SECTION 22 40 00
PLUMBING FIXTURES

PART 1 - GENERAL

1.1 DESCRIPTION

Plumbing fixtures, associated trim and fittings necessary to make a complete installation from wall or floor connections to rough piping, and certain accessories.

1.2 RELATED WORK

A. Sealing between fixtures and other finish surfaces: Section 07 92 00, JOINT SEALANTS.

B. Flush panel access doors: Section 08 31 13, ACCESS DOORS AND FRAMES.

C. Through bolts: Section 10 21 13, TOILET COMPARTMENTS.

D. Section 22 05 11, COMMON WORK RESULTS FOR PLUMBING.

1.3 SUBMITTALS

A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.

B. Submit plumbing fixture information in an assembled brochure, showing cuts and full detailed description of each fixture.

1.4 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. American National Standard Institute (ANSI):
The American Society of Mechanical Engineers (ASME):
A112.6.1M-02(R2008).....Floor Affixed Supports for Off-the-Floor Plumbing Fixtures for Public Use
A112.19.1M-04.....Enameled Cast Iron Plumbing fixtures
A112.19.2M-03(R2008)....Vitreous China Plumbing Fixtures
A112.19.3-2001(R2008)...Stainless Steel Plumbing fixtures (Designed for Residential Use)

C. American Society for Testing and Materials (ASTM):
A276-2003.....Stainless and Heat-Resisting Steel Bars and Shapes

D. National Association of Architectural Metal Manufacturers (NAAMM): NAAMM AMP 500-505
Metal Finishes Manual (1988)

E. American Society of Sanitary Engineers (ASSE):
1016-05.....Performance Requirements for Individual Thermostatic, Pressure Balancing and Combination

Pressure Balancing and Thermostatic Control Valves for Individual Fixture Fittings

F. National Sanitation Foundation (NSF)/American National Standards Institute (ANSI):
61-03.....Drinking Water System Components-Health Effects

G. American with Disabilities Act(A.D.A) Section 4-19.4 Exposed Pipes and Surfaces

PART 2 - PRODUCTS

2.1 STAINLESS STEEL

A. Corrosion-resistant Steel (CRS):
   1. 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.

2.2 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 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 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.

E. Psychiatric Area: Provide stainless steel drain guard for all lavatories not installed in casework.

2.3 ESCUTCHEONS

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.

2.4 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.

B. Flow Control Restrictor:
   1. Capable of restricting flow from 95 to 110 mL/s (1.5 to 1.7 gpm) for lavatories; 125 to 140 mL/s (2.0 to 2.2 gpm) for sinks P-505 through P-520, P-524 and P-528; and 170 to 190 mL/s (2.75 to 3.0 gpm) for dietary food preparation and rinse sinks.
   2. Compensates for pressure fluctuation maintaining flow rate specified above within 10 percent between 170 and 550 kPa (25 and 80 psi).
   3. Operates by expansion and contraction, eliminates mineral/sediment build-up with self-clearing action, and is capable of easy manual cleaning.

C. Device manufactured by OMNI Products, Inc. or equal.

2.5 TAMPERPROOF SCREWS

A. All screws on plumbing fixtures, equipment and accessories throughout the building, which are exposed to view and which are installed under this Contract, shall be institutional tamperproof type, including screws on exterior surfaces of floor drains, fixtures and fixture trim, and other similar equipment. Phillips head screws are not regarded as tamperproof and are not acceptable. Spanner head, Allen head, or Holt head screws will be acceptable. All screw heads shall be of the same type and all finishes shall match the equipment in which they are installed.

2.6 CARRIERS

A. ASME/ANSI 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/ANSI A112.6.1M, lavatory, 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-101) Water Closet** (Floor Mounted, ADA Handicap Accessible, ASME/ANSI A112.19.2M, Figure 6) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Office, Hospital and Industrial fixture, elongated bowl, siphon jet 6 L (1.6 gallons) per flush, wall outlet. Top of rim shall be between 435 and 438 mm (17 1/8 to 17 1/4

inches) above finished floor and meet ADA disability installation standards and requirements.

1. 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 caps nuts and washers.
3. Flush valve: Large chloramines resistant diaphragm, semi-red brass valve body, exposed chrome plated, hard-wired powered active infra-red sensor for automatic operation with courtesy flush button for manual operation, water saver design 6 L (1.6 gallons) per flush with maximum 10 percent variance, top spud connection, adjustable tailpiece, one-inch IPS screwdriver back check angle stop with vandal resistant cap, high back pressure vacuum breaker, and sweat solder adapter with cover tube and cast set screw wall flange. Set centerline of inlet 292 mm (11 1/2 inches) above rim. Seat bumpers shall be integral part of flush valve. Valve body, cover, tailpiece and control stop shall be in conformance with ASTM Alloy classification for semi-red brass.

B. **(P-114) Bariatric Water Closet** (Floor Mounted, Bariatric, Anti-Ligature and Anti-Vandal) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Hospital mental health suite area and application, the water closet shall be constructed of white solid surface material with a permanently bonded and integral solid surface seat, designed for 4.5 to 6 L (1.6 gallons) per flush and with back spud wall outlet. Top of rim shall be between 435 and 438 mm (17 1/8 to 17 1/4 inches) above finished floor and meet ADA disability installation standards and requirements. Water Closet fixture shall be specific to the Wallgate model #CWC_150ST, basis of design and environment application.

1. Seat: Is a permanently bonded and integral solid surface seat part of the water closet fixture. Color shall be white same as fixture.
2. Fittings and Accessories: Furnish and install fixture and piping wall support brackets, anchoring, water supply coupler, sanitary waste connector, gaskets and all tamperproof, vandal resistant components and screws required for a complete installation.
3. Flushing valve assembly: Furnish and install the concealed hard-wired powered electronic valve assembly activated by a recessed flush mounted stainless steel piezo push button and an electronic programmable controller unit which will operate multiple fixtures as

designated on the drawing and fixture schedule. The water supply flush valve assembly shall be concealing behind the finished wall and have a rear spud connection, The basis of design of the valve assembly shall be Wallgate model INS_DFKIT01.

4. Control System: Furnish and install electronic controllers to operate and control the water supply flow and function to the multiple fixtures of each designated toilet facility. The controller shall be 120v unit and include all required cabling between fixture and controller. The basis of design or this Fixture Controller assembly shall be compatible and match the fixtures as in the Wallgate Model WDC100.

C. **(P-116) Water Closet** (Floor Mounted, ADA Handicap Accessible, Anti-Ligature and Anti-Vandal) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Hospital mental health suite area and application, the water closet shall be constructed of white solid surface material with a permanently bonded and integral solid surface seat, designed for 4.5 to 6 L (1.6 gallons) per flush and with back spud wall outlet. Top of rim shall be between 435 and 438 mm (17 1/8 to 17 1/4 inches) above finished floor and meet ADA disability installation standards and requirements. Water Closet fixture shall be specific to the Wallgate model #CWC_150ST, basis of design and environment application.

1. Seat: Is a permanently bonded and integral solid surface seat part of the water closet fixture. Color shall be white same as fixture.
2. Fittings and Accessories: Furnish and install fixture and piping wall support brackets, anchoring, water supply coupler, sanitary waste connector, gaskets and all tamperproof, vandal resistant components and screws required for a complete installation.
3. Flushing valve assembly: Furnish and install the concealed hard-wired powered electronic valve assembly activated by a recessed flush mounted stainless steel piezo push button and an electronic programmable controller unit which will operate multiple fixtures as designated on the drawing and fixture schedule. The water supply flush valve assembly shall be concealing behind the finished wall and have a rear spud connection, The basis of design of the valve assembly shall be Wallgate model INS_DFKIT01.
4. Control System: Furnish and install electronic controllers to operate and control the water supply flow and function to the multiple fixtures of each designated toilet facility. The controller shall be 120v unit and include all required cabling between fixture and controller. The basis of design or this Fixture Controller assembly

shall be compatible and match the fixtures as in the Wallgate Model WDC100.

2.8 URINALS

A. Dimensions for urinals are specified, Length by width (distance from wall) and depth.

B. Brass components in contact with water shall contain no more than 3 percent lead content by dry weight.

C. **(P-202) Urinal** (Surface Wall Mounted, ADA Handicap Accessible, Anti-Ligature and Anti-Vandal) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Hospital mental health suite area and application, the urinal shall be a single piece constructed of white solid surface material with a permanently bonded and integral solid surface, designed with all services, water and waste concealed within the fixture and in the wall space behind. The urinal fixture shall be specific to the Wallgate model #CWU_01, basis of design and environment application.

1. Flushing Assembly: The urinal fixture shall be complete with a chrome plated spray flush spreader outlet and is activated by an electronic piezo touch button and delivers water to the fixture. All water supply components are concealed within the fixture and in the wall space behind.
2. Drain: The drain assembly is extended from the rear of the fixture and concealed within the fixture and extended to the concealed wall space behind where the p-trap shall be installed.
3. Control System: Furnish and install electronic controllers to operate and control the water supply flow and function to the multiple fixtures of each designated toilet facility. The controller shall be 120v unit and include all required cabling between fixture and controller. The basis of design or this Fixture Controller assembly shall be compatible and match the fixtures as in the Wallgate Model WDC100.

2.9 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 3 percent lead content by dry weight.

C. **(P-414) Lavatory** (Wall Mounted, ADA Handicap Accessible, Wrist blade Control faucet, ASME/ANSI A112.19.2M, Figure 16) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Lavatory is a straight back design, approximately 508 mm by 457 mm (20 inches by 18 inches) and a 102 mm (4 inches) minimum apron, first quality vitreous

china. Punching for faucet shall be on 203 mm (8 inches) centers. Set rim 864 mm (34 inches) above finished floor and meet ADA disability installation standards and requirements.

1. Faucet: Solid cast brass construction with washerless ceramic mixing cartridge type and centrally exposed rigid gooseneck spout with outlet 102 mm to 127 mm (4 inches to 5 inches) above rim. Provide laminar flow control device. One hundred two millimeter (4-inch) wrist blade type, handles on faucets shall be cast, formed or drop forged copper alloy. Faucet, wall and floor escutcheons shall be either copper alloy or CRS. Exposed metal parts, including exposed part under valve handle when in open position, shall be chrome plated with a smooth bright finish.
2. Drain: Cast or wrought brass with flat grid strainer, offset tailpiece, chrome plated.
3. Stops: Angle type. See paragraph 2.2.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 the wall.
5. Provide cover for drain, stops and trap per A.D.A 4-19.4.2.8.

D. **(P-421) Lavatory** (Wall Mounted, ADA Handicap Accessible, Anti-Ligature and Anti-Vandal) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Hospital mental health suite area and application, the lavatory shall be constructed of white solid surface material with a permanently bonded and integral solid surface faucet head, designed with all services, water and waste concealed with the fixture and in the wall space behind. The lavatory assembly is 15-3/4" x 11-1/32. Set rim (34 inches) above finished floor and meet ADA disability installation standards and requirements. The lavatory fixture shall be specific to the Wallgate model #WHB_180, basis of design and environment application.

1. Faucet: Is an integral molded part of the lavatory fixture and is activated by an electronic piezo touch buttons and delivers single mixed water. All water supply components are concealed within the fixture and in the wall space behind.
2. Drain: The drain assembly is concealed within the fixture and extended to the concealed wall space behind where the p-trap shall be installed.
3. Control System: Furnish and install electronic controllers to operate and control the water supply flow and function to the multiple

fixtures of each designated toilet facility. The controller shall be 120v unit and include all required cabling between fixture and controller. The basis of design or this Fixture Controller assembly shall be compatible and match the fixtures as in the Wallgate Model WDC100.

2.10 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) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Stain resistant terrazzo, 711 by 711 mm (28 by 28 by 12 inches) with 152 mm (six-inch) drop front. Terrazzo, composed of marble chips and white Portland cement, shall develop compressive strength of 20 684 kPa (3000 psi) seven days after casting. Provide extruded aluminum cap on front side.

1. Faucet: Solid brass construction, combination faucet with replaceable monel seat, removable replacement unit containing all parts subject to wear, integral stops, mounted on wall above sink. Spout shall have a pail hook, 20 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 (three-foot) hose with wall hook. Centerline of rough in is 1220 mm (48 inches) above finished floor.
2. Drain: Eighty millimeter (3-inch) cast brass drain with nickel bronze strainer.
3. Trap: P-trap, drain through floor.

C. (P-505) Clinic Service Sink (Flushing Rim, Wall Hung) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Clinic Sink is approximately 508 mm by 635 mm (20 inches by 25 inches) by 203 mm (8 inches) deep. Support with ASME/ANSI 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.

1. Faucet: Elbow control, wall hung, integral 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 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/ANSI A112.19.2M, Kitchen Sinks, Figure 5) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Sink is a self-rimming, back faucet ledge, approximately 533 by 558 mm (21 by 22 inches) with single compartment inside dimensions approximately 406 by 483 by 190 mm (16 by 19 by 7 ½ inches) deep. Shall be minimum of 1.3 mm thick (18 gauge) CRS. Corners and edges shall be well rounded:

1. Faucet: Solid brass construction, deck mounted combination faucet with monel or ceramic seats, removable replacement unit containing all parts subject to ware, swivel gooseneck spout with approximately 200 mm (8-inche) reach with spout outlet 150 mm (6-inches above deck and 102 mm (4 inch) wrist blades. Faucet shall be polished chrome plated.
2. Drain: Off-centered rear drain. Drain plug with cup strainer, stainless steel.
3. Trap: Cast copper alloy 40 mm (1-1/2 inch) P-trap with cleanout plug. Provide wall connection and escutcheon.
4. Provide cover for drain, stops and trap per A.D.A 4-19.4.

2.11 DISPENSER, DRINKING WATER

A. **(P-609) Electric Water Cooler:** (Wall Mounted, Bi-Level, ADA Handicap Accessible) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Cooler assembly is a 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.

2.12 SHOWERS

A. **(P-701) Single Shower Assembly** (Wall Mounted, ADA Handicap Accessible, Anti-Ligature and Anti-Vandal) Refer to the Plumbing Fixture Schedule on the drawings for additional information. Hospital mental health suite area and application, the Showers stall assembly shall be constructed in place under the general construction portion of the work, reference the Architectural drawings and specifications for details.

1. Shower Control Valve and shower head assembly panel: The shower panel is heavy gauge 304 stainless steel panel with beveled edges tight to the wall. Recessed soap dish, shower heads and push buttons are secured from the back of the panel for vandal resistant and anti-ligature installations. Touch Time Electronic valve control assembly with flow control with push buttons shall operate the shower assembly. All water supply components are concealed within the fixture and in the wall space behind. The Shower fixture shall be specific to the Bradley Model #HSC91, basis of design and environment application.
2. Drain: Furnish and install designated floor drain assembly in built-up, constructed in place shower base or floor. The specified shower shall be constructed by the General Contractor and the specific drain location, elevation and finish floor shall be coordinate as required to complete the installation. The floor drain shall be installed with a p-trap as specified.
3. Control System: Furnish and install electronic controller to operate and control the water supply flow and function to each shower panel assembly of each designated toilet shower facility. The controller shall be 120v unit and include all required low voltage cabling and wiring between fixture and controller. The basis of design or this Fixture Controller assembly shall be compatible and match the fixtures as in the Bradley Model S45-1941.

PART 3 – EXECUTION

3.1 FIXTURE INSTALLATION

A. Fixture Setting: Opening between fixture and floor and wall finish shall be sealed as specified under Section 07 92 00, JOINT SEALANTS.

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 tamper resistant, polished chrome plated brass with rounded tops.

C. Through Bolts: For free standing marble and metal stud partitions refer to Section 10 21 13, TOILET COMPARTMENTS.

D. Toggle Bolts: For hollow masonry units, finished or unfinished.

E. Expansion Bolts: For brick or concrete or other solid masonry. Shall be 6 mm (1/4-inch) diameter bolts, and to extend at least 75 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.

F. Power Set Fasteners: May be used for concrete walls, shall be 6 mm (1/4-inch) threaded studs, and shall extend at least 35 mm (1-1/4 inches) into wall.

G. Tightly cover and protect fixtures and equipment against dirt, water and chemical or mechanical injury.

H. 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.

I. Do not use aerators on lavatories and sinks.

3.2 CLEANING

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

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