



SECTION 22 13 19 – PLUMBING SPECIALTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The general provisions of the Contract, including the Conditions of the Contract (General, Supplementary, and other Conditions) and Division 00 and 01 as appropriate, apply to the Work specified in this Section.
- B. Refer to all Sections, as well as the Specifications for the other various trades and materials and be thoroughly familiar with all provisions regarding all work.

1.2 SCOPE OF WORK

- A. This Section includes plumbing specialties for water distribution systems; soil, waste, and vent systems; and storm drainage systems.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing piping systems with following minimum working pressure ratings, except where otherwise indicated:
 - 1. Water Distribution Systems, Below Ground: 250 psig.
 - 2. Water Distribution Systems, Above Ground: 250 psig.
 - 3. Soil, Waste, and Vent Systems: 10-foot head of water.
 - 4.

1.4 SUBMITTALS

- A. General: Submit the following in accordance with Conditions of Contract and Division 01 Specification Sections, and Utility Company requirements.
- B. Submit product data including rated capacities of selected models and weights (shipping, installation, and operation). Indicate materials, finishes, dimensions, required clearances, and methods of assembly of components; and piping and wiring connections for the following plumbing specialty products that apply to this project scope:
 - 1. Drain valves.
 - 2. Trap seal primer valves.
 - 3. Cleanouts, cover plates, and access panels.
 - 4. Floor drains, open receptors, trench drains, and roof drains.
 - 5. Sleeve penetration systems.
- C. Maintenance data for inclusion in Operating and Maintenance manuals as specified in Division 01.

1.5 QUALITY ASSURANCE

- A. Comply with ASME B31.9, "Building Services Piping," for materials, products, and installation.
- B. Electrical Component Standard: NFPA 70, "National Electrical Code."
- C. Listing and Labeling: Provide equipment that is listed and labeled.
- D. The Terms "Listed" and "Labeled": As defined in the "National Electrical Code," Article 100.
- E. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.

1.6 EXTRA MATERIALS

- A. Deliver extra materials to Owner. Furnish extra materials matching products installed as described below. Package them with protective covering for storage and identify with labels clearly describing contents.
- B. Operating Keys (Handles): Furnish 1 extra key for each key-operated hose bibb and hydrant installed.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS PIPING SPECIALTIES

- A. Piping specialties such as escutcheons, dielectric fittings, sleeves, and sleeve seals are specified in Division 23 Section "Basic Mechanical Materials and Methods."
- B. Stop-and-Waste Drain Valves: Ball valve or MSS SP-80 gate valve, rated for 200 psig WOG minimum, ASTM B 62 bronze body, with 1/8-inch side drain outlet and cap.
- C. Trap Seal Primer Valves: ASSE 1018, water-supply-fed type, with the following characteristics:
 - 1. 30-75 psig minimum operating pressure.
 - 2. Bronze body with atmospheric-vented drain chamber.
 - 3. Inlet and Outlet Connections: 1/2 inch threaded, union, or solder joint.
 - 4. Gravity Drain Outlet Connection: 1/2 inch threaded or solder joint.
 - 5. Finish: Chrome plated, or rough bronze for units used with pipe or tube that is not chrome finished.
- D. Stack Flashing Fittings: Counterflashing-type, cast-iron fitting, with bottom recess for termination of roofing membrane, and with threaded or hub top for extension of vent pipe.

2.2 CLEANOUTS

- A. General: Size cleanouts as indicated on drawings, or where not indicated, same size as connected drainage piping.
- B. Cleanouts larger than 4 inches are not required except where indicated.
- C. Cleanouts: ASME A112.36.2M, cast-iron body with straight threads and gasket seal or taper threads for plug, flashing flange and clamping ring, and a brass closure plug. Cleanouts for installation in floors not having membrane waterproofing may be furnished without clamping ring.
- D. Covers of clean-outs shall be extra-heavy duty, AASHTO H20-44 or greater due to high wheel/point loads.
- E. Cleanout top styles shall be coordinate with floor types.

2.3 SLEEVE PENETRATION SYSTEMS

- A. Description: UL 1479, through-penetration firestop assembly consisting of sleeve and stack fitting with firestopping plug.
 - 1. Sleeve: Molded PVC plastic, of length to match slab thickness and with integral nailing flange on 1 end for installation in cast-in-place concrete slabs.
 - 2. Stack Fitting: ASTM A 48, cast-iron, hubless-pattern, wye branch stack fitting with neoprene O ring at base and cast-iron plug in thermal-release harness in branch. Include PVC protective cap for plug.
 - a. Special Coating: Include corrosion-resistant interior coating on fittings for vent stacks.

2.4 FLASHING MATERIALS

- A. Elastic Membrane: Nonreinforced flexible, black elastic, sheet, 50 to 65 mils thick and complying with the following:

1. Shore A Hardness: ASTM D 2240, 50 to 70.
2. Tensile Strength: ASTM D 412, 1200 psi.
3. Tear Resistance: ASTM D 624, Die C, 20 lb per linear inch.
4. Ultimate Elongation: ASTM D 412, 250 percent.
5. Low-Temperature Brittleness: ASTM D 746, minus 30 deg F.
6. Resistance to Ozone Aging: ASTM D 1149, no cracks for 10 percent elongated sample for 100 hours in ozone at 104 deg F.
7. Resistance to Heat Aging: ASTM D 573, maximum hardness increase of 15 points, elongation reduction of 40 percent, and tensile strength reduction of 30 percent, for 70 hours at 212 deg F.
8. Fasteners: Metal compatible with material and substrate being fastened.

PART 3 - EXECUTION

3.1 PIPING SPECIALTY INSTALLATION

- A. Install strainers on supply side of each control valve, pressure-regulating valve, and solenoid valve, and where indicated.
- B. Install trap seal primer valves with valve outlet piping pitched down toward drain trap a minimum of 1/8 inch per foot (1:100) (1 percent) and connect to floor drain body, trap, or inlet fitting. Adjust valve for proper flow.
- C. Install expansion joints on vertical risers, stacks, and conductors.
- D. Install cleanouts in above-ground piping and building drain piping where indicated, and where not indicated, according to the following:
 1. Size same as drainage piping up to 4 inches size. Use 4 inches size for larger drainage piping except where larger size cleanout is indicated.
 2. Locate at each change in direction of piping greater than 45 degrees.
 3. Locate at minimum intervals of 50 feet for piping 3 inches and smaller and 80 feet for larger piping.
 4. Locate at base of each vertical soil or waste stack.
- E. Install cleanout deck plates (covers), of types indicated, with top flush with finished floor, for floor cleanouts for piping below floors.
- F. Install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall, for cleanouts located in concealed piping.
- G. Install flashing flange and clamping device with each stack and cleanout passing through floors having waterproof membrane.
- H. Install vent flashing sleeves on stacks passing through roof. Secure over stack flashing according to the manufacturer's written instructions.
- I. Install frost-proof vent caps on each vent pipe passing through roof. Maintain 1-inch clearance between vent pipe and roof substrate.

3.2 CONNECTIONS

- A. Supply Runouts to Fixtures: Install hot- and cold-water supply piping runouts to fixtures of sizes indicated, but not smaller than required by equipment/fixture connection size and/or required by the plumbing code.
- B. Drainage Runouts to Fixtures: Provide drainage and vent piping runouts to plumbing fixtures and drains, with approved trap, of sizes indicated, for equipment/fixture connection size and/or required by the but not smaller than required by plumbing code.
- C. Locate drainage piping runouts as close as possible to bottom of floor slab supporting fixtures or drains.

3.3 FLASHING INSTALLATION

- A. Provide flashing manufactured in a single piece except where large pans, sumps, or other drainage shapes are required.
- B. Install 4 psf lead flashing or 16 oz. per sq. ft. copper, except when another weight or material is specified.
- C. Install 6 psf lead flashing or heavier where burning (welding) of lead sheets is required.
- D. Solder joints of metal sheet flashing utilized sheets where required.
- E. Install sheet flashing on pipes, sleeves, and specialties passing through or embedded in floors and roofs with membrane waterproofing.
 - 1. Pipe Flashing: Sleeve type, matching pipe size, with minimum sleeve length of 10 inches, and skirt or flange extending at least 8 inches around pipe.
 - 2. Sleeve Flashing: Flat sheet, with skirt or flange extending at least 8 inches around sleeve.
 - 3. Embedded Specialty Flashing: Flat sheet, with skirt or flange extending at least 8 inches around specialty.
- F. Set flashing on floors and roofs in solid coating of bituminous cement.
- G. Secure flashing into sleeve and specialty clamping ring or device.
- H. Install flashing for piping passing through roofs with counter flashing or commercially made flashing fittings, according to Division 07 Section "Sheetmetal Flashing and Trim."
- I. Extend flashing up vent pipe passing through roofs and turn down into pipe or secure flashing into cast-iron sleeve having calking recess.
- J. Fabricate and install metal sheet flashing and pans, sumps, and other drainage shapes consistent with Architectural details and materials identified. Install drain connection at all equipment requiring drain piping connection.

3.4 COMMISSIONING

- A. Preparation: Perform the following checks before start-up:
 - 1. Systems tests are complete.
 - 2. Damaged and defective specialties and accessories have been replaced or repaired.
 - 3. There is clear space for servicing of specialties.
- B. Before operating systems, perform these steps:
 - 1. Close drain valves, hydrants, and hose bibbs.
 - 2. Open valves to full open position.
 - 3. Remove and clean strainers.
 - 4. Verify drainage and vent piping are clear of obstructions. Flush with water until clear.
- C. Starting Procedures: Follow manufacturer's written procedures.

3.5 ADJUSTING

- A. Adjust operation and correct deficiencies discovered during commissioning.

3.6 PROTECTION

- A. Protect drains during remainder of construction period to avoid clogging with dirt and debris and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of day or when work stops.

END OF SECTION 22 13 19