

SECTION 22 1006 - PLUMBING PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Backflow preventers.
- B. Cleanouts.
- C. Floor drains.
- D. Fresh air inlet
- E. Hose bibbs.
- F. Hydrants.
- G. Shock Absorbers/Water hammer arrestors.
- H. Thermostatic mixing valves.

1.2 RELATED REQUIREMENTS

- A. Section 22 0100 - General Provisions
- B. Section 22 1005 - Plumbing Piping.
- C. Section 22 3000 - Plumbing Equipment.
- D. Section 22 4000 - Plumbing Fixtures.

1.3 REFERENCE STANDARDS

- A. ASME A112.6.3 - Floor and Trench Drains; The American Society of Mechanical Engineers; 2001 (R2007).
- B. ASME A112.6.4 - Roof, Deck, and Balcony Drains; The American Society of Mechanical Engineers; 2003.
- C. ASSE 1011 - Hose Connection Vacuum Breakers; American Society of Sanitary Engineering; 2004 (ANSI/ASSE 1011).

- D. ASSE 1012 - Backflow Preventer with Intermediate Atmospheric Vent; American Society of Sanitary Engineering; 2009 (ANSI/ASSE 1012).
- E. ASSE 1013 - Reduced Pressure Principle Backflow Preventers and Reduced Pressure Principle Fire Protection Backflow Preventers; 2011
- F. ASSE 1019 - Performance Requirements for Wall Hydrant with Backflow Protection and Freeze Resistance; 2011
- G. IBC - ICC - International Building Code
- H. IPC - ICC - International Plumbing Code
- I. IFGC - ICC - International Fuel Gas Code
- J. NSF 61 - Drinking Water System Components - Health Effects; 2014 (Errata 2015)
- K. NSF 372 - Drinking Water System Components - Lead Content; 2011
- L. PDI-WH 201 - Water Hammer Arresters; Plumbing and Drainage Institute; 2006.

1.4 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements, for submittal procedures.
- B. Product Data: Provide manufacturer's data for all Piping Specialty specified herein and on the Plumbing Drawings. Clearly indicate exact models/model number, options, and accessories to be provided for each product. Submittals shall clearly indicate applications where the submitted product is to be used. Manufacturer data shall indicate, material of construction, applicable standards and listings, design pressure and ratings, etc.
- C. Maintenance Data: Submit maintenance data and spare parts lists for each Piping Specialty. Include this data in Maintenance Manual.
- D. Review of submittals which do not clearly indicate the information noted above may be delayed or Rejected due to lack of clarity or information. Generic catalog sheets with no indication of options, accessories, or model to be provided will be Rejected without further review.
- E. Manufacturer's Instructions: Indicate Manufacturer's Installation Instructions: Indicate assembly and support requirements.
- F. Project Record Documents: Record actual locations of equipment, cleanouts, backflow preventers, water hammer arrestors .

- G. Operation Data: Indicate frequency of treatment required for interceptors.
- H. Maintenance Data: Include installation instructions, routine maintenance instructions, spare parts lists, exploded assembly views.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Company specializing in manufacturing the Products specified in this section with not less than three years documented experience.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Accept specialties on site in original factory packaging. Inspect for damage.

1.7 EXTRA MATERIALS

- A. See Section 01 6000 - Product Requirements, for additional provisions.
- B. Supply the following for Owner's use in maintenance of project:
 - 1. Two loose keys for outside hose bibbs.
 - 2. Two hose end vacuum breakers for hose bibbs.
 - 3. One service kit for each type/style and size of backflow preventer.
 - 4. One service kit for each type/style and size of pressure reducing valve.
 - 5. Two service kits for each type/style and size of hydrant/washdown box, etc.
 - 6. One replacement valve for every 10 of each type/style and size of point of use
Thermostatic mixing valve
 - 7. One service kit for each type/style and size of Master Mixing Thermostatic mixing valve
 - 8. One replacement water hammer arrestor for every 10 of each type/style and size of water
hammer arrestor
 - 9. One service kit for each backwater valve.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

- A. Specialties installed within Potable Water Supply Systems: Provide "Lead Free" products that comply with NSF 61 and NSF 372 for maximum lead content.

2.2 BACKFLOW PREVENTERS

A. Manufacturers:

1. Ames Co. Fluid Control Systems: www.amesfirewater.com
2. Conbraco Industries: www.conbraco.com.
3. Watts Regulator Company: www.wattsregulator.com.
4. Wilkin/Zurn Industries, Inc: www.zurn.com.
5. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. Reduced Pressure Zone Backflow Preventers (3/4"-2"): Boiler makeup water, mechanical equipment, and irrigation water connections, etc.

1. ASSE 1013; Lead free, cast copper/bronze body with bronze internal parts and stainless steel check springs; two independently operating, spring loaded check valves; diaphragm type differential pressure relief valve located between check valves; third check valve that opens under back pressure in case of diaphragm failure; non-threaded vent outlet; assembled with two quarter turn ball valves, strainer, air gap fitting, and four test cocks.
 - a. Watts Model LF909-QT-S (3/4"-1") w/series 909AG air gap fitting or approved equal
 - b. Watts Model LF909-M1-QT-S (1 1/4"-2") w/series 909AG air gap fitting or approved equal

C. Double Check Backflow Preventers (1/4"-2"):

1. ASSE 1015; bronze body with bronze internal parts and stainless steel springs; two independently operating, spring loaded check valves; assembled with two quarter turn ball valves, strainer, and four test cocks.
 - a. Watts Model S-QT-LF007 or approved equal

2.3 CLEANOUTS

A. Manufacturers:

1. Jay R. Smith Manufacturing Company; www.jayrsmith.com.
2. Josam Company: www.josam.com.
3. Zurn Industries, Inc.: www.zurn.com.
4. Mifab Drainage Products: www.zurn.com.
5. Wade: www.wadedrains.com.
6. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. (CTG) Cleanouts to Grade (exterior areas):

1. Round, flanged cast iron housing and heavy duty scoriated cast iron cover.
2. Refer to plans for locations and details of installation.

3. Basis of design J.R. Smith Model 4250/4261 series with top finish as required by Architect:
 - a. Outlet Connection style/type to be determined by contractor.

C. (FCO) Cleanouts at Interior Finished Floor Areas:

1. Lacquered cast iron body with flashing flange, threaded ABS plug assembly, and round Nickel Bronze cover. Cover shall be scoriated in service areas, round recessed cover to accept floor finish in terrazzo and similar floor areas, and carpet marker type for units installed in carpeted areas (refer to Architectural floor finish plans for additional information).
2. Basis of design: J.R. Smith Model 4020/4031/4025 series with cover style/finish as required by final floor finish (Outlet connection type as determined by P.C)
3. Basis of design J.R. Smith Model 4100 series (Heavy Duty Traffic Areas)(Outlet connection type as determined by P.C)

D. (FCO) Cleanouts Boiler Room/Mechanical Room Floor Areas:

1. Lacquered cast iron body with anchor flange, threaded ABS plug assembly, and round Nickel Bronze cover. Cover shall be scoriated in service areas.
2. Basis of design: J.R. Smith Model 4100/4111/4105 series (Outlet connection type as determined by P.C)

E. (FCO) Cleanouts at Interior Finished Floor Area (Resilient Sheet Flooring)

1. Lacquered cast iron body with anchor flange, reversible clamping collar, threaded ABS plug assembly, and round gasketed cover with surface membrane clamp . (See documents for additional information).
2. Basis of Design: J.R. Smith Model: 4023

F. (WCO) Cleanouts at Interior Finished Wall Areas:

1. Provide Sanitary-T and extension to finish wall construction with Cleanout ferrule, threaded plug and cover. Refer to Plumbing Details for additional information.
2. Cover
 - a. Finished Tile walls - Provide w/stainless steel cover
 - b. Finished painted walls - Provide with prime coated paintable steel cover

G. Cleanouts at Interior Unfinished Accessible Areas: Calked or threaded type. Provide bolted stack cleanouts on vertical rainwater leaders.

2.4 FLOOR DRAINS

A. Manufacturers:

1. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
2. Zurn Industries, Inc: www.zurn.com.
3. Josam Company: www.josam.com.
4. Wade: www.wadedrains.com.

5. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. (FD-1) Floor Drain - General area floor drains, toilet rooms, showers, etc.:

1. ASME A112.6.3; lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, and round, twist-to-floor adjustable nickel bronze strainer.
 - a. Deep seal P-trap
 - b. Pro-Set "trap-guard" sewer gas prevention system.
 - c. Sediment bucket option in all shower floor drain
2. Refer to drawings for locations and system sizes.
3. Basis of Design:
 - a. J.R. Smith: Model 2005-NB with 6" round strainer, drain outlet size shall be as indicated on drawings.

C. (FD-2) Floor Drain - Chemical Storage Room.:

1. ASME A112.6.3; lacquered cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, and round, twist-to-floor adjustable stainless steel strainer.
 - a. Deep seal P-trap
 - b. Pro-Set "trap-guard" sewer gas prevention system.
 - c. Sediment bucket option in all shower floor drain
2. Refer to drawings for locations and system sizes.
3. Basis of Design:
 - a. J.R. Smith: Model 2005-SS with 6" round strainer, drain outlet size shall be as indicated on drawings.

2.5 FRESH AIR INLET

A. Manufacturers:

1. Wade: www.wadedrains.com.
2. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
3. Josam Company: www.josam.com.
4. Zurn Industries, Inc: www.zurn.com.
5. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. (FAI) Fresh Air Inlet

1. Round perforated pipe cover with Polished Nickel Bronze finish and vandal proof screws, pipe clamp with set screw
2. Basis of Design:
 - a. J.R. Smith: Model 9005.

2.6 HOSE BIBBS

A. Manufacturers:

1. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
2. Josam Company: www.josam.com.
3. Woodford
4. Watts Regulator Company: www.wattsregulator.com.
5. Zurn Industries, Inc: www.zurn.com.
6. Mifab Drainage Products
7. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. (HB-1) Interior Hose Bibbs:

1. Chrome Plated Bronze or brass with integral wall flange, replaceable hexagonal disc, hose thread spout, interchangeable handwheel and loose key operation, integral vacuum breaker in conformance with ASSE 1011.
2. Basis of Design: Woodford Model 40HT

2.7 NON FREEZE WALL HYDRANT

A. Manufacturers:

1. Josam Company: www.josam.com.
2. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
3. Zurn Industries, Inc: www.zurn.com.
4. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. (NFWH-1) Enclosed Non-Freeze Wall Hydrants:

1. ASSE 1019-B, ASSE 1052, ASSE 1053; freeze resistant, box type, self-draining type, stainless steel box, and integral vacuum breaker.
2. Installation Height: Approx.. 24" above grade (totally within same color masonry)
Coordinate exact locations and elevations with architect prior to rough-in.
 - a. Basis of Design: Jay R. Smith Manufacturing Company; Model 5509-WC-CL (verify wall thickness in field)

2.8 SHOCK ABSORBERS/WATER HAMMER ARRESTORS

A. Manufacturers:

1. Jay R. Smith Manufacturing Company: www.jayrsmith.com.
2. Josam Company: www.josam.com.
3. Sioux Chief: www.sioxchief.com.

4. Zurn Industries, Inc: www.zurn.com.
5. Mifab Drainage Products.
6. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Engineer/Owner. Refer to Division 01 specifications for additional information.

B. Water Hammer Arrestors:

1. Stainless steel construction, Bellows type or Piston type sized in accordance with PDI-WH 201, precharged suitable for operation in temperature range -100 to 300 degrees F and maximum 250 psi working pressure.

2.9 THERMOSTATIC MIXING VALVES

A. Manufacturers:

1. Acorn Engineering: T/P with Paraffin actuator.
2. Powers Valves: T/P with Paraffin actuator.
3. Zurn Industries/Wilkins: (Approved For Lavatory Tempering valves)
4. Watts: (Approved For Lavatory Tempering valves)
5. Substitutions: Other acceptable manufacturers offering equivalent products as approved by Architect/Owner prior to Bid. Refer to Division 01 specifications for additional information.

B. Lavatory Mixing Valves:

1. Temperature and pressure regulating Under-the-Counter combination tempering valves for temperature control to ASSE 1070 down to 0.5gpm. Maximum temperature setting 110°F.
 - a. Powers Series LFE480 must be rated for minimum flow of 0.5 gpm.
 - b. Zurn; Aquaguard Model ZW3870XLT (single temp faucet), ZW3870XLT-4P (dual temp faucet)

C. (ETV-2) Emergency Shower / Eyewash Combination Unit Mixing Valves:

1. Advanced thermal actuators, internal cold water bypass (ensures cold water flow in the event of loss of hot water), meets ASSE 1071, vandal-resistant locking mechanism to secure temperature setting, factory tested, union triple-duty checkstops, rough bronze or chrome finishes, temperature gauge on outlet.
 - a. Powers HydroGuard XP Series Emergency Tempering Valve with Cold Water Bypass: Model ES-P-ETV Series

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install all plumbing specialties in accordance with manufacturer's instructions.

B. Cleanouts

1. Extend cleanouts to finished floor or wall surface. Lubricate threaded cleanout plugs with mixture of graphite and linseed oil. Ensure clearance at cleanout for rodding of drainage system.
2. Encase exterior cleanouts in concrete flush with grade.
3. Install floor cleanouts and floor drains at elevation to accommodate finished floor with strainer or cover flush with finish floor.

C. Floor drains

1. Install floor drains at elevation to accommodate finished floor with strainer or cover flush with finish floor unless specifically noted otherwise.
2. Provide Mechanical trap seal protection similar to ProSet Trapguards at all floor drain locations. Where required by Authority Having Jurisdiction, provide trap primers, trap primer connection on drain, and all associated piping to connect trap primer to drain.

D. Backflow preventers

1. Install approved potable water protection devices on plumbing lines as indicated on drawings and where contamination of domestic water may occur; including boiler makeup water lines, chemical mixers within janitor rooms, fire sprinkler systems, irrigation systems, flush valves, interior and exterior hose bibbs. Additional backflow prevention is not required when the connected equipment is provided with integral backflow prevention in accordance with the International Plumbing Code and the equipment is permanently/directly connected to the water supply.
2. Install all backflow preventers in easily accessible location to permit annual testing and maintenance max. 48" above finish floor.
3. Provide pressure gauges on inlet and outlet piping of all backflow preventers.
4. Pipe relief from all RPZ backflow preventers air gap drain fittings to nearest floor drain or approved discharge location.

E. Shock Absorbers / Water Hammer Arrestors

1. Provide water hammer arrestors complete with accessible isolation valve on water supply piping serving with fast closing valves with flow exceeding .5gpm and flush valves (including but not limited to washing machine connection, urinals, and water closet flush valves). Water hammer arrestors shall be sized and located in accordance with PDI guidelines.

F. Non-Freeze Wall Hydrants

1. Install Approx.. 24" above grade (totally within same color masonry) Coordinate exact locations and elevations with architect prior to rough-in.

G. Thermostatic Mixing Valves

1. Install all mixing valves in strict accordance with all manufacturers recommendations and piping installation requirements.
2. Install mixing valves at the proper ASSE rating and capacities where indicated on the drawings and details. Provide mixing valves as specified above at all lavatory and handwash sink locations.

END OF SECTION