

**SECTION 22 40 00
PLUMBING FIXTURES**

PART 1 - GENERAL

1.1 DESCRIPTION

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. 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
A112.19.2M-03.....Vitreous China Plumbing Fixtures
- C. American Society for Testing and Materials (ASTM):
WW-P-541-E/GENPlumbing Fixtures with Amendment 1
- D. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM
AMP 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. National Sanitation Foundation (NSF)/American National Standards
Institute (ANSI):
61-2009Drinking Water System Components-Health Effects

- 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 IPBC 2009.

PART 2 - PRODUCTS

2.1 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.

2.2 STOPS

- A. Provide lock-shield loose key or screw driver pattern angle stops with each compression type faucet whether specifically called for or not. Locate stops centrally below fixture in accessible location.
- B. Furnish keys for lock shield stops to Resident Engineer.
- 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.

2.3 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.

2.4 CARRIERS

- A. ASME/ANSI A112.6.1M, lavatory chair carrier. All lavatory chair carriers shall be capable of supporting the lavatory with a 250-pound vertical load applied at the front of the fixture.

2.5 WATER CLOSETS

- A. **P1:** Vitreous China Water Closet (Floor Mounted, ANSI 112.19.2M, Figure 6) - office and industrial, elongated bowl, top spud, angle flange, siphon jet 6 L (1.6 gallons) per flush, wall outlet. Top of rim shall be 438 mm (17 1/4 inches) above finished floor. Rated for Bariatric use. Water Closet to be Crane Model 31080 per request of Facility, no substitutions will be accepted.

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: Wall inlet stack fitting-cast iron with gasket and 1" maximum nipple length; bolts with chromium plated cap nuts and washers. Back to Back: Double offset fitting with floor mount fixture outlet connection.
 3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, battery powered, side mount 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 406 mm (16 inches) above rim. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM Alloy classification for semi-red brass. Sloan Valve Co. Model 113-1.6 SMO per request of the Facility, no substitutions will be accepted.
- B. **P1A:** Bradley Corp. Model WC7180-4NH, chase-mounted wall-hung blowout jet toilet, type 304 stainless steel construction, seamless welded construction, exposed surfaces to have a satin finish, except the integral contoured toilet seat which shall have a sanitary high polish finish, elongated bowl, 4" No-Hub coupling waste outlet, ADA compliant (17" integral seat height), concealed 1 ½" NPT female wall supply connection, 1.6 gallon flush. Furnish with necessary rust-resistant mounting hardware for proper installation. No substitution, Facility requirement.
1. Flush Valve: Sloan Valve Co. Model 952-1.6-WB-1-A, concealed flush valve, hydraulic flushing system, 1.6 gallon flush, diaphragm type, rough brass finish, dual filtered fixed bypass, metal direct acting non-hold-open push button, wheel handle bak-chek angle stop, elbow flush connection for 1 ½" concealed back spud, chrome plated exposed parts, high copper low zinc castings, 13" x 17" wall box with stainless steel access panel and vandal resistant fasteners. No substitutions, Facility requirement.

2.6 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. **P2:** Wall Mounted Lavatory (Wrist Control, ASME/ANSI A112.19.2M, Figure 16) 4" high straight backsplash, approximately 508 mm by 457 mm (20 inches by 18 inches) and a 102 mm (4 inches) minimum apron, first quality vitreous china. Punching for faucet shall be on 102 mm (4 inches) centers. Set rim 864 mm (34 inches) above finished floor.
1. Faucet: Solid cast brass low lead construction with compression type mixing cartridges and centrally exposed rigid plain end gooseneck spout with outlet 171 mm (6 3/4 inch) above rim, 1.5 GPM integral laminar flow control device. One hundred two millimeter (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. Chicago Faucet Co. Model 895-317FCABCP per request of the Facility, no substitution will be accepted.
 2. Drain: Cast or wrought brass with flat grid strainer, offset tailpiece, chrome plated.
 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. Exposed metal trap surface, and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to the wall.
 5. Provide cover for drain, stops and trap per A.D.A 4-19.4.
- D. **P2A:** Acorn Engineering Co. Model 1652-ADA-FA-1-LF-4-OF, or equal, ADA compliant wall mounted, wall outlet 18" lavatory with oval bowl, front access, factory piped and tested, 14 gage type 304 stainless steel construction, seamless welded construction, exposed surfaces to have a satin finish, self-draining soap dish, air-control pneumatically operated hot and cold push button valves, adjustable timing, lavatory filler on backsplash, lavatory overflow, removable cabinet bottom with tamper-resistant screws, ADA compliant control valves, cabinet interior sound deadened with fire resistant material. Furnish necessary fasteners for proper installation. Furnish 17 gage 1 1/2" O.D. P-trap.

2.7 SINKS

- A. Dimensions for sinks and laundry tubs are specified, length by width (distance from wall) and depth.

- B. **P3:** Service Sink (Floor Mounted) stain resistant terrazzo, 24 inches by 24 inches by 12 inches with 6 inch drop front. Terrazzo, composed of marble chips and white Portland cement, shall develop compressive strength of 20684 kPa (3000 psi) seven days after casting. Provide stainless steel cap on threshold.
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, 19 mm (3/4 inch) 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 914 mm (36 inches) hose with wall hook. Centerline of rough in is 1219 mm (48 inches) 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. **P4:** Sink, solid surface integral with countertop provided by General Contractor.
1. Faucet: Solid cast brass low lead construction, deck mounted combination faucet with compression type cartridges, removable replacement unit containing all parts subject to wear, rigid plain end gooseneck spout, 1.5 GPM integral laminar flow control, spout outlet 171 mm (6 3/4-inches above deck and 102 mm (4 inch) wrist blades. Faucet shall be polished chrome plated. Chicago Faucet Co. Model 895-317FCABCP per request of the Facility, no substitutions will be accepted.
 2. Drain: Drain with grid strainer, stainless steel.
 3. Trap: Cast copper alloy 40 mm (1-1/2 inch) P-trap with cleanout plug. Provide wall connection and escutcheon.
- D. **P5:** Sink (CRS, Single Compartment, Counter Top ASME/ANSI A112.19.2M, Kitchen Sinks, Figure 5) self rimming, back faucet ledge, approximately 533 mm by 559 mm (21 inches by 22 inches) with single compartment inside dimensions approximately 406 mm by 483 mm by 191 mm (16 inches by 19 inches by 7 1/2 inches deep). Shall be minimum of 1.3 mm thick (18 gauge) CRS. Corners and edges shall be well rounded:
1. Faucet: Solid cast brass low lead construction, deck mounted combination faucet with compression type cartridges, removable replacement unit containing all parts subject to wear, swivel plain

- end gooseneck spout, 1.5 GPM integral laminar flow control, spout outlet 171 mm (6 3/4 inches above deck and 102 mm (4 inches) wrist blades. Faucet shall be polished chrome plated. Chicago Faucet Co. Model 895-317FCABCP per request of the Facility, no substitutions will be accepted.
2. Drain: Drain plug with cup strainer, stainless steel.
 3. Trap: Cast copper alloy 38 mm (1 1/2 inches) 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. **P5A:** Clinic Service Sink (Flushing Rim, Floor Mount) approximately 508 mm by 711 mm (20 inches by 28 inches). Vitreous china, siphon jet flushing action, 1 1/2" top spud, 4" floor outlet, stainless steel bolt covers, (3) stainless steel rim guards, metal loose strainer.
1. Faucet: Elbow control, wall hung, integral stops, single spout with 19 mm (3/4 inch) hose threaded outlet and pail hook, vacuum breaker and brace to wall. Outlet 356 mm to 381 mm (14 inches to 15 inches) 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, flush tube offset as required, with screwdriver back check straight stop with cap, union outlet, street ells, elevated high pressure vacuum breaker, casing cover, 32 mm (1 1/4 inches) elbow flush connection from finished wall to 38 mm (1 1/2 inches) top spud. Spud coupling, wall and spud flanges.
 3. Bed Pan Washer: Mechanical pedal mixing valve, wall hung, with double slow-closing pedal valve with loose key stops, renewable seats and supply from valve to nozzle with wall hook hose connection; 1219 mm (48 inches) of heavy duty rubber hose, with extended spray outlet elevated vacuum breaker, indexed lift up pedals having clearance of not more than 13 mm (1/2 inch) above the floor and not less than 356 mm (14 inches) 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.

2.8 DISPENSER, DRINKING WATER

- A. Standard rating conditions: 10 degrees C (50 degrees F) water with 27 degrees C (80 degrees F) inlet water temperature and 32 degrees C (90 degrees F) ambient air temperature.

- B. **P6:** Electric Water Cooler (Mechanically Cooled, Two-Level Wall Hung, Lead Free Design, ADA Model). "GreenSpec" listed, energy and water efficient model, recessed in-the-wall refrigeration system, stainless tubular steel support arm, contoured stainless steel fountain body, #18 gauge, high shine satin finish, "Flex-Guard Stream Saver" bubbler, vandal resistant front push button, flow regulator, energy efficient refrigeration system, stainless steel back panel and removable louvered ventilating grill with polished satin finish, wall mounting frame, 7.5 GPM of 50°F water. Furnish with cane apron for installation below higher unit. Elkay Model ERPBGRNM28K or equal.

2.9 SHOWERS

- A. **P7:** Symmons Industry Model 1-117-FSB-2.0, or equal Shower System (Fixed head and detachable, wall mounted hand held shower, diverter lever; Concealed Supplies, Type T/P Combination Valve):
1. Shower Installation: Fixed - Shower arm and escutcheon; Wall mounted detachable spray assembly - 760 mm (30 inch) wall bar, in-line vacuum breaker, supply elbow and flange and valve. All external trim, chrome plated metal.
 2. Shower Head Assembly (2.0 GPM maximum flow rate): Fixed - Chrome plated brass adjustable spray; Detachable - Plastic shower head with flow control to limit discharge to 160 ml/s (2.5 gpm), 1524 mm (60 inches) length of rubber lined CRS, 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, with chrome plated metal lever type operating handle adjustable for rough-in variations and chrome plated metal 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 screwdriver check stops and temperature limit stop. Set stop for a maximum temperature of 40 degrees C (105 degrees F). 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.
- B. **P8:** Aqua Bath or equal Shower Enclosure, Symmons Industry Model 1-117-FSB-2.0, or equal Shower system (Fixed head and detachable, wall mounted hand held shower, diverter lever; Concealed Supplies, Type T/P Combination Valve):

1. Shower Installation: Fixed - Shower arm and escutcheon; Wall mounted detachable spray assembly - 760 mm (30 inch) wall bar, in-line vacuum breaker, supply elbow and flange and valve. All external trim, chrome plated metal.
 2. Shower Head Assembly (2.0 GPM maximum flow rate): Fixed - Chrome plated brass adjustable spray; Detachable - Plastic shower head with flow control to limit discharge to 160 ml/s (2.5 gpm), 1524 mm (60 inches) length of rubber lined CRS, 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, with chrome plated metal lever type operating handle adjustable for rough-in variations and chrome plated metal 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 screwdriver check stops and temperature limit stop. Set stop for a maximum temperature of 40 degrees C (105 degrees F). 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. Shower Enclosure: Acrylic ADA compliant shower enclosure, one-piece construction, 36" x 36" x 78" inside dimensions, stainless steel grab bars and curtain rod, 3/4" threshold, fold-up seat, integral soap dish, brass drain, stainless steel strainer, dome light (120V fluorescent having (2) 13 Watt Quad Tubes) (factory drilled top), antibacterial weighted shower curtain, with hooks, water retention strip.
- C. **P9:** Aqua Bath or equal Shower enclosure, Symmons Industry Model 1-117-FSB-2.0, or equal Shower system (Fixed head and detachable, wall mounted hand held shower, diverter lever; Concealed Supplies, Type T/P Combination Valve):
1. Shower Installation: Fixed - Shower arm and escutcheon; Wall mounted detachable spray assembly, 760 mm (30 inch) wall bar, in-line vacuum breaker, supply elbow and flange and valve. All external trim, chrome plated metal.
 2. Shower Head Assembly (2.0 GPM maximum flow rate): Fixed - Chrome plated brass adjustable spray; Detachable - Plastic shower head with flow control to limit discharge to 160 ml/s (2.5 gpm), 1524 mm (60

inches) length of rubber lined CRS, 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, with chrome plated metal lever type operating handle adjustable for rough-in variations and chrome plated metal 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 screwdriver check stops and temperature limit stop. Set stop for a maximum temperature of 40 degrees C (105 degrees F). 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. Shower Enclosure: Acrylic ADA compliant shower enclosure, one-piece construction, 48" x 48" x 78" inside dimensions, stainless steel grab bars and curtain rod, 2" threshold, fold-up seat, integral soap dish, brass drain, stainless steel strainer, dome light (120V fluorescent having (2) 13 Watt Quad Tubes) (factory drilled top), antibacterial weighted shower curtain, with hooks, water retention strip.

2.10 EMERGENCY FIXTURE

- A. **EW1:** Emergency Eye Wash (Wall Mounted): Self-contained station, built-in waste reservoir, arm and headrest, convenient side windows, sign, mounting bracket, installation DVD, complies with ANSI standards, Sperian Fendall Model 2000 (no substitutions). Furnish with 100% sterile saline cartridge.

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. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.
- D. 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.

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