# SECTION 22 40 00 PLUMBING FIXTURES

#### PART 1 - GENERAL

#### 1.1 DESCRIPTION

- A. Plumbing fixtures, associated trim and fittings necessary to make a complete installation from wall or floor connections to rough piping, and certain accessories.
- B. A complete listing of all acronyms and abbreviations are included in Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

### 1.2 RELATED WORK

- A. Section 01 00 00, GENERAL REQUIREMENTS.
- B. Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- C. Section 01 81 13, SUSTAINABLE CONSTRUCTION REQUIREMENTS.
- D. Section 01 91 00, GENERAL COMMISSIONING REQUIREMENTS.
- E. Section 07 92 00, JOINT SEALANTS: Sealing between fixtures and other finish surfaces.
- F. Section 08 31 13, ACCESS DOORS AND FRAMES: Flush panel access doors.
- G. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.
- H. Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS: Requirements for commissioning, systems readiness checklist, and training.
- I. 22 13 00, FACILITY SANITARY AND VENT PIPING.

## **1.3 APPLICABLE PUBLICATIONS**

- A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by the basic designation only.
- B. The American Society of Mechanical Engineers (ASME): A112.6.1M-1997 (R2012)..Supports for Off-the-Floor Plumbing Fixtures

for Public Use

A112.19.1-2013.....Enameled Cast Iron and Enameled Steel Plumbing Fixtures

A112.19.2-2013.....Ceramic Plumbing Fixtures

A112.19.3-2008.....Stainless Steel Plumbing Fixtures

C. American Society for Testing and Materials (ASTM):

A276-2013a.....Standard Specification for Stainless Steel Bars and Shapes

B584-2008.....Standard Specification for Copper Alloy Sand Castings for General Applications D. CSA Group:

B45.4-2008 (R2013).....Stainless Steel Plumbing Fixtures

- E. National Association of Architectural Metal Manufacturers (NAAMM): AMP 500-2006......Metal Finishes Manual
- F. American Society of Sanitary Engineering (ASSE): 1016-2011.....Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations
- G. NSF International (NSF): 14-2013.....Plastics Piping System Components and Related Materials 61-2013....Drinking Water System Components - Health Effects

372-2011..... Drinking Water System Components - Lead Content

- H. American with Disabilities Act (A.D.A)
- I. International Code Council (ICC):
  IPC-2015.....International Plumbing Code

### 1.4 SUBMITTALS

- A. Submittals, including number of required copies, shall be submitted in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Information and material submitted under this section shall be marked "SUBMITTED UNDER SECTION 22 40 00, PLUMBING FIXTURES", with applicable paragraph identification.
- C. Manufacturer's Literature and Data including: Full item description and optional features and accessories. Include dimensions, weights, materials, applications, standard compliance, model numbers, size, connections, and capacity.
- D. Operating Instructions: Comply with requirements in Section 01 00 00, GENERAL REQUIREMENTS.
- E. Completed System Readiness Checklist provided by the CxA and completed by the Contractor, signed by a qualified technician and dated on the date of completion, in accordance with the requirements of Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS.
- F. Submit training plans and instructor qualifications in accordance with the requirements of Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS.

# 1.5 QUALITY ASSURANCE

A. Bio-Based Materials: For products designated by the USDA's Bio-Preferred Program, provide products that meet or exceed USDA recommendations for bio-based content, so long as products meet all performance requirements in this specifications section. For more information regarding the product categories covered by the Bio-Preferred Program, visit http://www.biopreferred.gov.

# 1.6 AS-BUILT DOCUMENTATION

- A. Submit manufacturer's literature and data updated to include submittal review comments and any equipment substitutions.
- B. Submit operation and maintenance data updated to include submittal review comments, substitutions and construction revisions shall be in electronic version on compact disc or DVD and hard copies inserted into a three ring binder. All aspects of system operation and maintenance procedures, including piping isometrics, wiring diagrams of all circuits, a written description of system design, control logic, and sequence of operation shall be included in the operation and maintenance manual. The operations and maintenance manual shall include troubleshooting techniques and procedures for emergency situations. Notes on all special systems or devices such as damper and door closure interlocks shall be included. A List of recommended spare parts (manufacturer, model number, and quantity) shall be furnished. Information explaining any special knowledge or tools the owner will be required to employ shall be inserted into the As-Built documentation.
- C. The installing contractor shall maintain as-built drawings of each completed phase for verification; and, shall provide the complete set at the time of final systems certification testing. As-built drawings are to be provided, and a copy of them in AutoCAD 18 provided on compact disk or DVD. Should the installing contractor engage the testing company to provide as-built or any portion thereof, it shall not be deemed a conflict of interest or breach of the 'third party testing company' requirement.
- D. Certification documentation shall be provided to COR 10 working days prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and certification that all results of tests were within limits specified.

# PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Material or equipment containing a weighted average of greater than 0.25 percent lead is prohibited in any potable water system intended for human consumption, and shall be certified in accordance with NSF 61 or NSF 372. Endpoint devices used to dispense water for drinking shall meet the requirements of NSF 61.
- B. Plastic pipe, fittings, and solvent cement shall meet NSF 14 and shall be NSF listed for the service intended.

## 2.2 STAINLESS STEEL

- A. Corrosion-resistant Steel (CRS):
  - Plate, Sheet and Strip: CRS flat products shall conform to chemical composition requirements of any 300 series steel specified in ASTM A276.
  - 2. Finish: Exposed surfaces shall have standard polish (ground and polished) equal to NAAMM finish Number 4.
- B. Die-cast zinc alloy products are prohibited.

## 2.3 STOPS

- A. Provide lock-shield loose key or screw driver pattern angle stops, straight stops or stops integral with faucet, with each compression type faucet whether specifically called for or not, including sinks in solid-surface, wood and metal casework, laboratory furniture and pharmacy furniture. Locate stops centrally above or below fixture in accessible location.
- B. Furnish keys for lock shield stops to the COR.
- C. Supply from stops not integral with faucet shall be chrome plated copper flexible tubing or flexible stainless steel with inner core of non-toxic polymer.
- D. Supply pipe from wall to valve stop shall be rigid threaded IPS copper alloy pipe, i.e. red brass pipe nipple, chrome plated where exposed.
- E. Mental Health Area: Provide stainless steel drain guard for all lavatories not installed in casework.

# 2.4 ESCUTCHEONS

A. Heavy type, chrome plated, with set screws. Provide for piping serving plumbing fixtures and at each wall, ceiling and floor penetrations in exposed finished locations and within cabinets and millwork.

## 2.5 LAMINAR FLOW CONTROL DEVICE

- A. Smooth, bright stainless steel or satin finish, chrome plated metal laminar flow device shall provide non-aeration, clear, coherent laminar flow that will not splash in basin. Device shall also have a flow control restrictor and have vandal resistant housing. Aerators are prohibited.
- B. Flow Control Restrictor:
  - Capable of restricting flow from 32 ml/s to 95 ml/s (0.5 gpm to 1.5 gpm) for lavatories; 125 ml/s to 140 ml/s (2.0 gpm to 2.2 gpm) for sinks P-505 through P-520, P-524 and P-528;
  - Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 170 kPa and 550 kPa (25 psig and 80 psig).
  - Operates by expansion and contraction, eliminates mineral/sediment build-up with self-cleaning action, and is capable of easy manual cleaning.

# 2.6 CARRIERS

- A. ASME A112.6.1M, with adjustable gasket faceplate chair carriers for wall hung closets with auxiliary anchor foot assembly, hanger rod support feet, and rear anchor tie down.
- B. ASME A112.6.1M, lavatory, chair carrier for thin wall construction concealed arm support. All lavatory chair carriers shall be capable of supporting the lavatory with a 250-pound vertical load applied at the front of the fixture.
- C. Where water closets, lavatories or sinks are installed back-to-back and carriers are specified, provide one carrier to serve both fixtures in lieu of individual carriers. The drainage fitting of the back to back carrier shall be so constructed that it prevents the discharge from one fixture from flowing into the opposite fixture.

#### 2.7 WATER CLOSETS

A. (P-104) Water Closet (Wall Hung with Bedpan Washer, ASME A112.19.2) elongated bowl, siphon jet, wall outlet, with bedpan lugs-bedpan washer with grab bar offset, flush valve operated 4.8 L (1.28 gallons per flush. Top of seat shall be 450 mm (18 inches) above finished floor. Provide standoff bracket support between studs for bedpan washer at height recommended by the manufacturer. Both the toilet and hangers shall be capable of supporting up to 800 lbs.

- Seat: Institutional/Industrial, extra heavy duty, chemical resistant, solid plastic, open front less cover for elongated bowls, integrally molded bumpers, concealed check hinge with stainless steel post. Seat shall be posture contoured body design. Color shall be white.
- 2. Fittings and Accessories: Gaskets-neoprene; bolts with chromium plated cap nuts and washers and carrier.
- 3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, water saver design per flush with maximum 10 percent variance, non-hold open ADA approved operating side oscillating handle, 25 mm (1 inch) IPS screwdriver back check angle stop with vandal resistant cap, adjustable tailpiece, high back pressure vacuum breaker, solid-ring pipe support, offset spud coupling for 40 mm (1-1/2 inches) top spud, cast screw wall and spud flanges, sweat solder adapter with cover tube and wall support at diverter valve body. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM alloy classification for semi-red brass. Set centerline of inlet 673 mm (26-1/2 inches) above seat.
- B. (P-114) Bariatric Floor Mounted Water Closet ASME A112.19.2, Fully enclosed floor mounted with integral seat , siphon jet, white-powdercoated, 14 gage type 304 stainless steel construction with white powder coating and hinged seat with cover, flush valve operated, top of seat 450 mm (18 inches) above floor. Bio-based materials shall be utilized when possible. Rated for bariatric use - 1000 pound minimum capacity.
  - 1. Fittings and Accessories: Gaskets-neoprene, bolts with chromium plated cap nuts and washers, and extra heavy-duty carrier.
  - Flush Valve: exposed chrome plated diaphragm type with low force ADA compliant 6 L (1.6 gallon) per flush, seat bumper, integral screwdriver stop and vacuum breaker, solid-ring pipe support, and escutcheon.

# 2.8 LAVATORIES

- A. Dimensions for lavatories are specified, Length by width (distance from wall) and depth.
- B. Brass components in contact with water shall contain no more than 0.25 percent lead content by dry weight. Faucet flow rates shall be 3.9 L/m (1.5 gpm) for private lavatories and either 1.9 L/m (0.5 gpm) or 1.0 liter (0.25 gallons) per cycle for public lavatories.

- C. (P-401) Lavatory (Single Lever Handle Control ASME A112.19.2) straight back, approximately 508 mm by 457 mm (20 inches by 18 inches) and a 102 mm (4 inches) maximum apron, first quality vitreous china. Punching for faucet on 102 mm (4 inches) centers. Set with rim 864 mm (34 inches) above finished floor.
  - Faucet: Solid cast brass construction, vandal resistant, heavy-duty single lever handle, center set. Control shall be washerless ceramic disc cartridge type. Provide laminar flow control device, adjustable hot water limit stop, and vandal proof screws. Flow shall be limited to 3.8 L/m (1.0 gpm
  - 2. Drain: Cast or wrought brass with flat grid strainer offset tailpiece, chrome plated. Provide cover per A.D.A 4-19.4.
  - Stops: Angle type, see paragraph "Stops". Provide cover per A.D.A 4-19.4.
- 4. Trap: Cast copper alloy, 38 mm by 32 mm (1 1/2 inches by 1 1/4 inches) P-trap. Adjustable with connected elbow and 1.4 mm thick (17 gauge) tubing extensions to wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to wall. Provide cover per A.D.A 4-19.4.C. (P-408) Lavatory (ASME A112.19.2) straight back, approximately 457 mm by 381 mm (18 inches by 15 inches) and a 102 mm (4 inches) maximum apron, first quality vitreous china. Punching for faucet on 102 mm (4 inches) centers. type I chair carrier. Set with rim 864 mm (34 inches) above finished floor:
  - 1. Faucet: Solid cast brass construction with washerless ceramic disc mixing cartridge type and centrally exposed rigid gooseneck spout with outlet 127-152 mm (5-6 inches) above rim. Electronic sensor operated, 102 mm (4 inches) center set mounting, wiring box 120/24 volt solenoid plug in transformer solid brass hot/cold water mixer adjusted from top deck with barrier free design control handle. Provide laminar flow control device. Breaking the light beam shall activate the water flow. Flow shall stop when user moves away from light beam. All connecting wiring between transformer, solenoid valve and sensor shall be cut to length with no excess hanging or wrapped up wiring allowed.
  - 2. Drain: Cast or wrought brass with flat grid strainer and offset tailpiece, chrome plated finish.
  - 3. Stops: Angle type. See paragraph "Stops".

- 4. Trap: Cast copper alloy, 38 mm by 32 mm (1 1/2 inches by 1 1/4 inches) P-trap. Adjustable with connected elbow and 1.4 mm thick (17 gauge) tubing extension to wall. Exposed metal trap surface, and connection hardware shall be chrome plated with a smooth bright finish. Set trap parallel to wall.
- 5. Provide cover for exposed piping, drain, stops and trap per A.D.A.
- D. (P-417) Lavatory (Counter Mounted ASME A112.19.2) vitreous china, selfrimming, approximately 483 mm (19 inches) in diameter with punching for faucet on 102 mm (4 inches) centers. Mount unit in countertop.
  - Faucet: Solid cast brass construction, Single handle deck type, 203 mm (8 inches) maximum center, gooseneck spout with outlet 127 to 178 mm (5 to 7 inches) above rim, 152 mm (6 inches) lever handle. Control shall be washerless ceramic disc mixing cartridge type. Provide laminar flow control device, high temperature limit stop and vandal proof screws.
  - 2. Drain: Cast or wrought brass with flat grid strainer, offset ADA tailpiece, chrome plated.
  - 3. Stops: Angle type. See paragraph "Stops".
  - 4. Trap: Cast copper alloy, 38 mm by 32 mm (1 1/2 inches by 1 1/4 inches) P-trap, adjustable with connected elbow and 1.4 mm thick (17 gauge) tubing extension to wall. Set trap parallel to the wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish.
  - 5. Provide cover for exposed piping, drain, stops and trap per A.D.A.
- E. (P-420) Lavatory Solid cast brass construction with washerless ceramic disc mixing cartridge type, rigid gooseneck spout with outlet 102 mm to 127 mm (4 inches to 5 inches) above slab with 102 mm (4 inches) wrist blade handles. Provide laminar flow control device. Faucet, wall and floor escutcheons shall be either copper alloy or CRS. Exposed metal parts shall be chrome plated with a smooth bright finish.
  - Faucet: Brass, chrome plated, gooseneck spout with outlet 102 mm to 127 mm (4 inches to 5 inches) above rim. Electronic sensor operated, 102 mm (4 inches) center set mounting, wiring box 120/24 volt solenoid plug in transformer solid brass hot/cold water mixer adjusted from top deck with barrier free design control handle. Provide laminar flow control device. Breaking the light beam shall activate the water flow. Flow shall stop when user moves away from light beam. All connecting wiring between transformer, solenoid

valve and sensor shall be cut to length with no excess hanging or wrapped up wiring allowed.

- Drain: Cast or wrought brass with flat grid strainer, offset tailpiece, chrome plated. Set trap parallel to wall.
- 3. Stops: Angle type. See paragraph "Stops".
- 4. Trap: Cast copper alloy, 38 mm by 32 mm (1 1/2 inches by 1 1/4 inches) P-trap, adjustable with connected elbow and 1.4 mm thick (17 gauge) tubing extension to wall. Set trap parallel to the wall. Exposed metal trap surface and connection hardware shall be chrome plated with a smooth bright finish.
- 5. Provide cover for exposed piping, drain, stops and trap per A.D.A.

## 2.9 SINKS AND LAUNDRY TUBS

- A. Dimensions for sinks and laundry tubs are specified, length by width (distance from wall) and depth.
- B. (P-502) Service Sink (Corner, Floor Mounted) stain resistant terrazzo, 711 mm by 711 mm by 305 mm (28 inches by 28 inches by 12 inches) with 152 mm (6 inches) drop front. Terrazzo, composed of marble chips and white Portland cement, shall develop compressive strength of 20684 kPa (3000 psig) seven days after casting. Provide extruded aluminum cap on front side.
  - 1. Faucet: Solid brass construction, 9.5 L/m (2.5 gpm) combination faucet with replaceable Monel seat, removable replacement unit containing all parts subject to wear, integral check/stops, mounted on wall above sink. Spout shall have a pail hook, 19 mm (3/4 inch) hose coupling threads, vacuum breaker, and top or bottom brace to wall. Four-arm handles on faucets shall be cast, formed, or drop forged copper alloy. Escutcheons shall be either forged copper alloy or CRS. Exposed metal parts, including exposed part under valve handle when in open position, shall have a smooth bright finish. Provide 914 mm (36 inches) hose with wall hook. Centerline of rough in is 1219 mm (48 inches) above finished floor.
  - Drain: Seventy six millimeter (3 inches) cast brass drain with nickel bronze strainer.
  - 3. Trap: P-trap, drain through floor.
- C. (P-505) Clinic Service Sink (Flushing Rim, Wall Hung) approximately 508 mm by 635 mm (20 inches by 25 inches) by 203 mm (8 inches) deep. Support with ASME A112.6.1M chair carrier and secure with 10 mm (3/8 inch) bracket studs and nuts. Set sink with rim 762 mm (30 inches)

above finished floor. Provide 762 mm (30 inches) CRS drainboard where required, without corrugations and with heavy duty CRS brackets.

- Faucet: Elbow control, wall hung, integral check/stops, single spout with 19 mm (3/4 inch) hose threaded outlet and pail hook, vacuum breaker and brace to wall. Outlet 356 mm to 381 mm (14 inches to 15 inches) from wall. Exposed metal parts shall be chromium plated with a smooth bright finish. Provide 9.5 L/m (2.5 gpm) laminar flow control device.
- 2. Flush valve: Large diaphragm, semi-red brass body, Foot pedal operated, exposed chromium plated flush valve with screwdriver back check straight stop with cap, union outlet, street ells, elevated high pressure vacuum breaker, casing cover, 32 mm (1 1/4 inches) elbow flush connection from finished wall to 38 mm (1 1/2 inches) top spud. Spud coupling, wall and spud flanges.
- 3. Bed Pan Washer: Mechanical pedal mixing valve, wall hung, with double self-closing pedal valve with loose key stops, renewable seats and supply from valve to nozzle with wall hook hose connection; 1219 mm (48 inches) of heavy duty rubber hose, with extended spray outlet elevated vacuum breaker, indexed lift up pedals having clearance of not more than 13 mm (1/2 inch) above the floor and not less than 356 mm (14 inches) from wall when in operation. Supply pipe from wall to valve stop shall be rigid, threaded, IPS copper alloy pipe. Exposed metal parts shall be chromium plated with a smooth bright finish. Provide valve plate for foot control. Provide inline laminar flow control device.
- D. (P-528) Sink (CRS, Single Compartment, Counter Top ASME A112.19.2, Kitchen Sinks) self-rimming, back faucet ledge, approximately 533 mm by 559 mm (21 inches by 22 inches) with single compartment inside dimensions approximately 406 mm by 483 mm by 191 mm (16 inches by 19 inches by 7 1/2 inches) deep. Shall be minimum of 1.3 mm thick (18 gauge) CRS. Corners and edges shall be well rounded:
  - Faucet: Solid brass construction, 8.3 L/m (2.2 gpm) deck mounted combination faucet with Monel or ceramic seats, removable replacement unit containing all parts subject to ware, swivel gooseneck spout with approximately 203 mm (8 inches) reach with spout outlet 152 mm (6 inches above deck and 102 mm (4 inches) wrist blades. Faucet shall be polished chrome plated.

- Drain: Rear drain plug with cup strainer, stainless steel, offset ADA tailpiece.
- 3. Trap: Cast copper alloy 38 mm (1 1/2 inches) P-trap with cleanout plug. Provide wall connection and escutcheon.
- 4. Provide cover for exposed piping, drain, stops and trap per A.D.A.

# 2.12 DISPENSER, DRINKING WATER

- A. Standard rating conditions: 10 degrees C (50 degrees F) water with 27 degrees C (80 degrees F) inlet water temperature and 32 degrees C (90 degrees F) ambient air temperature.
- B. (P-609) Electric Water Cooler: Mechanically cooled, self-contained, wheel chair, bubbler style fully exposed dual height stainless steel fountain, recessed in wall refrigeration system, stainless steel grille, stainless steel support arm, wall mounting box, energy efficient cooling system consisting of a hermetically sealed reciprocating type compressor, 115v, 60 Hz, single phase, fan cooled condenser, permanently lubricated fan motor. Set highest bubbler 1016 mm (40 inches) above finished floor. Provide with bottle filler option.

## 2.13 SHOWER BATH FIXTURE

- A. (P-701) Shower Bath Fixture (Detachable, Wall Mounted, Concealed Supplies, Type T/P Combination Valve):
  - Shower Installation: Provide both Wall mounted shower head and wall mounted detachable spray assembly with , 600 mm (24 inch) wall bar, elevated vacuum breaker, supply elbow and flange and valve. All external trim, chrome plated metal.
  - 2. Shower Head Assembly: Metallic shower head with flow control to limit discharge to 9.5 l/m (2.5 gpm), 1524 mm (60 inches) length of rubber lined CRS, chrome plated metal flexible, or white vinyl reinforced hose and supply wall elbow. Design showerhead to fit in palm of hand. Provide CRS or chrome plated metal wall bar with an adjustable swivel hanger for showerhead. Fasten wall bar securely to wall for hand support.
  - 3. Shower Heads: Chrome plated metal head, adjustable ball joint, selfcleaning with automatic flow control device to limit discharge to not more than 9.5 l/m (2.5 gpm). Body, internal parts of shower head and flow control fittings shall be copper alloy or CRS. Install showerhead 1829 mm (72 inches) above finished floor.
  - Valves: Type T/P combination thermostatic and pressure balancing, with chrome plated metal lever type operating handle adjustable for

rough-in variations and CRS face plate. Valve body shall be any suitable copper alloy. Internal parts shall be copper, nickel alloy, CRS or thermoplastic material. Valve inlet and outlet shall be 13 mm (1/2 inch) IPS. Provide external screwdriver check stops, vacuum breaker and temperature limit stops. Set stops for a maximum temperature of 50 degrees C (122 degrees F). All exposed fasteners shall be vandal resistant. Valve shall provide a minimum of 9.5 l/m (2.5 gpm) at 310 kPa (45 psig) pressure drop.

### 2.14 EMERGENCY FIXTURES

- A. (P-707) Emergency Shower and Eye and Face Wash (Free Standing):
  - 1. Shower Head: Polished chrome plated, 203 mm (8 inches) in diameter, install head 2134 mm (84 inches) above floor. Equip with stay-open ball valve, chrome plated. Operate valve with 610 mm (24 inches) stainless steel pull-rod with triangle handle. Pull-down opens valve; push-up closes valve. Flow rate shall be 75.7 L/m (20 gpm).
  - 2. Emergency Eye and Face Wash: CRS receptor. Equipment with a 13 mm (1/2 inch) stay open ball valve operated by push flag handle. Mount eye and face wash spray heads 1067 mm (42 inches) above finished floor. Flow rate shall be 11.4 L/m (3 gpm).
  - 3. Provide with thermostatic mixing value to provide tepid water from 30 to 35 degrees C (85 to 95 degrees F).
  - 4. Shower head and emergency eye and face wash shall be mounted to stanchion with floor flange through floor waste connection and Ptrap. Paint stanchion same color as room interior. Provide with signage to easily locate fixture.
- B. (P-708) Emergency Eye and Face Wash (Wall Mounted): CRS, wall mounted, foot pedal control. Mount eye and face wash spray heads 1067 mm (42 inches) above finished floor. Pedal shall be wall mounted, entirely clear of floor, and be hinged to permit turning up. Receptor shall be complete with drain plug with perforated strainer, P-trap and waste connection to wall with escutcheon. Provide with thermostatic mixing valve to provide tepid water from 30 to 35 degrees C (85 to 95 degrees F). Flow rate shall be 11.4 L/m (3 gpm).
- C. (P-710) Emergency Eye and Face Wash (Wall Mounted): CRS, wall mounted, automatic control. Mount eye and face wash spray heads 1067 mm (42 inches) above finished floor. Spray heads swing down 90 degrees from storage to operational position, activating water flow. Adjacent sink serves as receptor. Provide with thermostatic mixing valve to provide

tepid water from 30 to 35 degrees C (85 to 95 degrees F). Flow rate shall be 11.4 L/m (3 gpm).

### 2.15 HYDRANT, HOSE BIBB AND MISCELLANEOUS DEVICES

- H. (P-812) Water Supply Box Units: Fabricate of 16-gage steel with highly corrosion resistant epoxy finish. Unit to have 13 mm (1/2 inch) combination MPT brass sweat connection, ball type shut-off valve. Size 229 mm by 298 mm (9 inches by 11 3/4 inches) rough wall opening 203 mm by 254 mm by 92 mm (8 inches by 10 inches by 3 5/8 inches). Bottom of box shall be 457 mm (18 inches) above finished floor.
- A. (P-809) Dialysis Box: Recessed wall box with continuously welded 18 gage CRS, Type 316, with satin finish. Wall flange and hinged door shall be 16 gage CRS, Type 304, with satin finish. Provide brass quarter turn ball valve, 19 mm (3/4 inch) male supply outlet and two discharge hose brackets above 38 mm (1 1/2 inches) chemical resisting waste. Furnish each valve with flushing nipple. Provide with indirect drain in box. Install box at 30" above finished floor to bottom of box.

# PART 3 - EXECUTION

#### 3.1 INSTALLATION

- A. Fixture Setting: Opening between fixture and floor and wall finish shall be sealed as specified under Section 07 92 00, JOINT SEALANTS. Bio-based materials shall be utilized when possible.
- B. Supports and Fastening: Secure all fixtures, equipment and trimmings to partitions, walls and related finish surfaces. Exposed heads of bolts and nuts in finished rooms shall be hexagonal, polished chrome plated brass with rounded tops.
- C. Toggle Bolts: For hollow masonry units, finished or unfinished.
- D. Expansion Bolts: For brick or concrete or other solid masonry. Shall be 6 mm (1/4 inch) diameter bolts, and to extend at least 76 mm (3 inches) into masonry and be fitted with loose tubing or sleeves extending into masonry. Wood plugs, fiber plugs, lead or other soft metal shields are prohibited.
- E. Power Set Fasteners: May be used for concrete walls, shall be 6 mm (1/4 inch) threaded studs, and shall extend at least 32 mm (1 1/4 inches) into wall.
- F. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.

- G. Where water closet waste pipe has to be offset due to beam interference, provide correct and additional piping necessary to eliminate relocation of water closet.
- H. Aerators are prohibited on lavatories and sinks.
- I. If an installation is unsatisfactory to the COR, the Contractor shall correct the installation at no cost or additional time to the Government.

# 3.2 CLEANING

A. At completion of all work, fixtures, exposed materials and equipment shall be thoroughly cleaned.

# 3.3 WATERLESS URINAL

A. Manufacturer shall provide an operating manual and onsite training for the proper care and maintenance of the urinals.

### 3.4 COMMISSIONING

- A. Provide commissioning documentation in accordance with the requirements of Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS.
- B. Components provided under this section of the specification will be tested as part of a larger system.

### 3.5 DEMONSTRATION AND TRAINING

- A. Provide services of manufacturer's technical representative for four hours to instruct VA Personnel in operation and maintenance of the system.
- B. Submit training plans and instructor qualifications in accordance with the requirements of Section 22 08 00, COMMISSIONING OF PLUMBING SYSTEMS.

- - - E N D - - -