

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. Flush panel access doors: Section 08 31 13, ACCESS DOORS AND FRAMES.
- C. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.
- D. SECTION 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS.
- E. Requirements for commissioning, systems readiness checklist, and training.

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):
- C. 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-08 Enameled 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)
- D. American Society for Testing and Materials (ASTM):
 - A276-2010 Stainless and Heat-Resisting Steel Bars and Shapes
 - WW-P-541-E/GEN Plumbing Fixtures with Amendment

E. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM
AMP 500-505

Metal Finishes Manual (1988)

F. 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

G. 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

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

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

J. 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 shall 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 Contracting Officer Representative (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 shall 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 from 1.5 to 1.7 gpm (95 to 110 ml/s) for lavatories; 2.0 to 2.2 gpm (125 to 140 ml/s) for sinks P-505 through P-520, P-524 and P-528; and 2.75 to 3.0 gpm (170 to 190 ml/s) for dietary food preparation and rinse sinks or as specified.
 - 2. Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 25 and 80 psi (170 and 550 kPa).
 - 3. Operates by expansion and contraction, eliminates mineral/sediment build-up with self-cleaning action and is capable of easy manual cleaning.

2.6 CARRIERS

- A. ASME/ANSI 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. ASME/ANSI A112.6.1M, lavatory, chair carrier for thin wall construction steel plate as detailed on drawing. All lavatory chair carriers shall be

capable of supporting the lavatory with a 250-pound vertical load applied at the front of the fixture.

- C. 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-101) Water Closet (Floor Mounted Back Outlet, ASME/ANSI A112.19.2M, Figure 9) office and industrial, elongated bowl, siphon jet 1.6 gallons (6 L) per flush, wall outlet. Top of rim shall be between 16 and 17 inches (406 and 432 mm) above finished floor. Handicapped water closet shall have rim set 18 inches (457 mm) above finished floor.
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: Gaskets-neoprene; bolts with chromium plated caps nuts and washers.
 3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, non-hold open ADA approved side oscillating handle, battery powered active infra-red sensor for automatic operation with courtesy flush button for manual operation, sensor operated with manual override, water saver design 1.6 gallons (6 L) per flush with maximum 10 percent variance, 1 inch (25 mm) screwdriver back check angle stop with vandal resistant cap, adjustable tailpiece, a high back pressure vacuum breaker, spud coupling for 1-1/2 inch (38 mm) top spud, wall and spud flanges, and sweat solder adapter with cover tube and set screw wall flange. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM alloy classification for semi-red brass. Seat bumpers shall be integral part of flush valve. Set centerline of inlet 11-1/2 inches (292 mm) above rim.

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-418)- Lavatory (Sensor Control, Gooseneck Spout, ASME/ANSI A112.19.2M, Figure 16) straight back, approximately 20 by 18 inches (508 by 457 mm) and a 4 inch (100 mm) minimum apron, first quality vitreous china with punching for gooseneck spout. Set rim 34 inches (864 mm) above finished floor.
1. Faucet: Solid cast brass construction, chrome plated, gooseneck spout with outlet 4 to 5 inches (100 to 127 mm) above rim. Electronic sensor operated, 4 inch (100 mm) center set mounting, wiring box, 120/24 volt solenoid, plug in transformer, remote mounted transformer, battery operated electronic module, back check valves, solid brass hot-cold water mixer adjusted from top deck with barrier free design control handle and inline filter. Provide laminar flow control device. Breaking the light beam shall activate the water flow. Flow shall stop when user moves away from light beam. Provide steel access door with key operated cylinder lock. See Section 08 31 13, ACCESS DOORS AND FRAMES. All connecting wiring between transformer, solenoid valve and sensor shall be cut to length with no excess hanging or wrapped up wiring allowed.
 2. Drain: Cast or wrought brass with flat grid strainer with offset tailpiece, brass, chrome plated.
 3. Stops: Angle type. See paragraph 2.2.Stops
 4. Trap: Cast copper alloy, 1-1/2 by 1-1/4 inch (38 by 32 mm) P-trap. Adjustable with connected elbow and 17 gauge (1.4 mm) tubing extension to wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to wall.
 5. Provide cover for drain, stops and trap per A.D.A 4-19.4.

2.9 SINKS AND LAUNDRY TUBS

- A. Dimensions for sinks and laundry tubs are specified, length by width (distance from wall) and depth.
 - B. (P-502) Service Sink (Corner, Floor Mounted) stain resistant terrazzo, 28 by 28 by 12 inches (711 by 711 by 305 mm) with 6 inch (152 mm) drop front. Terrazzo, composed of marble chips and white Portland cement, shall develop compressive strength of 3000 psi (20684 kPa) seven days after casting. Provide extruded aluminum cap on front side.
1. Faucet: Solid brass construction, combination faucet with replaceable monel seat, removable replacement unit containing all parts subject to wear, integral stops, mounted on wall above sink. Spout shall have a pail hook, 3/4 inch (19 mm) hose coupling threads, vacuum breaker,

- and top or bottom brace to wall. Four-arm handles on faucets shall be cast, formed, or drop forged copper alloy. Escutcheons shall be either forged copper alloy or CRS. Exposed metal parts, including exposed part under valve handle when in open position, shall have a smooth bright finish. Provide 36 inch (914 mm) hose with wall hook. Centerline of rough in is 48 inches (1219 mm) above finished floor.
2. Drain: Seventy six millimeter (3 inches) cast brass drain with nickel bronze strainer.
 3. Trap: P-trap, drain through floor.
- C. (P-505) Clinic Service Sink (Flushing Rim, Wall Hung) approximately 20 by 25 inches (508 by 635 mm) by 8 inches (203 mm) deep. Support with ASME/ANSI A112. 6.1M chair carrier and secure with 3/8 inch (10 mm) bracket studs and nuts. Set sink with rim 30 inches (762 mm) above finished floor. Provide 30 inch (762 mm) CRS drainboard where required, without corrugations and with heavy duty CRS brackets.
1. Faucet: Elbow control, wall hung, integral stops, single spout with 3/4 inch (19 mm) hose threaded outlet and pail hook, vacuum breaker and brace to wall. Outlet 14 to 15 inches (356 to 381 mm) from wall. Exposed metal parts shall be chromium plated with a smooth bright finish. Provide laminar flow control device.
 2. Flush valve: Large diaphragm, semi-red brass body, Foot pedal operated, exposed chromium plated flush valve with screwdriver back check straight stop with cap, union outlet, street ells, elevated high pressure vacuum breaker, casing cover, 1-1/4 inch (32 mm) elbow flush connection from finished wall to 1-1/2 inch (38 mm) top spud. Spud coupling, wall and spud flanges.
 3. Bed Pan Washer: Mechanical pedal mixing valve, wall hung, with double self-closing pedal valve with loose key stops, renewable seats and supply from valve to nozzle with wall hook hose connection; 48 inches (1219 mm) of heavy duty rubber hose, with extended spray outlet elevated vacuum breaker, indexed lift up pedals having clearance of not more than 1/2 inch (13 mm) above the floor and not less than 14 inches (356 mm) from wall when in operation. Supply pipe from wall to valve stop shall be rigid, threaded, IPS copper alloy pipe. Exposed metal parts shall be chromium plated with a smooth bright finish. Provide valve plate for foot control. Provide inline laminar flow control device.
- D. (P-528) Sink (CRS, Single Compartment, Counter Top ASME/ANSI A112.19.2M, Kitchen Sinks, Figure 5) self-rimming, back faucet ledge, approximately 21 by 22 inches (533 by 559 mm) with single compartment

inside dimensions approximately 16 by 19 by 7-1/2 inches deep (406 by 483 by 191 mm). Shall be minimum of 18 gauge (1.3 mm) CRS. Corners and edges shall be well rounded:

1. Sensor Control: Provide an infra-red photocell sensor and solenoid valve to control flow automatically, thermostatic control valve with check stops, 24 volt transformer, wire box and steel access door with key operated cylinder lock see specification ACCESS DOORS. Operation: Breaking the light beam shall activate the water flow. Flow shall stop when the user moves from the light beam.
 2. Gooseneck spout: Spout and trim shall be solid brass construction and be chromium plated with smooth bright finish. Provide laminar flow device.
 3. Drain: Drain plug with cup strainer, stainless steel.
 3. Trap: Cast copper alloy 1-1/2 inch (38 mm) P-trap with cleanout plug. Provide wall connection and escutcheon.
 4. Provide cover for drain, stops and trap per A.D.A 4-19.4.
- E. (P-531) Sink (CRS, Single Compartment, Counter Top ASME/ANSI A112.19.2M, Kitchen Sinks, Figure 5) self-rimming, back faucet ledge, approximately 26 by 22 inches (660 by 559 mm) with single compartment inside dimensions approximately 23-1/2 by 18 by 7-1/2 inches deep (597 by 457 by 191 mm). Shall be minimum of 18 gauge (1.3 mm) CRS. Corners and edges shall be well rounded:
1. Faucet: Solid brass construction, deck mounted combination faucet with monel or ceramic seats, removable replacement unit containing all parts subject to ware, swivel gooseneck spout with approximately 8 inches (203 mm) reach with spout outlet 6 inches (150 mm) above deck and [4 inches (102 mm) wrist blades. Faucet shall be polished chrome plated.
 2. Drain: Drain plug with cup strainer, stainless steel.
 5. Trap: Cast copper alloy 1-1/2 inch (38 mm) P-trap with cleanout plug. Provide wall connection and escutcheon.
 6. Provide cover for drain, stops and trap per A.D.A 4-19.4.

2.10 DISPENSER, DRINKING WATER

- A. Standard rating conditions: 50 degrees F (10 degrees C) water with 80 degrees F (27 degrees C) inlet water temperature and 90 degrees F (32 degrees C) ambient air temperature.
- B. (P-604) Electric Water Cooler (Mechanically Cooled, Wall Hung, Self-contained, Wheelchair) bubbler style, 5 gph (5 ml/s) minimum capacity,

lead free. Top shall be CRS anti-splash design. Cabinet, CRS, satin finish, approximately 18 by 18 by 25 inches high (457 by 457 by 635 mm) with mounting plate. Refer to architectural elevations for mounting heights. Unit shall be push bar operated with front and side bar and automatic stream regulator. All trim polished chrome plated.

2.11 SHOWER BATH FIXTURE

A. (P-704) Shower Bath Fixture (Wall Mounted, Concealed Supplies, Hose Spray):

1. Shower Installation: Wall mounted showerhead connected to shower arm.
2. Shower Heads: Chrome plated metal head, adjustable ball joint, self-cleaning head with automatic flow control device to limit discharge to not more than three gpm. Body, internal parts of shower head and flow control fittings shall be copper alloy or CRS. Install showerhead 72 inches (1829 mm) above finished floor.
3. Valves: Type T/P combination temperature and pressure balancing, with chrome plated metal lever type operating with adjustment for rough-in variations handle and chrome plated metal or CRS face plate. Install diverter selector valve and elevated vacuum breaker to provide tempered water to shower head and hose spray. 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 1/2 inch IPS (13 mm). Provide external screwdriver check stops, and temperature limit stops. Set stops for a maximum temperature of 105 degrees F (40 degrees C). All exposed fasteners shall be vandal resistant. Valve shall provide a minimum of 2.5 gpm (160 ml/s) at 45 psi (310 kPa) pressure drop.
4. Spray Assembly: Shall consist of a 60 inch (1524 mm) long rubber lined CRS, chrome plated metal flexible, or white vinyl reinforced hose with coupling for connection to 1/2 inch (13 mm) hose supply elbow protruding through wall. Spray shall consist of a self-closing, lever-handle, faucet with thumb control having open-shut positions and intermediate positions for regulating water flow and elevated pressure type vacuum breaker. Provide wall hook for faucet.

2.12 HYDRANT, HOSE BIBB AND MISCELLANEOUS DEVICES

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flushing fitting for connecting to the valve outlet when the supply line is flushed into the waste receptor. A hose bracket welded in the box will hold two discharge hoses and the waste outlet is a 2 3/8" O.D. stainless steel tail-piece. The waste outlet can be connected directly to a nominal 2" glass or plastic drain line with a mechanical coupling.

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. Toggle Bolts: For hollow masonry units, finished or unfinished.
- D. Expansion Bolts: For brick or concrete or other solid masonry. Shall be 1/4 inch (6 mm) diameter bolts, and to extend at least 3 inches (76 mm) 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: Shall be used for concrete walls, shall be 1/4 inch (6 mm) threaded studs, and shall extend at least 1-1/4 inch (32 mm) into wall.
- F. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.
- G. Where water closet waste pipe shall be offset due to beam interference, provide correct and additional piping necessary to eliminate relocation of water closet.
- H. Do not use aerators on lavatories and sinks.

3.2 CLEANING

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

3.3 COMMISSIONING

- A. Provide commissioning documentation in accordance with the requirements of Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS for all inspection, startup, and contractor testing required above and required by the System Readiness Checklist provided by the Commissioning Agent.
- B. Components provided under this section of the specification shall be tested as part of a larger system. Refer to Section 22 08 00,

H.H. McGuire VAMC
VA 246-14-C-0032 - Expand MICU
Richmond, VA

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Construction Documents
Project No. 652-316

COMMISSIONING OF PLUMBING SYSTEMS and related sections for contractor
responsibilities for system commissioning.

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