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**SECTION 22 40 40**  
**PLUMBING FIXTURES****PART 1 GENERAL****1.1 SECTION INCLUDES**

- A. Water Closet, Flush Valve, Wall Mounted.
- B. Water Closet, Flush Valve, Floor Mounted.
- C. Urinals.
- D. Lavatories, Wall Mounted.
- E. Lavatories, Counter Mounted.
- F. Sinks.
- G. Electric Water Coolers, Wall Mounted, Twin.
- H. Shower, Wall Mounted Assembly.
- I. Emergency Eye and Face Wash Fountains.

**1.2 RELATED REQUIREMENTS**

- A. Section 22 00 00 - Plumbing Common Work Results; for administrative requirements
- B. Section 22 00 00 - Plumbing Common Work Results; for product requirements
- C. Section 22 00 00 - Plumbing Common Work Results; for closeout requirements
- D. Section 22 00 00 - Plumbing Common Work Results
- E. Section 07 90 05 - Joint Sealers: Seal fixtures to walls and floors.
- F. Section 22 05 18 - Plumbing Escutcheons
- G. Section 22 05 19 - Plumbing Meters and Gages
- H. Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
- I. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
- J. Section 26 05 83 - Wiring Connections: Electrical characteristics and wiring connections.

**1.3 REFERENCE STANDARDS**

- A. 36 CFR 1191 - Americans with Disabilities Act (ADA) Accessibility Guidelines for Buildings and Facilities; Architectural Barriers Act (ABA) Accessibility Guidelines; current edition.
- B. ADA Standards - Americans with Disabilities Act (ADA) Standards for Accessible Design; 2010.
- C. ANSI Z358.1 - American National Standard for Emergency Eyewash and Shower Equipment; 2009.
- D. ASHRAE Std 18 - Methods of Testing for Rating Drinking-Water Coolers with Self-Contained Mechanical Refrigeration; 2008.
- E. ASME A112.6.1M - Supports for Off-the-Floor Plumbing Fixtures for Public Use; The American Society of Mechanical Engineers; 1997 (Reaffirmed 2002).
- F. ASME A112.18.1 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2012.
- G. ASME A112.18.6 - Plumbing Supply Fittings; The American Society of Mechanical Engineers; 2012.
- H. ASME A112.19.2 - Ceramic Plumbing Fixtures; The American Society of Mechanical Engineers; 2013.
- I. NSF 61 - Drinking Water System Components - Health Effects; 2012.
- J. NSF 372 - Drinking Water System Components - Lead Content; 2011.

**1.4 SUBMITTALS**

- A. See Section 22 00 00 - Plumbing Common Work Results, for submittal procedures.

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- B. Listed manufacturers and series are for reference only and do not promote any single product. Series are provided for reference, and should not be used as an ordering model number. Accessories and options may be custom components purchased separately.
- C. Product Data: Provide manufacturer's most current catalog data sheet for equipment indicating rough-in size, finish, and accessories. Manufacturer's data sheets on each item of equipment and device shall be clearly marked up to identify the items, accessories and options to be used on the project. Provide catalog illustrations of fixtures, sizes, utility sizes, trim, and finishes.
1. Water Closet, Flush Valve, Floor Mounted (22 40 00 - 001 - A)
  2. Water Closet, Flush Valve, Wall Mounted (22 40 00 - 001 - A)
  3. Urinals, Wash Down Type, Wall Hung (22 40 00 - 001 - A)
  4. Lavatories, Wall Mounted (22 40 00 - 001 - A)
  5. Lavatories, Counter Mounted (22 40 00 - 002 - A)
    - a. Coordinate placement of bowl and strainer with General Contractor. General Contractor shall provide bowl, grid, and strainer.
    - b. Plumbing Contractor shall make all final connections.
  6. Sinks (22 40 00 - 002 - A)
    - a. Coordinate placement of bowl, faucet, and strainer with General Contractor. General Contractor shall provide bowl, faucet, grid, and strainer.
    - b. Plumbing Contractor shall make all final connections.
  7. Electric Water Coolers, Wall Mounted, Twin (22 40 00 - 003 - A)
  8. Wash Fountains (22 40 00 - 003 - A)
  9. Shower, Wall Mounted Assembly (22 40 00 - 004 - A)
  10. Emergency Eye and face Wash Fountains (22 40 00 - 006 - A)
  11. Coordinate final size of sinks and lavatory with counter and cabinets.
- D. Manufacturer's Instructions: Indicate installation methods and procedures.
- E. Maintenance Data: Include fixture trim exploded view and replacement parts lists.
- F. Warranty: Submit manufacturer warranty and ensure forms have been completed in Owner's name and registered with manufacturer.
1. Submit under Operation and Maintenance Data books (20 00 00 - 006 - A)
  2. Water Closet, Flush Valve, Floor Mounted.
  3. Water Closet, Flush Valve, Wall Mounted.
  4. Urinals, Wash Down Type, Wall Hung.
  5. Lavatories, Wall Mounted.
  6. Lavatories, Counter Mounted.
  7. Sinks.
  8. Electric Water Coolers, Wall Mounted, Twin.
  9. Shower, Wall Mounted Assembly.
  10. Eye and face Wash Fountains.
- G. Project Record Documents: Record actual installed locations of components and tag numbering.
1. Refer to Section 22 00 00 - Plumbing Common Work Results
  2. Record Documents (22 00 00 - 005 - A)
- H. Operation and Maintenance Data: Include installation instructions and spare parts lists.
1. Refer to Section 22 00 00 - Plumbing Common Work Results
  2. Operation and Maintenance Data Books (22 00 00 - 006 - A)
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3. Operation and Maintenance DVD (22 00 00 - 007 - A)
- I. Maintenance Materials: Furnish the following for Owner's use in maintenance of project.
  1. Flush Valves: One for each type and size.

## **1.5 WARRANTY**

- A. See Section 22 00 00 - Common Work Results, for additional warranty requirements.
- B. Provide 3 year warranty, including parts, materials and labor for defective parts, for the following:
  1. Include in Closeout Submittals Book.
  2. Water Closet, Flush Valve, Floor Mounted.
  3. Water Closet, Flush Valve, Wall Mounted.
  4. Urinals, Wash Down Type, Wall Hung.
  5. Lavatories, Wall Mounted.
  6. Lavatories, Counter Mounted.
  7. Sinks.
  8. Electric Water Coolers, Wall Mounted, Twin.
  9. Wash Fountains.
  10. Shower, Wall Mounted Assembly.
  11. Eye and face Wash Fountains.

## **1.6 SPARE PARTS**

- A. Provide 1 extra cartridge filter per waterless urinal.

## **PART 2 PRODUCTS**

### **2.1 GENERAL**

- A. Potable Water Systems: Provide plumbing fittings and faucets that comply with NSF 61 and NSF 372 for maximum lead content; label pipe and fittings.

### **2.2 WATER CLOSETS, FLUSH VALVE, WALL MOUNTED**

- A. Water Closet (WC-1): Wall mounted, siphon jet flush action, bolt caps.
  1. Bowl: Vitreous china, ASME A112.19.2; Verify fixture mounting height with local code authority, elongated rim.
    - a. Sloan Valve Company; Series ST-2459.
  2. Flush Valves: ASME A112.18.1, diaphragm type, complete with vacuum breaker stops and accessories.
    - a. Sensor-Operated Type: Solenoid operator, low voltage hard-wired, dual flush, infrared sensor and override push button. Low flush for 1.1 GPF, high flush for 1.6 GPF.
      - 1) Sloan Valve Company; Series ECOS 111-1.6/1.1 HW.
      - 2) 120 Volt transformer, Sloan Valve Company EL-154.
  3. Seat: Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts.
  4. Carrier: ASME A112.6.1M; adjustable cast iron frame, integral drain hub and vent, adjustable spud, lugs for floor and wall attachment, threaded fixture studs with nuts and washers.

### **2.3 WATER CLOSET, FLUSH VALVE, FLOOR MOUNTED**

- A. Water Closet (WC-2): Floor mounted, siphon jet flush action, bolt caps.
  1. Bowl: Vitreous china, ASME A112.19.2; 15" high with elongated rim.

- a. TOTO Company; Series CT708U.
- 2. Flush Valves: ASME A112.18.1, diaphragm type, complete with vacuum breaker stops and accessories.
  - a. Sensor-Operated Type: Solenoid operator, low voltage hard-wired, Self powered hydro electric flush valve, infrared sensor and override push button. For 1.28 GPF.
    - 1) TOTO Company; Series TET1LA32CP.
    - 2) 120 Volt transformer, Sloan Valve Company EL-154.
- 3. Seat: Solid white plastic, open front, extended back, self-sustaining hinge, brass bolts.

## **2.4 URINALS, WASH DOWN TYPE, WALL MOUNTED**

- A. Urinals (UR-1): Wall mounted, wash down type, ADA compliant.
  - 1. Fixture: Vitreous china, ASME A112.19.2; with side shields and concealed carrier. Verify fixture mounting height with local code authority.
    - a. Flush Volume: 0.125 gallon, maximum.
    - b. Flush Valve: Exposed (top spud).
    - c. Trap: Integral.
    - d. Removable stainless steel strainer.
    - e. Sloan Valve Company; Series SU-1009.
  - 2. Flush Valves: ASME A112.18.1, diaphragm type, complete with vacuum breaker stops and accessories.
    - a. Sensor-Operated Type: Solenoid operator, low voltage hard-wired, infrared sensor and override push button. Wall mounted sensor and wall plate.
      - 1) Sloan Valve Company Series 186-0.125 ES-S.
      - 2) 120 Volt transformer, Sloan Valve Company EL-154.
  - 3. Carrier: ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs.

## **2.5 LAVATORIES, WALL MOUNTED**

- A. Lavatory (LAV-2): Wall mounted, ADA compliant.
  - 1. Basin: Vitreous china, ASME A112.19.2; 20 by 18 inch minimum with 4 inch high back, rectangular basin with splash lip, front overflow, and backsplash. Verify fixture mounting height with local code authority.
    - a. Coordinate hole locations with faucet.
    - b. Kohler Company; Series K-2005.
  - 2. Sensor Operated Faucet: Cast brass, chrome plated, deck mounted with sensor located on neck of spout.
    - a. Power Supply: 24 VAC.
      - 1) For 24V applications, provide transformer.
    - b. Water Supply: 3/8 inch compression connections.
    - c. Aerator: Vandal resistant, 0.5 GPM, laminar flow device.
    - d. Finish: Polished chrome.
    - e. Furnish with grid and drain.
    - f. Sloan Valve Company, ETF-610.
  - 3. Supply Fittings:

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- a. Supply Piping: Chrome-plated-brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated-brass or stainless-steel wall flange.
  - b. Supply Stops: Loose key, chrome-plated-brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
  - c. Risers: 3/8" ASME A112.18.6, braided- or corrugated-stainless-steel, flexible hose riser.
  - d. McGuire Manufacturing, HST082LK.
4. Waste Fittings:
- a. Drain: Grid type with NPS 1-1/4 offset and straight tailpiece.
  - b. Trap: NPS 1-1/2 by NPS 1-1/4. Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch- thick brass tube to wall; and chrome-plated, brass or steel wall flange.
  - c. McGuire Manufacturing, MCT150075ZN.
5. Supply and Waste Trap Cover:
- a. Protective Shielding Pipe Covers: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.
  - b. UV Protection: Not to fade or discolor. Durability, virtually molded vinyl indestructible.
  - c. Color: White, paintable; apply Latex paint.
  - d. TRUEBRO, 102 EZ.
6. Carrier:
- a. ASME A112.6.1M; cast iron and steel frame with tubular legs, lugs for floor and wall attachment, threaded studs for fixture hanger, bearing plate and studs.
  - b. JR Smith.

## **2.6 LAVATORIES, OVAL BOWL**

- A. Lavatory (LAV-1): Oval bowl, counter mounted, ADA compliant.
- 1. Basin: Provided by General Contractor.
    - a. Plumbing Contractor shall make all final connections.
    - b. Coordinate hole locations for faucet
  - 2. Sensor Operated Faucet: Cast brass, chrome plated, deck mounted with sensor located on neck of spout.
    - a. Power Supply: 24 VAC.
      - 1) For 24V applications, provide transformer.
    - b. Water Supply: 3/8 inch compression connections.
    - c. Aerator: Vandal resistant, 0.5 GPM, laminar flow device.
    - d. Finish: Polished chrome.
    - e. Sloan Valve Company, ETF-610.
  - 3. Supply Fittings:
    - a. Supply Piping: Chrome-plated-brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated-brass or stainless-steel wall flange.
    - b. Supply Stops: Loose key, chrome-plated-brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
    - c. Risers: 3/8" ASME A112.18.6, braided- or corrugated-stainless-steel, flexible hose riser.
    - d. McGuire Manufacturing, HST082LK.
  - 4. Waste Fittings:

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- a. Drain: Grid type with NPS 1-1/4 offset and straight tailpiece.
  - b. Drain: Grid and tailpiece provided by General Contractor.
    - 1) Plumbing Contractor shall make all final connection.
  - c. Trap: NPS 1-1/2 by NPS 1-1/4. Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch-thick brass tube to wall; and chrome-plated, brass or steel wall flange.
  - d. McGuire Manufacturing, MCT150075ZN.
5. Supply and Waste Trap Cover:
- a. Protective Shielding Pipe Covers: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.
  - b. UV Protection: Not to fade or discolor. Durability, Virtually molded vinyl indestructible.
  - c. Color: White, paintable; apply Latex paint.
  - d. TRUEBRO, 102 EZ.

## 2.7 **SINKS**

- A. Sink (SK-1):
- 1. Bowl: Provided by General Contractor.
    - a. Plumbing Contractor shall make all final connections.
  - 2. Waste Fittings:
    - a. Basis-of-Design Product: McGuire Manufacturing, MCT150075ZN.
    - b. Trap: NPS 1-1/2. Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch thick brass tube to wall; and chrome-plated, brass or steel wall flange.
  - 3. Supply and Waste Trap:
    - a. Protective Shielding Pipe Covers: Manufactured plastic wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.
    - b. UV Protection: Not to fade or discolor. Durability, virtually molded vinyl indestructible.
    - c. Color: White, paintable; apply Latex paint.
    - d. TRUEBRO, 102 EZ.
  - 4. Faucet:
    - a. Faucet provided by General Contractor.
      - 1) Plumbing Contractor shall coordinate faucet connection sizes with General Contractor.
  - 5. Drain Outlet:
    - a. Drain: Provided by General Contractor.
      - 1) Plumbing Contractor shall coordinate trap connection size with General Contractor.
  - 6. Supply Fittings:
    - a. Basis-of-Design Product. McGuire Manufacturing, HST082LK.
    - b. ASME A112.18.1/CSA B125.1, and NFS 61.
    - c. Supply Piping: Chrome-plated brass pipe or chrome-plated copper tube matching water supply piping size. Include chrome-plated brass or stainless steel wall flanges.
    - d. Supply Stops: Loose Key, chrome-plated brass, one-quarter turn, ball type or compression valve with inlet connection matching supply piping.
    - e. Risers: 3/8", ASME A112.18.6, braided or corrugated stainless steel, flexible hose riser.
- B. Sink (SK-2):
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1. Bowl: Provided by General Contractor.
    - a. Plumbing Contractor shall make all final connections.
  2. Waste Fittings:
    - a. Standard: ASME A112.18.2/CSA B125.2.
    - b. Basis-of-Design Product: McGuire Manufacturing, MCT150075ZN.
    - c. Trap: NPS 1-1/2. Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch thick brass tube to wall; and chrome-plated, brass or steel wall flange.
  3. Supply and Waste Trap:
    - a. Protective Shielding Pipe Covers: Manufactured plastic wraps for covering plumbing fixture hot and cold water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.
    - b. UV Protection: Not to fade or discolor. Durability, virtually molded vinyl indestructible.
    - c. Color: White, paintable; apply Latex paint.
    - d. TRUEBRO, 102 EZ.
  4. Faucet:
    - a. Faucet provided by General Contractor.
      - 1) Plumbing Contractor shall coordinate faucet connection sizes with General Contractor.
  5. Drain Outlet:
    - a. Drain: Provided by General Contractor.
      - 1)
  6. Supply Fittings:
    - a. Basis-of-Design Product. McGuire Manufacturing, HST082LK.
    - b. ASME A112.18.1
    - c. Supply Piping: Chrome-plated brass pipe or chrome-plated copper tube matching water supply piping size. Include chrome-plated brass or stainless steel wall flanges.
    - d. Supply Stops: Loose Key, chrome-plated brass, one-quarter turn, ball type or compression valve with inlet connection matching supply piping.
    - e. Risers: 3/8", ASME A112.18.6, braided or corrugated stainless steel, flexible hose riser.

## **2.8 SHOWER:**

- A. Single Users:
- B. Fully Recessed Shower assembly (SH-1):
  1. Faucet: ASME A112.18.1; fully recessed wall mounted stainless steel shower fixture with pressure balanced mixing valve with tri-lever handle, integral service stops, with flow control and adjustable conical spray shower head with 2.0 gallons per minute maximum flow, soap dish and enclosure extension to ceiling. Chrome-plated CONICAL shower head, integral fully recessed soap dish, and vandal proof screws.
    - a. Two-Way Diverting control valve. Shower wand with stainless steel braided hose, and adjustable slide.
    - b. ADA COMPLIANT.
    - c. Coordinate mounting location and height with Architectural drawings.
    - d. Manufacturer:
      - 1) ACORN ENGINEERING, Series 1741ADA
      - 2) Or Equal.

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C. Surface mounted Shower assembly (SH-2):

1. Faucet: ASME A112.18.1; surface mounted stainless steel shower fixture with pressure balanced mixing valve, integral service stops, with flow control and adjustable spray shower head with 2.0 gallons per minute maximum flow, soap dish and enclosure extension to ceiling. Chrome-plated shower head, Side mount soap dish, and vandal proof screws.
  - a. Two-Way Diverting control valve. Shower wand with stainless steel braided hose, and adjustable slide.
  - b. Coordinate mounting location and height with Architectural drawings.
  - c. Manufacturer:
    - 1) Zurn Manufacturing Company, Series Z7500-DV-HW.
    - 2) Speakman.
    - 3) Or Equal.

D. Fully Recessed Shower assembly (SH-3):

1. Faucet: ASME A112.18.1; Institutional fully recessed wall mounted stainless steel shower fixture with electronic single temperature piezo push button, ASSE 1016 compliant mixing valve, with PENAL shower head with 2.0 gallons per minute maximum flow, integral fully recessed soap dish and enclosure extension to ceiling.
2. Coordinate power and voltage requirements with electrical contractor.
3. Coordinate mounting location and height with Architectural drawings.
4. Manufacturer:
  - a. ACORN ENGINEERING, Series 1741
  - b. Or Equal.

## **2.9 ELECTRIC WATER COOLERS**

A. Electric Water Cooler (EWC-1): Wall mounted, twin unit with bottle filling station. ADA compliant.

1. Water Cooler: Electric, mechanically refrigerated; surface mounted; stainless steel top, vinyl on steel body, elevated anti-squirt bubbler with stream guard, automatic stream regulator, push button, mounting bracket; integral air cooled condenser and stainless steel grille. Furnish and install cane apron.
    - a. Capacity: 8 gallons per hour of 50 degrees F water with inlet at 80 degrees F and room temperature of 90 degrees F, when tested in accordance with ASHRAE Std 18.
    - b. Electrical: 115 V, 60 Hertz compressor, 6 foot cord and plug for connection to electric wiring system including grounding connector.
    - c. Bottle Filling Station: Electronic sensor for touchless activation, automatic 20-second shut-off timer, 1.1-1.5 gpm with laminar flow, LED to illuminate dispensing area.
    - d. Manufacturer:
      - 1) Elkay; Series EZSTL8WSSK.
      - 2) Or Equal.
  2. Supply Fittings:
    - a. Supply Piping: Chrome-plated-brass pipe or chrome-plated copper tube matching water-supply piping size. Include chrome-plated-brass or stainless-steel wall flange.
    - b. Supply Stops: Loose key, chrome-plated-brass, one-quarter-turn, ball-type or compression valve with inlet connection matching supply piping.
    - c. Risers: 3/8" ASME A112.18.6, braided- or corrugated-stainless-steel, flexible hose riser.
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- d. McGuire Manufacturing, HST082LK.
- 3. Waste Fittings:
  - a. Drain: Grid type with NPS 1-1/4 offset and straight tailpiece.
  - b. Trap: NPS 1-1/2 by NPS 1-1/4. Chrome-plated, two-piece, cast-brass trap and swivel elbow with 0.032-inch- thick brass tube to wall; and chrome-plated, brass or steel wall flange.
  - c. McGuire Manufacturing, MCT150075ZN.

## **2.10 EMERGENCY EYE AND FACE WASH**

- A. Emergency Wash (EEW-1): ANSI Z358.1; Fully Recessed wall-mounted, self-cleaning, non-clogging eye and face wash with quick opening, full-flow valves, stainless steel eye and face wash receptor, twin eye wash heads and face spray ring, stainless steel dust cover, copper alloy control valve, hand and foot operation and fittings.
  - 1. All stainless steel construction.
    - a. Bradley, S19-294JBT.
  - 2. Thermostatic Mixing Valve: (TMV-101) Rated for use with emergency fixtures. 7 GPM at 30 PSI. Adjustable temperature setting between 65-90 degrees fahrenheit. Positive shut-off to hot water upon drop in cold water pressure, built in cold water bypass. Dial thermometer.
    - a. Bradley, S19-2000.

## **PART 3 EXECUTION**

### **3.1 INTERFACE WITH WORK OF OTHER SECTIONS**

- A. Review millwork shop drawings. Confirm location and size of fixtures and openings before rough-in and installation.
- B. Confirm rough-in and framing of walls and partitions with supports for fixtures and accessories.
- C. Confirm rough-in locations and power requirements before rough-in installation. Refer to Section 26 05 83 - Wiring Connections.
- D. Confirm rough-in and framing of cabinets and counters with supports for fixtures and accessories.
- E. Coordinate final size of sinks and lavatory with counter and cabinets.

### **3.2 EXAMINATION**

- A. Verify that walls and floor finishes are prepared and ready for installation of fixtures.
  - B. Verify that surfaces are suitable for installation.
  - C. Examine areas to receive equipment for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.
  - D. Electrical:
    - 1. Verify electrical power, voltage, phase and current is available and of the correct characteristics.
    - 2. Verify rough-in for electrical connections to verify actual locations before installing.
    - 3. Verify motor type and VFD or disconnect type for compatibility prior to ordering equipment.
  - E. Controls:
    - 1. Verify signal power, voltage, phase and current is available and of the correct characteristics.
    - 2. Verify rough-in for control connections to verify actual locations before installing.
    - 3. Verify motor type and VFD or disconnect type for compatibility with control sequence and control devices prior to ordering equipment.
  - F. Maintain clearances to combustibles and service clearances.
  - G. Verify that surfaces are suitable for installation.
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- H. Verify that field measurements are as shown on the drawings.
- I. Proceed with installation only after unsatisfactory conditions have been corrected.
- J. Confirm that millwork is constructed with adequate provision for the installation of counter top lavatories and sinks.

### **3.3 INSTALLATION**

- A. Install in accordance with the following:
  - 1. Federal, state and local codes.
  - 2. Manufacturer's instructions.
  - 3. 36 CFR 1191 and ADA standards.
- B. Install each fixture with trap easily removable for servicing and cleaning.
- C. Provide chrome plated rigid piping with loose key stops, reducers, escutcheons and flexible connector to domestic water connections. Rough-in and connect to equipment and fixtures.
  - 1. For equipment or fixtures provided under this contract.
  - 2. For equipment or fixtures provided by owner.
  - 3. For equipment or fixtures provided by other contractors.
- D. Install components level and plumb.
- E. Install and secure fixtures in place with wall supports and bolts.
- F. Seal fixtures to wall and floor surfaces with sealant as specified in Section 07 90 05 - Joint Sealers, color to match fixture.
- G. Contractor shall be responsible to coordinate the orientation of all plumbing fixtures (i.e. left-hand, right-hand) with ADA requirements and general building conditions.
- H. Connect wiring according to Section 26 05 19 - Low-Voltage Electrical Power Conductors and Cables.
- I. Ground equipment according to Section 26 05 26 - Grounding and Bonding for Electrical Systems.
- J. Install wall flanges or escutcheons at piping wall penetrations. Refer to 20 05 18 - Escutcheons for Piping.
- K. Install thermometers and pressure gages for thermostatic mixing valves. Refer to 20 05 19 - Meters and Gages.
- L. Water Closets:
  - 1. Solidly attach water closets to floor with lag screws. Lead flashing is not intended to hold fixture in place.
  - 2. Install flushometer-valve water-supply fitting on each supply to each fixture.
  - 3. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
  - 4. Install supports, affixed to building substrate, for fixture.
  - 5. Seal joints between water closets and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.
- M. Urinals:
  - 1. Install flushometer-valve water-supply fitting on each supply to each urinal.
  - 2. Attach supply piping to supports or substrate within pipe spaces behind fixtures.
  - 3. Install lever-handle flushometer valves for accessible urinals with handle mounted on open side of compartment.
  - 4. Install supports, affixed to building substrate, for urinals.
  - 5. Seal joints between urinals and walls and floors using sanitary-type, one-part, mildew-resistant silicone sealant.

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**N. Lavatories:**

1. Set floor-mounted basins in leveling bed of cement grout.
2. Install water-supply piping with stop on each supply to each faucet.
  - a. Install stops in locations where they can be easily reached for operation.
3. Seal joints between sinks and counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant.
4. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible sinks.
5. Furnish and install required number of transformers for each fixture. If acceptable by manufacturer of faucet / flush valve, fixtures may be group into transformer. Grouping shall be permitted so long as wire lengths are less than 30 feet and fixtures are within one or two rooms. Grouping between floors or levels is not acceptable.

**O. Sinks:**

1. Install water-supply piping with stop on each supply to each sink faucet.
  - a. Install stops in locations where they can be easily reached for operation.
2. Seal joints between sinks and counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant.
3. Install protective shielding pipe covers and enclosures on exposed supplies and waste piping of accessible sinks.

**P. Electric Water Coolers:**

1. Install off-the-floor carrier supports, affixed to building substrate, for wall-mounted fixtures.
2. Install mounting frames, affixed to building construction, and attach recessed, pressure water coolers to mounting frames.
3. Install water-supply piping with stop on each supply to each electric water cooler.
  - a. Install stops in locations where they can be easily reached for operation.
4. Seal joints between electric water coolers and walls using sanitary-type, one-part, mildew-resistant silicone sealant.

**Q. Shower Faucets:**

1. Install accessible wall-mounted sinks at handicapped/elderly mounting height according to ICC/ANSI A117.1.
2. Install water-supply piping with stop on each supply to each faucet.
3. Install stops in locations where they can be easily reached for operation.

**R. Eye and face Wash Fountains:**

1. Set floor-mounted fixtures in leveling bed of cement grout.
2. Install water-supply piping with stop on each supply to each fixture.
  - a. Install stops in locations where they can be easily reached for operation.
3. Seal joints between wash fountains and counters, floors, and walls using sanitary-type, one-part, mildew-resistant silicone sealant.

**3.4 START-UP**

- A. Provide Start-up per Section 22 00 00 - Plumbing Common Work Results.
- B. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise, or overflow.
- C. Adjust sensors for automatic flush valves, faucets and activators.

- D. Shower control valves provided with high limit stops shall be adjusted to a maximum hot water temperature setpoint of 105 degrees Fahrenheit, unless noted otherwise on drawings.

**3.5 CLEANING**

- A. Clean plumbing fixtures and equipment.

**3.6 PROTECTION**

- A. Protect installed products from damage due to subsequent construction operations.
- B. Do not permit use of fixtures by construction personnel.
- C. Repair or replace damaged products before Date of Substantial Completion.

**END OF SECTION 22 40 40**