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SECTION 224100 - RESIDENTIAL PLUMBING FIXTURES

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Bathtub faucets.

Supply fittings.

Waste fittings.

Grout.

* + - * 1. Related Requirements:

Retain subparagraphs below to cross-reference requirements Contractor might expect to find in this Section but are specified in other Sections.

Section 224200 "Commercial Plumbing Fixtures."

Section 224300 "Healthcare Plumbing Fixtures."

Section 224500 "Emergency Plumbing Fixtures."

Section 224600 "Security Plumbing Fixtures."

Section 224700 "Drinking Fountains and Water Coolers."

* + - 1. DEFINITIONS
				1. FRP: Fiberglass-reinforced plastic.
				2. PMMA: Polymethyl methacrylate, also known as "acrylic."
			2. ACTION SUBMITTALS
				1. Product Data: For each type of product.

Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for lavatories.

Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

Retain "Shop Drawings" Paragraph below if equipment includes wiring.

* + - * 1. Shop Drawings: Include diagrams for power, signal, and control wiring.
			1. INFORMATIONAL SUBMITTALS

Retain "Coordination Drawings" Paragraph below if coordination is required for installation of products and materials by separate installers.

* + - * 1. Coordination Drawings: Counter cutout templates for mounting of counter-mounted plumbing fixtures.
				2. Sample Warranty: For special warranty.
			1. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For plumbing fixtures and faucets to include in emergency, operation, and operation and maintenance manuals.

Retain subparagraph below if whirlpool baths or walk-in baths are required for Project.

In addition to items specified in Section 017823 "Operation and Maintenance Data," include the following:

Servicing and adjustments of [**whirlpool baths**] [**and**] [**walk-in baths**].

* + - 1. MAINTENANCE MATERIAL SUBMITTALS
				1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Faucet Washers and O-Rings: Equal to [**10**] <**Insert number**> percent of amount of each type and size installed.

Faucet Cartridges and O-Rings: Equal to [**5**] <**Insert number**> percent of amount of each type and size installed.

Flushometer-Tank Repair Kits: Equal to [**5**] <**Insert number**> percent of amount of each type installed, but no fewer than [**two**] <**Insert number**> of each type.

Toilet Seats: Equal to [**5**] <**Insert number**> percent of amount of each type installed.

* + - 1. WARRANTY

When warranties are required, verify with Owner's counsel that warranties stated in this article are not less than remedies available to Owner under prevailing local laws.

* + - * 1. Special Warranty: Manufacturer agrees to repair or replace components of [**walk-in baths**] [**and**] [**whirlpool baths**] that fail in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Structural failures of unit shell.

Faulty operation of controls, blowers, pumps, heaters, and timers.

Deterioration of metals, metal finishes, and other materials beyond normal use.

Verify available warranties and warranty periods for units and components.

Warranty Period for Residential Applications of Shells: [**Five**] [**20**] [**30**] <**Insert number**> years from date of Substantial Completion.

Warranty Period for Residential Applications of Pumps and Blowers: [**Five**] [**20**] <**Insert number**> years from date of Substantial Completion.

Warranty Period for Residential Applications of Electronic Controls: [**Five**] <**Insert number**> years from date of Substantial Completion.

1. PRODUCTS
	* + 1. GENERAL REQUIREMENTS

Since January 2014, the U.S. Safe Drinking Water Act (SDWA) has required national compliance with less than or equal to 0.25 percent weighted average lead content at wetted surfaces for pipe, fittings, and devices intended to convey or dispense water for human consumption. The IPC and the UPC have the same requirements. Items in compliance with NSF 61 and NSF 372 also comply with this requirement. Some manufacturers choose to comply with this requirement through independent testing and have "Certified Lead-Free" products, which may or may not have NSF 61 or NSF 372 certification.

* + - * 1. Domestic water faucets intended to convey or dispense water for human consumption are to comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or to be certified in compliance with NSF 61 and NSF 372 by an American National Standards Institute (ANSI)-accredited third-party certification body that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.
			1. BATHTUB FAUCETS
				1. NSF Standard: Comply with NSF61 and NSF 372 for faucet materials that will be in contact with potable water.

Copy first paragraph below and re-edit for each type of single-handle, pressure-balance, or thermostatic bathtub faucet required.

Insert drawing designation. Use these designations on Drawings to identify each bathtub faucet.

* + - * 1. Pressure-Balance Faucets, Single Handle :

Retain "Basis-of-Design Product" Subparagraph and list of manufacturers below to identify a specific product or a comparable product from manufacturers listed.

Basis-of-Design Product: Subject to compliance with requirements, provide **Zurn Industries, LLC; Z7302-SS-MT-S8** or comparable product by one of the following:

<**Insert manufacturer's name**>

* + - * 1. Standards: ASME A112.18.1/CSA B125.1 and ASSE 1016/ASME A112.1016/CSA B125.16.
				2. Faucet:

Body Material: Solid brass.

Finish: Polished chrome plate.

Maximum Flow Rate: [**2.5 gpm**] <**Insert value**> unless otherwise indicated.

Mounting: [**Concealed**] [**Exposed**].

Operation: Single handle, [**push-pull**] [**or**] [**twist-or-rotate**] control, with hot- and cold-water indicators.

Antiscald Device: [**Integral with mixing valve**] [**Separate unit**] [**Not required**].

Check Stops: Check-valve type, integral with or attached to body; on hot- and cold-water supply connections.

Diverter: In-tub filler spout.

Supply Connections: NPS 1/2.

* + - * 1. Shower Head:

Standard: ASME A112.18.1/CSA B125.1.

Type: [**Ball joint with arm and flange**] [**Without ball joint, but with arm and flange**] [**Ball joint and head integral with mounting flange**] [**Integral with mounting flange**] [**Hand shower. Include wall-mounting device**] <**Insert type**>.

Retain "Backflow-Prevention Device" Subparagraph below with hand-shower type.

Backflow-Prevention Device: ASSE 1014.

Shower Head Material: Metallic with chrome-plated finish.

Spray Pattern: [**Adjustable**] [**Fixed**].

Integral Volume Control: [**Not required**] [**Required**].

Retain "Shower-Arm, Flow-Control Fitting" Subparagraph below only if retaining option that includes arm and flange in "Type" Subparagraph above.

Shower-Arm, Flow-Control Fitting: [**Not required**] [**1.5 gpm**] [**2.0 gpm**].

Verify availability of feature in "Temperature Indicator" Subparagraph below if required.

Temperature Indicator: [**Integral with faucet**] [**Not required**].

* + - * 1. Bathtub Filler Spout: Chrome-plated brass.
			1. SUPPLY FITTINGS
				1. NSF Standard: Comply with NSF 61 and NSF 372 for faucet materials that will be in contact with potable water.
				2. Standard: ASME A112.18.1/CSA B125.1.
				3. Bidet Lavatory Bar Sink Kitchen Sink and Laundry Tray Supply Fittings:

Supply Piping: Chrome-plated-brass pipe or chrome-plated-copper tube matching water-supply piping size. Include chrome-plated wall flange.

Stops: Chrome-plated-brass, one-quarter-turn, ball-type or compression stop with inlet connection matching water-supply piping type and size.

Operation: [**Loose key**] [**Wheel handle**] <**Insert type**>.

Risers:

Size:

NPS 3/8 for [**bidets**] [**and**] [**lavatories**].

[**NPS 3/8**] [**NPS 1/2**] for [**bar sinks**] [**kitchen sinks**] [**and**] [**laundry trays**].

Material: [**Chrome-plated, soft-copper flexible tube**] [**ASME A112.18.6/CSA B125.6, braided- or corrugated-stainless-steel flexible hose**] riser.

* + - 1. WASTE FITTINGS
				1. Standard: ASME A112.18.2/CSA B125.2.
				2. Drain:

Grid type with NPS 1-1/4 offset tailpiece for accessible lavatories.

Pop-up type with NPS 1-1/4 straight tailpiece as part of faucet for standard lavatories.

Grid type with NPS 1-1/2 offset tailpiece for accessible [**bar sinks**] [**and**] [**kitchen sinks**].

Grid type with NPS 1-1/2 straight tailpiece for standard [**bar sinks**] [**and**] [**kitchen sinks**] [**and for laundry trays**].

* + - * 1. Trap:

Size:

[**NPS 1-1/4**] [**NPS 1-1/2 by NPS 1-1/4**] [**NPS 1-1/2**] for [**bidets**] [**and**] [**lavatories**].

NPS 1-1/2 for [**bar sinks**] [**kitchen sinks**] [**and**] [**laundry trays**].

Material:

Retain one of three subparagraphs below.

Chrome-plated, [**two-piece, cast-brass trap and swivel elbow with 0.032-inch- thick brass tube to wall**] [**two-piece, cast-brass trap and ground-joint swivel elbow with 0.032-inch- thick brass tube to wall**] [**one-piece, cast-brass trap with swivel 0.029-inch- thick tubular brass wall bend**] <**Insert trap type**>; and chrome-plated-brass or -steel wall flange.

Stainless steel, two-piece trap and swivel elbow with 0.012-inch- thick stainless steel tube to wall; and stainless steel wall flange.

ASTM F409 [**ABS**] [**or**] [**PVC**] [**one**] [**two**]-piece trap and waste to wall and wall flange.

* + - 1. GROUT
				1. Standard: ASTM C1107/C1107M, Grade B, post-hardening and volume-adjusting, dry, hydraulic-cement grout.
				2. Characteristics: Nonshrink; recommended for interior and exterior applications.
				3. Design Mix: 5000 psi, 28-day compressive strength.
				4. Packaging: Premixed and factory packaged.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine roughing-in of water-supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before plumbing-fixture installation.
				2. Examine walls, floors, cabinets, and counters for suitable conditions where fixtures will be installed.
				3. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. INSTALLATION OF RESIDENTIAL PLUMBING FIXTURES
				1. Install plumbing fixtures level and plumb in accordance with roughing-in drawings.
				2. Install floor-mounted water closets on closet flange attachments to drainage piping.

First paragraph below applies to counter-mounting fixtures, such as lavatories and sinks.

* + - * 1. Install counter-mounting fixtures in and attached to casework.
				2. Install pedestal lavatories on pedestals and secured to wood blocking in wall.
				3. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.

Use ball or gate valves if supply stops are not specified with fixture. Comply with valve requirements specified in Section 220523 "General-Duty Valves for Plumbing Piping."

* + - * 1. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.
				2. Install toilet seats on water closets.
				3. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
				4. Install shower flow-control fittings with specified maximum flow rates in shower arms.
				5. Install traps on fixture outlets.

Omit trap on fixtures with integral traps.

Omit trap on indirect wastes unless otherwise indicated.

* + - * 1. Install disposer in outlet of each sink indicated to have a disposer. Install switch where indicated or in wall adjacent to sink if location is not indicated.
				2. Install hot-water dispensers in back top surface of sink or in countertop with spout over sink.
				3. Set [**bathtubs**] [**baths**] [**and**] [**shower receptors**] in leveling bed of cement grout.

Indicate on Drawings those lavatories and sinks that are required to be accessible.

* + - * 1. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible [**lavatories**] [**and**] [**sinks**]. Comply with requirements in Section 220719 "Plumbing Piping Insulation."
				2. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations. Use deep-pattern escutcheons if required to conceal protruding fittings. Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."
				3. Seal joints between plumbing fixtures, counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Section 079200 "Joint Sealants."
			1. PIPING CONNECTIONS

Coordinate piping installations and specialty arrangements with Drawings and with requirements specified in piping systems. If Drawings are explicit enough, these requirements may be reduced or omitted.

* + - * 1. Connect fixtures with water supplies, stops, and risers, and with traps, soil, waste, and vent piping. Use size fittings required to match fixtures.
				2. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
				3. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
				4. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible [**lavatories**] [**and**] [**sinks**]. Comply with requirements in Section 220719 "Plumbing Piping Insulation."
			1. ADJUSTING
				1. Operate and adjust plumbing fixtures and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
				2. Adjust water pressure at faucets to produce proper flow.
			2. CLEANING AND PROTECTION
				1. After completing installation of plumbing fixtures, inspect and repair damaged finishes.
				2. Clean plumbing fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials.
				3. Provide protective covering for installed plumbing fixtures and fittings.
				4. Do not allow use of plumbing fixtures for temporary facilities unless approved in writing by Owner.

END OF SECTION 224100