

SECTION 22 13 16
SOIL, WASTE, & VENT SYSTEM

PART 1- GENERAL

- A. Reference Standards: American Society for Testing and Materials (ASTM):
 - 1. A74-96 Specification for Cast Iron Soil Pipe and Fittings.
 - 2. B32-96 Specification for Solder Metal.
 - 1. B88-96 Specification for Seamless Copper Water-Tube.
 - 2. B306-96 Specification for Copper Drainage Tube (DWV).
 - 3. C564-95a Specification for Rubber Gaskets for Cast Iron Soil Pipe and Fittings.
- B. Submit properly identified manufacturer's literature before starting work.
- C. Shop Drawings:
 - 1. Pipe and Fittings: Manufacturer's name and mill reports.
 - 2. Expansion Joints: Catalog cuts.
 - 3. Dielectric Unions: Catalog cuts.

1.1 COMPONENTS

- 1. Sanitary Sewer Piping, Above Grade.
 - a. Cast Iron Pipe: CISPI 301, Hub-less, service weight.
 - (1) Fittings: Cast iron.
 - (2) Joints: CISPI 310, neoprene gaskets and stainless-steel clamp-and-shield assemblies.
 - b. Copper Tube: ASTM B306, DWV.
 - (1) Fittings: ASME B16.23, cast bronze, or ASME B16.29, wrought copper, or ASME B16.32, solvent.
 - (2) Joints: ASTM B32, solder, Grade 50B.
- 2. Sanitary Vent Piping.
 - a. Smaller than 2":
 - (1) Service weight hubless cast iron with cast iron fittings, or:
 - (2) Copper, Type L, DWV wrought copper fittings.
 - b. 2" and larger:
 - (1) Service weight hubless cast iron.
- 3. Flanges, Unions, And Couplings.
 - a. Pipe Size 3" and Under:
 - (1) Copper tube and pipe: Class 150 bronze unions with soldered joints.
 - b. Pipe Size Over 3":

- (1) Copper tube and pipe: Class 150 slip-on bronze flanges; preformed neoprene gaskets.

- c. Dielectric Connections: Union with galvanized or plated steel threaded end, copper solder end, water impervious isolation barrier.

1.2 INSTALLATION

- A. Run piping as indicated in Construction Documents subject to modifications as required to suit field conditions, to avoid interference with other trades, and for proper, convenient, and accessible locations to parts of the piping system.
- B. No soil or waste pipe shall be covered by construction without first being proved free of leaks by a hydrostatic test witnessed by Owner's Representative.
- C. Run piping in wall chases, recesses, pipe shafts, and hung ceilings where provided.
 - 1. Run piping as high as possible under building, above ceilings, and close to slabs.
 - 2. Do not permanently close, furr in, or cover piping before examination and final tests.
- D. Run piping straight and where concealed as direct as possible with risers erected plumb and true.
 - 1. Install piping with minimum 1-inch clearance between finished pipe coverings and adjacent work.
 - 2. Support piping from structure above, maintaining maximum headroom available.
- E. Do not run piping in telephone rooms, electrical equipment rooms/closets, transformer vaults or rooms containing related equipment, or close to or above control panels, switchboards and electric motors except required branch piping to pumps.
- F. Pipe Slopes:
 - 1. Lay horizontal soil and waste pipes, unless otherwise noted on drawings, to:
 - a. 1/8" per foot minimum for pipe 3 inches and larger
 - b. 1/4" per foot minimum for pipe less than 3 inches
 - c. Horizontal vent lines shall have a minimum grade back to the stacks or vertical lines and shall run as direct and free from bends as possible.
 - 2. Vents through the roof shall extend at least above the highest possible water level on the Roof, but in no case, less than 8".
 - 3. Provide a flashing of 4-pound sheet lead for each vent through the roof. The flashing shall extend up around the pipe and turn down into it at least two inches and shall extend over the roof deck at least one foot in all directions from the base.
- G. Exposed Piping:
 - 1. Install horizontal runs maximum 4 inches below adjacent structure and run parallel or perpendicular to walls, ceilings, beams, and columns unless otherwise noted on Construction Documents.

H. Floor Drains

- a. Shall be manufacturer and style as called for in fixture schedule on Drawings.
- b. Drains without integral traps shall have service weight cast iron P traps with cleanouts.
- c. Provide seepage pans of four-pound sheet lead or equivalent plastic at least 3'-0" square for all floor drains over open space. Lead, if used, shall be thoroughly coated with asphaltum before it is placed in contact with concrete or concrete fill is poured over it.
- d. Flashing clamps and auxiliary drainage rims shall be provided for all drains that are to receive seepage pans.

I. Cleanouts

- a. In floors - cast iron caulking ferrule for soil pipe hub with brass countersunk plug and nickel bronze alloy round flush access cover with scoriated top.
- b. In walls of finished areas - cast brass raised head plug and stainless-steel round cover plate with polished top and countersunk stainless or cadmium plated cover screw. Provide with caulking ferrule where installed in cast iron soil pipe.
- c. In walls of unfinished areas - cast brass raised head, iron pipe size male threads. Provide with caulking ferrule where installed in iron soil pipe.
- d. Provide a cleanout at the base of each stack, near the end of each branch 10'-0" or more in length at other points, where required by Code and good practice. Cleanouts shall be same size as pipe up to and including 4" and 4" for larger pipes. Cleanouts for concealed pipes shall be set flush with floor and wall surfaces.

1.3 CLEANING AND ADJUSTING

A. Clean equipment, piping, and exposed work.

1. Show traps, wastes, and supplies free and unobstructed.
2. Plated, polished bronze, or painted surfaces bright and clean.

1.4 TESTS

- A. Furnish necessary instruments, test equipment, and personnel required to perform tests and remove test equipment and drain pipes after tests have been made and accepted.
- B. After portions of mechanical work are completed and ready for testing, give 48 hours' notice to A/E and perform tests in A/E's presence.
- C. Tests may be made of isolated portions of piping to facilitate the general progress of installation.

1. Revisions subsequently made in piping system shall require retesting of such affected portions of piping systems.
2. Sanitary and Storm
 - a. Apply a water test to all parts of drainage systems before pipes are concealed or fixtures set in place.
 - b. Close openings of each system to be tested tightly except highest openings above roof and fill entire system with water up to overflow point of highest opening.
 - c. Subject systems to not less than 10 feet of hydrostatic head, except uppermost 10 feet of piping directly below opening.
 - 1) Water shall remain in the systems for not less than 60 minutes after which time no leaks occur at any point and no lowering of water level at overflow point is visible.

END OF DOCUMENT 221316