ENERGY EFFICIENCY PROJECT

STEAM TO HOT WATER CONVERSION

BEDFORD VILLAGE ELEMENTARY SCHOOL

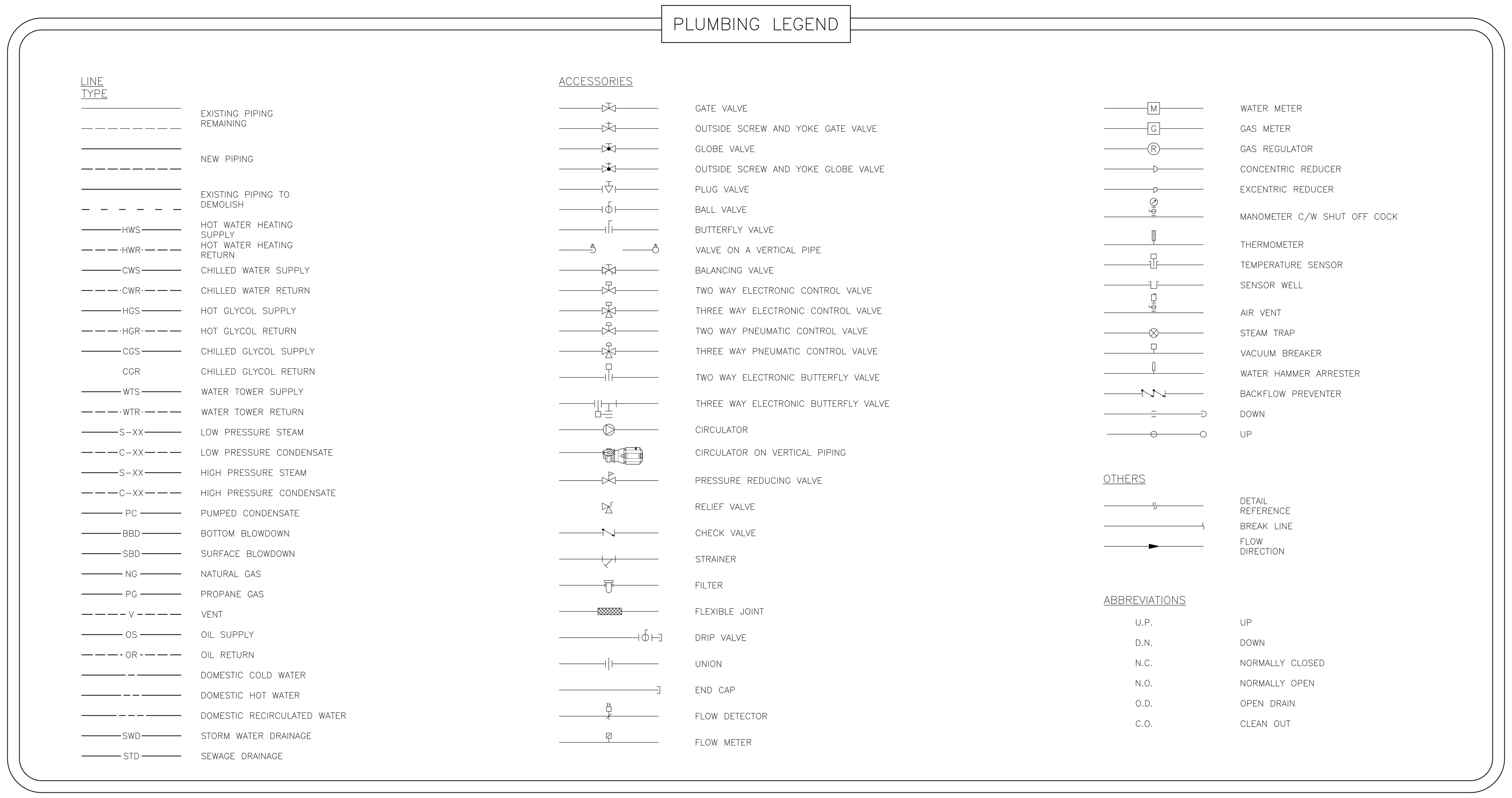
45 COURT ROAD, BEDFORD, WESTCHESTER COUNTY, NEW YORK

TITLE/COVER DRAWINGS			
DRAWING #	DRAWING TITLE	REVISION	REVISION DATE
T-01	TITLE SHEET AND DRAWING LISTS	0	02/29/21

MECHANICAL DRAWINGS			
DRAWING #	DRAWING TITLE	REVISION	REVISION DATE
M-01	BOILER ROOM DEMOLITION	0	
M-02	BOILER ROOM CONSTRUCTION	0	02/29/21
M-03	FIRST FLOOR HOT WATER CONSTRUCTION	0	02/29/21
M-04	FIRST FLOOR HEAT PUMP CONSTRUCTION	0	02/29/21
M-05	ROOF HEAT PUMP CONSTRUCTION	0	02/29/21
M-06	MECHANICAL DETAILS	0	02/29/21
M-07	MECHANICAL SCHEDULES	0	02/29/21

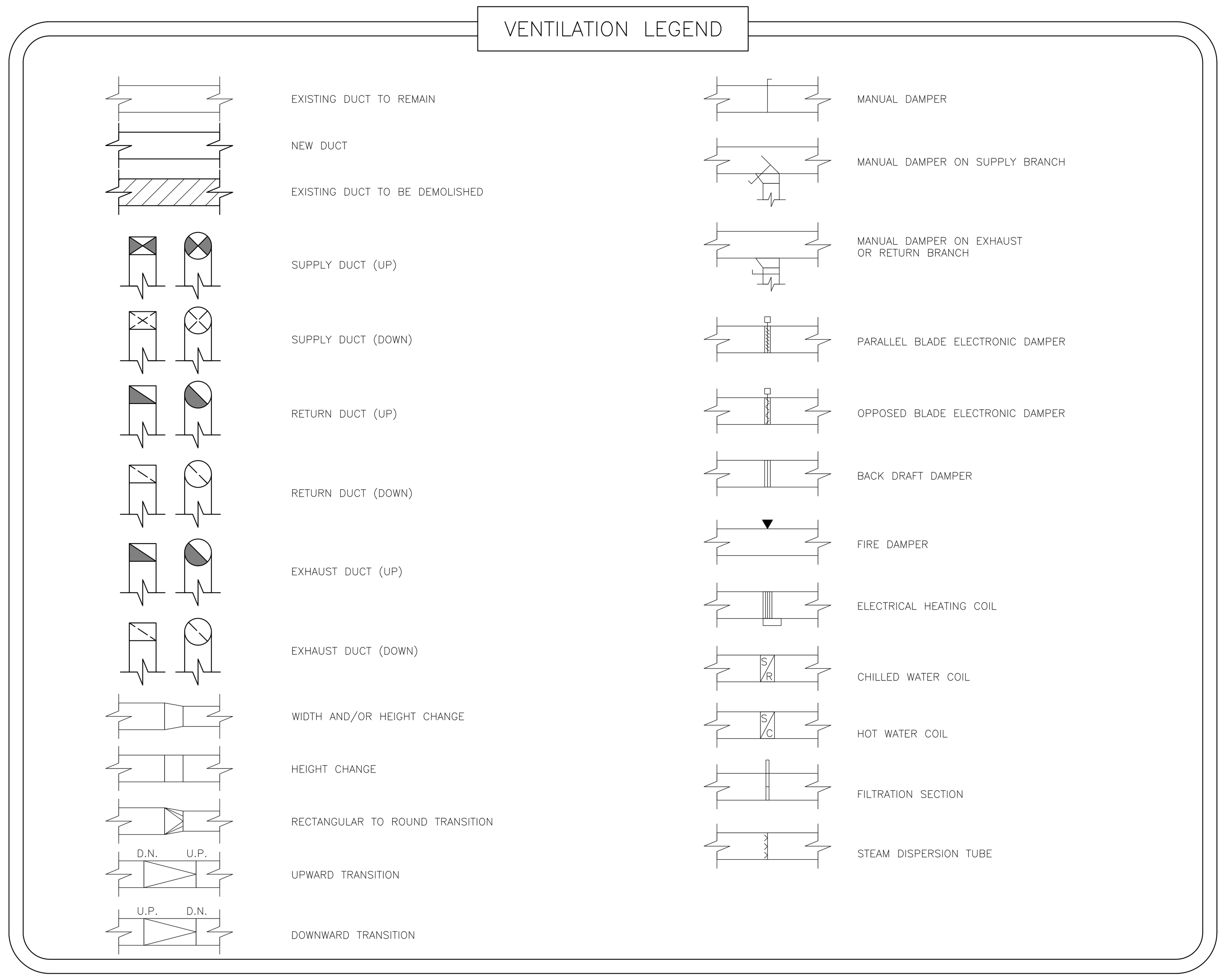
ELECTRICAL DRAWINGS			
DRAWING #	DRAWING TITLE	REVISION	REVISION DATE
E-01	ELECTRICAL GENERAL NOTES AND LEGEND	0	
E-02	BASEMENT BOILER ROOM ELECTRIC	0	02/29/21
E-03	FIRST FLOOR HEAT PUMP ELECTRIC	0	02/29/21
E-04	ROOF HEAT PUMP ELECTRIC	0	02/29/21
E-05	ELECTRIC SCHEDULES AND RISER	0	02/29/21

PLUMBING LEGEND



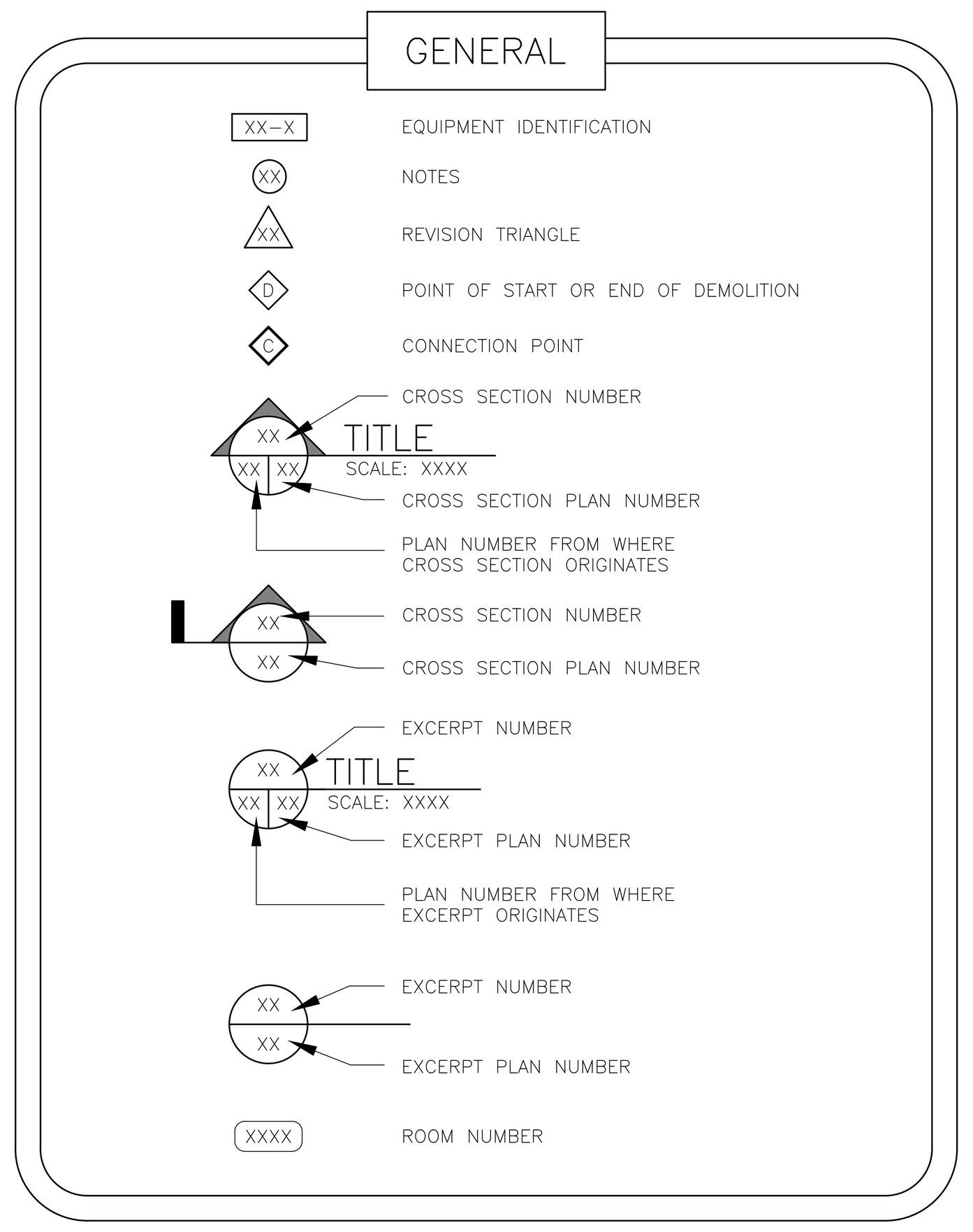
LINE TYPE
EXISTING PIPING REMAINING
NEW PIPING
EXISTING PIPING TO DEMOLISH
HOT WATER HEATING SUPPLY
HOT WATER HEATING RETURN
CHILLED WATER SUPPLY
CHILLED WATER RETURN
HOT GLYCOL SUPPLY
HOT GLYCOL RETURN
CHILLED GLYCOL SUPPLY
CHILLED GLYCOL RETURN
WATER TOWER SUPPLY
WATER TOWER RETURN
LOW PRESSURE STEAM
LOW PRESSURE CONDENSATE
HIGH PRESSURE STEAM
HIGH PRESSURE CONDENSATE
PUMPED CONDENSATE
BOTTOM BLOWDOWN
SURFACE BLOWDOWN
NATURAL GAS
PROPANE GAS
VENT
OIL SUPPLY
OIL RETURN
DOMESTIC COLD WATER
DOMESTIC HOT WATER
DOMESTIC RECIRCULATED WATER
STORM WATER DRAINAGE
SEWAGE DRAINAGE
ACCESSORIES
GATE VALVE
OUTSIDE SCREW AND YOKE GATE VALVE
GLOBE VALVE
OUTSIDE SCREW AND YOKE GLOBE VALVE
PLUG VALVE
BALL VALVE
BUTTERFLY VALVE
VALVE ON A VERTICAL PIPE
BALANCING VALVE
TWO WAY ELECTRONIC CONTROL VALVE
THREE WAY ELECTRONIC CONTROL VALVE
TWO WAY PNEUMATIC CONTROL VALVE
THREE WAY PNEUMATIC CONTROL VALVE
TWO WAY ELECTRONIC BUTTERFLY VALVE
THREE WAY ELECTRONIC BUTTERFLY VALVE
CIRCULATOR
CIRCULATOR ON VERTICAL PIPING
PRESSURE REDUCING VALVE
RELIEF VALVE
CHECK VALVE
STRAINER
FILTER
FLEXIBLE JOINT
DRIP VALVE
UNION
END CAP
FLOW DETECTOR
FLOW METER
WATER METER
GAS METER
GAS REGULATOR
CONCENTRIC REDUCER
EXCENTRIC REDUCER
MANOMETER C/W SHUT OFF COCK
THERMOMETER
TEMPERATURE SENSOR
SENSOR WELL
AIR VENT
STEAM TRAP
VACUUM BREAKER
WATER HAMMER ARRESTER
BACKFLOW PREVENTER
DOWN
UP
OTHERS
DETAIL REFERENCE
BREAK LINE
FLOW DIRECTION
ABBREVIATIONS
U.P. UP
D.N. DOWN
N.C. NORMALLY CLOSED
N.O. NORMALLY OPEN
O.D. OPEN DRAIN
C.O. CLEAN OUT

VENTILATION LEGEND



EXISTING DUCT TO REMAIN
NEW DUCT
EXISTING DUCT TO BE DEMOLISHED
SUPPLY DUCT (UP)
SUPPLY DUCT (DOWN)
RETURN DUCT (UP)
RETURN DUCT (DOWN)
EXHAUST DUCT (UP)
EXHAUST DUCT (DOWN)
WIDTH AND/OR HEIGHT CHANGE
HEIGHT CHANGE
RECTANGULAR TO ROUND TRANSITION
UPWARD TRANSITION
DOWNWARD TRANSITION
MANUAL DAMPER
MANUAL DAMPER ON SUPPLY BRANCH
MANUAL DAMPER ON EXHAUST OR RETURN BRANCH
PARALLEL BLADE ELECTRONIC DAMPER
OPPOSED BLADE ELECTRONIC DAMPER
BACK DRAFT DAMPER
FIRE DAMPER
ELECTRICAL HEATING COIL
CHILLED WATER COIL
HOT WATER COIL
FILTRATION SECTION
STEAM DISPERSION TUBE

GENERAL



EQUIPMENT IDENTIFICATION
NOTES
REVISION TRIANGLE
POINT OF START OR END OF DEMOLITION
CONNECTION POINT
CROSS SECTION NUMBER
TITLE
SCALE: XXXX
CROSS SECTION PLAN NUMBER
PLAN NUMBER FROM WHERE CROSS SECTION ORIGINATES
CROSS SECTION NUMBER
CROSS SECTION PLAN NUMBER
EXCERPT NUMBER
EXCERPT PLAN NUMBER
PLAN NUMBER FROM WHERE EXCERPT ORIGINATES
EXCERPT NUMBER
EXCERPT PLAN NUMBER
ROOM NUMBER

GENERAL NOTES

- THE ITEMS ON THESE LEGENDS ARE NOT NECESSARILY USED ON THE DRAWINGS.

ECG ENGINEERING, P.C.

Bedford Central School District

SED # 66-01-02-06-0-002-014

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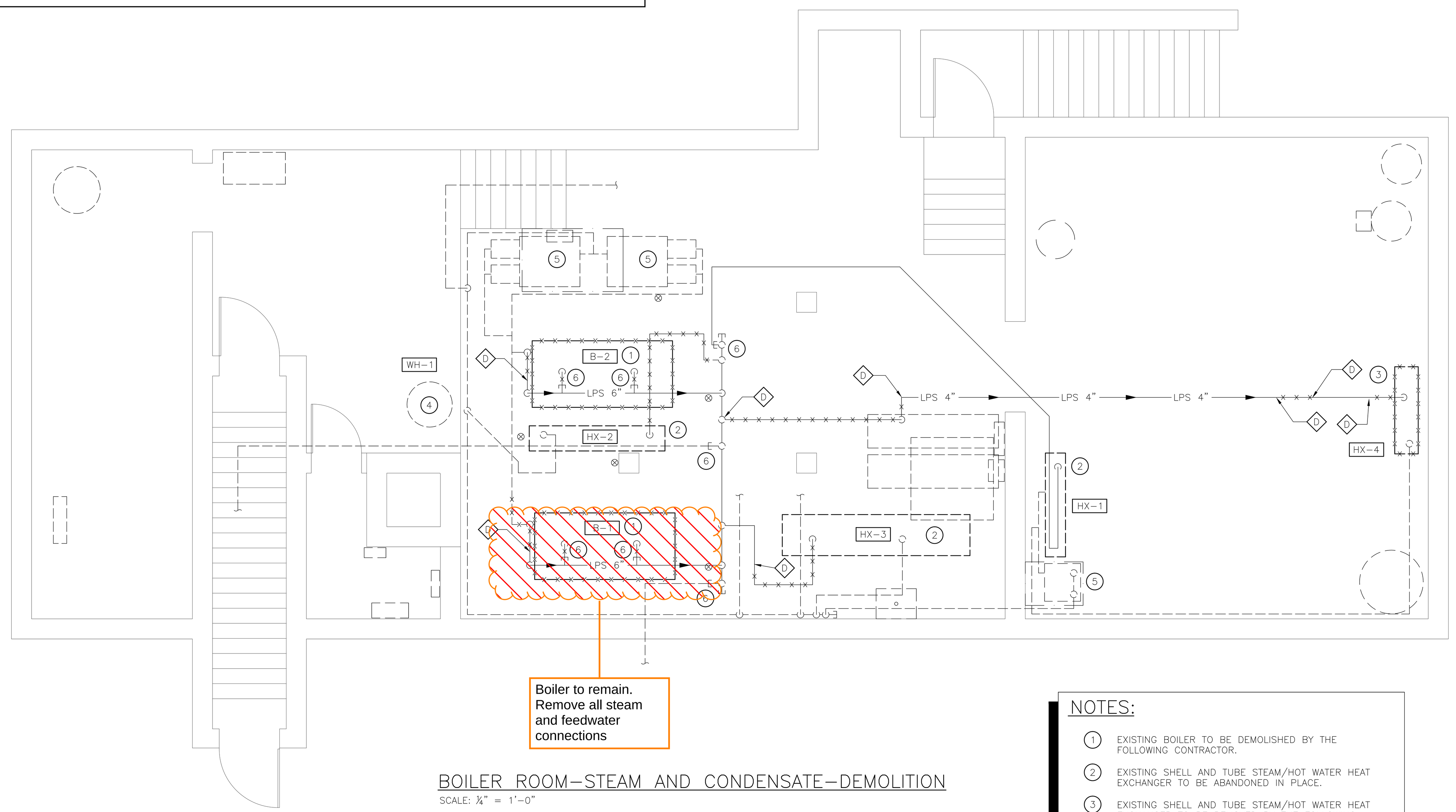
BEDFORD CENTRAL SCHOOL DISTRICT
BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
TITLE SHEET

T-01

All heat exchangers are inconsistently named across the various drawings and the BMS. Ecosystem is establishing the naming convention to be consistent with the BMS designations for the purposes of directing the work. Please relabel heat exchangers on all subsequent sheets as follows:

SED Drawing Designation	BMS Designation
Hx-1	Hx (Hot Water)
Hx-2	Hx-1
Hx-3	Hx-2
Hx-4	Hx (Glycol)

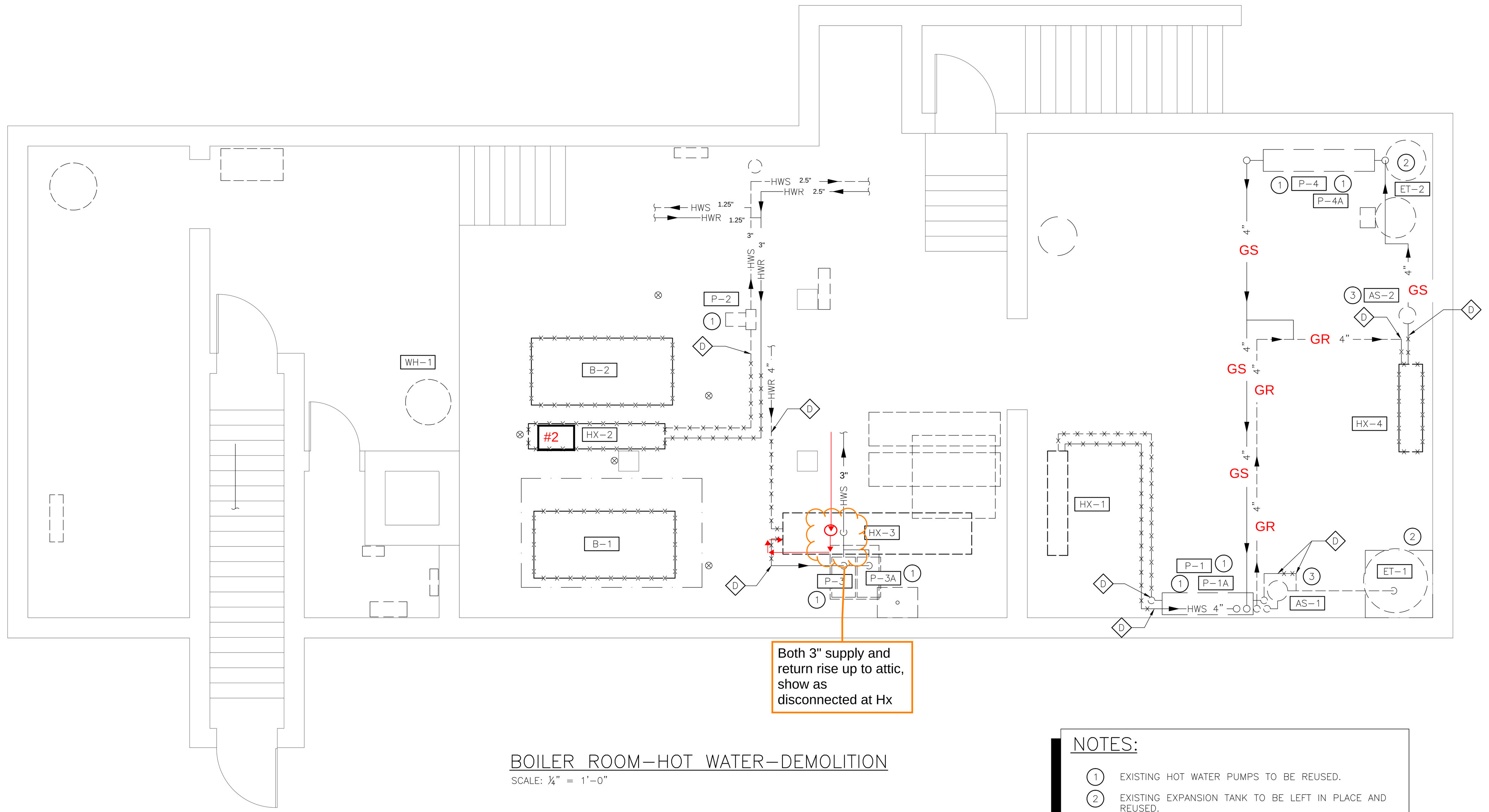


BOILER ROOM—STEAM AND CONDENSATE—DEMOLITION

SCALE: ¼" = 1'-0"

NOTES:

1. EXISTING BOILER TO BE DEMOLISHED BY THE FOLLOWING CONTRACTOR.
2. EXISTING SHELL AND TUBE STEAM/HOT WATER HEAT EXCHANGER TO BE ABANDONED IN PLACE.
3. EXISTING SHELL AND TUBE STEAM/HOT WATER HEAT EXCHANGER TO BE REMOVED BY THE FOLLOWING CONTRACTOR.
4. EXISTING DOMESTIC HOT WATER HEATER TO REMAIN.
5. EXISTING CONDENSATE TANK AND VACUUM SYSTEM TO BE ABANDONED IN PLACE.
6. EXISTING PIPING TO BE CUT—BACK AND CAPPED AT LOCATION SHOWN.

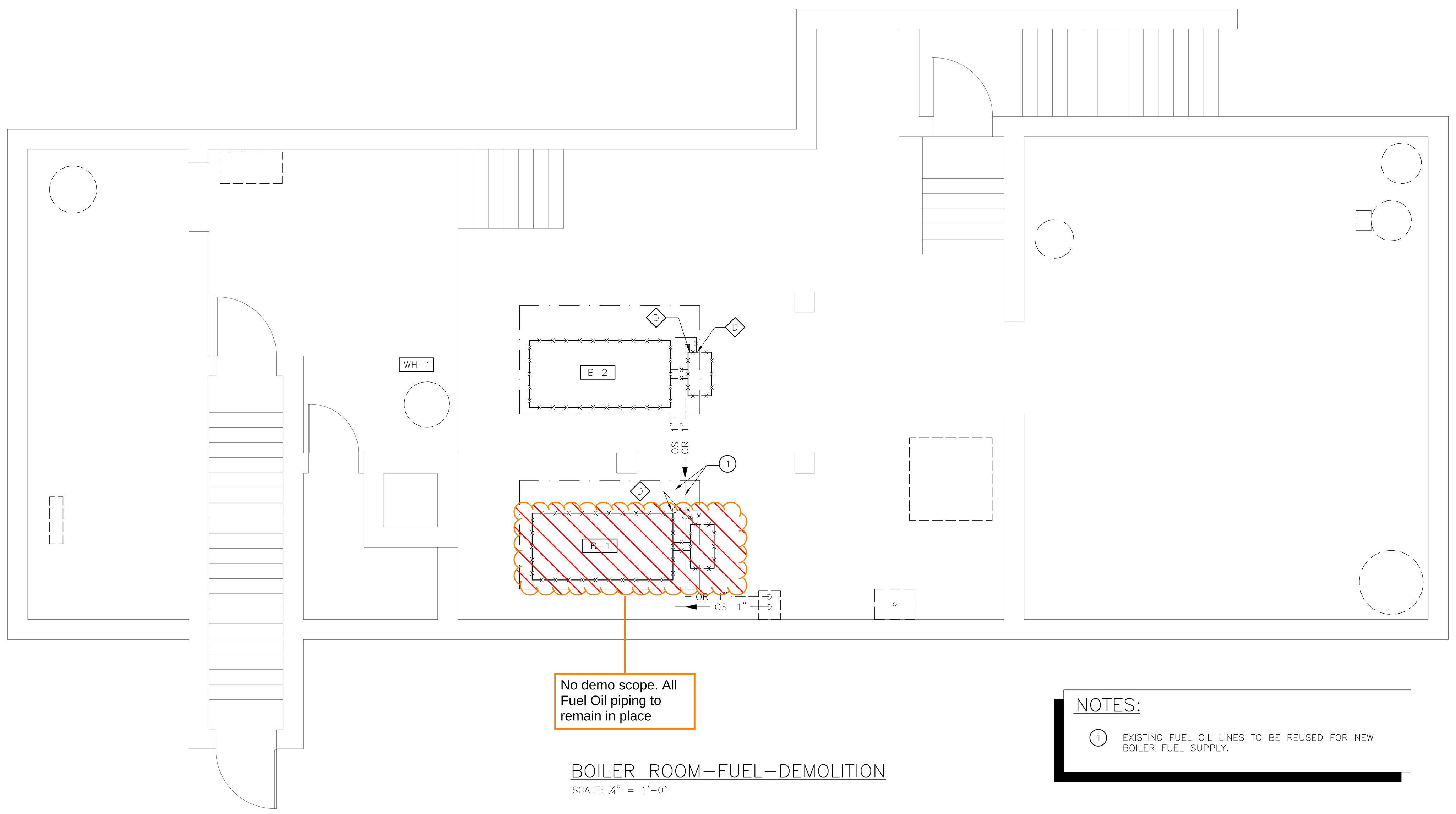


BOILER ROOM—HOT WATER—DEMOLITION

SCALE: ¼" = 1'-0"

NOTES:

1. EXISTING HOT WATER PUMPS TO BE REUSED.
2. EXISTING EXPANSION TANK TO BE LEFT IN PLACE AND REUSED.
3. EXISTING AIR SEPARATOR TO BE LEFT IN PLACE AND REUSED.

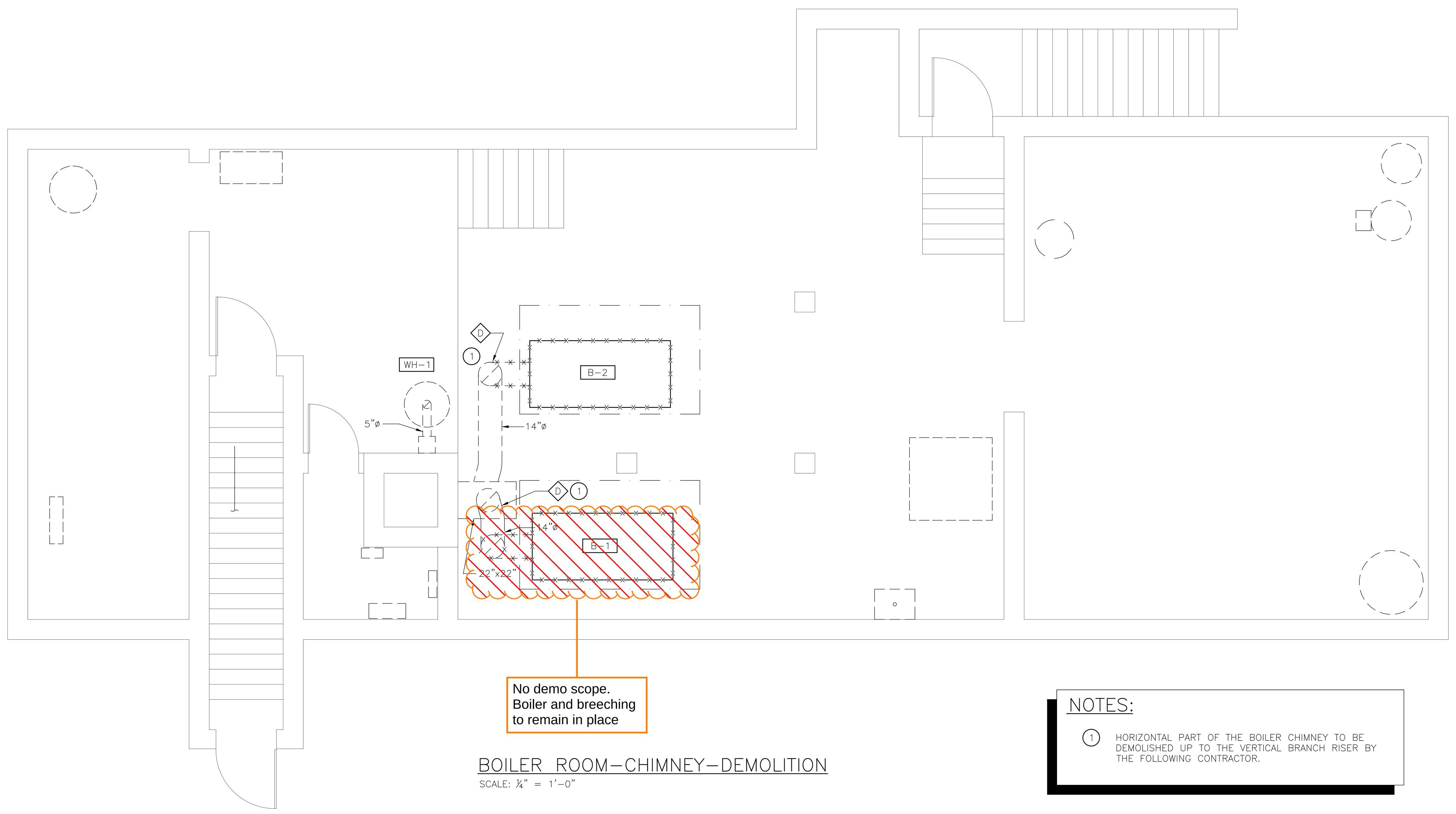


BOILER ROOM—FUEL—DEMOLITION

SCALE: ¼" = 1'-0"

NOTES:

1. EXISTING FUEL OIL LINES TO BE REUSED FOR NEW BOILER FUEL SUPPLY.



BOILER ROOM—CHIMNEY—DEMOLITION

SCALE: ¼" = 1'-0"

NOTES:

1. HORIZONTAL PART OF THE BOILER CHIMNEY TO BE DEMOLISHED UP TO THE VERTICAL BRANCH RISER BY THE FOLLOWING CONTRACTOR.

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DRAWN BY: P.S.
DATE: 2021/02/29
SCALE: AS NOTED
REVISED BY:
REVISED:
APPROVED BY: D.N.
FILE NAME: NY(BVES)

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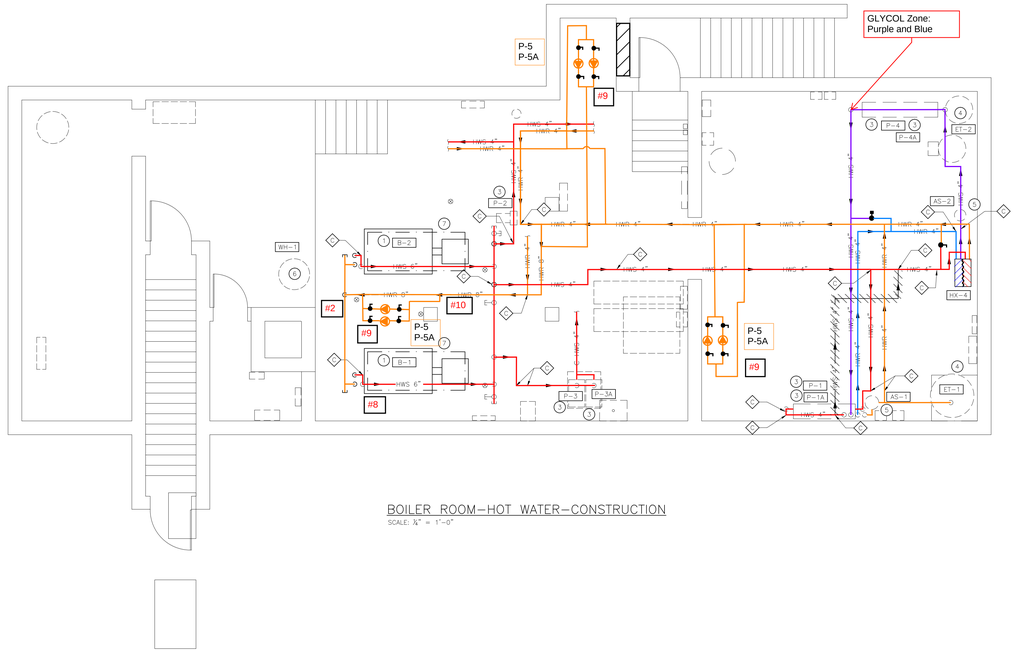
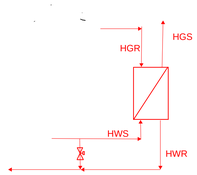
BEDFORD CENTRAL SCHOOL DISTRICT
BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
BOILER ROOM DEMOLITION

M-01



BOILER ROOM–HOT WATER–CONSTRUCTION

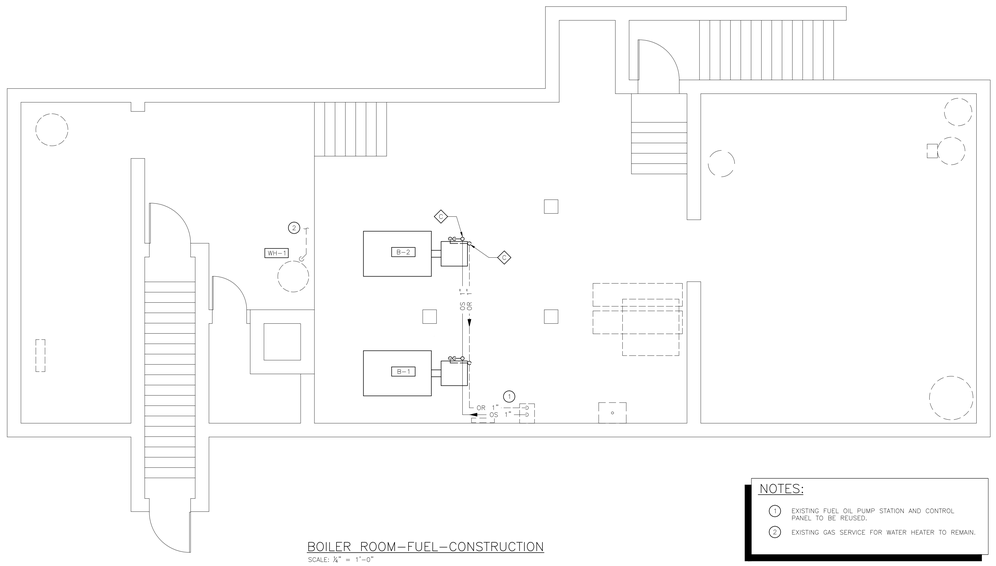
SCALE: ¼" = 1'-0"



NOTES:

1. NEW BOILER. SEE SCHEDULE AND DETAIL.
2. NEW PUMP. SEE SCHEDULE AND DETAIL.
3. EXISTING PUMP TO REMAIN IN PLACE AND IN SERVICE.
4. EXISTING EXPANSION TANK TO REMAIN IN PLACE AND IN SERVICE.
5. EXISTING AIR SEPARATOR TO REMAIN IN PLACE AND IN SERVICE.
6. EXISTING DOMESTIC HOT WATER HEATER TO REMAIN.
7. PROVIDE AND INSTALL NEW STRUCTURAL STEEL BASE BENEATH NEW BOILER TO RAISE BOILER 18–INCHES ABOVE FLOOR AND TO SUPPORT WEIGHT OF BOILER.

#8	Convert existing boiler to Hot Water. Remove level control, relocate LWCO, etc
#9	Potential location for new Pump Station 5. Location to be finalized with awarded contractor.
#10	Add auto-vent with manual valve shutoff

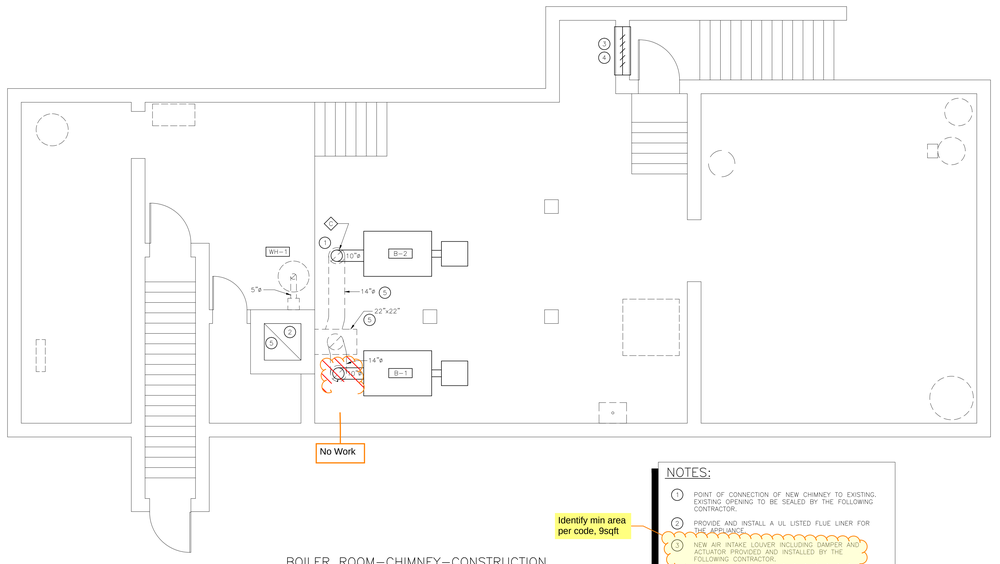


BOILER ROOM–FUEL–CONSTRUCTION

SCALE: ¼" = 1'-0"

NOTES:

1. EXISTING FUEL OIL PUMP STATION AND CONTROL PANEL TO BE REUSED.
2. EXISTING GAS SERVICE FOR WATER HEATER TO REMAIN.



BOILER ROOM–CHIMNEY–CONSTRUCTION

SCALE: ¼" = 1'-0"

Identify min area per code, 9sqft

NOTES:

1. POINT OF CONNECTION OF NEW CHIMNEY TO EXISTING. EXISTING OPENING TO BE SEALED BY THE FOLLOWING CONTRACTOR.
2. PROVIDE AND INSTALL A UL LISTED FLUE LINER FOR THE APPLIANCE.
3. NEW AIR INTAKE LOUVER INCLUDING DAMPER AND ACTUATOR PROVIDED AND INSTALLED BY THE FOLLOWING CONTRACTOR.
4. ENGAGE INTERLOCK OF ALL BOILERS TO OPEN OUTSIDE AIR DAMPERS PRIOR TO FIRING. EACH BOILER AND HOT WATER HEATER NEW AND EXISTING DAMPER ACTUATOR SHALL HAVE END OF POSITION SWITCHES TO PREVENT COMBUSTION IF DAMPER IS NOT OPEN BEFORE FIRING OF ANY BOILER.
5. CHIMNEY DIAMETER TO BE CONFIRMED AND APPROVED BY CHIMNEY CONTRACTOR PRIOR TO CONSTRUCTION.

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NO.	DATE	ISSUANCE

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BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
BOILER ROOM CONSTRUCTION

STATE OF NEW YORK
PHILIP JOSEPH SHEES
083165
LICENSED PROFESSIONAL ENGINEER

M-02

OA DAMPER

NEW

End Switch

OAT TS0

OAT/Humid

CO Detector

TS

Space Temp

EMERGENCY SHUT-OFF

Emg. Pushbutton

HW Hx-1 Zone

HW Hx-2 Zone

HW Hx Zone

Glycol Zone

TS3

TS4

TS5

TS6

EXST.

H DPT-1 L

BV3 Exst.

C + Hot Y

AS-2

Starter
Status
Start/Stop

HW Pump
P-2

HW Pump
P-3

HW Pump
P-3A

HW Pump
P-1

HW Pump
P-1A

Status
Speed
Start/Stop
VFD Fault

VFD / ABB

GCL Pump
P-4

GCL Pump
P-4A

TS1

TS2

TS7

BTS1S

BTS1R

BTS2S

BTS2R

S1 S3 2 1
C NO ± C

BV1 NEW

BV2 NEW

FO

Status
Enable
Setpoint
Mod. FB
Emg Shdwn
Alarm

RIELLO BURNER

HW Boiler 1

HW Boiler 2
NEW

Oil Pump
Exst.

HW Pump
P-5
NEW

HW Pump
P-5A
NEW

AS-1

BV4 Mod

C + Hot Y

NEW

IN OUT

HXCR-1
NEW

OUT IN

ecosystem

CONTRACTOR

Ecosystem
462 7th Ave, 22nd Fl.
NY 10018

ARCHITECT

CONTROLS CONTRACTOR

OWNER

SCHOOL DISTRICT

SITE NAME AND LOCATION

Bedford Village ES

PROJECT TITLE

MER Upgrade

DRAWING TITLE

BVES MER
Flow Diagram

Date	Job Number
10/26/2021	19SEE0022-004
Rev. 11/15/2021 01/20/2022	Drawing No.

Drawn By: Andrew Shaikowski

NOTES:

1. EXISTING STEAM RADIATOR AND ASSOCIATED STEAM SUPPLY AND CONDENSATE RETURN PIPING TO BE ABANDONED IN PLACE.
2. EXISTING HOT WATER (GLYCOL) UNIT VENTILATOR AND PIPING TO REMAIN AND TO BE REUSED. EXISTING OUTDOOR VENTILATION CFM RATE TO BE MAINTAINED.

#3 Note 3, Existing hot water radiator to be valved off, drained, and abandoned in place

#4 Note 4, Convert existing FTR/Convector to HW. Connect to existing HW supply/return lines from hallway ceiling or Kitchen fan coil unit. To be identified during Subcontractor walk throughs!

FIRST FLOOR-HOT WATER-CONSTRUCTION

SCALE: ⅛" = 1'-0"

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DRAWN BY: P.S.
DATE: 2021/02/29
SCALE: AS NOTED
REVISED BY:
REVISED:
APPROVED BY: D.N.
FILE NAME: NY(BVES)

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BEDFORD CENTRAL SCHOOL DISTRICT
BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
FIRST FLOOR HOT WATER CONSTRUCTION

STATE OF NEW YORK · PHILIP JOSEPH SMALLEY · LICENSED PROFESSIONAL ENGINEER

M-03

NOTES:

1. FIELD FURNISH AND INSTALL 4-INCH THICK CONCRETE PAD FOR GRADE MOUNTED OUTDOOR HEAT PUMP UNIT AND INSTALL UNIT ON SPRING-TYPE VIBRATION ISOLATORS PER THE MFG'S SPEC'S.
2. RUN REFRIGERANT PIPING UP EXTERIOR WALL IN ENCLOSURE AND CONTINUE INTO SLOPED ROOF ATTIC SPACE. ALL GAS LINE REFRIGERANT PIPING RUN OUTDOORS TO BE WRAPPED WITH UV-RATED INSULATION.
3. FIELD FURNISH ALL LABOR AND MATERIALS TO INSTALL NEW CEILING CASSETTE UNIT HUNG FROM STRUCTURE AND PER THE MFG'S SPEC'S.
4. FIELD FURNISH AND INSTALL NEW LIQUID AND INSULATED GAS REFRIGERANT LINES IN ATTIC/CEILING SPACE BETWEEN OUTDOOR UNIT AND INDOOR CASSETTES AND ACCESSORIES.
5. FURNISH AND INSTALL FACTORY "REFNET" JOINT REFRIGERANT PIPING ACCESSORY.
6. FURNISH AND INSTALL FACTORY "REFNET" HEADER REFRIGERANT PIPING ACCESSORY.
7. FURNISH AND INSTALL FACTORY WALL MOUNTED WIRED CONTROLLER FOR INDOOR CASSETTE UNIT AT 4'-0" ABOVE FINISHED FLOOR.
8. FURNISH CEILING CASSETTE CONDENSATE DRAIN PIPING IN CEILING/ATTIC SPACE AND PROVIDE CONDENSATE PUMP AT CEILING CASSETTE WHERE GRAVITY FLOW CANNOT BE ACHIEVED.
9. RUN CONDENSATE DRAIN LINE DOWN EXTERIOR BUILDING IN ENCLOSURE AND TERMINATE WITH AIR GAP TO SPLASH BLOCK ON GRADE.
10. RUN LIQUID AND INSULATED GAS REFRIGERANT LINES UP THROUGH ROOF TO OUTDOOR HEAT PUMP.
11. RUN CEILING CASSETTE CONDENSATE DRAIN PIPING UP THROUGH ROOF FOR TERMINATION ABOVE ROOF. FIELD FURNISH AND INSTALL SUPPLEMENTAL CONDENSATE DRAIN PUMP WHERE FACTORY CONDENSATE PUMP CANNOT ACHIEVE PROPER LIFT (HEAD).

FIRST FLOOR-HEAT PUMP-CONSTRUCTION

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

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SCALE: AS NOTED
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REVISED:
APPROVED BY: D.N.
FILE NAME: NY(BVES)

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BEDFORD VILLAGE ELEMENTARY SCHOOL
FIRST FLOOR HEAT PUMP CONSTRUCTION

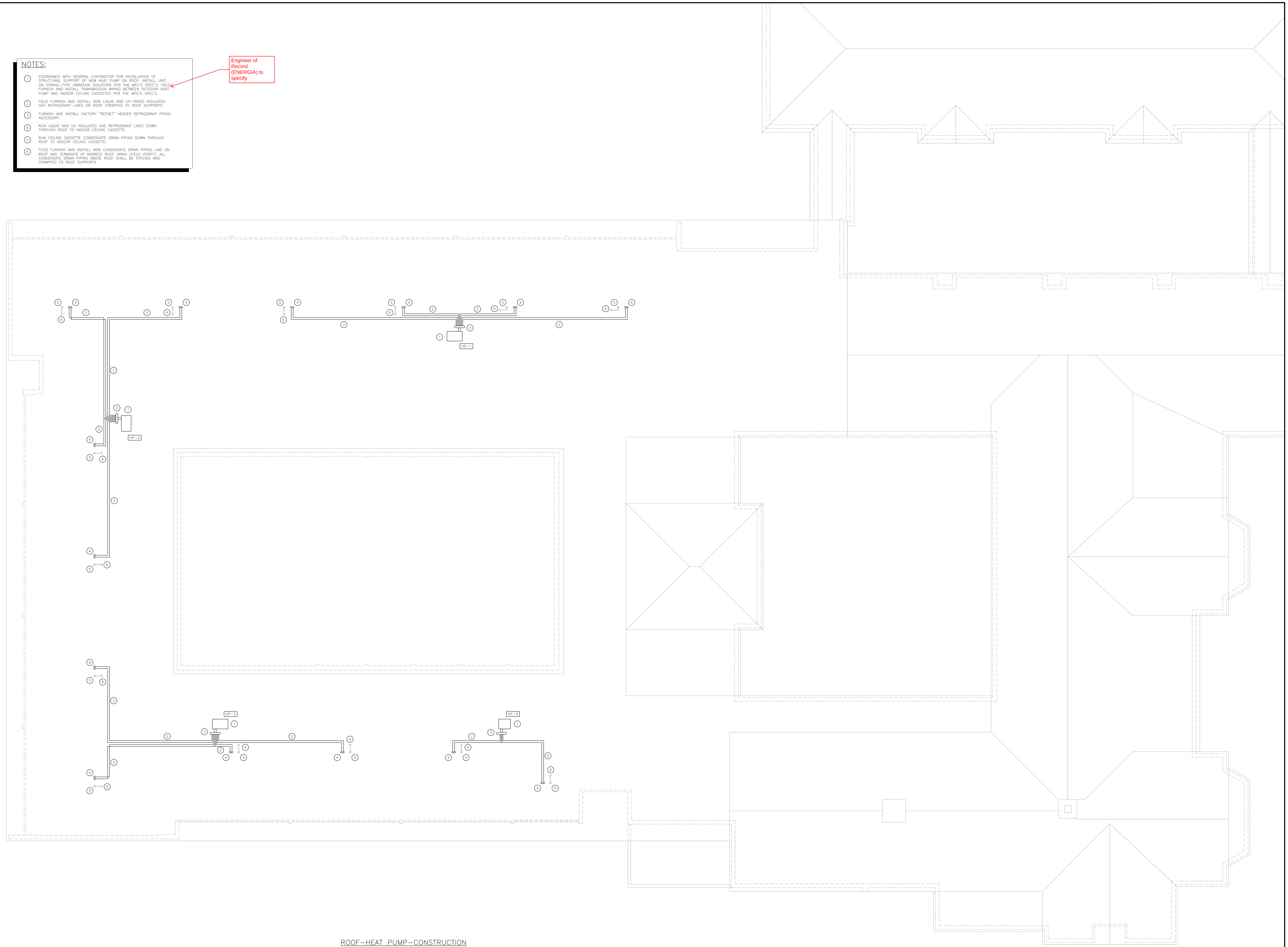
STATE OF NEW YORK
PHILIP JOSEPH

M-04

NOTES:

1. COORDINATE WITH GENERAL CONTRACTOR FOR INSTALLATION OF STRUCTURAL SUPPORT OF NEW HEAT PUMP ON ROOF. INSTALL UNIT ON SPRING–TYPE VIBRATION ISOLATORS PER THE MFG'S SPEC'S. FIELD FURNISH AND INSTALL TRANSMISSION WIRING BETWEEN OUTDOOR HEAT PUMP AND INDOOR CEILING CASSETTES PER THE MFG'S SPEC'S.
2. FIELD FURNISH AND INSTALL NEW LIQUID AND UV–RATED INSULATED GAS REFRIGERANT LINES ON ROOF STRAPPED TO ROOF SUPPORTS.
3. FURNISH AND INSTALL FACTORY "REFNET" HEADER REFRIGERANT PIPING ACCESSORY.
4. RUN LIQUID AND UV INSULATED GAS REFRIGERANT LINES DOWN THROUGH ROOF TO INDOOR CEILING CASSETTE.
5. RUN CEILING CASSETTE CONDENSATE DRAIN PIPING DOWN THROUGH ROOF TO INDOOR CEILING CASSETTE.
6. FILED FURNISH AND INSTALL NEW CONDENSATE DRAIN PIPING LINE ON ROOF AND TERMINATE AT NEAREST ROOF DRAIN (FIELD VERIFY). ALL CONDENSATE DRAIN PIPING ABOVE ROOF SHALL BE PITCHED AND STRAPPED TO ROOF SUPPORTS.

Engineer of Record (ENERGIA) to specify



ROOF–HEAT PUMP–CONSTRUCTION

SCALE: ⅛" = 1'-0"

SED # 66-01-02-06-0-002-014

REV	DATE	ISSUANCE

DRAWN BY: P.S.
DATE: 2021/02/29
SCALE: AS NOTED
REVISED BY:
REVISED:
APPROVED BY: D.N.
FILE NAME: NY(BVES)

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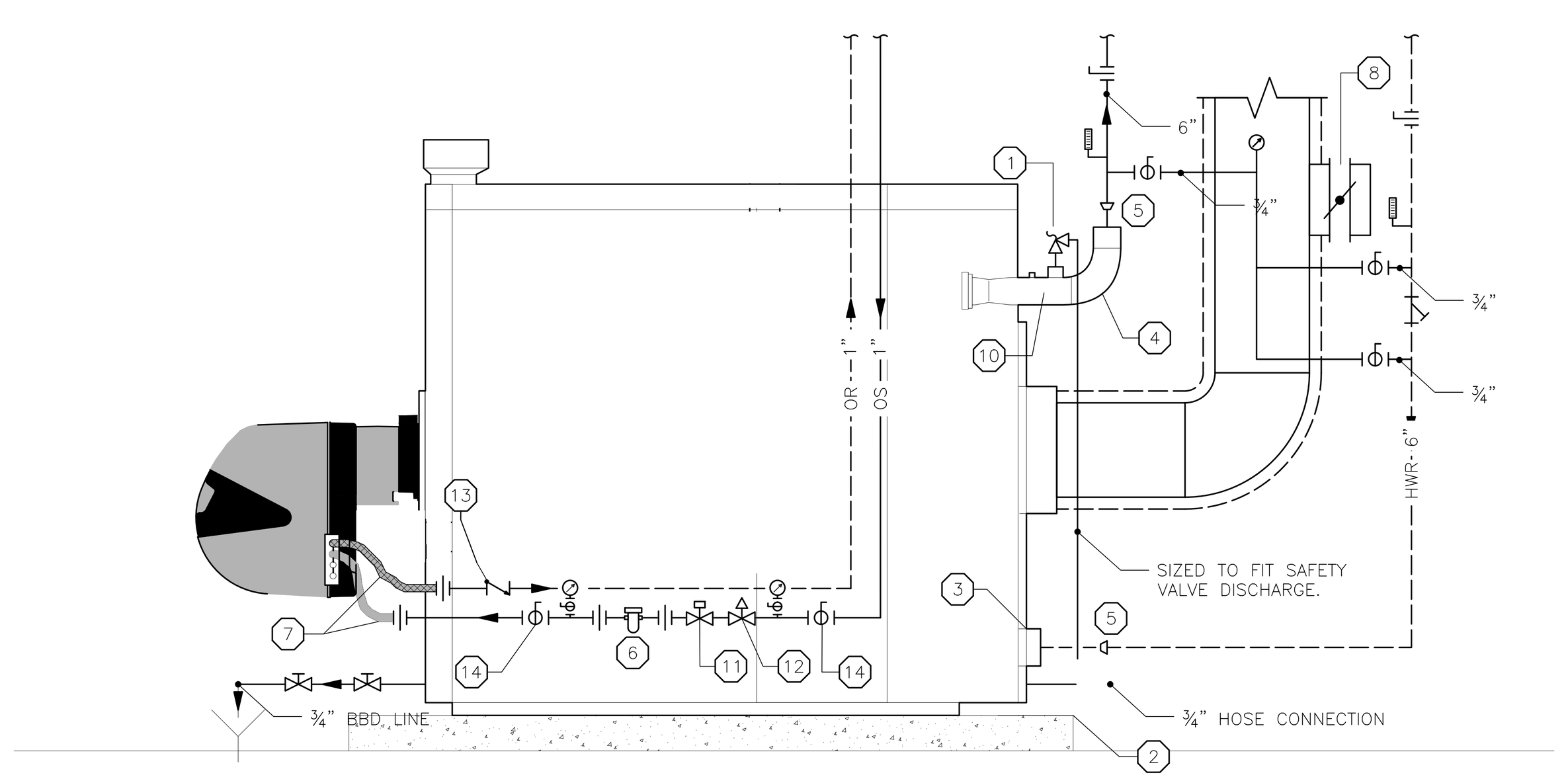
BEDFORD CENTRAL SCHOOL DISTRICT
BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
ROOF HEAT PUMP CONSTRUCTION

STATE OF NEW YORK · PHILIP JOSEPH SMALLY · 083105 · LICENSED PROFESSIONAL ENGINEER

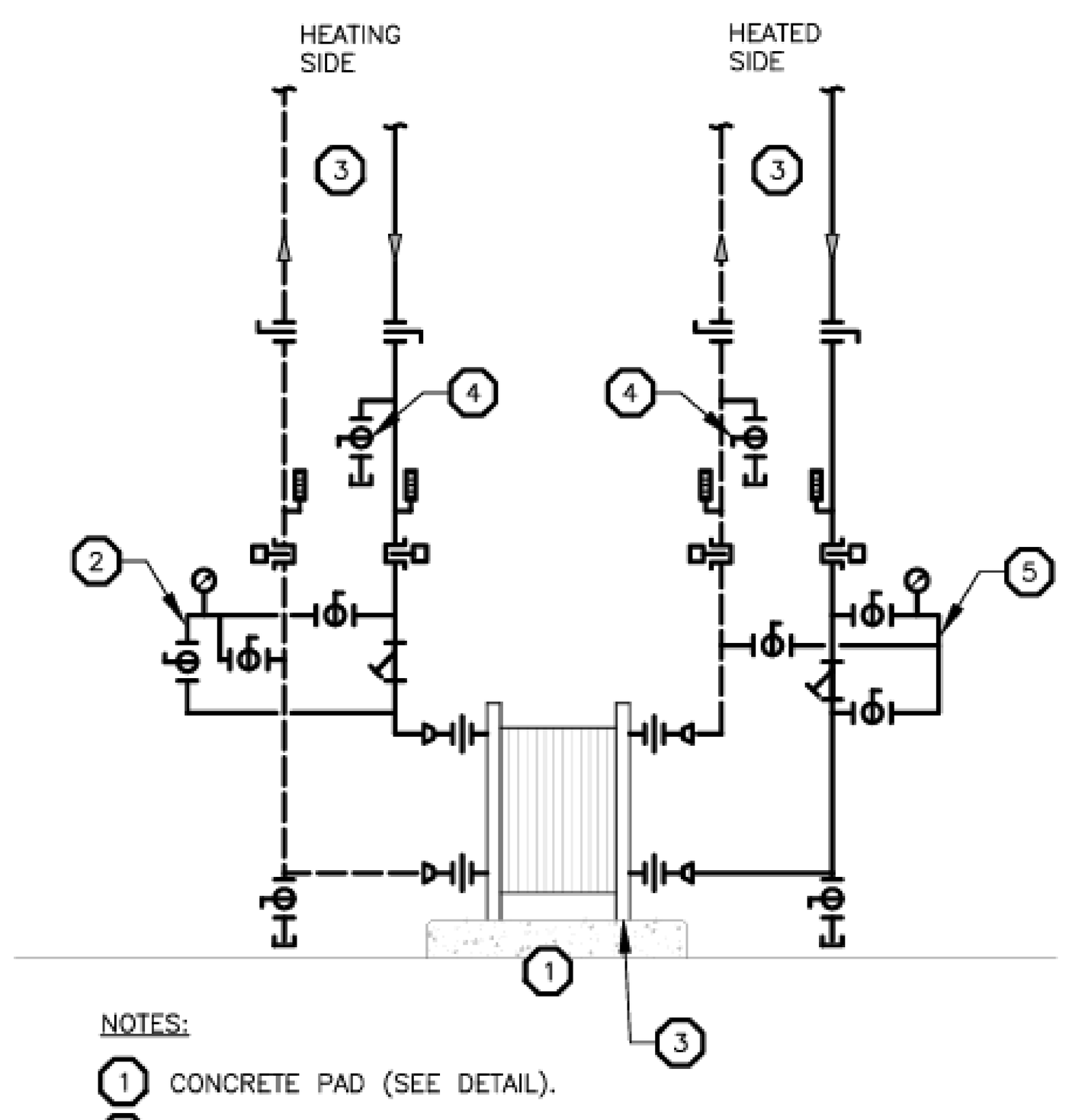
M-05



1. PRESSURE RELIEF VALVE SUPPLIED, INSTALLED AND CONNECTED BY THE FOLLOWING CONTRACTOR.
2. EXISTING CONCRETE PAD.
3. BOILER HOT WATER RETURN CONNECTION.
4. BOILER HOT WATER SUPPLY CONNECTION.
5. PROVIDE AND INSTALL REDUCERS 6"x5".
6. STRAINER 10 MICRONS SUCH AS ALBANY SBS SIMPLEX SERIES.
7. ULC/ORD–C536 APPROVED FLEXIBLE PIPE FOR USE WITH PETROLEUM PRODUCTS. PRODUCT BRAND «OPW» FC SERIES.
8. BAROMETRIC DAMPER.
9. ~~GAS TRAIN. THE CONTRACTOR MUST VERIFY THE COMPONENTS AND EQUIPMENT CONNECTION WITH THE BOILER MANUFACTURER.~~
10. LOW WATER CUT–OFFS (QTY 2).
11. AUTOMATIC SHUT–OFF SOLENOID VALVE N.C. TYPE, ¾" THREADED CONNECTIONS, MINIMUM DIFFERENTIAL PRESSURE OF 0 PSI AND A VITON SEAT. THIS SOLENOID VALVE WILL ONLY OPEN ON BOILER START UP DEMAND. ACCEPTABLE PRODUCT: "ASCO". #: 8210G095V OR APPROVED EQUIVALENT. AN ADJUSTABLE SHUT–OFF DELAY TIMER WILL ALLOW THE VALVE TO STAY OPEN AT LEAST 120 SECONDS AFTER THE BURNER STOPS.
12. FIRE–SAFE THERMAL SHUT–OFF VALVE WITH FUSIBLE LINK RESISTANT TO 165°F, 50PSI APPROVED BY: ULC/ORD–C842 OR API–607.
13. API–602 APPROVED CHECK VALVE FOR INSTALLATION ON OIL NETWORK.
14. API–607 OR ULC/ORD–C842 APPROVED SHUT–OFF VALVE FOR INSTALLATION ON OIL NETWORK.
15. ~~GAS REGULATOR TO BE VENTED AS REQUIRED BY IFGC 410.3~~.

DE DIETRICH DUAL FUEL HOT WATER BOILER CONNECTION DETAIL

SCALE: NONE



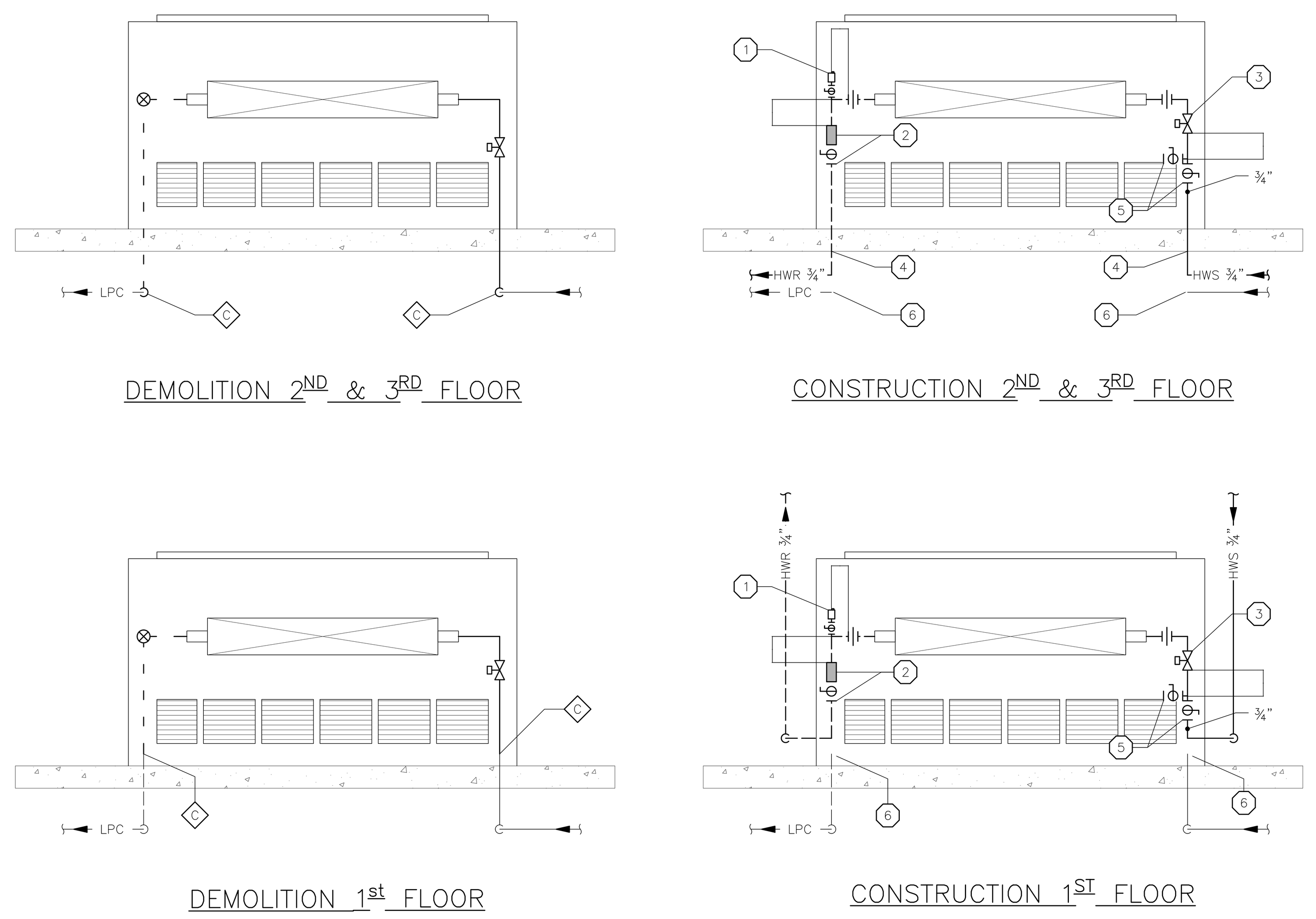
NOTES:

1. CONCRETE PAD (SEE DETAIL).
2. ½" COPPER SOLDERED OR THREADED.
3. SEISMIC ANCHOR BOLTS SAB–⅜" OR ½" AS APPROPRIATE.
4. PROVIDE DRAIN VALVE FOR CLEANING REQUIRED EVERY 90 DAYS.

- SEE DIAGRAM FOR THE EXACT NUMBER OF THERMOWELLS TO INSTALL WITH THE HEAT EXCHANGER.
- BALL VALVE OR BUTTERFLY VALVE ACCORDING TO PIPE DIAMETER.
- THE CONTRACTOR MUST CHECK THE INSTALLATION MANUAL FOR THE EXACT LOCATION OF THE HOT AND COLD INLETS AND OUTLETS.

HEAT EXCHANGER DETAIL (WITH STRAINER)

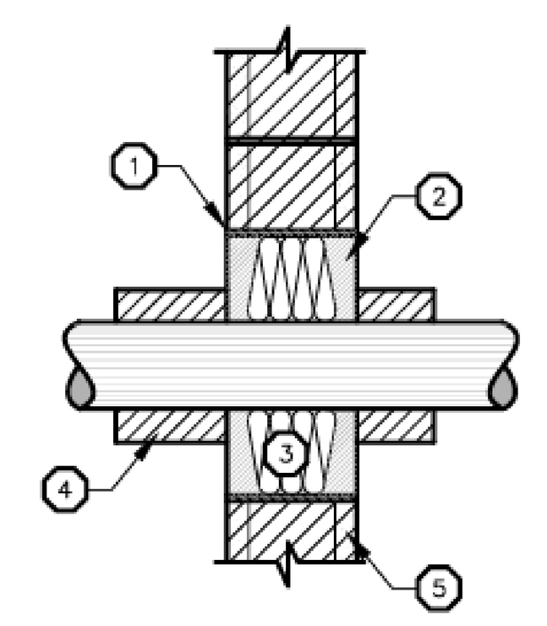
SCALE: NONE



1. NEW AIR VENT WATTS MODEL HAV PROVIDED AND INSTALLED BY THE FOLLOWING CONTRACTOR.
2. NEW MACON MODEL #MB, COMBINATION BALANCING VALVE, BALL VALVE AND MANUAL AIRVENT CONNECTION. VALVE TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH VALVE PACKAGE MACON "2RB–MV–X". INSTALL 5 PIPE DIAMETERS DOWNSTREAM OF UNION OR PIPE BENDS.
3. NEW CONTROL VALVE. SEE PLAN VIEW AND SCHEDULE.
4. REUSE EXISTING OPENING. ADJUST AS NEEDED.
5. NEW MACON MODEL #SB, COMBINATION BALL VALVE WITH HOSE END DRAIN CONNECTION. VALVE TO BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH VALVE PACKAGE MACON "2RB–MV–X". INSTALL 5 PIPE DIAMETERS UPSTREAM OF NEW CONTROL VALVE.
6. CUT ENDS OF STEAM AND CONDENSATE PIPE DO NOT NEED TO BE CAPPED.

STEAM TO HOT WATER RADIATOR CONVERSION CONNECTION DETAIL

SCALE: NONE



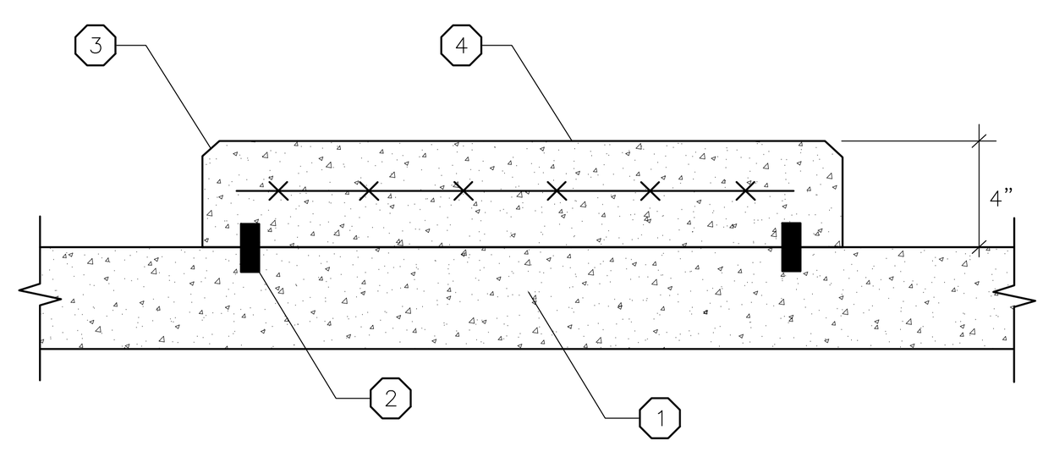
NOTES:

1. WALL OPENING.
2. FIRE PROTECTION SEAL ACCORDING TO APPLICABLE CODES.
3. COMPRESSIBLE FIRESTOP (MINERAL WOOL).
4. PIPE INSULATION.
5. FIREPROOF SEPARATION.

- THIS DRAWING GIVES A GENERAL IDEA. REFER TO APPLICABLE CODES FOR EACH APPLICATION SUCH AS:
  - RESISTANCE TO FIRE DEGREE.
  - MATERIALS OF THE FIRE WALL DRILLED.
  - ANNULAR SPACES, ETC.

INSULATED PIPE PASSING THROUGH A FIRE SEPARATION DETAIL

SCALE: NONE



1. EXISTING CONCRETE SLAB
2. IN THE CONCRETE FORMS, PROVIDE STUD WEDGE ANCHORS FOR THE 4 CORNERS OF THE CONCRETE PAD, 6" FROM THE CORNERS WHERE REQUIRED. SEE DETAILS SPECIFIC TO EARTHQUAKE RESISTANCE.
3. 1" CHAMFER OR SIDEWALK TROWELLING
4. NEW CONCRETE PAD WITH ½"ø REINFORCING STEEL @ 12" c/c IN BOTH DIRECTIONS (PAINT:SAME COLOR AS EXISTING).

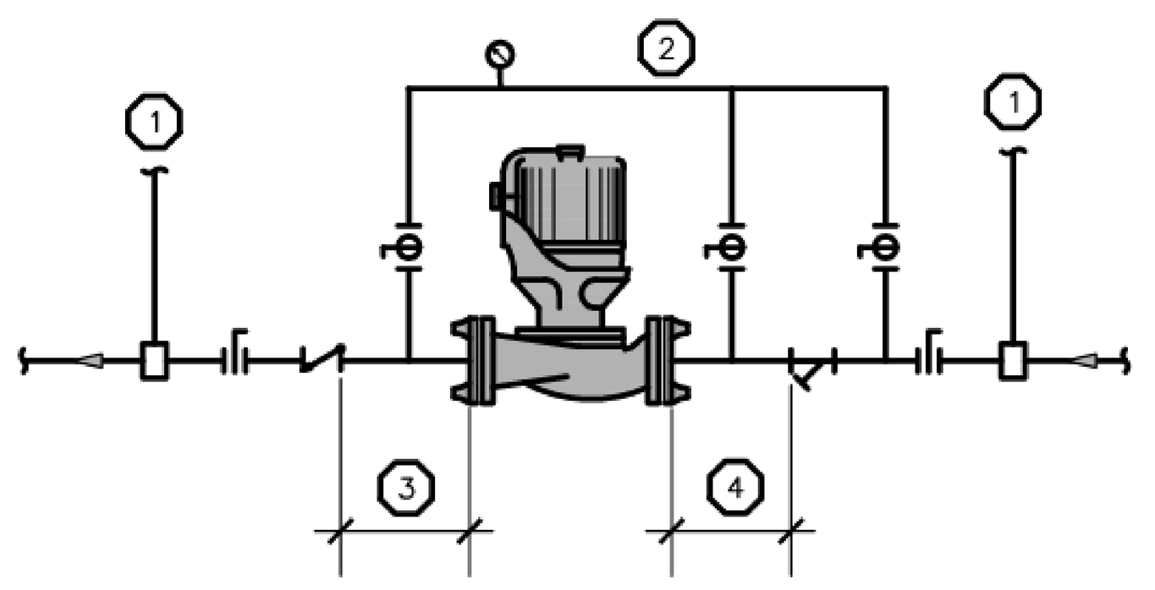
CONCRETE PAD DETAIL

SCALE: NONE

INSULATION THICKNESS		
NOMINAL PIPE DIAMETER	1½" AND LESS	1½" AND GREATER
DOMESTIC HOT WATER	2"	2"
RECIRCULATED HOT WATER	2"	2"
DOMESTIC COLD WATER	2"	2"
CHILLED WATER	2"	2"
MEDIUM TEMPERATURE HOT WATER	2"	2"
STEAM 55 PSI OR LESS	N/A	N/A

MAXIMUM PIPE/TUBING SUPPORT SPACING																	
NOM. SIZE	¾"	1"	1¼"	1½"	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
PIPE FT.	7	7	9	10	11	12	14	16	17	19	22	23	25	27	28	30	32
TUBING FT.	6	7	8	8	9	10	12	13	14	16	–	–	–	–	–	–	–

NOTES:
FOR TRAPEZE HANGER TAKE SPACINTG OF SMALLEST SIZE ON TRAPEZE



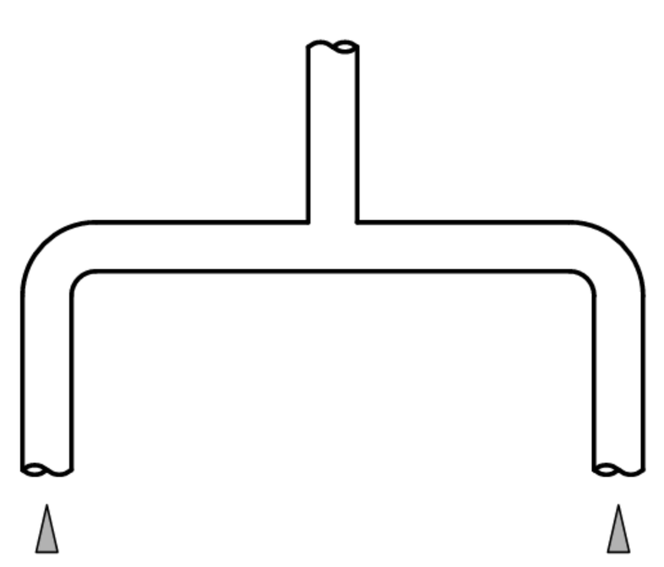
NOTES:

1. SUPPORT.
2. ½" COPPER SOLDERED OR THREADED.
3. INSTALL THE CHECK VALVE AT 6 TIMES THE PIPE DIAMETER FROM THE PUMP OUTLET.
4. INSTALL THE STRAINER AT 5 TIMES THE PIPE DIAMETER FROM THE PUMP INLET.

- SUPPORTS MUST BE INSTALLED SUCH THAT THE PUMP DOES NOT SUPPORT PIPING.
- BALL VALVE OR BUTTERFLY VALVE ACCORDING TO PIPE DIAMETER.
- FOR DIAMETERS, SEE PLAN VIEW.

CIRCULATOR PUMP DETAIL

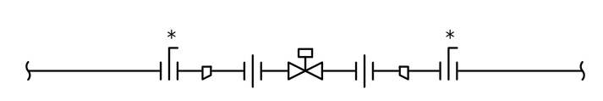
SCALE: NONE



DETAIL OF PUMPS FUNCTIONING IN ALTERNANCE

PARRALEL PUMP DISCHARGE DETAIL

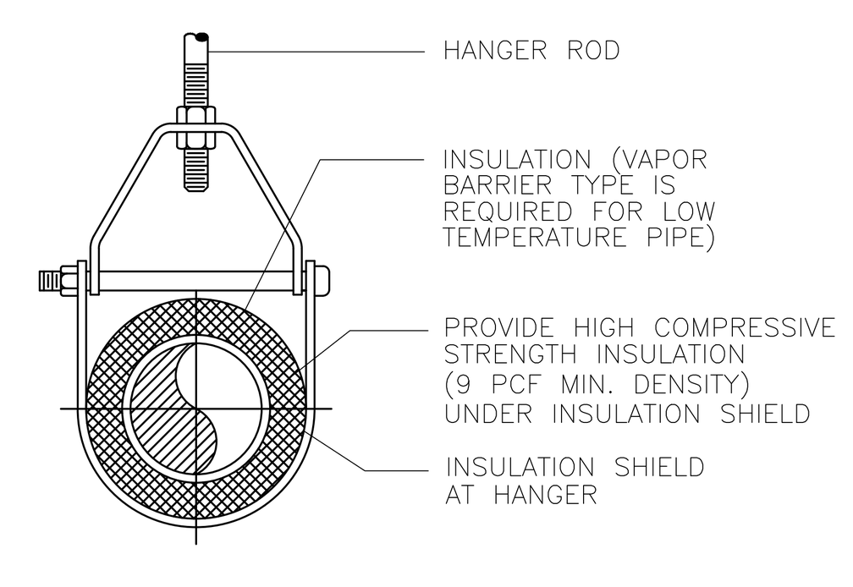
SCALE: NONE



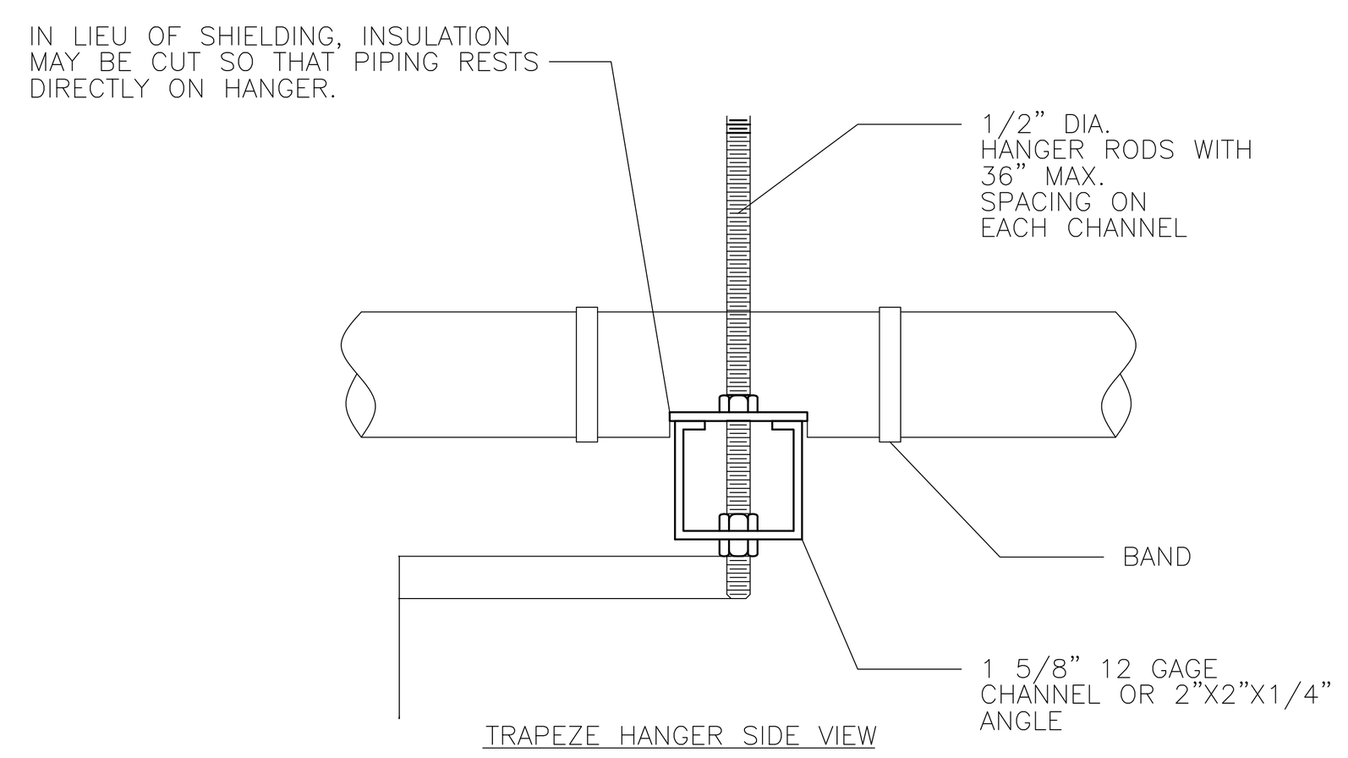
* BALL VALVE OR BUTTERFLY VALVE ACCORDING TO PIPE DIAMETER.

TWO WAY CONTROL VALVE CONNECTION DETAIL

SCALE: NONE



ADJUSTABLE CLEVIS HANGER



TRAPEZE HANGER SIDE VIEW

SED # 66-01-02-06-0-002-014

REV	DATE	ISSUANCE

DRAWN BY: P.S.
DATE: 2021/02/29
SCALE: AS NOTED
REVISED BY:
REVISED:
APPROVED BY: D.N.
FILE NAME: NY(BVES)

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BEDFORD CENTRAL SCHOOL DISTRICT
BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
MECHANICAL DETAILS

M-06

BOILER SCHEDULE

IDENTIFICATION	LOCATION	FUEL	TYPE	MANUFACTURER	MODEL	GROSS CAPACITY (MBH)	FUEL INPUT		CONNECTIONS (in)		CHIMNEY CONNECTION	BURNER					NOTES
							FUEL OIL (GPH)	NATURAL GAS (MBH)	ENTERING WATER	LEAVING WATER		MANUFACTURER	MODEL	FAN MOTOR (HP)	PUMP MOTOR (HP)	ELECTRICAL SERVICES	
B-1	BOILER ROOM	OIL	CAST IRON	DE DIETRICH	EUTECTIC GT 430-8A	1,474	12.0	N/A	3	3	10"ø	RIELLO	RLS 50	3/4	1/8	120V/1ϕ/60Hz	

NOTES:

~~1) FLOW SWITCH.~~
2) SAFETY VALVE 75 PSI.
3) ASME BUILT.
4) PROVIDED BY ECOSYSTEM WITH THE BURNER, INSTALLED AND CONNECTED BY THE FOLLOWING CONTRACTOR.
5) OIL SUPPLY TRAIN PROVIDED BY THE MANUFACTURER, INSTALLED AND CONNECTED BY THE FOLLOWING CONTRACTOR.
6) SEE INSTALLATION DETAIL FOR ALL THE ACCESSORIES PROVIDED BY THE MANUFACTURER, INSTALLED BY THE FOLLOWING CONTRACTOR
~~7) PROVIDED BY ECOSYSTEM, INSTALLED AND CONNECTED BY THE FOLLOWING CONTRACTOR.~~
8) PROVIDED, INSTALLED AND CONNECTED BY THE FOLLOWING CONTRACTOR.
9) DOOR OPENING OF THE LEFT SIDE

1

DAIKIN (VRV) HEAT PUMP UNIT SCHEDULE

INDOOR UNITS

UNIT #	MODEL #	UNIT STYLE	COOLING BTUH	HEATING BTUH	CFM	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
AH-1A	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-1B	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-1C	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-1D	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.

OUTDOOR UNITS

UNIT #	MODEL #	COOLING BTUH	HEATING BTUH	COOLING I.E.E.R.	HEATING C.O.P.	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
HP-1	RXYQ144XATJA	164,000	188,000	22.6	3.34	(5/8"ø / 1 1/8"ø)	208/3/60	55.1	60 AMPS	695 LBS.

UNIT #	MODEL #	UNIT STYLE	COOLING BTUH	HEATING BTUH	CFM	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
AH-2A	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-2B	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-2C	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-2D	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.

UNIT #	MODEL #	COOLING BTUH	HEATING BTUH	COOLING I.E.E.R.	HEATING C.O.P.	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
HP-2	RXYQ144XATJA	164,000	188,000	22.6	3.34	(5/8"ø / 1 1/8"ø)	208/3/60	55.1	60 AMPS	695 LBS.

UNIT #	MODEL #	UNIT STYLE	COOLING BTUH	HEATING BTUH	CFM	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
AH-3A	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-3B	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-3C	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-3D	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.

UNIT #	MODEL #	COOLING BTUH	HEATING BTUH	COOLING I.E.E.R.	HEATING C.O.P.	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
HP-3	RXYQ144XATJA	164,000	188,000	22.6	3.34	(5/8"ø / 1 1/8"ø)	208/3/60	55.1	60 AMPS	695 LBS.

UNIT #	MODEL #	UNIT STYLE	COOLING BTUH	HEATING BTUH	CFM	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
AH-4A	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-4B	FXFQ18TVJU	CASSETTE	18,000	20,000	618	(1/4"ø / 1/2"ø)	208/1/60	0.6	15 AMPS	51 LBS.

UNIT #	MODEL #	COOLING BTUH	HEATING BTUH	COOLING I.E.E.R.	HEATING C.O.P.	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
HP-4	RXYQ72XATJA	72,000	81,000	20.7	3.30	(3/8"ø / 3/4"ø)	208/3/60	27.6	35 AMPS	435 LBS.

UNIT #	MODEL #	UNIT STYLE	COOLING BTUH	HEATING BTUH	CFM	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
AH-5A	FXFQ18TVJU	CASSETTE	18,000	20,000	618	(1/4"ø / 1/2"ø)	208/1/60	0.6	15 AMPS	51 LBS.
AH-5B	FXFQ09TVJU	CASSETTE	9,500	10,500	406	(1/4"ø / 1/2"ø)	208/1/60	0.3	15 AMPS	42 LBS.
AH-5C	FXFQ18TVJU	CASSETTE	18,000	20,000	618	(1/4"ø / 1/2"ø)	208/1/60	0.6	15 AMPS	51 LBS.
AH-5D	FXFQ09TVJU	CASSETTE	9,500	10,500	406	(1/4"ø / 1/2"ø)	208/1/60	0.3	15 AMPS	42 LBS.
AH-5E	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.
AH-5F	FXFQ07TVJU	CASSETTE	7,500	8,500	406	(1/4"ø / 1/2"ø)	208/1/60	0.3	15 AMPS	42 LBS.

UNIT #	MODEL #	COOLING BTUH	HEATING BTUH	COOLING I.E.E.R.	HEATING C.O.P.	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
HP-5	RXYQ144XATJA	164,000	188,000	22.6	3.34	(5/8"ø / 1 1/8"ø)	208/3/60	55.1	60 AMPS	695 LBS.

UNIT #	MODEL #	UNIT STYLE	COOLING BTUH	HEATING BTUH	CFM	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
AH-6A	FXFQ30TVJU	CASSETTE	30,000	34,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.3	15 AMPS	58 LBS.
AH-6B	FXFQ15TVJU	CASSETTE	15,000	17,000	459	(1/4"ø / 1/2"ø)	208/1/60	0.4	15 AMPS	42 LBS.
AH-6C	FXFQ07TVJU	CASSETTE	7,500	8,500	406	(1/4"ø / 1/2"ø)	208/1/60	0.3	15 AMPS	42 LBS.
AH-6D	FXFQ12TVJU	CASSETTE	12,000	13,500	406	(1/4"ø / 1/2"ø)	208/1/60	0.3	15 AMPS	42 LBS.
AH-6E	FXFQ36TVJU	CASSETTE	36,000	40,000	918	(3/8"ø / 5/8"ø)	208/1/60	1.5	15 AMPS	58 LBS.

UNIT #	MODEL #	COOLING BTUH	HEATING BTUH	COOLING I.E.E.R.	HEATING C.O.P.	PIPING CONN. (LIQ. / GAS)	POWER SUPPLY	MIN. CIRC. AMPACITY	MAX. BRKR. SIZE	UNIT WEIGHT
HP-6	RXYQ144XATJA	164,000	188,000	22.6	3.34	(5/8"ø / 1 1/8"ø)	208/3/60	55.1	60 AMPS	695 LBS.

TYPICAL INDOOR UNIT NOTES:

A. FURNISH AND INSTALL FACTORY CEILING DECORATION PANELS.
B. FURNISH MODEL #BRC1E52B7 WIRED REMOTE CONTROLLER IN QUANTITIES AND LOCATIONS SHOWN ON DRAWINGS
C. FIELD FURNISH AND INSTALL SUPPLEMENTAL CONDENSATE DRAIN PUMP WHERE FACTORY CONDENSATE PUMP CANNOT ACHIEVE PROPER LIFT (HEAD) FOR DISCHARGE OF CONDENSATE THROUGH ROOF ABOVE.
D. FURNISH AND INSTALL INTERCONNECTION TRANSMISSION WIRING BETWEEN CASSETTES AND ASSOCIATED OUTDOOR UNIT PER THE MANUFACTURER'S SPECIFICATIONS AND WIRING DIAGRAMS.

TYPICAL OUTDOOR UNIT NOTES:

A. R-410A REFRIGERANT BASED SYSTEMS
B. FIELD INSTALL FACTORY REFRIGERANT PIPING REFNET HEADERS AND JOINTS AS INDICATED ON DRAWINGS
C. FIELD FURNISH AND INSTALL SPRING TYPE VIBRATION ISOLATORS BELOW EACH OUTDOOR UNIT MODULE PER MANUFACTURER'S SPEC'S.
D. FIELD FURNISH AND INSTALL STRUCTURAL STEEL SUPPORT FOR ROOF MOUNTED UNITS.
E. FIELD FURNISH AND INSTALL 4-INCH THICK CONCRETE PAD FOR GRADE LEVEL UNITS.

SED # 66-01-02-06-0-002-014

REV	DATE	ISSUANCE

DRAWN BY: P.S.
DATE: 2021/02/29
SCALE: AS NOTED
REVISED BY:
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FILE NAME: NY(BVES)

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BEDFORD CENTRAL SCHOOL DISTRICT
BEDFORD, WESTCHESTER COUNTY, NEW YORK
BEDFORD VILLAGE ELEMENTARY SCHOOL
MECHANICAL SCHEDULES

M-07