**SECTION 224213.13 - COMMERCIAL WATER CLOSETS**

**PART 1 – GENERAL**

* 1. **RELATED DOCUMENTS**

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

* 1. **SUMMARY**
1. Section Includes:
	1. Water Closets
	2. Flush Valves
	3. Toilet Seats
	4. Supports
	5. **DEFINITIONS**
2. Effective Flush Volume: Average of two (2) reduced flushes and one (1) full flush per fixture.
3. Remote water closet: Located more than 30 feet (9.1 m) from other drain line connections or fixture and where less than 1.5 drainage fixture units are upstream of the drain line connection.
4. Related Requirements
	1. Section 224100 "Residential Plumbing Fixtures" for residential water closets.
	2. Section 224300 "Medical Plumbing Fixtures" for healthcare water closets.
	3. Section 224600 "Security Plumbing Fixtures" for security water closets.
	4. **ACTION SUBMITTIALS**

 A. Product Data: for each type of product

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

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

B. Sustainable Design Submittals

a. Product Data: For water consumption.

C. Shop Drawings: Include diagrams for power, signal, 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**
		+ 1. Furnish extra materials that are packaged with protective covering for storage and identified with labels describing contents.
			2. 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.

**PART 2: PRODUCTS**

* 1. **FLOOR-MOUNTED, BOTTOM-OUTLET, TOP SPUD WATER CLOSETS**

A. Water Closets <**Insert drawing designation**>: Floor mounted, bottom outlet, top spud.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company**: ST-2009-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: Sloan ST 2009-STG [(Specification)](https://www.sloan.com/spec-sheet/2172009)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 15”

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", Top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: Toilet Seat: <Insert Toilet seat designation>.

B. Water Closets <**Insert drawing designation**>: Floor mounted, bottom outlet, rear spud.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2019-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2019-STG [(Specification)](https://www.sloan.com/spec-sheet/2172019)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 15”

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", Top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: Toilet Seat: <Insert Toilet seat designation>.

C. Water Closets <**Insert drawing designation**>: Floor mounted, bottom outlet, top spud.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2029-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2029-STG [(Specification)](https://www.sloan.com/spec-sheet/2172029)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: ADA

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 17” (ADA)

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", Top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: Toilet Seat: <Insert Toilet seat designation>.

* 1. **FLOOR-MOUNTED, BOTTOM-OUTLET, REAR SPUD WATER CLOSETS**

A. Water Closets <**Insert drawing designation**>: Floor mounted, bottom outlet, rear spud.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company **ST-2039-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2039-STG [(Specification)](https://www.sloan.com/spec-sheet/2172039)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: ADA

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 17” (ADA)

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", Top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: Toilet Seat: <Insert Toilet seat designation>.

**2.3 FLOOR-MOUNTED, REAR-OUTLET, TOP SPUD WATER CLOSETS**

A. Water Closets <**Insert drawing designation**>: Floor mounted, rear outlet, top spud.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2229-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2229-STG [(Specification)](https://www.sloan.com/spec-sheet/2172229)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: ADA

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 16.5” (ADA)

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", Top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: Toilet Seat: <Insert Toilet seat designation>.

**2.4** **FLOOR-MOUNTED, REAR-OUTLET, REAR SPUD WATER CLOSETS**

A. Water Closets <**Insert drawing designation**>: Floor mounted, rear outlet, rear spud.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company**: ST-2539-LR-STG** ligature resistant fixture with SloanTec hydrophobic Glaze. Buy American Act (BAA) Compliant.

 Product: ST 2539-LR-STG [(Specification)](https://www.sloan.com/spec-sheet/2172539)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 16.5” (Comfort height)

 Rim Contour: Elongated

 Water Consumption: 1.28 - 1.6 gpf (4.8 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", Rear inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>.

**2.5 FLOOR-MOUNTED, BOTTOM-OUTLET, TOP SPUD JUVENILE / CHILD WATER CLOSETS**

A. Water Closets <**Insert drawing designation**>: Floor mount, bottom outlet, top spud juvenile bowl.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2309-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2309-STG ([Specification)](https://www.sloan.com/spec-sheet/2172309)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 10.75” (juvenile height)

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>.

B. Water Closets <**Insert drawing designation**>: Floor mount, bottom outlet, top spud juvenile bowl.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2449-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2449-STG [(Specification)](https://www.sloan.com/spec-sheet/2172449)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 13.5” (juvenile height)

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>

**2.6 FLOOR-MOUNTED, BOTTOM-OUTLET, TOP SPUD WATER CLOSETS WITH BEDPAN LUGS**

A. Water Closets <**Insert drawing designation**>: Floor mounted, bottom outlet, top spud bedpan lugs.

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2029 BPL-STG** includes bed pan lugs, SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2029-BPL-STG [(Specification)](https://www.sloan.com/spec-sheet/2172020)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: ADA

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 17” ADA

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>

**2.7 WALL-MOUNTED WATER CLOSETS**

A. Water Closets <**Insert drawing designation**>: Wall mounted, top spud [**accessible**].

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2459-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2459-STG [(Specification)](https://www.sloan.com/spec-sheet/2172459)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 13 ¼” to 17” ADA

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>

B. Water Closets <**Insert drawing designation**>: Wall mounted, rear spud [**accessible**].

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2469-STG** with SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2469-STG [(Specification)](https://www.sloan.com/spec-sheet/2172469)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: Standard

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 13 ¼” to 17” ADA

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", rear inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>

C.Water Closets <**Insert drawing designation**>: Wall mounted, top spud with Bedpan Lugs.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ST-2459-BPL-STG** includes bed pan lugs, SloanTec hydrophobic Glaze and 1000g Map score. Buy American Act (BAA) Compliant.

 Product: ST 2459-BPL-STG [(Specification)](https://www.sloan.com/spec-sheet/2172450)

 Standard: ASME A112.19.2/CSA B45.1

 Material: Vitreous China

 Bowl: ADA with Bed pan lugs

 Type: Siphon Jet

 Style: Flushometer Valve

 Rim Height: 13 ¼” to 17” ADA

 Rim Contour: Elongated

 Water Consumption: 1.1 - 1.6 gpf (4.2 - 6.0 Lpf)

 Spud Size and Location: IPS 1 1/2", top inlet

 Color: White

 Bowl to Drain Connection: [ASTM A 1045] or [ASME A112.4.3.]

 Flushometer Valve: <Insert Flushometer valve designation>.

 Toilet Seat: <Insert Toilet seat designation>

**2.8 FLUSHOMETER VALVES**

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

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 111** Water Closet Flushometer. Valve shall be Made in the USA, Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop.

 Product: Royal 111 [(Specification)](https://www.sloan.com/general-spec/1016)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Vandal resistant stop cap, dual filter diaphragm, triple seal handle

 Material: Semi-red brass, PERMEX® Rubber Components

 Exposed Flushometer – Valve Finish: Chrome plated, PVD Polished Brass, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite

 Style: Exposed

 Consumption: 1.1 gal (4.2 L), 1.28 gal. (4.8 L), 1.6 gal. (6 L)

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

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

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **WES 111 Dual Flush** Water Closet Flushometer**.** Valve shall be Made in the USA, Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop.

 Product: WES 111 Dual Flush ([Specification)](https://www.sloan.com/general-spec/1736)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Vandal resistant stop cap, dual filter diaphragm, triple seal handle

 Material: Semi-red brass, PERMEX® Rubber Components

 Exposed Flushometer – Valve Finish: Chrome plated, PVD Polished Brass, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite

 Style: Exposed

 Consumption: 1.1 gal. (4.8 L) / 1.6 gal. (6 L) per flush, dual flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/4 (DN 32).

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

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Sloan 111** Water Closet flushometer. Valve shall be Made in the USA, Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi-Red and include High Chloramine Resistant PERMEX® Synthetic Rubber DFB Dual Filtered Bypass Diaphragm.

 Product: Sloan 111 [(Specification)](https://www.sloan.com/general-spec/2011)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Vandal resistant stop cap, dual filter diaphragm, triple seal handle

 Material: Semi-red brass, PERMEX® Rubber Components

 Exposed Flushometer – Valve Finish: Chrome plated.

 Style: Exposed

 Consumption: 1.1 gal (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

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

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Regal 111 XL** Water Closet Flushometer, Fixed Bypass Diaphragm Orifice. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: Regal 111 XL [(Specification)](https://www.sloan.com/general-spec/2106)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Fixed bypass diaphragm, sealed handle assembly

 Material: Semi-red brass, Natural Rubber Components

 Exposed Flushometer – Valve Finish: Chrome plated.

 Style: Exposed

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

E. Push button, Piston Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **CX 158** Manual in Wall Flushometer for Water Closet with access plate measuring smaller than 10" x 10" and shall have an integrated control stop. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be Made in the USA.

 Product: CX 158 [(Specification)](https://www.sloan.com/general-spec/5376)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Front access panel measuring 8 1/2" (W) x 9 1/4" (H) piston style flushometer

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Plate Finish: Polished Chrome, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Actuator: ADA Compliant Push button

 Operation: Operates based on ADA Compliant Push Button actuation

 Trip Mechanism: Push button

 Consumption: 1.1 gal (4.2 L), 1.28 gal. (4.8 L), 1.6 gal. (6.0 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

F Lever-Handle, Piston Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Crown 111** Water Closet flushometer. Fixed Volume Piston with Filtered O-ring Bypass. Non-Hold-Open Handle and No External Volume Adjustment to Ensure Water Conservation. Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be Made in the USA.

 Product: Crown 111 [(Specification)](https://www.sloan.com/general-spec/1641)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Slim design non hold open valve, no water volume adjustment

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Valve Finish: Polished Chrome

 Style: Exposed Flushometer

 Trip Mechanism: ADA handle

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

G Lever-Handle, Piston Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **GEM-2 111 XL** Water Closet flushometer with fixed volume piston and Filtered O-ring Bypass. Non-Hold-Open Handle and no external volume adjustment. Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be Made in the USA.

 Product: GEM 2 111 XL [(Specification)](https://www.sloan.com/general-spec/2721)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Slim design non hold open valve, no water volume adjustment

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Valve Finish: Polished Chrome

 Style: Exposed Flushometer

 Trip Mechanism: ADA handle

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

H. Solenoid-Actuator, Diaphragm Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 111 ESS TMO** hardwired, sensor activated Flushometer with true mechanical override. PERMEX® Synthetic Rubber Diaphragm with Dual Filtered Fixed Bypass, Non-Hold-Open True Mechanical Override. No External Volume Adjustment to Ensure Water Conservation. Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be Made in the USA.

 Product: Royal 111 ESS TMO [(Specification)](https://www.sloan.com/general-spec/686)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: True mechanical override if loss of power occurs, non-hold open feature

 Material: Semi Red Brass Body, PERMEX® rubber components

 Exposed Flushometer – Valve Finish: Chrome plated, PVD Polished Brass, PVD Brushed Nickel, PVD Brushed PVD Brushed Stainless, PVD Graphite

 Style: Exposed Flushometer

 Actuator: Solenoid complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

I. Solenoid-Actuator, Diaphragm Flushometer Valves <**Insert designation**>:

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Sloan 111 ESS TMO** hardwired flushometer with true mechanical override. Rubber components must be chloramine resistant PERMEX® rubber with linear filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: Sloan 111 ESS TMO [(Specification)](https://www.sloan.com/general-spec/2111)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: True mechanical override if loss of power occurs, non-hold open feature

 Material: Semi Red Brass Body, PERMEX® rubber components

 Exposed Flushometer – Valve Finish: Chrome plated.

 Style: Exposed Flushometer

 Actuator: Solenoid complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

J. Solenoid-Actuator, Diaphragm Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Regal 111 XL ESS** hardwired flushometer. Fixed Bypass Diaphragm Orifice. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Regal 111 XL ESS [(Specification)](https://www.sloan.com/general-spec/2556)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

Features: Non-hold open feature, fixed bypass diaphragm.

 Material: Semi red brass body with corrosion resistant components.

 Exposed Flushometer – Valve Finish: Chrome plated.

 Style: Exposed Flushometer

 Actuator: 24 VAC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

K. Solenoid-Actuator, Piston Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **CX 8154** Sensor Activated in Wall Flushometer for Water Closet with access plate measuring smaller than 10" x 10" and shall have an integrated control stop. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be Made in the USA.

 Product: CX 8154 [(Specification)](https://www.sloan.com/general-spec/5921)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Front access panel measuring 8 1/2" (W) x 9 1/4" (H) piston style flushometer

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Plate Finish: Polished Chrome, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Actuator: 6 VDC Solenoid complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using battery power up to 5 years with low battery indicator light

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

L. Solenoid-Actuator, Diaphragm Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ECOS 111** Sensor operated hardwired dual flush flushometer. Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: ECOS 111 [(Specification)](https://www.sloan.com/general-spec/916)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual flush technology with PERMEX® rubber components

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Plate Finish: Polished Chrome, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Exposed Flushometer

 Actuator: Solenoid complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Operation: Operates using battery power up to 5 years with low battery indicator light

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.8 L) / 1.6 gal. (6.0 L) per flush, dual flush or 1.1 gal. (4.2L), 1.28 gal. (4.8L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

M. Battery-Powered, Solenoid-Actuator, Diaphragm Flushometer Valves **<Insert designation>**:

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Solis 8111** Solar powered, sensor activated Flushometer. The sensor assembly is powered by a solar cell that will harvest power from the artificial indoor light (incandescent, fluorescent, or LED), and use it as the energy source. The solar cell can provide approximately 100% power with 650 illuminances (lux). Valve body, Cover, Tailpiece and Control Stop shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Valve shall be Made in the USA.

 Product: Solis 8111 [(Specification)](https://www.sloan.com/general-spec/3016)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Solar powered for extended battery life.

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Plate Finish: Polished Chrome, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Exposed Flushometer

 Actuator: Solenoid complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Operation: Operates using ambient light to power capacitors, providing battery backup if required. 7-10 battery life.

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L) per flush, 1.6 gal. (6 L) per flush 1.6/1.1 gal. (6/4.2 L) per dual flush

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

N. Battery-Powered, Solenoid-Actuator, Diaphragm Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **ECOS 8111 Dual Flush**, Sensor operated flushometer. Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: ECOS 8111 Dual Flush [(Specification)](https://www.sloan.com/general-spec/1986)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual flush technology with PERMEX® rubber components

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Finish: Polished Chrome, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Exposed Flushometer

 Actuator: Solenoid complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Operation: Operates using battery power up to 6 years with low battery indicator light

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.28 gal. (4.8 L) / 1.1 gal (4.2 L) dual flush, 1.6 gal. (4.8 L) / 1.1 gal. (4.2 L) per flush 1.1 gal. (4.2L), 1.28 gal. (4.8L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

O. Battery-Powered, Solenoid-Actuator, Diaphragm Flushometer Valves **<Insert designation>**:

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **G2 8111** sensor activated flushometer with low battery indicator, PERMEX® Synthetic Rubber Diaphragm with Dual Filtered Fixed Bypass, Infrared Sensor with Multiple-focused, Lobular Sensing Fields for high and low target detection and Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be Made in the USA.

 Product: G2 8111 [(Specification)](https://www.sloan.com/general-spec/2856)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual filter bypass diaphragm with PERMEX® rubber components

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Finish: Polished Chrome, PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Exposed Flushometer

 Actuator: Solenoid complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Operation: Operates using battery power up to 6 years with low battery indicator light

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.28 gal. (4.8 L) per flush, 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

P. Battery-Powered, Solenoid-Actuator, Diaphragm Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Sloan 8111** Sensor operated flushometer. Rubber components must be chloramine resistant PERMEX® rubber with linear filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: Sloan 8111 ([Specification)](https://www.sloan.com/general-spec/2701)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Linear Filter Bypass Diaphragm along with Stop Seat, and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Finish: Polished Chrome

 Style: Exposed Flushometer

 Actuator: 6 VDC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using battery power up to 6 years with low battery indicator light

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.28 gal. (4.8 L) per flush, 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

Q. Battery-Powered, Actuator, Diaphragm Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 111 SFSM** Sensor operated Flushometer. Rubber components must be chloramine resistantPERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: Royal 111 SFSM [(Specification)](https://www.sloan.com/general-spec/1826)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat, Handle Packing and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Finish: Polished Chrome

 Style: Exposed Flushometer

 Actuator: 6 VDC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using battery power up to 3 years with low battery indicator light. Built with True Mechanical Override if loss of power.

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.28 gal. (4.8 L) per flush, 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

R. Battery-Powered, Actuator, Piston Flushometer Valves **<Insert designation>**:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Gem-2 111 SFSM** Sensor operated flushpmeter. Rubber components must be chloramine resistantPERMEX® rubber with Fixed Filtered O-ring Bypass. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Gem 2 111 SFSM [(Specification)](https://www.sloan.com/general-spec/1321)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat, Handle Packing and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Finish: Polished Chrome

 Style: Exposed Flushometer

 Actuator: 6 VDC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using battery power up to 3 years with low battery indicator light. Built with True Mechanical Override if loss of power.

 Trip Mechanism: Battery powered electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.28 gal. (4.8 L) per flush, 1.6 gal. (6 L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

S. Hydraulic-Actuator, Push-Button, Diaphragm Flushometer Valves **<Insert designation>**.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 910** hydraulic Flushometer Non-Hold-Open feature with Actuator (specified separately). Diaphragm, Stop Seat and Vacuum Breaker to be molded from PERMEX® ® rubber compound for Chloramine resistance. Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be Made in the USA.

 Product: Royal 910 [(Specification)](https://www.sloan.com/general-spec/956)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance.

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Exposed Flushometer – Finish: Polished Chrome

 Style: Exposed Flushometer

 Actuator: Hydraulic push button actuator

 Consumption: 1.28 gal. (4.8L), 1.6 gal. (6 L), 3.5 gal. (13.2L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

T. Solenoid-Actuator, Concealed, Diaphragm Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 152 ESS** Sensor operated hardwired Flushometer. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Royal 152 ESS ([Specification)](https://www.sloan.com/general-spec/1621)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi red brass body with corrosion resistant components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Actuator: 24 VAC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using 24 VAC power

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

U. Solenoid-Actuator, Concealed, Diaphragm Flushometer Valves <**Insert designation**>:

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 152 ESS TMO SBX** sensor activated hardwired flushometer with true mechanical override. Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Royal 152 ESS TMO SBX [(Specification)](https://www.sloan.com/general-spec/6216)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX®rubber compound for Chloramine resistance

 Material: Semi red brass body with corrosion resistant components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Actuator: 24 VAC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using 24 VAC power

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

V. Solenoid-Actuator, Concealed, Diaphragm Flushometer Valves <**Insert designation**>:

Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 152 ESS TMO SWB** sensor operated hardwired flushometer with true mechanical override and access plate measuring 13.5" x 13.5" or smaller. Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Royal 152 ESS TMO SWB [(Specification)](https://www.sloan.com/general-spec/1621)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi red brass body with corrosion resistant components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Actuator: 24 VAC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using 24 VAC power

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L).

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

W. Solenoid-Actuator, Concealed, Diaphragm Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 152 SBX** Hardwired flushometer with true mechanical override. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Royal 152 SBX [(Specification)](https://www.sloan.com/general-spec/1621)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi red brass body with corrosion resistant components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Actuator: 24 VAC actuator complying with UL and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application

 Operation: Operates using 24 VAC power

 Trip Mechanism: Hard-wired electronic sensor complying with UL 1951, and listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

 Consumption: 1.1 gal. (4.2L), 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

X. Push Button-Actuator, Concealed, Diaphragm Flushometer Valves <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 152**. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass and with back check control stop. Valve shall be Made in the USA.

 Product: Royal 152 [(Specification)](https://www.sloan.com/general-spec/761)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi red brass body with corrosion resistant components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Concealed Flushometer

 Trip Mechanism: ADA Compliant Push Button

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

Y. Lever-Handle, Diaphragm Flushometer Valves for Bed Pan Washers <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal BPW 1150** Bedpan flushometer with 1 1/2" offset. Rubber components must be chloramine resistant PERMEX® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: Royal BPW 1150 [(Specification)](https://www.sloan.com/general-spec/2736)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi-red brass, PERMEX® Rubber Components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Exposed

 Actuator: ADA Compliant Handle

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

Z. Lever-Handle, Diaphragm Flushometer Valves for Bed Pan Washers <**Insert designation**>:

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal BPW 1000** Bedpan flushometer. Rubber components must be chloramine resistant PERMEX® ® rubber with dual filter diaphragm assembly. Valve body shall be in compliance with ASTM Alloy Classification for Semi-Red Brass. Free spinning vandal resistant stop cap with back check control stop. Valve shall be Made in the USA.

 Product: Royal BPW 1000 [(Specification)](https://www.sloan.com/general-spec/2951)

 Standard: ASSE 1037

 Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance

 Material: Semi-red brass, PERMEX® Rubber Components

 Exposed Flushometer – Valve Finish: Chrome plated. PVD Brushed Nickel, PVD Brushed Stainless, PVD Graphite, PVD Polished Brass

 Style: Exposed

 Actuator: ADA Compliant Handle

 Consumption: 1.28 gal. (4.8 L), 1.6 gal. (6 L), 3.5 gal. (13.2 L)] per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

AA**.** Hydraulic-Actuator, Push-Button, Diaphragm Flushometer Valves **<Insert designation>**.

 Basis of Design Product: Subject to compliance with requirements, provide Sloan Valve Company: **Royal 952** hydraulic Flushometer Non-Hold-Open feature with Actuator (specified separately). Diaphragm, Stop Seat and Vacuum Breaker to be molded from PERMEX® rubber compound for Chloramine resistance. Valve Body, Cover, Tailpiece and Control Stop shall be in conformance with ASTM Alloy Classification for Semi- Red Brass. Valve shall be Made in the USA.

 Product: Royal 952 [(Specification)](https://www.sloan.com/general-spec/2286)

 Standard: ASSE 1037

Minimum Pressure Rating: 15 PSI (103 kPa)

 Features: Dual Filter Bypass Diaphragm along with Stop Seat and Vacuum Breaker molded from PERMEX® rubber compound for Chloramine resistance.

 Material: Semi Red Brass Body with Corrosion Resistant Components

 Concealed Flushometer – Finish: Polished Chrome

 Style: Concealed Flushometer

 Actuator: Hydraulic push button actuator

 Consumption: 1.28 gal. (4.2L), 1.6 gal. (6 L), 3.5 gal. (13.2L) per flush.

 Minimum Inlet: NPS 1 (DN 25).

 Minimum Outlet: NPS 1-1/2 (DN 40).

**2.4 TOILET SEATS**

 A. Toilet Seats **<Insert drawing designation>**:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. <**Insert manufacturer's name**>
	1. **SUPPORTS**

 A. Water Closet Carrier

1. Manufacturers: Subject to compliance with requirements, provide products by the following:

a. <Insert manufacturer's name>.

2. Standard: ASME A112.6.1M.

3. Description: Waste-fitting assembly, as required to match drainage piping material

4. Arrangement with faceplates, couplings gaskets, and feet; bolts and hardware match fixture.

5. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.

**PART 3 – 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 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**

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.

3. Install accessible, wall mounted water closet at mounting height for handicapped/elderly according to ICC/ANSI A117.1

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

1. 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.

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

1. Flush Valve Installation

1. Install 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 flushometer valve for accessible water closets with handle on open side of closet.

4. Install actuators in locations that are easy for people with disabilities to reach.

5. Install fresh batteries in battery-powered, electronic-sensor mechanisms.

* + - * 1. Install Toilet Seats on Water Closets
				2. 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. Comply with escutcheon requirements specified in section 220518 “Escutcheons for Plumbing Piping.”

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

* + - * 1. Joint Sealing

1. Seal joints between water closets, 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 CONNECTIONS**

A. Connect water closets with water supplies and soil, waste, and vent pipe. Use size fittings required to match water closets.

1. Comply with water piping requirements specified in Section 221116 “Domestic Water Piping.”

2. Comply with soil and waste piping requirements specified in Section 221316 “Sanitary Waste and Vent Piping.”

3. When installing piping adjacent to water closets, allow space for service and maintenance.

B. Adjusting

1. Operate and adjust water closets and controls. Replace damaged and malfunctioning water closets, fittings, and controls.

2. Adjust water pressure at flushometer valve to produce proper flow.

3. Install fresh batteries in battery powered, electronic sensor mechanisms.

**3.4 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**