PART I - GENERAL

1.01 WORK INCLUDED

A. Types of plumbing fixtures required for the project include the following:
   1. Water Closets
   2. Urinals
   3. Lavatories
   4. Mop Sink
   5. Sinks
   6. Electric Water Coolers

1.02 QUALITY ASSURANCE

A. Plumbing Fixture Standards: Comply with applicable portions of the following codes and requirements for all work in this section:
   1. California Plumbing Code – CPC
   2. American National Standards Institute – ANSI
   3. Federal Standards – FS

1.03 SUBMITTALS

A. Product Data: Submit manufacturer's technical product data for plumbing fixtures and trim, including catalog cut of each fixture type and trim item furnished.
   1. No item submitted by the Contractor shall be of a lesser quality in materials or performance than what is in the project specifications.

B. Maintenance Data: Submit maintenance data and replacement material lists for each type of material listed in this section. Include this data and product data in maintenance manual.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Handle plumbing fixtures carefully to prevent breakage, chipping, and coring the fixture finish. Do not install damaged plumbing fixtures; replace and return damaged units to equipment manufacturer.
PART II - PRODUCTS

2.01 GENERAL REQUIREMENTS FOR PLUMBING FIXTURES

A. All fixtures shall be first class in every respect. Accurately line up finished plumbing. Take special care with the roughing-in and finished plumbing where batteries of fixtures occur.

B. Consult Drawings for locations, dimensions and mounting height of plumbing fixtures.
   1. Take location and mounting heights for roughing-in from Drawings.
   2. Follow schedule on Drawings for roughing-in connections. Set roughing-in for all fixtures exactly as per measurements furnished by the manufacturers of the fixtures used.
   3. Roughing-in for lavatories and sinks shall be brought in through the wall under the centerline of the drain from the fixture wherever possible and as close to the fixture as possible.

C. Provide all water supplies to fixtures with shut-off stops with IPS inlets with threaded brass nipples at pipe connection and lock shield-loose key. Provide combination fixtures with I.P.S. stop on each water supply fitting. Provide loose key handle for each stop.
   1. Provide ¾" risers for all fixtures, unless otherwise noted.

D. Furnish shut-off valves on hose bibbs directly connected to mains with no intervening valves.

E. Concealed Stops: American Standard 7583.016, Chicago, or equal.

F. Except where otherwise specified, all finish for exposed metal trim on fixture shall be polished chromium plated. This also applies to wall flanges, nuts, and washers. Handles on all faucets and stops shall be all-metal chromium plated.

G. Make connection between fixtures and flanges on soil pipe absolutely gastight and watertight with neoprene-type gaskets (wall-hung fixtures) or bowl wax (floor outlet fixtures). Rubber gaskets or putty will not be permitted.

H. Provide fixtures not having integral traps with "P" traps of chromium-plated cast brass connected to concealed waste in wall and sanitary fittings. Provide 17-gauge minimum traps and tailpieces.

I. Manufacturers: Zurn or equal.

J. Unions on waste pipes on fixture side of traps may be slip or flange joints with soft rubber or lead gaskets.

2.02 PLUMBING FIXTURE HANGERS AND SUPPORTS

A. Properly install and support plumbing fixtures as required and specified herein.

B. Carriers and supports shall be Zurn, J.R. Smith, or equal as recommended by manufacturer for the particular installation and type of fixture being installed.
1. Residential-type fixture supports are not acceptable.

C. Install wall-mounted water closets with combination support and waste fittings, with feet of support securely anchored to floor.

D. Install the following fixtures on concealed support with feet of support securely anchored to floor. Anchor top of support to wall construction in an approved manner.

   1. Wall mounted urinals
   2. Electric water coolers
      a. Backing supports (plates) in walls for fixtures, faucets, foot valves, basins, and supporting brackets, etc., shall be ¼” thick steel plate.

E. Install wall-hung lavatories in stud walls with concealed arms and floor support, with feet of support securely anchored to floor. In addition, anchor top of support to wall construction in an approved manner.

   1. Backing supports (plates) in walls for fixtures, faucets, foot valves, basins, and supporting brackets, etc., shall be ¼” thick steel plate.

2.03 WATER CLOSET SEATS

A. Provide seats for standard elongated bowls with self sustaining check hinges, stainless steel posts, stainless steel nuts and washers, white color. Zurn Z-5956SS-EL-STS or equal.

2.04 PLUMBING FIXTURES

A. Fixtures shall be American Standard, Zurn, or equal.

B. Plate numbers indicated are American Standard, Zurn, or equal, complete as illustrated and described, unless otherwise noted. Provide stops for all concealed supplies.

C. Water Closet (WC-1): Zurn Z-5610 1.6 GFP Wall Hung Topspud Flushvalve Bowl with Zurn Z-6000AV-WS-1 flush valve containing a TPE chloramine resistant filtering diaphragm and Zurn Z-5956SS-EL premium OFLC seat or equal.

   1. Where used for handicapped water closets, the flush valve shall be mounted on the wide side of the toilet enclosure.

D. Urinal (UR-1): Zurn Z-5730 1.0 GFP with Zurn Z-6003AV-WS1 flush valve containing a TPE chloramine resistant filtering diaphragm or equal.

E. Urinal (UR-2): Zurn Z-5730 1.0 GFP with Zurn Z-6003AV-WS1 flush valve containing a TPE chloramine resistant filtering diaphragm or equal (mount at handicapped height).

F. Lavatory (L-1): Zurn Z-5220 19 x 16 Under Mount vitreous china lavatory with Zurn Z-8100 faucet with ceramic disk and temperature limit stop, Zurn Z-8701B-PC 1-¼ x 1-½ semi cast P-trap with cleanout, Zurn Z-8743 1-¼ grid drain or equal. For handicapped application use Zurn Z-8746 offset grid drain and insulate hot water and drain piping exposed below lavatory as required in Section 15250 – Mechanical Insulation. Provide 0.5 GPM flow restrictor at aerator or in supply line, or equal.
G. Lavatory (L-2): Zurn Z-5344 20 x 18 4” CC vitreous china lavatory for concealed arm support (Zurn Z-1231), Zurn Z-8100 faucet with ceramic disk and temperature limit stop, Zurn Z-8701B-PC 1-⅜ x 1-½ semi cast P-trap with cleanout, Zurn Z-8743 1-⅝ grid drain or equal. For handicapped application use Zurn Z-8746 offset grid drain and insulate hot water and drain piping exposed below lavatory as required in Section 15250 – Mechanical Insulation. Provide 0.5 GPM flow restrictor at aerator or in supply line, or equal.

H. Mop Sink (MS): Terrazzo TDF-24, TCR-28, or Kohler K-6710, or equal with Zurn Z-843M1-CS-WHK-5H or equal with vacuum breaker, wall support, integral check stops, 5’ hose and hose bracket mounted with stainless steel screws. Mount faucet at +36”.

I. Sink (S-1): Eljer or Elkay 21 x 22 with 6 ½” depth, three-hole drilling, self-rimming construction, No. J 35 crumb cup strainer, Chicago No. 1100 modified with GN-2A-E3 gooseneck faucet, Zurn ZTT461 3-⅝” cup strainer, Zurn Z-871-B1-4F gooseneck faucet with ceramic disk cartridges, or equal. Provide 1-⅝” diameter hole for soap dispenser in location shown on Drawings. Where sink is used for handicapped provide 7723.018 (Zurn Z-8739) grid drain with offset and insulate hot water and drain piping exposed below sink as required in mechanical insulation section.

J. Sink (S-2): Eljer or Elkay 18 x 15 with 6 ½” depth, three-hole drilling, self-rimming construction, No. J-35 crumb cup strainer, Chicago No. 1100 modified with GN-2A-E3 gooseneck faucet, Zurn ZTT461 3-⅝” cup strainer, Zurn Z-871-B1-4F gooseneck faucet with ceramic disk cartridges, or equal. Provide 1-⅝” diameter hole for soap dispenser in location shown on Drawings. Where sink is used for handicapped provide 7723.018 grid drain with offset and insulate hot water and drain piping exposed below sink as required in mechanical insulation section.

K. Sink (S-3): Eljer or Elkay 22 x 33 with three hole drilling, self-rimming construction, No. J-35 crumb cup strainer, Chicago No. 1100 modified with GN-2A-E3 gooseneck faucet, Zurn ZTT461 3-½” cup strainer, Zurn Z-871-B1-4F gooseneck faucet with ceramic disk cartridges, or equal. Provide 1-3/8” diameter hole for soap dispenser in location shown on Drawings.

L. Electric water cooler (EWC-1): Haws Model 1108 with stainless steel finish and vandal-resistant stainless steel bottom plates, or equal, no known equal. Package shall include Haws Model HCR8 remote Chiller, or equal, no known equal. Chiller shall provide 8.0 gallons per hour of 50°F water, with inlet water temperature of 80°F and ambient temperature of 90°F. Compressor shall be 1/5 HP air cooled, 115-volt. Provide terminal enclosure for power supply. Mount bubblers at heights indicated on Drawings. Locate remote as noted on Drawings.

M. Electric Water Cooler (EWC-2): Haws Model HWCD8-2 with stainless steel cabinet and vandal-resistant stainless steel bottom plates, or equal, no known equal. The unit shall provide 8.0 gallons per hour of 50°F water, with inlet water temperature of 80°F and ambient temperature of 90°F. Compressor shall be 1/5 Hp, air-cooled, 115- volt. Provide terminal enclosure for power supply, and mount unit with bubblers at heights indicated on Drawings.

N. Delta or Chicago Single Level Operated: 500 - 501, or equal. For hand wash sinks in restrooms, public and private (patient). Faucets shall be domestic made, with washerless spring and cup seal. Zurn Z-81000 Single Level faucet with ceramic disk and temperature limit stop or equal. For hand wash sinks in restrooms, public and private (patient).
O. Electronic infrared sensor faucets shall be Chicago 680, 652-E or Sloan ESF-20, ESF-30, ESF-770, ESF-700, or Zurn Z-6913, Z-6920, Z-6903-76, Z-6903-75, or equal. Faucets shall have integral battery backup and offer extra long ranging capabilities (-XT) or equal.

P. Electronic infrared sensor flush valve shall be Sloan Optima Systems 110ES-S, or Zurn ZER-6000AV-WS1-CPM (closet) or Zurn ZER-6003AV-WS1-CPM (urinal), or equal. Flush valve shall operate on battery power and contain a TPE chloramine resistant filtering diaphragm.

2.05 EMERGENCY PLUMBING FIXTURES

A. EMERGENCY EYE/FACE WASH AND SHOWERS

The approved units must be:

1. Supplied by domestic water.

2. Readily visible and accessible to the laboratory or work site. The unit should be located as close to the hazard as possible and cannot be blocked by building structures, cabinets, supplies or equipment.

3. Provided with an activation device, such as stay open ball valve, that allows the user full movement of both hands after the valve is turned on.

4. Identified with a highly visible sign.

5. Drain will be plumbed to sanitary sewer.

6. Located so as not to pose an electrical shock hazard. No electrical outlets within 6 feet unless GFI protected.

7. See Specification Section 11610 for additional information.

B. EMERGENCY EYE/FACE WASH

Approved emergency eye or eye/face wash units are Haws 7611 or Guardian G1805 (laboratory unit – install at sink), Haws 7000BT or Guardian G1750PT (Barrier Free), Haws 7656WC or Guardian GBF 1735DP (recessed), or equal. In addition to the requirements above, the approved units must be:

1. Regulated to provide a spray force of three to six gallons per minute at 30 psi.

2. Mounted such that the water nozzles are 33 inches to 45 inches from the floor level; height should comply with Americans with Disabilities Act of 1990 (ADA) requirements.

3. Mounted so that the spray nozzles, when activated, are no more than 18 inches from the counter front when located above work counters or benches.

4. Drain will be plumbed to sanitary sewer.
C. EMERGENCY EYE WASH AND SHOWER

The unit must be installed and located so both the shower and eyewash can be used at the same time by one person. Approved eyewash/emergency shower units are Haws 8346 or Guardian G1909 HFC (GBF1909 Barrier Free), Haws 8355WC (recessed), Guardian GBF2150 (recessed), or equal. Eyewash component must meet the requirements for Emergency Eye Wash above. In addition to the requirements above, the approved units must be:

1. Adequately supplied with potable water to meet the requirements of each component. The shower must be able to deliver 20 gallons per minute. The diameter of the water pattern of the shower measured 60 inches above the surface on which the user stands must be a minimum of 20 inches. The center of the spray pattern shall be located at least 16 inches from any obstruction.

2. Supplied by a minimum pipe size of 1-1/4 inch.

3. Installed so that the shower head is not less than 82 inches or more than 96 inches from the surface on which the user stands.

4. Shower component activated yearly to verify proper operation.

PART III - EXECUTION

3.01 INSPECTION AND PREPARATION

A. Examine roughing-in work of domestic water and waste piping systems to verify actual locations of piping connections prior to installing fixtures. Also examine floors, substrates, and conditions under which fixture work is to be accomplished. Correct any incorrect locations of piping and other unsatisfactory conditions for installation of plumbing fixtures. Do not proceed with work until unsatisfactory conditions have been corrected.

3.02 INSTALLATION

A. Install plumbing fixtures of types indicated where shown and at mounting height indicated on Drawings in accordance with fixture manufacturer's written instructions, roughing-in Drawings, and with recognized industry practices. Ensure that plumbing fixtures comply with requirements and serve intended purposes. Comply with applicable requirements of the Uniform Plumbing Code pertaining to installation of plumbing fixtures.

B. In all cases where plumbing fixtures are mounted on or against building walls of concrete or other materials having relatively rough or non-planar surfaces, it shall be the responsibility of this Contractor to provide any necessary grout or backing materials required to facilitate fixture mounting and eliminate void spaces between fixtures and wall to ensure adequate bearing contact.

1. On completion of installation, provide silicone sealer at all points of fixture contact with walls or floors.
C. Any fixture broken, cracked, or otherwise damaged during installation must be replaced by Contractor at his own expense.

D. On all handicap fixtures that require user protection from the hot water supply and the P-trap, said items shall be covered with Skal + Gard protective devices, Truebro–Lav Guard, or equal. All materials used shall be fire retardant. Do not use adhesive wrapping on P-trap or angle stops/water supply risers.

3.03 TRAPPING AND VENTING OF FIXTURES

A. Trap and vent all plumbing fixtures in accordance with Uniform Plumbing Code adopted by the Western Plumbing Officials Association and local plumbing codes, whether or not shown on Drawings. Strictly adhere to any local codes. Only exceptions to above will be those fixtures which are specially noted herein or on Drawings to be provided with special wastes.

B. No vent shall intersect another vent at a point less than 6” above extreme overflow level of highest fixture served.

C. Take vents off top half of horizontal runs and grade so as to free vents quickly of any water or condensation.

3.04 ADJUSTMENT OF PLUMBING PIPING SYSTEM

A. Test and adjust all flush valves so that each fixture receives the proper amount of water. Regulate all faucets, bibbs, drinking fountains, etc. to the approval of the University's Representative so that the entire system is left in first-class condition.

B. Clean fixtures, equipment, and materials installed under this contract. Remove cement, plaster, paint and/or rust, etc. Dirt, rubbish, paint spots, or grease on walls or fixtures for which this Contractor is responsible must be removed by him.

3.05 CLEAN AND PROTECT

A. Clean plumbing fixtures of dirt and debris upon completion of installation.

B. Protect installed fixtures from damage during the remainder of the construction period.

3.06 FIELD QUALITY CONTROL

A. Upon completion of installation of plumbing fixtures and after units are water pressurized, test fixtures to demonstrate capability and compliance with requirements. When possible, correct malfunctioning units at site, then retest to demonstrate compliance; otherwise, remove and replace with new units and proceed with retesting.

B. Inspect each installed unit for damage to finish. If feasible, restore and match finish to original at site; otherwise, remove fixture and replace with new unit. Feasibility and match to be judged by University's Representative. Remove cracked or dented units and replace with new units.

3.07 EXTRA STOCK

A. Furnish special wrenches and other devices necessary for servicing plumbing fixtures and trim to University with receipt. Furnish one device for every 10 units.
3.08 OPERATION TEST

A. Test each piece of equipment to show that it will operate in accordance with indicated requirements.

3.09 CLEANING UP

A. Upon completion of Work remove materials, equipment, apparatus, tools, and the like, and leave premises clean, neat, and orderly.

END OF SECTION 15440