

**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.

1.2 RELATED WORK

- A. Sealing between fixtures and other finish surfaces: Section 07 92 00, JOINT SEALANTS.
- B. Through bolts: Section 10 21 13, TOILET COMPARTMENTS.
- C. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

1.3 SUBMITTALS

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Submit plumbing fixture information in an assembled brochure, showing cuts and full detailed description of each fixture.

1.4 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 National Standard Institute (ANSI):
 - The American Society of Mechanical Engineers (ASME):
 - A112.6.1M-02(R2008).....Floor Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use
 - A112.19.1M-08Enameled Cast Iron Plumbing Fixtures
 - A112.19.2M-03.....Vitreous China Plumbing Fixtures
 - A112.19.3-2001(R2008)...Stainless Steel Plumbing Fixtures (Designed for Residential Use)
- C. American Society for Testing and Materials (ASTM):
 - A276-2010Stainless and Heat-Resisting Steel Bars and Shapes
 - WW-P-541-E/GENPlumbing Fixtures with Amendment 1
- D. National Association of Architectural Metal Manufacturers (NAAMM):
 - NAAMM 500-505
 - Metal Finishes Manual (1988)
- E. American Society of Sanitary Engineers (ASSE):
 - 1016-05.....Performance Requirements for Individual Thermostatic, Pressure Balancing and Combination

Pressure Balancing and Thermostatic Control
Valves for Individual Fixture Fittings

F. NSF International (NSF)

NSF/ANSI 14 (2013).....Plastics Piping System Components and Related
Materials

NSF/ANSI 61 (2012).....Drinking Water System Components - Health
Effects

NSF/ANSI 372 (2011).....Drinking Water System Components - Lead Content

G. American with Disabilities Act (A.D.A) Section 4-19.4 Exposed Pipes and
Surfaces

H. Environmental Protection Agency EPA PL 93-523 1974; A 1999) Safe
Drinking Water Act.

I. International Building Code, ICC IPC 2012.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Material or equipment containing a weighted average of greater than 0.25 percent lead shall not be used in any potable water system intended for human consumption, and shall be certified in accordance with NSF/ANSI 61 or NSF 372. Endpoint devices used to dispense water for drinking must meet the requirements of NSF/ANSI 61, Section 9.
- B. Plastic pipe, fittings, and solvent cement shall meet NSF/ANSI 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 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 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.
- E. Psychiatric Area: Provide stainless steel drain guard for all lavatories not installed in casework.

2.4 ESCUTCHEONS

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.
- B. Flow Control Restrictor:
 - 1. Capable of restricting flow to 0.5 gpm for lavatories or as specified.
 - 2. Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 170 kPa and 550 kPa (25 psi and 80 psi).
 - 3. Operates by expansion and contraction, eliminates mineral/sediment build-up with self-cleaning action, and is capable of easy manual cleaning.

2.6 WATER CLOSETS

- A. (P-101) Water Closet (Floor Mounted, ANSI 112.19.2M, Figure 6)-office and industrial, elongated bowl, siphon jet 6 L (1.6 gallons) per flush, floor outlet. Top of rim shall be 435 mm to 438 mm (17 1/8 inches to 17 1/4 inches) above finished floor including seat.
 - 1. Seat: Institutional/Industrial, extra heavy duty, chemical resistant, solid plastic, open front less cover for elongated bowls, integrally molded bumpers, concealed check hinge with stainless steel post. Seat shall be posture contoured body design. Color shall be white.
 - 2. Fittings and Accessories: Floor flange fittings-cast iron; Gasket-wax; bolts with chromium plated cap nuts and washers.
 - 3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, battery powered active infra-red sensor for automatic operation with courtesy flush button for manual operation, water saver design 6 L (1.6 gallons) per flush with maximum 10 percent variance, top spud connection, adjustable tailpiece, one-inch IPS screwdriver back check angle stop with vandal resistant cap, high back pressure vacuum breaker, and sweat solder adapter with cover tube and cast set screw wall flange. Set

centerline of inlet 292 mm (11 1/2 inches) above rim. Seat bumpers shall be integral part of flush valve. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM Alloy classification for semi-red brass.

- B. (P-108) Water Closet (Floor Mounted) wall outlet, flush valve operated, 6 L (1.6 gallons) per flush. Top of rim shall be 457 mm (18 inches) above finished floor including seat.
1. Seat: Institutional/Industrial, extra heavy duty, chemical resistant, solid plastic, open front less cover for elongated bowls, integrally molded bumpers, concealed check hinge with stainless steel post. Seat shall be posture contoured body design. Color shall be white.
 2. Fittings and Accessories: Floor Flange fittings-cast iron; gaskets-wax; bolts with chromium plated cap nuts and washers.
 3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, battery powered active infra-red sensor for automatic operation with courtesy flush button for flush with maximum 10 percent variance, back spud connection, adjustable tailpiece, one-inch IPS screwdriver back check angle stop with vandal resistant cap, sweat solder adapter with cover tube and cast set screw wall flange, and high back pressure vacuum breaker. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM Alloy classification for semi-red brass. Set centerline of inlet 673 mm (26 1/2 inches) above rim.

2.7 URINALS

- A. (P-204) Urinal (Wheelchair) (Wall hung ASME/ANSI A112.19.2M) bowl with washout flush action, wall to front flare 380 mm (15 inches). Vitreous china, wall hung with integral trap 3.81 (1.0 gallon) per flush with 51 mm (2 inches) back outlet and 19 mm (3/4 inch) back spud inlet. Flush valve 292 mm (11 1/2 inches) above urinal.
1. Support urinal with chair carrier and install with rim at a maximum of 432 mm (17 inches) above finished floor.
 2. Flushing device battery powered, active infrared for automatic operation.

2.8 LAVATORIES

- A. Dimensions for lavatories are specified, Length by width (distance from wall) and depth.
- B. Brass components in contact with water shall contain no more than 3 percent lead content by dry weight.
- C. (P-420) Lavatory (wrist blade, under-counter mount vitreous china, approximately 483 mm (19 inches) in diameter with counter mounted faucet. Mount unit under countertop.

1. Faucet: Solid cast brass construction with washerless ceramic disc mixing cartridge type and centrally exposed rigid gooseneck spout with outlet 203 mm (7 inches) above rim. Provide laminar flow control device. One hundred two millimeters (4-inch) wrist blade type handles on faucets shall be cast, formed or drop forged copper alloy. Faucet, wall and floor escutcheons shall be either copper alloy or CRS. Exposed metal parts, including exposed part under valve handle when in open position, shall be chrome plated with a smooth bright finish.
2. Drain: Cast or wrought brass with flat grid strainer, offset tailpiece, chrome plated. Set trap parallel to wall.
3. Stops: Angle type. See paragraph 2.2.Stops
4. Trap: Cast copper alloy, 38 mm by 32 mm (1 1/2 inches by 1 1/4 inches)P-trap, adjustable with connected elbow and 1.4 mm thick (17 gauge) tubing extension to wall. Set trap parallel to the wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish.
5. Provide cover for drain, stops and trap per A.D.A 4-19.4.
6. Provide ASSE 1070 thermostatic mixing valve.

2.9 SHOWER BATH FIXTURE

- A. (P-705) Thermostatic Valve (Wall Mounted, Thermometer and Hose Assembly):
 1. Installation: Wall mounted hose assembly with in-line vacuum breaker, flow control valve, thermometer and thermostatic valve.
 2. Shower Heads: Chrome plated metal head, adjustable ball joint, self cleaning with automatic flow control device to limit discharge to not more than 160 ml/s (2.5 gpm). Body, internal parts of shower head and flow control fittings shall be copper alloy or CRS. Install showerhead 1829 mm (72 inches) above finished floor.
 3. Valves: Type T/P combination temperature and pressure balancing for wall mounted hose assembly. Valve body shall be suitable copper alloy. Internal parts shall be copper, nickel alloy, CRS, or thermoplastic material. Valve inlet and outlet shall be 19 mm (3/4 inch) IPS. Provide external screwdriver check stops and strainers. Install mixing valve 1219 mm (48 inches) above finished floor. Valve shall provide a minimum of 160 ml/s at 310 kPa (2.5 gpm at 45 psi) pressure drop.
 4. Thermometer: Stainless steel, 64 mm (2 1/2 inches) dial type range from 0 to 60 degrees C (30 to 140 degrees F).
 5. Spray assembly: Shall consist of a 1219 mm (48 inches) length of metal hose 13 mm (1/2 inch) hose with coupling for connection to 13

mm (1/2 inch) hose nipple with in-line vacuum breaker. Provide 30 inch glide rail for faucet.

B. (P-708) Shower Bath Fixture (Wall Mounted, Concealed Supplies, Type T/P Combination Valve and Thermometer):

1. Shower Installation: Wall mounted, shower head connected to shower arm. All external trim shall be chrome plated metal.
2. Shower Heads: Chrome plated metal head, adjustable ball joint, self cleaning with automatic flow control device to limit discharge to not more than 160 ml/s (2.5 gpm). Body, internal parts of shower head and flow control fittings shall be copper alloy or CRS. Install showerhead 1829 mm (72 inches) above finished floor.
3. Valves: Type T/P combination thermostatic and pressure balancing, with chrome plated metal lever with adjustment for rough-in variations, type operating handle and chrome plated brass or CRS face plate. Valve body 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 external screwdriver check stops, and temperature limit stops. Set stops for a maximum temperature of 40 degrees C (105 degrees F). Install valve 1372 mm (54 inches) from bottom of shower receptor. All exposed fasteners shall be vandal resistant. Valve shall provide a minimum of 160 ml/s at 310 kPa (2.5 gpm at 45 psi) pressure drop.
4. Thermometer: Stainless steel, 64 mm (2 1/2 inches) dial type range from 0 to 60 degrees C (30 to 140 degrees F).

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.
- 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. Through Bolts: For free standing marble and metal stud partitions refer to Section 10 21 13, TOILET COMPARTMENTS.
- D. Toggle Bolts: For hollow masonry units, finished or unfinished.
- E. 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.

- F. 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.
- G. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.
- H. 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.
- I. Do not use aerators on lavatories and sinks.

3.2 CLEANING

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

- - - E N D - - -