

SECTION 22 40 00
PLUMBING FIXTURES

PART 1 GENERAL

1.01 REFERENCES

A. The following is a list of standards which may be referenced in this section:

1. Americans with Disabilities Act (ADA).
2. American Gas Association (AGA).
3. American Society of Mechanical Engineers (ASME).
4. American Society of Sanitary Engineering (ASSE): 1010, Performance Requirements for Water Hammer Arresters.
5. ASTM International (ASTM): D4101, Standard Specification for Polypropylene Injection and Extrusion Materials.
6. Food and Drug Administration (FDA).
7. NSF International (NSF):
 - a. NSF/ANSI 61, Drinking Water System Components - Health Effects.
 - b. NSF/ANSI 372, Drinking Water System Components - Lead Content.
8. Plumbing and Drainage Institute (PDI):
 - a. Code Guide 302 and Glossary of Industry Terms.
 - b. WH-201, Water Hammer Arrester Standard.
9. UL.

1.02 SUBMITTALS

A. Action Submittals: Catalog information and rough-in dimensions for plumbing fixtures, products, and specialties.

1.03 REGULATORY REQUIREMENTS

A. Comply with the Americans with Disabilities Act (ADA), and local and state requirements.

PART 2 PRODUCTS

2.01 GENERAL

A. Components and Materials in Contact with Water for Human Consumption: Comply with the requirements of the Safe Drinking Water Act and other applicable federal, state, and local requirements. Provide certification by manufacturer or an accredited certification organization recognized by the Authority Having Jurisdiction that components and materials comply with the

maximum lead content standard in accordance with NSF/ANSI 61 and NSF/ANSI 372.

1. Use or reuse of components and materials without a traceable certification is prohibited.

2.02 GENERAL

- A. Fixture Trim: Provide plumbing fixture trim where applicable on fixtures.
- B. Plumbing Fixtures: Indicated by fixture number as shown on the Drawings.
- C. Drainage Products: Indicated by fixture number as shown on the Drawings.
- D. Plumbing Specialties: Indicated by fixture number as shown on the Drawings.
- E. Exposed fixture connections and piping shall be polished chrome-plated.

2.03 MATERIALS

A. Fixture Trim:

1. Supply Stop:
 - a. Manufacturer:
 - 1) McGuire.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Flexible supply with heavy cast brass, loose key, 1/2-inch IPS by 3/8-inch outside diameter tubing angle stop to wall with escutcheon plate; chrome-plated finish.
 - 2) Provide stop with stuffing box.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
2. Trap:
 - a. Manufacturer:
 - 1) McGuire.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Chrome-plated, 17-gauge, semicast P-trap with compression ring cast brass waste and vent connection and cleanout.
 - 2) 1-1/2 inches for lavatories and drinking fountains.
 - 3) 1-1/2 inches for sinks.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.

3. Water Closet and Urinal Flush Valves:
 - a. Manufacturer:
 - 1) Sloan.
 - 2) Or equal.
 - b. Physical Characteristics: Low flush, quiet action with screwdriver stop and vacuum breaker.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.

B. Plumbing Fixtures:

1. EWC-1, Filtered Electric Water Cooler (ADA Compliant, Dual Height) with bottle filler:
 - a. Manufacturer and Product:
 - 1) Haws; Model 1212SF.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Finish: No. 4 satin finish Type 304 stainless steel outer shell and rectangular receptors.
 - 2) Valve: Front pushbutton operated with automatic stream regulation.
 - 3) Trim: Screwdriver stop, strainer, and P-trap with cleanout.
 - 4) Cooler: R134a, air-cooled.
 - 5) Mount: Wall mounting.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: 8 gallon per hour flow rate based on 80 degree F inlet water and 90 degree F ambient temperature.
2. LAV-1, Lavatory (Counter Set, Oval):
 - a. Manufactureres:
 - 1) Lavatory: American Standard Aqualyn.
 - 2) Faucet: Chicago Faucet 2200-4CP.
 - 3) Or equal.
 - b. Physical Characteristics:
 - 1) Fixture: 20 inches by 17 inches, vitreous china, self-rimming.
 - 2) Faucet: 0.5-gpm flow restricter.
 - 3) ASSE 1070 Thermostatic mixing valve.
 - 4) Trim: 3/8-inch supply stop with loose key, 17-gauge chrome-plated cast brass P-trap.
 - 5) Insulation: Antimicrobial PVC resin seamless insulation for trap, tailpiece, and hot and cold water supply piping.
 - 6) Strainer: Chrome-plated grid strainer with tailpiece.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics:
 - 1) ASME A112.18/CSA B125.1.
 - 2) ADA ANSI/ICC A117.1.

3. LSK-2, Lab Sink RO Water Dispenser:
 - a. Manufacturer and Product:
 - 1) George Fisher Type 530 AQUA TAP RO Faucet.
 - 2) Or equal.
 - b. Physical Characteristics: Polypropylene material.
 - c. Functional Characteristics: None.
 - d. Performance characteristics: 1 gpm flowrate.
4. MS-1, Mop Sink (Floor Mounted):
 - a. Manufacturers:
 - 1) Mop sink: Stern Williams Model SBC
 - 2) Faucet: Chicago Faucet Model 897-CCP.
 - 3) Or equal.
 - b. Physical Characteristics:
 - 1) Fixture: Molded stone, corner set, 24 inches by 24 inches by 12 inches deep with stainless steel bumper guard, back panels and chrome-plated brass drain.
 - 2) Faucet: Concealed supplies with hose threads, vacuum breaker, and rod support. Faucet mounted 36 inches above finish floor.
 - 3) Accessories: 30-inch hose, wall bracket and 24-inch stainless steel mop hanger.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: ASME 112.18/CSA B125.1 Faucet.
5. S-1, Sink (Counter, Stainless Steel, Double Compartment):
 - a. Manufacturers:
 - 1) Sink: Just model DLADA2233A65-J.
 - 2) Faucet: Chicago Faucet 1201-ACP.
 - 3) Or equal.
 - b. Physical Characteristics:
 - 1) Fixture: 22 inches by 33 inches overall by 6.5 inches deep, 18-gauge, Type 304 stainless steel, three-hole punch, self-rimming, undercoated, ledge-type.
 - 2) Faucet: Double handle, 8-inch fixed centers, 9-1/2-inch L-type swing spout, polished chrome.
 - 3) ASSE 1070 Thermostatic mixing valve.
 - 4) Trim: 1-1/2-inch outside diameter, 17-gauge chrome-plated cast tailpiece and cast brass P-trap with cleanout, and 1/2-inch wall supply stop with loose key.
 - 5) Strainer: Stainless steel crumb-type.
 - 6) Disposer: 3/4 horsepower, stainless steel.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics:
 - 1) ADA ANSI/ICC A117.1.
 - 2) ASME A112.18.1/CSA B125.1 Faucet.

6. S-2, Sample Sink (Single Compartment, Drain Board):
 - a. Manufacturers:
 - 1) Sink: Advance Tabco Model FC-1-1818-18R.
 - 2) Faucet: Chicago Faucet 305-VBRRCF.
 - 3) Or equal.
 - b. Physical Characteristics:
 - 1) Fixture: 38-1/2 inches by 24 inches by 43 inches deep overall, 20-1/2 inches by 24 inches by 14 inches deep basin, 16-gauge, Type 304 stainless steel, 8-inch backsplash, adjustable stainless steel tubular legs.
 - 2) Faucet: Short spout with vacuum breaker, 3/4-inch hose thread outlet, pail hook, H supply arms, 4-inch to 8-3/8-inch adjustable centers, lever handles. Faucet mounted on backsplash.
 - 3) ASSE 1070 thermostatic mixing valve.
 - 4) Trim: 1-1/2-inch outside diameter, 17-gauge chrome-plated flat strainer, tailpiece, and cast brass P-trap with cleanout, and 1/2-inch wall supply stop with loose key.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: ASME A112.1B/CSA B125.1 faucet.
7. SH-1 Shower:
 - a. Manufacturers:
 - 1) Fixed shower head: Sloan AC-11-2.5GPM-CP.
 - 2) Hand shower: American Standard 1660.772.
 - 3) Or equal.
 - b. Physical Characteristics:
 - 1) 2.5 GPM flow restrictor.
 - 2) Mixing Valve: Thermostatic Type. Factory installed check stops on cold and hot water.
 - 3) Trim: Inlet stainer, check, integral stop, temperature limit stop, and diverter valve.
 - 4) 59-inch hose with shower arm bracket.
 - 5) Functional Characteristics: None.
 - 6) Performance Characteristics: None.
8. SSK-1, Service Sink:
 - a. Manufacturers:
 - 1) Service Sink: Kohler Bannon Model K-6718
 - 2) Faucet: Chicago Faucet 835-CP.
 - 3) Or equal.
 - b. Physical Characteristics:
 - 1) Fixture: 22-1/4 inches by 23 inches by 18-1/4 inches deep overall, 22-1/4-inch by 13-inch by 18-1/4-inch deep basin, enameled cast iron with stainless steel rim guard and blank back.

- 2) Faucet: Wall-mounted, 6-inch fixed centers, exposed top supplies, with hose threads, vacuum breaker, and rod support.
 - 3) Accessories: 3-inch trap standard with cleanout plug and grid strainer.
- c. Functional Characteristics: None.
- d. Performance Characteristics:
 - 1) ASME A112.19.1/CSA B45.2.
 - 2) ASME A112.18.1/CSA B125.1 Faucet.
 - 3) ASSE 1001 Certified Faucet.
- 9. WC-1, Water Closet (Flush Valve, Floor Mounted back outlet, ADA Compliant):
 - a. Manufacturers:
 - 1) American Standard Priolo FloWise.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Fixture: Floor mounted, Vitreous china, direct-fed siphon jet action, top spud, elongated bowl.
 - 2) Trim: 1-inch flush valve with handle pointed to wide side of stall enclosure, 1.6 gallons per flush.
 - 3) Seat: Olsonite Corp.; Model 10-CC-SS, white open front.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics:
 - 1) 1.28 gallon per flush.
 - 2) ASME A112.19.2/CSA B45.1.
 - 3) ADA Compliant.

C. Safety Equipment:

- 1. EE-1, Emergency Eyewash (Stainless Steel, Freestanding):
 - a. Manufacturers:
 - 1) Haws.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Eyewash: Dual stainless steel heads and 16-inch diameter face spray ring with stainless steel receptor.
 - 2) Valve: Type 316 stainless steel ball valve.
 - 3) Support: Stainless steel pipe pedestal with 9-inch diameter stainless steel floor flange.
 - 4) Alarm: Magnetically operated proximity switch.
 - c. Functional Characteristics:
 - 1) Valve: Stay-open.
 - d. Performance Characteristics: ASSE 1071 compliant thermostatic mixing valve rated at 5 gpm at 5 psi pressure drop.
 - e. Flowrate: 3.7 gpm.

2. SSH-1, Safety Shower/Eyewash Combination (All Stainless Steel):
 - a. Manufacturers:
 - 1) Haws Model 8330.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Shower: Stainless steel deluge.
 - 2) Eyewash: Stainless steel aerated eye/face wash and stainless steel bowl.
 - 3) Valve: Stay-open.
 - 4) Support: Freestanding, 1-1/4-inch stainless steel pipe standard, stanchion, and floor flange.
 - 5) Alarms: Magnetically operated proximity switches.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.

D. Drainage Products:

1. CO-1, Cleanout (Exterior):
 - a. Manufacturer and Product:
 - 1) Jay R. Smith Mfg. Co.; Model 4263.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Taper thread, bronze plug, heavy-duty, scoriated cast-iron top.
 - 2) See floor plans for size.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
2. CO-2, Cleanout:
 - a. Manufacturer and Product:
 - 1) Jay R. Smith Mfg. Co.; Model 4023.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Taper thread, bronze plug, scoriated nickel bronze top.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
3. FCO-1, Floor Cleanout (Finished Areas):
 - a. Manufacturers and Products:
 - 1) Jay R. Smith Mfg. Co.; Model 4103S.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Tapered thread, bronze plug with round adjustable scoriated secured nickel bronze top.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.

4. FCO-2, Floor Cleanout (Unfinished Areas):
 - a. Manufacturers and Products:
 - 1) Jay R. Smith Mfg. Co.; Model 4243S.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Tapered thread, bronze plug with round adjustable scoriated secured cast-iron top.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
5. FCO-3, Floor Cleanout (Acid Resistant):
 - a. Manufacturers and Products:
 - 1) Orion Fittings Inc.; Model FCO-RD.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Polypropylene.
 - 2) Ferrule supplied with countersunk plug and adjustable top with round cover, with Acid Waste Cleanout (AWCO) cast in the cover.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: Polypropylene conforming to ASTM D4101.
6. FD-1, Floor Drain (Finished Areas):
 - a. Manufacturers and Products:
 - 1) Jay R. Smith Mfg. Co.; Model 2005T-U-round.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Materials: Cast-iron body, adjustable nickel bronze strainer.
 - 2) Options: Vandalproof screws.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
7. FD-2, Floor Drain (Unfinished Areas, General Drainage):
 - a. Manufacturer and Product:
 - 1) Jay R. Smith Mfg. Co.; Model 2210T-U.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Materials: Cast-iron body and grate.
 - 2) Options: Sediment bucket, vandalproof screws.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
8. FD-6, Floor Drain (Acid Resistant):
 - a. Manufacturer and Products:
 - 1) Model: T & C Plastic Drain Co., Inc.; Model PP-7749 (2 inches), PP-7750 (3 inches), PP-7751 (4 inches).
 - 2) Or equal.

- b. Physical Characteristics:
 - 1) Materials: Acid-resistant polypropylene with flame-retardant body, integral flange with clamping collar, basket strainer, and top grate.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
- 9. HD-1, Hub Drain:
 - a. Physical Characteristics:
 - 1) Coated cast-iron reducing hub adapter with standard cast-iron hub.
 - 2) Hub: Two pipe sizes larger than outlet.
 - b. Functional Characteristics: None.
 - c. Performance Characteristics: None.
- 10. WCO, Wall Cleanout:
 - a. Manufacturers and Products:
 - 1) Jay R. Smith Mfg. Co.; Model 4472.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Stainless steel cover and screw.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
- 11. DCO-1, Double Cleanout (Exterior):
 - a. Manufacturers and Products:
 - 1) Jay R. Smith Mfg. Co.; Model 4263.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Material: Taper thread, bronze plug, heavy-duty, scoriated cast-iron top.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.
- 12. FS-1, Floor Sink:
 - a. Manufacturers and Products:
 - 1) Smith; Model 320-Y04.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Materials: Porcelain enamel, acid resistant, coated cast iron body and half grate.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: None.

E. Hose Valves: Refer to Section 22 10 01, Plumbing Piping and Accessories.

F. Plumbing Specialties:

1. Water Hammer Arresters:
 - a. Manufacturers and Products:
 - 1) Sioux Chief Mfg. Co., Inc.; Series 650 and 660.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Materials: Type L copper tube, HHPP piston with two lubricated EPDM O-rings, FDA approved lubricant, rolled piston stop, wrought copper male thread adapter.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: ASSE 1010 certified.
2. Trap Guards:
 - a. Physical Characteristics:
 - 1) Membrane: Elastomeric.
 - 2) Gasket and Seal: Silicone.
 - b. Functional Characteristics: Sewer gas and sewage backup protection for floor drains.
 - c. Performance Characteristics: ASSE 1072.
3. Pressure/Temperature Relief Valve:
 - a. Manufacturers and Products:
 - 1) Watts Industries, Inc.; Series 40.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Materials: Bronze body construction, vacuum relief valve vent in drain, backup emergency safety fuse plug, tamper-resistant bonnet screws, test lever, short thermostat, and automatic reseating.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: ASME/AGA rated.
4. Pressure Gauge:
 - a. Manufacturers and Products:
 - 1) Ashcroft Dresser Instrument Division, Dresser Industries, Inc.; Type 1008.
 - 2) Or equal.
 - b. Physical Characteristics:
 - 1) Materials: 3-1/2-inch gauge size, steel case, glass crystal, brass movement, and 1/3-inch NPT lower connection.
 - c. Functional Characteristics: None.
 - d. Performance Characteristics: 0 psi to 160 psi range.
5. Thermometer:
 - a. Manufacturers and Products:
 - 1) H.O. Trerice Co.; Model A005.
 - 2) Or equal.

- b. Physical Characteristics:
 - 1) Materials: Adjustable angle, red reading mercury type with 9-inch case, 3-1/2-inch aluminum stem, and separate NPT brass thermowell.
- c. Functional Characteristics: None.
- d. Performance Characteristics: 30 degrees F to 180 degrees F range.

G. Sealant: In accordance with Section 07 92 00, Joint Sealants.

PART 3 EXECUTION

3.01 PREPARATION

- A. Drawings do not attempt to show exact details of fixtures. Changes in locations of fixtures, advisable in opinion of Contractor, shall be submitted to Contracting Officer for review before proceeding with the Work.

3.02 INSTALLATION

- A. Fixture Trim: Install fixture trim where applicable on fixtures.
- B. Plumbing Fixtures, Mounting Heights:
 - 1. Standard rough-in catalogued heights, unless shown otherwise on the Drawings.
 - 2. Caulk fixtures in contact with finished walls with waterproof, white, nonhardening sealant which will not crack, shrink, or change color with age. See Section 07 92 00, Joint Sealants.
- C. Exact fixture location and mounting arrangement shall be as indicated on toilet room elevations and details as shown.
- D. Unless noted otherwise and as a minimum, fixtures shall be supported as indicated in PDI Code Guide 302.
- E. Safety Equipment:
 - 1. System Shutoff Valves:
 - a. Shutoff valves shall give visual indication of position (open or closed).
 - b. Shutoff valves shall be lockable valves and locked in open position.
 - 2. Each safety shower, eyewash, combination safety shower/eyewash shall have red safety signoff tag. After completing requirements listed below, Contractor and Contracting Officer shall sign red safety signoff tag. Requirements are as follows:
 - a. Visually check safety shower/eyewash piping for leaks.

- b. Verify that upon operation, stay-open valves remain open.
- c. Showerheads to be between 82 inches and 96 inches above standing surface.
- d. Shower spray pattern, when valve is full open, shall be a minimum 20 inches in diameter at 60 inches above standing surface.
- e. Water arcs from eyewash spray heads must cross. Test with eyewash gauge; Haws Drinking Faucet Co., Model 9015.
- f. Minimum flow rates for safety showers shall be 20 gpm.
- g. Minimum flow rates for eyewashes shall be 3 gpm.
- h. Tempered water shall be temperature indicated on the Drawings.

F. Drainage Products:

- 1. Floor Drains: Set top flush with floor. Provide membrane clamps where required.
- 2. Cleanouts: Install where shown or required for purposes intended. Set cover flush with finished floor.
- 3. Hub Drains: Set top of hub 2 inches above finished floor.

G. Plumbing Specialties:

- 1. Water Hammer Arresters:
 - a. Install PDI-certified and rated water hammer arresters, sized and located in accordance with PDI WH-201 and as shown on the Drawings.
 - b. Install adjacent to equipment wherein quick closing valves are installed.
 - c. Install at each emergency safety shower.
 - d. Water Hammer arresters to have access panels or to be otherwise accessible.
- 2. Drain P-Trap Priming:
 - a. Pipe: Type K, soft copper.
 - b. Trap and prime floor drains and hub drains, unless shown otherwise on the Drawings. No attempt has been made to show trap primer valve locations or trap primer pipe routing.
 - c. Field route trap primer piping during installation of floor drains and hub drains, and install trap primer valves in mechanical rooms, janitor rooms, or other locations acceptable to Contracting Officer.
 - d. Priming System: Complete with connection to serving W1 cold water system.

- 3. Trap Priming Valves:
 - a. Floor drain traps primed with priming valves, 1/2-inch copper to floor drain.
 - b. Two traps maximum primed from one priming valve or as recommended by manufacturer. Locate in mechanical spaces or janitor's rooms as shown.
 - c. Provide shutoff valve ahead of priming valves.
- H. Caulk penetrations of exterior walls with weatherproof sealant in accordance with Section 07 92 00, Joint Sealants.
- I. Adjust water flows in domestic water systems for reasonable water flows at each plumbing fixture, terminal device, and recirculation loop. Flush valve fixtures shall be adjusted for proper flush cycle time and water quantity.

3.03 FIELD QUALITY CONTROL

- A. Perform visual inspection for physical damage, blocked access, cleanliness, and missing items.
- B. Notify Contracting Officer 48 hours prior to shower testing. Contracting Officer reserves the right to witness all tempered water and safety shower testing.
- C. Test safety shower and eyewash units. Test water flow at both showerhead and eyewash/face ring.
 - 1. Shower Flow:
 - a. Test with tube-type water gauge (Haws Drinking Faucet Co., Model 9010) and 5-gallon container.
 - b. Container shall fill in 10 seconds or less, with a minimum 20-gpm flow.
 - 2. Eyewash Flow:
 - a. Test with tube-type water gauge (Haws Drinking Faucet Co., Model 9010) and 1-gallon container.
 - b. Container shall fill in 20 seconds or less.
 - 3. Contractor shall log, date, and initial inspection upon passing flow tests.
- D. Verify alarm operation both locally and systemwide. Notify security prior to test if alarm is connected systemwide.

END OF SECTION

