ADDENDUM NO. 01

April 24, 2025

Pentwater Public Schools – Boiler Replacement
600 E. Park Street
Pentwater, MI 49449

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications and the Drawings dated March 23, 2025, by C2AE. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1-1 through ADD 1-1 and C2AE Addendum No. 01, dated April 23, 2025, consisting of 16 pages.

A. SPECIFICATION SECTION 00 00 10 TITLE PAGE

1. Revise Bids Received to Tuesday, May 6, 2025, at 2:00 PM.

B. **SPECIFICATION SECTION 00 20 00 NOTICE TO BIDDERS**

1. Revise Bids Received to Tuesday, May 6, 2025, at 2:00 PM.
2. Bid Opening. Bids will be publicly opened and read aloud on Monday, May 5, 2025, shortly after the 2:00 PM Bid receipt deadline, in the Pentwater Administration Office, 600 E. Park Street, Pentwater, MI 49449.

50 Louis St., NW, Suite 200
Grand Rapids, MI 49503
616.454.9414
www.c2ae.com

Addendum #1

Project No.:	24-0301	**Date:**	April 23, 2025
Project:	Pentwater Public Schools 2024 Bond Implementation – Bid Package 1	**A/E Firm:**	C2AE
		Project Manager:	Steve Jurczuk
Owner:	Pentwater Public Schools 600 East Park Street Pentwater, MI 49449		

The following changes, revisions, modifications, etc. shall be incorporated into the contract documents, specifications, and plans.

ACKNOWLEDGEMENTS

A1.1 The Bidder shall acknowledge receipt of Addenda #1 by indicating so in the spaces provided on the Bid Form.

SPECIFICATIONS

A1.2 Refer to Division 1 (not reissued):
CAD files are not available from the AE for this project.

A1.3 Refer to Section 00 1210 – Substitution Request Form (not reissued):
Delete Section 01 1210 in its entirety.

A1.4 Refer to Section 01 2100 – Allowances (not reissued):
Refer to Article 3.02. Add Allowance to paragraph 3.02 B as follows:

Allowance 2 - Cash Allowance: Door Hardware

1. *Description: Provide a Cash Allowance of $ 3,000.00 for new door hardware.*

A1.5 Refer to Section 01 2500 – Substitution Procedures (reissued):
Add Section 01 2500 – Substitution Procedures in its entirety.

A1.6 Refer to Section 23 5216 – Condensing Boilers (reissued):
Refer to Article 2.2. Add paragraph 2.2.A.5. *"Viessmann US"* New boiler manufacturer added to approved manufacturers.

DRAWINGS

A1.7 Refer to Sheet 1MD-101 (reissued):

a. Boiler demolition section edited for clarity
b. Mechanical demolition keynote D5 revised to communicate correct doorway size.

A1.8 Refer to Sheet 1M-100 (reissued):

a. Mechanical Keynote M5 revised to communicate correct doorway size.
b. Keynote and abbreviation tables shifted to avoid overlap.

SECTION 01 2500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents.
   1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
   2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required to meet other Project requirements but may offer advantage to Contractor or Owner.

1.3 ACTION SUBMITTALS

A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Substitution Request Form: Use form provided in Project Manual.
   2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
      a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
      b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
      c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
      d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
      e. Samples, where applicable or requested.
      f. Certificates and qualification data, where applicable or requested.
      g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
      h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
      i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.

j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor through Construction Manager of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.
   a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
   b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.5 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.6 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
   1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
      a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
      b. Requested substitution provides sustainable design characteristics that specified product provided for compliance with LEED requirements.

c. Requested substitution provides sustainable design characteristics that specified product provided for compliance with IgCC requirements.
d. Requested substitution provides sustainable design characteristics that specified product provided for compliance with ASHRAE 189.1 requirements.
e. Requested substitution provides sustainable design characteristics that specified product provided for compliance with Green Globes requirements.
f. Substitution request is fully documented and properly submitted.
g. Requested substitution will not adversely affect Contractor's construction schedule.
h. Requested substitution has received necessary approvals of authorities having jurisdiction.
i. Requested substitution is compatible with other portions of the Work.
j. Requested substitution has been coordinated with other portions of the Work.
k. Requested substitution provides specified warranty.
l. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience:
1. Not allowed unless otherwise indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 01 2500

REQUEST FOR SUBSTITUTION

TO: _____ **DATE:** _____

PROJECT: Boiler Replacement, Pentwater Public Schools

SECTION	**PARAGRAPH**	**SPECIFIED ITEM**

PROPOSED SUBSTITUTION: _____ **MODEL:** _____

MANUFACTURER: _____ **PHONE:** (____) _____

Include product description, specifications, drawings, photographs, performance and test data adequate for evaluation. Clearly identify applicable portions of the data. Also include description of changes to contract documents that would be required as a result of the substitution.

The undersigned states that the following line items, unless modified on attachments, are correct:

A. I have read and fully understand the conditions for substitutions outlined in this specification section.

B. The proposed substitution does not affect dimensions shown on drawings.

C. The undersigned will reimburse architect for any building design changes required due to the substitution, including engineering, detailing, and services associated with re-approval by authorities.

D. I will coordinate installation and make both known and unforeseen changes to other work required for substitution at no additional cost to the owner.

E. The proposed substitution will have no adverse effect on other trades, the construction schedule, or specified warranty requirements.

F. Maintenance and service parts will be locally available for the proposed substitution.

G. The undersigned further states that the function, appearance, and quality of the proposed substitutions are equivalent or superior to the specified item.

SUBMITTED BY: _____

SIGNATURE _____ **FOR USE BY C2AE**

FIRM _____ **ACCEPTED** **ACCEPTED AS NOTED**

ADDRESS _____ **NOT ACCEPTED** **RECEIVED TOO LATE**

_____ **BY** _____

TELEPHONE (____) _____ **DATE** _____

FAX (____) _____ **REMARKS** _____

SECTION 23 5216 - CONDENSING BOILERS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes gas-fired, water or fire-tube condensing boilers, trim, and accessories for generating hot water.
   1. Installing contractor shall receive and inspect delivered units and assume responsibility of units once received.

1.2 ACTION SUBMITTALS

A. Product Data: Include performance data, operating characteristics, construction details, dimensions, finishes, furnished specialties, trim, and accessories.
   1. Condensate neutralization kit
   2. Concentric vent kit
   3. Boiler circulation performance curve, materials, and construction.

B. Efficiency Curves: At a minimum, submit efficiency curves for 100%, 50% and 7% input firing rates at incoming water temperatures ranging from 80°F to 160°F.

C. Pressure Drop Curve. Submit pressure drop curve over design flow rate indicated on drawing schedule.

D. Shop Drawings: For boilers, boiler trim and accessories include:
   1. Plans, elevations, sections, details and attachments to other work
   2. Wiring Diagrams for power, signal and control wiring.

1.3 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For boilers to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. ASHRAE/IES 90.1 Compliance: Boilers shall have minimum efficiency according to "Gas and Oil Fired Boilers - Minimum Efficiency Requirements."

C. AHRI Certified: Boilers shall be certified by AHRI to meet test procedures published in the latest edition of the Code of Federal Regulations, 10 CFR Part 431.

2.2 FLOOR-MOUNTED, WATER-TUBE CONDENSING BOILERS *(ADM1)*

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. AERCO; A WATTS Brand
   2. Cleaver-Brooks
   3. Lochinvar, LLC
   4. Raypak; a Rheem brand
   5. Viessmann US (ADM1)

B. Description: Factory-fabricated, -assembled, and -tested, water-tube, forced-draft, condensing boiler with heat exchanger sealed pressure tight, built on a steel base, including insulated jacket; flue-gas vent; combustion-air intake connections; water supply, return, and condensate drain connections; and controls. Units are to be for water-heating service only.

C. Heat Exchanger: Stainless steel primary and secondary heat exchangers.

D. Combustion Chamber: Stainless steel, sealed.

E. Burner: Natural gas, forced draft drawing from gas-premixing valve.

F. Blower: Centrifugal fan to operate during each burner-firing sequence and to prepurge and postpurge the combustion chamber.
   1. Motors: Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230500 "Common Work Results for HVAC."
      a. Motor Sizes: Large enough so driven load will not require motor to operate in service factor range above 1.0.

G. Gas Train: Combination gas valve with manual shutoff and pressure regulator.

H. Ignition: Direct-spark ignition or silicone carbide hot-surface ignition with 100 percent main-valve shutoff and electronic flame supervision.

I. Casing:
   1. Jacket: Sheet metal, with snap-in or interlocking closures.
   2. Control Compartment Enclosures: NEMA 250, Type 1A.
   3. Finish: Baked-enamel protective finish.
   4. Insulation: Minimum 1-inch- thick, mineral-fiber insulation surrounding the heat exchanger.
   5. Combustion-Air Connections: Inlet and vent duct collars.

J. Capacities and Characteristics:
   1. Refer to drawings.

2.3 FORCED-DRAFT, FLOOR MOUTNED, FIRE-TUBE CONDENSING BOILERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following or equal:
   1. Aerco
   2. Fulton
   3. Lochinvar

B. Description: Factory-fabricated, -assembled, and -tested, fire-tube condensing boiler with heat exchanger sealed pressure tight, built on a steel base, including insulated jacket; flue-gas vent; combustion-air intake connections; water supply, return, and condensate drain connections; and controls. Water-heating service only.

C. Heat Exchanger: Nonferrous, corrosion-resistant combustion chamber.

D. Pressure Vessel: Carbon steel with welded heads and tube connections.

E. Burner: Natural gas, forced draft.

F. Blower: Centrifugal fan to operate during each burner firing sequence and to prepurge and postpurge the combustion chamber.
   1. Motors: Comply with NEMA designation, temperature rating, service factor, and efficiency requirements for motors specified in Section 230500."Common Works Results for HVAC".
      a. Motor Sizes: Minimum size as indicated; if not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.

G. Gas Train: Combination gas valve with manual shutoff and pressure regulator.

H. Ignition: Spark ignition with 100 percent main-valve shutoff with electronic flame supervision.

I. Casing:
   1. Jacket: Sheet metal, with snap-in or interlocking closures.
   2. Control Compartment Enclosures: NEMA 250, Type 1A.
   3. Finish: Baked-enamel or Powder-coated protective finish.
   4. Insulation: Minimum 2-inch-thick insulation surrounding the heat exchanger.
   5. Combustion-Air Connections: Inlet and vent duct collars.

J. Capacities and Characteristics: Refer to scheduled Boilers on Drawings.

K. Acid neutralization kit: provide neutralization kit sized for boiler operation, floor mounted.

2.4 TRIM

A. Include devices sized to comply with ASME B31.1 and ASME B31.9.

B. Aquastat Controllers: Operating, firing rate, and high limit.

C. Safety Relief Valve: ASME rated.

D. Pressure and Temperature Gage: Minimum 3-1/2-inch-diameter, combination water-pressure and -temperature gage. Gages shall have operating-pressure and -temperature ranges, so normal operating range is about 50 percent of full range.

E. Boiler Air Vent: Automatic.

F. Drain Valve: Minimum NPS 3/4 hose-end gate valve.

2.5 CONTROLS

A. Boiler operating controls shall include the following devices and features:
   1. Control transformer.
   2. Set-Point Adjust: Set points shall be adjustable.
   3. Sequence of Operation: Electric, factory-fabricated and field-installed panel to control burner firing rate to maintain space temperature in response to thermostat with heat anticipator located in heated space.
      a. Include automatic, alternating-firing sequence for multiple boilers to ensure maximum system efficiency throughout the load range and to provide equal runtime for boilers.
      b. Include boiler circulation pump control, on/off.
      c. Include boiler isolation valve open/close on call for start/stop.

B. Burner Operating Controls: To maintain safe operating conditions, burner safety controls limit burner operation.
   1. High Cutoff: Automatic reset stops burner if operating conditions rise above maximum boiler design temperature.
   2. Low-Water Cutoff Switch: Electronic probe shall prevent burner operation on low water. Cutoff switch shall be automatic-reset type.
   3. Blocked Inlet Safety Switch: Manual-reset pressure switch field mounted on boiler combustion-air inlet.
   4. Audible Alarm: Factory mounted on control panel with silence switch; shall sound alarm for above conditions.

C. Building Automation System Interface: Factory install hardware and software to enable building automation system to monitor, control, and display boiler status and alarms. Bacnet compatible.
   1. Hardwired Points:
      a. Monitoring: On/off status, common trouble alarm and low-water-level alarm.
      b. Control: On/off operation, hot-water-supply temperature set-point adjustment.
   2. A communication interface with building automation system shall enable building automation system operator to remotely control and monitor the boiler from an operator workstation. Control features available, and monitoring points displayed, locally at boiler control panel shall be available through building automation system.

2.6 ELECTRICAL POWER

A. Controllers, Electrical Devices, and Wiring: Electrical devices and connections are specified in electrical Sections.

B. Single-Point Field Power Connection: Factory-installed and -wired switches, motor controllers, transformers, and other electrical devices necessary shall provide a single-point field power connection to boiler.
   1. House in NEMA 250, Type 1 enclosure.
   2. Wiring shall be numbered and color coded to match wiring diagram.
   3. Install factory wiring outside of an enclosure in a raceway.
   4. Field power interface shall be to nonfused disconnect switch.
   5. Provide branch power circuit to each motor and to controls with a disconnect switch or circuit breaker.
   6. Provide each motor with overcurrent protection.
   7. Electrical disconnect.

2.7 CIRCULATOR PUMP

A. Circulation Pump: Nonoverloading, in-line pump with split-capacitor motor having thermal-overload protection and lubricated bearings; designed to operate at specified boiler pressures and temperatures.

2.8 VENTING KITS

A. Concentric Kit: Category IV approved material constructed of PVC, CPVC, or stainless steel, vent terminal, thimble, indoor plate, vent adapter, condensate trap and dilution tank, and sealant.

B. Combustion-Air Intake: Complete system, stainless steel or PVC pipe, vent terminal with screen, inlet air coupling, and sealant.

2.9 CONDENSATE-NEUTRALIZATION UNITS

A. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
   1. Neutra-Safe Corporation
   2. SFA Saniflo USA
   3. Skidmore Pump
   4. Wessels Company

B. Description: Factory-fabricated and -assembled condensate-neutralizing capsule assembly of corrosion-resistant plastic material with threaded or flanged inlet and outlet pipe connections. Device functions to prevent acidic condensate from damaging grain system. It is to be piped to receive acidic condensate discharged from condensing boiler and neutralize it by chemical reaction with replaceable neutralizing agent. Neutralized condensate is then piped to suitable drain.

C. Capsule features:
   1. All corrosion-resistant material.
   2. Suitable for use on all natural gas and propane boilers.
   3. Includes initial charge of neutralizing agent.
   4. Neutralizing agent to be easily replaceable when exhausted.
   5. Inlet and outlet pipe connections.

D. Capsule Configuration:
   1. Low-profile design for applications where boiler condensate drain is close to the floor.
   2. Easily removed and opened for neutralizing agent replacement.
   3. Multiple units may be used for larger capacity.

2.10 SOURCE QUALITY CONTROL

A. Burner and Hydrostatic Test: Factory adjust burner to eliminate excess oxygen, carbon dioxide, oxides of nitrogen emissions, and carbon monoxide in flue gas and to achieve combustion efficiency; perform hydrostatic test.

B. Test and inspect factory-assembled boilers, before shipping, according to 2010 ASME Boiler and Pressure Vessel Code.

2.11 CAPACITIES AND CHARACTERISTICS

A. Refer to equipment schedules on the drawing.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine roughing-in for concrete equipment bases, anchor-bolt sizes and locations, and piping and electrical connections to verify actual locations, sizes, and other conditions affecting performance of the Work.
   1. Final boiler locations indicated on Drawings are approximate. Determine exact locations before roughing-in for piping and electrical connections.

B. Examine mechanical spaces for suitable conditions where boilers will be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 BOILER INSTALLATION

A. Equipment Mounting:
   1. Install boilers on cast-in-place concrete equipment base(s).
   2. Comply with requirements for vibration isolation devices specified in Section 230548.13 “Vibration Controls for HVAC.”

B. Install gas-fired boilers according to NFPA 54.

C. Assemble and install boiler trim.

D. Install electrical devices furnished with boiler but not specified to be factory mounted.

E. Install control wiring to field-mounted electrical devices.

3.3 CONNECTIONS

A. Piping installation requirements are specified in other Sections. Drawings indicate general arrangement of piping, fittings, and specialties.

B. Install piping adjacent to boiler to allow service and maintenance.

C. Install piping from equipment drain connection to nearest floor drain. Piping shall be at least full size of connection.

D. Connect piping to boilers, except safety relief valve connections, with flexible connectors of materials suitable for service. Flexible connectors and their installation are specified in Section 232116 "Hydronic Piping Specialties."

E. Connect gas piping to boiler gas-train inlet with union. Piping shall be at least full size of gas-train connection. Provide a reducer if required.

F. Connect hot-water piping to supply- and return-boiler tapping's with shutoff valve and union or flange at each connection.

G. Install piping from safety relief valves and condensate neutralizers to nearest floor drain.

H. Boiler Venting:
   1. Install flue venting kit and combustion-air intake.
   2. Connect full size to boiler connections.

I. Ground equipment per electrical specification

J. Connect wiring per electrical specification

3.4 FIELD QUALITY CONTROL

A. Provide a factory-authorized service representative to test and inspect components, assemblies, and equipment installations, including connections is provided by owner as part of the equipment-pre-purchase scope. Coordinate with service representative for equipment start up.

B. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
   1. Perform installation and startup checks according to manufacturer's written instructions.
   2. Leak Test: Hydrostatic test. Repair leaks and retest until no leaks exist.
   3. Operational Test: Start units to confirm proper motor rotation and unit operation. Adjust air-fuel ratio and combustion.

4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
   a. Check and adjust initial operating set points and high- and low-limit safety set points of fuel supply, water level, and water temperature.
   b. Set field-adjustable switches and circuit-breaker trip ranges as indicated.

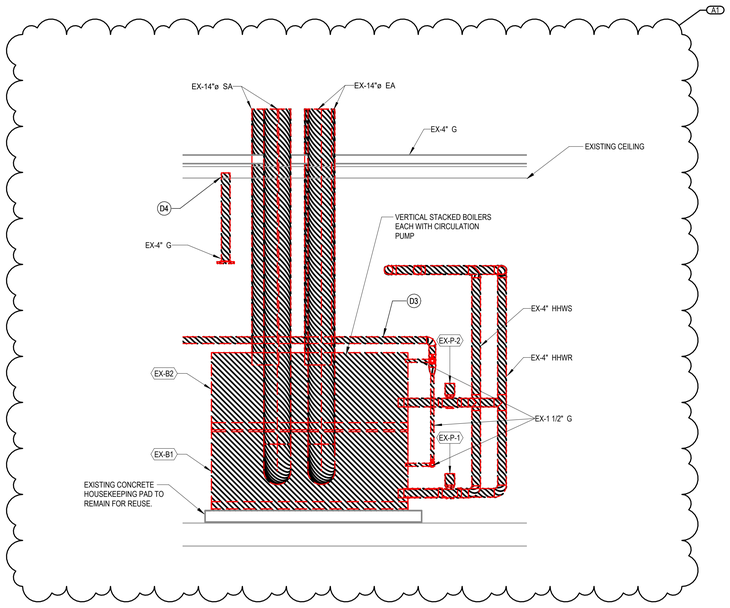
C. Boiler will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

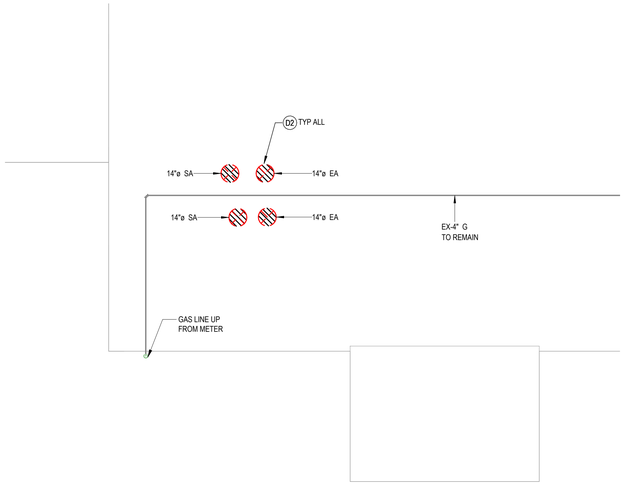
3.5 DEMONSTRATION

E. Provide a manufacturer’s representative to Train Owner's maintenance personnel to adjust, operate, and maintain equipment. Coordinate representative for equipment training/demonstration.

END OF SECTION 23 5216



3 EXISTING BOILERS DEMOLITION SECTION
3/8" = 1'-0"



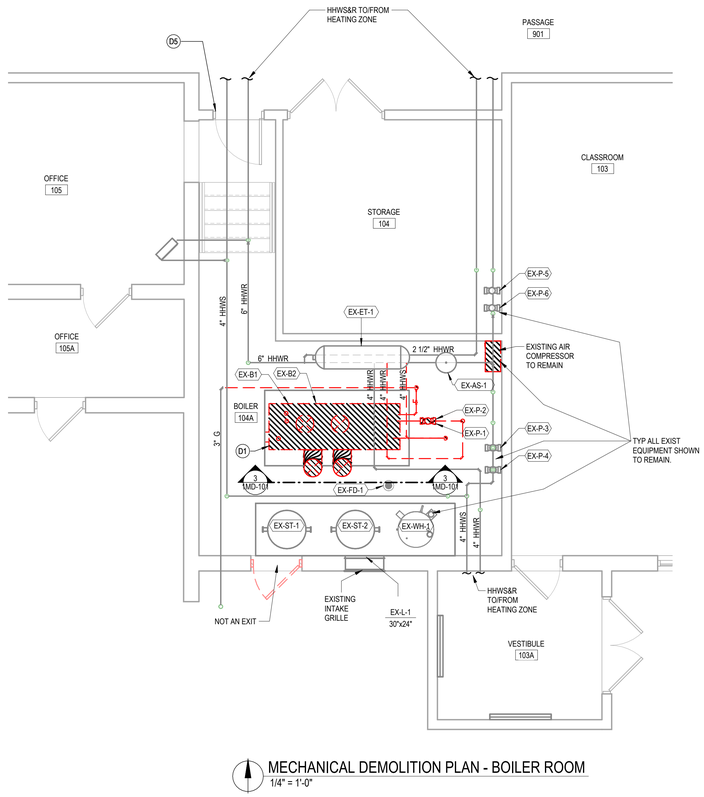
MECHANICAL DEMOLITION - BOILER ROOM ROOF
1/4" = 1'-0"

MECHANICAL DEMOLITION NOTES:

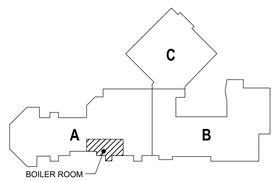
1. THE CONTRACTOR SHALL REVIEW THE ENTIRETY OF THE DRAWINGS AND SPECIFICATIONS BEFORE ANY WORK IS STARTED.
2. ALL WORK TO BE DEMOLISHED IS NOTED WITH DASHED LINES, OR A DEMOLITION KEYNOTE, OR BOTH. REVIEW THE DEMOLITION KEYNOTES PRIOR TO BEGINNING THE WORK.
3. EXCEPT FOR WHEN NOTED ON DRAWINGS, MECHANICAL EQUIPMENT AND SYSTEMS NOTED TO BE REMOVED SHALL BE ENTIRELY DEMOLISHED, AND SHALL BECOME PROPERTY OF THE CONTRACTOR TO REMOVE FROM THE SITE. WHILE FOLLOWING ALL CODES AND REQUIREMENTS.
4. ITEMS NOTED FOR SALVAGE SHALL BE REMOVED WITH DUE CARE TAKEN, AND RETURNED TO THE OWNER IN A LIKE CONDITION TO IT'S PREVIOUS STATE.
5. DEMOLITION SHALL BE COORDINATED WITH OTHER TRADES. THE CONTRACTOR IS RESPONSIBLE FOR ANY EXISTING MATERIALS TO REMAIN THAT ARE DAMAGED IN THE DEMOLITION PROCESS.
6. THESE DRAWINGS ARE COMPILED BY THE ARCHITECT AND ENGINEER FROM THE OWNER'S RECORD DRAWINGS AND LIMITED FIELD VERIFICATION OF EXISTING CONDITIONS. THE CONTRACTOR SHALL VERIFY EXISTING FIELD CONDITIONS. AREAS OF WORK THAT DIFFER GREATLY FROM THE DEMOLITION PLAN SHALL GENERATE AN RFI TO THE ENGINEER.
7. MECHANICAL SYSTEMS AND EQUIPMENT LOCATED IN THE AREA OF DEMOLITION BUT USED TO SERVE AREAS THAT ARE NOT TO BE DEMOLISHED SHALL BE LEFT TO REMAIN, OR RELOCATED IN SUCH A WAY AS TO MAINTAIN THE ORIGINAL DESIGN INTENT OF THE SYSTEM.

MECHANICAL DEMOLITION KEYNOTES

KEY VALUE	KEYNOTE TEXT
D1	DEMOLISH EXISTING BOILERS, INDICATED PIPING, SUPPORTS, AND ANCILLARIES ENTIRELY. CAPPING MAIN AND PREPARE FOR EXTENSION TO NEW BOILERS. EXTEND EXISTING HOUSEKEEPING PAD AS INDICATED ON MECHANICAL PLAN.
D2	DEMOLISH EXISTING BOILER FLUE AND VENT THROUGH THE CEILING AND ROOF. REFER TO ARCHITECTURAL SHEET FOR CEILING AND ROOF SCOPE.
D3	DEMOLISH NATURAL GAS LINES AND SHUTOFFS CONNECTED TO BOILERS. DEMOLISH GAS LINE TO ELBOW OR AS FAR BACK AS NEEDED FOR FUTURE WORK.
D4	DEMOLISH AND CAP FORMER GAS LINE AT CEILING LEVEL.
D5	DISASSEMBLE EXISTING BOILER AS NEEDED FOR REMOVAL THROUGH PASSAGE AND DOORWAY. EXIST DOOR APPROX 34" CLEAR. DOOR OPENING APPROXIMATELY 39" CLEAR WITH JAMB REMOVED. FIELD VERIFY.



MECHANICAL DEMOLITION PLAN - BOILER ROOM
1/4" = 1'-0"



KEY PLAN

c2ae
(866) 454-3923 | WWW.C2AE.COM
TMP ARCHITECTURE

MECHANICAL DEMOLITION PLAN

BOILER REPLACEMENT
600 E. PARK ST., PENTWATER, MI 49449

PHASE

ISSUED FOR BIDDING

ISSUANCES

#	DESCRIPTION	DATE
0	ISSUED FOR BIDDING	23-MAR-2025
A1	ADDENDUM 1	23-APR-2025

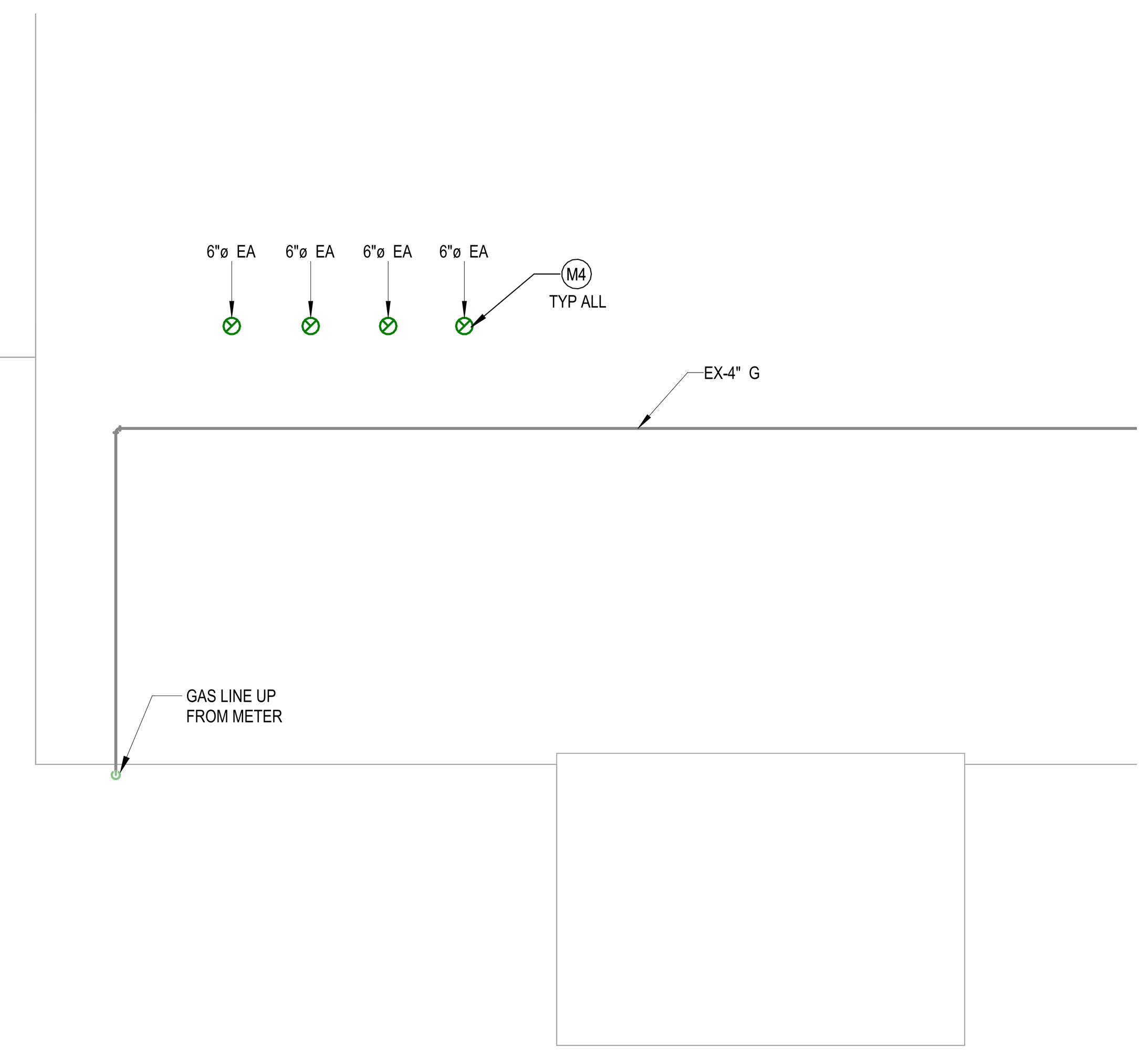
PROJ. #: 24-0301

1MD-101

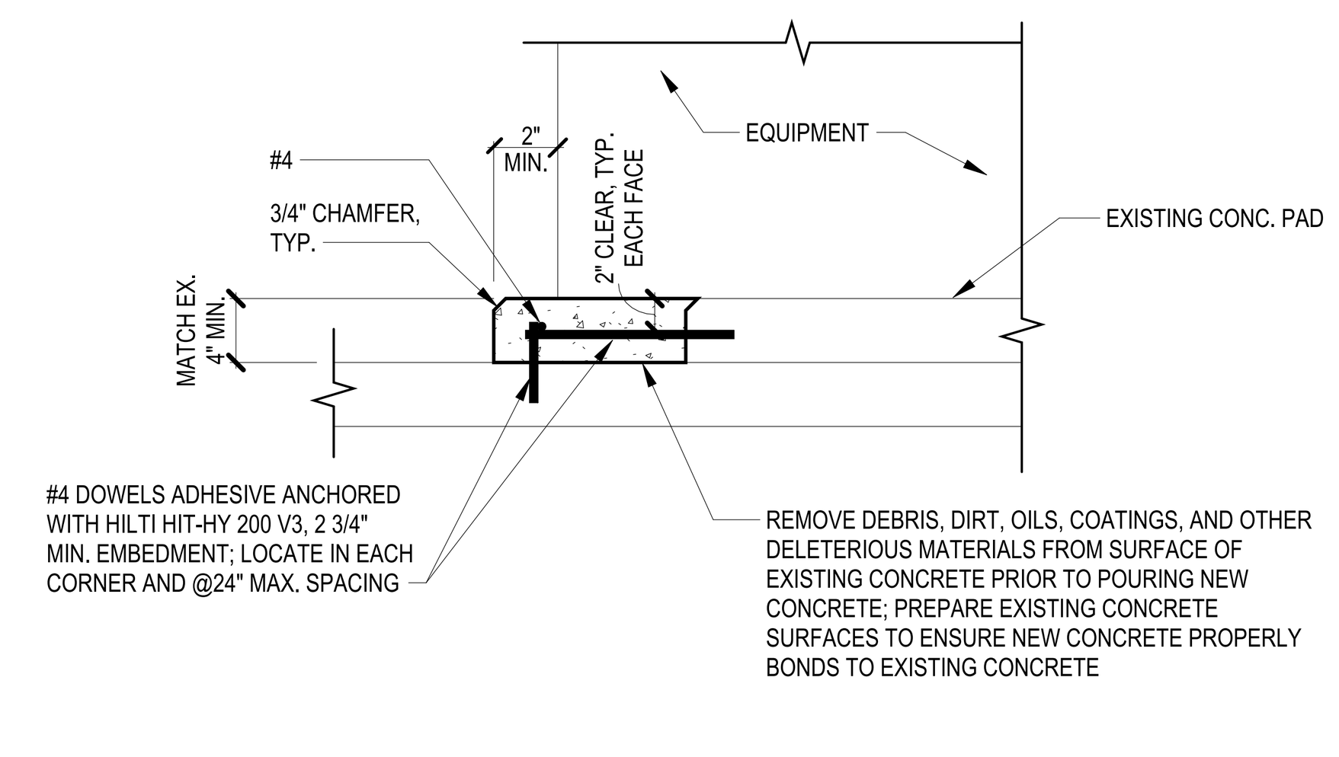
Addendum #1

4/2/2025 1:57:37 PM
Autodesk Docs://24020_PPS 2024 Bond Implementation/24020_MP.rvt
DESIGNED BY: NRI
CHECKED BY: JRS
APPROVED BY: DTD

C2AE
(866) 454-3923 | WWW.C2AE.COM
ARCHITECTURE



MECHANICAL PLAN - BOILER ROOM ROOF
1/4" = 1'-0"



4 EQUIPMENT PAD DETAIL
NOT TO SCALE

EQUIPMENT PAD NOTES:

1. COORDINATE SIZES AND LOCATIONS WITH ACTUAL EQUIPMENT PROVIDED.
2. CONCRETE MINIMUM COMPRESSIVE STRENGTH TO BE 4000 PSI AT 28 DAYS. READY MIXED CONCRETE SHALL CONFORM TO ASTM C94.
3. ALL CONCRETE WORK TO BE PERFORMED IN CONFORMANCE WITH THE MOST RECENT EDITION OF ACI 301 & ACI 318 CODE REQUIREMENTS AND DETAILING STANDARDS.
4. SECURE ALL REINFORCING BARS, DOWELS, ANCHOR BOLTS AND OTHER INSERTS IN POSITION PRIOR TO PLACING OF THE CONCRETE.
5. ALL REINFORCING STEEL SHALL BE HIGH STRENGTH DEFORMED BARS, GRADE 60, ASTM A615, WITH 60,000 PSI MINIMUM YIELD STRENGTH.
6. PROVIDE ALL ACCESSORIES NECESSARY TO SUPPORT REINFORCING AT POSITIONS SHOWN ON THE PLANS. TIE WIRE SHALL CONFORM TO ASTM A-82.
7. WELDING OF REINFORCING BARS IS NOT PERMITTED.

MECHANICAL GENERAL NOTES:

1. IF COMPLIANCE WITH TWO OR MORE DIFFERING STANDARDS, REQUIREMENTS, DRAWINGS OR SPECIFICATIONS, OR ANY COMBINATION THEREOF, IS SPECIFIED AND THESE ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS, COMPLY WITH THE MOST STRINGENT REQUIREMENT. THE MOST STRINGENT REQUIREMENT WILL BE THE BETTER QUALITY OR GREATER QUANTITY OF WORK, AND WILL TYPICALLY BE THE MORE EXPENSIVE OPTION. REFER UNCERTAINTIES AND REQUIREMENTS THAT ARE DIFFERENT, BUT APPARENTLY EQUAL, TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
2. THE QUANTITY OR QUALITY LEVEL SHOWN OR SPECIFIED SHALL BE THE MINIMUM PROVIDED OR PERFORMED. THE ACTUAL INSTALLATION MAY COMPLY EXACTLY WITH THE MINIMUM QUANTITY OR QUALITY SPECIFIED, OR IT MAY EXCEED THE MINIMUM WITHIN REASONABLE LIMITS. TO COMPLY WITH THESE REQUIREMENTS, INDICATED NUMERIC VALUES ARE MINIMUM OR MAXIMUM, AS APPROPRIATE, FOR THE CONTEXT OF REQUIREMENTS. REFER UNCERTAINTIES TO ENGINEER FOR A DECISION BEFORE PROCEEDING.
3. DESIGN DOCUMENTS MUST BE REPRODUCED IN THEIR ENTIRETY, INCLUDING ALL PLANS, SPECIFICATIONS, AND FRONT END DOCUMENTS.
4. ONLY COMPLETE DOCUMENT SETS ARE TO BE DISTRIBUTED TO SUBCONTRACTORS AND SUPPLIERS OF THE CONTRACTOR DURING BIDDING OR CONSTRUCTION.
5. FAILURE TO REVIEW AND COMPLY WITH A FULL SET OF CONTRACT DOCUMENTS WILL NOT BE ACCEPTED AS A VALID REASON FOR FAILURE TO MEET THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS.
6. ALL MECHANICAL WORK SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL ORDINANCES, CODES, AND LAWS. FOR PURPOSES OF THIS DESIGN, THE CODES FOR THE STATE OF **MICHIGAN** WERE USED AS THE BASIS.
7. COORDINATE LOCATIONS OF ALL DEVICES WITH ARCHITECTURAL AND ELECTRICAL PRIOR TO ROUGH-IN. ALL CONFLICTS WITH FINISHES, ADJACENT CONSTRUCTION, AND CONSTRUCTION DOCUMENTS ARE TO GENERATE AN RFI FROM THE MECHANICAL CONTRACTOR TO THE ARCHITECT/ENGINEER PRIOR TO PROCEEDING AND COMPLETION OF WORK.
8. CONTRACTOR SHALL FURNISH AND INSTALL ISOLATION AND BALANCING VALVES AT ALL HYDRONIC (HHW AND CHW) COILS, AND BALANCING VALVES AT EACH DISTRIBUTION LOOP ON THE RETURN PIPE. CONTRACTOR SHALL LOCATE VALVES TO ALLOW FOR ACCESS WITHIN 3 ' AFTER CONSTRUCTION IS COMPLETE.
9. MECHANICAL CONTRACTOR SHALL COORDINATE EQUIPMENT INSTALLATION WITH ROOFING CONTRACTOR OR ROOFING MANUFACTURER TO AVOID DAMAGE TO ROOFING SYSTEM.
10. COORDINATE LOCATIONS OF ALL DEVICES WITH ARCHITECTURAL, STRUCTURAL, CIVIL, INTERIORS, AND ELECTRICAL PRIOR TO ROUGH-IN. ALL CONFLICTS WITH FINISHES, ADJACENT CONSTRUCTION AND CONSTRUCTION DOCUMENTS ARE TO GENERATE AN RFI FROM THE MECHANICAL CONTRACTOR TO THE ENGINEER PRIOR TO PROCEEDING AND COMPLETION OF WORK
11. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIRESTOPPING ALL NEW MECHANICAL PENETRATIONS THROUGH RATED ASSEMBLIES, INSTALLING A FIRE DAMPER AT EACH FIRE-RATED WALL, AND A SMOKE DAMPER WHERE APPLICABLE.
12. A TEST AND BALANCE (TAB) IS REQUIRED FOR THE WORK.
13. ALL MECHANICAL EQUIPMENT SHALL BE PROVIDED WITH MOTOR STARTERS COMPATIBLE WITH CONTROLS SYSTEM. COORDINATE WITH CONTROLS AND ELECTRICAL CONTRACTORS.
14. IN UNFINISHED AREAS, INSTALL ALL MECHANICAL CONTROL DEVICES (THERMOSTATS, ROOM SENSORS, REMOTE TEST STATIONS, SMOKE DAMPER INDICATORS, ETC.) RECESSED IN WEB OF COLUMNS TO PREVENT DAMAGE.
15. PROVIDE EMERGENCY SHUTOFF AT BOILER ROOM EXIT DOORS TO SHUTDOWN ALL BOILERS PER CSD-1 REQUIREMENTS

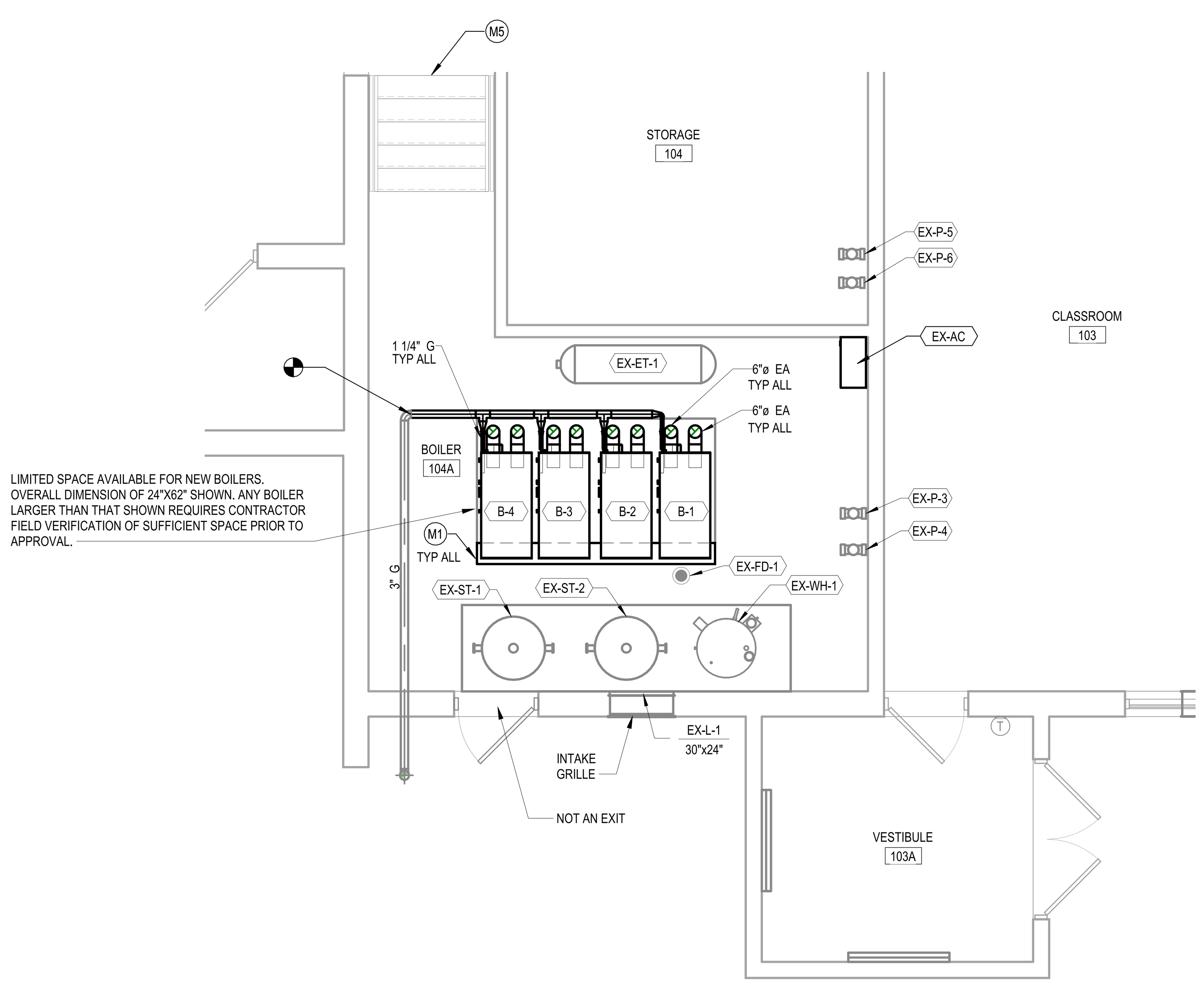
NOTES - MECHANICAL KEYNOTES

KEY VALUE	KEYNOTE TEXT
M1	EXTEND EXISTING 4" HOUSEKEEPING PAD APPROX. 10". AVOID EXISTING FLOOR DRAIN. PROVIDE PAD MIN 2" LARGER THAN NEW BOILERS. REFER TO DETAIL. INSTALL NEW BOILERS, BOILER CIRCULATING PUMPS, AND ANCILLARIES.
M2	SUPPORT PIPING FROM ABOVE. REFER TO ARCH SHEET FOR PATCH/REPAIR OF CEILING AND ROOF PENETRATION.
M3	ROUTE 1" CONDENSATE PIPE FROM CONDENSATE NUETRALIZATION KITS TO FLOOR DRAIN.
M4	CONCENTRIC VENT THROUGH ROOF. REFER TO 1M-501 FOR DETAILED VIEW. REFER TO ARCHITECTURAL SHEET FOR ROOF SCOPE.
M5	FIELD VERIFY REQUIRED CLEARANCE FOR NEW BOILER. EXIST DOOR APPROX 35" CLEAR. DOOR OPENING APPROXIMATELY 39" CLEAR WITH JAMB REMOVED. FIELD VERIFY DIMENSIONS.

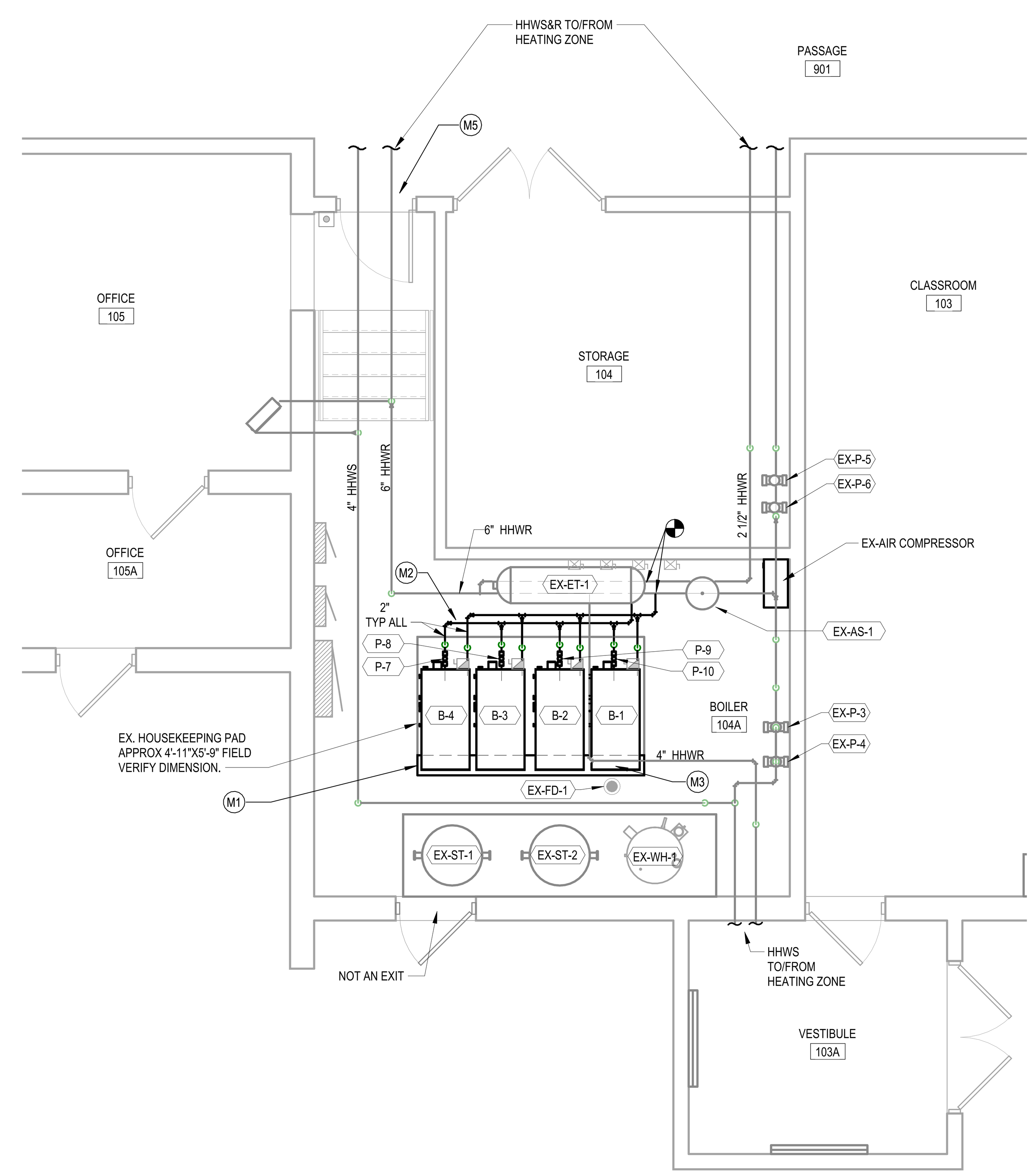
A1

ABBREVIATIONS

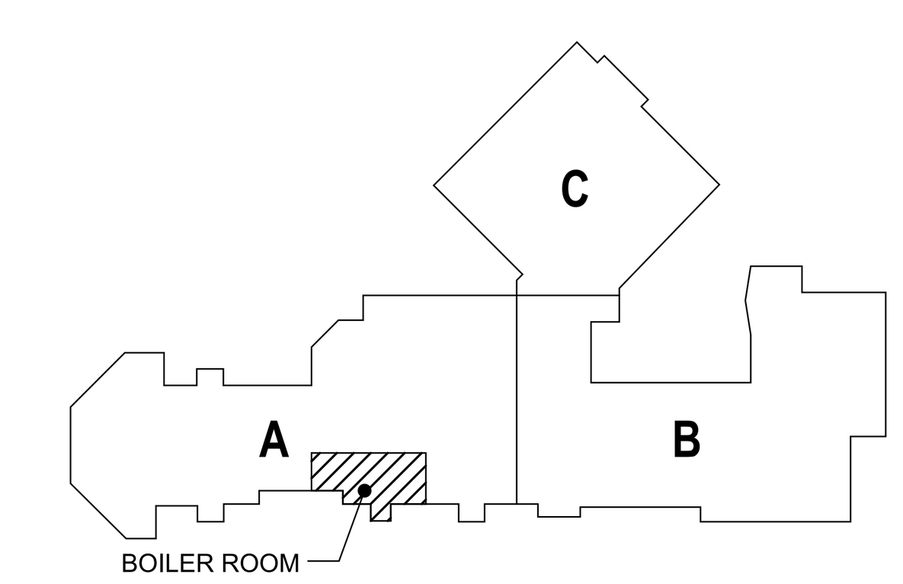
ABBREVIATION	DESCRIPTION
AC	AIR COMPRESSOR
ACI	AMERICAN CONCRETE INSTITUTE
AS	AIR SEPARATOR
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
B	BOILER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CD	CONDENSATE DRAIN
CFM	CUBIC FEET PER MINUTE
CFH	CUBIC FEET PER HOUR
CONC.	CONCRETE
CONN.	CONNECTION
CSD	CONTROLS AND SAFETY DEVICES
EF	EXHAUST FAN
EG	EXHAUST GRILLE
EH	EXHAUST HOOD
EWT	ENTERING WATER TEMPERATURE
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EX	EXISTING
ET	EXPANSION TANK
F	FAHRENHEIT
FD	FLOOR DRAIN
FPM	FEET PER MINUTE
FS	FLOW SWITCH
FT	FEET
FTR	FINNED TUBE RADIATOR
FT-HD	FOOT OF HEAD
G	NATURAL GAS
GA	GAUGE
GAL	GALLONS
GALV.	GALVANIZED
GPM	GALLONS PER MINUTE
GPR	GAS PRESSURE REGULATOR
HD	HEAD
HP	HORSEPOWER
HW	HOT WATER
HWR	HOT WATER RETURN
HHW	HEATING HOT WATER
HHWR	HEATING HOT WATER RETURN
HHWS	HEATING HOT WATER SUPPLY
HVAC	HEATING, VENTILATION, AND AIR CONDITIONING
HZ	FREQUENCY
IA	INTAKE AIR
IN	INCHES
IN-WC	INCHES WATER COLUMN
kW	KILOWATTS
kWh	KILOWATT HOURS
L	LOUVER
LAT	LEAVING AIR TEMPERATURE
LB	IMPERIAL POUND
LWT	LEAVING WATER TEMPERATURE
MCA	MINIMUM CIRCUIT AMPACITY
MHP	MOTOR HORSEPOWER
MIN	MINIMUM
MMC	MICHIGAN MECHANICAL CODE
NA	NOT APPLICABLE
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
OA	OUTDOOR AIR
P	PUMP
PD	PRESSURE DROP
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
PVC	POLYVINYL CHLORIDE
RPM	ROUNDS PER MINUTE
SA	SUPPLY AIR
SCH	SCHEDULE
SOV	SHUTOFF VALVE
ST	STORAGE TANK
TAB	TEST, ADJUST, BALANCE
TD	TEMPERATURE DIFFERENCE
TEMP.	TEMPERATURE
MBH	THOUSAND BTU/HR
TYP	TYPICAL
VSD	VARIABLE SPEED DRIVE
VFD	VARIABLE FREQUENCY DRIVE
WH	WATER HEATER
WC	WATER COLUMN



MECHANICAL PLAN - BOILER ROOM
1/4" = 1'-0"



MECHANICAL PIPING PLAN - BOILER ROOM
1/4" = 1'-0"



KEY PLAN

MECHANICAL PLAN

BOILER REPLACEMENT
600 E. PARK ST., PENTWATER, MI 49449

PHASE
ISSUED FOR BIDDING

ISSUANCES

#	DESCRIPTION	DATE
0	ISSUED FOR BIDDING	23-MAR-2025
A1	ADDENDUM 1	23-APR-2025

PROJ. #: 24-0301

1M-100

Addendum #1