SECTION 22 40 00

PLUMBING FIXTURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Water closets.

B. Urinal.

C. Lavatory.

D. Lavatory faucet.

E. Service/mop sink.

F. Wash fountain.

G. Shower valve and head.

H. Sink.

I. Emergency eyewash.

J. Drinking fountain.

K. Gas fired water heater.

L. Electrical water heater.

M. Floor drain.

N. Floor sink.

O. Planter drains.

P. Cleanouts.

Q. Valves, hose bibbs, and hydrants.

1.02 RELATED SECTONS

A. Section 01 33 00 – Submittal Procedures

B. Section 01 33 23 – Shop Drawings, Product Data, and Samples

C. Section 01 78 23 – Operation and Maintenance Data

1.03 MEASUREMENT AND PAYMENT

A. Separate measurement or payment will not be made for the work required under this Section. All costs in connection with the Work specified herein will be considered to be included or incidental to the Work of this Contract.

1.04 REFERENCES

A. Air-Conditioning and Refrigeration Institute (ARI):

1. ARI 1010 — Self-Contained Mechanically Refrigerated Drinking Water Coolers

B. American National Standards Institute (ANSI):

1. ANSI A117.1 — Specification for Providing Accessibility and Usability for Handicapped People Using Buildings and Facilities
2. ANSI A112.21.2M — Roof Drains
3. ANSI Z358.1 — Emergency Eye Wash and Shower Equipment

C. American Society of Mechanical Engineers (ASME):

1. ASME A112.6.1 — Supports for Off-the-Floor Plumbing Fixtures for Public Use
2. ASME A112.6.3 — Floor and Trench Drains
3. ASME A112.18.1 — Finished and Rough Brass Plumbing Fixture Fittings
4. ASME A112.19.1 — Enameled Cast Iron Plumbing Fixtures
5. ASME A112.19.2 — Vitreous China Plumbing Fixtures and Hydraulic Requirements for Water Closets and Urinals
6 ASME A112.19.3 — Stainless Steel Plumbing Fixtures (Designed for Residential Use).

D. Federal Specifications (FS):

1. FS WW-P-541 — Plumbing Fixtures (General Specification)
2. FS WW-P-541/4 — Plumbing Fixtures (Lavatories) (Detail Specification)
3. FS WW-P-541/5 — Plumbing Fixtures (Sinks, Kitchen, Service, and Laundry Trays) (Detail Specification)

E. Plumbing and Drainage Institute (PDI):

1. PDI WH-201 — Water Hammer Arrestors

1.05 SUBMITTALS

A. General: Refer to Section 01 33 00 - Submittal Procedures, and Section 01 33 23 - Shop Drawings, Product Data, and Samples, for submittal requirements and procedures.

B. Product Data: Submit manufacturers' product data and illustrations of the specified fixtures and products.

C. Operation and Maintenance Data: Submit maintenance and operating instructions, including spare parts list, for plumbing fixtures in accordance with Section 01 78 23 - Operation and Maintenance Data.

D. Test Reports: Submit certified test results and certificates of compliance as necessary to verify conformance with specified requirements.

1.06 SITE CONDITIONS

A. Examine surfaces and structures on, or to, which plumbing fixtures will be installed and anchored before the work of this Section begins. Surfaces that will be concealed by plumbing fixtures shall be finished before fixtures are installed.

B. Provide plumbing rough in and stub-outs to exact locations and conditions of required connections. Electrical facilities, which will provide power to the drinking fountains and water heaters shall have been installed, tested, and approved before the drinking fountains and water heaters are installed.

PART 2 - PRODUCTS

2.01 FIXTURES

A. Water Closets: ASME A112.19.2, wall-hung vitreous china closet bowl with elongated rim, having large diaphragm flush valve, siphon-jet flushing action, back outlet, carrier, and white open front seat. Water closet shall conform to ASME A112.19.2, FS WW-P-541/1, Type II, Style D, and shall be equipped with Type IV, Class 4 cover, Type I, Style 1, Model A, Flushometer and Type II carrier.

1. Water closets for physically handicapped and mounting height therefor shall conform to the California Plumbing Code and ANSI A117.1, as applicable.

2. Water closets and associated flushometer valves shall use no more than 1.6 gallons per flush, and shall be a Designated Matching Product as specified in the Contract Documents.

3. Wall-mounted carriers for wall-hung water closets shall conform to ASME A112.6.1, and shall be adjustable cast-iron frame with integral drain hub and vent adjustable spud, including lugs for floor and wall anchorage with threaded fixture studs, nuts, and washers

B. Urinal: ASME A112.19.2, vitreous china urinal, wall-hung type with large diaphragm flush valve, vacuum breaker, siphon-jet flushing action, integral trap and projecting bowl, and with carrier and fittings designed for wall-hung urinal. Urinals shall conform to FS WW-P-541/2, type I, Style B, Class 3, and shall be equipped with Type I, Style A, Class I Flushometer.

1. Urinals for the physically-handicapped shall conform to the California Plumbing Code and ANSI A117.1, as applicable. Carrier shall be floor-mounted with anchored base feet pipe uprights and hanger plate specifically designed for urinal. Provide mounting height of urinals for physically handicapped that conforms to the California Plumbing Code.

2. Urinals and associated flushometer valves shall use no more than one gallon of water per flush, and shall be a Designated Matching Product as specified in the Contract Documents.

C. Lavatory: ASME A112.19.2, one-piece ledge back, rectangular bowl with 4 inch high back, one hole faucet at Public and 2 hole faucet at Staff with drilling on 4 inch centers, wall-mounted type of vitreous china with front overflow, with floor-mounted concealed arm carrier supports, trim, fittings, lever operated, self closing faucet with 10 second delay in closure and 0.5 gpm flow limiting device. Lavatory shall conform to FS WW-P-541/4, type II with Type IV Faucet, Type III Drain, and Type I Stops and Trap.

1. Lavatory for the physically handicapped shall conform to the California Plumbing Code and ANSI A117.1, as applicable, with lever-handled mixing faucets. Mounting height shall conform to the California Plumbing Code.

2. Wall-mounted carriers for lavatories shall conform to ASME A112.6.1, and shall be adjustable cast-iron and steel frame with tubular legs, with integral drain hub and vent, including lugs for floor and wall anchorage with threaded fixture studs, nuts, and washers.

3. ASMEA112.19.2 vitreous china self-rimming counter top lavatory, one hole faucet at Public and 2 hole faucet at Staff with drilling on 4-inch centers, front overflow, seal of putty, caulking or concealed vinyl gasket.

4. Lavatory faucet and accessories shall be District Designated Matching Product (DMP) as specified in the Contract Documents.

D. Service/Mop Sink: Floor mounted, corner type, 14 gage, Type 304 stainless steel sink shall be 36 inches by 36 inches, and shall have stainless steel rim guard. The rim shall not be higher than ten inches nor less than 8 inches nor narrower than 2 inches. Drain diameter shall be 3 inches. Furnish faucet with brace. Faucet shall be District Designated Matching Product as specified in the Contract Documents.

E. Wash Fountain:

1. Bowl: Semi-Circular wash fountain with 9 inch deep stainless steel bowl and 54 inch diameter.

2. Accessories: Foot-controlled self-closing valve, spray head with stainless steel support tube and bowl gasket, liquid soap dispenser spray head supply pipe, supporting tube, spud with lock nut and beehive strainer, manual mixing valve, volume control valve, operating mechanism, foot levers and rail, combination stop strainer and check valve.

F. Shower Valve and Showerhead: Valve and head shall be Designated Matching Products as specified in the Contract Documents.

G. Sink:

1. Single compartment bowl: ASME A112.19.3, 22 x 19½ x 6½ inch outside dimensions, minimum 18 gage thick, Type 304 stainless steel, self-riming and sound deadening coating, with one or three holes for the facet and one 3½ inch diameter recessed drain opening, ledge back drill for trim. Bowl shall be ADA compliant in installation position.

2. Kitchen sink faucet: ASME A112.18.1 and District Designated Matching Product (DMP) as specified in the Contract Documents, chrome plated with 8 inch swivel spout, vandal proof water economy aerator and 4-1/2 inch handle. Tail shall be equipped with fixed chrome plated strainer.

3. Accessories: Chrome plated 17-gage brass P-Trap and arm with escutcheon, wheel handle stop and rigid supplies.

H. Garbage Disposal: Provide continuous-feed type with hardened stainless steel grinding chamber and elements and 3/4 Hp, permanently lubricated motor with overload protector and manual reset, and listed by nationally recognized testing laboratory. Electrical requirements: 120 VAC hard-wired.

2.02 EQUIPMENT AND APPLIANCES

A. Drinking Fountain: Provide wall-hung drinking fountain accessible to the physically handicapped and conforming to FS WW-P-541/6. Bubbler shall be of vandal- proof design, of polished stainless steel, and shall be operable by a self-closing button or bar. Provide anti-splash design basin of satin stainless steel, with a non-removable drain strainer. Drinking fountain for staff areas shall conform to ARI 1010, and shall operate on 115 V, single phase, 60 Hz power source. Cooling capacity shall be 3 gallons per hour minimum. Drinking fountain shall be a Designated Matching Product as specified in the Contract Documents.

B. Emergency Eyewash: Provide a hard piped, permanently connected to the potable water supply, eyewash station that complies with ANSI Z358.1, Uniform Plumbing Code and CalOSHA standards. Eyewash station shall include a plastic bowl with drain, chrome plated brass stay-open full flow ball valve activated by a stainless steel push handle. Eyewash shall include twin plastic spray heads with individual flow restrictors, flip off dust caps and all required signage.

C. Gas Fired Water Heater:

1. Type: Automatic, natural gas-fired, vertical storage with integral control.

2. Manufacturers:

a. A.O. SMITH

b. BRADFORD WHITE

c. Or equal.

3. Performance: Storage capacity – (Gal.) & input – (BTU per hour with minimum recovery rate) shall be as indicated in the contract. Maximum working pressure shall be 150 PSI.

4. Tank: Glass-lined with an alkaline borosilicate composition fused-to-steel with single flue passage, flu baffle and draft hood, thermally insulated with glass and encased in corrosion-resistant steel jacket, baked-on enamel finish, floor shield and legs.

5. Controls: Automatic water thermostat and built-in gas pressure regulator, temperature range adjustable from 120 to 170 degrees F, cast iron or sheet metal burner, safety pilot and thermocouple.

6. Accessories: brass water connection and dip tube, drain valve, magnesium anode and ASME temperature and pressure relief valve.

D. Electrical Water Heaters

1. Type: Automatic, electric, vertical storage.

2. Performance: Storage capacity – (Gal.) & input – (BTU per hour with minimum recovery rate) shall be as indicated in the contract. Maximum working pressure shall be 150 PSI.

3. Electrical Characteristics:
For 20 gals or less provide 277V, single phase, powered units with 3000 or 6000 watts.
For greater than 20 gal provide 480V, 3 phase 60Hz, powered units with 6000 watts.

4. Tank: Glass lined welded steel, thermally insulated with one inch thick glass fiber; encased in corrosion-resistant steel jacket; baked-on enamel finish.

5. Controls: Automatic water thermostat with externally adjustable temperature range from 120 to 170 degrees F, flanged or screw-in nichrome elements, enclosed controls and electrical junction box and operating light. Wire double element units so elements do not operate simultaneously.

6. Accessories: Brass water connections and dip tube, drain valve, magnesium anode, and ASME temperature and pressure relief valve.

E. Floor Drain

1. Floor Drain (FD-1)

   a) ASME A112.6.3; cast iron two piece body with double drainage flange, weep holes. Reversible clamping collar, and round, adjustable round (unless indicated otherwise) nickel-bronze strainer with removable perforated sediment bucket.

2. Floor Drain (FD-2):

   a) ASME A112.6.3; cast iron two piece body with double drainage flange, weep holes, reversible clamping collar, and round, adjustable nickel-bronze strainer with polished bronze funnel.

3. Floor Drain (FD-3):

a) ASME A112.6.3; cast iron two piece body with double drainage flange, weep holes, reversible lamping collar, and round, adjustable nickel-bronze extra heavy duty strainer with hinged grate and sediment bucket.

F. Floor Sink

1. Floor Sink (FS):

a) Square lacquered cast iron body with integral seepage pan, epoxy coated interior, epoxy coated cast iron dome strainer. Clamp collar, sediment bucket epoxy coated, half grad.

G. Planter Drains: ANSI A112.21.2; cast iron body with sump.

1. Strainer: Removable cast iron dome with stainless steel screen.

2. Accessories: Membrane flange and membrane clamp with integral gravel stop.

H. Cleanouts

1. Floor Mounted Cleanout (FCO): Round cast nickel bronze access frame and non-skid cover.

2. Cleanout to grade (COTG): Line type with lacquered cast iron body and round epoxy coated gasketed cover.

3. Finished Floor Cleanout (FFCO): Cast iron body with anchor flange threaded tip assembly and round gasket scored cover, in service areas and round gasketed depressed cover to accept floor finish in finished floor areas.

4. Interior Finished Wall Cleanout (WCO): Line type with lacquered cast iron body and round epoxy coated gasketed cover, and round stainless steel access cover secured with machine screw.

2.03 VALVES, FAUCETS, AND HYDRANTS

A. Integral Stops: Provide lock-shield, loose-key pattern type with supplies. Exposed fixture fittings and trim shall be either chromium-plated or nickel-plated brass, and shall have polished, bright surfaces.

B. Hose Bibb for Non-Public Areas: Provide brass, with wheel handles, conforming to FS WW-P-541. Inlet shall be 1/2-inch external pipe thread, and spout shall have 3/4-inch hose thread. Hose bibbs shall have vacuum breaker conforming with the California Plumbing Code.

C. Flush Wall Hydrant for Public Areas: Provide encased flush, anti-siphon, complete with integral backflow preventer, nickel bronze casing, bronze interior parts, and non-turning operating rod, with free-floating compression closure valve. Box face and hinged cover shall be polished nickel bronze complete with square shoulder lock of same size as operating valve.

D. Flush Floor Hydrant for Public Areas: Floor Hydrants are to be avoided. When a floor hydrant is the only option provide encased flush, anti-siphon, complete with integral backflow preventer, nickel bronze casing, bronze interior parts, and non-turning operating rod, with free-floating compression closure valve. Box face and hinged cover shall be polished nickel

bronze complete with square shoulder lock of same size as operating valve. Provide drain for floor hydrants.

E. Water Hammer Arrestors: PDI WH 201, stainless steel construction, bellows type sized in accordance PDI-WH-201, pre-charged suitable for operation in temperature range from 34 to 250 degree F and maximum 150 psi work pressure.

2.04 INSTALLATION ACCESSORIES

A. Provide anchoring bolts not smaller than 1/4-inch, of 300-series stainless steel, and with stainless steel or chromium-plated nuts and washers.

B. Connectors for connecting earthenware fixtures to flanges of soil pipe shall be either an elastomeric compound or a neoprene gasket and sealant.

PART 3 - EXECUTION

3.01 EXAMINATION AND PREPARATION

A. Examine products for defects before installation. Remove and replace products found to be detective with new products at no additional cost to the District.

B. Verify locations and adequacy of plumbing and electrical services, rough in, and stub-outs.

C. Provide sleeves, backing and blocking, reinforcement, and embedded anchors in the structure to accommodate fixture and equipment installation. Rough-in dimensions shall conform to the respective product manufacturer's installation instructions and recommendations.

3.02 INSTALLATION

A. Install fixtures, equipment, and appliances as indicated and in accordance with the respective manufacturers' installation instructions and recommendations.

B. Secure fixtures to carriers and equipment with all-thread fasteners, and appliances to supporting surfaces with wedge-type stainless-steel expansion bolts or stainless- steel toggle bolts. Install fixtures having outlet flanges to supporting surfaces. Provide connections between earthenware fixtures and flanges of soil pipe airtight and watertight.

C. Install water supply pipes at right angles to the wall and floor. Connect exposed traps and exposed supply lines to the roughed-in piping system at the wall, unless otherwise indicated.

D. Connect garbage disposal to a separate electrical control switch.

3.03 FIELD QUALITY CONTROL

A. Perform tests of installed products for proper operation in accordance with the respective manufacturers' instructions. Perform tests under the observation of the Engineer.

3.04 ADJUSTING AND CLEANING

A. Adjust installed products in accordance with the respective manufacturers' operating instructions. Leaks and operating noise shall be eliminated.

B. Remove foreign material from the surfaces of the products. Leave manufacturer's labels intact until the work has been accepted, then remove.

END OF SECTION 22 40 00