

**SECTION 22 40 00
PLUMBING FIXTURES**

**Addendum #1
06/24/16**

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. Through bolts: Section 10 21 13, TOILET COMPARTMENTS.
- D. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.
- E. SECTION 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS.
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):
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 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. 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 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.
- E. Psychiatric Area: Provide stainless steel drain guard for all lavatories not installed in casework.

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.
- B. Flow Control Restrictor:
 - 1. Capable of restricting flow from 0.5 gpm for lavatories; 1.5 gpm for sinks S-2 through S-7, and 2.2 gpm for custodial sinks 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 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, 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. (WC-1) Water Closet (Floor Mounted, ANSI 112.19.2M, Figure 6) ADA height floor mount, top spud, elongated bowl, siphon jet 1.28 gallons per flush, floor outlet. Top of rim shall be 435 mm to 438 mm (17 inches to 19 inches) above finished floor. Basis of Design: American Standard 3043.001.
 - 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. Basis of Design: Church 295CT.
 - 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, non-hold-open ADA approved side oscillating handle, water saver design 1.28 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. Basis of Design: Sloan 111-1.28.

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. (L-1) Lavatory straight back, approximately 508 mm by 457 mm (20 inches by 18 inches) and a 102 mm (4 inches) maximum apron, first quality vitreous china. Single center punching for faucet. Set with rim 864 mm (34 inches) above finished floor. ADA compliant. Basis of Design: American Standard 0356.421.

1. Faucet: Solid cast brass construction, vandal resistant, heavy-duty sensor operated gooseneck, deck mount, single center hole set. Control shall be 12 VAC hard wired transformer, user adjustable temperature mixer. Provide 0.5 gpm laminar flow control device, adjustable hot water limit stop, and vandal proof screws. Basis of Design: Chicago 116.123.AB.1 with Chicago 243.260.00.1 Transformer.
2. Thermostatic mixing valve: MV-1. See Specification Section 220523.
3. Drain: Cast or wrought brass with flat grid strainer offset tailpiece, chrome plated. Provide cover per A.D.A 4-19.4.
4. Stops: Angle type, see paragraph 2.2 Stops. Provide cover per A.D.A 4-19.4.
5. 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 extensions to wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to wall. Provide cover 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. (S-1) Service Sink (Corner, Floor Mounted) stain resistant terrazzo, 711 mm by 711 mm by 305 mm (24 inches by 24 inches by 12 inches) with 152 mm (6 inches) 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 extruded aluminum cap on front side. Basis of Design: Acorn TNC24.
 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. Basis of Design: Chicago 897-CP.
2. Drain: Seventy six millimeter (3 inches) cast brass drain with nickel bronze strainer.
 4. Trap: P-trap, drain through floor.
- C. (S-2) Sink (Single Compartment, Counter Top ASME/ANSI A112.19.2M,) self-rimming, back faucet ledge, approximately 15 inches by 17 inches with single compartment inside dimensions approximately 12 inches by 12 inches by 6 inches deep. Shall be minimum of 1.3 mm thick (18 gauge). Corners and edges shall be well rounded. Basis of Design: Elkay LRAD 1517.
1. Faucet: Solid cast brass construction, vandal resistant, heavy-duty sensor operated gooseneck, deck mount, single center hole set. Control shall be 12 VAC hard wired transformer, user adjustable temperature mixer. Provide 1.5 gpm laminar flow control device, adjustable hot water limit stop, and vandal proof screws. Basis of Design: Chicago 116.429.AB.1 with Chicago 243.260.00.1 Transformer.
 2. Thermostatic mixing valve: MV-1. See Specification Section 220523.
 3. Drain: Grid strainer, stainless steel.
 4. Trap: Cast copper alloy 38 mm (1 1/2 inches) P-trap with cleanout plug. Provide wall connection and escutcheon.
 5. Provide cover for drain, stops and trap per A.D.A 4-19.4.
- D. (S-3) Sink, Not Used.
- E. (S-4) Sink (Single Compartment, Counter Top ASME/ANSI A112.19.2M) self-rimming, back faucet ledge, approximately 15 inches by 17 inches with single compartment inside dimensions approximately 12 inches by 12 inches by 6 inches deep. Shall be minimum of 1.3 mm thick (18 gauge). Corners and edges shall be well rounded. Basis of Design: Elkay LRAD 1517.
1. Faucet: Solid brass construction, deck mounted combination faucet with monel or ceramic seats, removable replacement unit containing all parts subject to ware, 1.5 gpm laminar flow outlet, swivel gooseneck spout with approximately 8 inch reach with spout outlet 6 inches above deck with single side lever and side spray, polished chrome plated. Basis of Design: Chicago 2304-E35ABCP with E36-JKCP laminar flow outlet.
 2. Thermostatic mixing valve: MV-1. See Specification Section 220523.

3. Drain: Drain plug with cup strainer, stainless steel.
4. Trap: Cast copper alloy 38 mm (1 1/2 inches) P-trap with cleanout plug. Provide wall connection and escutcheon.
5. Provide cover for drain, stops and trap per A.D.A 4-19.4.

F. (S-5) Sink By Others

1. Trap: Cast copper alloy 38 mm (1 1/2 inches) P-trap with cleanout plug. Provide wall connection and escutcheon.
2. Thermostatic mixing valve: MV-2, set to limit hot water supply temperature to 110 degree F. See Specification Section 220523.

G. (S-6) Soiled / Decon Sink (Wall Hung) approximately 787 mm by 495 mm (31 inches by 20 inches) by 267 mm (10-1/2 inches) deep, 14 gauge, 304 stainless steel. Support with ASME/ANSI A112. 6.1M wall hanger and secure with 10 mm (3/8 inch) bracket studs and nuts. Set sink with rim 762 mm (30 inches) above finished floor. Basis of Design: Elkay EWS 3120.

1. Faucet: Wall mount 8 inch body, adjustable arms, integral stops, 8 inch rigid swing gooseneck spout, 1.5 gpm laminar flow, 4 inch wristblade handles. Exposed metal parts shall be chromium plated with a smooth bright finish. Basis of Design: Chicago 631-GN2FCABCP.
2. Thermostatic mixing valve: MV-1. See Specification Section 220523.
3. Drain: Grid strainer, stainless steel.
4. Trap: Cast copper alloy 38 mm (1 1/2 inches) P-trap with cleanout plug. Provide wall connection and escutcheon.
5. EW-1: Wall mount right side of faucet, pull down eye/face wash, dual heads, flip top dust covers with thermostatic mixing valve. Basis of Design: Guardian G1778LH-L and option TMV G3600LF.

H. (S-7) Wall Hung sink, straight back, approximately 508 mm by 457 mm (20 inches by 18 inches) and a 102 mm (4 inches) maximum apron, first quality vitreous china. Single center punching for faucet. Set with rim 864 mm (34 inches) above finished floor. ADA compliant. Basis of Design: American Standard 0356.421.

1. Faucet: Solid cast brass construction, vandal resistant, heavy-duty sensor operated gooseneck, deck mount, single center hole set. Control shall be 12 VAC hard wired transformer, user adjustable temperature mixer. Provide 1.5 gpm laminar flow control device,

- adjustable hot water limit stop, and vandal proof screws. Basis of Design: Chicago 116.429.AB.1 with Chicago 243.260.00.1 Transformer.
2. Thermostatic mixing valve: MV-1. See Specification Section 220523.
 3. Drain: Cast or wrought brass with flat grid strainer offset tailpiece, chrome plated. Provide cover per A.D.A 4-19.4.
 4. Stops: Angle type, see paragraph 2.2 Stops. Provide cover per A.D.A 4-19.4.
 5. 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 extensions to wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to wall. Provide cover per A.D.A 4-19.4.
- I. (S-8) Sink (Single Compartment, Counter Top ASME/ANSI A112.19.2M,) self-rimming, back faucet ledge, approximately 15 inches by 17 inches with single compartment inside dimensions approximately 12 inches by 12 inches by 6 inches deep. Shall be minimum of 1.3 mm thick (18 gauge). Corners and edges shall be well rounded. Basis of Design: Elkay LRAD 1517.
1. Faucet: Solid cast brass construction, vandal resistant, heavy-duty sensor operated gooseneck, deck mount, single center hole set. Control shall be 12 VAC hard wired transformer, user adjustable temperature mixer. Provide 1.5 gpm laminar flow control device, adjustable hot water limit stop, and vandal proof screws. Basis of Design: Chicago 116.429.AB.1 with Chicago 243.260.00.1 Transformer.
 2. Thermostatic mixing valve: MV-1. See Specification Section 220523.
 3. Drain: Grid strainer, stainless steel.
 4. Trap: Cast copper alloy 38 mm (1 1/2 inches) 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.
 5. EW-2: Counter mount right side of sink, swing eye/face wash, dual heads, flip top dust covers with thermostatic mixing valve. Basis of Design: Guardian G1774 and option TMV G3600LF.

2.10 SHOWER BATH FIXTURE

- A. (SH-1) Shower Fixture (Detachable, Wall Mounted, Concealed Supplies, Type T/P Combination Valve):
1. Shower Head Assembly: Wall mounted detachable spray assembly, 600 mm (24 inch) wall bar, elevated vacuum breaker, supply elbow and flange

- and valve. All external trim, chrome plated metal. Chrome shower head with flow control to limit discharge to 1.5 gpm, 60 inches length of rubber lined CRS, chrome plated metal flexible, 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.
2. 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 external screwdriver check stops, vacuum breaker and temperature limit stops. Set stops for a maximum temperature of 40 degrees C (105 degrees F). All exposed fasteners shall be vandal resistant. Valve shall provide a minimum of 1.5 gpm at 45 psi pressure drop. Basis of Design: Moen 8342EP15.

2.11 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. (DF-1) Dual Height Electric Water Cooler with bottle filler (Mechanically Cooled, Wall Hung, Self-contained, Wheelchair) bubbler style, 5 ml/s (5 gph) minimum capacity, lead free. Top shall be CRS anti-splash design. Cabinet, CRS, satin finish, approximately 457 mm by 457 mm by 635 mm (18 inches by 18 inches by 25 inches) high with mounting plate. Set bubbler 914 mm (36 inches) above finished floor. Unit shall be push bar operated with front and side bar and automatic stream regulator. All trim polished chrome plated. Basis of Design: Elkay LZSTL8WSLP.

2.12 HYDRANT, HOSE BIBB AND MISCELLANEOUS DEVICES

- A. (HB-1) Hose Bibb (Single Faucet, Wall Mounted to Concealed Supply Pipe): Cast or wrought copper alloy, single faucet with replaceable monel seat, removable replacement unit containing all parts subject to wear, mounted on wall 914 mm (36 inches) above floor to concealed supply pipe. Provide faucet with 19 mm (3/4 inch) hose coupling thread

on spout and vacuum breaker. Four-arm handle on faucet 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 bright finish. Basis of Design: Woodford 26P.

- B. (HB-2) Wall Hydrant: Cast bronze non-freeze hydrant with detachable T-handle. Brass operating rod within casing of bronze pipe of sufficient length to extend through wall and place valve inside building. Brass valve with coupling and union elbow having metal-to-metal seat. Valve rod and seat washer removable through face of hydrant; 19 mm (3/4 inch) hose thread on spout; 19 mm (3/4 inch) pipe thread on inlet. Finish may be rough; exposed surfaces shall be chrome plated. Set not less than 457 mm (18 inches) nor more than 914 mm (36 inches) above grade. On porches and platforms, set approximately 762 mm (30 inches) above finished floor. Provide integral vacuum breaker which automatically drains when shut off. Basis of Design: Woodford B67.

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

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 will be tested as part of a larger system. Refer to Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS and related sections for contractor responsibilities for system commissioning.

END OF SECTION