

SECTION 15440 - PLUMBING FIXTURES

PART 1 GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes plumbing fixtures and trim, faucets, other fittings, tub and shower surrounds and related components.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 7 Section "Joint Sealants" for sealing between fixtures and walls, floors, and counters.
 - 2. Division 15 Section "Valves" for general-duty valves used as supply stops.
 - 3. Division 15 Section "Plumbing Specialties" for other specialties not specified in this Section.

1.03 DEFINITIONS

- A. Accessible: Plumbing fixture, building, facility, or portion thereof that can be approached, entered, and used by physically handicapped, disabled, and elderly people.
- B. Fitting: Device that controls flow of water into or out of plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, shower heads and tub spouts, drains and tailpieces, traps and waste pipes. Pipe fittings, tube fittings, and general-duty valves are included where indicated.

1.04 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product Data for each plumbing fixture category and type specified. Include selected fixture, trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.
- C. Maintenance data for plumbing fixtures and components to include in the operation and maintenance manuals specified in Division 1.

1.05 QUALITY ASSURANCE

- A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category from one source and by a single manufacturer.
- B. Regulatory Requirements: Comply with requirements of CABO A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; regarding plumbing fixtures for physically handicapped people.
- C. Regulatory Requirements: Comply with requirements of Architectural and Transportation Barriers Compliance Board's (ATBCB) "Uniform Federal Accessibility Standards (UFAS), 1985-494-187" regarding plumbing fixtures for physically handicapped people.
- D. Energy Policy Act Requirements: Comply with requirements of Public Law 102-486, "Energy Policy Act," regarding water flow rate and water consumption of plumbing fixtures.
- E. Select combinations of fixtures and trim, faucets, fittings, and other components that are

compatible.

- F. Product Options: Drawings indicate size, profiles, dimensional requirements, and characteristics of plumbing fixtures and are based on specific types and models indicated. Other manufacturers' fixtures with equal performance characteristics may be considered. Refer to Division 1 Section "Substitutions."

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Deliver plumbing fixtures in manufacturer's protective packing, crating, and covering.
- B. Store plumbing fixtures on elevated platforms in dry location.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Coordinate roughing-in and final fixture locations and verify that plumbing fixtures can be installed to comply with original design and referenced standards.

PART 2 PRODUCTS

2.01 PLUMBING FIXTURE STANDARDS

- A. Comply with applicable standards below and other requirements specified.
 - 1. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
 - 2. National Sanitation Foundation Construction: NSF 2.
 - 3. Slip-Resistant Bathing Surfaces: ASTM F 462.
 - 4. Stainless-Steel Fixtures Other than Service Sinks: ASME A112.19.3M.
 - 5. Vitreous-China Fixtures: ASME A112.19.2M.
 - a. Exception: ASME A112.19.9M, semivitreous, ceramic fixtures, except water-closet bowls and urinals with integral traps, may be furnished instead of vitreous-china fixtures.
 - 6. Water-Closet, Flushometer Tank Trim: ASSE 1037.
- B. Acrylic/Fiberglass Tub with 3 piece surround
- C. Lavatory top molded top with integral sink by Virginia Marble or equal.

2.02 LAVATORY/SINK FAUCET STANDARDS

- A. Comply with ASME A112.18.1M and other requirements specified for lavatory, sink, and similar-type-fixture faucet fittings. Include hot- and cold-water indicators; Lavatory shall be 1.0-gpm- maximum flow rate and the sink faucet shall be 1.5-gpm-maximum flow rate; polished, chrome-plated finish; except where otherwise indicated. Coordinate faucet inlets with supplies and fixture holes and outlet with spout and fixture receptor.
 - 1. Diverter Valves for Faucets with Hose Spray: ASSE 1025.
 - 2. Faucet Hose: ASTM D 3901.
 - 3. Hose-Connection Vacuum Breakers: ASSE 1011.
 - 4. Hose-Coupling Threads: ASME B1.20.7.
 - 5. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
 - 6. Pipe Threads: ASME B1.20.1.
 - 7. Sink Spray Hoses: ASTM D 3573.

2.03 BATHTUB/SHOWER FAUCET STANDARDS

- A. Comply with ASME A112.18.1M and other requirements specified for bathtub and shower faucet fittings. Include hot- and cold-water indicators; 2.5-gpm- maximum flow rate; and polished, chrome-plated finish; except where otherwise indicated. Coordinate faucet inlets with supplies and outlet with diverter valve; tub spout; and shower head, arm, and flange. Shower head shall have a 1.75 gpm maximum flow rate.

1. Combination, Pressure-Equalizing- and Thermostatic-Control, Antiscald Faucets: ASSE 1016.
2. High-Temperature-Limit Controls for Thermal-Shock-Preventing Devices: ASTM F 445.
3. Pipe Threads: ASME B1.20.1.
4. Thermostatic-Control Pressure-Equalizing-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.

2.04 MISCELLANEOUS FITTING STANDARDS

- A. Comply with ASME A112.18.1M and other requirements specified for fittings, other than faucets. Include polished, chrome-plated finish, except where otherwise indicated. Coordinate fittings with other components and connectors.
 1. Atmospheric Vacuum Breakers: ASSE 1001.
 2. Automatic Flow Restrictors: ASSE 1028.
 - a) Shower Head 1.75 gpm maximum flow rate
 - b) Lavatory Faucet 1.0 gpm maximum flow rate
 - c) Kitchen Faucet 1.5 gpm maximum flow rate
 3. Brass and Copper, Supplies and Tubular Brass: ASME A112.18.1M.
 4. Fixed Flow Restrictors: ASSE 1034.
 5. Manual-Operation Flushometers: ASSE 1037.

2.05 MISCELLANEOUS COMPONENT STANDARDS

- A. Comply with applicable standards below and other requirements specified for components for plumbing fixtures, equipment, and appliances.
 1. Grab Bars: ASTM F 446.
 2. Hose-Coupling Threads: ASME B1.20.7.
 3. Pipe Threads: ASME B1.20.1.
 4. Plastic Toilet Seats: ANSI Z124.5.
 5. Supply and Drain Insulation Kits: CABO A117.1.
 6. Supports: ASME A112.6.1M.

2.06 FITTINGS

- A. Fittings for Plumbing Fixtures: Refer to plumbing fixture schedules at the end of this Section for materials for supplies, supply stops, supply risers, traps, and other fittings.
- B. Fittings for Equipment Specified in Other Sections: Fittings include the following:
 1. Supply Inlets: Brass pipe or copper tube, size required for final connection.
 2. Supply Stops: Chrome-plated brass, angle or straight; compression, wheel-handle type; same size as supply inlet and with outlet matching supply riser.
 3. Supply Risers: 3/8-inch NPS rigid brass tube with 1/4-inch NPS offset, knob-end tailpiece. Use chrome-plated tube for exposed applications.
 4. Traps: Tubular brass with 0.045-inch wall thickness, slip-joint inlet, cleanout, wall flange, escutcheons, and size to match equipment. Use chrome-plated tube for exposed applications.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine roughing-in for potable, hot-, tempered- and cold-water supply piping systems; soil, waste, and vent piping systems; and supports. Verify that locations and sizes of piping and locations and types of supports match those indicated, before installing and connecting fixtures.

Use manufacturer's roughing-in data when roughing-in data are not indicated.

- B. Examine walls, floors, and cabinets for suitable conditions where fixtures are to be installed.
- C. Do not proceed until unsatisfactory conditions have been corrected.

3.02 APPLICATIONS

- A. Include supports for plumbing fixtures according to the following:
 - 1. Carriers: For fixtures supported from wall construction.
 - 2. Reinforcement: For lavatories and sinks that require securing to wall.
 - 3. Fabricate reinforcement from 2-by-4-inch or 2-by-6-inch fire-retardant-treated-wood blocking between studs or 1/4-by-6-inch steel plates attached to studs, in wall construction, to secure fixtures to wall. Include length that will extend beyond ends of fixture mounting bracket and attach to at least 2 studs.
- B. Include fitting insulation kits for accessible fixtures according to the following:
 - 1. Lavatories: Cover tempered-, and cold-water supplies, stops and handles, drain, trap, and waste to wall.
 - 2. Sinks: Cover tempered-, and cold-water supplies, stops and handles, drain, trap, and waste to wall.
 - 3. Fixtures with Offset Drain: Cover tempered and cold-water supplies, offset drain, trap, and waste to wall.
 - 4. Other Fixtures: Cover exposed fittings below fixture.

3.03 PLUMBING FIXTURE INSTALLATION

- A. Assemble plumbing fixtures and trim, fittings, faucets, and other components according to manufacturers' written instructions.
- B. Install fixtures level and plumb according to manufacturers' written instructions, roughing-in drawings, and referenced standards.
- C. Install floor-mounted, floor-outlet water closets with closet flanges and gasket seals.
- D. Install toilet seats on water closets.
- E. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.
- F. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction.
- G. Fasten floor-mounted fixtures to substrate. Fasten fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
- H. Fasten wall-mounted fittings to reinforcement built into walls.
- I. Fasten counter-mounting plumbing fixtures to casework.
- J. Secure supplies to supports or substrate within pipe space behind fixture.
- K. Set shower receptors in leveling bed of cement grout.
- L. Install individual stop valve in each water supply to fixture. Use ball valve where specific stop valve is not specified.
- M. Install water-supply stop valves in accessible locations.
- N. Install faucet, laminar-flow fittings with Code specified flow rates and patterns in faucet spouts

when faucets are not available with required rates and patterns. Include adapters when required.

- O. Install supply, flow-control fittings with Code specified flow rates in fixture supplies at stop valves.
- P. Install faucet, flow-control fittings with Code specified flow rates and patterns in faucet spouts when faucets are not available with required rates and patterns. Include adapters when required.
- Q. Install shower, flow-control fittings with Code specified maximum flow rates in shower arms.
- R. Install traps on fixture outlets. Omit traps on fixtures having integral traps.
- S. Install escutcheons at wall, floor, and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons where required to conceal protruding pipe fittings.
- T. Seal joints between fixtures and walls, floors, and counters using sanitary-type, 1-part, mildew-resistant, silicone sealant according to sealing requirements specified in Division 7 Section "Joint Sealants." Match sealant color to fixture color.
- U. Install tub and shower surrounds per manufacturer's written instructions. Seal all joints and seams as described above unless otherwise recommended by the manufacturer.

3.04 CONNECTIONS

- A. Piping installation requirements are specified in other Division 15 Sections. Drawings indicate general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
 - 1. Install piping connections between plumbing fixtures and piping systems and plumbing equipment specified in other Division 15 Sections.
- B. Supply and Waste Connections to Plumbing Fixtures: Refer to plumbing fixture schedules at the end of this Section for fitting sizes and connection requirements for each plumbing fixture.
- C. Supply and Waste Connections to Equipment Specified in Other Sections: Connect equipment with supply inlets, supply stops, supply risers, and traps specified in this Section. Use fitting sizes required to match connected equipment. Connect fittings to plumbing piping.

3.05 FIELD QUALITY CONTROL

- A. Verify that installed fixtures are categories and types specified for locations where installed.
- B. Check that fixtures are complete with trim, faucets, fittings, and other specified components.
- C. Inspect installed fixtures for damage. Replace damaged fixtures and components.
- D. Test installed fixtures after water systems are pressurized and demonstrate proper operation. Replace malfunctioning fixtures and components, then retest. Repeat procedure until units operate properly.

3.06 ADJUSTING AND CLEANING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Adjust water pressure at faucets and shower valves to produce proper flow and stream.
- C. Replace washers and seals of leaking and dripping faucets and stops.
- D. Clean fixtures, faucets, surrounds and other fittings with manufacturers' recommended cleaning methods and materials. Include the following:

1. Remove faucet spouts and strainers, remove sediment and debris, and reinstall strainers and spouts.
2. Remove sediment and debris from drains.

3.07 PROTECTION

- A. Provide protective covering for installed fixtures and fittings.
- B. Do not allow use of fixtures for temporary facilities, except when approved in writing by Owner.

3.08 WATER CLOSET SCHEDULE

- A. Water Closet WC-1: Where plumbing fixtures of this designation are indicated, provide products complying with the following:
 1. Products: Provide the manufacturer listed below (substitutions not allowed):
 2. Vitreous-China Water Closet:
 - a. Mansfield Model Number 160 or equal.
 3. Toilet Seat:
 - a. Bemis or equal.
 4. Fixture Color: White.
 5. Bowl Type and Operation: Round front, siphon jet.
 6. Mounting and Outlet: Floor mounted, floor outlet.
 7. Fixture Bolt Caps: White, plastic or china.
 8. Rim Height: 14 to 15.5 inches.
 9. Tank: Close coupled. 1.28 gpf
 10. Supply Inlet: 3/8-inch NPS with wall flange.
 11. Supply Stop: 1/4 turn stops.
 12. Supply Riser: 3/8-inch NPS, flexible riser with collar end.
 13. Toilet Seat: Solid-plastic, water-closet seat with bumpers and hardware, compatible with water closet and as follows:
 - a. Color: White.
 - b. Class: Residential.
 - c. Size: Round front.
 - d. Pattern: Closed front with cover.
 14. Manufacturer and Model No: Mansfield #160, round front toilet with bowl and tank, fill valve, tank cover, polished chrome trip lever and Bemis white seat and cover.

3.09 LAVATORY SCHEDULE

- A. Lavatory LAV-1: Where plumbing fixtures of this designation are indicated, provide products complying with the following:
 1. Products: Provide the manufacturer listed below (substitutions not allowed):
 2. Solid Wood Lavatory/Vanity.
 - a. Built to Standard Use Casework Specifications.
 3. Faucet:
 - a. Wolverine.
 4. Fixture Color: Chrome
 5. Fixture Dimensions: Field Verify
 6. Fixture Faucet-Hole Spacing: 3 holes, centered and 2 inches each side of center.
 7. Mounting: Secure back rails of cabinet to studs using screws long enough to penetrate sheetrock and studs.
 8. Faucet Construction: Center set with inlets on 4-inch centers, cast brass underbody escutcheon, with pop-up waste.
 9. Faucet Valve Operation: Manual, ON-OFF.

10. Faucet Mounting Position: Centered on fixture deck.
11. Faucet Components: Include the following:
 - a. Accessible-Fixture Operation: Manual.
 - b. Handle: Single, push-pull and twist.
 - c. Spout: Integral with body.
 - d. Spout Outlet: Manufacturer's 1.0 gpm aerator
12. Supply Inlets: 3/8-inch NPS, copper tubing.
13. Supply Stops: Manufacturer's standard brass, angle or straight, compression, loose-key type, same size as supply inlet and with outlet matching supply riser.
14. Supply Risers: 3/8-inch NPS flexible with knob end.
15. Supply, Flow-Control Restrictors: 3/8-inch NPS
16. Drain: Pop-up with 1-1/4-inch NPS tailpiece, included with faucet.
17. Tubular Trap: 1-1/4-inch NPS, PVC.
18. Fixture Support: N/A
19. Manufacturer and Model No: Wolverine Faucet Model #85200, with pop-up drain.
20. Lavatory:
 - a. Culture Marble by Virginia Marble or an approved equal.

3.10 BATHTUB SCHEDULE

- A. Tub/Shower: Where plumbing fixtures of this designation are indicated, provide products complying with the following:
 1. Products: Provide the manufacturer listed below (substitutions not allowed):
 2. Fiberglass Tub/Shower Surround:
 - a. Swan Fiberglass Molding Corp. or equal (3 piece tub and surround)
 3. Antiscald Bathtub Faucet:
 - a. Wolverine
 4. Fixture and Surround Color: White.
 5. Fixture Dimensions: 60" x 31 -1/2" x 16"
 6. Bathing Surface: Slip resistant.
 7. Surround: 3 piece fiberglass surround.
 8. Faucet Construction: Cast-brass, thermostatic-control, with high-temperature-limit control, single-handle mixing valve with check stops, and escutcheon.
 9. Faucet Components: Include the following:
 - a. Handle: Single-lever, chrome-plated brass.
 - b. Tub Filler Spout: Manufacturer's standard.
 - c. Shower Diverter Valve: Manufacturer's standard.
 - d. Shower Head, Arm, and Flange: Manufacturer's standard with manual flow control in head.
 10. Supplies: 1/2-inch NPS copper tubing.
 11. Waste and Overflow Fitting: 1-1/2-inch NPS, wall thickness, PVC (glued). Include lever-operated, pop-up waste and overflow with universal-type outlet connection on waste tee; and 1-1/2-inch NPS, wall thickness, tubular waste. Slip joints are prohibited.
 12. Trap: 1-1/2-inch NPS PVC; glued.
 13. Manufacturer and Model No: Swan Fiberglass Molding Corp. or equal.

3.11 SINK SCHEDULE

- A. Kitchen Sink (KS): Where plumbing fixtures of this designation are indicated, provide products complying with the following:
 1. Products: Provide the manufacturer listed below:
 2. Stainless-Steel Sink:
 - a. Project Source

- b. Moen
- 3. Faucet:
 - a. Wolverine.
- 4. Fixture Dimensions: 2 compartments: 33" by 22" by 6" D overall.
- 5. Fixture Stainless-Steel Gauge: 22 gauge.
- 6. Fixture Faucet-Hole Spacing: 3 holes, centered and 4 inches each side of center.
- 7. Fixture Mounting: Counter, self-rimming.
- 8. Faucet Construction: Center set with inlets on 8-inch centers, and cast-brass underbody and brass escutcheon.
- 9. Faucet Mounting: Centered on fixture deck.
- 10. Faucet Components: Include the following:
 - a. Accessible-Fixture Operation: Manual.
 - b. Handle: Single-lever toggle.
 - c. Spout: Swing gooseneck.
 - d. Spout Outlet: Manufacturer's standard aerator.
 - e. Spout-Outlet, Flow-Control Fitting: 1.5 gpm .
- 11. Supply Inlets: 1/2-inch NPS, brass pipe or copper tubing.
- 12. Supply Stops: Manufacturer's standard brass, angle or straight, compression, wheel-handle type, same size as supply inlet and with outlet matching supply riser.
- 13. Supply Risers: 3/8-inch NPS flexible with knob end.
- 14. Supply, Flow-Control Restrictors: 1/2-inch NPS, 1 gpm.
- 15. Drain: 3-1/2-inch grid strainer with 3-1/2-inch removable, stainless-steel crumb cup with 1-1/2-inch NPS tubular-brass tailpiece.
- 16. Continous Waste: 1-1/2-inch NPS, PVC.
- 17. Tubular Trap: 1-1/2-inch NPS, 0.045-inch wall thickness, tubular brass with slip-joint inlet and wall flange.

END OF SECTION 15440