

**ADDENDUM #2**



**Boiler Replacements:  
Second Hill Lane School**

65 Second Hill Lane  
Stratford, CT 06614

TOWN PROJECT NUMBER: 2020-31

ISSUED: 2/14/2020

**PROJECT TEAM**

Architect / Project Manager

Mechanical Engineer



Architecture . Planning . Construction Management

Trumbull, CT 203-243-3346  
info@snyderarchitects.com



The work shall be carried out in accordance with the following supplemental instructions and in accordance with the Contract Documents.

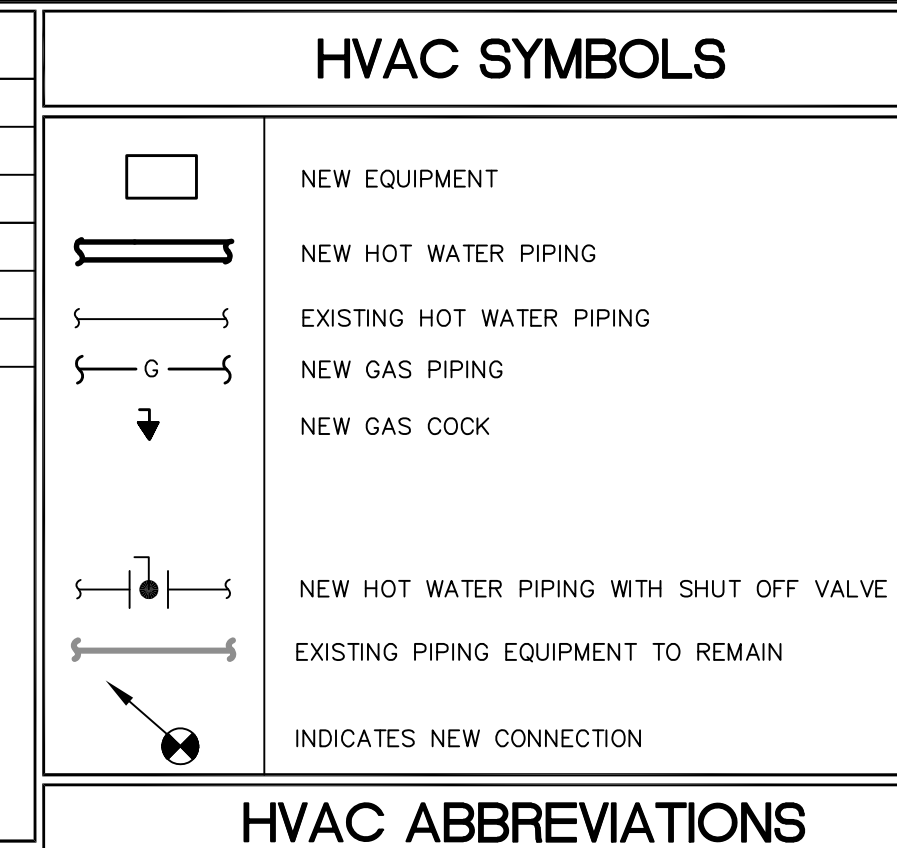
## **CHANGES**

- 1. Drawing M-001**
  - Revised “New Hot Water Treatment System” Schedule.
  - See attached drawing.
  
- 2. Bid Form:**
  - See attached revised Bid Form.
  
- 3. Added Add Alternate #2**
  - Add Alternate #2 Includes prepping per manufacturer specifications and painting Boiler Room concrete floor as indicated on attached plan sketch.
  - Coating system shall be Sherwin Williams EPO-FLEX MER II over Sherwin Williams Resuprime MVT or approved equal. See attached product documentation.
  
- 4. Spec Section 02 65 00 – Removal and Disposal of Storage Tanks**
  - Portions of Spec Section that were not applicable to project were omitted. See attached revised Spec Section.
  
- 5. Requests for Information (RFI Log):**
  - See attached updated RFI Log.

**\*\*\* END OF ADDENDUM #2 \*\*\***

NEW BOILER																		
UNIT NO.	GAS MAX INPUT MBH	GAS MIN INPUT MBH	FUEL	VENT CFM	EFFICIENCY A.F.U.E. %	GPM	MIN GAS PRESSURE WC	MAX GAS PRESSURE WC	VOLTS	PH	VENT	INTAKE	WATER CONNECT	GAS CONNECT	TEMP OF WATER TO BE DEL.	WEIGHT LBS	MAKE	MODEL
NEW B-1	999	50	GAS	-	96.2	180	4.5	6.5	120	1	6"	6"	3"	1 1/4"	165	1,838	LOCHINVAR	FBN1001
NEW B-2	999	50	GAS	-	96.2	180	4.5	6.5	120	1	6"	6"	3"	1 1/4"	165	1,838	LOCHINVAR	FBN1001
NEW B-3	999	50	GAS	-	96.2	180	4.5	6.5	120	1	6"	6"	3"	1 1/4"	165	1,838	LOCHINVAR	FBN1001

NOTES:  
 1. ALL UNITS SHALL MEET ASHRAE 90-75 AND ALL LOCAL CODE REQUIREMENTS, AND SHALL BE AGA CERTIFIED.  
 PROVIDE:  
 1. T&P RELIEF VALVE.  
 2. DIELECTRIC FITTINGS ON INLET AND OUTLET.  
 3. GATE VALVES WITH UNIONS ON WATER INLET AND OUTLET CONNECTIONS.  
 4. PROVIDE INTERFACE WITH EXISTING BUILDING MANAGEMENT SYSTEM, THE EXISTING BMS SYSTEM.  
 5. PROVIDE CONDENSATE NATURALIZATION KIT FOR EACH BOILER, AND ONE EXTRA FOR THE COMMON VENT CONDENSATE. TOTAL REQUIRED NUMBER OF NATURALIZATION KITS IS 4.  
 6. PROVIDE CONTROLS BY THE BOILER MANUFACTURER. BOILERS SHALL BE INTEGRATED.  
 7. BOILERS SHALL BE CONTROLLED BY BOILER MANUFACTURE CONTROLS. INTEGRATION WITH EXISTING BMS SYSTEM SHALL BE USED FOR ALARMS AND MONITORING.  
 8. PROVIDE OUTDOOR RESET TEMPERATURE SENSOR AND ALARM BELL.  
 9. PROVIDE LOW WATER CUT OFF AND MANUAL RESET.  
 10. PROVIDE GAS TRAIN ASSEMBLY.  
 11. SPECIFIED MANUFACTURE IS LOCHINVAR. EQUAL APPROVED MANUFACTURES ARE: CREST FBN, AERCO BMK & BUDERUS-BOSH. SUBSTITUTED PRODUCT SHALL MATCH EFFICIENCY OF SPECIFIED.



- ### HVAC GENERAL SPECIFICATIONS
1. ALL MECHANICAL EQUIPMENT AND INSTALLATIONS SHALL CONFORM WITH THE REQUIREMENTS OF THE LATEST EDITION INTERNATIONAL MECHANICAL CODE, THE LATEST EDITION INTERNATIONAL BUILDING CODE, THE STATE ENERGY CODE, NFPA 90A, 96, 101, UNDERWRITERS LABORATORIES (OR ETL) AND ALL APPLICABLE LOCAL CODES AND ORDINANCES.
  2. PRIOR TO PURCHASING ANY MATERIALS OR STARTING ANY WORK, CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS ARE SHOWN ON THE DRAWINGS OR AFFECTING THIS WORK AND SHALL REPORT ANY DEVIATIONS TO THE ENGINEER.
  3. SHOP DRAWINGS SHALL BE SUBMITTED TO AND APPROVED BY THE ENGINEER PRIOR TO ORDERING, PURCHASING, OR FABRICATING ANY MECHANICAL EQUIPMENT. SHOP DRAWINGS SHALL INCLUDE: ALL EQUIPMENT SCHEDULED OR SPECIFIED ON THE DRAWINGS; PIPING DRAWN TO 1/2" SCALE OR THE SCALE SHOWN ON THE DRAWINGS; CONTROL WIRING SCHEMATICS APPROVED BY THE BOILER EQUIPMENT MANUFACTURER.
  4. CONTRACTOR SHALL COORDINATE ELECTRICAL CHARACTERISTICS AND REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH ELECTRICAL DRAWINGS PRIOR TO ORDERING EQUIPMENT OR SUBMITTING SHOP DRAWINGS, AND SHALL FURNISH EQUIPMENT WIRED FOR THE VOLTAGES SHOWN THEREIN.
  5. ALL MECHANICAL EQUIPMENT REQUIRING ELECTRICAL POWER SHALL BE INSTALLED WITH DISCONNECT SWITCHES AT EACH PIECE OF EQUIPMENT. COORDINATE SWITCH TYPE (FUSED OR NON-FUSED) WITH EQUIPMENT CHARACTERISTICS, MANUFACTURER'S RECOMMENDATIONS AND ELECTRICAL DRAWINGS.
  6. ALL REQUIRED CONTROL WIRING NOT SHOWN ON THE ELECTRICAL DRAWINGS SHALL BE INCLUDED AS PART OF THE MECHANICAL WORK.
  7. UNLESS NOTED OTHERWISE, STARTERS, TRANSFORMERS, CONTROLS AND CONTROL WIRING REQUIRED FOR ALL MECHANICAL SYSTEMS SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
  8. ALL MECHANICAL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
  9. ALL MECHANICAL EQUIPMENT AND SYSTEMS SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR AFTER ACCEPTANCE BY OWNER.
  10. ALL WORK SHALL BE COORDINATED AND PERFORMED WITH PRIOR APPROVAL FROM THE CITY OF NORWALK OFFICE OF BUILDING MANAGEMENT IN MEETING OPERATING REQUIREMENTS.
  11. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL MECHANICAL EQUIPMENT TO FIT WITHIN THE SPACE ALLOWED BY THE EXISTING CONDITIONS. CUTTING OR OTHERWISE ALTERING ANY STRUCTURAL MEMBERS SHALL NOT BE PERMITTED WITHOUT WRITTEN PERMISSION FROM THE STRUCTURE ENGINEER.
  12. SLOPE ALL HORIZONTAL GAS FLUE PIPING MINIMUM 1/4"/FT.
  13. BOILER FLUE PIPING SHALL BE UL 1738 LISTED AS CATEGORY FOUR VENT FOR PRESSURE POSITIVE APPLICATION.
  14. TERMINATE GAS FIRED BOILER VENT PIPING THRU ROOF WITH TALL CONE FLASHING, STORM COLLAR, AND WEATHER CAP. VENT SHALL BE TERMINATED 24" ABOVE EXISTING CHIMNEY FLASHING.
  15. ALL PIPING ABOVE GRADE SHALL BE SUPPORTED BY THE BUILDING STRUCTURE AND SHALL NOT REST ON CEILING TILES OR CEILING STRUCTURE. PIPING HUNG FROM JOISTS SHALL BE HUNG FROM THE TOP CHORDS OF THE JOISTS.
  16. ALL PIPE PENETRATIONS OF FIRE AND/OR SMOKE-RATED ASSEMBLIES SHALL BE FIRE-STOPPED AS REQUIRED TO RESTORE ASSEMBLY TO ORIGINAL INTEGRITY. FIRE BARRIER PRODUCTS SHALL BE AS MANUFACTURED BY 3M CO., CP25 CAULK, CSIS COMPOSITE PANEL, FS195 WRAP STRIP, OR PSS 7900 SERIES SYSTEMS AS RECOMMENDED BY MFG. FOR PARTICULAR APPLICATION, OR EQUIVALENT SYSTEM AS APPROVED BY LOCAL CODE OFFICIALS.
  17. ALL MECHANICAL EQUIPMENT SHALL BE LABELED WITH BAKELITE NAMEPLATE WITH 2" HIGH WHITE LETTERS ON A BLACK BACKGROUND, NAMEPLATE SHALL SHOW EQUIPMENT TAG USED ON THESE DRAWINGS.
  18. ALL PIPING SHALL BE SCHEDULE 40 BLACK STEEL.
  19. ALL CONTROL WIRING SHALL BE ENCLOSED IN CONDUIT
  20. NEW HOT WATER PIPING SHALL BE INSULATED WITH 2" INSULATION. CONTRACTOR SHALL PROVIDE INSULATION JACKET AND PAINT TO MATCH AN EXISTING PIPING COLOR IN MECHANICAL ROOM. PROVIDE HOT WATER FLOW ARROWS AND LABEL RETURN AND SUPPLY HOT WATER PIPING.

### NEW PUMPS

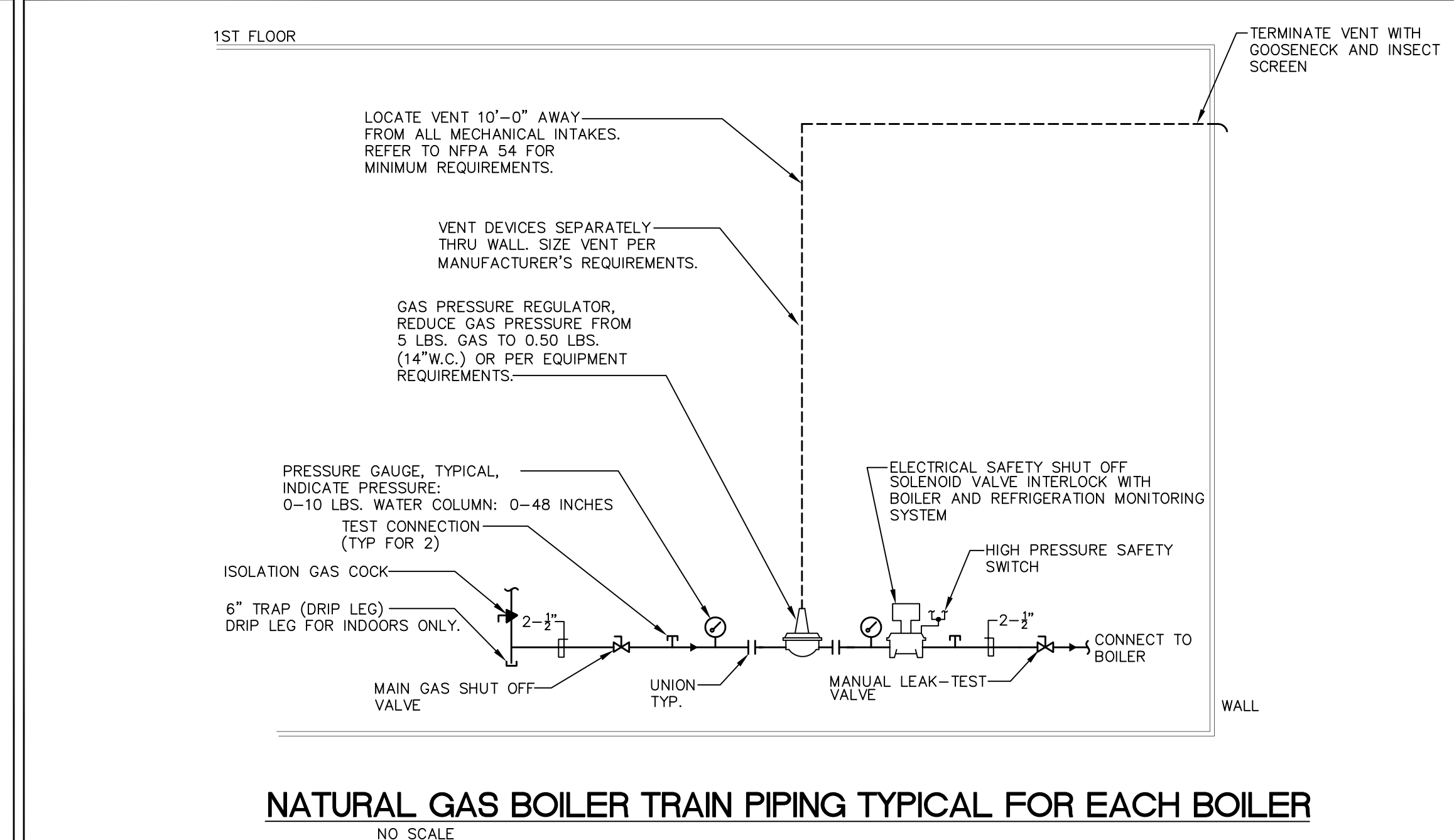
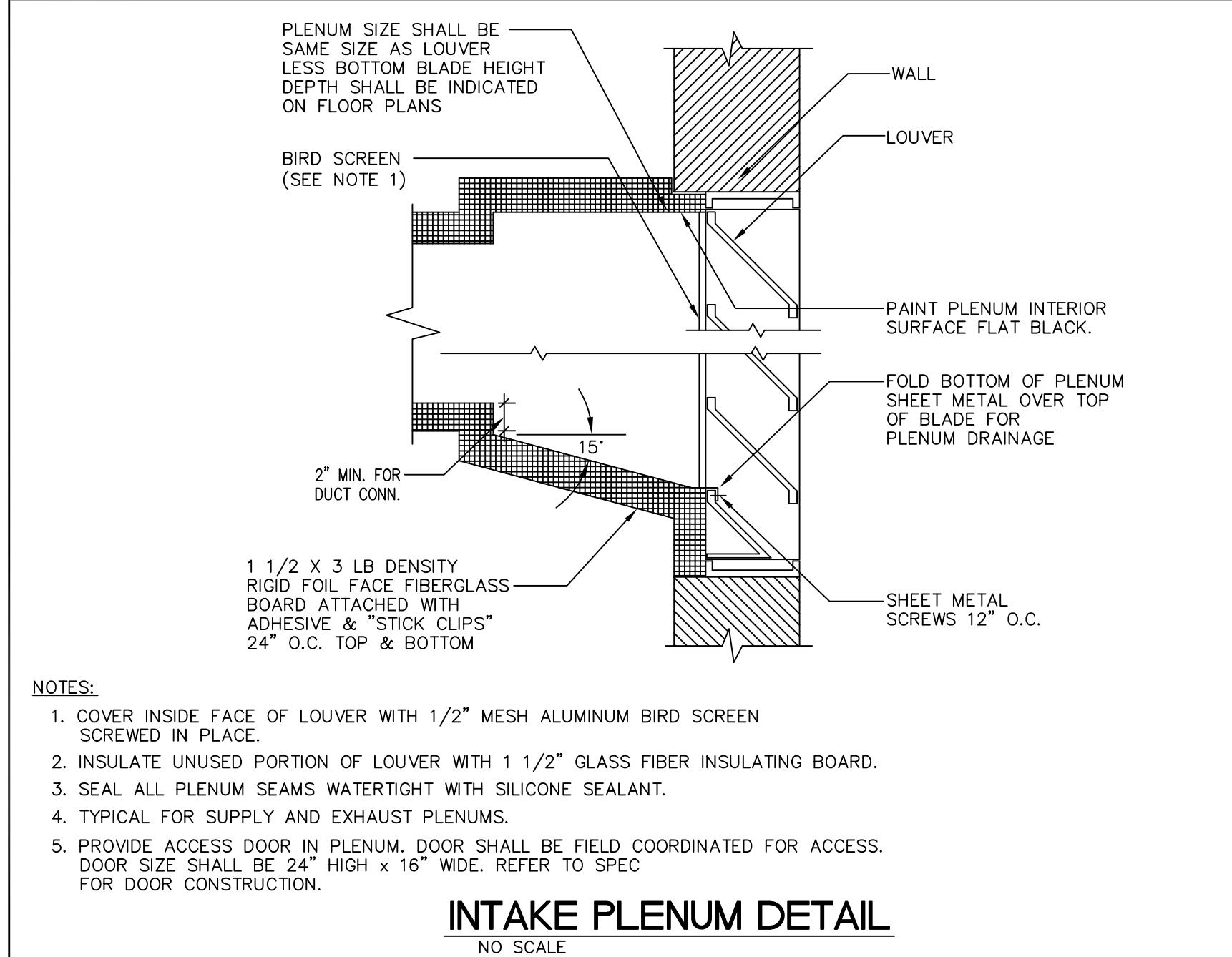
PUMP NO.	SERVES	GPM	HEAD FT.	HP	V./ø/Hz	RPM	MAX POWER CONSUMPTION A	MAX TEMP °F	MAX PRESSURE PSI	MANUFACTURE	MODEL NO.	REMARKS
HWP-1	PRIMARY LOOP NEW BOILER 1	75.0	18.0	0.5	208/1	2,260	2.0	230	145	BELL&GOSSETT	ECOCIRC XL 20-140	-
HWP-2	PRIMARY LOOP NEW BOILER 2	75.0	18.0	0.5	208/1	2,260	2.0	230	145	BELL&GOSSETT	ECOCIRC XL 20-140	-
HWP-3	PRIMARY LOOP NEW BOILER 3	75.0	18.0	0.5	208/1	2,260	2.0	230	145	BELL&GOSSETT	ECOCIRC XL 20-140	-
HWP-4	PRIMARY LOOP NEW BOILER 3	75.0	18.0	0.5	208/1	2,260	2.0	230	145	BELL&GOSSETT	ECOCIRC XL 20-140	-

EACH PUMP SHALL BE PROVIDED WITH BACNET INTERFACE MODULE

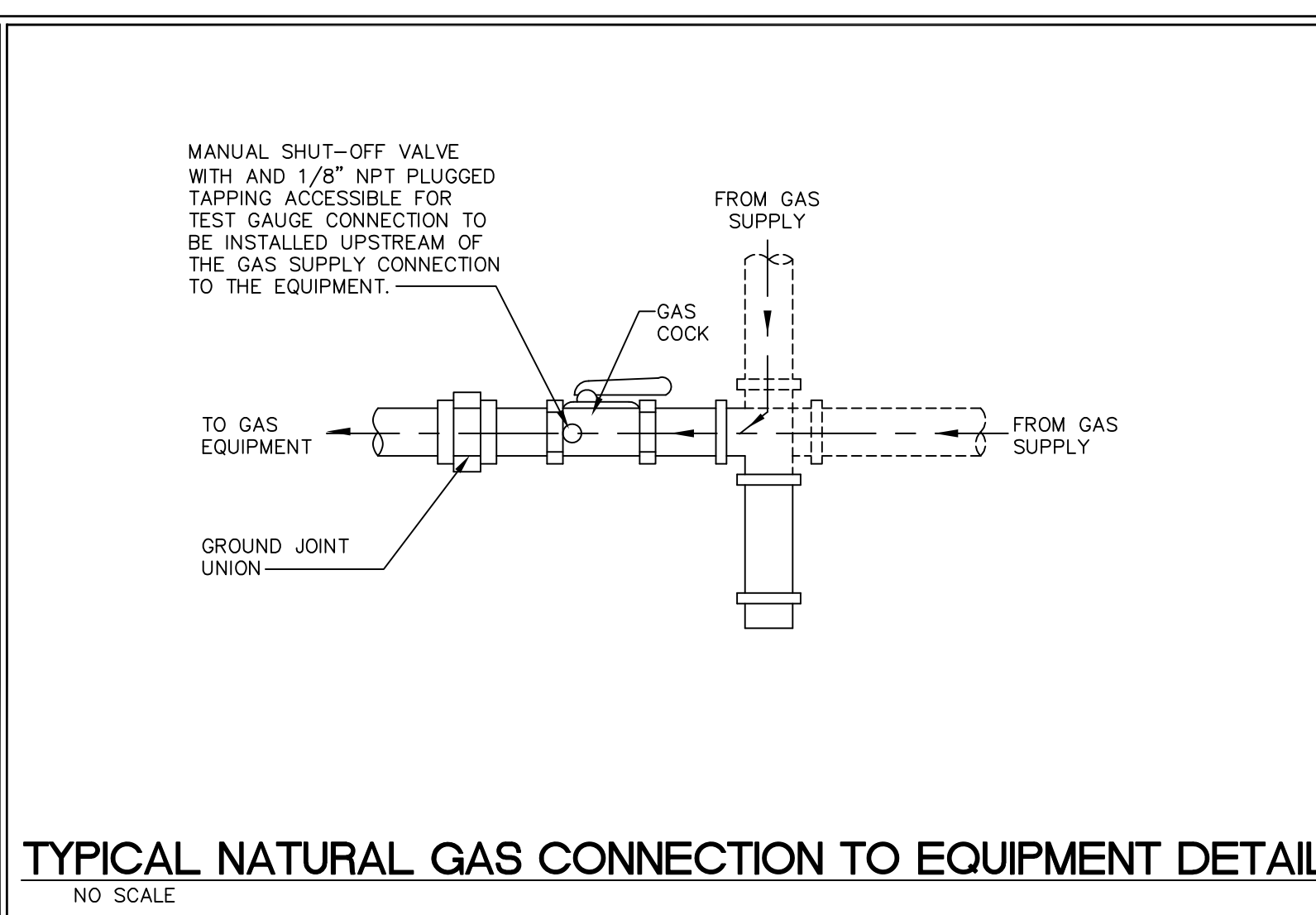
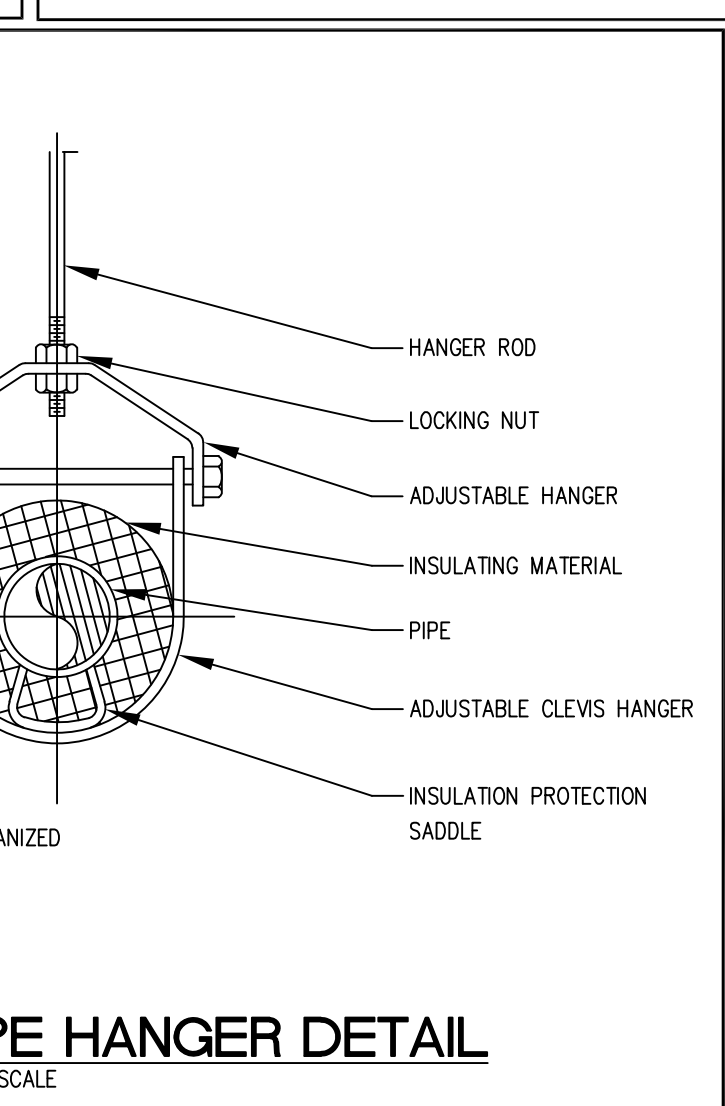
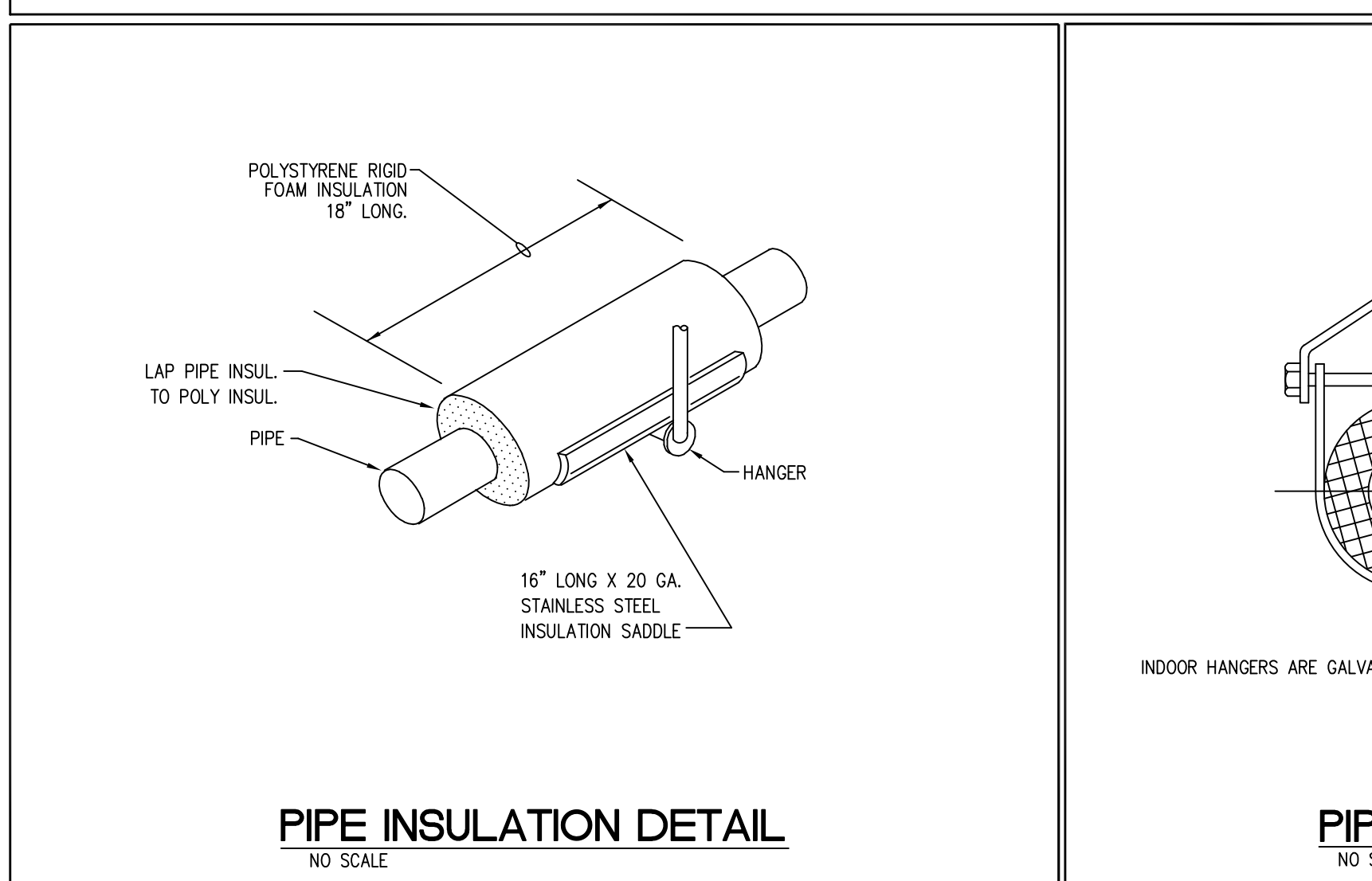
- ### HVAC ABBREVIATIONS
- AD ACCESS DOOR
  - AFF ABOVE FINISHED FLOOR
  - BDD BACK DRAFT DAMPER
  - BTU BRITISH THERMAL UNITS
  - BTUH BRITISH THERMAL UNITS PER HOUR
  - CONT. CONTINUATION
  - CO CLEAN OUT
  - DB CONDENSATE DRAIN
  - DN DRY BULB DOWN
  - (E) EXISTING
  - FT FEET
  - PPM FEET PER MINUTE
  - HP HORSEPOWER
  - HWR HOT WATER RETURN
  - HWS HOT WATER SUPPLY
  - IN INCHES
  - KW KILOWATTS
  - LAT LATENT
  - MBH 1000 BTUH
  - MIN. MINIMUM
  - CA OUTDOOR AIR (VENTILATION AIR)
  - PD PRESSURE DROP
  - QTY QUANTITY
  - TOT. TOTAL
  - TYP. TYPICAL
  - W/ WITH
  - HWS&R HOT WATER SUPPLY AND RETURN PIPING
  - CS&R CONDENSATE SUPPLY AND RETURN PIPING
  - CH&R CHILLED WATER SUPPLY AND RETURN PIPING
  - CD CONDENSATE PIPING
  - AHU AIR HANDLER UNIT
  - H/CW&R HOT WATER CONDENSER WATER RETURN PIPING.

### NEW HOT WATER TREATMENT SYSTEM

DESCRIPTION	MODEL	QTY	CAPACITY GAL.	INLET OUTLET PIPING	MAX PRESSURE PSI	MAX TEMP.	DIMENSIONS DxH
FILTER FEEDER MANUFACTURED BY NEPTUNE	FTF-5HP	1	7 1/2	3/4" FMPT	300	200	10" x 32"
FILTER BAG MANUFACTURED BY NEPTUNE 20 MICRON		1	20 MICRON FILTER BAG SHALL BE USED FOR 30 DAYS AFTER THE START UP AND REPLACED WITH THE 5 MICRON RING TOP FILTER BAG				
FILTER BAG MANUFACTURED BY NEPTUNE 5 MICRON		1					
CLOSED LOOP ALKALINE CLEANER		-					
CORROSION INHIBITOR		-					



- ### GAS SYSTEM GENERAL NOTES
- GAS SYSTEM GENERAL NOTES
1. THESE GENERAL NOTES ARE APPLICABLE TO ALL MEP DRAWINGS.
  2. DRAWINGS ARE DIAGRAMMATIC AND SHOW GENERAL INTENT OF WORK. REFER TO DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION. ALL GAS PIPING SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 54, STATE, AND LOCAL CODE REQUIREMENTS.
  3. PLUMBING CONTRACTOR MUST REVIEW MEP DRAWINGS OF THE OTHER TRADES AS PART OF THIS CONTRACT FOR ADDITIONAL WORK REQUIRED AND / OR COORDINATION OF HIS WORK FOR OPERATIONS OR CONNECTIONS TO OTHER SYSTEMS.
  4. THE PLUMBING CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING GAS PIPING FOR NEW BOILERS.
  5. THE PLUMBING CONTRACTOR SHALL PROVIDE PIPE EXPANSION JOINTS ON PIPING PASSING THRU ALL BUILDING EXPANSION JOINT LOCATIONS AS REQUIRED PER BUILDING CODES WHETHER OR NOT SHOWN ON DRAWINGS.
  6. BEFORE SUBMITTING A BID, THE PLUMBING CONTRACTOR SHALL VISIT THE SITE AND BECOME THOROUGHLY FAMILIAR WITH ALL EXISTING PLUMBING CONDITIONS AND THAT OF THE OTHER TRADES (MECHANICAL, ELECTRICAL, ETC.) THIS CONTRACT INCLUDES ALL MODIFICATIONS OF EXISTING SYSTEMS REQUIRED FOR THE INSTALLATION OF THE NEW BOILERS. THIS CONTRACT INCLUDES ALL NECESSARY OFFSETS, TRANSITIONS, AND MODIFICATIONS REQUIRED TO INSTALL NEW EQUIPMENT. ALL NEW EQUIPMENT AND SYSTEMS SHALL BE FULLY OPERATIONAL UNDER THIS CONTRACT BEFORE THE JOB IS CONSIDERED COMPLETE. THE PLUMBING CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ANY ASSUMPTIONS, OMISSIONS, OR ERRORS MADE AS A RESULT OF THE CONTRACTOR'S FAILURE TO BECOME FULLY FAMILIAR WITH THE EXISTING CONDITIONS AND THE CONTRACT DOCUMENTS OF ALL TRADES.
  7. THE PLUMBING CONTRACTOR SHALL COORDINATE WITH ALL OTHER TRADES CONTRACTORS THE ROUTING AND INSTALLATION OF GAS PIPING TO AVOID CONFLICTS BETWEEN THE PIPING AND THEIR WORK. THE CONTRACTOR SHALL LOCATE ALL PIPING, CONTROLS, ETC. AND COORDINATE WITH NEW WORK BEING DONE.
  8. THE PLUMBING CONTRACTOR SHALL COORDINATE AND SCHEDULE WITH THE OWNER THE SHUT-DOWN OF THE EXISTING PLUMBING SYSTEMS FOR THE FINAL CONNECTION OF NEW GAS SERVICE OR CAPPING OF EXISTING SITE GAS PIPING PRIOR TO COMMENCEMENT OF WORK SO THAT ANY DISRUPTIONS TO THE ACTIVE MAINS ARE KEPT TO A MINIMUM.
  9. THE INTERRUPTIONS IN DAILY OPERATIONS MUST BE COORDINATED IN ADVANCE WITH THE OWNER'S DESIGNATED REPRESENTATIVE. THIS SHALL INCLUDE SERVICE INTERRUPTIONS, CONNECTIONS, AND DISRUPTIONS EFFECTING OTHER TRADES, REMOVAL OF EQUIPMENT, ETC.
  10. GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH MALLEABLE IRON FITTINGS. WHERE GAS PIPING CONNECTS TO EQUIPMENT, IT SHALL BE PROVIDED WITH A DRIP LEG THE FULL SIZE OF THE SUPPLY PIPE. A 100 PERCENT SHUT OFF GAS COCK AND A UNION. NEW GAS PIPING SHALL BE PAINTED IN COLOR YELLOW.
  11. ALL 2 INCHES AND LARGER STEEL PIPE JOINTS SHALL BE WELDED. WELDERS SHALL BE CERTIFIED AND ALL WORK SHALL BE IN ACCORDANCE WITH ASTM, AWS, API, MIL, ANSI, AND ASME STANDARDS.
  12. GAS PIPING HANGERS AND SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF ANSI/MSS SP-58 REQUIREMENTS OF STANDARD PRACTICE FOR PIPE HANGERS AND SUPPORTS - MATERIALS, DESIGN, AND MANUFACTURER. ALL PIPE SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER.
  13. ALL GAS VENTS FROM PRESSURE RELIEF OR PRESSURE REGULATING DEVICES SHALL BE PIPED THE FULL OUTLET SIZE AND SHALL BE FITTED WITH AN AGA APPROVED FITTING WITH INSECT SCREEN. PROVIDE CAULKING OR PROPER FLASHING AT VENTS.
  14. ALL BRANCH OUTLET PIPES SHALL BE TAKEN FROM THE TOP OR SIDES OF THE HORIZONTAL LINES AND NOT FROM THE BOTTOM.
  15. USE DIELECTRIC UNIONS WHERE DISSIMILAR METALS ARE JOINED TOGETHER.
  16. INSPECT, TEST AND PURGE THE GAS PIPING SYSTEM IN ACCORDANCE WITH NFPA 54 AND ALL STATE AND LOCAL CODE REQUIREMENTS. MINIMUM REQUIREMENTS SHALL BE 5 PSIG FOR A PERIOD OF 2 HOURS.
  17. ALL NEWLY INSTALLED PIPING INCLUDED GAS PIPING SHALL BE LABELED.



Revisions

ISSUED FOR BID	1/23/2020
REVISED PER RFI	2/14/2020

## SNYDER ARCHITECTS, LLC

Architecture . Planning . Construction Management  
 Trumbull, CT 203-243-3346  
 info@snyderarchitects.com

MEP Engineer

PETERSON ENGINEERING GROUP, LLC  
 25 Van Zant Street  
 Norwalk, CT 06855  
 (203) 810-4191

Environmental Consultant

AMC ENVIRONMENTAL, LLC  
 P.O. Box 423  
 Stratford, CT 06615  
 (203) 378-5020

Project

2725 Main Street  
 Stratford, CT 06614

Boiler Replacements at:

Second Hill Lane School

Stratford, Connecticut

Drawing Title

MECHANICAL LEGEND, SCHEDULES & DETAILS

Drawings Formatted for 24"x36" Paper

Issued	1/23/2020	Drawing No.	
Scale	NTS		M-001
Job No.	2019.096.02		

**BID FORM**

Bids must be submitted to the Town of Stratford Purchasing Office, attention Phillip Ryan, Purchasing Agent, on the following form signed by an authorized company officer. Bids will be opened on **Thursday, February 20, 2020, 11:00am.**

**Phillip Ryan, Purchasing Agent  
Town of Stratford  
2725 Main Street  
Stratford, CT 06615**

**Bid 2020-31  
Boiler Replacement:  
Second Hill Lane Elementary School  
65 Second Hill Lane  
Stratford, CT 06614**

To Whom It May Concern:

(I, We) \_\_\_\_\_ the undersigned having visited the project site at Second Hill Lane Elementary School and having familiarized ourselves with the local conditions affecting the cost of the work and with Contract Documents and all addenda thereto, hereby propose to furnish all labor, materials, tools, equipment, insurance to pay all applicable taxes, and to do and perform all things as provided in the drawings and specifications for the following sum(s):

**BASE BID:**

**Refer to enclosed drawings and specifications.**

**Contractor shall include all monies and fees to complete documented Boiler Replacement at Second Hill Lane Elementary School as indicated in bid documents. Contractor shall include a \$8,000 allowance in base bid number for unforeseen conditions and changes to be used at Architect and Owners discretion. Any unused portion of allowance shall be credited back to owner.**

\*Written Form: \_\_\_\_\_

\*Dollars: (\$\_\_\_\_\_)

**\*PLEASE NOTE THAT STATE OF CONNECTICUT PREVAILING WAGES MUST BE USED IF TOTAL BID EXCEEDS \$100,000.**

**ADD ALTERNATE #1:**

**UNDERGROUND OIL TANK REMOVAL AT SECOND HILL LANE SCHOOL:**

All work and materials necessary to remove existing underground oil tank as documented in construction documents.

\*Written Form: \_\_\_\_\_

\*Dollars: (\$\_\_\_\_\_)

**ADD ALTERNATE #2:**

**PREP AND PAINT BOILER ROOM FLOOR:**

All work and materials necessary to prep and paint boiler room floor as documented in construction documents and per manufacturer specifications.

\*Written Form: \_\_\_\_\_

\*Dollars: (\$\_\_\_\_\_)

**\*Please note the ADDITIONAL COST ONLY, not the basebid plus additional costs in Alternate bid numbers.**

**UNIT PRICES:**

**Contractor must include unit prices for all items listed below, or bid could be rejected at client discretion. Shall include installed price.**

- |                                 |          |                |
|---------------------------------|----------|----------------|
| 1. Removal of Contaminated Soil | \$ _____ | Per Cubic Yard |
| 2. Soil Testing                 | \$ _____ | Per Sample     |

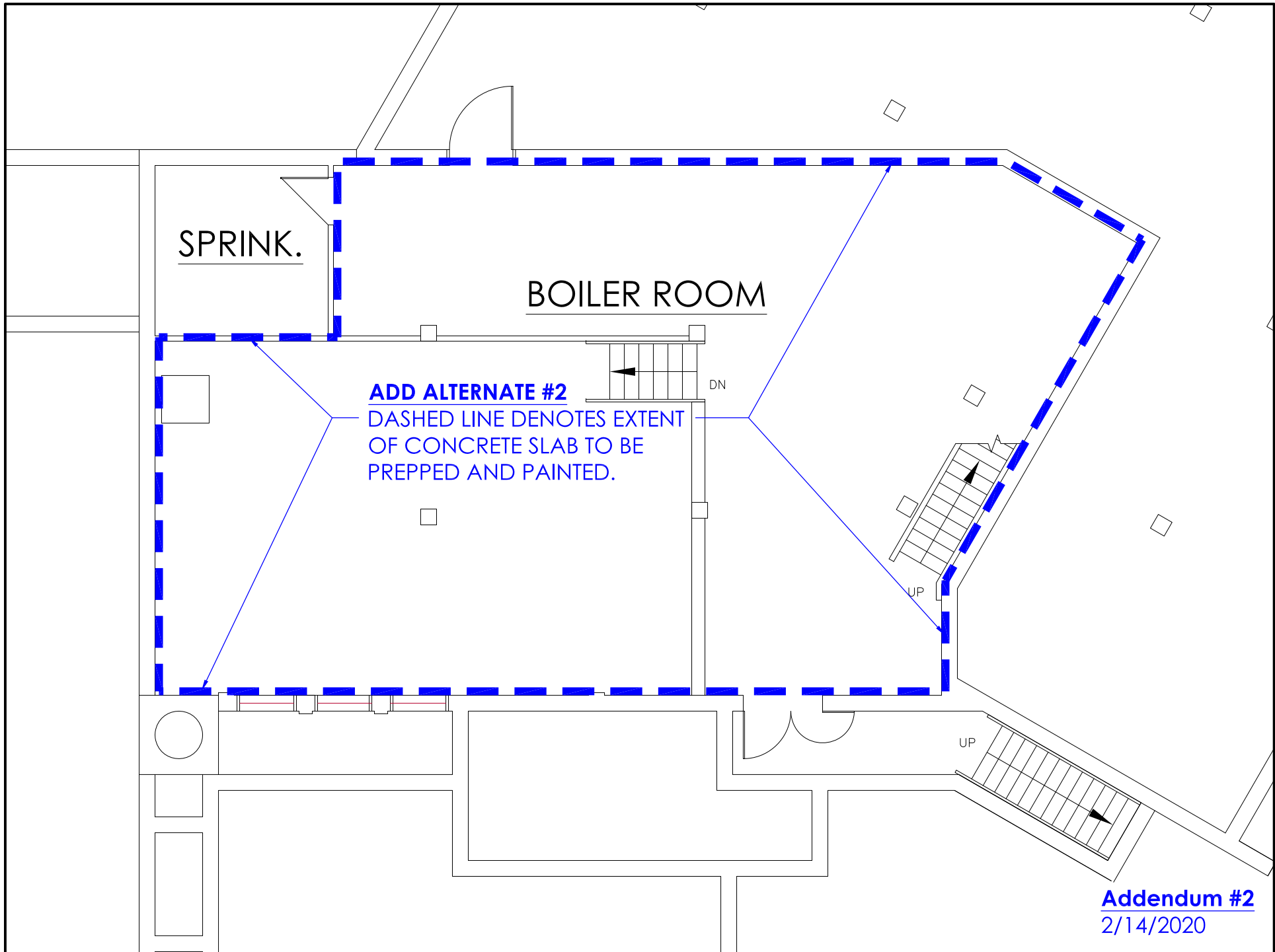
**ADDENDA**

In submitting this proposal, I have received and included in this Proposal, the following Addenda:

Addendum No.	Date
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Signed: \_\_\_\_\_

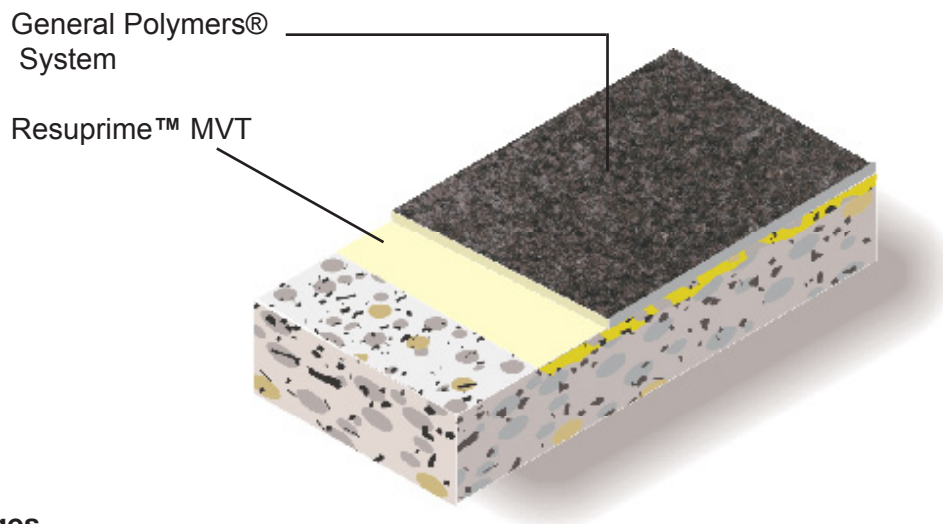
	Signature	Corporate Seal
Company Name	: _____	
Address	: _____	
City, St, Zip Code	: _____	
Phone	: (_____) - _____ - _____	
Fax	: (_____) - _____ - _____	





# Resuprime™ MVT

**Resuprime™ MVT** is a fast curing, two-component, epoxy resin that is tolerant of residual moisture in concrete floors and walls. This enables earlier access onto new concrete substrates for the application of General Polymers® systems. Resuprime MVT is formulated to prevent moisture related disbondment of non-permeable resinous systems.



## Advantages

- Moisture insensitive to 15 lbs or 97% RH
- Withstands vapor emissions
- Low odor
- Excellent adhesion

## Uses

- For impermeable flooring and wall systems
- Use when moisture readings are less than 15 lbs, as measured by ASTM F1869 or less than 97% relative humidity as measured by ASTM F2170.
- Can be applied to saturated surface dry (SSD) concrete

## Limitations

- Do not apply to wet surfaces
- Substrate must be structurally sound and free of bond inhibiting contaminants.
- During installation and initial cure cycle substrate and ambient air temperature must be at a minimum of 50°F (for lower temperature installation contact the Technical Service Department).
- Concrete must have an effective vapor barrier.

## Typical Physical Properties for Resuprime MVT only

<b>Color</b>	Clear
<b>Mix Ratio A:B</b>	Pre-packaged components Approximately 2:1
<b>Pot Life</b>	15 minutes
<b>Solids, by weight</b>	98% ± 2%, mixed
<b>VOC (Volatile Organic Content) EPA Method 24</b>	<100 g/L mixed; 0.83 lb/gal
<b>Coverage: @ 8-10 mils WFT</b>	160-200 sq. ft/gal
<b>@ 16-20 mils WFT</b>	80-100 sq. ft/gal
<b>Cure Time</b>	Dry to Touch 4-6 hrs Recoat 10-12 hrs Light Traffic 18-24 hrs



## Installation

The following information is to be used as a guideline for the installation of the **Resuprime™ MVT system**. Contact the Technical Service Department for assistance prior to application if required.

## Surface Preparation – General

General Polymers systems can be applied to a variety of substrates, if the substrate is properly prepared. Preparation of surfaces other than concrete will depend on the type of substrate, such as wood, concrete block, quarry tile, etc. Should there be any questions regarding a specific substrate or condition, please contact the Technical Service Department prior to starting the project. Refer to Surface Preparation (Form G-1).

## Surface Preparation - Concrete

Concrete surfaces shall be abrasive blasted to remove all surface contaminants and laitance. The prepared concrete shall have a surface profile of CSP 4-6. Refer to Form G-1.

After initial preparation has occurred, inspect the concrete for bug holes, voids, fins and other imperfections. Protrusions shall be ground smooth while voids shall be filled with a system compatible filler. For recommendations, consult the Technical Service Department.

## Temperature

Throughout the application process, substrate temperature should be 50°F - 90°F. Substrate temperature must be at least 5°F above the dew point. Applications on concrete substrate should occur while temperature is falling to lessen offgassing. The material should not be applied in direct sunlight, if possible.

## Application Information – Surface Prep Profile CSP 4-6

VOC MIXED	MOISTURE READING	MATERIAL	MIX RATIO	THEORETICAL COVERAGE PER COAT CONCRETE	PACKAGING
<100 g/L	< 8 lbs or <85% RH	Resuprime™ MVT	Pre-packaged (Approx. 2:1)	160-200 sq. ft./gal (8-10 mils DFT)	5 or 15 kg (Approx. 1.32 gal or 3.96 gal kits)
<b>Proceed with resinous floor installation</b>					

VOC MIXED	MOISTURE READING	MATERIAL	MIX RATIO	THEORETICAL COVERAGE PER COAT CONCRETE	PACKAGING
<100 g/L	< 15 lbs or <97% RH	Resuprime™ MVT	Pre-packaged (Approx. 2:1)	80-100 sq. ft./gal (16-20 mils DFT)	5 or 15 kg (Approx. 1.32 gal or 3.96 gal kits)
<b>Proceed with resinous floor installation</b>					

## **Option #1 (< 8 lbs moisture reading or <85% RH)**

### **Mixing and Application**

1. Add resin to hardener. Mix with low speed drill and Jiffy blade until uniform. To insure proper system cure and performance, do not deviate from the pre-packaged quantities.
2. Apply using a tight squeegee coat and backroll with a high quality 3/8" nap roller. Apply at a spread rate of 8-10 mils evenly with no puddles making sure of uniform coverage.
3. Allow to cure 6 hours minimum. (Cure times vary depending on environmental conditions).
4. Proceed with resinous system installation.

## **Option #2 (< 15 lbs moisture reading or <97% RH)**

### **Mixing and Application**

1. Add resin to hardener. Mix with low speed drill and Jiffy blade until uniform. To insure proper system cure and performance, do not deviate from the pre-packaged quantities.
2. Apply using a tight squeegee coat and backroll with a high quality 3/8" nap roller. Apply at a spread rate of 16-20 mils evenly with no puddles making sure of uniform coverage.
3. Allow to cure 6 hours minimum. (Cure times vary depending on environmental conditions).
4. Proceed with resinous system installation.

## **Cleanup**

Clean up mixing and application equipment immediately after use. Use toluene or xylene. Observe all fire and health precautions when handling or storing solvents.

## **Safety**

Refer to the MSDS sheet before use. federal, state, local and particular plant safety guidelines must be followed during the handling and installation and cure of these materials.

Safe and proper disposal of excess materials shall be done in accordance with applicable federal, state, and local codes.

## **Material Storage**

Store materials in a temperature controlled environment (50°F – 90°F) and out of direct sunlight.

Keep resins, hardeners, and solvents separated from each other and away from sources of ignition.

## **Maintenance**

Occasional inspection of the installed material and spot repair can prolong system life. For specific information, contact the Technical Service Department.

## Disclaimer

The information and recommendations set forth in this document are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product(s) offered at the time of publication. Published technical data and instructions are subject to change without notice.

Consult [www.generalpolymers.com](http://www.generalpolymers.com) to obtain the most recent Product Data information and Application instructions.

## Warranty

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams, NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



**To learn more, visit us at**

[www.sherwin-williams.com/protective](http://www.sherwin-williams.com/protective)  
or call 1-800-524-5979  
to have a representative contact you.

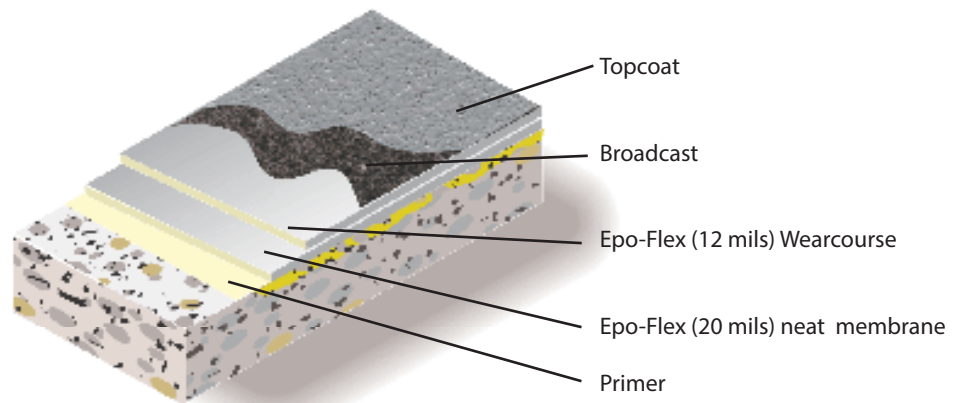
©2017 The Sherwin-Williams Company  
Protective & Marine Coatings 05/17



## EPO-FLEX<sup>®</sup> MER II (Mechanical Equipment Room)

**General Polymers EPO-FLEX MER II (MECHANICAL EQUIPMENT ROOM) SYSTEM** combines EPO-FLEX crack bridging and waterproofing capabilities with a chemically resistant topcoat and an optional wearcourse of EPO-FLEX broadcast to excess with hard aggregate would provide increased wear, impact, and abrasion resistance. EPO-FLEX achieves flexibility without the use of plasticizers or other additives which can separate or migrate as the system ages. This means that the product remains flexible and continues to function for many years. Fiberglass scrim may be incorporated into the system to add tensile strength.

### 90 Mil System



### Advantages

- Bridges hairline cracks, thereby aiding in suppression of cracks reflecting through the system due to substrate movement
- Durable, Slip resistant
- Waterproof
- Chemical and stain resistant
- Fiberglass scrim optional for maximum tensile strength
- LEED<sup>®</sup> v4 compliant

### Uses

- Mechanical Equipment Room
- Mezzanines
- Clean Rooms
- Lockers Rooms and Showers
- Computer Rooms

### Typical Physical Properties

Hardness, Shore D ASTM D 2240	50/40
Tensile Strength ASTM D 412	1,700 psi
Elongation ASTM D 412	80%
Adhesion ACI 503R	300 psi concrete failure
Abrasion Resistance ASTM D 4060, CS-17 Wheel, 1,000 cycles	100 mgs lost
Flammability	Self-Extinguishing over concrete
Thermal Cycling ASTM C 884 (24 hours, -21°C to 25°C)	No Cracking

ASTM C = Mortar system  
ASTM D = Resin only

## Installation

General Polymers materials shall only be installed by approved contractors. The following information is to be used as a guideline for the installation of the [EPO-FLEX MER II \(MECHANICAL EQUIPMENT ROOM\) SYSTEM](#). Contact the Technical Service Department for assistance prior to application.

## Surface Preparation — General

General Polymers systems can be applied to a variety of substrates, if the substrate is properly prepared. Preparation of surfaces other than concrete will depend on the type of substrate, such as wood, concrete block, quarry tile, etc. Should there be any questions regarding a specific substrate or condition, please contact the Technical Service Department prior to starting the project. Refer to Surface Preparation (Form G-1).

## Surface Preparation — Concrete

Concrete surfaces shall be abrasive blasted to remove all surface contaminants and laitance. The prepared concrete shall have a surface profile equal to CSP 3-5. Refer to Form-G-1.

After initial preparation has occurred, inspect the concrete for bug holes, voids, fins and other imperfections. Protrusions shall be ground smooth while voids shall be filled with a system compatible filler. For recommendations, consult the Technical Service Department.

## Temperature

Throughout the application process, substrate temperature should be 60°F - 90°F. Substrate temperature must be at least 5°F above the dew point. Applications on concrete substrate should occur while temperature is falling to lessen offgassing. The material should not be applied in direct sunlight, if possible.

## Application Information

VOC MIXED		MATERIAL	MIX RATIO	THEORETICAL COVERAGE PER COAT CONCRETE	PACKAGING
<50 g/L	Primer	3579	2:1	250 sq. ft. / gal	3 or 15 gals
<100 g/L	Membrane	3555	1:1	80 sq. ft. / gal.	2 or 10 gals
<100 g/L 0	Wearcourse Broadcast	3555 5310-8 Dry Silica Sand (20-40mesh) or Other Hard Aggregate	1:1	130 sq. ft. / gal. .25 lbs / sq ft	2 or 10 gals 50 lbs
<50 g/L	Topcoat	3746 Premeasured units	2:1	100-150 sq. ft. / gal.	3 or 15 gals

For additional topcoat options consult the General Polymers Topcoat Selection Guide, or contact your Sherwin Williams representative.

## Primer

**Mixing and Application** - If priming is done to reduce outgassing, allow to cure overnight before topping

1. Premix 3579A (resin) using a low speed drill and Jiffy blade. Mix for one minute and until uniform, exercising caution not to introduce air into the material.
2. Add 2 parts 3579A (resin) to 1 part 3579B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform. To insure proper system cure and performance, strictly follow mix ratio recommendations.
3. 3579 may be applied via spray, roller or brush. Apply 5-8 mils, evenly, with no puddles. Coverage will vary depending upon porosity of the substrate and surface texture.
4. Wait until primer is tacky (usually 1 hour minimum), before applying the membrane. If primer is not going to be topped within open time, broadcast silica sand into resin lightly but uniformly and allow to cure overnight.

## Membrane

**Mixing and Application**

1. Premix 3555A (resin) using a low speed drill and Jiffy blade. Mix for one minute and until uniform, exercising caution not to whip air into the material.
2. Add 1 part 3555A (resin) to 1 part 3555B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform.
3. Immediately pour the mixed material onto the substrate and pull out using a 1/4" or 1/8" v-notched squeegee to yield 20 mils WFT and cross roll with a 3/8" nap roller. Readings must be taken continuously during application with a wet mil gauge to verify material is being applied at the proper thickness. Allow to cure overnight at 73°F surface temperature. Material cures slower at lower temperatures.
4. After the membrane is cured, check for surface blush. Remove any blush with detergent wash prior to applying wearcourse.

## Wearcourse

**Mixing and Application**

1. Premix 3555A (resin) using a low speed drill and Jiffy blade. Mix for one minute and until uniform, exercising caution not to whip air into the material.
2. Add 1 part 3555A (resin) to 1 part 3555B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform.
3. Immediately pour the mixed material onto the substrate and pull out using a 1/4" or 1/8" v-notched squeegee to yield 12 mils WFT and cross roll with a 3/8" nap roller. Readings must be taken continuously during application with a wet mil gauge to verify material is being applied at the proper thickness. Material cures slower at lower temperatures.

4. Broadcast 5310-8 Dry Silica Sand (20-40 mesh) or other Hard Aggregate to excess into wet material so no wet material is visible. Aggregate should be broadcast within one (1) hour of liquid application to ensure they are properly seated.

5. Allow to cure (Cure times vary depending on environmental conditions), sweep off excess aggregate with a clean, stiff bristled broom. Clean aggregate can be saved for future use. All imperfections such as high spots should be smoothed before the application of the seal coat.

NOTE: The floors finished appearance depends on the manner in which the aggregate has been applied. In grass seed like fashion, allow the aggregate to fall after being thrown upward and out. DO NOT THROW DOWNWARD AT A SHARP ANGLE USING FORCE.

## Topcoat

**Mixing and Application**

1. Premix 3746A (resin) using a low speed drill and Jiffy blade. Mix for one minute and until uniform, exercising caution not to introduce air into the material.
2. Add 2 parts 3746A (resin) to 1 part 3746B (hardener) by volume. Mix with low speed drill and Jiffy blade for three minutes and until uniform. To insure proper system cure and performance, strictly follow mix ratio recommendations.
3. Apply 3746 using a flat trowel or squeegee and backroll with a 1/4" nap roller at a spread rate of 100-150 sq. ft. per gallon, evenly, with no puddles making sure of uniform coverage. Take care not to puddle materials and insure even coverage.
4. Allow to cure 24 hours minimum before opening to traffic.

Epoxy materials will appear to be cured and "dry to touch" prior to full chemical cross linking. Allow 3746 to cure for 2-3 days prior to exposure to water or other chemicals for best performance.

## Cleanup

Clean up mixing and application equipment immediately after use. Use toluene or xylene. Observe all fire and health precautions when handling or storing solvents.

## Safety

Refer to the MSDS sheet before use. All applicable federal, state, local and particular plant safety guidelines must be followed during the handling and installation and cure of these materials.

Safe and proper disposal of excess materials shall be done in accordance with applicable federal, state, and local codes.

## Material Storage

Store materials in a temperature controlled environment (50°F - 90°F) and out of direct sunlight.

Keep resins, hardeners, and solvents separated from each other and away from sources of ignition.

## Maintenance

Occasional inspection of the installed material and spot repair can prolong system life. For specific information, contact the Technical Service Department.

## Disclaimer

The information and recommendations set forth in this document are based upon tests conducted by or on behalf of The Sherwin-Williams Company. Such information and recommendations set forth herein are subject to change and pertain to the product(s) offered at the time of publication. Published technical data and instructions are subject to change without notice.

Consult [www.generalpolymers.com](http://www.generalpolymers.com) to obtain the most recent Product Data information and Application instructions.

## Warranty

The Sherwin-Williams Company warrants our products to be free of manufacturing defects in accord with applicable Sherwin-Williams quality control procedures. Liability for products proven defective, if any, is limited to replacement of the defective product or the refund of the purchase price paid for the defective product as determined by Sherwin-Williams, NO OTHER WARRANTY OR GUARANTEE OF ANY KIND IS MADE BY SHERWIN-WILLIAMS, EXPRESSED OR IMPLIED, STATUTORY, BY OPERATION OF LAW OR OTHERWISE, INCLUDING MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.



To learn more, visit us at

[www.sherwin-williams.com/protective](http://www.sherwin-williams.com/protective)

or call 1-800-524-5979

to have a representative contact you.

**026500**  
**REMOVAL AND DISPOSAL OF STORAGE TANKS**

**PART 1 - GENERAL**

**1.01 SUMMARY**

A Section Includes:

1. Removing and disposal of underground storage tank (UST) liquid contents.
2. Removing, cleaning, and disposing UST.
3. Testing and removing contaminated soils.
4. Backfilling and restoring excavation areas.

**1.02 DESCRIPTION OF WORK**

- A The Contractor shall furnish all labor, material, tools, transportation and equipment necessary to remove and dispose of the existing [Underground Storage Tanks (UST)s], associated electrical, structural, and product equipment, (e.g., dead men, anchor straps, piping, manways, piping, pumps, and dispenser(s), if present). This section specifies requirements for the environmental and tank assessment, permitting, removal and disposal of the [UST(s)] and is intended to supplement the construction/installation specifications. Generally, the work shall include, but not be limited to:
1. File all necessary notices, obtain all permits and licenses, and pay for all governmental taxes, fees, and other costs in connection with the work. Obtain all necessary approvals of all governmental departments having jurisdiction.
  2. Characterize (any testing that may be required by a disposal facility), containerize, remove, and properly dispose of residual fuels from the designated tanks and appurtenant piping.
  3. Clean, remove, and dispose of [UST(s)], and appurtenant piping for the tank(s). The work shall include the removal and proper disposal of fuel and residual in the tanks and associated piping between the tanks and the building.
  4. Perform all sampling and testing required to properly profile the material for waste disposal. This shall also include all testing required by the disposal or recycling facility.
  5. All costs for the testing shall be borne by the Contractor.
  6. [Coordinate with the Engineer and Licensed Site Professional (LSP) relative to the collection, sampling and analysis of impacted soils.
  7. Coordinate with the Town of Stratford Project Manager, Engineer and Licensed Site Professional to prepare all manifests and/or Bills of Lading for all contaminated materials removed from the Site. Original documents to be provided to the Town of Stratford Manager and copies to the Engineer and Architect.
  8. Comply with the Contractor's submitted Health and Safety Plan



### 1.03 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referenced in text by basic designation only. The list provided below is not intended to be all inclusive of each regulation prevailing over the work. The latest version of the document listed shall govern the work performed.

- A. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-1. Control of nonresidential underground storage and handling of oil and petroleum liquids.
- B. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-101. Technical standards and corrective action requirements for owners and operators of underground storage tank systems-program scope and interim prohibition.
- C. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-102. UST systems: design, construction installation and notification.
- D. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-103. General operating requirements.
- E. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-104. Release detection.
- F. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-105. Release reporting, investigation, and confirmation.
- G. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-106. Release response and corrective action for UST systems containing petroleum or hazardous substances.
- H. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-107. Out-of-service UST systems and closure.
- I. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-108. Operator training required.
- J. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-109. Financial responsibility.
- K. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-110. UST system upgrading, abandonment and removal date.
- L. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-111. Life expectancy.
- M. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-112. UST system location transfer.

- N. Regulations of Connecticut State Agencies, Department of Energy and Environmental Protection, 22a-449(d)-113. Transfer of UST system ownership, possession or control.
- O. OSHA Hazard Communication Standard, 29 CFR 1910.
- P. National Fire Prevention Association (NFPA) 326, Standard for Safeguarding of Tanks and Containers for Entry, Cleaning or Repair, 2005 edition.
- Q. National Fire Prevention Association (NFPA) 51B, Standard for Fire Protection During Welding, Cutting and Other Hot Work, 201 edition.

#### 1.04 REGULATORY REQUIREMENTS

- A. Tank closure shall be carried out in accordance with state regulations, 22a-449(d)-1.
- B. The Contractor shall obtain and pay for all local and state permits, including a UST removal, and make necessary arrangements with the local Fire Department prior to the removal of tanks.
- C. The Contractor shall keep the local Fire Department informed of all activities throughout the performance of the work.
- D. The Contractor shall obtain all local, State, and Federal permits required for the transport and disposal of all waste materials resulting from the performance of this work.
- E. The Contractor shall document that the disposal facility(ies) proposed have all certifications and permits required by Town of Stratford, local, State, and Federal regulatory agencies to receive and recycle or dispose of the liquid and the solid wastes resulting from performance of the work. Disposal facilities must be from the Town of Stratford approved disposal facility list.
- F. For work that will be sub-contracted, the Contractor is responsible to ensure that the Sub-contractor has reviewed and will strictly adhere to this specification, all reference documents, and with all local, state and federal regulations.
- G. All Contractors and/or Sub-contractors must have current, applicable licenses for all work performed.

#### 1.05 SAFETY REQUIREMENTS

- A. Provide appropriate protective equipment for all personnel working in direct contact with vapors, liquids or sludge removed from the tanks. All personnel shall be trained in the proper use and maintenance of the appropriate protective equipment used on this project. Smoking will not be allowed in the work area or loading area during the course of the work.
- B. Personnel working inside and in the general vicinity of the tanks shall be trained and thoroughly familiar with the safety precautions, procedures, and equipment required for controlling the potential hazards associated with this work, including training for confined space entry. Personnel shall use proper protection and safety equipment during work in and around the tanks, including instruments to monitor air quality, explosive atmospheres and oxygen content.
- C. All provisions of the site Health and Safety Plan included shall be in force during tank removal activities, unless modified in writing by the Contractor's Site Safety Officer.

- D. Warning signs and devices shall be placed at regular intervals along the work area perimeter, and establish restricted work zones, support areas and decontamination areas as needed. Contractor shall furnish, install and maintain fencing or other appropriate barricades at open excavations, including illumination if left over night.
- E. Prior to ending operations on any working day or at any time the Contractor is not on site, the Contractor shall secure all areas of work by erecting temporary safety fencing.
- F. Cutting of steel or other metals by thermal methods shall, at all times, occur in a non-explosive environment. During such work, percent of lower explosive limit in the tanks, piping of the surrounding atmosphere shall be continuously monitored. The Contractor shall note that residual pockets of oils or residues may exist in some of the pipelines and the Contractor shall exercise care to prevent release to the environment and harm to workers, facility staff or the public resulting from potential explosive nature of the contained materials.
- G. The Contractor shall provide and maintain an adequate supply of fire extinguishers and other required safety equipment in close proximity to all tank cleaning and removal activities.

#### 1.06 QUALITY ASSURANCE AND MEASUREMENT FOR CONTAMINATION

- A. UST Removal Contactor: Experienced contractor, registered or licensed by applicable state agency regulating UST removal.
- B. Testing Laboratory: State certified independent testing laboratory experienced in hazardous waste liquid and soil testing.
- C. Liquid Disposal Facility: State certified disposal facility qualified to receive and dispose UST liquid contents.
- D. UST Disposal Facility: State certified disposal facility qualified to receive and dispose UST.
- E. Soils Disposal Facility: State certified disposal facility qualified to receive and dispose contaminated soils.
- F. UST Removal Plan: Describe detailed procedures for:
  - 1. Removing and disposing UST liquid content.
  - 2. Removing, ventilating, cleaning and disposing UST.
  - 3. Soil sampling and testing.
  - 4. Removing and disposing contaminated soils.
- G. UST Final Closure Report: Assemble work progress documentation showing removal plan compliance, including:
  - 1. Sample test records.
  - 2. Local Fire Marshal requirement.
  - 3. State Agency requirements.
  - 4. Hazardous material plan for local VA management.

## 1.07 SUBMITTALS

- A. Notice of intent to close UST.
  
- B. Test Reports: Submit testing laboratory reports.
  - 1. UST liquid contents analysis.
  - 2. UST interior environment analysis.
  - 3. Soil sample analysis.
  
- C. Qualifications: Substantiate qualifications comply with specifications.
  - 1. UST removal contractor.
  - 2. Testing laboratory.
  - 3. Liquid disposal facility.
  - 4. UST disposal facility.
  - 5. Soils disposal facility.
  
- D. UST removal plan.
  
- E. Record Documents:
  - 1. Six copies of Final Closure Report.
  - 2. Record Drawings in electronic CAD file format showing:
    - Soil sample locations.
    - Detailed plan view.
    - Piping removal diagrams.
    - Control removal diagrams.
    - Component diagrams including tank removal procedure.
    - Detailed sequence of procedure.
    - Photographs of work in progress showing UST removal plan compliance.
    - Chain of custody documentation.
    - Disposal facility receipts and disposition reports.

## **PART 2 - PRODUCTS**

Not Used

## **PART 3 - EXECUTION**

### **3.01 GENERAL**

- A. Provide suitable personnel, material and equipment to clean and remove the fuel piping and tanks and all sludge and liquids that may be in the piping and tanks prior to removal. Take all necessary precautions during removal of the tanks to prevent damage to utilities adjacent to the area. All fuel fill, boiler supply and other fuel lines and vents shall be removed

### **3.02 PREPARATION**

- A. Coordinate demolition specified in Section 02 41 00, DEMOLITION required to access UST site.

### **3.03 PERMITTING**

- A. Prior to initiating storage tank removal activities, the Contractor shall notify the local fire department. The Contractor shall apply for and obtain a Permit for storage tank removal and transportation to approved tank disposal yard.
- B. Within 72 hours of closing the storage tank, the Contractor shall provide receipt to the local fire department for delivery of the USTs to the disposal site designated on permit.
- C. Within 30 days of removing the storage tanks, the Contractor shall send notice to Department of Public Safety to change registration information for the storage tanks.

### **3.04 TANK CLEANING**

- A. The Contractor shall perform the following activities prior to closure of the tank:
    - 1. Notify the local fire department.
    - 2. Contact DIGSAFE to obtain information on underground utilities, a minimum of 72 hours prior to excavation.
    - 3. Obtain all necessary permits, as previously detailed within this Section.
  - B. Inspect the work area prior to excavation, decontamination and removal activities to the extent required to safely perform the work. Before the UST is uncovered check for stains around the fill pipes, free products, sheen and petroleum odors in nearby basements and storm sewers. If stained soil or petroleum odors are found, note these areas for future field screening and/or sampling during the UST removal.
  - C. The Contractor shall protect existing site surfaces, materials, and structures from inadvertent Contamination from cleaning operations. Should such contamination occur, the Contractor shall not be reimbursed for costs associated with replacement or proper disposal of contaminated materials.
  - D. Assure that any electrical power connected to the tanks or its ancillary equipment (pumps) has been deactivated and the actual wiring properly dismantled at the circuit breaker(s).
  - E. Collect, containerize and dispose of all residual oils, other product, and sludge remaining in the tanks and piping prior to tank cleaning and removal.
-

- F. Tanks shall have interiors steam cleaned followed by three (3) rinses. The steam discharge nozzle and all conductive insulated objects subject to impingement or condensation should be bonded to the tank or be grounded. Surfaces shall be steam cleaned using a commercial-scale steam cleaner. The Contractor shall be required to use a detergent and provide a steam generator capable of supplying steam at 15 psig. Liquid waste generated as a result of steam cleaning and rinsing operations shall be collected and removed by the Contractor. The Contractor shall dispose of the liquids as per the method specified for the tank sludges and residues.
- G. After the above operations, all flammable vapors shall be removed from the tanks by displacement with inert gas. The vapors shall be made inert by adding solid carbon dioxide, (dry ice), in the amount of 1.5 pounds per 100 gallons of tank capacity. The dry ice shall be crushed and distributed evenly over the greatest possible area to ensure rapid sublimation. All available tank openings shall be open to the atmosphere during this procedure to ensure rapid dissipation of the dry ice.
- H. To evaluate the effectiveness of the dry ice procedure, the Contractor shall use a suitably calibrated instrument to determine if the resultant vapor mixture within the tanks exceeds ten percent of the Lower Explosive Limit (LEL). Readings shall be taken throughout the tanks depth wherever access is possible. If the vapors within the tanks exceed ten percent of the LEL, the displacement procedure shall be repeated followed by a recheck of the LEL until the vapors are less than 10 percent of the LEL.
- I. After acceptable LEL levels have been reached, excavation of tanks may begin after approval of the Engineer.

### 3.05 TANK EXCAVATION

- A. The Contractor shall provide all labor, permitting, tools, material, services, and equipment necessary to properly demolish the concrete vault, excavate the tank(s), and associated mechanical piping and appurtenances, after pipe and tank cleaning and disposal activities.
- B. After the tank and mechanical piping have been purged, cleaned, and gas freed of vapors, but prior to removal, the Contractor shall plug all holes and inert the tanks and piping, as specified by the Board of Fire Prevention regulations.
- C. Once the tanks are cleaned and inert, the Contractor must be careful to excavate around the tank, exposing as much of the tank as possible, to allow for a visual inspection of the tank surface. The inspection is performed to identify possible holes, cracks, etc. and other evidence that a leak may have occurred. Remove the tank hold-down straps, if any, lift the tank out of the excavation, place on a level surface, and block the tank to prevent movement. The exterior of each tank and pipe shall be cleaned, and if contaminated soil or groundwater conditions exist, the cleaning wastes contained for proper disposal. Methods for removal shall be predetermined by Contractor and approved by the Engineer or their representative.
- D. The LSP shall monitor the excavations and every 20 feet along pipe trenches for visual indications of the release of petroleum and shall use a PID for headspace screening of samples and to conduct ambient air readings during all excavation activities. The Contractor shall assist the LSP in collecting appropriate soil samples during post excavation from excavation graves.
- E. Incidental volumes of visually (or by field PID) contaminated soils may be expected during excavation of the USTs and piping. These soils shall be segregated and stored during

characterization and preparation for offsite disposal by the Contractor. The maximum depth of all excavation areas shall be marked with caution tape or the like to aid potential future excavation. Apparently clean soils shall be stockpiled separately for future reuse at the site.

- F. Where contaminated soil is present below the groundwater table, the Contractor, at the discretion of the Engineer or their LSP representative shall discontinue excavation and shall line the excavation with 6 mil thick polyethylene sheeting prior to backfill.

### 3.06 TANK REMOVAL

- A. The tanks shall be removed from the excavation and the exterior cleaned to remove all soil and inspected for signs of corrosion, structural damage, or leakage.
- B. All materials coming into contact with the tanks, or in the vicinity of the excavation such as shovels, slings and tools shall be of the non-sparking type.
- C. Tank anchoring structures such as concrete deadmen or hold down slabs shall be removed, unless otherwise directed by the Engineer.
- D. All piping including electrical conduit associated with the tanks shall be completely removed to the interior face of any associated building wall. Piping shall be reduced to appropriate lengths and cleaned of all contaminated materials. Sleeves and piping passing through wall shall be flushed clean and then permanently capped and plugged on the outside in a manner approved by the Engineer.
- E. All level monitoring and control equipment shall be completely removed to the interior face of any associated building wall. This includes transmitters, indicators, conduit, wiring, pumps and dispensers.
- F. The Contractor shall prominently label each UST tank with past product content and date of removal. The tanks shall be rendered unusable at the direction of the Fire Protection Officer. The tank shall be removed from the site the day it is excavated and transported to a certified tank salvage facility. Prior to removal from the site, the tank atmosphere must be tested to ensure the flammable vapors are no more than five (5) percent of the lower flammable limit; and not greater than eight (8) percent oxygen. Test results shall be provided to the Engineer and the Fire Prevention Officer and subsequently documented, in writing, to the Engineer and the Fire Prevention Officer.
- G. Each tank should be secured onto a truck or vehicle and transported to a certified tank salvage facility, in accordance with all applicable federal, state, and local regulations. The Contractor shall prepare the proper manifests or bills of lading. The certificates of receipt of proper disposal shall be submitted to the Fire Prevention Officer within 72 hours of tank removal, with copies provided to the Town of Stratford and the Engineer.

### 3.07 TANK DISPOSAL

- A. The Contractor shall dispose of all demolition related wastes as designated herein, in accordance with all applicable regulations.
- B. The Contractor shall characterize, containerize, transport, and dispose of all residue, sludges, cleaning materials, and fluids from the tanks.
- C. If evidence of soil or groundwater contamination is identified by the Engineer or the LSP during the tank closure, then disposal of pumped groundwater shall be performed by the Contractor only as approved by the LSP.

- D. Tanks and piping shall be delivered for disposal in an acceptable manner to an approved disposal or recycling facility following decontamination.
- E. All concrete associated with existing buried tanks shall be broken up and re-used/disposed.

### 3.08 SOIL TESTING

- A. Collect five initial soil samples from UST excavation area after tank removal.
- B. Take one sample from both UST sidewalls, one sample from both UST endwalls, and one sample from UST base.
  - 1. Containerize samples to prevent sample loss and preserve sample condition until tested.
  - 2. Test and analyze samples according to EPA SW-846 for total petroleum hydrocarbon (TPH) concentrations.
- C. When soil testing reveals evidence of hydrocarbons at concentrations greater than permitted by applicable State Agency for uncontaminated soil used as fill material, collect six additional soil samples 6 m (20 feet) from UST walls.
  - 1. Take two samples from both UST sidewalls and one sample from both UST endwalls.
  - 2. Test and analyze samples as specified for initial samples.
  - 3. Notify Contracting Officer's Representative when additional samples are contaminated.
  - 4. The base price for volume between the final tank volume of material for the enclosure and the enclosure shall not to exceed 76 cubic meters (100 cubic yards) of soil removed. Any work beyond 76 cubic meters (100 cubic yards) and more than 6 test locations shall be considered extra and shall be based on unit pricing.
- D. Perform additional soil sampling and testing around UST as directed by Contracting Officer's Representative until contamination concentration is less than permitted by applicable State Agency for uncontaminated soil used as fill material.

### 3.09 CONTAMINATED SOIL REMOVAL

- A. Excavate contaminated materials.
- B. Remove contaminated soil from site according to applicable // State Agency // requirements.
- C. Deliver contaminated soils to disposal facility.
  - 1. Obtain signed receipt including date, time, quantity, and description of materials received.
  - 2. Obtain final report of materials disposition after disposal completion.

### 3.10 UST EXCAVATION BACKFILL AND RESTORATION

---



- A. Backfill excavation with fill materials and compact .
- B. Restore pavements, sidewalks, and curbs matching adjacent materials.
- C. Restore landscaped areas and grass areas to match adjacent materials.

### 3.11 FIELD QUALITY CONTROL

- A. Field Tests: Performed by testing.
- B. Perform sampling and testing for the following:
  - 1. UST liquid contents.
  - 2. UST interior environment.
  - 3. Soils contamination.
- C. Record chain of custody for samples until disposal.

### 3.12 PROTECTION

- A. Protect restored areas from traffic and construction operations.
- B. Repair damage.

RFI LOG					
Boiler Replacements:					
Second Hill Lane School					
Date: 2/14/2020					
	Question	Date Received	Directed To	Response	Response Date
1	Drawing DM-100, Note 6: if Add Alt. 1 Bid for oil tank removal is not accepted, can oil pipes be capped inside at Boiler Room wall under the Base Bid?	2/12/2020	PEG	Yes, boiler pipes shall be capped at the boiler room or outside before it goes underground.	2/14/2020
2	Drawing DM-100: are existing chemical feed tank and duplex pumps noted and located at rear of existing steam boilers to be removed and disposed of?	2/12/2020	PEG	Please remove existing chemical feed tank. Please verify with City of Stratford if they would like to keep the tank and reuse at other property.	2/14/2020
3	PM Section 23-52-16 Condensing Gas Boilers, 2.5 Flue Gas Vents & Combustion Air: are there specific material specifications to be used for both flue gas vents and combustion air piping, or can any of the boiler manufacturer approved materials as listed in 2.5 be used at Contractor's option?	2/12/2020	PEG	Boiler vents shall be UL 1738 listed as category four vent for pressure positive appliances. Air intakes shall be per boiler manufacture specification.	2/14/2020
4	We see that the Boilers will come with factory controls but need to be tied in to the existing BMS. Can you please let me know what is the existing BMS.	2/12/2020	Town	SNE Building Systems	2/13/2020
5	Add Alt No. 1 for oil tank removal: how much oil is left in the tank for removal and disposal?	2/12/2020	Town	Assume tank is full ... 5000 Gallons.	2/13/2020
6	If there is a bottom hold slab under the tank? Can it remain if contaminated soils don't exist.	2/12/2020	PEG	Yes slab could remain.	
7	Who is the B.M.S. Contractor?	2/12/2020	Town	SNE Building Systems	2/13/2020
8	Can galvanized sheet steel be used for the chimney cap?	2/12/2020	PEG	Provide stainless steel chimney cap	
9	The existing Tank is a 6000 Gallon Fiberglass double wall. Do you have a brine solution in the interstitial space?	2/13/2020	Town	Unknown ... Assume no.	2/14/2020
10	In Addendum #1 3.07 Soil Testing Paragraph C Item #4. Can you revise the Bid form to indicate a unit price for 100 C.U. yards of contaminated soil? Then you have the price breakout if you go beyond 100 C.U.Yards. The Testing price can also be broken out as a line item.	2/13/2020	Town	See attached revised Bid Form.	2/13/2020
11	Are existing unused concrete pads being removed?	2/14/2020	Arch	Yes. Remove all unused concrete pads after equipment demo. Patch damaged slab to achieve smooth finish.	2/14/2020
12	Section 1.02 References sections for concrete/earthwork/demo/lab testing...and none of these sections are included in the bid docs.	2/14/2020	PEG	See attached revised specification section with corresponding section numbers and titles matching.	2/14/2020
13	Section 3.04 References made to the tank being encased in a vault - if it is, the cost for demo/removal goes up substantially. Is the tank in a Vault?	2/14/2020	PEG	Unknown ... Assume no.	2/14/2020
14	More info on the tank is needed - is the interstitial space of the double wall tank dry or brine filled?	2/14/2020	Town	Unknown ... Assume no.	2/14/2020
15	It is unclear if the LSP is being provided. The spec contradicts - 3.04D says to assist the LSP and 1.03 says to provide all sampling and testing (again a substantial cost).	2/14/2020	PEG	LSP will not be provided by Town of Stratford. If contractor complies with all state regulation and requirements and required documentation without LSP, then LSP won't be required.	2/14/2020
16	Section 3.07 parts A and B talk about standard tank grave sampling - then part C references additional soil removal and sampling if contamination is detected. It is not clear if the cost for part C is to be included in the bid price (more excavation, sampling, transport, disposal, fill, site repair).	2/14/2020	PEG	Applicable Unit Costs added to attached Bid Form. See attached.	2/14/2020
17	Google earth views of where the tank is located show a fence that would have to be removed for the excavation of the tank. Replacement/Reinstallation is not addressed.	2/14/2020	PEG	Contractor to repair, restore all existing conditions including but not limited to sidewalks, slabs, fencing, etc ... to original condition.	2/14/2020
18	We have performed numerous tank removals at schools throughout CT and it is typically acceptable to demo tanks on site in dumpsters - this spec is calling for transport to tank facility.	2/14/2020	PEG	If oil tank demolition at the site is acceptable by state and can be safely performed at the site. Than we would be fine to have tank demoed at the site.	2/14/2020