

**SECTION 22 40 00
PLUMBING FIXTURES**

PART 1 - GENERAL

1.1 DESCRIPTION

- A. Plumbing fixtures, associated trim and fittings necessary to make a complete installation from wall or floor connections to rough piping, and certain accessories.
- B. A complete listing of all acronyms and abbreviations are included in Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

1.2 RELATED WORK

- A. Section 01 00 00, GENERAL REQUIREMENTS.
- B. Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- C. Section 07 92 00, JOINT SEALANTS: Sealing between fixtures and other finish surfaces.
- D. Section 08 31 13, ACCESS DOORS AND FRAMES: Flush panel access doors.
- E. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.
- F. Section 22 13 00, FACILITY SANITARY AND VENT PIPING.

1.3 APPLICABLE PUBLICATIONS

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. American with Disabilities Act (A.D.A):
Section 4-19.4Exposed Pipes and Surfaces
- C. American Society of Mechanical Engineers (ASME):
A112.6.1M-1997 (R2012) .Floor Affixed Supports for Off-the-Floor
Plumbing Fixtures for Public Use
A112.19.1-2013Enameled Cast Iron and Enameled Steel Plumbing
Fixtures
A112.19.2-2013Ceramic Plumbing Fixtures
A112.19.3-2008 (R2013) .Stainless Steel Plumbing Fixtures
- D. American Society of Sanitary Engineers (ASSE):
1011-2004Performance Requirements for Hose Connection
Vacuum Breakers
1016-2017Performance Requirements for Automatic
Compensating Valves for Individual Showers and
Tub/Shower Combinations
- E. American Society for Testing and Materials (ASTM):
A276-2017Standard Specification for Stainless Steel Bars
and Shapes

B584-2014Standard Specification for Copper Alloy Sand
Castings for General Applications

F. CSA Group:

B45.4-2008 (R2013)Stainless Steel Plumbing Fixtures

G. International Code Council, (ICC):

IPC-2015International Plumbing Code

H. National Association of Architectural Metal Manufacturers (NAAMM):

AMP 500-2006Metal Finishes Manual

I. NSF International (NSF):

14-2016aPlastics Piping System Components and Related
Materials

61-2014aDrinking Water System Components - Health
Effects

372-2016Drinking Water System Components - Lead Content

1.4 SUBMITTALS

- A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Information and material submitted under this section shall be marked "SUBMITTED UNDER SECTION 22 40 00, PLUMBING FIXTURES", with applicable paragraph identification.
- C. Manufacturer's Literature and Data including: Full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, connections, and capacity.
- D. Operating Instructions: Comply with requirements in Section 01 00 00, GENERAL REQUIREMENTS.

1.5 AS-BUILT DOCUMENTATION

- A. Submit manufacturer's literature and data updated to include submittal review comments and any equipment substitutions.
- B. Submit operation and maintenance data updated to include submittal review comments, substitutions and construction revisions shall be in electronic version on compact disc or DVD inserted into a three ring binder. All aspects of system operation and maintenance procedures, including piping isometrics, wiring diagrams of all circuits, a written description of system design, control logic, and sequence of operation shall be included in the operation and maintenance manual. The operations and maintenance manual shall include troubleshooting

techniques and procedures for emergency situations. Notes on all special systems or devices such as damper and door closure interlocks shall be included. A List of recommended spare parts (manufacturer, model number, and quantity) shall be furnished. Information explaining any special knowledge or tools the owner will be required to employ shall be inserted into the As-Built documentation.

- C. The installing contractor shall maintain as-built drawings of each completed phase for verification; and, shall provide the complete set at the time of final systems certification testing. As-built drawings are to be provided, and a copy of them in AutoCAD version 2014 provided on compact disk or DVD. Should the installing contractor engage the testing company to provide as-built or any portion thereof, it shall not be deemed a conflict of interest or breach of the 'third party testing company' requirement.
- D. Certification documentation shall be provided to COR 10 working days prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and certification that all results of tests were within limits specified.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Material or equipment containing a weighted average of greater than 0.25 percent lead is prohibited in any potable water system intended for human consumption, and shall be certified in accordance with NSF 61 or NSF 372. Endpoint devices used to dispense water for drinking shall meet the requirements of NSF 61.
- B. Plastic pipe, fittings, and solvent cement shall meet NSF 14 and shall be NSF listed for the service intended.

2.2 STAINLESS STEEL

- A. Corrosion-resistant Steel (CRS):
 - 1. Plate, Sheet and Strip: CRS flat products shall conform to chemical composition requirements of any 300 series steel specified in ASTM A276.
 - 2. Finish: Exposed surfaces shall have standard polish (ground and polished) equal to NAAMM finish Number 4.
- B. Die-cast zinc alloy products are prohibited.

2.3 STOPS

- A. Provide lock-shield loose key or screw driver pattern angle stops, straight stops or stops integral with faucet, with each compression type faucet whether specifically called for or not, including sinks in solid-surface, wood and metal casework, laboratory furniture and pharmacy furniture. Locate stops centrally above or below fixture in accessible location.
- B. Furnish keys for lock shield stops to the COR.
- C. Supply from stops not integral with faucet shall be chrome plated copper flexible tubing or flexible stainless steel with inner core of non-toxic polymer.
- D. Supply pipe from wall to valve stop shall be rigid threaded IPS copper alloy pipe, i.e. red brass pipe nipple, chrome plated where exposed.

2.4 ESCUTCHEONS

- A. Heavy type, chrome plated, with set screws. Provide for piping serving plumbing fixtures and at each wall, ceiling and floor penetrations in exposed finished locations and within cabinets and millwork.

2.5 LAMINAR FLOW CONTROL DEVICE

- A. Smooth, bright stainless steel or satin finish, chrome plated metal laminar flow device shall provide non-aeration, clear, coherent laminar flow that will not splash in basin. Device shall also have a flow control restrictor and have vandal resistant housing. **Aerators are prohibited.**

2.6 CARRIERS

- A. ASME A112.6.1M, with adjustable gasket faceplate chair carriers for wall hung closets with auxiliary anchor foot assembly, hanger rod support feet, and rear anchor tie down.
- B. Where water closets, lavatories or sinks are installed back-to-back and carriers are specified, provide one carrier to serve both fixtures in lieu of individual carriers. The drainage fitting of the back to back carrier shall be so constructed that it prevents the discharge from one fixture from flowing into the opposite fixture.

2.7 WATER CLOSETS

- A. (P-112) Water Closet (Wall Hung, ASME A112.19.2) elongated bowl, siphon jet, wall outlet, back inlet spud, 4.8 L (1.28 gallons) per flush with maximum 10 percent variance. Top of seat shall be 450 mm (18 inches) above finished floor.

1. Seat: Institutional/Industrial, solid plastic, extra heavy duty, chemical resistant, posture contoured body open front design less cover for elongated bowls, integrally molded bumpers, concealed check hinge with stainless steel post. Color shall be white.
2. Fittings and Accessories: Gaskets-neoprene; bolts with chrome plated cap nuts and washers and carrier.
3. Flush valve: Large chloramines resistant diaphragm, concealed, non-hold open, with manual button, 25 mm (1 inch) IPS wheel handle back check angle stop valve, adjustable tailpiece and vacuum breaker. Provide 330 mm by 432 mm (13 inches by 17 inches) stainless steel access door with key operated cylinder lock specified in Section 08 31 13, ACCESS DOORS AND FRAMES. Valve body, tailpiece and control stop shall be in conformance with ASTM alloy classification for semi-red brass.

2.8 SINKS AND LAUNDRY TUBS

- A. Dimensions for sinks and laundry tubs are specified, length by width (distance from wall) and depth.
- B. (P-523) Sink, Existing and Reused.
 1. Drain: Drain plug with cup strainer, stainless steel.
 2. Trap: Cast copper alloy, 40 mm (1/-1/2 inch) P-trap with cleanout plug, continuous drain with wall connection and escutcheon.
 3. Provide cover for drain, stops and trap per A.D.A 4-19.4.

2.9 SHOWER BATH FIXTURE

- A. (P-711) Shower Bath Fixture (Detachable, Wall Mounted, Concealed Supplies, Type T/P Combination Valve and Thermometer):
 1. Shower Installation: Wall mounted detachable spray assembly, 610 mm (24 inches) wall bar, elevated vacuum breaker, supply elbow and flange, concealed pipe to wall mounted thermometer, and valve. All external trim shall be chrome plated metal.
 2. Shower Head Assembly: Metallic shower head with flow control to limit discharge to 5.7 l/m (1.5 gpm), 2134 mm (84 inches) of rubber lined CRS or chrome plated metal flexible or white vinyl reinforced hose and supply wall elbow. Design showerhead to fit in palm of hand. Provide CRS or chrome plated metal wall bar with an adjustable swivel hanger for showerhead. Fasten wall bar securely to wall for hand support.
 3. Valves: Type T/P combination thermostatic and pressure balancing, for wall mounted shower with chrome plated lever type operating

- handle with adjustment for rough-in variations and chrome plated metal or CRS face plate. Valve body for mixing valve and valve body for separate valves shall be any suitable copper alloy. Internal parts shall be copper, nickel alloy, CRS or thermoplastic material. Valve inlet and outlet shall be 13 mm (1/2 inch) IPS. Provide screwdriver check stops with strainers, vacuum breaker, flow control valve with four-arm or lever handle and temperature limit stops. Set stops for a maximum temperature of 50 degrees C (122 degrees F). All exposed fasteners shall be chrome plated. Valve shall provide a minimum of 190 ml/s at 310 kPa (3 gpm at 45 psig) pressure drop.
4. Thermometer: Stainless steel, 65 mm (2 1/2 inches) dial type range from 0 to 60 degrees C (32 to 140 degrees F).

2.10 HYDRANT, HOSE BIBB AND MISCELLANEOUS DEVICES

- A. (P-812) Water Supply Control Box Unit (Combination Faucet, Recessed, Concealed Supply Pipes) for Flushing rim floor drain: Fabricate of Type 304 stainless steel with cylinder type lock and piano hinged cover. All exposed surfaces shall be polished to a No. 4 satin finish. Unit to have bronze control valves, screwdriver stops, and atmospheric type vacuum breaker with type "L" copper tubing for silver brazing. Hot and cold water inlet and remote outlet fittings are 13 mm (1/2 inch). Box size 219 mm by 219 mm by 92 mm (8-5/8 inches by 8-5/8 inches by 3-5/8 inches). Bottom of box shall be 914 mm (36 inches) above finished floor.
- B. (P-822) Hose and Supply Hose Box (Combination hot and cold hose bib, Recessed, Concealed Supply Pipes): Recessed hose box with wall flange. Box shall be 219 mm by 219 mm by 95 mm (8-5/8 inches by 8-5/8 inches by 3-3/4 inches) and fabricated from 18 gage, type 304 stainless steel with satin finish exterior. Flange shall be 16 gage stainless steel and polished to a satin finish. Valve shall be cartridge-operated type with vandal-resistant lockshield, removable loose key wheel handle and screwdriver operated stop with ASSE 1011 vacuum breaker. Valve and stop body shall be cast bronze with exposed parts chrome plated. Door shall be 16 gage satin finish with removable hinge and cylinder lock. Hot and cold water inlet connection 19 mm (3/4 inch) and 19 mm (3/4 inch) male hose thread outlet. Bottom of box shall be 914 mm (36 inches) above finished floor.

PART 3 - EXECUTION**3.1 INSTALLATION**

- A. Fixture Setting: Opening between fixture and floor and wall finish shall be sealed as specified under Section 07 92 00, JOINT SEALANTS. Bio-based materials shall be utilized when possible.
- B. Supports and Fastening: Secure all fixtures, equipment and trimmings to partitions, walls and related finish surfaces. Exposed heads of bolts and nuts in finished rooms shall be hexagonal, polished chrome plated brass with rounded tops.
- C. Toggle Bolts: For hollow masonry units, finished or unfinished.
- D. Expansion Bolts: For brick or concrete or other solid masonry. Shall be 6 mm (1/4 inch) diameter bolts, and to extend at least 76 mm (3 inches) into masonry and be fitted with loose tubing or sleeves extending into masonry. Wood plugs, fiber plugs, lead or other soft metal shields are prohibited.
- E. Power Set Fasteners: May be used for concrete walls, shall be 6 mm (1/4 inch) threaded studs, and shall extend at least 32 mm (1 1/4 inches) into wall.
- F. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.
- G. Where water closet waste pipe has to be offset due to beam interference, provide correct and additional piping necessary to eliminate relocation of water closet.
- H. Aerators are prohibited on lavatories and sinks.
- I. If an installation is unsatisfactory to the COR, the Contractor shall correct the installation at no cost or additional time to the Government.

3.2 CLEANING

- A. At completion of all work, fixtures, exposed materials and equipment shall be thoroughly cleaned.

3.3 DEMONSTRATION AND TRAINING

- A. Provide services of manufacturer's technical representative for four hours to instruct VA Personnel in operation and maintenance of the system.

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