

University of Houston Master Specification

<Insert Project Name>
<Insert U of H Proj #>

<Insert Issue Name>
<Insert Issue Date>

SECTION 22 0500 - ACID RESISTANT WASTE/VENT PIPING

Maintain Section format, including the UH master spec designation and version date in bold in the center columns of the header and footer. Complete the header and footer with Project information.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

Delete hidden text after this Section has been edited for the Project.

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. The Contractor's attention is specifically directed, but not limited, to the following documents for additional requirements:
 - 1. The current version of the *Uniform General Conditions for Construction Contracts*, State of Texas, available on the web site of the Texas Facilities Commission
 - 2. The University of Houston's *Supplemental General Conditions and special Conditions for Construction*.

1.2 SCOPE OF WORK

- A. Work Included: Provide all labor, materials, equipment, tools and services, and perform all operations required in connection with or properly incidental to the construction of a complete acid waste and vent system as indicated on the Drawings and as required for a complete and functional system.

1.3 QUALITY ASSURANCE

- A. Acceptable Manufacturers: Provide products complying with these specifications and produced by one of the following:
 - 1. PVDF Pipe and Fittings:
 - a. Orion
 - b. GSR Sloan

1.4 SUBMITTALS

- A. Shop Drawing submittals shall include, but not be limited to, the following:

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1. Cut sheets of acid waste/vent pipe, fittings and other required accessories clearly indicating all features, options, materials and dimensions.
2. Additional information as required in Section 23 0100 "Mechanical General Provisions."

1.5 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Deliver acid resistant waste/vent piping system components in factory-fabricated water-resistant wrapping.
- B. Handle acid resistant waste/vent piping system components carefully to avoid damage to material component, enclosure and finish.
- C. Store acid resistant waste/vent piping system components in a clean, dry space and protect from the weather.

PART 2 - PRODUCTS

2.1 ACID WASTE AND VENT PIPE AND FITTINGS

- A. Above ground pipe and fittings located within spaces used as air plenums shall be IAPMO listed, Schedule 40, FR-PVDF manufactured from Kynar 740-02, flame retardant Polyvinylidene Fluoride (PVDF) conforming to ASTM F 1673, with a limiting oxygen index (LOI) of 60,
- B. Resin must have a vertical burn rating of 94 V-0. Kynar 740-02 resin based on testing to ASTM E84 (UL 723) must have surface burning characteristics greater than or equal to flame spread 5 and smoke development 35.
- C. Fittings shall be third party certified to ASTM F 1673 and ASTM E84, and IAPMO approved, with a tapered elastic retaining ring designed to lock into a machined groove on the mating piping. All fittings shall have integrally molded union connections. Metallic grab rings or clamps are not allowed.
- D. Polyvinylidene Fluoride pipe and fittings shall be as manufactured by IPEX, "Plenumline," or approved substitution.

2.2 HANGERS AND SUPPORTS

- A. Horizontal Piping: Support all horizontal piping on clevis type hangers.
- B. Vertical/Riser Piping: Support all vertical/riser piping using riser clamps padded with ¼ inch thick solid neoprene or Buna-N rubber.
- C. Wall Chase Piping: Support all wall chase piping using the wall/chase support system specified in Section 22 0000 "Plumbing Piping Systems."

PART 3 – EXECUTION

<Insert A/E Name>

AE Project #: <Insert Project Number>

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3.1 INSTALLATION

- A. General: Install all piping, fittings and accessories in strict accordance with the manufacturer's written installation instructions and applicable codes.
- B. Pipe Slope: Slope waste and vent piping as specified in Section 22 0000 "Plumbing Piping Systems."
- C. Damaged Piping: Remove and replace any damaged piping at Contractor's expense.
- D. Expansion Provisions: Install all PPRF piping systems with adequate provisions taken where the installation temperature is outside the range of 65°F to 85°F. Provide vertical expansion joint assemblies, offsets and restraints as recommended by the piping system manufacturer wherever the installation temperature is more than 10°F different from the normal building temperature.
- E. Hangers and Supports: Install the entire piping system and related hangers and supports such that the piping system is properly aligned and free of stress.
 - 1. Support vertical stacks at each floor using riser clamps. The lowest riser support shall be located below the lowest coupling/hub on the stack and shall restrict sideways as well as downward motion.
 - 2. Support horizontal piping using Clevis-type hangers with maximum hanger spacing as follows:

PPFR	
Pipe Size	Support Spacing
1-1/2"	4' - 0"
2"	4' - 0"
3"	5' - 0"
4"	6' - 0"
6"	7' - 0"
 - 3. Also locate hangers at each offset, bend or fitting on PPRF piping.
- F. Training: Instruct the Owner's personnel in the proper procedure for fusing acid waste pipe joints. Provide the Owner with all special tools and fusing equipment required to properly fuse acid waste pipe joints.

3.2 TESTING

- A. Test acid resistant waste and vent piping as specified in Section 23 0593 "Testing, Adjusting and Balancing" and Section 22 0000 "Plumbing Piping Systems." In addition to water test, apply peppermint or smoke tests if required by local code.

3.3 IDENTIFICATION

- A. Refer to Section 23 0300 "Basic Materials and Methods" for applicable painting, nameplate and labeling requirements.

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END OF SECTION 22 0500

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