This master should be used by designers working on Port of Portland construction projects and by designers working for PDX tenants (“Tenants”). Usage notes highlight a few specific editing choices, however the entire section should be evaluated and edited to fit specific project needs.

SECTION 224000 - PLUMBING FIXTURES

1. GENERAL
	* + 1. DESCRIPTION
				1. This section describes plumbing fixtures, fixture trim, drainage products, and miscellaneous plumbing items.
			2. REFERENCES
				1. ADAG: Americans with Disabilities Act Guidelines
				2. ANSI: American National Standards Institute

ANSI A112.19.3: Stainless Steel Plumbing Fixtures

ANSI Z358: Emergency Eyewash and Shower Equipment

* + - 1. SUBMITTALS
				1. For each item specified herein, submit product/material data; shop drawings; operation and maintenance data; as-constructed data; installation, startup, and testing manuals; operation and maintenance manuals; and as-constructed drawings.
				2. For each item specified below, submit commissioning plans and schedules; checkout, startup, operational, functional and final acceptance test plans, procedures, checklists, and reports; systems manuals; and operation and maintenance training plans.

Sensor operated faucets.

Sensor operated flush valves.

Electric water cooler.

Mixing valves.

1. PRODUCTS
	* + 1. FIXTURE TRIM
				1. Supply Kits: Lead free, chrome-plated brass supply stop vales with full turn brass stem, no plastic, and chrome-plated risers and flange. McGuire LF series or equal.
				2. Traps: For floor drains, provide coated cast iron P-trap; recessed, screw jointed, or bell and spigot.

For other fixtures, provide 17-gauge, chrome plated tubing P-traps with solder bushings.

* + - 1. SEALANT
				1. Use Dap Kwik Seal or equal. Color shall be as selected by the Port.
			2. PLUMBING FIXTURES
				1. Acceptable Manufacturers: As listed below or pre-bid approved equal.
				2. WC-1 Water Closet (Wall Hung):

Vitreous china, wall hung, elongated, Sloan Tec hydrophobic antimicrobial glaze, siphon jet action, 1-1/2-inch top spud.  Sloan ST-2459-STG.

Diaphragm type flush valve polished chrome finish, Sanigard handle, 1.28 GPF. Sloan Royal 111-1.28-SG.

White open front seat. Olsonite 95 SS, comparable Bemis, or Beneke, comfort curve elongated open front seat less cover.

Chair Carrier: Provide J.R. Smith Series 200, M-51 anchor foot for single carriers. J.R. Smith Series 200-M40-M51. M-40 water closet anchor for additional support.

* + - * 1. WC-2 Water Closet (Wall Hung, ADA): Same as WC-1, except ADA mounting height and provided with ADA flush valve handle.
				2. WC-3 Water Closet (Floor-Mounted, ADA):

Vitreous china, elongated bowl, siphon jet action, floor-mounted, 1 1/2-inch top spud, 16 1/8-inch floor to rim. American Standard Madera 16 1/8 inch 2305.100.

Diaphragm type dual-flush valve (1.1 GPF/1.6 GPF). Sloan WES-111.

White open front seat. Olsonite 95 SS, comparable Church, or Bemis, comfort curve elongated open front seat less cover.

* + - * 1. U-1 Urinal (Wall Hung, Electronic Sensor):

Wall hung, 3/4-inch top spud. Sloan HEU system, 1/2-gallon, Model 1000.1301.

Flushing System: Automatic Flushing System (0.13 GPF) less transformer. Supplied with Sloan HEU.

Floor-mounted urinal support. J.R. Smith Series 600.

* + - * 1. U-2 Urinal (Wall, Electronic Sensor, ADA): Same as U-1, except ADA mounting height.
				2. U-3 Urinal (Wall Hung):

Vitreous china, wall hung, siphon jet action, 3/4-inch top spud, 14-inch elongated rim. Sloan HEU system, Model WEUS-1000.1001.

Flushing System: Manual flush valve, 1/2-gallon. Supplied with Sloan HEU.

Floor-mounted urinal support. J.R. Smith Series 600.

* + - * 1. U-4 Urinal (Wall Hung, ADA): Same as U-3, except ADA mounting height.
				2. L-1 Lavatory (Stainless Steel, Undersink-Mounted, Electronic Sensor):

18-gauge, 17 1/2 by 13 3/8 by 6 inches deep, oval undercounter-mounted 18-8 seamless die-drawn stainless steel lavatory with front-mounted connected overflow. Fully coated underside insulated for sound and to reduce condensation. Conforms to ANSI A112.19.3. Unit supplied with undermount clips less fasteners, Just Manufacturing, J115 FS grid strainer. Just Manufacturing UOF-1619-A.

Sensor operated faucet for tempered water, 1/2 GPM vandal-proof aerator, 8-inch trim plate, adjustable range sensor separate from faucet, modular plug-in wiring system (less transformer) modified to include 36-inch sensor to control box wiring. Sloan Optima ETF‑660.

* + - * 1. L-2 Lavatory (Wall Hung, ADA):

20- by 18-inch, vitreous china, 4-inch centers, wall hung, concealed arm support, American Standard 2411.015 grid drain. American Standard Lucerne 0355.012.

Faucet with single lever handle mixing valve, 1/2 GPM flow outlet, vandal proof, trim plate. Chicago No. 3511-4E2805AB.

J.R. Smith Series 700 concealed arm, floor-mounted Carrier or Smith Series 800 wall plate.

* + - * 1. L-3 Lavatory (Counter Top, ADA):

19- by 16-inch cast iron countertop, American Standard 2411.015 grid drain. American Standard Piazza 0478.403.020.

Faucet with single lever mixing valve, 1/2 GPM flow outlet, vandal proof, trim plate. Chicago No. 3511-4E2805AB.

* + - * 1. S-1 Sink (33 by 19 1/2 by 6 1/2, SS, Gooseneck Spout, Wrist Blade Handles):

33 by 19 1/2 by 6 1/2 inch double compartment 18 gauge, type 302, three hole, self rimming stainless steel sink, LK-99 grid strainer. Elkay LRAD 331965, Comparable Just, or Franke.

Faucet with gooseneck spout and wrist blade handles, 1.5 GPM laminar flow outlet, vandal proof. Chicago No. 786E29.

* + - * 1. S-2 Sink (22 by 19 by 7 1/2, SS, Swing Spout, Lever Handles):

22- by 19- by 7-1/2-inch single compartment 18-gauge, type 302, 3-hole, self rimming stainless steel sink, LK-18 grid strainer. Elkay LR2219.

Faucet with swing spout and lever handles, 2 GPM laminar flow outlet, vandal proof. Chicago No. 786-E29.

* + - * 1. In-Sink Hot Water Dispenser: Able to produce 60 cups of 190ºF hot water per hour, adjustable thermostat, 750-watt, 115-volt. In-Sink-Erator Model H-770.
				2. In-Sink Garbage Disposer: Stainless steel heavy duty 3/4 HP garbage disposer complete with manual starting switch, and sink flange mounting assembly, 120-volt, single phase, hard wired. In-Sink-Erator Model 555/SS.
				3. LWC-1 Lavatory/Water Closet (Security Fixture, Angled Right Bowl):

Floor-mounted combination lavatory/water closet security fixture in 304 stainless steel with center lavatory, angled right bowl with integral seat, blowout jet type action. Acorn Model 1418-AR-2-BP-3-GX-M-LW1-GW1-FT-PC-WO3-FA-PHL-THL.

Concealed push-button flush valve (3-gallon flush): Sloan 603.

Penal filler/bubbler (cold water only).

Air-trol single temperature metering valve with individual check stop.

Through the wall lavatory waste extension with p-trap and cleanout.

Waste cleanout with o-ring connection to no-hub.

3-inch waste outlet of fixture.

Anti-flood system: Acorn Flood-Trol.

Pinned cleanout plug.

Front access panel.

Left side recessed paper holder.

Break-away left side towel hook.

* + - * 1. LWC-2 Lavatory/Water Closet (Security Fixture, Angled Left Bowl): Same as LWC-1 except with angled left bowl, right side recessed paper holder, right side break-away towel holder. Acorn Model 1418-AL-2-BP-3-GX-M-LW1-GW1-FT-PC-WO3-FA-PHR-THR.
				2. SH-1 Shower (Thermostatic Mixing Valves and Floor Drain):

Thermostatic mixing valve with lever handle, individual angle checkstops, H-02 2.5 GPM shower head with adjustable spray, arm and flange. Leonard Model 4500 LVC-F-HO3.

Cast iron floor drain with bronze grate, sediment bucket. J.R. Smith 2005A-B.

* + - * 1. SH-2 Shower (ADA, Thermostatic Mixing Valves and Floor Drain):

Thermostatic mixing valve with lever handle, individual angle checkstops, hand held shower head with fixed spray, chrome hose, 30‑inch guide rail, in-line vacuum breaker. Leonard Model 4500.

Cast iron floor drain with bronze grate, sediment bucket. J.R. Smith 2005A-B.

* + - * 1. MS-1 Mop Sink (Floor/Basin Type):

36-inch by 36-inch by 12-inch precast terrazzo mop service basin. Fiat TSB-600 or comparable Mustee or Williams products.

Service faucet with wall bracket and vacuum breaker. Chicago 897 or comparable Delta or Moen products.

Aluminum bumper guard on all sides not against wall. Fiat 1239 BB.

Hose and hose bracket. Fiat 832-AA.

* + - * 1. MS-2 Mop Sink (Floor/Basin Type):

36-inch by 24-inch by 10-inch stainless steel mop service basin. Penal-Ware 1630 Series.

Service faucet with wall bracket and vacuum breaker. Chicago 897 or comparable Delta or Moen products.

Hose and hose bracket. Fiat 832-AA.

* + - * 1. MS-3 Mop Sink (Floor/Basin Type):

36-inch by 24-inch by 10-inch plastic composite mop service basin. Fiat MSB3624.

Service faucet with wall bracket and vacuum breaker. Chicago 897 or comparable Delta or Moen products.

Aluminum bumper guard on all sides not against wall. Fiat 1239 B.

Hose and hose bracket. Fiat 832-AA.

* + - * 1. Mop Hanger: Fiat 889-CC.
				2. EWC-1 Electric Water Cooler (Wall Hung, Dual Ht., ADA, bottle fill station): Dual height wall hung units, stainless steel finish, front and side push bar controls, bottom apron, bottle fill on lower height unit. 1/5 HP, 115-volt, unit able to produce 8 GPM of 50ºF water. Elkay Model LZS8WSSP with Elkay LZS8S.
				3. EWC-2 Electric Water Cooler (Wall Hung, ADA, bottle fill station): Wall hung unit, stainless steel finish, front and side bar controls, bottom apron, 1/5 HP, 115-volt, unit able to produce 8 GPM of 50ºF water. Elkay Model LZS8WSSP.
				4. SB-1 Dishwasher Outlet/Supply Box (Recessed): With bottom supply, shock arrestor. 1/2-inch sweat connection, 2 inch drain pipe. Guy Gray BB-200 TS.
				5. ES-1 Emergency Shower (Combination Shower/Eyewash Unit for use with EFMV-1 Emergency Fixture Mixing Valve): Combination drench shower/eye wash, pull rod for hold‑open drench shower valve, dust covers for eye wash, push pad hold-open eye wash valve, floor-mounted with upper supply connection. Haws, Model 8300.
				6. FV-1 Flush Valve (Exposed, for use with sanitation bay waste receptor): Exposed rough brass finish, 6.5-gallon flush, angle stop valve vacuum breaker, 1-1/2-inch outlet, YJ split ring wall support. Sloan Royal 117.
				7. Exposed Waste and Supply Piping Insulation Kits: Insulation kit for exposed supplies and waste piping below ADA lavatories and ADA sinks. McGuire Prowrap or comparable Truebro product.
				8. MV-1 Master Mixing Valve Assembly: Master mixing valve assembly in lockable wall‑mounted cabinet, including but not limited to: Two thermostatic mixing valves, pressure reducing valve, pressure gauges, ball valves thermometer, and all required piping and fittings for a complete system. Leonard TM-186.
				9. EFMV-1 Emergency Fixture Mixing Valve (Combination Shower/Eyewash Unit for use with ES-1 Emergency Shower): Exposed mixing valve assembly consisting of but not limited to: Bronze body, rough finish, bimetal thermostat element directly linked to inlet porting - compensating for supply temperature and pressure fluctuations, adjustable high temperature limit stop - factory set at 90ºF, locking temperature regulator - factory set at 85ºF, angle check stops, outlet dial thermometer and wall mounting bracket. Mixing valve shall have built-in cold water bypass with the capacity of delivering 20 GPM or more cold water upon failure of hot water supply. Unit shall meet all requirements of ANSI Z358. Leonard TA-800-STSTL-EXP.
			1. DRAINAGE PRODUCTS
				1. Acceptable Manufacturers: As listed below or pre-bid approved equal.
				2. RD-1 Roof Drain (Main roof areas): With cast iron dome strainers. J.R. Smith, Fig. 1010-E-C-R-CID.
				3. RD-2 Roof Drain with Expansion Joint: Cast iron body with combined flashing clamp, cast iron dome strainer. J.R. Smith Fig. 1630 with 1710T.
				4. ORD-1 Overflow Drain (Cold Water, Main Roof Areas): With cast iron dome strainers. J.R. Smith, Fig. 1080-E-C-R-CID.
				5. HB-1 Hose Bibb (Cold Water): Single sink fitting in rough brass finish, 3/4-inch hose outlet, fixed lever handle, E-27 vacuum breaker. Chicago No. 7.
				6. HB-2 Hose Bibb (Hot Water): Same as HB-1, except labeled “HOT” for hot water use.
				7. HB-3 Hose Bibb (Dual Temperature): Single sink fitting in rough brass finish, 3/4-inch hose outlet, “T” handle. J. R. Smith 5660QT.
				8. WH-1 Wall Hydrant (Freeze-proof): With integral vacuum breaker, freeze-proof, modified with fixed key operator. J.R. Smith, Fig. 5609.
				9. WH-2 Wall Hydrant (Hot and Cold): With integral vacuum breaker, freeze-proof, modified with fixed key operator. J.R. Smith, Fig. 5660QT.
				10. FD-1 Floor Drain (Toilet Room, finished floor, general area drain): With square nickel bronze grate. J.R. Smith, Fig. 2005-B.
				11. FD-2 Floor Drain (General area, mechanical room, drain): With cast iron grate. J.R. Smith, Fig. 2110-Y.
				12. FD-3 Floor Drain (Public Toilet Room, ADA Water Closet Enclosure, Flushing Rim Drain): Flushing rim drain with acid resisting interior, nickel bronze grate with 1 1/2-inch center hole coated with Microguard antibacterial protection, SSB removable fabricated stainless steel bucket. J.R. Smith, Fig. 2500-C.
				13. FD-5 Floor Drain (Heavy duty drain for use in vehicle circulation areas inside building): With ductile iron grate and sediment bucket. J.R. Smith 2120Y-M-B.

Use the following paragraph only in new construction of kitchen, dishwashing, food preparation, and beverage service applications.

* + - * 1. FS-1 Floor Sink: Round stainless steel floor sink with 10-inch by 10‑inch stainless steel grate (full, half, or three-quarter, as appropriate), modified with extra deep filter basket and secured secondary strainer. Josam 41550.

Use the following paragraph in remodel and new construction of mechanical room and non-food service applications.

* + - * 1. FS-2 Floor Sink: Round acid resistant porcelain enamel floor sink with deep cast iron body, round slotted light duty grate (full, half or three quarter as appropriate), and sediment bucket. J.R. Smith Figure 3041.

Use the following paragraph only in new construction of kitchen, dishwashing, food preparation, and beverage service applications.

* + - * 1. FS-3 Floor Sink (retrofit liner): Stainless steel floor sink retrofit liner with grate (full, half, or three-quarter, as appropriate), modified with extra deep filter basket and secured secondary drainage. Verify the existing floor sink size and mounting style and provide appropriately styled and sized floor sink liner for the particular application. No-Hub outlet. Josam 45000 series equal.
				2. WCO Wall Cleanout: J.R. Smith Figure 4530.
				3. FCO Floor Cleanout: J.R. Smith Figure 4040FC-U.
				4. CTG Cleanout to Grade: J.R. Smith Figure 4220-U, set in 12‑inch by 12-inch by 4-inch-deep concrete pad.
				5. DSN-1 Downspout Nozzle: J.R. Smith, Figure 1770 NB, in nickel bronze, or J.R. Smith, Figure 1771.
				6. TD-1 Trench Drain: Zurn or equal, 6" wide, supplied with bottom outlet attached. Drain body and grate shall be suitable for space installed.
				7. Priming Valves: Electronic trap priming manifold including, but not limited to, atmospheric vacuum breaker, pre-set 24-hour clock, manual override, 120V solenoid valve, calibrated manifold for equal water distribution, and 3/4" water hammer arrestor. Components shall be preinstalled in stainless steel cabinet with access door. Precision Plumbing Products, Inc.

1 to 4 Drains: PPP MP-500.

5 or More Drains: PPP – PTS 4-12 Prime Time.

* + - * 1. Shock Arrester: Stainless steel construction, bellows design. J.R. Smith Hydrotrol.
1. EXECUTION
	* + 1. FIXTURE TRIM
				1. Provide plumbing fixture trim where applicable on fixtures.
				2. Provide rough-in and final piping connection to fixtures. Carefully review all construction documents to assure that all fixtures are provided with necessary services for a complete operating system.
				3. Rigidly secure rough-in piping, carriers and supports, and other service piping to structure.
			2. PLUMBING FIXTURES
				1. Americans with Disabilities Act: Those fixtures indicated by “ADA” shall comply with and be installed in accordance with ADAG. Where applicable building code requirements are more stringent than ADAG guidelines, follow building code requirements.
				2. Mounting Heights: All fixtures shall be standard rough-in catalogued heights unless shown otherwise on the drawings.
				3. Water Supplies: When both hot and cold water to a fixture is required, connect the hot on the left and the cold on the right.
				4. Floor-Mounted Supports and Chair Carriers: Secure floor-mounted supports and chair carriers to slab with 1/2-inch bolts, minimum. Install supports and carriers in accordance with the manufacturer’s instructions.
				5. Lavatories: Provide insulation kits on exposed hot water and waste piping beneath lavatories.
				6. Lavatories with electronic sensors and urinals with automatic flushing system:

Install lavatory and urinal sensors, wiring and piping as recommended by the manufacturer.

Mount wiring box to bottom of countertop for total concealment. Coordinate with Division 26 for transformer and receptacle locations.

Provide vandal proof screws on wiring boxes for lavatories and sensor boxes for urinals.

Test and adjust electronic sensors and retest as needed to provide reliable trouble-free operation.

* + - * 1. Flush Valve (FV-1):

Mount flush valve and provide concealed supply piping from flush valve to waste receptor trap.

Provide sign above flush valve that reads: “Operate flush valve at end of cleaning cycle after dumping.”

* + - * 1. Floor Drain:

Set top flush with finished floor.

Provide membrane clamp where required.

* + - * 1. Floor Sink:

Set floor sink in drain adhesive/sealant specified in Part 2.

Fill void between floor sink body and opening in floor with non-shrink grout.

Floor Sink Retrofit Liner: Install per manufacturer’s requirements.

* + - * 1. Cleanout: Cover set flush with finished surface.
				2. Roof and Area Drains: Provide sump receivers for all drains except poured in place installations. Provide extension section as required to compensate for the specified insulation thickness above the roof slab or deck.
				3. Water Coolers:

Water-bearing materials shall comply with the Safe Drinking Water Act of 1988. The waterway system of the unit shall be manufactured of copper components and other completely lead-free materials.

Water cooler refrigerants shall be non-CFC.

* + - * 1. Shock Arresters: Provide per manufacturer’s recommendation as shown on drawings by PDI, whichever is more stringent. Install shut off valve to isolate shock arrester for future maintenance. Valve shall normally be in the open position.
				2. Mop Sinks: Mount mop hanger above mop sink basin. When reduced pressure backflow preventers are provided in janitor’s rooms, mount above mop sink on adjacent wall from mop hanger.
				3. Mixing Valve MV-1: Install in accordance with the manufacturer’s instructions.
			1. PRIMING VALVES
				1. Floor drain traps shall be primed from priming valves with 3/8-inch copper pipe or PEX, as specified.
				2. Where priming valves are installed in finished rooms, conceal in wall and provide access panel.
				3. Coordinate locations of electronic trap primer stations with the Port.
				4. Coordinate locations of electronic trap primer stations to obtain 120V service.
			2. PLUMBING VENTS
				1. Provide vents to outdoors for fixtures requiring plumbing vents according to code and as indicated.

Choose between Commissioning and Testing articles. Use Commissioning if Section 019100 is included in the contract otherwise use Testing.

* + - 1. COMMISSIONING
				1. Commission the following items:

Sensor operated faucets.

Sensor operated flush valves.

Electric water coolers.

Mixing valves.

* + - 1. TESTING
				1. Check out, start up, and test the following items:

Sensor operated faucets.

Sensor operated flush valves.

Electric water coolers.

Mixing valves.

END OF SECTION 224000