

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and Division 00 and 01, apply to this Section.
- B. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 23.
 - 2. Division 22.
 - 3. Division 26.

1.2 SUMMARY

- A. This Section includes plumbing fixtures and trim, faucets, other fittings, and related components.

1.3 DEFINITIONS

- A. Accessible: Plumbing fixture, building, facility, or portion thereof that can be approached, entered, and used by physically handicapped, disabled, and elderly people.
- B. Fitting: Device that controls flow of water into or out of plumbing fixture. Fittings specified in this Section include supplies and stops, faucets and spouts, showerheads and tub spouts, drains and tailpieces, traps and waste pipes. Pipe fittings, tube fittings, and general-duty valves are included where indicated.
- C. Domestic Water Piping: Piping inside building that conveys potable cold and hot water to fixtures and equipment throughout the building.
- D. Non-Potable Water Piping: Piping inside building that conveys non-potable water to fixtures and equipment throughout the building.

1.4 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 01 Specification Sections.
- B. Product Data for each plumbing fixture category and type specified. Include selected fixture, trim, fittings, accessories, appliances, appurtenances, equipment, and supports. Indicate materials and finishes, dimensions, construction details, and flow-control rates.
- C. Wiring diagrams from manufacturer for electrically operated units.
- D. Maintenance data for plumbing fixtures and components to include in the operation and maintenance manuals specified in Division 01.

1.5 CODES AND STANDARDS

- A. Codes and Standards shall be the current version adopted by the Authority Having Jurisdiction.

1.6 QUALITY ASSURANCE

- A. Source Limitations: Obtain plumbing fixtures, faucets, and other components of each category from one source and by a single manufacturer.
 - 1. Exception: Where fixtures, faucets, or other components are not available from a single manufacturer, obtain similar products from other manufacturers specified for this category.
- B. Regulatory Requirements: Comply with requirements of CABO A117.1, "Accessible and Usable Buildings and Facilities"; Public Law 90-480, "Architectural Barriers Act"; and Public Law 101-336, "Americans with Disabilities Act"; regarding plumbing fixtures for physically handicapped people.
- C. Energy Policy Act Requirements: Comply with requirements of Public Law 102-486, "Energy Policy Act," regarding water flow rate and water consumption of plumbing fixtures.
- D. Comply with the Reduction of Lead in Drinking Water Act of 2011. This act redefines "Lead Free" as "not containing more than 0.2 percent lead when used with respect to solder and flux and not more than a weighted average of 0.25 percent lead when used with respect to wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures". Products required to be "Lead Free" shall have NSF 61-G or NSF 372 certification.
- E. Soldered Lead Free End Connections: Copper alloys with silicone content greater than 0.005% are not allowed.
- F. Backflow Prevention Requirements: Comply with the requirements of Washington State Department of Health regulation for "Backflow Prevention Assemblies Approved for Installation in Washington State".
- G. Listing and Labeling: Provide electrically operated fixtures and components specified in this Section that are listed and labeled.
 - 1. The Terms "Listed" and "Labeled": As defined in the National Electrical Code, Article 100.
 - 2. Listing and Labeling Agency Qualifications: A "Nationally Recognized Testing Laboratory" (NRTL) as defined in OSHA Regulation 1910.7.
- H. Select combinations of fixtures and trim, faucets, fittings, and other components that are compatible.
- I. Plumbing Fixture Standards:
 - 1. Comply with applicable standards below and other requirements specified.
 - a. Emergency Equipment: ANSI Z358.1.
 - b. Enameled, Cast-Iron Fixtures: ASME A112.19.1M.
 - c. National Sanitation Foundation Construction: NSF 2.
 - d. Plastic Laundry Trays: ANSI Z124.6.
 - e. Plastic Mop-Service Basins: ANSI Z124.6.
 - f. Plastic Shower Enclosures: ANSI Z124.2 and ANSI Z124.2a.
 - g. Slip-Resistant Bathing Surfaces: ASTM F 462.
 - h. Stainless-Steel Fixtures Other than Service Sinks: ASME A112.19.3M.
 - i. Vitreous-China Fixtures: ASME A112.19.2M.
 - j. Water-Closet, Flush Valve, Tank Trim: ASME A112.19.5.

- k. Water-Closet, Flushometer Tank Trim: ASSE 1037.
- l. Whirlpool Bathtub Fittings: ASME A112.19.8M.

J. Lavatory/Sink Faucet Standards:

- 1. Comply with ASME A112.18.1M and other requirements specified for lavatory, sink, and similar-type-fixture faucet fittings. Include hot- and cold-water indicators; 2.5-gpm-maximum flow rate; and polished, chrome-plated finish; except where otherwise indicated. Coordinate faucet inlets with supplies and fixture holes and outlet with spout and fixture receptor.
 - a. Diverter Valves for Faucets with Hose Spray: ASSE 1025.
 - b. Faucet Hose: ASTM D 3901.
 - c. Hose-Connection Vacuum Breakers: ASSE 1011.
 - d. Hose-Coupling Threads: ASME B1.20.7.
 - e. Integral, Atmospheric Vacuum Breakers: ASSE 1001.
 - f. Pipe Threads: ASME B1.20.1.
 - g. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
 - h. Sink Spray Hoses: ASTM D 3573.
 - i. Public lavatories hot water supply limited to 120 deg F by device conforming to ASSE 1070.

K. Bathtub/Shower Faucet Standards:

- 1. Comply with ASME A112.18.1M and other requirements specified for bathtub and shower faucet fittings. Include hot- and cold-water indicators; 2.5-gpm- maximum flow rate; and polished, chrome-plated finish; except where otherwise indicated. Coordinate faucet inlets with supplies and outlet with diverter valve; tub spout; and shower head, arm, and flange.
 - a. Combination, Pressure-Equalizing- and Thermostatic-Control, Antiscald Faucets: ASSE 1016.
 - b. Hand-Held Showers: ASSE 1014.
 - c. High-Temperature-Limit Controls for Thermal-Shock-Preventing Devices: ASTM F 445.
 - d. Hose-Coupling Threads: ASME B1.20.1 or ASME B1.20.7.
 - e. Manual-Control Antiscald Faucets: ASTM F 444.
 - f. Pipe Threads: ASME B1.20.1.
 - g. Pressure-Equalizing-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.
 - h. Sensor-Actuated Faucets and Electrical Devices: UL 1951.
 - i. Thermostatic-Control Antiscald Faucets: ASTM F 444 and ASSE 1016.
 - j. Bathtubs hot water limited to 120 deg F device conforming to ASSE 1070.
 - k. Bedits hot water limited to 110 deg F by device conforming to ASSE 1070.

L. Miscellaneous Fitting Standards:

- 1. Comply with ASME A112.18.1M and other requirements specified for fittings, other than faucets. Include polished, chrome-plated finish, except where otherwise indicated. Coordinate fittings with other components and connectors.
 - a. Atmospheric Vacuum Breakers: ASSE 1001.
 - b. Automatic Flow Restrictors: ASSE 1028.
 - c. Brass and Copper, Supplies and Tubular Brass: ASME A112.18.1M.

- d. Fixed Flow Restrictors: ASSE 1034.
- e. Manual-Operation Flushometers: ASSE 1037.
- f. Sensor-Operation Flushometers: ASSE 1037 and UL 1951.

M. Miscellaneous Component Standards:

- 1. Comply with applicable standards below and other requirements specified for components for plumbing fixtures, equipment, and appliances.
 - a. Disposers: ASSE 1008 and UL 430.
 - b. Hose-Coupling Threads: ASME B1.20.7.
 - c. Hot-Water Dispensers: ASSE 1023 and UL 499.
 - d. Pipe Threads: ASME B1.20.1.
 - e. Plastic Shower Receptors: ANSI Z124.2 and ANSI Z124.2a.
 - f. Plastic Toilet Seats: ANSI Z124.5.
 - g. Supply and Drain Insulation Kits: CABO A117.1.
 - h. Supports: ASME A112.6.1M.
 - i. Whirlpool Bathtub Equipment: UL 1795.

1.7 DELIVERY, STORAGE, AND HANDLING

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

1.8 PROJECT CONDITIONS

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

PART 2 – PRODUCTS

2.1 BASIC, COMMON FEATURES

- A. Components of plumbing fixtures that come in contact with domestic water where under pressure from the distribution system shall be "lead free".

2.2 WATER CLOSETS

A. Fixtures:

- 1. Wall Mounted Water Closet:
 - a. White vitreous china wall mounted water closet fixture, elongated bowl [with bedpan lugs].
 - b. Siphon jet.
 - c. 1-1/2-inch top spud.
 - d. Compatible with 1.28 gpf or 1.6 gpf flush valves.
 - e. ADA compliant when seat installed between 17-inches to 19-inches above the finished floor.
 - f. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Sloan Valve Company.
 - 5) Zurn Industries LLC.
 - 6) Or Approved Equal.
2. Floor Mounted, Floor Outlet Water Closet:
- a. White vitreous china floor mounted, floor outlet water closet fixture, 15-inch high, elongated bowl [with bedpan lugs].
 - b. Siphon jet.
 - c. 1-1/2-inch top spud.
 - d. Compatible with 1.28 gpf or 1.6 gpf flush valves.
 - e. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Sloan Valve Company.
 - 5) Zurn Industries LLC.
 - 6) Or Approved Equal.
3. Floor Mounted, Floor Outlet Water Closet (ADA):
- a. White vitreous china floor mounted, floor outlet water closet fixture, 17-1/8-inches high, elongated bowl [with bedpan lugs].
 - b. Siphon jet.
 - c. 1-1/2-inch top spud.
 - d. Compatible with 1.28 gpf or 1.6 gpf flush valves.
 - e. Complies with ADA.
 - f. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Sloan Valve Co.
 - 5) Zurn Industries LLC.
 - 6) Or Approved Equal.
4. Floor Mounted, Rear Outlet Water Closet:
- a. White vitreous china floor mounted, rear outlet water closet fixture, 15-inches high, elongated bowl [with bedpan lugs].
 - b. Siphon jet.
 - c. 1-1/2-inch top spud.
 - d. Compatible with 1.28 gpf or 1.6 gpf flush valves.
 - e. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.

- 2) Kohler Co.
- 3) Mansfield Plumbing Products LLC.
- 4) Or Approved Equal.

5. Floor Mounted, Rear Outlet Water Closet (ADA):

- a. White vitreous china floor mounted, rear outlet water closet fixture, 17-inches high, elongated bowl [with bedpan lugs].
- b. Siphon jet.
- c. 1-1/2-inch top spud.
- d. Compatible with 1.28 gpf or 1.6 gpf flush valves.
- e. Complies with ADA.
- f. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Zurn Industries LLC.
 - 5) Or Approved Equal.

6. Tank Type Water Closet:

- a. White vitreous china tank type water closet fixture, elongated bowl, 15-inches high.
- b. Pressure-assist flushing system.
- c. 1.6 gpf.
- d. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Zurn Industries LLC.
 - 5) Or Approved Equal.

7. Tank Type Water Closet (ADA):

- a. White vitreous china tank type water closet fixture, elongated bowl, 16-1/2-inches high.
- b. Pressure-assist flushing system.
- c. 1.6 gpf.
- d. Complies with ADA.
- e. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Zurn Industries LLC.
 - 5) Or Approved Equal.

B. Flush Valves:

1. Manual Type Low-Flow Water Closet Flush Valve:
 - a. Manual low-flow flush valve, 1.28 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

2. Manual Type Water Closet Flush Valve:
 - a. Flush Valve: Manual flush valve, 1.6 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

3. Manual Type Dual Water Closet Flush Valve:
 - a. Manual dual flush valve, 1.6 gpf down / 1.1 gpf up, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, antimicrobial coating on ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

4. DC Powered Low-Flow Water Closet Flush Valve:
 - a. DC powered (battery) low-flow flush valve, 1.28 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, battery powered infrared sensor for automatic operation, infrared sensor with multiple focused sensing fields, infrared sensor range adjustment screw, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.
5. DC Powered Water Closet Flush Valve:
 - a. DC powered (battery) flush valve, 1.6 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, battery powered infrared sensor for automatic operation, infrared sensor with multiple focused sensing fields, infrared sensor range adjustment screw, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.
6. DC Powered Dual Water Closet Flush Valve:
 - a. DC powered (battery) dual flush valve, 1.6 gpf if the user is present for longer than one minute and leaves the zone or chooses the large override button, 1.1 gpf if the user is present for less than one minute and leaves the zone or chooses the small override button, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, battery powered infrared sensor for automatic operation, infrared sensor with multiple focused sensing fields, infrared sensor range adjustment screw, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.
7. AC Powered Low-Flow Water Closet Flush Valve:
 - a. AC powered (hard-wired) low-flow flush valve, 1.28 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, wall mounted self-adaptive infrared sensor, vandal resistant stop cap, adjustable tailpiece, vacuum breaker. Provide with transformer for up to eight water closets/urinals, 120 VAC input.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.
8. AC Powered Water Closet Flush Valve:

- a. AC powered (hard-wired) flush valve, 1.6 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, wall mounted self-adaptive infrared sensor, vandal resistant stop cap, adjustable tailpiece, vacuum breaker. Provide with transformer for up to eight water closets/urinals, 120 VAC input.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

C. Seats:

1. Open Front Water Closet Seat:

- a. Solid white polypropylene plastic, elongated, open front toilet seat less cover with stainless steel check hinge and hardware.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Sloan Valve Company.
 - 4) Zurn Industries LLC.
 - 5) Bemis Manufacturing Company.
 - 6) Beneke.
 - 7) Olsonite.
 - 8) Or Approved Equal.

2. Closed Front Water Closet Seat:

- a. Solid white polypropylene plastic, elongated, closed front toilet seat with cover with stainless steel check hinge and hardware.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Zurn Industries LLC.
 - 3) Bemis Manufacturing Company.
 - 4) Beneke.
 - 5) Olsonite
 - 6) Or Approved Equal.

D. Carriers:

1. Adjustable Water Closet Carrier:

- a. Adjustable fixture support for siphon jet water closets.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Jay R. Smith.
- 2) Zurn Industries LLC.
- 3) Wade.
- 4) Josam.
- 5) Or Approved Equal.

2. Compact Water Closet Carrier:

- a. Compact fixture support for siphon jet water closets.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Jay R. Smith.
- 2) Zurn Industries LLC.
- 3) Wade.
- 4) Josam
- 5) Or Approved Equal.

2.3 URINALS

A. Fixtures:

1. Washout Type Urinal:

- a. White vitreous china wall mounted urinal fixture, 14-1/8-inch extended rim, 18-inch wide by 26-7/8-inch high.
- b. Washout flush action.
- c. 3/4-inch top spud.
- d. Compatible with 0.125 gpf to 1.0 gpf flush valves.
- e. ADA compliant when rim installed no higher than 17-inches above the finished floor.
- f. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) American Standard.
- 2) Kohler Co.
- 3) Mansfield Plumbing Products LLC.
- 4) Or Approved Equal.

2. Siphon Jet Type Urinal:

- a. White vitreous china wall mounted urinal fixture, 14-1/2-inch extended rim, 13-1/2-inch wide by 20-3/8-inch high.
- b. Siphon jet flushing action.
- c. 3/4-inch top spud.
- d. Compatible with 0.5 gpf or 1.0 gpf flush valves.
- e. ADA compliant when rim installed no higher than 17-inches above the finished floor.
- f. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) American Standard.
- 2) Kohler Co.

- 3) Mansfield Plumbing Products LLC.
- 4) Or Approved Equal.

B. Urinal Flush Valves:

1. Manual Type Ultra Low-Flow Urinal Flush Valve:

- a. Manual ultra low-flow Flush valve, 0.125 gpf, exposed, diaphragm type, cast brass, chrome plated urinal flush valve, spud coupling and flange for 3/4-inch top spud, synthetic rubber diaphragm with filtered by-pass, ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

2. Manual Type Low-Flow Urinal Flush Valve:

- a. Manual low-flow flush valve, 0.5 gpf, exposed, diaphragm type, cast brass, chrome plated urinal flush valve, spud coupling and flange for 3/4-inch top spud, synthetic rubber diaphragm with filtered by-pass, ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

3. Manual Type Urinal Flush Valve:

- a. Manual flush valve, 1.0 gpf, exposed, diaphragm type, cast brass, chrome plated urinal flush valve, spud coupling and flange for 3/4-inch top spud, synthetic rubber diaphragm with filtered by-pass, ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

4. DC Powered Ultra Low-Flow Flush Valve:

- a. DC powered (battery) low-flow flush valve, 0.125 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 3/4-inch top spud, synthetic rubber diaphragm with filtered by-pass, battery powered infrared sensor for automatic operation, infrared sensor with multiple focused sensing fields, infrared sensor range adjustment screw, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.

- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

- 5. DC Powered Low-Flow Urinal Flush Valve:
 - a. DC powered (battery) low-flow Flush valve, 0.5 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 3/4-inch top spud, synthetic rubber diaphragm with filtered by-pass, battery powered infrared sensor for automatic operation, infrared sensor with multiple focused sensing fields, infrared sensor range adjustment screw, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

- 6. DC Powered Flush Urinal Valve:
 - a. DC powered (battery) flush valve, 1.0 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 3/4-inch top spud, synthetic rubber diaphragm with filtered by-pass, battery powered infrared sensor for automatic operation, infrared sensor with multiple focused sensing fields, infrared sensor range adjustment screw, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

- 7. AC Powered Ultra Low-Flow Urinal Flush Valve:
 - a. AC powered (hard-wired) low-flow flush valve, 0.125 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, wall mounted self-adaptive infrared sensor, vandal resistant stop cap, adjustable tailpiece, vacuum breaker. Provide with transformer for up to eight water closets/urinals, 120 VAC input, 24 VAC.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

- 8. AC Powered Low-Flow Urinal Flush Valve:

- a. AC powered (hard-wired) low-flow flush valve, 0.5 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, wall mounted self-adaptive infrared sensor, vandal resistant stop cap, adjustable tailpiece, vacuum breaker. Provide with transformer for up to eight water closets/urinals, 120 VAC input.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

9. AC Powered Urinal Flush Valve:

- a. AC powered (hard-wired) low-flow flush valve, 1.0 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, wall mounted self-adaptive infrared sensor, vandal resistant stop cap, adjustable tailpiece, vacuum breaker. Provide with transformer for up to eight water closets/urinals, 120 VAC input, 24 VAC.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

C. Supports:

1. Wall Urinal Support System:

- a. Wall urinal support system with top and bottom plates, complete with rectangular steel uprights with welded feet, adjustable support plates, and mounting fasteners.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Jay R. Smith.
 - 2) Zurn Industries LLC.
 - 3) Josam.
 - 4) Or Approved Equal.

2.4 LAVATORIES

A. Fixtures:

1. Side Splash Type Wall Mounted Lavatory:

- a. White vitreous china wall lavatory fixture, nominal 20-inch wide by 18-inch front to back, self-draining deck area with contoured back and side splash shields, faucet ledge.
- b. Front overflow.
- c. Drilled for concealed arm carrier.

- d. Three holes on 4-inch centers.
 - e. ADA compliant.
 - f. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Sloan Valve Company.
 - 5) Zurn Industries LLC.
 - 6) Or Approved Equal.
2. Less Overflow Type Wall Mounted Lavatory:
- a. White vitreous china wall lavatory fixture, nominal 20-inch wide by 18-inch front to back, self-draining deck area with contoured back, faucet ledge.
 - b. Less overflow.
 - c. Drilled for concealed arm carrier.
 - d. Three holes on 4-inch centers.
 - e. ADA compliant.
 - f. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Kohler Co.
 - 2) Mansfield Plumbing Products LLC.
 - 3) Or Approved Equal.
3. Contoured Type Wall Mounted Lavatory:
- a. White vitreous china wall lavatory fixture, nominal 22-inch wide by 21-inch front to back, recessed self-draining deck area with rounded contoured edges. [Provide with white vitreous china shroud/knee contact guard.]
 - b. Rear overflow.
 - c. Drilled for concealed arm carrier.
 - d. Three holes on 4-inch centers.
 - e. ADA compliant.
 - f. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Or Approved Equal.
4. Contoured Less Overflow Type Wall Mounted Lavatory:
- a. White vitreous china wall lavatory fixture, nominal 22-inch wide by 21-inch front to back, recessed self-draining deck area with rounded contoured edges. [Provide with white vitreous china shroud/knee contact guard.]
 - b. Less overflow.
 - c. Drilled for concealed arm carrier.
 - d. Three holes on 4-inch centers.
 - e. ADA compliant.
 - f. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) American Standard.
- 2) Or Approved Equal.

5. Counter Mounted Lavatory:

- a. Fixture: White vitreous china counter mounted lavatory fixture, nominal 19-inch diameter with 14-inch by 12-inch oval basin, overflow, three holes on 4-inch centers, ADA compliant.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Zurn Industries LLC
 - 5) Or Approved Equal.

6. Under-Counter Mounted Lavatory:

- a. White vitreous china under-counter mounted lavatory fixture, nominal 17-inch by 14-inch oval basin, unglazed underside, overflow and clamps, ADA compliant.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Or Approved Equal.

7. Large Under-Counter Mounted Lavatory:

- a. White vitreous china under-counter mounted lavatory fixture, nominal 19-inch by 15-inch oval basin, unglazed underside, overflow and clamps, ADA compliant.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Sloan Valve Company.
 - 5) Zurn Industries LLC.
 - 6) Or Approved Equal.

B. Faucets:

1. DC Powered Lavatory Faucet:

- a. DC powered lavatory faucet, deck mounted single-hole, polished chrome plated finish, dual beam infrared sensor, "Lead Free", single supply for tempered water, multiple field adjustable modes and ranges, above deck hermetically sealed electronics, inlet supply check valve, 6-volt lithium battery, ADA compliant.
- b. Verify inlet/outlet projection so that faucet will not hit drain directly.

- c. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
 - 2. AC Powered Lavatory Faucet
 - a. AC powered lavatory faucet, deck mounted single-hole, polished chrome plated finish, dual beam infrared sensor, "Lead Free", single supply for tempered water, multiple field adjustable modes and ranges, above deck hermetically sealed electronics, inlet supply check valve, ADA compliant.
 - b. Verify inlet/outlet projection so that faucet will not hit drain directly.
 - c. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
 - 3. Manual Lavatory Faucet:
 - a. Manual lavatory faucet, deck mounted, 4-inch fixed centers, integral cast brass spout, polished chrome plated finish, 4-inch vandal proof wrist blade handles color coded, ceramic quarter-turn operating cartridge, "Lead Free", 1/2-inch NSPM supply inlets, ADA compliant.
 - b. Verify inlet/outlet projection so that faucet will not hit drain directly.
 - c. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
 - 4. Metering Lavatory Faucet:
 - a. Metering lavatory faucet, deck mounted single supply, 4-inch fixed centers, integral cast brass spout, polished chrome plated finish, metering adjustable cycle time closure cartridge, "Lead Free", 1/2-inch NSPM supply inlets, ADA compliant.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
- C. Outlets:
- 1. Non-Aerating 0.5 GPM Outlet:
 - a. Non-aerating spray outlet, polish chrome plated finish, vandal proof, "Lead Free", 0.5 gpm.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.

2) Or Approved Equal.

2. Non-Aerating Laminar Flow Outlet

- a. Non-aerating laminar flow outlet, polish chrome plated finish, vandal proof, "Lead Free", 1.0 gpm.
- b. Verify inlet/outlet projection so that faucet will not hit drain directly.
- c. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Chicago Faucets.
- 2) Or Approved Equal.

D. Drains:

1. Grid Strainer Drain:

- a. Grid strainer with tailpiece, polish chrome plated finish, solid brass.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Chicago Faucets.
- 2) Or Approved Equal.

2. Offset Grid Strainer Drain:

- a. Grid strainer with offset waste, polish chrome plated finish, solid brass, ADA compliant.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Chicago Faucets.
- 2) Or Approved Equal.

E. Supports:

1. Concealed Arms Support:

- a. Lavatory system support with concealed arms complete with painted rectangular steel uprights with welded feet, cast-iron adjustable headers, concealed arms, steel sleeves, alignment truss and mounting fasteners.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Jay R. Smith.
- 2) Zurn Industries LLC.
- 3) Josam
- 4) Or Approved Equal.

F. Accessories:

1. Plug-In Type Transformer:

- a. Plug-in, 12-volt AC transformer for up to eight faucets.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
2. Hard-Wired Type Transformer:
- a. Hard-wired, 12-volt AC transformer for up to eight faucets.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
3. Thermostatic Mixing Valve:
- a. ASSE 1070 compliant, "Lead Free", 1/2-inch NPT threaded inlet and outlet union connections, integral inlet check valves, adjustment cap with locking features, bronze body construction, corrosion resistant internal components, for single or multiple faucet applications.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
4. Chrome Cover Plate:
- a. 4-inch chrome plated finish cover plate with locating pin and mounting hardware.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.
5. Protective Pipe Covers:
- a. Molded white soft plastic fitting insulation kit covering for supplies and drains with removable covering for stops and handles for ADA compliance. Include manufacturer's standard fasteners, straps, and adhesives.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Truebro, IPS Corporation.
 - 2) Or Approved Equal.
6. Rigid Pipe Enclosure:
- a. Lavatory pipe enclosure, white rigid high-impact, stain-resistant, rigid PVC for ADA compliance. Include manufacturer's standard fasteners, straps, and adhesives.

- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Truebro, IPS Corporation.
- 2) Or Approved Equal.

2.5 SINKS

A. Single Compartment Sinks:

1. 15x17 Single Compartment Sink:

- a. Single compartment top mount sink, 18-gauge Type 304 stainless steel, nominal 15-inch side-to-side by 17-inch front-to-back by 7-5/8-inch deep, insulated underside, [3][4] holes on 4-inch centers, center faucet, center drain, quick-clip mounting system. Manufacturers: Subject to compliance with requirements
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Elkay Manufacturing Company.
- 2) Just Manufacturing.
- 3) Or Approved Equal.

2. 19x18 Single Compartment Sink:

- a. Single compartment top mount sink, 18-gauge Type 304 stainless steel, nominal 19-inch side-to-side by 18-inch front-to-back by 7-5/8-inch deep, insulated underside, [3][4][5] holes on 4-inch centers, center faucet, center drain, quick-clip mounting system. Manufacturers: Subject to compliance with requirements
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Elkay Manufacturing Company.
- 2) Just Manufacturing.
- 3) Or Approved Equal.

3. 22x19 Single Compartment Sink:

- a. Single compartment top mount sink, 18-gauge Type 304 stainless steel, nominal 22-inch side-to-side by 19-inch front-to-back by 7-5/8-inch deep, insulated underside, [3][4][5] holes on 4-inch centers, center faucet, center drain, quick-clip mounting system. Manufacturers: Subject to compliance with requirements
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:

- 1) Elkay Manufacturing Company.
- 2) Just Manufacturing.
- 3) Or Approved Equal.

B. Double Compartment Sinks:

1. 29x22 Double Compartment Sink:

- a. Double compartment top mount sink, 18-gauge Type 304 stainless steel, nominal 29-inch side-to-side by 22-inch front-to-back by 7-5/8-inch deep, insulated underside, [3][4][5] holes on 4-inch centers, center faucet, center drain, quick-clip mounting system.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Elkay Manufacturing Company.
 - 2) Just Manufacturing.
 - 3) Or Approved Equal.

2. 33x22 Double Compartment Sink:

- a. Double compartment top mount sink, 18-gauge Type 304 stainless steel, nominal 33-inch side-to-side by 22-inch front-to-back by 7-5/8-inch deep, insulated underside, [3][4][5] holes on 4-inch centers, center faucet, center drain, quick-clip mounting system.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Elkay Manufacturing Company.
 - 2) Just Manufacturing.
 - 3) Or Approved Equal.

C. Faucets:

1. Manual Sink Faucet:

- a. Manual sink faucet, deck mounted, cast brass, polished chrome plated finish, 8-inch fixed centers, "Lead Free", 1/2-inch NSPM supply inlets, ceramic quarter-turn operating cartridge, 5-1/4-inch gooseneck spout, 1.5 gpm aerating outlet, 4-inch wrist blade handles color coded, vandal proof, ADA compliant.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.

2. Single Lever Sink Faucet:

- a. Single lever hot and cold water mixing sink faucet, deck mounted, integral swing spout, cast brass, polished chrome plated finish, 8-inch fixed centers, 4-5/8-inch lever handle, 1.5 gpm vandal proof aerating outlet, ceramic operating cartridge, 3/8-inch supply inlets, "Lead Free", ADA compliant.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.

D. Drains:

1. Basket Strainer Drain:

- a. Type 304 stainless steel body and removable conical basket strainer, vandal resistant, 3-1/2-inch opening, polished finish, Type 304 stainless steel 1-1/2-inch by 4-inch tailpiece.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Elkay Manufacturing Company.
 - 2) Just Manufacturing.
 - 3) Or Approved Equal.

2. Perforated Grid Strainer Drain:

- a. Type 304 stainless steel body with perforated grid strainer, 3-1/2-inch opening, polished finish, Type 304 stainless steel 1-1/2-inch by 4-inch tailpiece.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Elkay Manufacturing Company.
 - 2) Just Manufacturing.
 - 3) Or Approved Equal.

E. Accessories:

1. 3/4 HP Waste Disposer:

- a. Stainless steel grind chamber and components, 3/4 horsepower, splash guard, 115 volt, 8.1 amps grounded three prong plug.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) In-Sink-Erator.
 - 2) Waste King.
 - 3) Sinkmaster.
 - 4) Westbrass.
 - 5) Or Approved Equal.

2. Instant Hot Water Dispenser:

- a. Compact, chrome plated finish, all metal dispenser construction with 2/3-gallon stainless steel tank, automatic shut upon release of lever, 60 cups/hr of 200 deg. F near-boiling water, 115 volts, 750 watts, 6.25-amp heating element with grounded three prong plug, "Lead Free".
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) In-Sink-Erator.
 - 2) Westbrass.
 - 3) Or Approved Equal.

3. Countertop Mounted Eye/Face Wash:

- a. Polished chrome plated brass single action swing out valve body and universal sign.

- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Haws Corporation.
 - 2) Chicago Faucets.
 - 3) Or Approved Equal.

- 4. Eye/Face Wash Thermostatic Mixing Valve:
 - a. ASSE 1070 compliant, 1/2-inch NPT threaded inlet and outlet union connections, integral inlet check valves, adjustment cap with locking features, bronze body construction, corrosion resistant internal components, for one or two eye/face wash applications.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Haws Corporation.
 - 2) Or Approved Equal.

- 5. Fitting Insulation Kit:
 - a. Molded white soft plastic fitting insulation kit covering for supplies and drains with removable covering for stops and handles for ADA compliance. Include manufacturer's standard fasteners, straps, and adhesives.
 - b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Truebro.
 - 2) Engineered Brass Company.
 - 3) Skal + Gardor.
 - 4) Or Approved Equal.

2.6 SERVICE SINKS

A. Fixtures:

1. Corner Mop Sink:

- a. White enameled cast-iron, corner type, floor mounted service sink, acid resistant enamel finish, removable vinyl rim guard, 28-inch by 28-inch by 13-inch high, 3-inch outlet.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Zurn.
 - 4) Or Approved Equal.

B. Faucets:

1. Combination Service Sink Faucet:

- a. Combination service sink faucet, polished chrome plated finish, vacuum breaker spout, lever handles, 2.5 gpm 3/4-inch hose thread outlet.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.

C. Drains:

1. Flat Grid Drain:

- a. Service sink flat grid drain, brass construction chrome plated finish, tapped for 3-inch outlet.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Zurn.
 - 4) Or Approved Equal.

D. Accessories:

1. Hose and Hose Holder:

- a. Reinforced heavy duty 5/8-inch diameter, 31-inch rubber hose with brass couplings on one end. Spring loaded, molded rubber hose holder mounts on stainless steel wall plate with mounting hardware.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Mustee.
 - 2) Or Approved Equal.

2.7 CLINIC SINKS

A. Fixtures:

1. Wall Mounted Clinic Sink:

- a. White vitreous china wall mounted clinic sink fixture.
- b. Blowout flushing rim action.
- c. 1-1/2-inch top spud.
- d. Rim guards on three sides.
- e. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) American Standard.
 - 2) Kohler Co.
 - 3) Mansfield Plumbing Products LLC.
 - 4) Sloan Valve Company.
 - 5) Zurn Industries LLC.

6) Or Approved Equal.

B. Flush Valves:

1. Manual Service Sink Flush Valve:

- a. Manual flush valve, 6.5 gpf, exposed, diaphragm type, cast brass, chrome plated water closet flush valve, spud coupling and flange for 1-1/2-inch top spud, synthetic rubber diaphragm with filtered by-pass, ADA compliant handle, 1-inch IPS screw driver angle stop, vandal resistant stop cap, adjustable tailpiece, vacuum breaker.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Sloan Valve Company.
 - 2) Zurn Industries LLC.
 - 3) Or Approved Equal.

C. Faucets:

1. Combination Service Sink Faucet:

- a. Combination service sink faucet, polished chrome plated finish, vacuum breaker spout, lever handles, 2.5 gpm 3/4-inch hose thread outlet.
- b. Manufacturers: Subject to compliance with requirements provide products by one of the following:
 - 1) Chicago Faucets.
 - 2) Or Approved Equal.

2.8 FITTINGS

A. Fittings for Equipment Specified in Other Sections: Fittings include the following:

1. Supply Inlets: Brass pipe or copper tube, size required for final connection.
2. Supply Stops: Chrome-plated brass, angle or straight; compression, [loose-key type][wheel-handle type]; same size as supply inlet and with outlet matching supply riser.
3. Supply Risers: flexible copper tube with knob end. Use chrome-plated tube for exposed applications.
4. Traps: [0.045-inch thick tubular brass][Cast Brass], slip-joint inlet, cleanout, wall flange, escutcheons, and size to match equipment. Use chrome-plated tube for exposed applications.
5. Continuous Waste: Tubular brass with slip-joint inlet, and size to match equipment.
6. Indirect Waste: Tubular brass size to match equipment.

PART 3 – EXECUTION

3.1 EXAMINATION

- A. Examine roughing-in for potable, hot- and cold-water supply piping systems; soil, waste, and vent piping systems; and supports. Verify that locations and sizes of piping and locations and types of supports match those indicated, before installing and connecting fixtures. Use manufacturer's roughing-in data when roughing-in data are not indicated.

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

3.2 APPLICATIONS

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

3.3 PLUMBING FIXTURE INSTALLATION

- A. Assemble plumbing fixtures and trim, fittings, faucets, and other components according to manufacturers' written instructions.
- B. Install fixtures level and plumb according to manufacturers' written instructions, roughing-in drawings, and referenced standards.
- C. Install floor-mounted, floor-outlet water closets with closet flanges and gasket seals.
- D. Install floor-mounted, back-outlet water closets with fittings and gasket seals.
- E. Install wall-hanging, back-outlet water closets with support manufacturer's tiling frame or setting gage.
- F. Install toilet seats on water closets.
- G. Install wall-hanging, back-outlet urinals with gasket seals.
- H. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for handicapped people to reach.
- I. Install tanks for accessible, tank-type water closets with lever handle mounted on wide side of compartment.
- J. Fasten wall-hanging plumbing fixtures securely to supports attached to building substrate when supports are specified, and to building wall construction where no support is indicated.

- K. Fasten floor-mounted fixtures to substrate. Fasten fixtures having holes for securing fixture to wall construction, to reinforcement built into walls.
- L. Fasten recessed, wall-mounted fittings to reinforcement built into walls.
- M. Fasten wall-mounted fittings to reinforcement built into walls.
- N. Fasten counter-mounting plumbing fixtures to casework.
- O. Secure supplies to supports or substrate within pipe space behind fixture.
- P. Set shower receptors and mop basins in leveling bed of cement grout.
- Q. Install individual stop valve in each water supply to fixture. Use gate or globe valve where specific stop valve is not specified.
 - 1. Exception: Omit stop valves on supplies to emergency equipment, except when permitted by authorities having jurisdiction. When permitted, install valve chained and locked in OPEN position.
- R. Install water-supply stop valves in accessible locations.
- S. Install faucet, laminar-flow fittings with specified flow rates and patterns in faucet spouts when faucets are not available with required rates and patterns. Include adapters when required.
- T. Install supply, flow-control fittings with specified flow rates in fixture supplies at stop valves.
- U. Install faucet, flow-control fittings with specified flow rates and patterns in faucet spouts when faucets are not available with required rates and patterns. Include adapters when required.
- V. Install shower, flow-control fittings with specified maximum flow rates in shower arms.
- W. Install traps on fixture outlets. Omit traps on fixtures having integral traps. Omit traps on indirect wastes, except where otherwise indicated.
- X. Install disposers in sink outlets. Install switch where indicated, or in wall adjacent to sink if location is not indicated.
- Y. Install hot-water dispensers in back top surface of sink or in counter with spout over sink.
- Z. Install hose bibs with integral or field-installed vacuum breaker.
- AA. Install wall hydrants with integral or field-installed vacuum breaker.
- BB. Install escutcheons at wall, floor, and ceiling penetrations in exposed, finished locations and within cabinets and millwork. Use deep-pattern escutcheons where required to conceal protruding pipe fittings.
- CC. Seal joints between fixtures and walls, floors, and counters using sanitary-type, 1-part, mildew-resistant, silicone sealant according to sealing requirements specified in Division 07. Match sealant color to fixture color.
- DD. Coordinate exact location and mounting height of all fixtures with the architectural drawings.

3.4 CONNECTIONS

- A. Piping installation requirements are specified in other Division 22 Sections. Drawings indicate general arrangement of piping, fittings, and specialties. The following are specific connection requirements:
 - 1. Install piping connections between plumbing fixtures and piping systems and plumbing equipment specified in other Division 22 Sections.
- B. Supply and Waste Connections to Plumbing Fixtures: Refer to plumbing fixture schedule on drawings for fitting sizes and connection requirements for each plumbing fixture.
- C. Supply and Waste Connections to Equipment Specified in Other Sections: Connect equipment with supply inlets, supply stops, supply risers, and traps specified in this Section. Use fitting sizes required to match connected equipment. Connect fittings to plumbing piping.
- D. Ground equipment.
 - 1. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. Where manufacturer's torque values are not indicated, use those specified in UL 486A and UL 486B.
- E. Arrange for electric-power connections to fixtures and devices that require power. Electric power is specified in Division 26 Sections.

3.5 FIELD QUALITY CONTROL

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

3.6 ADJUSTING AND CLEANING

- A. Operate and adjust faucets and controls. Replace damaged and malfunctioning fixtures, fittings, and controls.
- B. Operate and adjust disposers, hot-water dispensers, and controls. Replace damaged and malfunctioning units and controls.
- C. Adjust water pressure at drinking fountains, electric water coolers, faucets, shower valves, and flushometer valves having controls, to produce proper flow and stream.
- D. Replace washers and seals of leaking and dripping faucets and stops.
- E. Clean fixtures, faucets, and other fittings with manufacturers' recommended cleaning methods and materials. Include the following:

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

3.7 PROTECTION

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

3.8 PLUMBING FIXTURE SCHEDULE

A. WC1A – Water Closet:

1. Fixture: Wall Mounted Water Closet.
2. Flush Valve: Manual Type Low-Flow Water Closet Flush Valve.
3. Seat: Open Front Water Closet Seat.
4. Carrier: Adjustable Water Closet Carrier.

B. WC1B – Water Closet:

1. Fixture: Wall Mounted Water Closet (ADA).
2. Flush Valve: Manual Type Low-Flow Water Closet Flush Valve.
3. Seat: Open Front Water Closet Seat.
4. Carrier: Adjustable Water Closet Carrier.

C. WC2A – Water Closet:

1. Fixture: Floor Mounted, Floor Outlet Water Closet.
2. Flush Valve: Manual Type Low-Flow Water Closet Flush Valve.
3. Seat: Open Front Water Closet Seat.

D. WC3B – Water Closet:

1. Fixture: Floor Mounted, Floor Outlet Water Closet (ADA).
2. Flush Valve: Manual Type Low-Flow Water Closet Flush Valve.
3. Seat: Open Front Water Closet Seat.

E. WC6A – Water Closet:

1. Fixture: Tank Type Water Closet (ADA).
2. Flush Valve: Manual Type Low-Flow Water Closet Flush Valve.
3. Seat: Open Front Water Closet Seat.

F. UR1A – Urinal:

1. Fixture: Washout Urinal.
2. Flush Valve: Manual Type Ultra Low-Flow Urinal Flush Valve.
3. Support: Wall Urinal Support System.

G. LV1A – Lavatory:

1. Fixture: Wall Mounted Lavatory, Side Splash Type.

2. Faucet: Manual Lavatory Faucet.
3. Outlet: Non-Aerating 0.5 GPM Outlet.
4. Drain: Offset Grid Strainer Drain.
5. Support: Concealed Arms Support.
6. Accessories: Fitting Insulation Kit.

H. LV2A – Lavatory:

1. Fixture: Counter Mounted Lavatory.
2. Faucet: AC Powered Lavatory Faucet.
3. Outlet: Non-Aerating 0.5 GPM Outlet.
4. Drain: Offset Grid Strainer Drain.
5. Support: N/A.
6. Accessories: Hard-Wired Type Transformer, Thermostatic Mixing Valve, Chrome Cover Plate, and Fitting Insulation Kit.

I. SK1A – Sink:

1. Fixture: Single Compartment Sink.
2. Size: 19x18.
3. Holes: 3.
4. Faucet: Manual Sink Faucet.
5. Drain: Perforated Grid Strainer Drain.
6. Accessories: N/A.

J. SK2A – Sink:

1. Fixture: Double Compartment Sink.
2. Faucet: Single Lever Faucet.
3. Drain: Basket Strainer Drain.
4. Accessories: 3/4 HP Waste Disposer and Instant Hot Water Dispenser.

K. MS1A – Service Sink:

1. Fixture: Corner Mop Sink.
2. Faucet: Combination Service Sink Faucet.
3. Drain: Flat Grid Drain.
4. Accessories: Hose and Hose Holder.

L. CS1A – Clinic Sink:

1. Fixture: Wall Mounted Clinic Sink.
2. Flush Valve: Manual Type Service Sink Flush Valve.
3. Faucet: Combination Service Sink Faucet.
4. Drain: Flat Grid Drain.

END OF SECTION