**SECTION 22 42 00**

**COMMERCIAL PLUMBING FIXTURES**

**BASED ON DFD MASTER SPECIFICATION DATED 10/1/12**

***This section has been written to cover most (but not all) situations that you will encounter. Depending on the requirements of your specific project, you may have to add material, delete items, or modify what is currently written. The Division of Facilities Development expects changes and comments from you.***

**P A R T 1 - G E N E R A L**

**SCOPE**

This section includes specifications for plumbing fixtures, faucets and trim.

PART 1 - GENERAL

 Scope

 Related Work

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 Shop Drawings

 Operation and Maintenance Data

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PART 2 - PRODUCTS

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**RELATED WORK**

Section 01 91 01 or 01 91 02 – Commissioning Process

Section 22 08 00 – Commissioning of Plumbing

Section 11400 - Foodservice Equipment

Section 22 11 00 - Facility Water DistributionSection 22 13 00 - Facility Sanitary SewerageSection 22 14 00 - Facility Storm DrainageSection 22 15 13 - General Service Compressed-Air PipingSection 22 50 00 - Pool and Fountain Plumbing SystemsSection 22 60 00 - Gas and Vacuum Systems for Laboratory and Healthcare FacilitiesSection 22 63 00 - Gas Systems for Laboratory and Healthcare FacilitiesSection 22 67 00 - Processed Water Systems for Laboratory and Healthcare Facilities

Section 22 05 29 – Hangers and Supports for Plumbing Piping and Equipment

Section 22 05 14 - Plumbing Specialties

**REFERENCE**

Applicable provisions of Division 1 shall govern work under this section.

**QUALITY ASSURANCE**

Substitution of Materials: Refer to Section GC - General Conditions of the Contract, Equals and Substitutions.

Plumbing products requiring approval by the State of Wisconsin Dept. of Safety and Professional Services must be approved or have pending approval at the time of shop drawing submission.

**SHOP DRAWINGS**

Include data concerning sizes, utility sizes, rough in-dimensions, capacities, materials of construction, ratings, weights, trim, finishes, manufacturer's installation requirements, manufacturer's performance limitations, and appropriate identification.

# OPERATION AND MAINTENANCE DATA

All operations and maintenance data shall comply with the submission and content requirements specified under section GENERAL REQUIREMENTS.

***Delete the following if there are no additional requirements.***

In addition to the general content specified under GENERAL REQUIREMENTS supply the following additional documentation:

1. ***[A/E and commissioning provider to define detailed operation and maintenance data requirements for equipment specifications added to this section.]***

**DESIGN CRITERIA**

ANSI A112.6.1M-88 - Supports for Off-the Floor Plumbing Fixtures for Public Use.

ANSI A112.18.1-94 - Finished and Rough Brass Plumbing Fixture Fittings.

ANSI A112.19.1-90 - Enameled Cast Iron Plumbing Fixtures.

ANSI A112.19.2M-82 - Vitreous China Plumbing Fixtures.

ANSI A112.19.5-79(R1990) - Trim for Water Closet Bowls, Tanks and Urinals.

ANSI Z124.1-87 - Plastic Bathtub Units.

ANSI Z124.2-87 - Plastic Shower Receptors and Shower Stalls.

ARI-1010-94 - Drinking Fountains and Self-Contained Mechanically Refrigerated Drinking Water Coolers.

ASSE 1011-93 - Hose Connection Vacuum Breakers.

ASSE 1014-90 - Handheld Showers.

ASSE 1035-93 - Laboratory Faucet Backflow Preventers.

**ENERGY EFFICIENCY REQUIREMENTS**

Plumbing fixtures must meet the following maximum water usage requirements which are based upon Federal Energy Management Program (FEMP) performance requirements.

a. Lavatory Faucets, flow of 2 gpm or less and .25 gallon per cycle or less (based on inlet pressure of 60 p.s.i.)

b. Showerheads, flow of 2.2 gpm or less (based on inlet pressure of 80 p.s.i.)

c. Urinal Flush Valves, 1.0 gallon per flush or less.

d. Water Closet Flush Valves, 1.6 gallon per flush or less.

**P A R T 2 - P R O D U C T S**

**PLUMBING FIXTURES**

Manufacturers: Fixture descriptions establish fixture type, quality, materials, features and size. Products of the following manufacturers determined to be equal by the Architect/Engineer will be accepted.

1. Water Closets - American Standard, Kohler, Zurn.
2. Water Closet Seats - Bemis, Beneke, Centoco, Olsonite Sperzel.
3. Urinals – American Standard, Kohler, Zurn.
4. Lavatories – American Standard, Kohler, Zurn.
5. Faucets - Chicago Faucet, Kohler, Speakman, Symmons, Zurn.
6. Drains - Chicago Faucet, Engineered Brass Co., Kohler, McGuire.
7. Stops and Supplies - Chicago Faucet Co., McGuire. (Heavy Duty Type Only)
8. Flush Valves - Coyne & Delany, Sloan Royal, Zurn AV.
9. Traps - Kohler, McGuire, Dearborn, Engineered Brass Co. (17 gauge Min.)
10. Carriers and Supports - Josam, Smith, Wade, Watts Drainage, Zurn.
11. Washfountains - Acorn, Bradley.
12. Sinks - American Standard, Elkay, Just, Kohler.
13. Laundry Trays - Fiat, Mustee, Stern-Williams.
14. Service Sinks - American Standard, Crane, Kohler.
15. Mop Basins - Fiat, Mustee, Stern-Williams.
16. Showers - Leonard, Powers, Speakman, Symmons.
17. Multiple Showers - Acorn, Bradley, Willoughby.
18. Bathtubs - American Standard, Crane, Kohler.
19. Molded Tub and Shower Units – Aker, Aqua Glass, Fiat, Kohler, Lasco.
20. Drinking Fountains - Elkay, Halsey Taylor, Haws, Filtrine, Oasis, Sunroc.
21. Drinking Fountains (China) - American Standard, Crane, Kohler, Sunroc.
22. Electric Water Coolers - Elkay, Halsey Taylor, Haws, Filtrine, Oasis, Sunroc.
23. Security Fixtures - Acorn, Bradley, Metcraft, Willoughby.
24. Emergency Eyewash Fountains and Showers - Bradley, Chicago Faucet Co., Guardian, Haws, Speakman.

Water Closets

WC-1 - Wall hung back outlet white vitreous china siphon jet water closet with elongated bowl, 1-1/2" top spud, 2-1/4" passageway and 1.6 gallon flush. Flush valve handle 22" above rim.

1. Fixture: Kohler Kingston K-4330.
2. Flush Valve: Sloan Royal 116-1.5-YK.
3. Seat: Bemis 1655-SS/C white solid plastic open front.
4. Carrier: Smith commercial grade adjusted for 15" bowl height.

WC-2 - Same as WC-1, barrier free adjusted for 16-1/2" bowl height. Operating handle of the flush valve to be ADA compliable for activation force and located to the wide side of the stall. Flush valve handle 13" above rim.

1. Flush Valve: Sloan Royal 113-1.5-YK.

WC-3 - Floor mount bottom outlet white vitreous china siphon jet water closet with elongated bowl, 1-1/2" top spud, 2-1/4" passageway, 15" rim height and 1.6 gallon flush. Flush valve handle 24" above rim.

1. Fixture: Kohler Wellcomme K-4349.
2. Flush Valve: Sloan Royal 116-1.5-YK.
3. Seat: Bemis 1655-SS/C white solid plastic open front.

WC-4 - Floor mount bottom outlet white vitreous china siphon jet water closet with elongated bowl, 1-1/2" top spud, 2-1/4" passageway, 16-1/2" rim height and 1.6 gallon flush. Flush valve handle 13" above rim, located to the wide side of the stall and be ADA compliable for activation force.

1. Fixture: Kohler Highcrest K-4302.
2. Flush Valve: Sloan Royal 113-1.5-YK.
3. Seat: Bemis 1655-SS/C white solid plastic open front.

WC-5 - Floor mount bottom outlet white vitreous china siphon jet close coupled tank water closet with elongated bowl, 2-1/4" passageway, 14-1/2" rim height, insulating tank liner and 1.6 gallon flush.

1. Fixture: Kohler Wellworth K-3422-U.
2. Seat: Bemis 1655-SS/C white solid plastic open front seat.
3. Supply & Stop: Chicago Faucet Co. No. 1013-CP w/ 3/8" closet riser.

WC-6 - Floor mount bottom outlet white vitreous china siphon jet close coupled tank type water closet with elongated bowl, 2-1/4" passageway, 16-1/2" barrier free height, insulating tank liner and 1.6 gallon flush. ADA compliable.

1. Fixture: Kohler Highline K-3427-U.
2. Seat: Bemis 1655-SS/C white solid plastic open front seat.
3. Supply & Stop: Chicago Faucet Co. No. 1013-CP w/ 3/8" closet riser.

Urinals

UR-1 - Wall mount white vitreous china washout urinal with 3/4" top inlet spud, 2" outlet, removable strainer. Battery powered sensor operated flush valve, 1 gallon per flush or less.

1. Fixture: Kohler Bardon K-4960-T.
2. Flush Valve: Sloan Royal 8186-1.
3. Carrier: Smith commercial grade adjusted for 24" lip height.

UR-2 - Same as UR-1, barrier free adjusted for 16" lip height. Flush valve handle to be ADA compliant.

***The use of wall mount urinals is encouraged over floor mount urinals because of the higher initial cost, maintenance, leakage and breakage associated with floor mount urinals. When using wall mount urinals, provide a floor drain in the vicinity of the urinals. Urinal traps do not drain rapidly enough to accommodate flows from flush valves that have failed open.***

***One floor urinal on a primary floor in an accessible toilet room is recommended for accessibility code compliance. If an area of the building uses a separate entrance with internal circulation not connected to the rest of the building, an additional floor urinal may be required.***

UR-3 - Floor mount white vitreous china washout urinal with 3/4" top inlet spud, 2" outlet spud, removable stainless steel beehive strainer. Battery powered sensor operated flush valve 1 gallon per flush or less.

1. Fixture: Kohler Branham K-4920-T.
2. Flush Valve: Sloan Royal 8186-1.

Lavatories

Lavatory faucets must meet maximum water usage requirements of 2 gpm flow or less and .25 gallon per cycle or less (based on inlet pressure of 60 p.s.i.)

L-1 - Wall mount white vitreous china lavatory drilled for concealed arm carrier with 4" on center faucet openings.

1. Fixture: Kohler Greenwich K-2027.
2. Faucet: Chicago Faucet No.802-336CP. Self-closing.
3. Drain: Kohler K-7715 perforated strainer and 1-1/4" tailpiece.
4. Trap: 1-1/4"x1-1/2" 17 ga. cast brass trap and tubular wall bend. With C.O. plug.
5. Supplies & Stops: Chicago Faucet No. 1017CP.
6. Carrier: Smith floor mounted concealed arm carrier adjusted for 31" height rim ht.

L-2 - Wall mount barrier free white vitreous china lavatory drilled for concealed arm carrier with 4" on center faucet openings.

1. Fixture: Kohler Kingston K-2005.
2. Faucet: Chicago Faucet No.802-336CP. Self-closing.
3. Drain: Kohler K-13885 perforated strainer and 1-1/4" offset tailpiece.
4. Trap: 1-1/4"x1-1/2" 17 ga. cast brass trap and tubular wall bend. With C.O. plug.
5. Supplies & Stops: Chicago Faucet No. 1017CP.
6. Carrier: Smith floor mounted concealed arm adjusted for 34" height.

L-3 - Self-rimming counter mount white vitreous china lavatory with 4" on center faucet openings.

1. Fixture: Kohler Pennington K-2195.
2. Faucet: Chicago Faucet No. 802-336CP. Self-closing.
3. Drain: Kohler K-7715 perforated strainer and 1-1/4" tailpiece.
4. Trap: 1-1/4"x1-1/2" 17 ga. cast brass trap and tubular wall bend. With C.O. plug.
5. Supplies & Stops: Chicago Faucet No. 1017CP.

L-4 - Same as L-3, barrier free with the following drain:

1. Drain: Kohler K-13885 perforated strainer and 1-1/4" offset tailpiece.

Washfountains

WF-1 - Floor mounted precast terrazzo 3 station washfountain with stainless steel access panel, floor and bowl anchor brackets, supply stops, strainers, check valves, thermostatic mixing valve, flow restrictors, infrared sensors, solenoid valves and transformer. Color to be selected by Architect/Engineer from manufacturers standard color selection.

1. Fixture: Bradley 2903.
2. Trap: 2"x2" 17 ga. cast brass trap.
3. Stops: Ball valves

Sinks

S-1 - Counter mounted 18 ga type 302 stainless steel single compartment sink with 3 faucet openings 4" on center.

1. Fixture: Elkay LR-2219.
2. Faucet: Chicago Faucet No. 201ACP.
3. Drain: Elkay LK-335
4. Trap: 1-1/2"x1-1/2" 17 ga. cast brass trap and tubular wall bend, With C.O. plug.
5. Supplies & Stops: Chicago Faucet No. 1013-CP w/ 3/8" riser, length as necessary.

S-2 - Counter mounted 18 ga. type 302 stainless steel double compartment sink with 3 faucet openings 4" on center.

1. Fixture: Elkay LR-3322.
2. Faucet: Chicago Faucet No. 201ACP.
3. Drains: Elkay LK-335
4. Waste McGuire No. 113C16G17, Center outlet, 17 ga.
5. Traps: 1-1/2"x1-1/2" 17 ga. cast brass trap and tubular wall bend.
6. Supplies & Stops: Chicago Faucet No. 1013-CP w/ 3/8" riser, length as necessary.

Laundry Trays

LT-1 - Wall and floor mounted molded polyester resin and stone single compartment laundry tray with wall bracket and painted steel legs. Secure to wall and floor.

1. Fixture: Fiat FL-1 / L-1.
2. Faucet: Chicago Faucet No. 891CP.
3. Supplies & Stops: Chicago Faucet No.1013-CP w/ 3/8" risers, length as necessary.
4. Trap: 1-1/2"x1-1/2" 17 ga. cast brass trap and tubular wall bend, with tailpiece.

LT-2 - Wall and floor mounted molded polyester resin and stone double compartment laundry tray with wall bracket and painted steel legs, with dual waste outlet. Secure to wall and floor.

1. Fixture: Fiat FLTD / LTD.
2. Faucet: Chicago Faucet No. 891CP.
3. Supplies and Stops: Chicago Faucet Co. 1013-CP w/ 3/8" risers, length as necessary.
4. Trap: 1-1/2"x 1-1/2" 17 ga. cast brass trap and tubular wall bend, with tailpiece.

LT-3 - Countertop mounted double compartment white enameled cast iron laundry sink,3-hole, 43"x21", right compartment 13" deep & left compartment 8" deep, with metal mounting frame and strainer/stoppers.

1. Fixture: Kohler Westover K-6629.
2. Faucet: Chicago Faucet No. 201ACP.
3. Supplies & Stops Chicago Faucet No. 1013-CP w/ 3/8" risers, length as necessary.
4. Traps: (2) 1-1/2"x1-1/2" 17 ga. cast brass trap and tubular wall bend, with tailpiece.

Service Sinks

SS-1 - Wall mounted enameled cast iron service sink with stainless steel rim guard and wall hanger supports.

1. Fixture: Kohler Bannon K-6719.
2. Faucet: Chicago Faucet No.897RCF with Watts 8BC vacuum breaker.
3. Drain: Kohler K-6673 3" trap with strainer, cleanout and floorplate.
4. Stops: ( Integral with faucet )

Mop Basins

MB-1 - Floor mounted molded polyester resin and stone mop basin, 24"x36"x10" H, with 3" drain, stainless steel strainer and vinyl bumper guards.

1. Fixture: Fiat MSB-3624.
2. Faucet: Chicago Faucet No.897RCF with Watts 8BC vacuum breaker.
3. Hose: Fiat 832-AA.
4. Stops: ( Integral with faucet )

MB-2 - Floor mounted precast terrazzo mop basin, 24"x24", with 3" drain, stainless steel strainer and stainless steel curb caps.

1. Fixture: Fiat TSB-100.
2. Faucet: Chicago Faucet No.897RCF with Watts 8BC vacuum breaker.
3. Hose: Fiat 832-AA.
4. Stops: ( Integral with faucet )

Showers

SH-1 - Pressure balanced shower valve with ceramic valving, check stops, adjustable temperature limit stop and volume control. Brass balljoint showerhead with spray adjustment, 6 lexan plungers, supply pipe and escutcheon.

1. Valve: Speakman SM-1427-SCS.
2. Shower Head: Speakman S-2252 AF. (2.2 gpm @ 80 psi)
3. Shower Arm: Speakman S-2520.

SH-2.-.Pressure balanced shower valve with ceramic valving, check stops, adjustable temperature limit stop and volume control, Lever handle operated. With lever operated diverter valve, stationary shower head and hand-held adjustable head with 44" slide bar , 72" hose, in-line vacuum breaker and supply elbow. ADA compliable.

1. Valve: Speakman SM-1427-SCS.
2. Shower Head: Speakman S-2270-AF. (2.2 gpm @ 80 psi)
3. Shower Arm: Speakman S-2500.
4. Diverter: Speakman S-1182.
5. Hand Held Head: Speakman VS-100-AF/VS-124/VS117.
6. Supply Ell: Speakman VS-115.
7. Hose: Speakman VS-142.

Multiple Showers

SH-COL-1 - Floor to ceiling type 304 stainless steel construction 6 station column shower with column cap, telescoping shroud, integral cast iron drain fitting, soap tray, individual pressure balanced mixing valves, severe service shower heads with 2.0 GPM flow restrictors and stops in main supplies.

1. Fixture: Bradley 6CO-6'-0"-EF-SH-ST-SX.

W-SH-1 - Wall mounted 18 ga. stainless steel construction shower panel for (3) users, with mounting brackets, severe service shower heads, 2.0 GPM flow controlled, pressure balanced mixing valves, soap dishes, and stops in supplies.

1. Fixture Bradley 3W-6'-0"-EF-ST-SX.

Bathtubs

BT-1 - Enameled cast iron bathtub with non-slip floor finish and pop-up drain.

1. Fixture: Kohler Mendota K-505/506.
2. Drain: Kohler K-7160 1-1/2" drain.
3. Valve: Speakman SM-1427-SCS.
4. Shower Head: Speakman S-2252-AF/S-2520 (2.2 gpm @ 80 psi)
5. Faucet: Speakman S-1555.

Molded Shower Unit

MS-1 - One piece acrylic barrier free molded shower unit with dome ceiling, non-slip floor finish, grab bars, fold-up seat and 2" drain. Set unit into floor construction to maintain ADA required ½” threshold.

1. Fixture: Kohler Freewill K-12100/12101.
2. Drain: Kohler K-9132 2" drain with strainer.
3. Valve: Speakman SM-1427-SCS.
4. Shower Head: Speakman S-2252-AF/S-2520 (2.2 gpm @ 80 psi)

MTS-1 - One piece acrylic molded tub and shower unit with dome ceiling, non-slip floor finish, grab bar and pop-up drain.

1. Fixture: Kohler Sonata K-1561.
2. Drain: Kohler K-7161-AF 1-1/2" drain.
3. Valve: Speakman SM-1427-SCS.
4. Shower Head: Speakman S-2252-AF/S-2520 (2.2 gpm @ 80 psi)
5. Faucet: Speakman S-1555.

Drinking Fountains

DF-1 - Wall mounted barrier free stainless steel drinking fountain with self-closing front mounted push bar valve, wall hanger, 3/8" supply and 1-1/4" tailpiece. Mount at 36" spout height. Provide wall access panel for access to trap and stop.

1. Fixture: Elkay EDFPW-114C.
2. Trap: 1-1/4"x1-1/4" 17 ga. cast brass trap.
3. Stop: 3/8" ball valve (concealed).

Drinking Fountains (China)

DF-2 - Wall mounted barrier free white vitreous china drinking fountain with self-closing lever handle valve, screwdriver stop, chrome strainer and wall hanger. Mount at 36" spout height.

1. Fixture: Kohler Serra K-5250-A.
2. Drain & Trap: Kohler K-9047.

Electric Water Coolers

EWC-1 - Wall mounted barrier free electric water cooler with stainless steel basin, self-closing front and side mounted push bars, wall hanger and 1-1/4" tailpiece, rated for 7.6 GPH at 80 degree inlet water, 90 degree ambient and 50 degree leaving water, 400 watts, 120/60/1. Color to be selected by Architect/Engineer from manufacturers standard color selection. Mount at 36" spout height.

1. Fixture: Elkay EHFSA-8.
2. Trap: 1-1/4"x1-1/4" 17 ga. cast brass trap.
3. Stop/Supply: Chicago Faucet Co. 1013-CP or 1/2" ball valve with 3/8" riser (concealed).

EWC-2 - Wall mounted barrier free drinking fountain with stainless steel basin, self-closing front mounted push bar, wall hanger and 1-1/4" tailpiece, rated for 8.1 GPH at 80 degree inlet water, 90 degree ambient and 50 degree leaving water, 270 watts, 120/60/1. Color to be selected by Architect/Engineer from manufacturers standard color selection. Mount at 36" spout height.

1. Fixture: Elkay EBFSA-8.
2. Trap: 1-1/4"x1-1/4" 17 ga. cast brass trap.
3. Stop/Supply: Chicago Faucet Co. no. 1013-CP or 1/2" ball valve with 3/8" riser (concealed).

EWC-3 - Dual level, wall mounted, barrier free and standard height, stainless steel finish water cooler/drink fountain station with front pushbar operators. Single recessed steel mounting box with refrigeration system and stainless steel removable front grille for access. Rated for 8.0GPH at 80 degree inlet water at 90 degree ambient temperature and 50 degree outlet water., 1/5 HP compressor, 380 watt, 120/60/1. Mount so upper unit spout is at 40" above floor.

1. Fixture: Elkay LKTE-8
2. Traps: 1 1/4"x1 1/4" 17 ga. cast brass, with C.O. plug.
3. Stops: 1/2" ball valve with ½" riser (concealed).

Security Fixtures

WCL-1 - Floor mounted wall outlet Type 304 stainless steel combination water closet and lavatory with angled elongated blowout water closet, 2-5/8" passageway, rustproofed concealed wall anchoring fasteners and sound deadening interior coating. Completely factory pipe and wire fixture for final water, waste and electrical field connections. Minimum metal thicknesses are 16 gauge trap; 14 gauge lavatory bowl, countertop, backsplash, toilet bowl, seat, flushing rim, waste flange and trap covers; 12 gauge cabinet. Fully weld joints and finish exposed surfaces to #4 satin finish and seat to #7 finish. Submit test data indicating no deflection under 2000 lb. load and no permanent deflection under 5000 lb. load on front area of water closet.

Fittings: 24 volt hot and cold lav and cold water closet solenoid valves, stainless steel pushbutton operators with keyed escutcheons and concealed micro switches, keyed penal filler-bubbler spout with concealed vacuum breaker, ball valves on each water connection, multihole fast draining lavatory strainer, 1-1/2" lav drain extension with 17 ga. cast brass removable P-trap located in chase, water closet overflow prevention control, 4" no-hub water closet waste connection, 4" cleanout with stainless steel 3 or 4 prong hook and cable attached to cleanout cover, flanged double welded recessed toilet paper holder, surface mounted towel hook on each side and wall sleeve.

Electronic Controls: Low voltage control capable of field adjustable valve timing, cycle initiation, cycle interval, valve lockout, valve reset and communication with central controller for remote alarm and valve control adjustments. Provide one central controller for each building containing security fixtures.

1. Fixture: Bradley 5582.
2. Fixture Control: Bradley Micro-Touch.
3. Central Control: Bradley Micro-Touch 3000.

Emergency Eyewash Fountains and Showers

EEW-1 - Wall mounted emergency eyewash with plastic bowl, eye and face wash fittings, 1/2" ball valve with push flag operator, dome strainer and wall bracket.

1. Fixture: Bradley S19-220FW.
2. Trap: 1-1/4"x1-1/4" 17 ga. cast brass trap with tubular wall return.
3. Mixing Valve: Bradley #19-2000SE with surface mounted with white enameled cabinet.
4. Mixing Valve: Bradley #19-2000RSW with recessed stainless steel cabinet with plexiglass window in door.

EEWS-1 - Floor mounted emergency eyewash and shower with plastic shower head and bowl, brass eyewash fittings, 1" spring return shower valve with pull handle, 1/2" eyewash ball valve with push flag operator, 1-1/4" galvanized steel pipe stand with floor flange.

1. Fixture: Bradley S19-310.

**P A R T 3 - E X E C U T I O N**

**INSTALLATION**

Install plumbing fixtures in accordance with manufacturers instructions. Set level and plumb. Secure in place to counters, floors and walls providing solid bearing and secure mounting. Bolt fixture carriers to floor and wall. Secure rough-in fixture piping to prevent movement of exposed piping.

Install each fixture with trap easily removable for servicing and cleaning. Install fixture stops in readily accessible location for servicing.

Install barrier free fixtures in compliance with IBC 1108 and 3408, COMM 52, 69 and Federal ADA Accessibility Guidelines. Install barrier free lavatory traps parallel and adjacent to wall and supplies and stops elevated to 27" above floor to avoid contact by wheelchair users.

Provide unions at water connections to drinking fountains and electric water coolers.

Each fixture shall have a stop valve installation to control the fixture. Stop valves shall be heavy duty type with brass stems and screwed or sweat inlet connections. Compression type inlets are not acceptable.

Cover pipe penetrations with escutcheons. Exposed traps, stops, piping and escutcheons to be chrome plated brass, same items in concealed locations may be of rough brass finish.

Set floor mounted water closets, floor mounted service sinks; counter mounted lavs and sinks; lav and sink faucets and drains with full setting bed of flexible non-staining plumber's putty. Cover exposed water closet bolts with bolt covers.

Set mop basins to floor and wall with grout or silicone sealant.

Seal openings between walls, floors and fixtures with mildew-resistant silicone sealant same color as fixture.

Test fixtures to demonstrate proper operation. Replace malfunctioning units or components. Adjust valves for intended water flow rate to fixtures without splashing, noise or overflow. Adjust self-closing lavatory faucets to 15 second cycle. Adjust shower valve temperature limit stops to 110 degree maximum outlet temperature.

Protect fixtures during construction. At completion clean plumbing fixtures and trim using manufacturer's recommended cleaning methods and materials.

Foodservice Equipment: Provide rough-in piping, traps, tailpieces, indirect waste lines and Make final and necessary connections for foodservice equipment. Install faucets, spray units, drains, lever drains, vacuum breakers, solenoid valves, check valves, flow control valves, water inlet fittings, filters, strainers, pressure reducing valves and gas valves furnished by foodservice equipment contractor. Provide condensate drain piping from cooler and freezer evaporators. Make all final and necessary plumbing connections.

Existing Fixtures: Where existing fixtures and fittings are indicated to be reused or relocated, this contractor is responsible for documenting condition prior to construction and for damages incurred during construction.

# CONSTRUCTION VERIFICATION ITEMS

Contractor is responsible for utilizing the construction verification checklists supplied under specification Section 2208 00 in accordance with the procedures defined for construction verification in Section 01 91 01 or 01 91 02.

END OF SECTION