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SECTION 224213.13 - COMMERCIAL WATER CLOSETS

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

Flushometer valves.

* + - * 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 224100 "Residential Plumbing Fixtures" for residential water closets.

Section 224300 "Healthcare Plumbing Fixtures" for healthcare water closets.

Section 224600 "Security Plumbing Fixtures" for security water closets.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project. Include only essential definitions or acronyms not well understood by the affected industry or trade.

* + - * 1. Standard-Efficiency Flush Volume: 1.6 gal. per flush.
				2. High-Efficiency Flush Volume: 1.28 gal. or less per flush.
				3. WaterSense Fixture: Water closet and/or flushometer valve/tank certified by the EPA to meet the WaterSense performance criteria.
			1. ACTION SUBMITTALS

Action submittals are submittals requiring responsive action and return of reviewed documents to Contractor.

* + - * 1. Product Data:

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

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 and control wiring.
			1. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For flushometer valves[ **and electronic sensors**] to include in operation and maintenance manuals.
			2. MAINTENANCE MATERIAL SUBMITTALS

See Section 017700 "Closeout Procedures" for submission of maintenance material items.

* + - * 1. Extra Stock Materials: Furnish extra materials to Owner that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

Flushometer-Valve Repair Kits: Equal to [**10**] <**Insert number**> percent of amount of each type installed, but no fewer than [**one**] [**six**] <**Insert number**> of each type.

1. PRODUCTS
	* + 1. PERFORMANCE REQUIREMENTS
				1. Standards:

Comply with ASME A112.19.2/CSA B45.1 for water closets.

Comply with ASME A112.19.5/CSA B45.15 for flush valves and spuds for water closets and tanks.

Comply with ASSE 1037/ASME A112.1037/CSA B125.37 for flush valves.

Comply with IAMPO/ANSI Z124.5 for water-closet (toilet) seats.

Comply with ASME A112.6.1M for water-closet supports.

Comply with ICC A117.1 for ADA-compliant water closets.

Comply with ASTM A1045 for flexible PVC gaskets used in connection of vitreous china water closets to sanitary drainage systems.

Comply with ASME A112.4.3 for plastic fittings used in connection of vitreous china water closets to sanitary drainage systems.

* + - 1. FLUSHOMETER VALVES

Copy "Flushometer Valves - Diaphragm, Lever Handle" Paragraph below and re-edit for each type of diaphragm, lever-handle flushometer valve required.

Insert designation. Use these designations on Drawings to identify each flushometer valve.

* + - * 1. Flushometer Valves - Diaphragm, Lever Handle: <**Insert designation**>.

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; Z6000AV-HET AquaVantage Flush Valve** or comparable product by one of the following:

<**Insert manufacturer's name**>

Source Limitations: Obtain flushometer valve from single source from single manufacturer.

Minimum Pressure Rating: 125 psig.

Features: Include integral check stop and backflow-prevention device.

Material: Brass body with corrosion-resistant components.

Style: Exposed.

Flushometer-Valve Finish: Chrome-plated.

Handle Finish: [**Chrome-plated**] [**Antimicrobial**].

Caution: Flushometer-valve consumption must match the water consumption of the water-closet bowl. Verify that manufacturer has specific flushometer valve feature(s) prior to including in Project.

Consumption: [**1.1 gal.**] [**1.28 gal.**] [**1.6 gal.**] [**Dual flush 1.1 gal./1.28 gal.**] [**Dual flush 1.1 gal./1.6 gal.**] <**Insert value**> per flush.

Minimum Inlet: NPS 1.

Minimum Outlet: NPS 1-1/4.

1. EXECUTION
	* + 1. EXAMINATION
				1. Examine roughing-in for water-supply piping and sanitary drainage and vent piping systems to verify actual locations of piping connections before water-closet installation.
				2. Examine walls and floors for suitable conditions where water closets will be installed.
				3. Proceed with installation only after unsatisfactory conditions have been corrected.
			2. INSTALLATION, GENERAL
				1. Water-Closet Installation:

Install level and plumb.

Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.

Indicate on Drawings those water closets that are required to be accessible.

Install accessible, wall-mounted water closets at mounting height in accordance with ICC A117.1.

* + - * 1. Support Installation:

Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.

Use carrier supports with waste-fitting assembly and seal.

Install floor-mounted, back-outlet water closets attached to building floor substrate, onto waste-fitting seals; and attach to support.

Install wall-mounted, back-outlet water-closet supports with waste-fitting assembly and waste-fitting seals; and affix to building substrate.

Measure support height installation from finished floor, not structural floor.

* + - * 1. Flushometer-Valve Installation:

Install flushometer-valve, water-supply fitting on each supply to each water closet.

Attach supply piping to supports or substrate within pipe spaces behind fixtures.

Install lever-handle flushometer valves for accessible water closets with handle mounted on open side of water closet.

Install actuators in locations easily reachable for people with disabilities.

Install new batteries in battery-powered, electronic-sensor mechanisms.

* + - * 1. Install toilet seats on water closets.
				2. Wall Flange and Escutcheon Installation:

Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.

Install deep-pattern escutcheons if required to conceal protruding fittings.

Comply with escutcheon requirements specified in Section 220500 "Common Work Results for Plumbing."

Retain "Joint Sealing" Paragraph below if sealants are not specified in Section 079200 "Joint Sealants."

* + - * 1. Joint Sealing:

Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.

Match sealant color to water-closet 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 water closets with water supplies and soil, waste, and vent piping. Use size fittings required to match water closets.
				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. Where installing piping adjacent to water closets, allow space for service and maintenance.
			1. ELECTRICAL CONNECTIONS
				1. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
				2. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."
				3. Install electrical devices furnished by manufacturer, but not factory mounted in accordance with NFPA 70 and NECA 1.
				4. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.

Retain one of two subparagraphs below. First subparagraph cross-references Section 260553 "Identification for Electrical Systems" and should be retained for consistent electrical identification. Second subparagraph is an abbreviated version of the product specified in Section 260553 "Identification for Electrical Systems."

Nameplate to be laminated acrylic or melamine plastic signs, as specified in Section 260553 "Identification for Electrical Systems."

Nameplate to be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least [**1/2 inch**] <**Insert dimensions**> high.

* + - 1. CONTROL CONNECTIONS
				1. Install control and electrical power wiring to field-mounted control devices.
				2. Connect control wiring in accordance with Section 260523 "Control-Voltage Electrical Power Cables."
			2. ADJUSTING
				1. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.
				2. Adjust water pressure at flushometer valves to produce proper flow.
				3. Install new batteries in battery-powered, electronic-sensor mechanisms.
			3. CLEANING AND PROTECTION
				1. Clean water closets and fittings with manufacturers' recommended cleaning methods and materials.
				2. Install protective covering for installed water closets and fittings.
				3. Do not allow use of water closets for temporary facilities unless approved in writing by Owner.

END OF SECTION 224213.13