NOTE: This Addendum forms a part of the Contract Documents and modifies the original Procurement Documents dated February 25, 2021, as noted below. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

ATTACHMENTS:

Pre-Bid Meeting Attendance List
SHA Bid Form – revised to add Alternate #3
Drawings M101 AD1, M104 AD1, M105 AD1, P102 AD1, ED101 AD1, E101 AD1

CHANGES TO PROJECT MANUAL

1. Div 00 Bid Form – REPLACE Bid Form with Bid Form attached here.
2. Section 012300 – Alternates: Para 3.1 ADD "3. Alternate 3. ADD mechanical scope to replace existing insulation on VRF piping located on roof. Refer to drawings M104 AD1 and M105 AD1 attached.
3. Section 221116 – Domestic Water Piping
    a. DELETE 1.1.A.2 Ductile Iron Pipe
    b. DELETE 1.1.A.3 Pex Tube and fitting
    c. DELETE 2.4.B Dielectric Unions
    d. DELETE Article "3.8 Cleaning" in its entirety.
    e. ADD the following Paragraph 2.2.D:
    "D. Copper Pressure Seal Joint Fittings
        1. Manufacturers:
            a. Elkhart
            b. Viega
            c. Nibco
        2. Fittings for NPS 2 and Smaller: Wrought-copper fitting with EPDM-rubber, O-ring seal in each end."

4. Section 221123 – Domestic Water Pumps
    a. ADD 2.1.A.7, "7. Grundfos Pump Corporation."

5. Section 232113 – Hydronic Piping
    a. REVISE Paragraph 2.6.B to read, "B. Provide brass unions where dissimilar piping is joined."
    b. DELETE Paragraphs 3.3.B, 3.3.C, and 3.3.D.

6. Section 223400 - Fuel Fired Domestic Water Heaters
    a. ADD Paragraph 2.2.C as follows:
    "C. Controls: Provide control product, with all necessary accessories, wiring, etc. capable of the following:
        1. Lead Lag modulation
        2. Fixed set point for domestic hot-water system.
        3. Accept analog 0- to 10-V signals from an energy management system to control water temperatures.
        4. Boiler equal run-time rotation.
        5. Pump equal run-time rotation.
        6. Powered system pump.

7. Alerts."

b. ADD Article 1.7 as follows:
"1.7 MAINTENANCE MATERIALS SUBMITTALS
A. Furnish extra materials that are packaged with protective covering for storage and identified with labels describing contents.
1. Boiler – Control Board (Quantity 1)
2. Boiler – Ignitor with Gasket (Quantity 1)
3. Boiler – Flame Sensor with Gasket (Quantity 1)

7. Section 230923 – Direct Digital Control (DDC) System
   a. DELETE 2.1.A.1.b. Refer to Domestic Water Boiler section.
   b. REVISE 2.1.A.1.c to read, "c. Make-up Air Unit Controller: Provide Modine, Honeywell, Alerton or approved equal. Controller shall be a standalone microprocessor type with keypad and display screen with all the necessary accessories, including wiring, enclosure, relays, etc. capable of the following:"

8. Section 230993 – Sequence of Operations for HVAC DDC
   a. ADD 1.3.D to read:

"D. Unit fan shall run continuously. The burner will be enabled /disabled by a manual switch. On proof of flow from main supply fan the outside air 2-postion damper shall open and mixed air dampers shall modulate to maintain a mixed air temperature of 60 deg f (adj.).

When enabled, via manual switch, the burner shall fire and modulate as needed to maintain a discharge air temperature as set on discharge air thermostat.

Combustion air damper shall be interlocked with burner and shall open when burner fires.

Draft inducer shall be interlocked with burner and shall operate based on pressure differential between space and combustion chamber, combustion chamber shall remain negative between 0.1 in wc and 0.2 in wc.

A room thermostat located at the 6th floor elevator lobby will shut down unit and close all outside air dampers whenever space temperature falls below its setpoint (adj.)

If any safety device is tripped alarm at controller, outside air damper shall close and unit shall shut down."

9. Section 235233 – Water Tube Boilers
   a. ADD Paragraph 2.2.I to read as follows:
   "I. Spare Parts:
      1. Ignition Electrode – QTY 2
      2. SOLA Main Board – QTY 1
      3. Ignition Transformer – QTY 1"

CHANGES TO DRAWINGS

1. Cover Sheet, Drawing Index, Mechanical
    a. ADD, "M104, Roof Plan – Alternate No. 3"
    b. ADD, "M105, VRF System Insulation Specifications – Alternate No. 3"

2. Drawing M101 – Mechanical Room Removals Plans
    a. DELETE drawing and REPLACE with attached Dwg M101 AD1.

3. Drawing M102 – Mechanical Room Plans
    a. REVISE Keyed note to read "….series 80 inline pumps, 5x5x7…."

4. Drawing M104 - Roof Plan – Alternate No. 3
    a. DELETE drawing and REPLACE with attached Drawing M104 AD1.

5. Drawing M105 – VRF System Insulation Specifications – Alternate No. 3
    a. DELETE drawing and REPLACE with attached Drawing M105 AD1.

6. Drawing M501, Detail 1/501, Boiler Room Schematic
    a. ADD callout outline around Pumps P-1 (E) and P-2 (E).
    b. ADD text with arrow pointing to callout outline with text "Alternate No 2."

7. Drawing M601, Boiler Schedule
    a. REVISE Boiler B1 and B2 model to read, "N2000MFD."
    b. ADD Remarks 2 and 3 to B1 and B2, that read as follows:
    "2. Provide with low-water cutoff.
    3. Provide with 75 psig relief valve."

8. Drawing P001 – Drawing Index, Symbol List & Abbrvs.
    a. REVISE Domestic Hot Water Storage Tank Schedule St-1 Model to be a vertical storage tank "HDVJ36."
    b. ADD temporary storage tanks (quantity 2) to schedule, vertical, insulated, 220-gallon tanks BOD AO Smith HDVJ30.
    c. ADD following to the "Remarks" column of the domestic water heater schedule, "CIRC PUMPS BETWEEN BOILER AND STORAGE TANK TO BE PURCHASED SEPARATELY FROM BOILER. REFER TO PUMP SCHEDULE"
    d. DOMESTIC WATER HEATER SCHEDULE – GAS FIRED, DELETE and REPLACE NOTE 1 as follows, "1. PROVIDE NEUTRALIZATION TANK AND CONDESATE PUMP LITTLE GIANT MODEL VCMA."

9. Drawing P102 – Plumbing Plan
    a. DELETE drawing and REPLACE with Drawing P102 AD1 attached.

10. Drawing ED101 – Removal Drawings
    a. DELETE drawing and REPLACE with Drawing ED101 AD1 attached.
11. Drawing E101 – Electrical Plans
    a. DELETE drawing and REPLACE with Drawing E101 AD1 attached.

END OF ADDENDUM

SYRACUSE HOUSING AUTHORITY

PRE-BID MEETING

AMP 74 Vinette Tower Boiler Replacement

PRINT CLEARLY

ADVERTISED: Thursday 2/25/21

PRE-BID MEETING: Tuesday 2/4/21 at 10:00 A.M., Vinette Tower

BID OPENING: Tuesday 3/18/20 at 10:00 a.m., 516 Burt Street

NAME	COMPANY	PHONE #	EMAIL
Peter Lemonides	SHA	315-741-3154	
Andrew James	Heat and Cool Solutions LLC	315-280-8890	andrew@heatandcoolsolutions.com
Tim FRIGON	AUBURN CRANE	315-374-2314	tim@auburncraneandrigging.com
ERIC POISSANT	Airside Technology	(315)451 3297	eric@airsidetech.com
Jon Buffum	CSUSA	315 413-9359	JONATHAN.BUFFUM@COMFORTSYSTEMSUSA.COM
BRIAN MARTI	E-J ELECTRIC	929 360-5604	BMARTI@EJ1899.COM
Reggie Seigler	SHA	315 470 4270	rseigler@syrhousing.org
Amber Butler	Emcor Services Bove	315 254 7996	abutler@emcorbetlem.com
Jeff Horner	BURNS BROS	315 425-5834	HORNER@BBCONTRACTORS.COM
Taylor Cherchio	O'Connell Elec.	315 857 8406	Taylor.cherchio@oconnellelectric.com
Vincent Hueber	SHA	315 289 3529	vhueber@syrhousing.ORG
Adam Portell	Quality Mechanical Srvs	315.399.6723	Adam@Go-Qms.com
Lynn Willsey	FS Engineering	315-471-4013	lwillsey@fsengineering.pro
Marty Brunet	SHA	315 470 4354	mbrunet@syrhousing

SYRACUSE HOUSING AUTHORITY

BID FORM FOR PROJECT:

AMP 74 Vinette Tower Boiler Replacement, Syracuse NY
(revised March 5, 2021, issued with Addendum #1)

MECHANICAL CONSTRUCTION CONTRACT

Submitted by: _____
(name of Bidder)

The above named Bidder has examined the Contract Documents, has received Addenda No's _____, and has included their provisions in this submitted bid. A representative of the Bidder has examined both the documents and the site. The following bid is hereby submitted for all work and requirements of the Contract Documents.

In submitting this bid, the Bidder agrees to:

1. hold bid open for a minimum of forty five (45) days after the bid opening;
2. accept the provisions of the Instructions to Bidders regarding disposition of bid security;
3. enter into and execute a contract on the Owner's form, if awarded on the basis of this bid;
4. accomplish the work in strict accordance with the Contract Documents, and within the Contract Time;
5. complete the work in accordance with scheduling provisions of the contract documents, if any;
6. deliver to the Owner the Performance Bond, Labor and Material Payment Bond and proof of insurance coverage, all within five (5) days after notification of Owner's acceptance of this bid;
7. comply with all applicable wage and employment standards in accordance with the Contract Documents;
8. comply with the requirements of the Secretary of the Department of Housing and Urban Development;
9. waive all rights regarding misunderstanding of any portion of the Contract Documents.

The bidder will complete all work under this contract for the total lump sum price of:

_____ **Dollars $** _____

Lump Sum Price includes Contingency Allowance of $30,000
(refer to Project Manual Section 012100)

UNIT PRICES (Refer to Project Manual Section 012200)

Unit Price No.1: Remove and replace additional ball valves meeting the specifications in the sizes as follows

a. **1/2 inch** _____Dollars/each $_____/each

b. **3/4 inch** _____Dollars/each $_____/each

c. **1 inch** _____Dollars/each $ _____/each

d. **1 ¼ inch** _____Dollars/each $_____/each

e. **1 ½ inch** _____Dollars/each $_____/each

f. **2 inch** _____Dollars/each $_____/each

g. **2 ½ inch** _____Dollars/each $_____/each

Unit Price No.2: Remove, dispose of, and replace existing 50% propylene glycol fluid in snowmelt system

_____Dollars/ 55 gallon drum $_____/ 55 gallon

ALTERNATES (refer to Project Manual Section 12300)

Alternate No. 1: **Snowmelt Boiler** - ADD All work related to the replacement of the south snowmelt boiler as shown on drawings and as specified.

_____ Dollars $_____

Alternate No. 2: Building Loop Pump Replacement - ADD All work related to the replacement of the building loop pumps as scheduled in lieu of inspection, cleaning, bearing and seal replacement, as shown on drawings and as specified. If alternate is accepted, turn over removed inline pumps to the Owner.

_____ Dollars $_____

Alternate No. 3: Replace all AC refrigerant line insulation - ADD All work related to the replacement of all AC refrigerant line insulation on the rooftop, per drawings M104 AD1 & M105 AD1.

_____ Dollars $_____

The required bid security is attached, and the Bidder agrees to submit the required bonds and Subcontractor list at the prescribed time as stated in the Instructions to Bidders.

Date: _____ FIRM: _____

SIGNED: _____

NAME & TITLE: _____

NOTICE: If Bidder or other interested person is a corporation, give legal name of corporation, state where incorporated, and names and street addresses of president and secretary thereof; if a partnership, give name of the firm, and names and addresses of all individual co-partners composing the firm. If Bidder or other interested person is an individual, give first and last names in full. State the names of those officers, partners or individuals authorized to sign contracts on behalf of the organization:

_____

_____

_____

_____

Business Address: _____ Telephone Number: _____

_____ Email: _____

Date of Proposal; _____

STATE OF NEW YORK)
SS:
COUNTY OF ONONDAGA)

On this ____ day of _____, 2021 before me came and appeared

_____ ,

to me known and known to me to be one of the members of the firm of

_____ ,

described in and who executed the foregoing instrument and he acknowledged to me that he executed the same as and for the act and deed of said firm and that he is legally entitled to obligate said firm.

_____

_____
Notary Public

ARCH D 24x36

ELECTRICAL EQUIPMENT AND CONTROL SCHEDULE1

ID	Description	HP	KVA	Voltage	Panel	Circuit Breaker	Poles	Wire Size (L,N,G)or(L,G)	Conduit Size	Local Disconnect	Manual Starter	Combination Starter	VFC	NOTES
B-1	BOILER		1.20	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C,D
B-2	BOILER		1.20	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C,D
B-3	BOILER		1.20	120 V	PANEL SM-S	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C,D,E
BP-1	BOILER PUMP	3	3.96	208 V	PANEL BP-1	20 A	3	3-#12, 1-#12	1/2"C			AT UNIT		A,B,C
BP-2	BOILER PUMP	3	3.96	208 V	PANEL BP-1	20 A	3	3-#12, 1-#12	1/2"C			AT UNIT		A,B,C
CDP-1	CONDENSATE PUMP	1/4	0.70	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C					A,I
CP-1	CIRC PUMP	1/4	0.70	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C
CP-2	CIRC PUMP	1/4	0.70	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C
DWH-1	DOMESTIC HOT WATER HEATER		0.48	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C
DWH-2	DOMESTIC HOT WATER HEATER		0.48	120 V	PANEL BP-1	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C
F-1	EXHAUST FAN	FRAC	0.20	120 V	PANEL P-1A	20 A	1	1-#12, 1-#12, 1-#12	1/2"C		YES			A,B,C,E
P-1	MAIN HTC LOOP PUMP	7-1/2	9.10	208 V	PANEL BP-1	50 A	3	3-#6, 1-#10	1"C	AT UNIT				A,B,C,G,H
P-2	MAIN HTC LOOP PUMP	7-1/2	9.10	208 V	PANEL BP-1	50 A	3	3-#6, 1-#10	1"C	AT UNIT				A,B,C,G,H

NOTES: EQUIPMENT SCHEDULE

A. MAKE FINAL CONNECTIONS TO EQUIPMENT LISTED AS REQUIRED BY FIELD CONDITIONS AND THE NATIONAL ELECTRIC CODE. EQUIPMENT QUANTITIES AS INDICATED ON THE CONTRACT DOCUMENTS.

B. PROVIDE DISCONNECT SWITCH AND/OR MOTOR STARTERS AS INDICATED.

C. PROVIDE THERMAL OVERLOADS IN STARTER SIZED TO MOTOR NAMEPLATE RATING.

D. PROVIDE CONNECTIVITY AND WIRING TO THE BOILER CONTROL PANEL AS CALLED FOR TO PROVIDE EMERGENCY SHUTDOWN ACTIVATION STATION AS CALLD FOR.

E. PROVIDE CIRCUITING TO FAN VIA MANUAL STARTER AND CONTACTOR TO CONTROL FAN FROM MAIN HVAC UNIT. PROVIDE ELECTRICAL REQUIREMENTS AS INDICATED FOR THIS EQUIPMENT ITEM AS PART OF ALTERNATE #1.

F. EXTEND POWER(2#12,#12EG-1-1/2"C) FROM 120 VOLT AT BOILER CONTROL PANEL.

G. AS PART OF ALTERNATE #2, DISCONNECT AND REMOVE EXISTING VARIABLE FREQUENCY DRIVE
SERVING THE EXISTING PUMPS. MAINTAIN EXISTING CIRCUITING TO DRIVE.

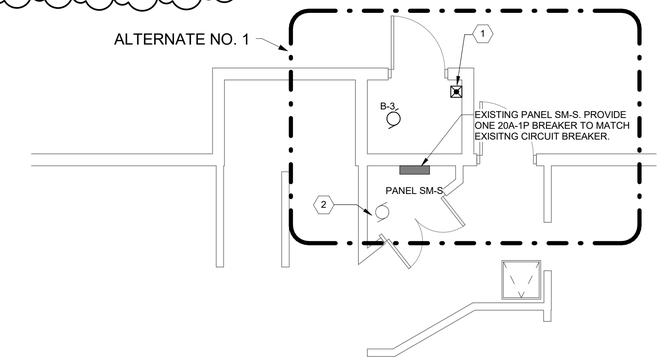
H. AS PART OF ALTERNATE #2, PROVIDE 100 AMP DISCONNECT SWITCH AT THE WALL AND CONNECT EXISTING CIRCUITING TO DISCONNECT. PROVIDE 3#6,#10EG-1"C FROM DISCONNET SWITCH TO REPLACEMENT PUMP/CONTROLLER.

I. PROVIDE NEMA 5-20R GFI TYPE DUPLEX RECEPTACLES ADJACENT TO EQUIPMENT.

GENERAL NOTES: THIS DRAWINGS

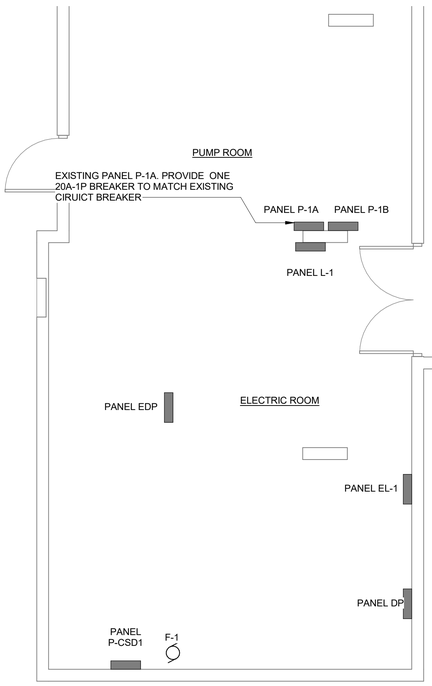
A. PROVIDE SEPARATE NEUTRAL AND GROUND CONDUCTORS FOR EACH BRANCH CIRCUIT INDICATED.

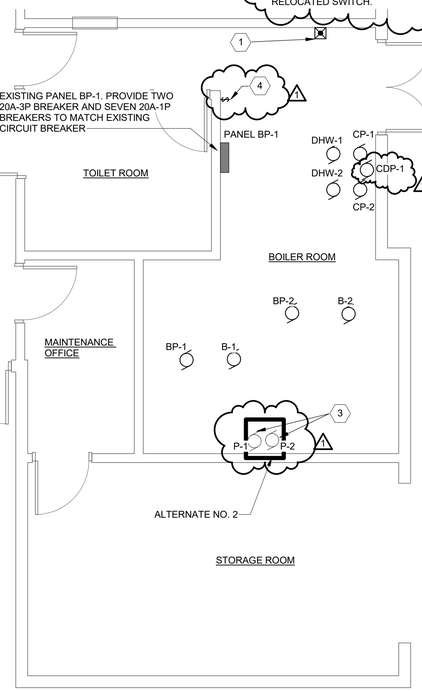
B. VERIFY EXACT LOCATION OF OUTLETS AND EQUIPMENT WITH OWNERS REPRSENTATIVE AND MECHANICAL DRAWINGS AND MECHANICAL CONTRACTOR. COORDINATE INSTALLATION AND LOCATINON WITH ALL OTHER TRADES WORK AND EXISTING CONSTRUCTION PRIOR TO ROUGHING.



C1 E101 AD1 SECOND FLOOR MECH ROOM REMOVALS PLAN

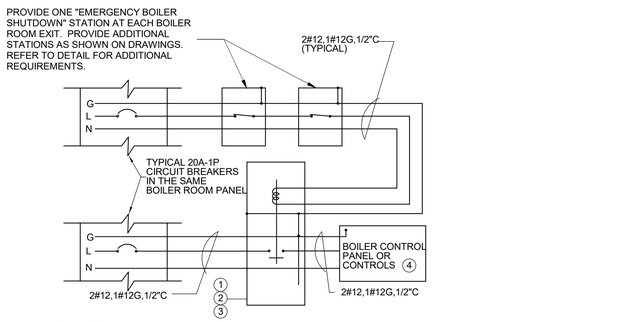
SCALE: 1/4" = 1'-0" 3"





C4 E101 AD1 ELEC - ENLARGED PLAN - HEATING BOILER

SCALE: 1/4" = 1'-0" 3"



KEYED NOTES:

1. PROVIDE NEMA 1, SIZE 00, 3P, 120V, 60 HZ CONTACTOR.
2. WHERE MORE THAN TWO BOILERS ARE TO BE WIRED, PROVIDE CONTACTS AND WIRING TO ADDITIONAL BOILERS.
3. INSTALL CONTACTOR CLOSE TO BOILER ROOM PANEL OR WHERE INDICATED ON THE CONTRACT DOCUMENTS.
4. PROVIDE DISCONNECT SWITCH AT EACH BOILER CONTROL PANEL.

A4 E101 AD1 EMERGENCY BOILER SHUTDOWN WIRING DIAGRAM

SCALE: NOT TO SCALE

KEYED NOTES

1. EMERGENCY BOILER SHUTDOWN STATION. REFER TO DETAIL AND WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
2. AS PART OF ALTERNATE #1. RECONNECT EXISTING BRANCH CIRCUIT TO EXISTING SNOW MELT PUMP. EXTEND CONDUITS, CONDUCTORS, SUPPORT AND HARDWARE NECESSARY FOR RECONSTRUCTION AND AN APPROXIMATE 12 IN. ELEVATION GAIN.
3. AS PART OF ALTERNATE #2. AT EXISTING PUMP P-1 AND P-2, PROVIDE DISCONNECT SWTICHES AND RECONNECT EXISTING BRANCH CIRCUIT TO EACH DISCONNECT SWITCH. PROVIDE 3#6,#10EG-1" CONDUIT FROM EACH DISCONNECT SWITCH TO REAPLACMENT PUMPS .
4. RELOCATED EXISINTG SWITCH AS INDICATED PROVIDE ADDITIONAL CONDUIT, WIRE AND HARDWARE AS REQUIRED TO EXTEND EXISTING CIRCUITING TO RELOCATED SWITCH.

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BERGMANN
ARCHITECTS ENGINEERS PLANNERS

224 Harrison Street
Suite 602
Syracuse, NY 13202

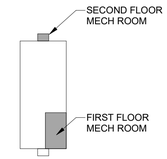
www.bergmannpc.com

Vinette Tower SHA

947 Pond Street
Syracuse, NY 13206

Date Revised	Description
03/05/2021	Addendum No. 1

FS ENGINEERING, DPC
721 E. Genesee Street
Syracuse, NY 13210
Tel: 315-471-4013
Fax: 315-471-4044
FS#21007



Key Plan

STATE OF NEW YORK · ELIZABETH P. FISHER · 096006 · LICENSED PROFESSIONAL ENGINEER

Project Manager	Discipline Lead
CL	FJR
Designer	Reviewer
ASC	EPF
Date Issued	Project Number
02/25/2021	21007

Sheet Name

ELECTRICAL PLANS

Drawing Number

E101 AD1

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DEMOLITION NOTE: THIS DRAWINGS

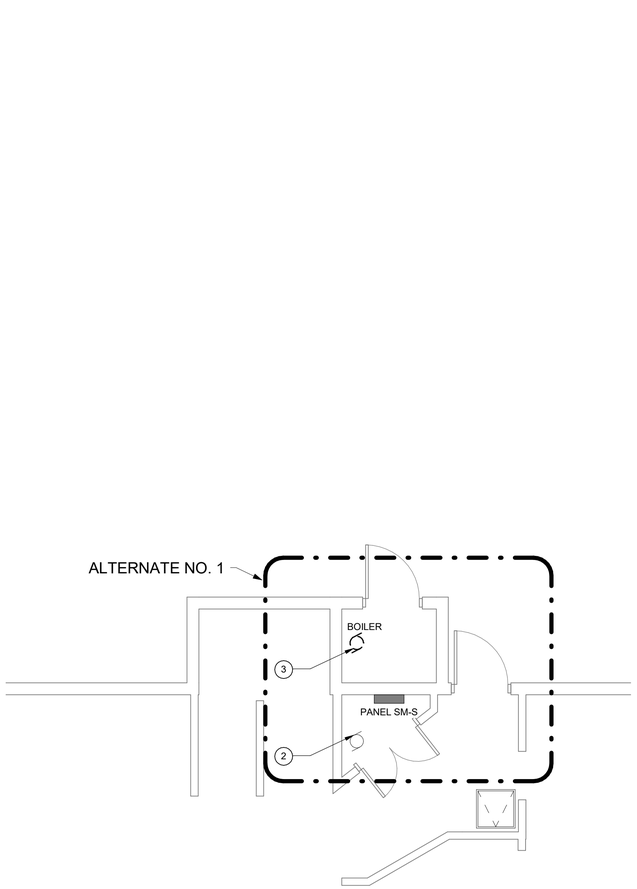
A. COORDINATE SCHEDULING OF DEMOLITION WITH CONSTRUCTION MANAGER PHASING DRAWINGS AND REQUIRMENTS.

B. VERIFY LOCATION AND SCHEDULE OF REMOVAL WORK AT ALL AREAS PRIOR TO STARTING WORK. PROVIDE ALL REQUIRED WIRING AND TEMPORARY CONNECTINOS NECESSARY TO MAINTAIN CONTINUITY OF SERVICES DURING ALL STAGES OF WORK.

C. MAINTAIN ELECTRICAL CONTINUITY OF EXISTING ELECTRICAL EQUIPMENT. OUTLETS AND DEVICES THAT ARE TO REMAIN.

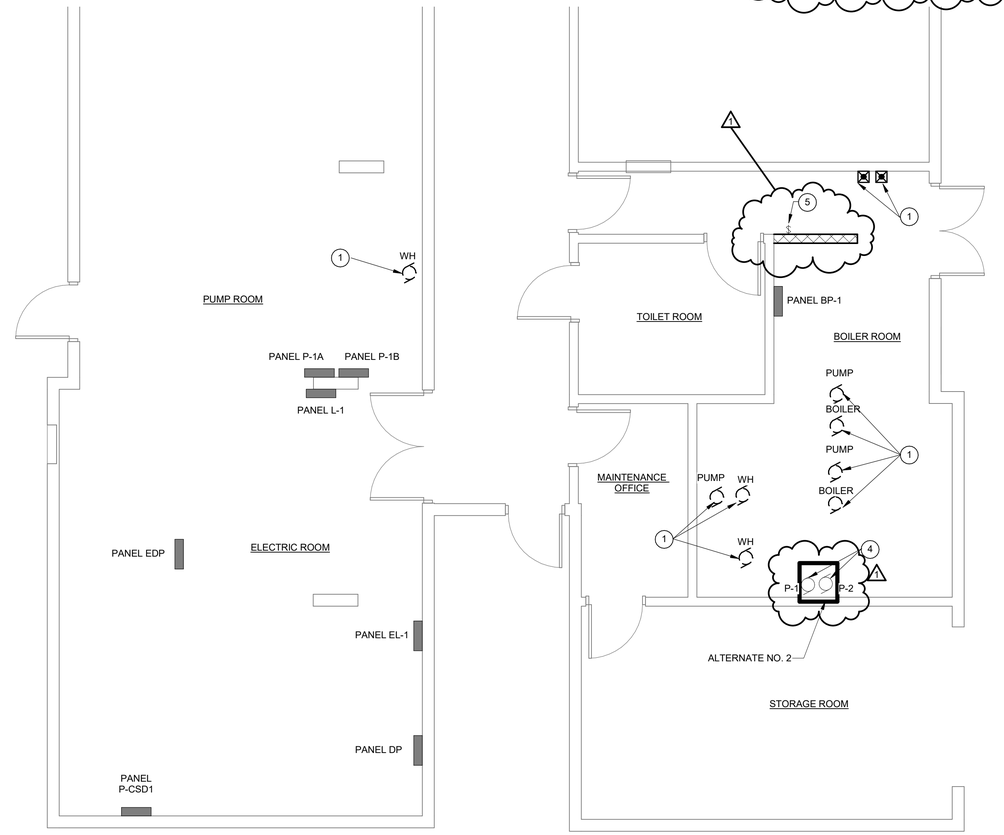
KEYED NOTES THIS DRAWING:

1. DISCONNECT MECHANICAL EQUIPMENT. REMOVE BRANCH CIRCUITRY AND RACEWAYS BACK TO SOURCE REMOVE DISCONNECT SWITCHES, STARTERS AND CONTROLS. MAINTAIN ELECTRICAL CONTINUITY FOR EQUIPMENT/DEVICES THAT REMAIN.
2. AS PART OF ALTERNATE #1 DISCONNECT BRANCH CIRCUIT FROM EXISTING SNOW MELT PUMP . SUPPORT AND PROTECT CONDUITS AND CONDUCTORS DURING CONSTRUCTION.
3. AS PART OF ALTERNATE #1 DISCONNECT EXISTING BOILER AND REMOVED ASSOCIATED CIRCUITING AND RACEWAY BACK TO SOURCE.
4. AS PART OF ALTERNATE #2. DISCONNECT BRANCH CIRCUIT FROM EXISTING PUMPS P-1 AND P-2 AND ASSOCIATED VFD. MAINTAIN EXISTING FEED CIRCUITING AND REFER TO ELECTRICAL EQUIPEMTN AND CONOTROL SCHEDULE FOR ADDITIONAL REQUIRMENTS. SUPPORT AND PROTECT CONDUITS AND CONDUCTORS DURING CONSTRUCTION.
5. DISCONNECT REMOVE AND RELOCATE AS SHOWN ON WORK PLAN.



B1 ED101 AD1 SCALE: 1/4" = 1'-0" 3"

SECOND FLOOR MECH ROOM REMOVALS PLAN



B3 ED101 AD1 SCALE: 1/4" = 1'-0" 3"

ELEC DEMO - ENLARGED PLAN - HEATING BOILER

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224 Harrison Street
Suite 602
Syracuse, NY 13202

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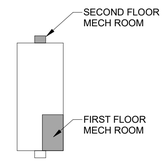
Vinette Tower SHA

947 Pond Street
Syracuse, NY 13206

Date Revised	Description
03/05/2021	Addendum No. 1

FS ENGINEERING, DPC
721 E. Genesee Street
Syracuse, NY 13210
Tel: 315-471-4013
Fax: 315-471-4044
FS#21007



Key Plan

Project Manager	Discipline Lead
CL	FJR
Designer	Reviewer
ASC	EPF
Date Issued	Project Number
02/25/2021	21007

Sheet Name

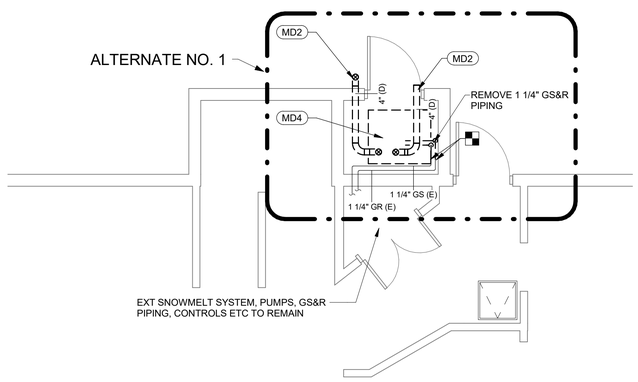
REMOVAL DRAWINGS

Drawing Number

ED101 AD1

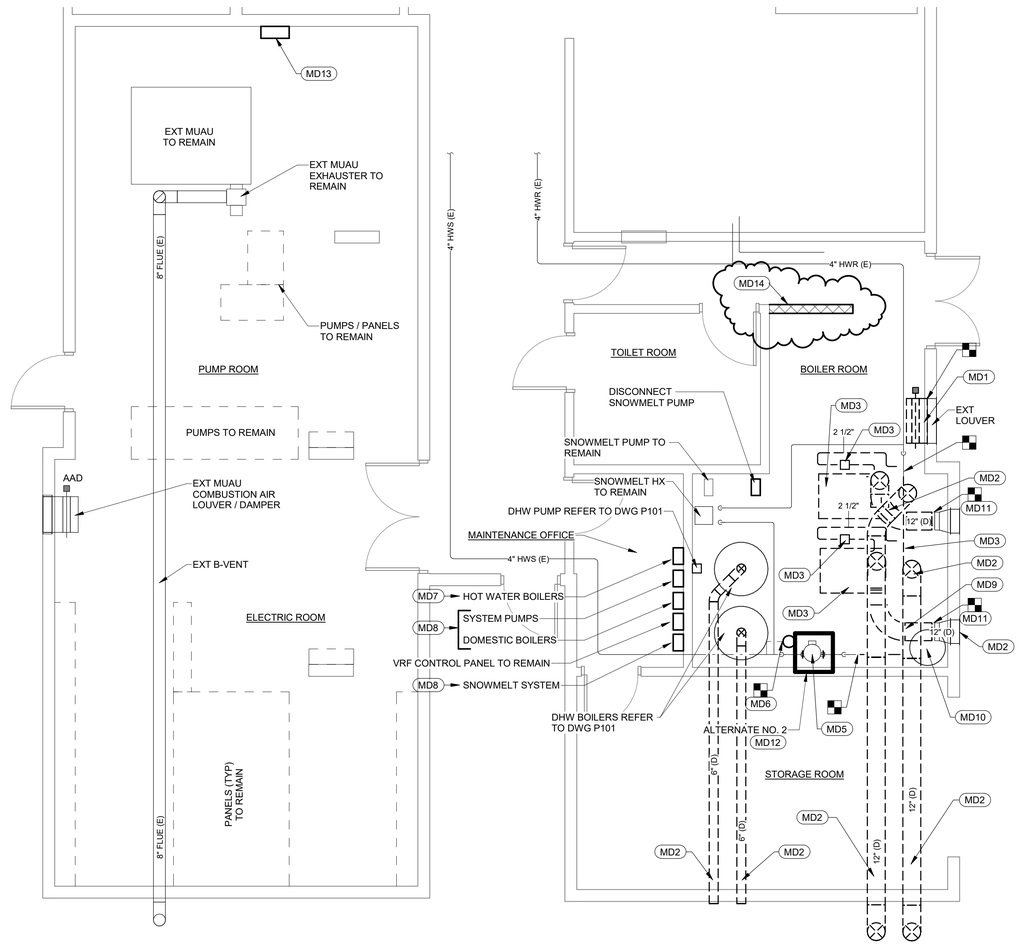
ARCH D 24x36

MECHANICAL KEYED NOTES	
MD1	REMOVE AAD AND DUCTWORK, LOUVER TO REMAIN.
MD2	REMOVE BOILER FLUE AND COMBUSTION AIR DUCT.
MD3	DISCONNECT AND REMOVE HWS&R AND GAS PIPING, BOILER INLINE PUMP, FLUE / COMBUSTION AIR DUCTWORK AND REMOVE BOILER. REMOVE EQUIPMENT PAD AND PATCH FLOORING.
MD4	REMOVE AND SALVAGE GLYCOL. TEST SYSTEM GLYCOL PERCENTAGE, REPORT VALUE TO OWNER, ARCHITECT AND ENGINEER. DISCONNECT CONTROLS, GS&R AND GAS PIPING AND REMOVE BOILER, FLUE / COMBUSTION AIR DUCTWORK. REMOVE EQUIPMENT PAD AND PATCH FLOORING.
MD5	PRIOR TO DEMOLITION, RECORD GPM, FT HEAD AND CONDITION OF (2) INLINE PUMPS TO REMAIN. VERIFY DESIGN VALUES OF B&G SERIES 80, MODEL 5x5x7, 340 GPM, 40FT HD.
MD6	DISCONNECT AND REMOVE CHEMICAL FEEDER. TERMINATE PIPING TO ALLOW INSTALLATION OF NEW CHEMICAL FEEDER.
MD7	REMOVE CONTROL PANEL AND REPLACE WITH TEKMAR 125.
MD8	REMOVE BLDG HEATING BOILERS, PUMPS & SNOWMELT SYSTEM PANELS AND REPLACE WITH BOILER SYSTEM CONTROL PANEL.
MD9	REMOVE AIR SEPARATOR.
MD10	EXPANSION TANKTO REMAIN.
MD11	COMBUSTION AIR LOUVER TO REMAIN.
MD12	ALTERNATE NO. 2. DISCONNECT AND REMOVE (2) INLINE PUMPS.
MD13	REMOVE MUAU CONTROL PANEL AND REPLACE.
MD14	REMOVE KNEE WALL, 4'-6" L x 4'-0" H x 0'-6" W, BACK TO CORNER OF TOILET ROOM.



2 M101 AD1 SECOND FLOOR MECH ROOM REMOVALS PLAN

SCALE: 1/4" = 1'-0" 3"



1 M101 AD1 FIRST FLOOR MECH REMOVALS ROOM PLAN

SCALE: 1/4" = 1'-0" 3"

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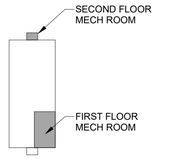

Key Plan

Project Manager	Discipline Lead
CL	LMW/EPF
Designer	Reviewer
LMW	EPF
Date Issued	Project Number
02/25/2021	21007

Sheet Name

MECHANICAL ROOM REMOVALS PLANS

Drawing Number

M101 AD1

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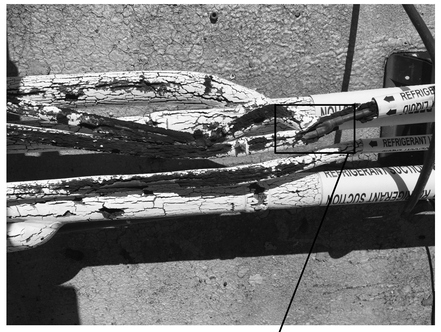


A REFRIGERANT MAINS AND REFNET FITTINGS, SYSTEM #4

EXAMPLE OF MAINS WITH REFNET "WYE" FITTING AND MULTIPLE BRANCH RUNOUTS

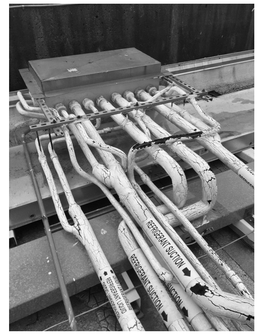
B REFRIGERANT PIPING AT ROOF CURB, SYSTEM #6

C REFRIGERANT PIPING AT ROOF CURB, SYSTEM #4

D REFRIGERANT PIPING AT MAINS, BRANCHES, WALL-SUPPORTS AND ROOF CURB, SYSTEM #4

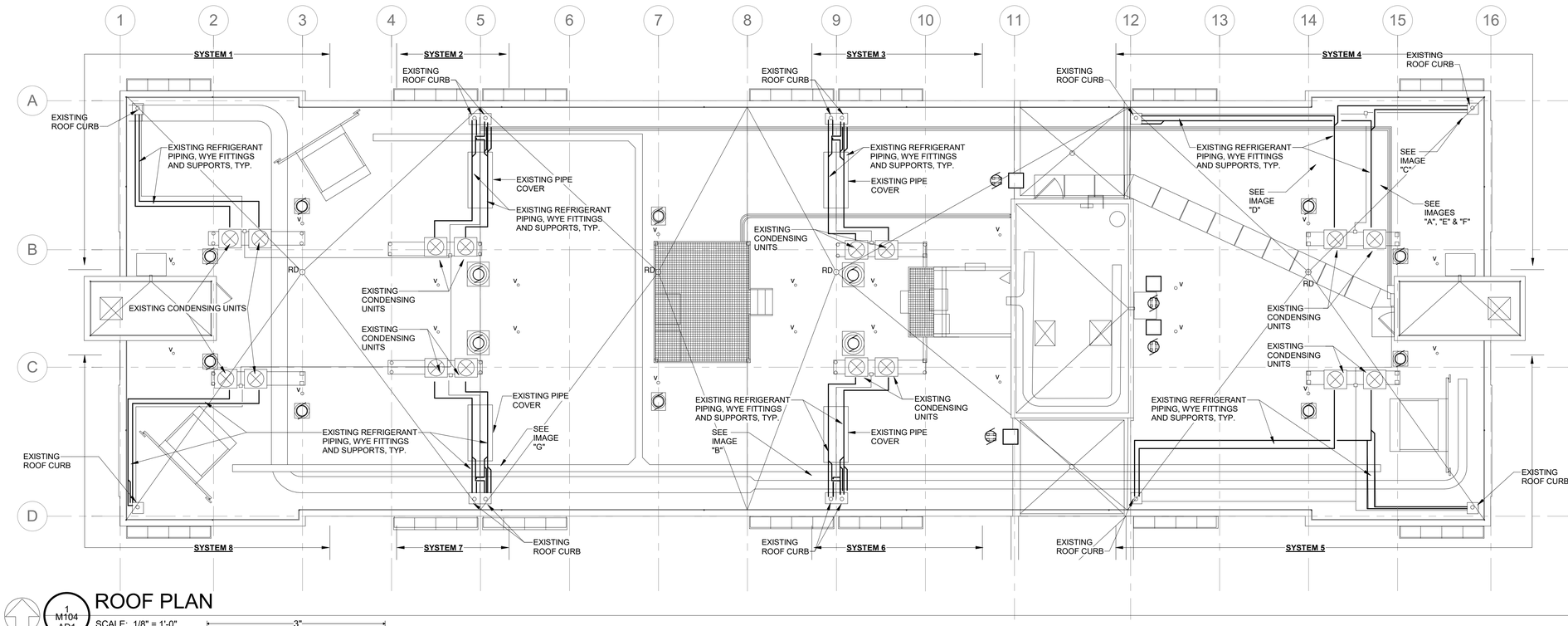
E REFRIGERANT MAINS AND REFNET FITTINGS, SYSTEM #4

F REFRIGERANT MAINS, SYSTEM #4



G REFNET FITTINGS, SYSTEM #7

REFER TO DRAWING M-105 FOR:
- **HVAC PIPING INSULATION AND JACKET SPECIFICATIONS**
- **MECHANICAL GENERAL NOTES**
- **MECHANICAL INSULATION SCOPE NOTES**



1 M104 AD1 ROOF PLAN

SCALE: 1/8" = 1'-0" 3"

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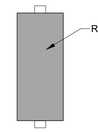

Key Plan

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LMW	EPF
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02/25/2021	21007

Sheet Name

ROOF PLAN - ALTERNATE NO. 3

Drawing Number

M104 AD1

HVAC PIPING INSULATION & JACKET SPECIFICATION

1.1 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT. INCLUDE THERMAL CONDUCTIVITY, WATER-VAPOR PERMEANCE THICKNESS, AND JACKETS (BOTH FACTORY AND FIELD APPLIED IF ANY).

1.2 SCHEDULING

A. SCHEDULE INSULATION TO FACILITATE AND COINCIDE WITH RE-ROOFING ACTIVITIES AND OWNER-AUTHORIZED SHUTDOWN OF RELATED COOLING SYSTEMS.

B. COMPLETE INSTALLATION AND CONCEALMENT OF PLASTIC MATERIALS AS RAPIDLY AS POSSIBLE IN EACH AREA OF CONSTRUCTION.

1.3 INSULATION MATERIALS

A. PRODUCTS SHALL NOT CONTAIN ASBESTOS, LEAD, MERCURY, OR MERCURY COMPOUNDS.

B. PRODUCTS THAT COME INTO CONTACT WITH STAINLESS STEEL SHALL HAVE A LEACHABLE CHLORIDE CONTENT OF LESS THAN 50 PPM WHEN TESTED IN ACCORDANCE WITH ASTM C871.

C. FLEXIBLE ELASTOMERIC: CLOSED-CELL, SPONGE- OR EXPANDED-RUBBER MATERIALS. COMPLY WITH ASTM C534/C534M, TYPE I FOR TUBULAR MATERIALS, TYPE II FOR SHEET MATERIALS.

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. AEROFLEX USA, INC.
b. ARMACELL LLC.
c. K-FLEX USA.

1.4 ADHESIVES

A. MATERIALS SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES AND FOR BONDING INSULATION TO ITSELF AND TO SURFACES TO BE INSULATED UNLESS OTHERWISE INDICATED.

B. FLEXIBLE ELASTOMERIC ADHESIVE: SOLVENT-BASED ADHESIVE.

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. AEROFLEX USA, INC.
b. ARMACELL LLC.
c. FOSTER BRAND; H. B. FULLER CONSTRUCTION PRODUCTS.
d. K-FLEX USA.

2. FLAME-SPREAD INDEX SHALL BE 25 OR LESS AND SMOKE-DEVELOPED INDEX SHALL BE 50 OR LESS AS TESTED IN ACCORDANCE WITH ASTM E84.
3. WET FLASH POINT: BELOW 0 DEG F.
4. SERVICE TEMPERATURE RANGE: 40 TO 200 DEG F.
5. COLOR: BLACK.

C. PVC JACKET ADHESIVE: COMPATIBLE WITH PVC JACKET.

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. DOW CORNING CORPORATION.
b. JOHNS MANVILLE; A BERKSHIRE HATHAWAY COMPANY.
c. P.I.C. PLASTICS, INC.
d. SPEEDLINE CORPORATION.

1.5 SEALANTS

A. MATERIALS SHALL BE AS RECOMMENDED BY THE INSULATION MANUFACTURER AND SHALL BE COMPATIBLE WITH INSULATION MATERIALS, JACKETS, AND SUBSTRATES.

B. JOINT SEALANTS:

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. CHILDERS BRAND; H. B. FULLER CONSTRUCTION PRODUCTS.
b. FOSTER BRAND; H. B. FULLER CONSTRUCTION PRODUCTS.
c. MON-ECO INDUSTRIES, INC.
d. PITTSBURGH CORNING CORPORATION.

2. PERMANENTLY FLEXIBLE, ELASTOMERIC SEALANT.

a. SERVICE TEMPERATURE RANGE: MINUS 150 TO PLUS 250 DEG F.
b. COLOR: WHITE OR GRAY.

1.6 FIELD-APPLIED JACKETS

A. FIELD-APPLIED JACKETS SHALL COMPLY WITH ASTM C1136, TYPE I, UNLESS OTHERWISE INDICATED.

B. PVC JACKET: HIGH-IMPACT-RESISTANT, UV-RESISTANT PVC COMPLYING WITH ASTM D1784, CLASS 16354-C; THICKNESS AS SCHEDULED; ROLL STOCK READY FOR SHOP OR FIELD CUTTING AND FORMING. PROVIDE JACKET WITH A MAXIMUM FLAME-SPREAD INDEX OF 25 AND A SMOKE-DEVELOPED INDEX OF 50. THICKNESS IS INDICATED IN FIELD-APPLIED JACKET SCHEDULES.

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. JOHNS MANVILLE; A BERKSHIRE HATHAWAY COMPANY.
b. P.I.C. PLASTICS, INC.
c. PROTO CORPORATION.
d. SPEEDLINE CORPORATION.

2. ADHESIVE: AS RECOMMENDED BY JACKET MATERIAL MANUFACTURER.
3. COLOR: WHITE.
4. FACTORY-FABRICATED FITTING COVERS TO MATCH JACKET IF AVAILABLE; OTHERWISE, FIELD FABRICATE.

a. SHAPES: 45- AND 90-DEGREE, SHORT- AND LONG-RADIUS ELBOWS, WYES, AND HANGERS.

1.7 TAPES

A. PVC TAPE: WHITE VAPOR-RETARDER TAPE MATCHING FIELD-APPLIED PVC JACKET WITH ACRYLIC ADHESIVE; SUITABLE FOR INDOOR AND OUTDOOR APPLICATIONS.

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:

a. 3M INDUSTRIAL ADHESIVES AND TAPES DIVISION.
b. IDEAL TAPE CO., INC., AN AMERICAN BILTRITE COMPANY.

2. WIDTH: 2 INCHES.
3. THICKNESS: 6 MILS.
4. ADHESION: 64 OUNCES FORCE/INCH IN WIDTH.
5. ELONGATION: 500 PERCENT.
6. TENSILE STRENGTH: 18 LBF/INCH IN WIDTH.

1.8 EXAMINATION

A. EXAMINE SUBSTRATES AND CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF INSULATION APPLICATION.

1. VERIFY THAT SYSTEMS TO BE INSULATED HAVE BEEN TESTED AND ARE FREE OF DEFECTS.
2. VERIFY THAT SURFACES TO BE INSULATED ARE CLEAN AND DRY.

B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

1.9 PREPARATION

A. CLEAN AND DRY SURFACES TO RECEIVE INSULATION. REMOVE MATERIALS THAT WILL ADVERSELY AFFECT INSULATION APPLICATION.

1.10 GENERAL INSTALLATION REQUIREMENTS

A. INSTALL INSULATION MATERIALS, ACCESSORIES, AND FINISHES WITH SMOOTH, STRAIGHT, AND EVEN SURFACES; FREE OF VOIDS THROUGHOUT THE LENGTH OF PIPING, INCLUDING SPECIALTIES.

B. INSTALL INSULATION MATERIALS, FORMS, VAPOR BARRIERS OR RETARDERS, JACKETS, AND OF THICKNESSES REQUIRED FOR EACH ITEM OF PIPE SYSTEM, AS SPECIFIED IN INSULATION SYSTEM SCHEDULES.

C. INSTALL ACCESSORIES COMPATIBLE WITH INSULATION MATERIALS AND SUITABLE FOR THE SERVICE. INSTALL ACCESSORIES THAT DO NOT CORRODE, SOFTEN, OR OTHERWISE ATTACK INSULATION OR JACKET IN EITHER WET OR DRY STATE.

D. INSTALL INSULATION WITH LONGITUDINAL SEAMS AT BOTTOM OF HORIZONTAL RUNS.

E. KEEP INSULATION MATERIALS DRY DURING STORAGE, APPLICATION, AND FINISHING.

F. INSTALL INSULATION WITH TIGHT LONGITUDINAL SEAMS AND END JOINTS. BOND SEAMS AND JOINTS WITH ADHESIVE RECOMMENDED BY INSULATION MATERIAL MANUFACTURER.

G. INSTALL INSULATION WITH LEAST NUMBER OF JOINTS PRACTICAL.

H. PROVIDE VAPOR BARRIER FOR ALL BELOW-AMBIENT SERVICES. SEAL JOINTS, SEAMS, AND PENETRATIONS IN INSULATION AT HANGERS, SUPPORTS, ANCHORS, AND OTHER PROJECTIONS WITH VAPOR-BARRIER MASTIC.

I. APPLY ADHESIVES, MASTICS, AND SEALANTS AT MANUFACTURER'S RECOMMENDED COVERAGE RATE AND WET AND DRY FILM THICKNESSES.

1.11 GENERAL PIPE INSULATION INSTALLATION

A. INSULATION INSTALLATION ON FITTINGS, VALVES, STRAINERS, FLANGES, MECHANICAL COUPLINGS, AND UNIONS:

1. INSTALL INSULATION OVER FITTINGS, MECHANICAL COUPLINGS, UNIONS, AND OTHER SPECIALTIES WITH CONTINUOUS THERMAL AND VAPOR-RETARDER INTEGRITY UNLESS OTHERWISE INDICATED.
2. INSULATE PIPE ELBOWS USING PREFORMED FITTING INSULATION AND FITTING COVERS MADE FROM SAME MATERIAL AND DENSITY AS THAT OF ADJACENT PIPE INSULATION. EACH PIECE SHALL BE BUTTED TIGHTLY AGAINST ADJOINING PIECE AND BONDED WITH ADHESIVE.
3. INSULATE WYE FITTINGS WITH PREFORMED FITTING INSULATION AND FITTING COVERS OF SAME MATERIAL AND THICKNESS AS THAT USED FOR ADJACENT PIPE. CUT SECTIONAL PIPE INSULATION TO FIT. BUTT EACH SECTION CLOSELY TO THE NEXT AND HOLD IN PLACE WITH TIE WIRE. BOND PIECES WITH ADHESIVE.
4. INSTALL FITTED PVC COVER OVER PIPING, ELBOWS, WYES, FLANGES, AND UNIONS. TERMINATE ENDS WITH PVC END CAPS. TAPE PVC COVERS TO ADJOINING INSULATION FACING, USING PVC TAPE TO MAINTAIN UV PROTECTION AT ANY IRREGULAR SITUATIONS.

1.12 INSTALLATION OF FLEXIBLE ELASTOMERIC INSULATION

A. SEAL LONGITUDINAL SEAMS AND END JOINTS WITH MANUFACTURER'S RECOMMENDED ADHESIVE TO ELIMINATE OPENINGS IN INSULATION THAT ALLOW PASSAGE OF AIR TO SURFACE BEING INSULATED.

B. INSULATION INSTALLATION ON PIPE FITTINGS AND ELBOWS:

1. INSTALL MITERED SECTIONS OF PIPE INSULATION FOR SHORT RADIUS ELBOWS.
2. SECURE INSULATION MATERIALS AND SEAL SEAMS WITH MANUFACTURER'S RECOMMENDED ADHESIVE TO ELIMINATE OPENINGS IN INSULATION THAT ALLOW PASSAGE OF AIR TO SURFACE BEING INSULATED.

C. INSULATION INSTALLATION ON PIPE SPECIALTIES:

1. INSTALL PREFORMED WYE (REFNET) COVERS MANUFACTURED OF SAME MATERIAL AS THAT OF PIPE INSULATION WHEN AVAILABLE.
2. WHEN PREFORMED WYE COVERS ARE NOT AVAILABLE, INSTALL CUT SECTIONS OF PIPE AND SHEET INSULATION TO VALVE BODY. ARRANGE INSULATION TO ALLOW PROPER VAPOR SEALING.
3. SECURE INSULATION AND SEAL SEAMS WITH MANUFACTURER'S RECOMMENDED ADHESIVE TO ELIMINATE OPENINGS IN INSULATION THAT ALLOW PASSAGE OF AIR TO SURFACE BEING INSULATED.

1.13 PIPING INSULATION SCHEDULE, GENERAL

A. EXISTING EXTERIOR REFRIGERANT PIPING:
1. BASE BID:
a. REMOVE AND DISPOSE OF ALL EXISTING INSULATION.
b. PROVIDE REPLACEMENT ELASTOMERIC INSULATION ON ALL EXPOSED REFRIGERANT PIPING.
1) LESS THAN 1" PIPE DIAMETERS, PROVIDE 0.5" THICKNESS.
2) 1" AND GREATER PIPE DIAMETERS, PROVIDE 1.0" THICKNESS.
2. ALTERNATE BIDS A-1 AND A-2
a. REMOVE AND DISPOSE OF SPECIFIED AMOUNTS OF DETERIORATED / DAMAGED EXISTING INSULATION.
b. PROVIDE REPLACEMENT ELASTOMERIC INSULATION ON AREAS OF REMOVAL ON ALL EXPOSED REFRIGERANT PIPING.
1) LESS THAN 1" PIPE DIAMETERS, PROVIDE 0.5" THICKNESS.
2) 1" AND GREATER PIPE DIAMETERS, PROVIDE 1.0" THICKNESS.

1.14 OUTDOOR, FIELD-APPLIED JACKET SCHEDULE (BASE BID AND ALTERNATE A-1)

A. PROVIDE FIELD-APPLIED JACKET ON ALL EXPOSED EXTERIOR REFRIGERANT PIPING WHETHER EXISTING-RETAINED INSULATION OR NEW-REPLACEMENT INSULATION.

B. INSTALLATION MAY REQUIRE MINOR HAND-STRAIGHTENING OF COPPER TUBING TO IMPROVE CLEARANCES FOR JACKETING WHERE TUBING WAS PREVIOUSLY DEFORMED BY PHYSICAL CONTACT OR SIMILAR.

C. IT IS ANTICIPATED PORTIONS OF THE PIPING AT WYE FITTINGS, PIPE SUPPORTS/HANGERS, AND PERHAPS AT CROSSINGS OF CLUSTERED PIPING ADJACENT TO ROOF-CURB/PIPE-PORTALS MAY NOT BE ADEQUATELY ACCESSIBLE FOR PROPER VAPOR-BARRIER INSTALLATION OF THE JACKETING. IN SUCH AREAS, EXPOSED INSULATION SHALL BE UV-PAINT-PROTECTED AND THEN LOOSELY WRAPPED WITH PVC JACKET RETAINED WITH STAINLESS WORM GEAR CLAMPS OR SIMILAR AS A SUN-SHIELD.

1.15 OUTDOOR, FIELD APPLIED UV-PROTECTIVE PAINT

A. PROVIDE TWO (2) COATS OF UV-PROTECTIVE PAINT EQUAL TO ARMA-FLEX WB FINISH.
1. APPLY FIRST COAT WITHIN 3-DAYS AFTER INSTALLATION OF INSULATION.
2. APPLY SECOND COAT AFTER 4 HOURS, MINIMUM.

END OF SPECIFICATION

REFER TO DRAWING M-104 FOR:
- ROOF PLAN
- IMAGES A THROUGH G, SHOWING EXAMPLES OF EXISTING CONDITIONS

MECHANICAL GENERAL NOTES:

A. ALL BIDDERS MUST VISIT THE PROJECT SITE TO VISUALLY ASSESS THE SCOPE OF WORK AND EXISTING CONDITIONS PRIOR TO BIDDING. SUBMIT DATE AND TIME OF SITE VISIT(S) WITH BID.

B. THE SCOPE GENERALLY INCLUDES PIPING INSULATION AND JACKET AT EIGHT (8) EXISTING REFRIGERANT PIPING SYSTEMS, REFERENCED AS SYSTEM 1 THROUGH SYSTEM 8 IN THE "MECHANICAL INSULATION SCOPE NOTES" BELOW, AND IDENTIFIED ON THE ROOF PLAN ON DRAWING M-101.

C. PROVIDE BASE BID PROPOSAL TO: DISCONNECT, REMOVE, DISPOSE AND REPLACE EXISTING REFRIGERANT PIPING INSULATION IN KIND, INCLUDING:
1. INSULATION & PROTECTIVE PVC JACKETING ON ALL REFRIGERANT PIPING, FROM AIR-COOLED CONDENSING UNITS TO PIPE CURB PENETRATION LOCATIONS.

D. PROVIDE ALTERNATE BID PROPOSAL A-1 TO: REFURBISH EXISTING REFRIGERANT PIPING INSULATION IN KIND, AND ADD JACKET, INCLUDING:
1. DISCONNECTION, REMOVAL, DISPOSAL AND REPLACEMENT OF SECTIONS / QUANTITIES AS DESCRIBED ON THE DRAWINGS.
2. INSULATION, AND TWO (2) COATS OF UV-PROTECTIVE PAINT (ARMA-FLEX WB FINISH, OR EQUAL) AT WYE FITTINGS.
3. PVC JACKETING AND FASTENERS AT WYE FITTINGS.

E. PROVIDE ALTERNATE BID PROPOSAL A-2 TO: REFURBISH EXISTING REFRIGERANT PIPING INSULATION IN KIND, INCLUDING:
1. DISCONNECTION, REMOVAL, DISPOSAL AND REPLACEMENT OF SECTIONS / QUANTITIES AS DESCRIBED ON THE DRAWINGS.
2. TWO (2) COATS OF UV-PROTECTIVE PAINT (ARMA-FLEX WB FINISH, OR EQUAL) ON ALL REPAIRED AND REPLACED INSULATION, AND AT ALL WYE FITTINGS.

F. COORDINATE THE REMOVAL, STORAGE AND RE-INSTALLATION NEEDS FOR THE EXISTING SHEET-METAL PROTECTIVE COVERS WITH CONTRACTOR FOR CURRENT ROOFING PROJECT.

MECHANICAL INSULATION SCOPE NOTES:

SYSTEM 1:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 2 SECTIONS OF LARGER PIPING INSULATION TOTALING 15-FEET AND 6 SECTIONS OF SMALLER PIPING INSULATION TOTALING 50-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 1 LARGE WYE AND 1 SMALL WYE INCLUDED IN THIS SYSTEM.

SYSTEM 2:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 8 SECTIONS OF LARGER PIPING INSULATION TOTALING 40-FEET AND 6 SECTIONS OF SMALLER PIPING INSULATION TOTALING 36-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 4 LARGE WYES AND 4 SMALL WYES INCLUDED IN THIS SYSTEM.

SYSTEM 3:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 6 SECTIONS OF LARGER PIPING INSULATION TOTALING 60-FEET AND 6 SECTIONS OF SMALLER PIPING INSULATION TOTALING 30-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 4 LARGE WYES AND 4 SMALL WYES INCLUDED IN THIS SYSTEM.

SYSTEM 4:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 2 SECTIONS OF LARGER PIPING INSULATION TOTALING 20-FEET AND 10 SECTIONS OF SMALLER PIPING INSULATION TOTALING 50-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 4 LARGE WYES AND 4 SMALL WYES INCLUDED IN THIS SYSTEM.

SYSTEM 5:
A. AS PART OF ALTERNATE M-1: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 9 SECTIONS OF LARGER PIPING INSULATION TOTALING 35-FEET AND 16 SECTIONS OF SMALLER PIPING INSULATION TOTALING 86-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 5 LARGE WYES AND 3 SMALL WYES INCLUDED IN THIS SYSTEM.

SYSTEM 6:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 5 SECTIONS OF LARGER PIPING INSULATION TOTALING 15-FEET AND 11 SECTIONS OF SMALLER PIPING INSULATION TOTALING 58-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 4 LARGE WYES AND 4 SMALL WYES INCLUDED IN THIS SYSTEM.

SYSTEM 7:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 4 SECTIONS OF LARGER PIPING INSULATION TOTALING 11-FEET AND 5 SECTIONS OF SMALLER PIPING INSULATION TOTALING 13-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 3 LARGE WYES AND 3 SMALL WYES INCLUDED IN THIS SYSTEM.

SYSTEM 8:
A. AS PART OF ALTERNATE: REMOVE AND REPLACE THE MOST DAMAGED INSULATION. INCLUDE IN BID 6 SECTIONS OF LARGER PIPING INSULATION TOTALING 19-FEET AND 6 SECTIONS OF SMALLER PIPING INSULATION TOTALING 39-FEET. SOME WYE FITTINGS ARE INCLUDED IN THESE SECTIONS REQUIRING REPLACEMENT.
B. THERE ARE 1 LARGE WYE AND 1 SMALL WYE INCLUDED IN THIS SYSTEM.

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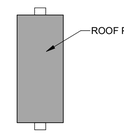

Key Plan

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Designer	Reviewer
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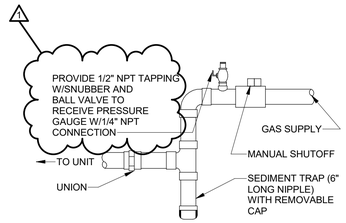
Date Issued	Project Number
02/25/2021	21007

Sheet Name

VRF SYSTEM INSULATION SPECIFICATIONS - ALTERNATE NO. 3

Drawing Number

M105 AD1

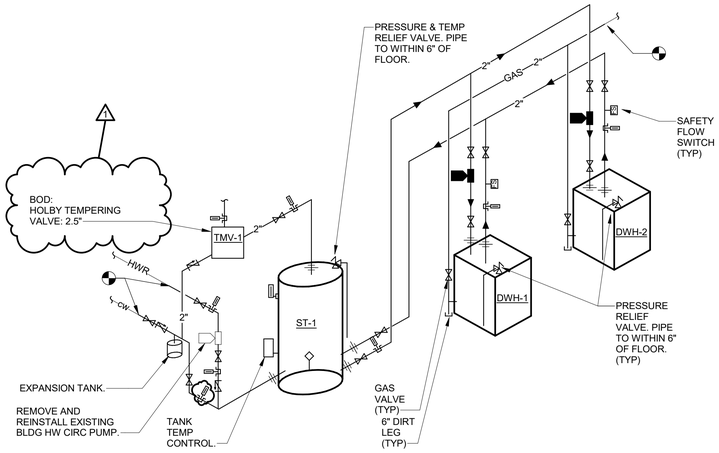


NOTES:
1. VERIFY CONFIGURATION AND COMPONENTS OF GAS CONNECTION. PROVIDE COMPONENTS AS REQUIRED TO COMPLY WITH WORK AS SHOWN ON THIS DETAIL.
2. WHERE EQUIPMENT CONNECTION IS SMALLER THAN LINE SIZE, PIPE SIZE MAY BE REDUCED WITHIN 2'-0" OF THE EQUIPMENT CONNECTION POINT.

GAS PIPING EQUIPMENT CONNECTION

E1 / P102 / AD1

SCALE: NOT TO SCALE



DHW SCHEMATIC

C1 / P102 / AD1

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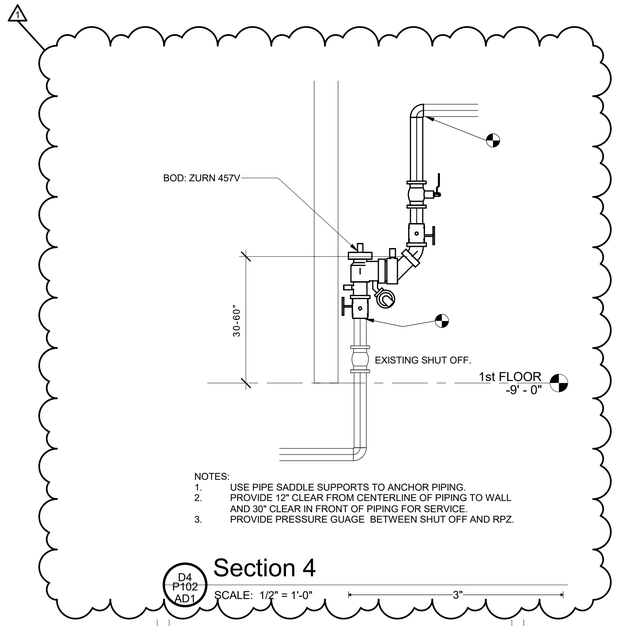
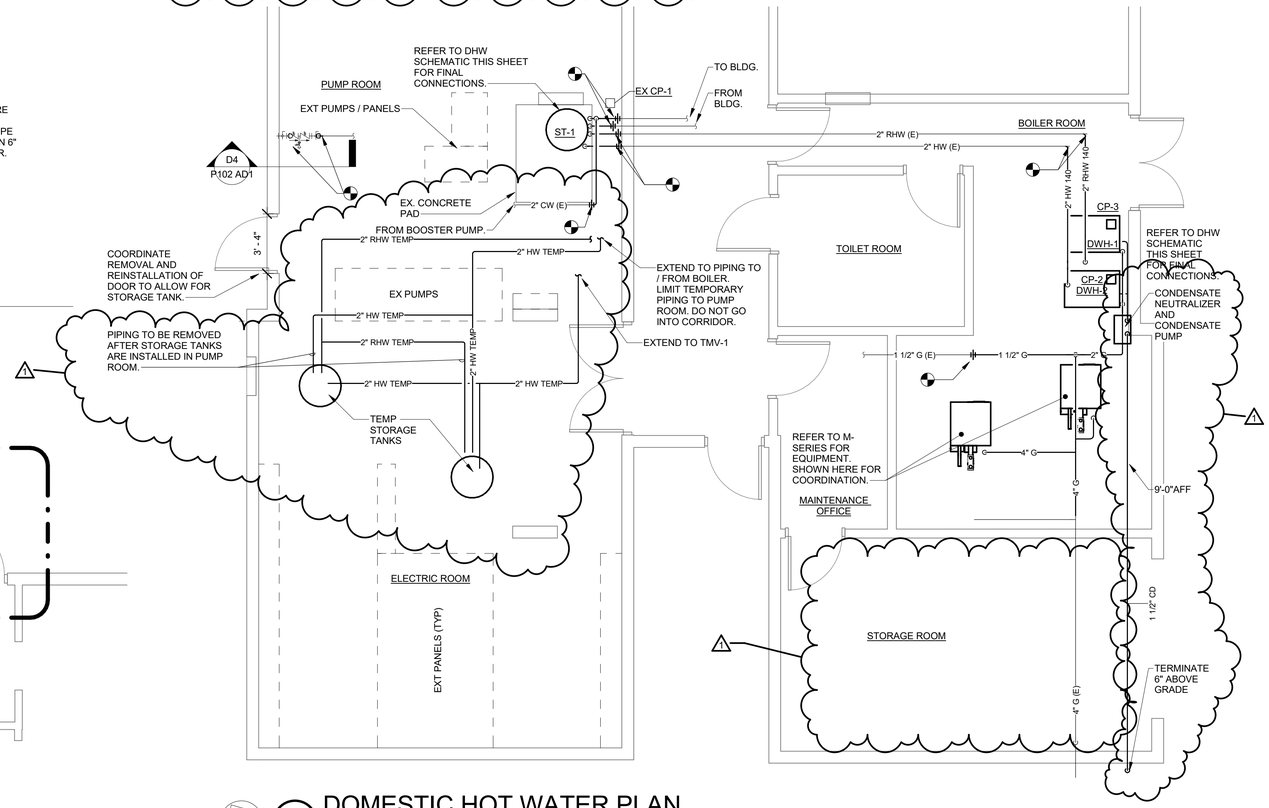


NOTES:
1. USE PIPE SADDLE SUPPORTS TO ANCHOR PIPING.
2. PROVIDE 12" CLEAR FROM CENTERLINE OF PIPING TO WALL AND 30" CLEAR IN FRONT OF PIPING FOR SERVICE.
3. PROVIDE PRESSURE GUAGE BETWEEN SHUT OFF AND RPZ.

Section 4

D4 / P102 / AD1

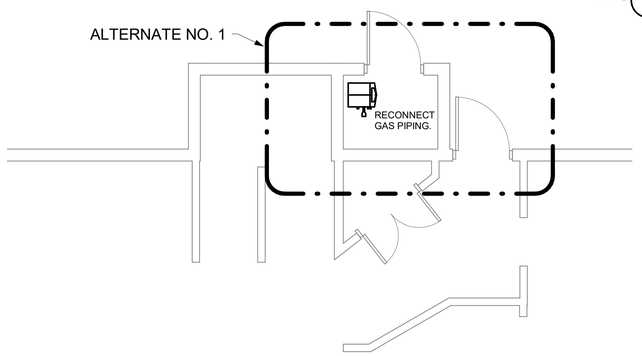
SCALE: 1/2" = 1'-0" — 3"



DOMESTIC HOT WATER PLAN

A4 / P102 / AD1

SCALE: 1/4" = 1'-0" — 3"



SECOND FLOOR MECH ROOM PLAN

A1 / P102 / AD1

SCALE: 1/4" = 1'-0" — 3"

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Date Revised	Description
03/05/2021	Addendum No. 1

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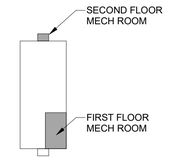

Key Plan

Project Manager	Discipline Lead
CL	GLS
Designer	Reviewer
GLS	EPF
Date Issued	Project Number
02/25/2021	21007

Sheet Name

PLUMBING PLAN

Drawing Number

P102 AD1