

**SECTION 22 42 13.13  
COMMERCIAL WATER CLOSETS**

**PART 1 - GENERAL**

**1.1 STIPULATIONS**

- A. The specifications sections "General Conditions to the Construction Contract", "Special Conditions" and "Division 01 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

**1.2 SUMMARY**

- A. Section Includes:
  - 1. Floor-mounted, bottom-outlet water closets.
  - 2. Floor-mounted, back-outlet water closets.
  - 3. Flushometer valves.
  - 4. Toilet seats.
  - 5. Supports.

**1.3 DEFINITIONS**

- A. High-Efficiency Flush Volume: 1.28 gal. or less per flush.
- B. Water Sense Fixture: Water closet and/or flushometer valve/tank certified by the EPA to meet the Water Sense performance criteria.
- C. Accessible: Plumbing fixture, building, facility, or portion thereof that provides means to approach, enter, and be used and operated by physically handicapped, disabled, and elderly people.
- D. Fitting: Device that controls flow of water into or out of plumbing fixture. Fittings specified in this Section include supplies and stops, flush valves, mounting carrier, waste connection flanges and waste pipes. Pipe fittings, tube fittings, and general-duty valves are included where indicated.

**1.4 ACTION SUBMITTALS**

- A. Product Data: For each type of product.
  - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for water closets.
  - 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished specialties and accessories.

## **1.5 CLOSEOUT SUBMITTALS**

- A. Operation and Maintenance Data: For flushometer valves and electronic sensors shall be included in operation and maintenance manuals.

## **1.6 MAINTENANCE MATERIAL SUBMITTALS**

- A. Furnish extra materials that are packaged with protective covering for storage and identified with labels describing contents.
  - 1. Flushometer-Valve Repair Kits: Equal to 10 percent of amount of each type installed, but no fewer than three of each type.

## **PART 2 - PRODUCTS**

### **2.1 WATER CLOSET PERFORMANCE REQUIREMENTS**

- A. Water Closets and Accessories: Provide water closets and accessories that are in compliance with current standards, regulations and requirements including the following:
  - 1. Furnish and install water closets, of types and variations scheduled and specified on the drawings that are required and necessary for the project applications.
  - 2. Furnish and install rough-in components of types that are required and herein specified.
    - a. Stops and supplies may be as manufactured by Moen, BrassCraft, McGuire Manufacturing Company, or approved equal.
    - b. Stops shall not be of plastic or PVC construction.
    - c. Chicago Faucet Company, T & S Brass and Bronze Works, Inc., Cambridge Brass and Zurn Industries trim may be submitted as acceptable equals.
  - 3. The Contractor shall furnish and deliver all water closets, flush valves and accessory repair parts, kits and installation maintenance guides and instructions to the Client Agency, upon completion of the installation as recommended by the manufacturer supplier. The repair kits shall contain basic repair parts for fixture, flush valve and associated trim herein specified.
  - 4. All water closets, associated components and accessories shall be installed with piping, venting, that meets the requirements established by the all-applicable Plumbing Codes, local Authorities having Jurisdiction and Inspection Agencies.
  - 5. All water closets, associated components and assemblies must be "lead-free", and meet and bear the NSF 61 / 372-certification label for potable water requirements.
  - 6. The Contractor shall be responsible for coordinating and notifying the General Contractor of exact locations and dimensions where water closets and associated accessories and components are to be anchored, mounted or recessed. The exact locations of building structural members to provide adequate and necessary mounting connections, blocking and clearances for recessed plumbing fixtures and components.
  - 7. The Contractor shall coordinate and verify the dimensions of the space, wall thickness, proposed finishes, materials, location of structural supports and substrate construction of the space available for the installation of chair carriers for the specified water closets.
    - a. The Contractor and the carrier equipment supplier shall be responsible to ensure the installation of the support carriers accommodate the various wall thicknesses,

meets the appropriate water closet application, structural integrity and specified weight limitations.

8. Reference the Architectural Drawings for fixture mounting heights, designated ADA/ Handicap accessibility and locations. All additional and other related fixture equipment, trim, and accessories not indicated or shown as part of the Architectural Drawings shall be mounted or installed in accordance with roughing-in dimensions noted, specified as part of the plumbing drawings or obtained from the fixture manufacturer.
9. All exposed metal trim and components of all plumbing fixtures, components and accessories shall be polished-chromium-plated, except where specifically indicated otherwise. All escutcheons, floor plates, and wall plates shall be polished chromium plated cast brass, set-screw type, including those escutcheons provided with equipment, such as flush valves supplies, etc.
10. Grab bars for handicapped use at fixture locations and Toilet Room accessories shall be furnished and installed by the .1 General Contractor.
11. Upon completion of the plumbing installation, the Contractor shall adjust all new fixture flush valve control stops throughout the building for a minimum flow.
12. Contractor shall furnish and install all necessary adapters required to make complete final connections.
13. Contractor shall make all necessary repairs to, or replacement of existing wall tiles, or other tiled surfaces.
14. Chair carriers shall be furnished and installed for plumbing fixtures wherever possible. Provide suitable structural reinforcement for all wall supports as required.
15. New plumbing fixtures shall be securely attached and supported by the existing structure of the existing building construction where designated. Provide suitable structural reinforcement for all wall supports, carriers and anchors, as required for a substantial installation.
16. Where exposed vertical supplies above floor are indicated for fixtures, supply piping shall be polished chromium plated, with setscrew escutcheons and loose key type stops.
17. The combination height of each water closet bowl and seat for designated ADA handicapped fixture, floor mounted, must meet and not exceed ADA handicapped mounting height and clearance requirements. All other fixture components, trim and accessories installation must conform to ADA handicap mounting height and clearance space requirements. The force required to operate handicapped hand-activated controls must not exceed 5 pounds.
18. Apply two coats of white enamel paint to all exposed metal or cast iron parts of fixtures.

B. Flush Valves: (As scheduled on drawings and specified herein.)

1. Flush valves shall incorporate the non-hold-open feature.
2. Flush valves shall incorporate the "low water consumption" feature and shall include vandal resistant control stop cover.
3. Flush valves for ADA handicapped fixtures shall include approved concealed hardwire sensor actuated assembly. Install institutional ligature resistant fixtures and components at all resident accessible locations as scheduled and identified on the drawings.

C. Caulking

1. Plumbing Contractor shall furnish and install caulking around all wall-mounted fixtures, floor mounted fixtures, service receptors, sinks, prefabricated shower stalls, fixture accessories and other similar fixtures.
2. Caulking shall be the Dow Corning No. 786 Mildew Resistant Silicone Sealant, or equal, white. Coordinate all work with the General Contractor.
3. At locations where new plumbing fixtures are installed to replace existing fixtures, modify the existing piping systems as required to accommodate the installation of the new fixtures.

D. Flow Rates and Flush Volumes

1. Maximum flush volumes for Water Closets shall be as follows:
  - a. High Efficiency Water Closets 1.28 GPF
2. Comply with applicable standards below and other requirements specified.
  - a. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
  - b. National Sanitation Foundation Construction: NSF 2.
  - c. Stainless-Steel Fixtures Other than Service Sinks: ASME A112.19.3M.
  - d. Vitreous-China Fixtures: ASME A112.19.2M.
  - e. Water Closet, Flushometer Trim: ASSE 1037.

## 2.2 PERFORMANCE REQUIREMENTS

A. Standards:

1. Comply with ASME A112.19.2/CSA B45.1 for water closets.
2. Comply with ASME A112.19.5/CSA B45.15 for flush valves and spuds for water closets.
3. Comply with ASSE 1037/ASME A112.1037/CSA B125.37 for flush valves.
4. Comply with IAMPO/ANSI Z124.5 for water-closet (toilet) seats.
5. Comply with ASME A112.6.1M for water-closet supports.
6. Comply with ICC A117.1 for ADA-compliant water closets.
7. Comply with ASTM A1045 for flexible PVC gaskets used in connection of vitreous china water closets to sanitary drainage systems.
8. Comply with ASME A112.4.3 for plastic fittings used in connection of vitreous china water closets to sanitary drainage systems.

## 2.3 FLOOR-MOUNTED, BOTTOM-OUTLET WATER CLOSETS

- A. Water Closets (W-#): Commercial, floor mounted, bottom outlet, top spud. Refer to the Plumbing Fixture Schedules on Drawings for additional information and specific fixture designations. The fixture schedule identifies the basis of design, product descriptions, make, models, details, components and accessories.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
  - a. American Standard America.
  - b. Kohler Co.
  - c. Zurn Industries, LLC.
  - d. Or equal as approved by the Professional.
2. Bowl:
  - a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
  - b. Material: Vitreous china.
  - c. Type: Siphon jet.
  - d. Style: Flushometer valve.
  - e. Height: "Right Height" or ASA / Handicapped/elderly, complying with ICC/ANSI A117.1.
  - f. Rim Contour: Elongated.

- g. Water Consumption: 1.28 gal. per flush.
  - h. Spud Size and Location: NPS 1-1/2; top.
  - i. Color: White.
- 3. Bowl-to-Drain Connecting Fitting: ASTM A 1045 or ASME A112.4.3.
  - 4. Flushometer Valve: Refer to the specification article herein and the Fixture Schedules on the Plumbing Drawings for the basis of design flushometer-valve information for the designated fixture.
  - 5. Toilet Seat: Refer to the toilet-seat article herein for additional information.

## **2.4 FLOOR-MOUNTED, BACK-OUTLET WATER CLOSETS**

- A. Water Closets (W-#) Commercial, floor mounted, back outlet, back spud, "Right Height / ADA Accessible" at the designated locations: Refer to the Plumbing Fixture Schedules on Drawings for additional information and specific fixture designations. The fixture schedule identifies the basis of design, product descriptions, make, models, details, components and accessories.
  - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. American Standard America.
    - b. Kohler Co.
    - c. Zurn Industries, LLC.
    - d. Or equal as approved by the Professional.
  - 2. Bowl:
    - a. Standards: ASME A112.19.2/CSA B45.1 and ASME A112.19.5.
    - b. Material: Vitreous china.
    - c. Type: Siphon jet.
    - d. Style: Flushometer valve.
    - e. Height: "Right Height" or ADA compliant as scheduled.
    - f. Rim Contour: Elongated.
    - g. Water Consumption: 1.28 gal. per flush.
    - h. Spud Size and Location: NPS 1-1/2; top.
    - i. Color: White.
  - 3. Flushometer Valve: Refer to the specification article herein and the Fixture Schedules on the Plumbing Drawings for the basis of design flushometer-valve information for the designated fixture.
  - 4. Toilet Seat: Refer to the toilet-seat article herein for additional information.
  - 5. Water-Closet Mounting Height: Standard or Handicapped/elderly according to ICC/ANSI A117.1.

## FLUSHOMETER VALVES

- A. Concealed Hard-Wired Electric Powered, Sensor Operated Solenoid-Actuator, Diaphragm type Flushometer Valves (W-#): Refer to the Plumbing Fixture Schedules on Drawings for additional information and specific fixture designations. The fixture schedule identifies the basis of design, product descriptions, make, models, details, components and accessories.
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Delany Products.
    - b. Sloan Valve Company.
    - c. Zurn Industries, LLC.
    - d. Or equal as approved by the Professional.
  2. Standard: ASSE 1037.
  3. Minimum Pressure Rating: 125 psig.
  4. Features: Include integral check stop and backflow-prevention device.
  5. Material: Brass body with corrosion-resistant components.
  6. Exposed Flushometer-Valve Finish: Chrome plated.
  7. Panel Finish: Chrome plated or stainless steel.
  8. Style: Concealed.
  9. Actuator: Solenoid complying with UL 1951, listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  10. Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
  11. Consumption: 1.28 gal. per flush.
  12. Minimum Inlet: NPS 1.
  13. Minimum Outlet: NPS 1-1/4.

## 2.6 TOILET SEATS

- A. Toilet Seats:
1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
    - a. Bemis Manufacturing Company.
    - b. Centoco Manufacturing Corporation.
    - c. Church Seats; Bemis Manufacturing Company.
    - d. Olsonite Seat Co.
    - e. Sperzel of Lexington.
    - f. Or equal as approved by the Professional.
  2. Standard: IAPMO/ANSI Z124.5.
  3. Material: Plastic.
  4. Type: Commercial (Heavy duty- anti-ligature type) securely mounted to water closet.
  5. Shape: Elongated rim, open front.
  6. Seat Cover: Not required.
  7. Color: White.

## **2.7 SUPPORTS**

### **A. Water Closet Carrier:**

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:
  - a. J. R. Smith Company.
  - b. MIFAB Inc.
  - c. Zurn Industries, LLC.
  - d. Or equal as approved by the Professional.
2. Standard: ASME A112.6.1M.
3. Description: Waste-fitting assembly, as required to match drainage piping material and arrangement with faceplates, couplings gaskets, and feet; bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.

## **PART 3 - EXECUTION**

### **3.1 EXAMINATION**

- A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before water-closet installation.
- B. Examine walls and floors for suitable conditions where water closets will be installed.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

### **3.2 INSTALLATION**

#### **A. Water-Closet Installation:**

1. Install level and plumb according to roughing-in drawings.
2. Install floor-mounted water closets on bowl-to-drain connecting fitting attachments to piping or building substrate.

#### **B. Support Installation:**

1. Install supports, affixed to building substrate, for floor-mounted, back-outlet water closets.
2. Use carrier supports with waste-fitting assembly and seal.
3. Install floor-mounted, back-outlet water closets attached to building floor substrate, onto waste-fitting seals; and attach to support.

#### **C. Flushometer-Valve Installation:**

1. Install concealed flushometer-valve, water-supply fitting on each supply to each water closet.
2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
3. Install sensor actuators in locations that meet the manufacturer's recommendation and sense occupant.

4. Install hardwire electric 120-volt electrical transformer power supply unit and low voltage wiring to sensor operated flushometer valves.
- D. Install institutional secured toilet seats on water closets.
- E. Wall Flange and Escutcheon Installation:
1. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork.
  2. Install deep-pattern escutcheons if required to conceal protruding fittings.
  3. Comply with escutcheon requirements specified in Section 220518 "Escutcheons for Plumbing Piping."
- F. Joint Sealing:
1. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
  2. Match sealant color to water-closet color.
  3. Comply with sealant requirements specified in Section 079200 "Joint Sealants."

### **3.3 PIPING CONNECTIONS**

- A. Connect water closets with water supplies and soil, waste, and vent piping. Use size fittings required to match water closets.
- B. Comply with water piping requirements specified in Section 221116 "Domestic Water Piping."
- C. Comply with soil and waste piping requirements specified in Section 221316 "Sanitary Waste and Vent Piping."
- D. Where installing piping adjacent to water closets, allow space for service and maintenance.

### **3.4 ELECTRICAL CONNECTIONS**

- A. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."
- B. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."
- C. Install electrical devices furnished by manufacturer, but not factory mounted in accordance with NFPA 70 and NECA 1.
- D. Install nameplate for each electrical connection, indicating electrical equipment designation and circuit number feeding connection.
1. Nameplate to be laminated acrylic or melamine plastic signs, as specified in Section 260553 "Identification for Electrical Systems."
  2. Nameplate to be laminated acrylic or melamine plastic signs with a black background and engraved white letters at least 1/2 inch high.

### **3.5 CONTROL CONNECTIONS**



- A. Install control and electrical power wiring to field-mounted control devices.
- B. Connect control wiring in accordance with Section 260523 "Control-Voltage Electrical Power Cables."

### **3.6 ADJUSTING**

- A. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.
- B. Adjust water pressure at flushometer valves to produce proper flow.
- C. Install hardwire electric-power to low voltage transformers and low voltage wiring to electronic-sensor mechanisms.

### **3.7 CLEANING AND PROTECTION**

- A. Clean water closets and fittings with manufacturers' recommended cleaning methods and materials.
- B. Install protective covering for installed water closets and fittings.
- C. Do not allow use of water closets for temporary facilities unless approved in writing by Client Agency.

**END OF SECTION**