

SECTION 221316 - SANITARY WASTE AND VENT PIPING

PART 1 GENERAL

1.1 WORK INCLUDED

- A. Pipe, fittings, and connections.

1.2 RELATED WORK

- A. Section 220523 - General Duty Valves for Plumbing Piping

1.3 REFERENCES

- A. ANSI/ASME B16.3 – Malleable-Iron Threaded Fittings.
- B. ANSI/ASTM A53 – Pipe, Steel, Black and Hot-Dipped Zinc-Coated, Welded and Seamless.
- C. ANSI/ASTM A74 – Cast Iron Soil Pipe and Fittings.
- D. ASTM C564 – Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- E. CISPI No. 301 – Cast Iron Soil Pipe and Fittings for Hubless Cast Iron Sanitary System.
- F. ANSI/ASTM D2564 – Solvent cements for Polyvinylchloride (PVC) Plastic Pipe and Fittings.
- G. ANSI/ASTM D2729 – Polyvinylchloride (PVC) Sewer Pipe and Fittings.
- H. CISPI HSN 85 – Rubber gaskets for cast iron soil pipe and fittings.
- I. ASTM D2722 Polyvinyl Chloride (PVC) Schedule 40 Drainage Pipe.

1.4 QUALITY ASSURANCE

- A. All cast iron soil pipe and fittings shall be marked with the collective trademark of the cast iron soil pipe Institute (CISPI) and be listed by the NSF International.

PART 2 PRODUCTS

2.1 PIPE AND TUBE

- A. Steel Pipe: ANSI/ASTM A53, black and galvanized; Schedule 40 or 80 as specified.
- B. Cast Iron Soil Pipe: ANSI/ASTM A74; service weight or extra heavy.
- C. Hubless Cast Iron Soil Pipe: CISPI 301.
- D. Polyvinylchloride Plastic Sewer Pipe: PVC, Schedule 40, DWV.

2.2 PIPE AND TUBE JOINTS AND FITTINGS

- A. Steel Pipe Fittings: ANSI/ASME B16.3 weight to match adjacent pipe.

- B. Cast Iron Pipe Fittings: ASTM C564, rubber gasket joints.
- C. Cast Iron Pipe Fittings: ASTM A74, long radius, no-hub joints.
- D. Poly Vinyl Chloride (PVC) Pipe Fittings: ANSI/ASTM D2729, weight to match adjacent.

2.3 UNIONS AND COUPLINGS

- A. Pipe Size 2-1/2" and Under: 150 psi malleable iron for threaded ferrous piping.
- B. CISPI, no-hub approved neoprene sleeve with stainless steel outer jacket and draw bands. Husky brand or equal, minimum four bands per coupling.

PART 3 EXECUTION

3.1 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe, or groove where allowed.
- B. Remove scale and dirt, inside and outside, before assembly.
- C. Remove welding slag or foreign material from pipe and fitting materials.
- D. Cut all pipes accurately to measurements established at structure. Work into place without springing or forcing, properly clearing all windows, doors or other openings. Cut pipe and nipples evenly; cut threads clean, remove burrs, ream ends to full inside bore. Install to permit free expansion and contraction without causing misalignment of piping or any damage to either building or piping. Grade all piping to low points to permit complete drainage of system. At bottom of water risers and at all low points provide a 3/4" drain valve. Make all changes of direction with fittings except as otherwise noted. Make pipe connections to equipment in accordance with indicated sizes and details or as directed. Cap or plug all equipment and pipe line openings during installation to exclude dirt and foreign material.

3.2 STEEL PIPE CONNECTIONS

- A. Screw joint steel piping for general use up to and including 2-1/2 inches and all drainage piping.
- B. Die cut screwed joints with full cut standard taper pipe threads with red lead and linseed oil or other non-toxic joint compound applied to male threads only.

3.3 CAST IRON PIPE CONNECTIONS

- A. Joints for plain end pipe: neoprene gasket and stainless steel clamp.

3.4 PLASTIC PIPE CONNECTIONS

- A. Form solvent joints in PVC pipe and fittings to ANSI/ASTM D2855.

3.5 TESTS

- A. Test all piping and prove tight. Notify Architect when tests will take place and submit test results prior to covering or enclosing any piping. Before enclosing, test piping which will be

concealed. Replace and re-test to Architect's satisfaction any pipe or fittings broken or damaged under test. Caulking or peening joints will not be permitted.

- B. Before testing piping systems, remove, or otherwise protect from damage, control devices, air vents, thermostatic traps and elements, other parts which are not designed to stand pressures use in testing piping.
- C. Test as follows:
 - 1. Pump Discharge125 psig hydrostatic
 - 2. Flow and vent Standing Water Test
- D. Standing Water Test: Apply to drainage system in its entirety or in sections. If applied to entire system, close all openings in piping except highest opening; fill system with water to point of overflow. If system is tested in sections, close all openings except highest opening in section under test; fill each section with water. Test no section with less than 10 ft. head of water. In testing successive sections, retest at least the upper 10 feet of next preceding section so that no joint or pipe in building (except upper-most 10 ft. of system) shall have been submitted to a test of less than 10 ft. head of water. Keep water in system, or in portion under test, for at least 15 minutes before inspection starts. During this period, add no additional water.
- E. Hold indicated pressures constant without pumping for such period of time as directed by Architect. While under pressure, visually inspect each joint, weld or other connection to determine leakage.

3.6 SCHEDULE OF PIPE AND FITTINGS

A. SANITARY SYSTEMS:

1. SANITARY PIPING (SUMP PUMP DISCHARGE)

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|-------------|----------------------------------|
| a. Pipe | Black Steel, Schedule 40 |
| b. Fittings | Black malleable iron, screwed |
| c. Unions | Black cast iron flanges, 150 lb. |
| d. Joints | Screwed |

2. VENT PIPING (**)

- | | |
|--------------|--------------------------|
| a. Pipe | Service weight cast iron |
| b. Fittings | Service weight cast iron |
| c. Couplings | No-Hub |
| d. Joints | No-Hub |

(**) Note – At Contractor's option, and where permitted by code, schedule 80 PVC may be used. Contractor is responsible for maintaining the integrity of smoke partitions and slabs as required by code.

END OF SECTION 221316