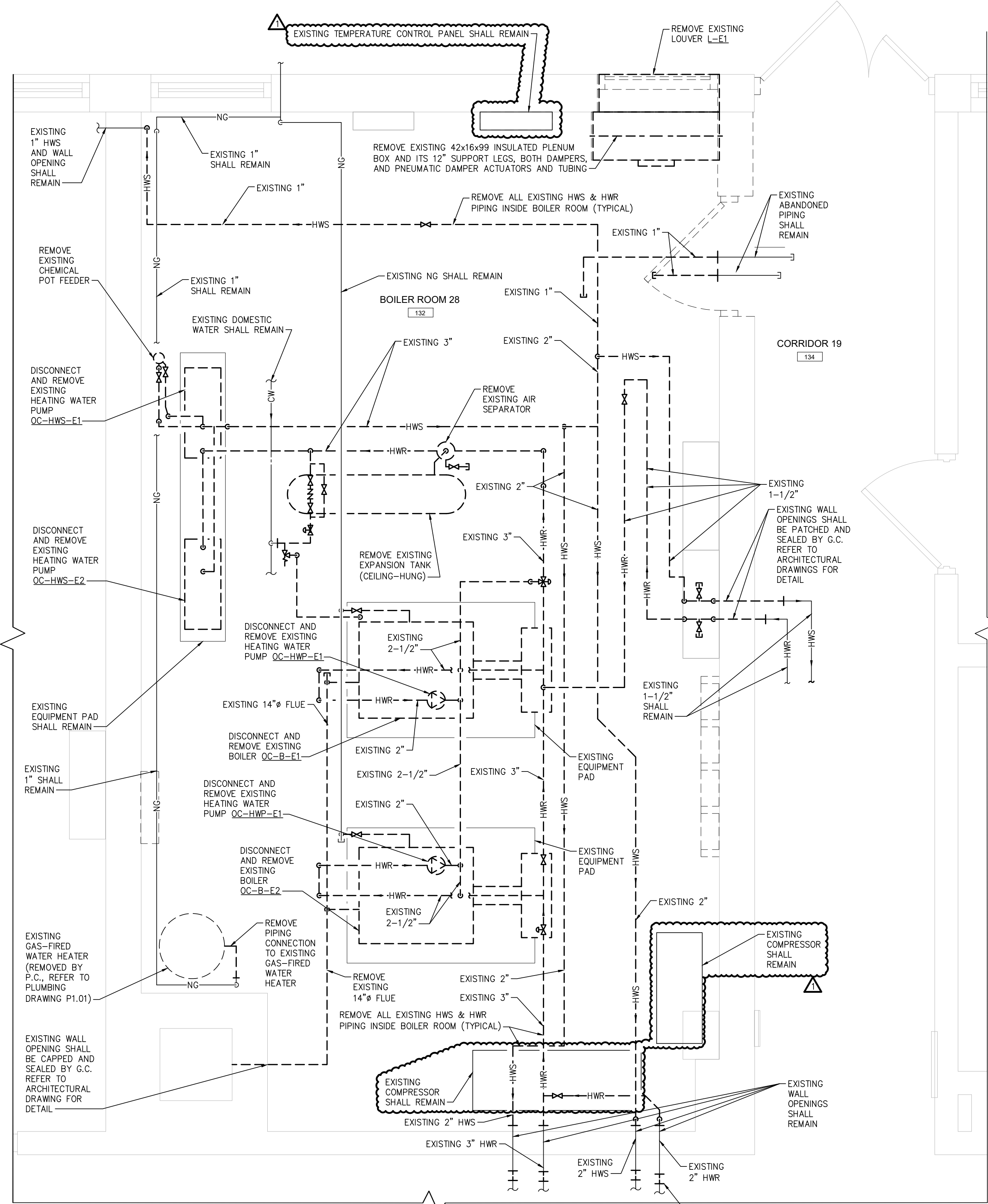
**BOILER REPLACEMENT & RELATED WORK**

**ORCHARD CENTER HIGH SCHOOL**  
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**MONROE PUBLIC SCHOOLS**  
1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

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**JOB # 26102**

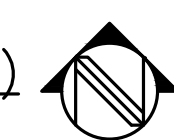
HVAC  
PLAN  
BASE BID  
**M2.01**

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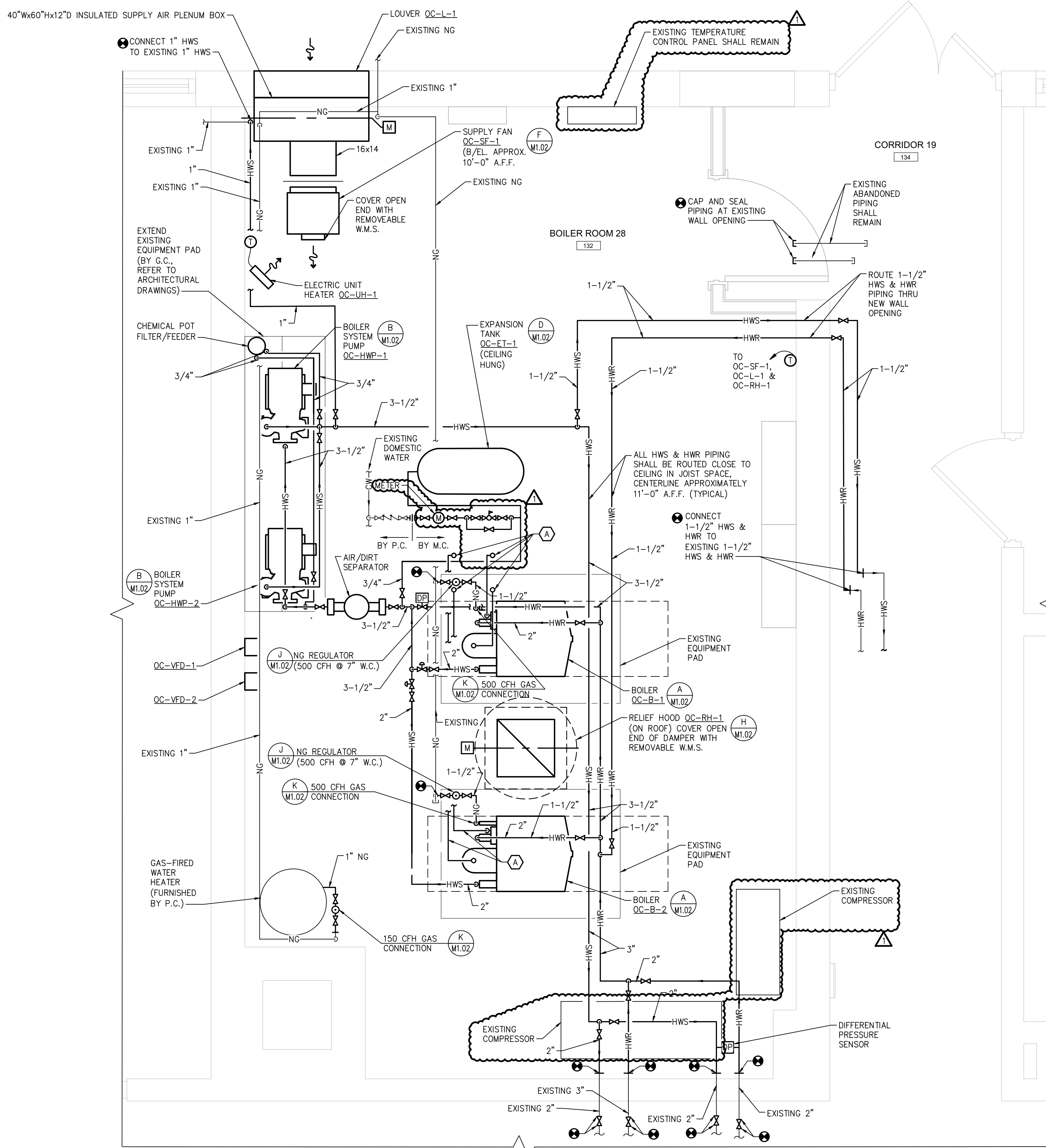
HVAC DEMOLITION PLAN (ALTERNATE OHS-M1)

SCALE: 1/2" = 1'-0"



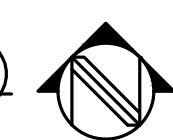
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HVAC PLAN (ALTERNATE OHS-M1)

SCALE: 1/2" = 1'-0"



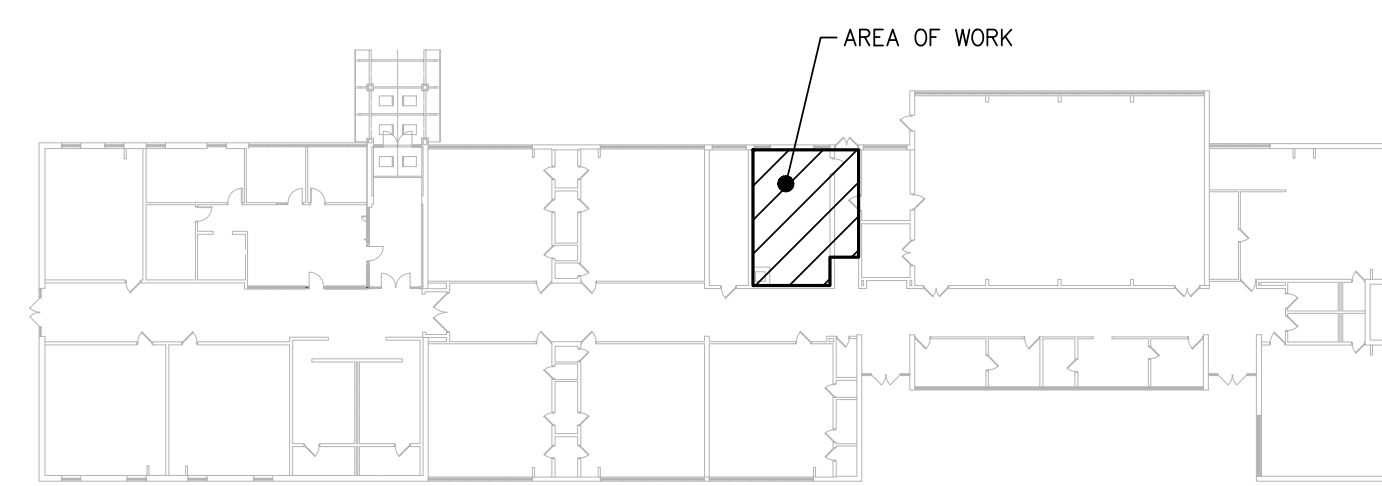
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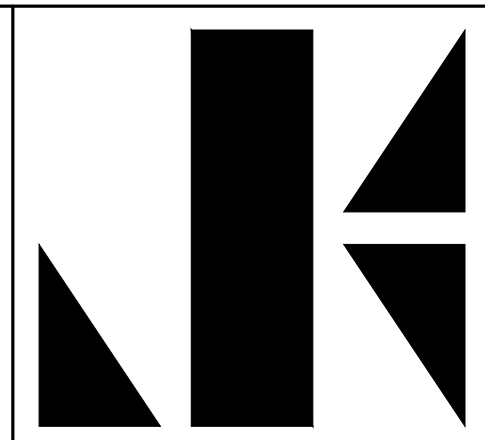
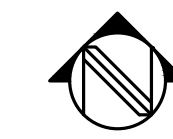
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KEY PLAN  
NOT TO SCALE



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JOB # 26102

HVAC PLAN  
ALTERNATE  
OHS-M1

**M2.01A**

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TEMPERATURE CONTROL SYSTEM POINT LIST										
SYSTEM POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC
	AI	AO	BI	BO	AV	BV	SCHED	TREND	ALARM	
HEATING WATER SYSTEM										
BOILER OC-B-1 HOT WATER RETURN TEMP	X							X		X
BOILER OC-B-1 HOT WATER SUPPLY TEMP	X							X		X
BOILER OC-B-2 HOT WATER RETURN TEMP	X							X		X
BOILER OC-B-2 HOT WATER SUPPLY TEMP	X							X		X
BOILER OC-B-1 & OC-B-2 HOT WATER SUPPLY TEMP SETPOINT RESET (QTY. 2)		X						X		X
BOILER OC-B-1 STATUS			X					X		X
BOILER OC-B-2 STATUS			X					X		X
BOILER OC-B-1 ENABLE				X						X
BOILER OC-B-2 ENABLE				X						X
BOILER OC-B-1 FAILURE										X
BOILER OC-B-2 FAILURE										X
BOILER OC-B-1 RUNTIME EXCEEDED										X
BOILER OC-B-2 RUNTIME EXCEEDED										X
BOILER OC-B-1 HIGH HOT WATER SUPPLY TEMP										X
BOILER OC-B-2 HIGH HOT WATER SUPPLY TEMP										X
BOILER OC-B-1 LOW HOT WATER SUPPLY TEMP										X
BOILER OC-B-2 LOW HOT WATER SUPPLY TEMP										X
BOILER OC-B-1 ISOLATION VALVE CLOSE		X								
BOILER OC-B-1 ISOLATION VALVE OPEN		X								
BOILER OC-B-1 ISOLATION VALVE POSITION					X			X		X
BOILER OC-B-2 ISOLATION VALVE CLOSE		X								
BOILER OC-B-2 ISOLATION VALVE OPEN		X								
BOILER OC-B-2 ISOLATION VALVE POSITION					X			X		X
HW SYSTEM LOOP DIFFERENTIAL PRESSURE	X							X		X
HW SYSTEM LOOP DIFFERENTIAL PRESSURE SETPOINT					X			X		X
HW SYSTEM LOOP HIGH HOT WATER DIFFERENTIAL PRESSURE										X
HW SYSTEM LOOP LOW HOT WATER DIFFERENTIAL PRESSURE										X
BOILER LOOP DIFFERENTIAL PRESSURE	X							X		X
BOILER LOOP DIFFERENTIAL PRESSURE SETPOINT					X			X		X
BOILER LOOP DIFFERENTIAL PRESSURE VALVE FLOW SETPOINT					X			X		X
PRIMARY HOT WATER RETURN TEMP	X							X		X
PRIMARY HOT WATER SUPPLY TEMP	X							X		X
HIGH PRIMARY HOT WATER SUPPLY TEMP										X
LOW PRIMARY HOT WATER SUPPLY TEMP										X
HOT WATER PUMP OC-HWP-1 VFD SPEED		X						X		X
HOT WATER PUMP OC-HWP-2 VFD SPEED		X						X		X
HOT WATER PUMP OC-HWP-1 VFD FAULT			X						X	X
HOT WATER PUMP OC-HWP-2 VFD FAULT			X						X	X
HOT WATER PUMP OC-HWP-1 STATUS			X					X		X
HOT WATER PUMP OC-HWP-2 STATUS			X					X		X
HOT WATER PUMP OC-HWP-1 START/STOP				X						X
HOT WATER PUMP OC-HWP-2 START/STOP				X						X
HOT WATER PUMP OC-HWP-1 FAILURE										X
HOT WATER PUMP OC-HWP-2 FAILURE										X
HOT WATER PUMP OC-HWP-1 RUNNING IN HAND										X
HOT WATER PUMP OC-HWP-2 RUNNING IN HAND										X
HOT WATER PUMP OC-HWP-1 RUNTIME EXCEEDED										X
HOT WATER PUMP OC-HWP-2 RUNTIME EXCEEDED										X
MAKEUP WATER FILL			X					X		X
MAKEUP WATER FLOW METER			X					X		X

TEMPERATURE CONTROL SYSTEM POINT LIST											
SYSTEM POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC	
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND		ALARM
DOMESTIC WATER HEATER (BASE BID)											
STORAGE TANK TEMPERATURE	X								X		X
DOMESTIC HOT WATER SUPPLY TEMPERATURE	X								X		X
DOMESTIC HOT WATER RETURN TEMPERATURE	X								X		X
TANK SUPPLY TEMP SETPOINT RESET		X							X		X
WATER HEATER STATUS			X						X		X
WATER HEATER ENABLE				X					X		X
HOT WATER DIFFERENTIAL PRESSURE	X								X		X
HOT WATER DIFFERENTIAL PRESSURE SETPOINT							X		X		X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 STATUS			X						X		X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 START/STOP				X					X		X
TANK CIRCULATION PUMP OC-HWS-3 STATUS			X						X		X
TANK CIRCULATION PUMP OC-HWS-3 FAILURE											X
TANK CIRCULATION PUMP OC-HWS-3 IN HAND											X
TANK CIRCULATION PUMP OC-HWS-3 RUNTIME ALARM											X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 FAILURE											X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 STATUS			X						X		X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 IN HAND											X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 RUNTIME ALARM											X
STORAGE TANK FAILURE											X
STORAGE TANK RUNTIME EXCEEDED											X
STORAGE TANK HIGH HOT WATER SUPPLY TEMP											X
STORAGE TANK LOW HOT WATER SUPPLY TEMP											X
HIGH HOT WATER DIFFERENTIAL PRESSURE											X
LOW HOT WATER DIFFERENTIAL PRESSURE											X

TEMPERATURE CONTROL SYSTEM POINT LIST											
SYSTEM POINT DESCRIPTION	HARDWARE POINTS				SOFTWARE POINTS					SHOW ON GRAPHIC	
	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND		ALARM
DOMESTIC WATER HEATER (ALTERNATE OC-M1)											
STORAGE TANK TEMPERATURE	X								X		X
DOMESTIC HOT WATER SUPPLY TEMPERATURE	X								X		X
DOMESTIC HOT WATER RETURN TEMPERATURE	X								X		X
TANK SUPPLY TEMP SETPOINT RESET		X							X		X
WATER HEATER STATUS			X						X		X
WATER HEATER ENABLE				X					X		X
HOT WATER DIFFERENTIAL PRESSURE	X								X		X
HOT WATER DIFFERENTIAL PRESSURE SETPOINT							X		X		X
STORAGE TANK FAILURE											X
STORAGE TANK RUNTIME EXCEEDED											X
STORAGE TANK HIGH HOT WATER SUPPLY TEMP											X
STORAGE TANK LOW HOT WATER SUPPLY TEMP											X
HIGH HOT WATER DIFFERENTIAL PRESSURE											X
LOW HOT WATER DIFFERENTIAL PRESSURE											X
GAS VALVE ISOLATION VALVE CLOSE			X								
GAS VALVE ISOLATION VALVE OPEN			X								
GAS VALVE ISOLATION VALVE POSITION					X				X		X
AIR PRESSURE SWITCH			X								
BLOCKED DRAIN SWITCH			X								
GAS PRESSURE SWITCH			X								
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 FAILURE											X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 STATUS			X						X		X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 IN HAND											X
DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 RUNTIME ALARM											X

TEMPERATURE CONTROL SYSTEM SCOPE AND SEQUENCES										
<b>TEMPERATURE CONTROL SYSTEM SCOPE OF WORK:</b>										
1. THE TEMPERATURE CONTROLS CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPERATURE CONTROL AND INTERLOCK WIRING REQUIRED FOR THE PROJECT. ALL EXPOSED TO VIEW 24V AND ALL 120V TEMPERATURE CONTROL WIRING SHALL BE ROUTED IN ITS OWN SEPARATE CONDUIT FOR ENTIRE ROUTING; REFER TO THE ELECTRICAL SPECIFICATIONS FOR CONDUIT MATERIAL AND INSTALLATION REQUIREMENTS.										
2. THE INTENT OF THIS SPECIFICATION IS TO VERBALLY DESCRIBE THE DESIRED ACTIONS OF THE HVAC EQUIPMENT SPECIFIED HEREIN FOR THIS FACILITY. EACH TEMPERATURE CONTROL CONTRACTOR (T.C.C.) AND EACH MECHANICAL CONTRACTOR (M.C.) SHALL FAMILIARIZE HIMSELF WITH THESE WRITTEN SEQUENCES. WHETHER OR NOT EXPLICITLY SHOWN ON THE DRAWINGS, ALL DEVICES AND ITEMS REQUIRED FOR THE EXECUTION OF THESE SEQUENCES ARE THE RESPONSIBILITY OF THE BIDDING CONTRACTOR.										
3. PNEUMATIC PIPING SERVING EQUIPMENT IN THE BOILER ROOM SHALL BE CUT BACK TO THE MAIN AND CAPPED. EXISTING PNEUMATIC SYSTEM OPERATION SHALL BE FIELD VERIFIED IMMEDIATELY AFTER DEMOLITION. PNEUMATIC SYSTEM OPERATION FOR EXISTING EQUIPMENT MUST BE RETAINED.										
4. EXISTING TEMPERATURE CONTROL SYSTEM SHALL BE EXPANDED AS REQUIRED TO INCLUDE ALL NEW EQUIPMENT INDICATED ON THESE DRAWINGS.										
5. ALL ASSOCIATED TEMPERATURE CONTROL EQUIPMENT NOT SPECIFICALLY ASSOCIATED WITH A PIECE OF EQUIPMENT SHALL BE LOCATED IN EASILY ACCESSIBLE SPACE (I.E. STORAGE ROOM, MECHANICAL ROOM, ETC.) AND SHALL BE CLEARLY TAGGED.										
6. COORDINATE ALL SYSTEM ALARMS WITH APPROPRIATE MONROE PUBLIC SCHOOLS CONTACT. VERIFY WITH OWNER IN WRITING UPON COMPLETION.										
7. COORDINATE ALL SYSTEM SET POINTS AND SCHEDULES WITH APPROPRIATE MONROE PUBLIC SCHOOLS CONTACT. VERIFY WITH OWNER IN WRITING UPON COMPLETION.										
<b>TEMPERATURE CONTROL SYSTEM GRAPHICS SCOPE OF WORK:</b>										
1. DISTRICT WIDE BOILER MONITOR PAGE: UPDATE EXISTING BUILDING BOILER AND SYSTEM PAGE FOR ASSOCIATED SCHOOL WITH NEW BOILER AND HEATING WATER SYSTEM.										
2. BUILDING PAGE: A. UPDATE BUILDING MAIN PAGE TO INCLUDE NEW BOILER MONITORING POINTS FOR ENABLE, HW PUMP STATUS AND HWS TEMP AND SETPOINT TEMPERATURE. INCLUDE LINK TO HOT WATER SYSTEM PAGE FOR ASSOCIATED BUILDING.										
3. CONTRACTOR SHALL REMOVE GRAPHICS FOR ALL EXISTING EQUIPMENT DEMOLISHED IN THIS PROJECT.										
4. ALL EXISTING CONTROL SYSTEM GRAPHICS SHALL BE UPDATED TO INCLUDE ALL NEW EQUIPMENT ASSOCIATED WITH THIS SCHOOL BUILDING.										
<b>BOILER ROOM HEATING AND VENTILATION SUPPLY FAN (OC-SF-1), LOUVER (OC-L-1), RELIEF HOOD (OC-RH-1) DAMPER AND ELECTRIC UNIT HEATER (OC-UH-1):</b>										
1. SPACE COOLING: LOUVER OC-L-1 DAMPER SHALL OPEN, SUPPLY FAN OC-SF-1 SHALL ENERGIZE, AND RELIEF HOOD OC-RH-1 DAMPER SHALL OPEN WHEN SPACE TEMP EXCEEDS 80 DEGREES F (ADJUSTABLE). WHEN SPACE TEMPERATURE DROPS BELOW SETPOINT, FAN SHALL DE-ENERGIZE AND DAMPERS SHALL CLOSE.										
2. SPACE HEATING: UNIT HEATER OC-UH-1 SHALL ENERGIZE AND SHALL HEAT THE ROOM WHEN SPACE TEMPERATURE FALLS BELOW 55 DEGREES F (ADJUSTABLE). SUPPLY FAN OC-SF-1 SHALL NOT OPERATE. LOUVER OC-L-1 DAMPER SHALL NOT OPEN, AND RELIEF HOOD OC-RH-1 DAMPER SHALL NOT OPEN WHEN SPACE TEMPERATURE DROPS BELOW HEATING SET POINT. WHEN SPACE TEMPERATURE EXCEEDS SETPOINT, UNIT HEATER SHALL DE-ENERGIZE.										
<b>HOT WATER SYSTEM BOILERS (OC-B-1 &amp; 2), HEATING WATER PRIMARY PUMPS (OC-HWP-1 &amp; 2), INDIRECT WATER HEATER TANK CIRCULATION PUMP (OC-HWS-3), AND DOMESTIC WATER CIRCULATION PUMP (OC-CP-1):</b>										
1. EACH BOILER IS PROVIDED WITH ALL NECESSARY SAFETY AND OPERATING CONTROLS BY THE BOILER MANUFACTURER. EACH BOILER'S OPERATING TEMPERATURE IS MANUALLY SET TO MAINTAIN 180°F (ADJ.) WATER TEMPERATURE. THE HIGH LIMIT AQUASTAT SUPPLIED WITH THE BOILER SHALL BE SET AT 210°F (ADJ.).										
2. THE BOILER SYSTEM SHALL BE INITIATED BELOW 65°F (ADJ.) OUTSIDE AIR TEMPERATURE. THE LEAD BOILER SHALL BE STARTED WITH THE FOLLOWING SEQUENCE: A. LEAD BOILER'S ASSOCIATED ISOLATION VALVE SHALL OPEN. B. UPON A CALL FOR HEAT FROM THE BOILER CONTROLS AND UPON A PROOF OF FLOW FROM A CURRENT SWITCH ON THE LEAD HOT WATER PUMP, THE BOILER SHALL BE ENABLED. C. BOILER SHALL FIRE ON LOW FIRE. BOILER SHALL MODULATE AS REQUIRED TO MAINTAIN LOOP TEMPERATURE. IF LEAD BOILER CAN NOT MAINTAIN LOOP TEMPERATURE, LEAD BOILER SHALL RAMP DOWN TO LOW FIRE, AND ISOLATION VALVE FOR SECOND BOILER SHALL OPEN AND SECOND BOILER SHALL FIRE ON LOW FIRE. BOTH BOILERS SHALL MODULATE TO MAINTAIN LOOP TEMPERATURE. ONCE LOOP IS SATISFIED LAG BOILER SHALL DE-ENERGIZE. AFTER FIVE MINUTES ISOLATION VALVE SHALL CLOSE. DIFFERENTIAL PRESSURE BYPASS VALVE SHALL MODULATE TO MAINTAIN SYSTEM PRESSURE. B. SHOULD LEAD HOT WATER PUMP FAIL TO PROVE FLOW, LAG PUMP SHALL ENABLE. IF LAG PUMP FAILS, THE BOILER SHALL BE DISABLED AND AN ALARM SHALL BE GENERATED THROUGH THE DDC SYSTEM.										
3. HOT WATER LOOP SHALL BE LINEARLY RESET BASED ON OUTDOOR AIR TEMPERATURE.										
4. PROVIDE LEAD/LAG CONTROL TO ALLOW SELECTION OF LEAD/LAG BOILER. BOILERS SHALL ALTERNATE BETWEEN LEAD AND LAG AUTOMATICALLY ON A WEEKLY BASIS (BY TCC).										
5. PROVIDE LEAD/LAG CONTROL TO ALLOW SELECTION OF LEAD/LAG PUMP. PUMPS SHALL ALTERNATE BETWEEN LEAD AND LAG AUTOMATICALLY ON A WEEKLY BASIS (BY TCC).										
6. MAKEUP WATER FILL: IF SYSTEM MEASURES MAKEUP WATER FLOW RATE, GENERATE ALARM FOR POTENTIAL LEAK.										
<b>DOMESTIC HOT WATER:</b>										
1. BASE BID ONLY: ASSOCIATED DOMESTIC INDIRECT WATER HEATER TANK CIRCULATION PUMP OC-HWS-3 SHALL ENERGIZE TO MAINTAIN INDIRECT HOT WATER STORAGE TANKS WATER TEMPERATURE. WHEN STORAGE TANK SET POINT IS MET, CIRCULATION PUMP SHALL DE-ENERGIZE. DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 SHALL OPERATE AS REQUIRED TO MEET DOMESTIC HOT WATER LOOP SETPOINTS.										
2. ALTERNATE OHS-M1 ONLY: ASSOCIATED DOMESTIC GAS-FIRED WATER HEATER SHALL MODULATE TO MAINTAIN HOT WATER TANK WATER TEMPERATURE SETPOINT. DOMESTIC HOT WATER CIRCULATION PUMP OC-CP-1 SHALL OPERATE AS REQUIRED TO MEET DOMESTIC HOT WATER LOOP SETPOINTS.										

ALTERNATE	
ALTERNATE OHS-M1: STATE THE AMOUNT TO BE ADDED TO OR SUBTRACTED FROM THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE FOLLOWING:	
1.	OMISSION OF THE INSTALLATION OF INDIRECT WATER HEATER PIPING AND CIRCULATION PUMP OC-HWS-3 AS WELL AS ASSOCIATED TEMPERATURE CONTROLS.
2.	OMISSION OF THE DEMOLITION OF NATURAL GAS PIPING DISTRIBUTION TO EXISTING GAS-FIRED DOMESTIC WATER HEATER.
3.	INSTALLATION OF N.G. CONNECTION TO DOMESTIC GAS-FIRED WATER HEATER, 1" GAS PIPING AS SHOWN ON PLANS, NEW GAS PRESSURE REGULATOR, AND TEMPERATURE CONTROLS.



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1110 WEST FRONT STREET  
MONROE, MICHIGAN 48161  
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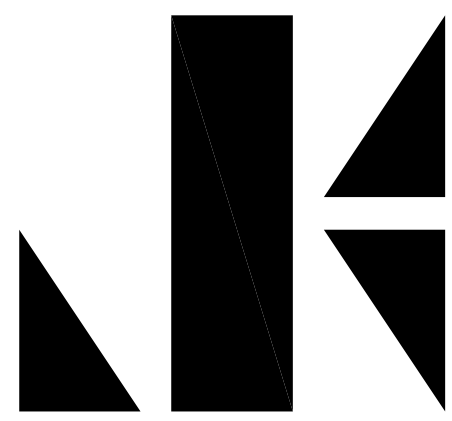
DATE	DESCRIPTION
02.09.2026	BIDDING & STATE REVIEW
03.06.2026	ADDENDUM #1

**BOILER REPLACEMENT & RELATED WORK**  
**ORCHARD CENTER HIGH SCHOOL**  
1750 OAK STREET, MONROE, MICHIGAN 48161  
**FOR**  
**MONROE PUBLIC SCHOOLS**  
1275 N. MACOMB STREET, MONROE, MICHIGAN 48162

JOB # 26102

TEMPERATURE CONTROLS

M6.01



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AT FOR  
**JOB # 26102**

ELECTRICAL LEGEND  
SINGLE-LINE &  
PANEL SCHEDULES  
**E1.02**

BRANCH CIRCUIT CONDUCTOR SIZING CHART		
MAX. CIRCUIT LENGTH TO FARTHEST OUTLET	CIRCUIT VOLTAGE	MINIMUM BRANCH CIRCUIT SIZE
100 FEET	120	#12 AWG
165 FEET	120	#10 AWG
265 FEET	120	#8 AWG
400 FEET	120	#6 AWG
250 FEET	277	#12 AWG
400 FEET	277	#10 AWG
550 FEET	277	#8 AWG
750 FEET	277	#6 AWG

**ALTERNATE**

ALTERNATE OC-E1: STATE THE AMOUNT TO BE ADDED/SUBTRACTED TO THE BASE BID TO FURNISH ALL MATERIAL, LABOR AND EQUIPMENT NECESSARY FOR THE COMPLETE INSTALLATION OF THE FOLLOWING.

- ELECTRICAL WORK ASSOCIATED WITH THE GAS-FIRED DOMESTIC WATER HEATER (OC-DWH-1) WITH THE DETAILS INDICATED ON THE DESIGN DOCUMENTS.
- OMISSION OF ALL ELECTRICAL WORK ASSOCIATED WITH THE INLINE PUMP (OC-HWS-3)

(EXISTING CIRCUITING)

**PANELBOARD SCHEDULE**

PANEL: LP-H  
MAINS: 250A M.L.O.  
VOLTS: 120/208V-3Ø-4W-SN  
MOUNTING: SURFACE

NOTES: EXISTING SIEMENS PANEL  
 GFCI BREAKER  
 30 MILLIAMP EQUIPMENT GROUND FAULT TRIP  
 SHUNT TRIP  
 ARC FAULT  
 SWITCHED NEUTRAL  
 MOTOR OPERATED  
 KAIC RATING  
 NON-CONSEQUENT LOAD  
 RELAY CONTROLLED

LOAD DESCRIPTION	NOTES	VOLT AMPS	C.B. AMP/P	A	B	C	C.B. P AMP	VOLT AMPS	NOTES	LOAD DESCRIPTION	
1 CIRCULATION PUMP 1		580	20 3	2080			3	20 1500		PARKING LOT LIGHTING	2
3		580	20 3		2080		3	20 1500			4
5		580	20 3			2080	3	20 1500			6
7 CIRCULATION PUMP 2		580	20 3	1580			2	20 1000		PARKING LOT LIGHTING	8
9		580	20 3		1580		2	20 1000			10
11		580	20 3			785	1	20 205		HOT WATER CIRC PUMP	12
13 BOILER 2 DISC.		1705	20 1	2205			1	20 500		FIRE ALARM	14
15 BOILER 1 DISC.		1705	20 1		2505		1	20 800		UNKNOWN	16
17 PNEUMATIC CONTROL PNL		500	20 1			1700	1	20 1200		OUTLET SIGN	18
19 BOILER PUMP 1		300	20 1	1100			1	20 800		UNKNOWN	20
21 BOILER PUMP 2		300	20 1		1100		1	20 800		UNKNOWN	22
23 EXHAUST FAN STARTER		800	20 1			1600	1	20 800		UNKNOWN	24
25 BATH FANS STARTER		800	20 1	2300			2	30 1500		UNKNOWN	26
27 AIR COMPRESSOR		1500	20 2		3000		2	30 1500			28
29		1500	20 2			2300	1	20 800		UNKNOWN	30
31 NETWORK 8000 PANEL		500	20 1	1300			1	20 800		UNKNOWN	32
33 LIGHTING CONTACTOR		500	20 1		2000		3	20 1500		UNKNOWN	34
35 LIGHTING CONTACTOR		500	20 1			2000	3	20 1500			36
37 LIGHTING CONTACTOR		500	20 1	2000			3	20 1500			38
39 SPACE		0			0					SPACE	40
41 SPACE		0				0				SPACE	42
				12565	12265	10465					
				BALANCE							
				107%	104%	89%					
<b>TOTAL LOAD:</b>				35295			<b>TOTAL AMPS:</b>			98.0	

(NEW CIRCUITING)

**PANELBOARD SCHEDULE**

PANEL: LP-H  
MAINS: 250A M.L.O.  
VOLTS: 120/208V-3Ø-4W-SN  
MOUNTING: SURFACE

NOTES: EXISTING SIEMENS PANEL  
 GFCI BREAKER  
 30 MILLIAMP EQUIPMENT GROUND FAULT TRIP  
 SHUNT TRIP  
 ARC FAULT  
 SWITCHED NEUTRAL  
 MOTOR OPERATED  
 KAIC RATING  
 NON-CONSEQUENT LOAD  
 RELAY CONTROLLED

LOAD DESCRIPTION	NOTES	VOLT AMPS	C.B. AMP/P	A	B	C	C.B. P AMP	VOLT AMPS	NOTES	LOAD DESCRIPTION	
1 OC-HWP-1		1272	20 3	2772			3	20 1500		PARKING LOT LIGHTING	2
3		1272	20 3		2772		3	20 1500			4
5		1272	20 3			2772	3	20 1500			6
7 OC-HWP-2		1272	20 3	2272			2	20 1000		PARKING LOT LIGHTING	8
9		1272	20 3		2272		2	20 1000			10
11		1272	20 3			1728	1	20 1000		OC-HOT WATER OP & HI-WATER METER	12
13 OC-B-2		720	15 1	1220			1	20 500		FIRE ALARM	14
15 OC-B-1		720	15 1		1520		1	20 800		UNKNOWN	16
17 PNEUMATIC CONTROL PNL		500	20 1			1700	1	20 1200		OUTLET SIGN	18
19 OC-HWS-3		700	20 1	1500			1	20 800		UNKNOWN	20
21 OC-SF-1		300	20 1		1100		1	20 800		UNKNOWN	22
23 EXHAUST FAN STARTER		800	20 1			1600	1	20 800		UNKNOWN	24
25 BATH FANS STARTER		800	20 1	2300			2	30 1500		UNKNOWN	26
27 AIR COMPRESSOR		1500	20 2		3000		2	30 1500			28
29		1500	20 2			2300	1	20 800		UNKNOWN	30
31 NETWORK 8000 PANEL		500	20 1	1300			1	20 800		UNKNOWN	32
33 LIGHTING CONTACTOR		500	20 1		2000		3	20 1500		UNKNOWN	34
35 LIGHTING CONTACTOR		500	20 1			2000	3	20 1500			36
37 LIGHTING CONTACTOR		500	20 1	2000			3	20 1500			38
39 OC-UH-1		1664	20 2		1904		1	20 240		BOILER ROOM LIGHTING	40
41		1664	20 2			2464	1	15 800		OC-DWH-1	42
				13364	14568	14564					
				BALANCE							
				94%	103%	103%					
<b>TOTAL LOAD:</b>				42496			<b>TOTAL AMPS:</b>			118.0	

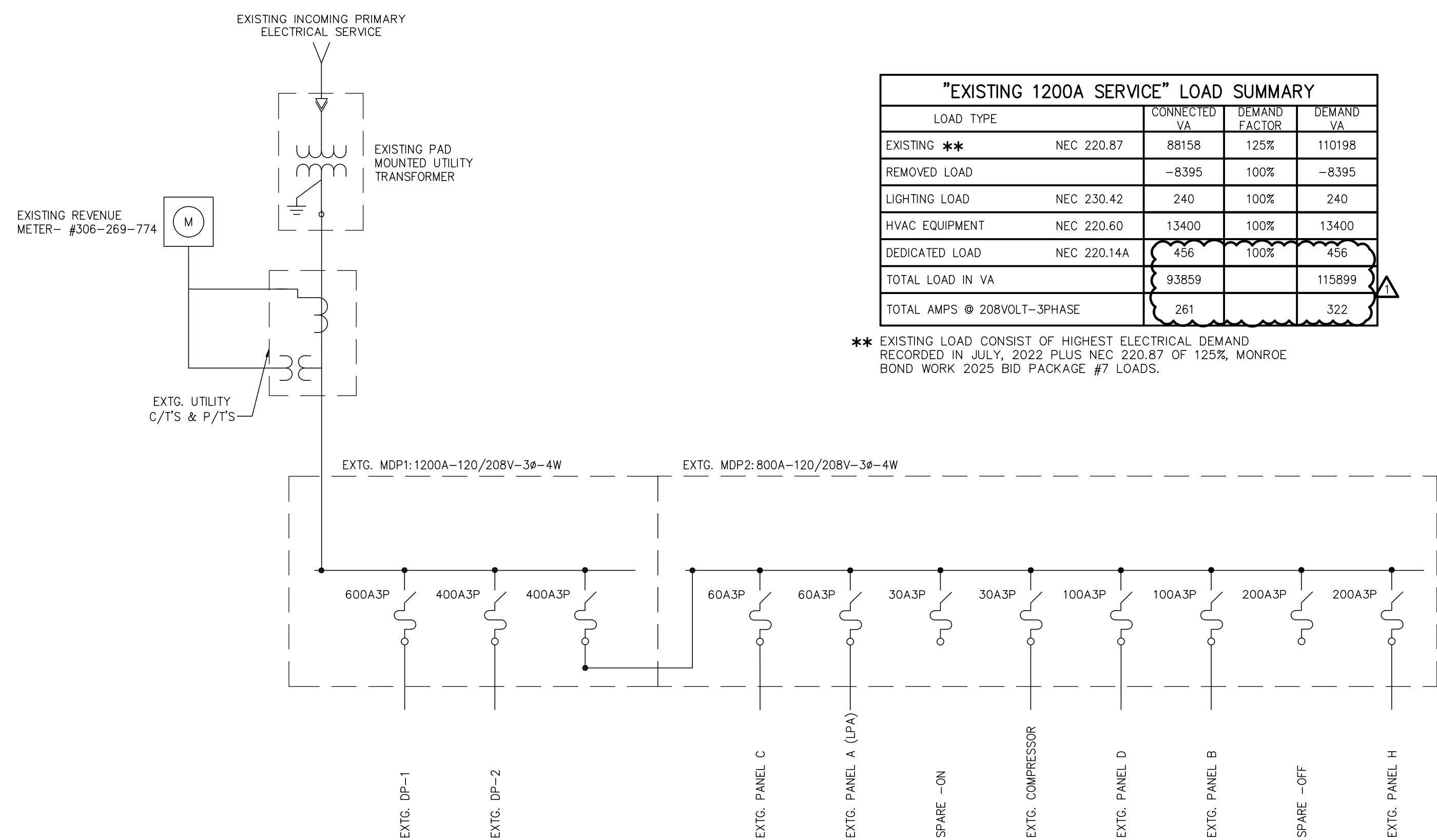
**PANEL SCHEDULE NOTES**

- UPDATE PANEL DIRECTORY AT COMPLETION OF PROJECT.
- REMOVE EXISTING ITEM INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE. EXISTING BREAKER SHALL REMAIN AND BE RE-USED OR BECOME A SPARE. NEW BRANCH CIRCUITS SHALL BE IN DEDICATED RACEWAYS AS PER THE SPECIFICATIONS. FIELD VERIFY CIRCUIT DESIGNATIONS ASSOCIATED WITH RENOVATIONS AND FIELD VERIFY LOAD FOR ANY CIRCUIT MODIFIED OR EXTENDED AS PART OF THIS PROJECT.
- UTILIZE EXISTING BREAKER FOR NEW BRANCH CIRCUIT INDICATED.
- FURNISH AND INSTALL NEW CIRCUIT BREAKER SIZED AS INDICATED TO MATCH EXISTING IN AVAILABLE SPACE. NEW BREAKER TO MATCH EXISTING IN TYPE, STYLE, MANUFACTURER, AND AIC RATING.
- REMOVE EXISTING ITEM INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE. EXISTING BREAKER SHALL BE REMOVED AND TURNED OVER TO OWNER FOR ATTIC STOCK. NEW BRANCH CIRCUITS SHALL BE IN DEDICATED RACEWAYS AS PER THE SPECIFICATIONS. FIELD VERIFY CIRCUIT DESIGNATIONS ASSOCIATED WITH RENOVATIONS AND FIELD VERIFY LOAD FOR ANY CIRCUIT MODIFIED OR EXTENDED AS PART OF THIS PROJECT.

**"EXISTING 1200A SERVICE" LOAD SUMMARY**

LOAD TYPE	CONNECTED VA	DEMAND FACTOR	DEMAND VA
EXISTING **	NEC 220.87	88158	125% 110198
REMOVED LOAD		-8395	100% -8395
LIGHTING LOAD	NEC 230.42	240	100% 240
HVAC EQUIPMENT	NEC 220.60	13400	100% 13400
DEDICATED LOAD	NEC 220.14A	456	100% 456
TOTAL LOAD IN VA		93859	115899
TOTAL AMPS @ 208VOLT-3PHASE		261	322

\*\* EXISTING LOAD CONSIST OF HIGHEST ELECTRICAL DEMAND RECORDED IN JULY, 2022 PLUS NEC 220.87 OF 125% MONROE BOND WORK 2025 BID PACKAGE #7 LOADS.



**EXISTING SINGLE LINE DIAGRAM**  
N.T.S.

**ELECTRICAL LEGEND**

CCT	CIRCUIT ELECTRICAL (SUB) CONTRACTOR		MOTOR-FRACTIONAL H.P.-120 VOLT (EF=EXH. FAN; UH=UNIT HEATER; MD=MOTORIZED DAMPER)
EXTG.	EXISTING		MOTOR-SIZE AND FUNCTION AS NOTED-3 PHASE
F.B.O.	FURNISHED BY OTHERS, INSTALLED AND/OR WIRED BY ELECTRICAL CONTRACTOR		PRE-WIRED CONTROL PANEL WITH MAGNETIC STARTERS, CONTACTORS, ETC., PROVIDED WITH EQUIPMENT, WITH OR WITHOUT DISCONNECT AS SHOWN. POWER FEED WIRING BY E.C.
G.C.	GENERAL (SUB) CONTRACTOR		SECURITY SYSTEM CARD/JOB READER/KEYPAD OR ENTRY CONTROL STATION-SHALL BE FURNISHED BY GENERAL TRADES. ONE GANG BOX, MH 44" UNO ON PLANS, WITH 3/4" CONDUIT STUB TO ABOVE ACCESSIBLE CEILING OR TO STRUCTURE BY ELECTRICAL CONTRACTOR. HARDWARE INSTALLATION AND WIRING SHALL BE BY ACCESS CONTROL SUPPLIER.
HP	HORSEPOWER		ELECTRIC DOOR LOCK OR LATCH RELEASE-FLUSH IN DOOR FRAME-SHALL BE FURNISHED BY GENERAL TRADES. 3/4" CONDUIT STUB TO ABOVE ACCESSIBLE CEILING OR TO STRUCTURE BY ELECTRICAL CONTRACTOR. HARDWARE INSTALLATION AND WIRING SHALL BE BY ACCESS CONTROL SUPPLIER.
L.D.	LOCATE AS DIRECTED		SECURITY SYSTEM MAGNETIC DOOR CONTACT/SWITCH-FLUSH MOUNTED IN DOOR FRAME-SHALL BE FURNISHED BY GENERAL TRADES. 3/4" CONDUIT STUB TO ABOVE ACCESSIBLE CEILING OR TO STRUCTURE BY ELECTRICAL CONTRACTOR. HARDWARE INSTALLATION AND WIRING SHALL BE BY ACCESS CONTROL SUPPLIER.
MAX	MAXIMUM		WIRE TICKS INDICATE BRANCH CIRCUIT PHASE, NEUTRAL, & GROUND WIRES, RESPECTIVELY CONDUIT-CONCEALED IN CEILING, WALL OR FLOOR OF NEW CONSTRUCTION. CONCEALED WHEREVER POSSIBLE IN EXISTING CONSTRUCTION (1/2" DIA. MIN.)
M.C.	MECHANICAL (HVAC, PLBG, FP, OR TC) (SUB) CONTRACTOR		HOMERUN TO PANEL OR LOCATION NOTED
MH	MOUNTING HEIGHT TO BOTTOM OF DEVICE, BOX, OR FIXTURE, UNO		INDICATES CONCEALED CONDUIT UNDERGROUND/UNDERFLOOR - 3/4" MIN.
MIN	MINIMUM		SURFACE MOUNTED RACEWAY-W/MATCHING FITTINGS, BOXES, ACCESSORIES, ETC. WIREMOLD #700 SERIES, HUBBELL #HBL75010W SERIES OREQ
N/L	NIGHT LIGHT, UNSWITCED CIRCUIT		INDICATES LOW VOLT CABLING ROUTED THRU PLENUM OR CEILING SPACE.
OREQ	OR EQUAL		WORKING CLEARANCE AREA PER NEC 110.26.
REV	REVIEW		EXISTING CONDUIT & WIRING-TO REMAIN
R/M	REMOVE		EXISTING 120 VOLT MOTOR-TO REMAIN-UNO
R/L	RELOCATE/RELOCATED		EXISTING ITEMS ARE TO REMAIN-UNO
UNO	UNLESS NOTED OTHERWISE		ALL EXISTING ITEMS "DASHED" ARE TO BE REMOVED-UNO
W/	COMPLETE WITH		REMOVE EXISTING ITEM INCLUDING ASSOCIATED CONDUIT AND WIRING NO LONGER IN SERVICE BACK TO SOURCE.
WG	WITH WIRE GUARD		
WP	WEATHERPROOF DEVICE, ENCLOSURE OR COVER PLATE.		
XX,XXX	INDICATES MAXIMUM RMS SHORT CIRCUIT FAULT AT NOTED BUS PER ENGINEER'S CALCULATIONS VIA ASSUMPTIONS ON UTILITY FAULT INFORMATION.		
(2)	INDICATES NOTE-SEE TABULATION ON SAME SHEET		
	SINGLE LAMP STRIP-SEE SCHEDULE-SHOWN TO SCALE (APPROX.)		
	EMERGENCY EGRESS OR COMBINATION EXIT EGRESS LIGHT-SEE SCHEDULE		
	LOCAL SWITCH-1 POLE-20A-120/277V-W/STAINLESS STEEL C.P. - M.H. 44" HUBBELL #CSB120W OREQ.		
	VARIABLE SPEED DRIVE W/DISCONNECT AND FUSES-FURNISHED AND INSTALLED BY OTHERS. POWER WIRING BY E.C. PER SUPPLIERS WIRING DIAGRAMS. VFD LINE AND LOAD CONDUCTORS SHALL NOT BE ROUTED IN THE SAME RACEWAY. PROVIDE NEW ENGRAVED LABEL AT VFD TO MATCH MOTOR AND PANEL LABELING. COORDINATE FINAL VFD LOCATION IN FIELD.		
	FUSED SAFETY SWITCH-AMP SIZE AS NOTED-VOLTAGE AS REQD-NEMA 1 ENCLOSURE U.N.O.-MH 6"Ø" TO TOP UNO (NF-NON-FUSED); 3R-NEMA 3R ENCL; GK-NEMA 12 GASKETED ENCL; 4X-NEMA 4X STAINLESS STEEL ENCL)		
	DISCONNECT SWITCH-HP RATED-TOGGLE TYPE-20 AMP-1 TO 3 POLES AS REQUIRED FOR EOPT-600 VOLT-NEMA 1 ENCLOSURE U.N.O.-LOCATE ADJACENT TO EQUIPMENT SERVED. (WP=WEATHERPROOF ENCLOSURE) SQUARE D CLASS 2510 SERIES OREQ		
	DUPLEX GFI AND TAMPER RESISTANCE RECEPT.-15A-125V-NEMA 5-15R W/STAINLESS STEEL C.P. - M.H. 16" IN READILY ACCESSIBLE LOCATION. HUBBELL #GFRST15BK OREQ.		

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