

## SECTION 15430 - PLUMBING SPECIALTIES

## PART 1 - GENERAL

## 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

## 1.2 SUMMARY

- A. This Section includes plumbing specialties.
- B. Related Sections include the following:
  - 1. Division 15 Section "Plumbing Sanitary Waste and Vent Piping"

## 1.3 PERFORMANCE REQUIREMENTS

- A. Provide components and installation capable of producing piping systems with following minimum working-pressure ratings, unless otherwise indicated:
  - 1. Domestic Water Piping: 125 psig.
  - 2. Sanitary Waste and Vent Piping: 10-foot head of water.
  - 3. Force-Main Piping: 100 psig.

## 1.4 SUBMITTALS

- A. Product Data: Include rated capacities and shipping, installed, and operating weights. Indicate materials, finishes, dimensions, required clearances, and methods of assembly of components; and piping and wiring connections for the following:
  - 1. Backflow preventers.
  - 2. Balancing valves and strainers.
  - 3. Water hammer arresters, air vents, and trap seal primer valves and systems.
  - 4. Drain valves, hose bibs, hydrants.
  - 5. Outlet boxes and washer-supply outlets.
  - 6. Backwater valves, cleanouts, floor drains.
  - 7. Sleeve penetration systems.
  - 8. Thermostatic water mixing valves
- B. Maintenance Data: For plumbing specialties to include in maintenance manuals.

## 1.5 QUALITY ASSURANCE

- A. Product Options: Drawings indicate size, profiles, and dimensional requirements of plumbing specialties and are based on the specific system indicated. Refer to Division 1 Section "Product Requirements."
- B. Plumbing specialties shall bear label, stamp, or other markings of specified testing agency.
- C. ASME Compliance: Comply with ASME B31.9, "Building Services Piping," for piping materials and installation.
- D. NSF Compliance:
  - 1. Comply with NSF 14, "Plastics Piping Components and Related Materials," for plastic domestic water piping components. Include marking "NSF-pw" on plastic potable-water piping and "NSF-dwv" on plastic drain, waste, and vent piping.
  - 2. Comply with NSF 61, "Drinking Water System Components--Health Effects, Sections 1 through 9," for potable domestic water plumbing specialties.

## PART 2 - PRODUCTS

### 2.1 BACKFLOW PREVENTERS

- A. Manufacturers:
  - 1. Ames Co., Inc.
  - 2. Cla-Val Co.
  - 3. CMB Industries, Inc.; Febco Backflow Preventers.
  - 4. Conbraco Industries, Inc.
  - 5. Watts Industries, Inc.; Water Products Div.
  - 6. Zurn Industries, Inc.; Wilkins Div.
- B. General: ASSE standard, backflow preventers.
  - 1. NPS 2 and Smaller: Bronze body with threaded ends.
  - 2. NPS 2-1/2 and Larger: Bronze, cast-iron, steel, or stainless-steel body with flanged ends.
  - 3. Interior Lining: AWWA C550 or FDA-approved, epoxy coating for backflow preventers having cast-iron or steel body.
  - 4. Interior Components: Corrosion-resistant materials.
  - 5. Exterior Finish: Polished chrome plate if used in chrome-plated piping system.
  - 6. Strainer: On inlet, if indicated.
- C. Hose-Connection Vacuum Breakers: ASSE 1011, nickel plated, with non-removable and manual drain features, and ASME B1.20.7, garden-hose threads on outlet. Units attached to rough-bronze-finish hose connections may be rough bronze.
- D. Domestic Water Entrance: Reduced-Pressure-Principle Backflow Preventers, ASSE 1013, suitable for continuous pressure application. Include outside screw and yoke gate valves on

inlet and outlet, and strainer on inlet; test cocks; and pressure-differential relief valve with ASME A112.1.2 air-gap fitting located between two positive-seating check valves. Pressure Loss: 12 psig maximum, through middle 1/3 of flow range.

- E. Fire Sprinkler: Double-Check Backflow Prevention Assemblies, ASSE 1015, suitable for continuous pressure application. Include shutoff valves on inlet and outlet, and strainer on inlet; test cocks; and two positive-seating check valves. Pressure Loss: 5 psig maximum, through middle 1/3 of flow range.

## 2.2 BALANCING VALVES

- A. Calibrated Balancing Valves: Adjustable, with two readout ports and memory setting indicator. Include manufacturer's standard hoses, fittings, valves, differential pressure meter, and carrying case.
  - 1. Manufacturers:
    - a. Amtrol, Inc.
    - b. ITT Industries; Bell & Gossett Div.
    - c. Taco, Inc.
    - d. Watts Industries, Inc.; Water Products Div.
  - 2. NPS 2 and Smaller: Bronze body with brass ball, adjustment knob, calibrated nameplate, and threaded or solder-joint ends.

## 2.3 STRAINERS

- A. Strainers: Y-pattern, unless otherwise indicated, and full size of connecting piping. Include ASTM A 666, Type 304, stainless-steel screens with 3/64-inch round perforations, unless otherwise indicated.
  - 1. Pressure Rating: 125-psig minimum steam working pressure, unless otherwise indicated.
  - 2. NPS 2 and Smaller: Bronze body, with female threaded ends.

## 2.4 OUTLET BOXES

- A. Manufacturers:
  - 1. Acorn Engineering Company.
  - 2. Gray, Guy Manufacturing Co., Inc.
  - 3. IPS Corporation.
  - 4. LSP Products Group.
  - 5. Oatey.
  - 6. Plastic Oddities, Inc.
  - 7. Symmons Industries, Inc.
  - 8. Zurn Industries, Inc.; Jonespec Div.

- B. General: Recessed-mounting outlet boxes with supply fittings complying with ASME A112.18.1M. Include box with faceplate, services indicated for equipment connections, and wood-blocking reinforcement.

## 2.5 WASHER-SUPPLY OUTLETS

- A. Manufacturers:
  - 1. B & K Industries, Inc.
  - 2. Conbraco Industries, Inc.
  - 3. IMI Cash Valve.
  - 4. Symmons Industries, Inc.
  - 5. Watts Industries, Inc.; Water Products Div.
  - 6. Zurn Industries, Inc.; Jonespec Div.
  - 7. Zurn Industries, Inc.; Specification Drainage Operation.
- B. Description: Surface-mounting, washer-supply outlet fittings complying with ASME A112.18.1M and with reinforcement. Include the following:
  - 1. Shutoff Fitting: Combination, single lever.
  - 2. Supply Fittings: Two NPS 1/2 gate, globe, or ball valves and NPS 1/2 copper, water tubing.
  - 3. Inlet Hoses: Two ASTM D 3571, 60-inch- long, rubber household clothes washer inlet hoses with female hose-thread couplings.
- C. Reinforcement: 2-by-4-inch fire-retardant-treated-wood blocking between studs.

## 2.6 KEY-OPERATION HYDRANTS

- A. Manufacturers:
  - 1. Josam Co.
  - 2. Simmons Manufacturing Co.
  - 3. Smith, Jay R. Mfg. Co.
  - 4. Tyler Pipe; Wade Div.
  - 5. Watts Industries, Inc.; Drainage Products Div.
  - 6. Woodford Manufacturing Co.
  - 7. Zurn Industries, Inc.; Jonespec Div.
  - 8. Zurn Industries, Inc.; Specification Drainage Operation.
- B. General: ASME A112.21.3M, key-operation hydrant with pressure rating of 125 psig.
  - 1. Inlet: NPS 3/4 or NPS 1 threaded or solder joint.
  - 2. Outlet: ASME B1.20.7, garden-hose threads.
  - 3. Operating Keys: Two with each key-operation hydrant.
- C. Nonfreeze Concealed-Outlet Wall Hydrants: ASSE 1019, self-drainable with flush-mounting box with cover, integral nonremovable hose-connection vacuum breaker, casing and operating rod to match wall thickness, concealed outlet, and wall clamp.

1. Classification: Type B, for automatic draining with hose removed or with hose attached and nozzle closed.
2. Box and Cover Finish: Rough bronze.

## 2.7 TRAP SEAL PRIMER VALVES

- A. Supply-Type Trap Seal Primer Valves: ASSE 1018, water-supply-fed type, with the following characteristics:
1. Manufacturers:
    - a. Precision Plumbing Products, Inc.
    - b. Josam Co.
    - c. MIFAB Manufacturing, Inc.
    - d. Watts Industries, Inc.; Water Products Div.
    - e. Zurn Industries, Inc.; Jonespec Div.
  2. Operating pressure range of 35psi to 75 psi, with no adjustment required. The priming valve shall be automatically activated when it senses a pressure drop of 5 to 10 P.S.I.G.
  3. Corrosion resistant brass construction, containing no springs or diaphragms.
  4. Inlet and Outlet Connections: NPS 1/2male NPT.
  5. Provide a PPP Model DU trap distribution system for multiple outlets as required.

## 2.8 DRAIN VALVES

- A. Hose-End Drain Valves: MSS SP-110, NPS 3/4 ball valve, rated for 400-psig minimum CWP. Include two-piece, copper-alloy body with standard port, chrome-plated brass ball, replaceable seats and seals, blowout-proof stem, and vinyl-covered steel handle.
1. Inlet: Threaded or solder joint.
  2. Outlet: Short-threaded nipple with ASME B1.20.7, garden-hose threads and cap.

## 2.9 DISHWASHER AIR-GAP FITTINGS

- A. Description: ASSE 1021, fitting suitable for use with domestic dishwashers and for deck mounting; with plastic body, chrome-plated brass cover; and capacity of at least 5 gpm; and inlet pressure of at least 5 psig at temperature of at least 140 deg F. Include 5/8-inch- ID inlet and 7/8-inch- ID outlet hose connections.
- B. Hoses: Rubber and suitable for temperature of at least 140 deg F.
1. Inlet Hose: 5/8-inch- ID and 48 inches long.
  2. Outlet Hose: 7/8-inch- ID and 48 inches long.

## 2.10 MISCELLANEOUS PIPING SPECIALTIES

- A. Water Hammer Arresters: ASSE 1010 or PDI-WH 201, metal-bellows type with pressurized metal cushioning chamber. Sizes indicated are based on ASSE 1010 or PDI-WH 201, Sizes A through F.
  - 1. Manufacturers:
    - a. Josam Co.
    - b. Smith, Jay R. Mfg. Co.
    - c. Tyler Pipe; Wade Div.
    - d. Zurn Industries, Inc.; Specification Drainage Operation.
- B. Floor-Drain Inlet Fittings: Cast iron, with threaded inlet and threaded or spigot outlet, and trap seal primer valve connection.
- C. Fixed Air-Gap Fittings: Manufactured cast-iron or bronze drainage fitting with semiopen top with threads or device to secure drainage inlet piping in top and bottom spigot or threaded outlet larger than top inlet. Include design complying with ASME A112.1.2 that will provide fixed air gap between installed inlet and outlet piping.

## 2.11 CLEANOUTS

- A. Manufacturers
  - 1. Smith, Jay R. Mfg. Co.
  - 2. Zurn Industries, Inc., Specification Drainage Operation
  - 3. Zurn Industries, Inc., Jonespec Div
  - 4. Josam Co.
  - 5. Tyler Pipe, Wade Div.
  - 6. Watts Industries, Inc., Drainage Products Div.
- B. All cleanouts to have bronze countersunk rectangular slotted plugs lubricated with non-hardening thread lubricant. Flush-with-floor cleanout tops shall have non-skid covers. Flashing flange with device suffix (-F-C) required on membrane floors.
- C. Linoleum or Asphalt Tile Floors: Smith No. 4140 cast iron adjustable floor level cleanout assembly with round nickel bronze top. Top depression to be covered with surrounding floor pattern bonded with waterproof adhesive.
- D. Terrazzo Floors: Smith No. 4180 cast iron adjustable floor level cleanout assembly with round nickel bronze top with center lifting device. Top depression to be filled with terrazzo and finished.
- E. Finished Room Floors: Smith No. 4020 cast iron adjustable floor level cleanout assembly with round nickel bronze top.
- F. Unfinished Floors: Smith No. 4220 all cast iron adjustable floor level cleanout assembly with round heavy duty top.

## 2.12 FLOOR DRAINS

## A. Manufacturers

1. Jay R. Smith Mfg. Co.
2. Zurn Industries, Inc.
3. Tyler Pipe, Wade Div.
4. Watts Industries, Inc

## B. Mechanical Room Floor Drains: Smith #2495

1. Cast iron 8 1/2" diameter drain
2. Medium duty tractor grate
3. Sediment bucket

## C. Toilet Room , Changing Room, and Shower Floor Drains: Smith #2010-B

1. Duco cast iron body
2. Flashing collar
3. Adjustable 6" square nickel bronze top.
4. Smith #2015-B for side outlet.

## D. Kitchen Dishwasher Floor Drain: Smith #3151-12

1. Cast iron 12 1/2" square drain, 8" deep
2. Acid resistant coated interior
3. Nickel bronze rim and 1/2 grate
4. Slotted aluminum sediment bucket.
5. Flashing clamp in membrane floors

## E. Kitchen Floor Sink (FS): Smith #3151-12

1. Cast iron 12 1/2" square drain, 8" deep
2. Acid resistant coated interior
3. Nickel bronze rim and center hole grate
4. Slotted aluminum sediment bucket.
5. Flashing clamp in membrane floors

## F. Condensate Funnel Floor Drain (FFD): Smith #3812-G

1. Galvanized body,
2. Galvanized dome bottom strainer,
3. 4" diameter funnel mouth

## G. Floor drains shall comply with ASME A112.21.1M.

## 2.13 THERMOSTATIC WATER MIXING VALVES

## A. Manufacturers:

1. Leonard TM-186-12520-PRV (basis of design)

2. Lawler Manufacturing Company, Inc.
3. Powers
4. Symmons Industries, Inc.
5. T & S Brass and Bronze Works, Inc.

B. Furnish with:

1. Furnished with large Type TM-125 Thermostatic Water Mixing Valve for exposed piping with Dura-trol® solid bimetal thermostat linked directly to valve porting, adjustable limit stop, color coded dial: C - H, wall support, union angle strainer checkstops on inlets, rough bronze finish, outlet ball valve, pressure regulating valve with pressure gauges, small Type TM-20 Thermostatic Water Mixing Valve, integral checkstops, adjustable limit stop, color-coded dial: Cold - Hot, wall support, outlet ball valve, dial thermometer (range 0 to 140 °F, -10 to 60 °C), rough bronze finish, inlet piping manifold.
2. Factory Assembled And Tested
3. Rough Finish
4. ASSE 1017 Certified
5. 1 GPM minimum flow capacity
6. 1-1/4" Inlet & Outlet
7. 7 Year Thermostat Warranty Uninterrupted Service

### PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Refer to Division 15 Section "Basic Mechanical Materials and Methods" for piping joining materials, joint construction, and basic installation requirements.
- B. Install backflow preventers in each water supply to mechanical equipment and systems and to other equipment and water systems that may be sources of contamination. Comply with authorities having jurisdiction.
  1. Locate backflow preventers in same room as connected equipment or system.
  2. Install drain for backflow preventers with atmospheric-vent drain connection with air-gap fitting, fixed air-gap fitting, or equivalent positive pipe separation of at least two pipe diameters in drain piping and pipe to floor drain. Locate air-gap device attached to or under backflow preventer. Simple air breaks are not acceptable for this application.
  3. Do not install bypass piping around backflow preventers.
- C. Install pressure regulators with inlet and outlet shutoff valves and balance valve bypass. Install pressure gages on inlet and outlet.
- D. Install strainers on supply side of each control valve, pressure regulator, and solenoid valve.
- E. Install trap seal primer valves with outlet piping pitched down toward drain trap a minimum of 1 percent and connect to floor-drain body, trap, or inlet fitting. Adjust valve for proper flow.
- F. Install backwater valves in building drain piping. For interior installation, provide cleanout deck plate flush with floor and centered over backwater valve cover, and of adequate size to remove valve cover for servicing.



- G. Install expansion joints on vertical risers, stacks, and conductors if indicated.
- H. Install cleanouts in aboveground piping and building drain piping according to the following, unless otherwise indicated:
  - 1. Size same as drainage piping up to NPS 4. Use NPS 4 for larger drainage piping unless larger 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 NPS 4 and smaller and 100 feet for larger piping.
  - 4. Locate at base of each vertical soil and waste stack.
- I. Install cleanout deck plates with top flush with finished floor, for floor cleanouts for piping below floors.
- J. Install cleanout wall access covers, of types indicated, with frame and cover flush with finished wall, for cleanouts located in concealed piping.
- K. Install flashing flange and clamping device with each stack and cleanout passing through floors with waterproof membrane.
- L. Install floor drains at low points of surface areas to be drained. Set grates of drains flush with finished floor, unless otherwise indicated.
  - 1. Position floor drains for easy access and maintenance.
  - 2. Set floor drains below elevation of surrounding finished floor to allow floor drainage. Set with grates depressed according to the following drainage area radii:
    - a. Radius, 30 Inches or Less: Equivalent to 1 percent slope, but not less than 1/4-inch total depression.
    - b. Radius, 30 to 60 Inches: Equivalent to 1 percent slope.
    - c. Radius, 60 Inches or Larger: Equivalent to 1 percent slope, but not greater than 1-inch total depression.
  - 3. Install floor-drain flashing collar or flange so no leakage occurs between drain and adjoining flooring. Maintain integrity of waterproof membranes where penetrated.
  - 4. Install individual traps for floor drains connected to sanitary building drain, unless otherwise indicated.
- M. Fasten wall-hanging plumbing specialties securely to supports attached to building substrate if supports are specified and to building wall construction if no support is indicated.
- N. Fasten recessed-type plumbing specialties to reinforcement built into walls.
- O. Install wood-blocking reinforcement for wall-mounting and recessed-type plumbing specialties.
- P. Install individual shutoff valve in each water supply to plumbing specialties. Use ball, gate, or globe valve if specific valve is not indicated. Install shutoff valves in accessible locations.
- Q. Install air vents at piping high points.

- R. Install traps on plumbing specialty drain outlets. Omit traps on indirect wastes unless trap is indicated.
- S. Install escutcheons at wall, floor, and ceiling penetrations in exposed finished locations and within cabinets and millwork. Use deep-pattern escutcheons if required to conceal protruding pipe fittings.
- T. Install and adjust temperature mixing valves per manufacturers recommendations.

### 3.2 CONNECTIONS

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties.
- B. Install piping adjacent to equipment to allow service and maintenance.
- C. Connect plumbing specialties to piping specified in other Division 15 Sections.
- D. Ground equipment.
- E. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.

### 3.3 LABELING AND IDENTIFYING

- A. Equipment Nameplates and Signs: Install engraved plastic-laminate equipment nameplate or sign on or near each water tempering valve and trap seal primer system.
  - 1. Text: Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit.
  - 2. Refer to Division 15 Section " Mechanical Identification" for nameplates and signs.

### 3.4 FIELD QUALITY CONTROL

- A. Manufacturer's Field Service: Inspect field-assembled trap seal primer systems and their installation, including piping. Report results in writing.
  - 1. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
  - 2. Operational Test: After electrical circuitry has been energized, start units to confirm proper motor rotation and unit operation. Remove malfunctioning units, replace with new units, and retest.
  - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

3.5 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 each day or when work stops.

END OF SECTION 15430