



## **SECTION 22 40 00 - PLUMBING FIXTURES**

### **PART 1 - GENERAL**

#### **1.1 SUMMARY**

- A. Section Includes:
  - 1. Water closets.
  - 2. Urinals.
  - 3. Lavatories.
  - 4. Sinks.
  - 5. Service sinks.
  - 6. Electric water coolers.
  - 7. Wash fountains.

#### **1.2 REFERENCES**

- A. General: comply with appropriate standards.
  - 1. International Association of Plumbing and Mechanical Officials: IAPMO.
  - 2. California State AB 1953.

#### **1.3 SUBMITTALS**

- A. Submit data on all materials, fittings, accessories and equipment. Indicate materials, finishes, dimensions, construction details and flow control roles.
- B. Manufacturer's Installation Instructions: Submit installation methods and procedures.
- C. CALGreen Submittal/Tier Level Performance Requirements: Obtain LAWA requirements for the project.
- D. Shop Drawings: Diagram power, signal and control wiring.
- E. Operation and Maintenance Data: For plumbing fixtures to include in emergency, operation, and maintenance manuals.
- F. Operation and Maintenance Data: Submit fixture, trim, exploded view and replacement parts lists.

#### **1.4 WARRANTY**

- A. Furnish five-year minimum warranty.



**PART 2 - PRODUCTS**

**2.1 GENERAL**

The following gallons per flush or flow in gallons per minute are required water use baseline for project:

Water Closets Flushometer valve	1.28 gallons per flush
Urinals Flushometer valve	0.125* gallons per flush
Lavatory Faucet	0.5 gallons per minute at 60 psi
Showers Heads	1.5* gallons per minute
Pantry Sinks	1.5 gallons per minute
Mop Sinks	Per ASME A112.18.1, 4.0 gallons per minute
Water Closet Gravity tank	1.28 gallons per flush
Kitchen Faucets	1.8 gallons per minute at 60 psi
Metering Faucets	0.20 gallons per cycle
Wash Fountains	1.8 gallons per minute at 60 psi
Metering Faucets for Wash Fountains	0.20 gallons per minute at 60 psi
NOTE: * - Already complied with Tier 1 & 2	

**2.2 FLUSH VALVE WATER CLOSETS**

- A. Manufacturers: Vitreous China.
  - 1. **American Standard / American Standard Brands. Aflow Model Number 2257.001** (Basis of Design Product)
  - 2. **Kohler Company.**
  - 3. **Toto USA, Inc.**
  
- B. Manufacturers: Type 304 stainless steel
  - 1. **Zurn Industries, LLC / Rexnord Corporation.**
  - 2. **Willoughby Industries, Inc.**
  - 3. **Or approved equal.**
  
- C. Manufacturers: Flush Valves.
  - 1. **Sloan Valve Company**
  - 2. **Zurn Industries, LLC / Rexnord Corporation.**
  - 3. **American Standard / American Standard Brands.**
  
- D. Bowl: ASME A112.19.2M; wall hung, siphon jet, with elongated rim, exposed top spud, or concealed back-size per flush valve requirements, bolt caps; floor anchored carrier.
  
- E. Bowl: ASME A112.19.2M; floor mounted, siphon jet, or blow out, with elongated rim, exposed top spud, or concealed back-size per flush valve requirements; bolt caps.



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- F. Disabled Access: Where required.
- G. Exposed Flush Valve: ASME A112.18.1; exposed Chrome Plated (C.P.), diaphragm type with oscillating handle, escutcheon, seat bumper, integral screwdriver stop, and vacuum breaker 1.28 maximum gallon per flush per Table listed in sub-section 2.1 above. If Tier 1 is required in the project, maximum gallon per flush shall be 12% less, Tier 2 30% less, than listed in the Table.
- H. Water Closet Flushometers:
  - 1. Sensor Operated - Hard Wired:
    - a. Concealed diaphragm type, chrome plated, sensor operated flushometer valve.
    - b. Low consumption valves shall have dual filtered type diaphragm kit for flush discharge accuracy.
    - c. Valve shall be non-hold-open, solenoid operator, skirted high back pressure vacuum breaker with bottom hex coupling nut, back-check control stop will have free spinning vandal resistant stop cap and sweat solder adapter kit with cast set screw all flange.
    - d. Valve shall include self-adaptive infrared sensor with indicator light, courtesy flush override button, (2) chrome plated wall cover plates (for 2-gang electrical box) with vandal resistant screws.
    - e. Valve body, cover tailpiece and control stop will be in conformance with ASTM Alloy Classification for Semi-Red Brass.
    - f. Valve shall be in compliance with the applicable sections of ASSE 1037, ANSI/ASME 112.19.6, and Military Specification V-29193 Standards. Sloan Valve Company Optima 152-1.28 ES-S.
- I. Seats:
  - 1. Manufacturers:
    - a. **Olsonite / Bemis Manufacturing Company 95CT** (Basis of Design Product)
    - b. **American Standard / American Standard Brands.**
    - c. **Kohler Company.**
  - 2. Seat: Shall be white heavy-duty plastic, open front, extended back, self-sustaining hinge, brass bolts, without cover.
- J. Carriers:
  - 1. Manufacturers:
    - a. **Jay R. Smith Mfg. Co. / Morris Group International 0600** (Basis of Design Product)
    - b. **Zurn Industries, LLC / Rexnord Corporation.**
    - c. **MIFAB, Inc.**
  - 2. Carrier: ASME A112.6.1; adjustable or non-adjustable, cast iron or ductile iron frame, integral drain hub and vent, adjustable spud, lugs for floor and wall attachment,



threaded fixture studs with nuts and washers; single, double, vertical or horizontal type as required.

K. Water-Closet Supports:

1. Description: Combination carrier designed for accessible and standard mounting height of wall-mounting, water-closet-type fixture. Include single or double, vertical or horizontal, hub-and-spigot or hubless waste fitting as required for piping arrangement; faceplates; couplings with gaskets; feet; and fixture bolts and hardware matching fixture. Include additional extension coupling, faceplate, and feet for installation in wide pipe space.
2. Concealed adjustable extra heavy cast iron combination drainage fitting and chair carriers with an adjustable base anchored to slab using all base support holes, rear anchor foot assembly for stud walls, adjustable cast iron outlet nipple and/or coupling, neoprene gasket and steel supporting bolts with chrome plated washers and cap nuts, equal to Smith Series No. 100, No. 200, No. 400, or No. 500 for siphon jet.
  - a. For employee use bariatric supports for a 1,000 pound load rating.
3. Set bowls for physically handicapped with top of seat 17 to 19 inches above floor per ADA requirements and provide carrier, equal to Smith No. 600. For blowout, use Smith No. 620.

## 2.3 WALL HUNG URINALS

A. Manufacturers: Vitreous China

1. **American Standard / American Standard Brands 6590.001** (Basis of Design Product)
2. **Sloan Valve Company.**
3. **Kohler Company.**

B. Manufacturers: Flush Valves.

1. **Sloan Valve Company WEUS-1010.1311-0.13 ES-S** (Basis of Design Product)
2. **American Standard / American Standard Brands.**
3. **Zurn Industries, LLC / Rexnord Corporation.**

C. Urinal: ASME A112.19.2M or ANSI Z124.9, wall hung washout or siphon jet, integral trap, exposed or concealed spud type, size per flush valve requirements, floor anchored carrier.

1. Waterless urinals are unacceptable.

D. Exposed Flush Valve: ASME A112.18.1; exposed chrome plated, diaphragm type with oscillating handle, or push plate, escutcheon, integral screwdriver stop, vacuum breaker; equal to 0.125 gallon per flush.

E. Sensor Operated Flush Valve: ASME A112.18.1; concealed rough brass or exposed chrome plated, diaphragm type with low voltage or battery operated solenoid operator, infrared sensor and over-ride button in chrome plated plate, wheel handle stop and vacuum breaker; equal to 0.13 gallon per flush.



- F. Urinal Flushometers:
  - 1. Sensor-Operated Hard-Wired:
    - a. Concealed diaphragm type, chrome plated, sensor operated flushometer valve.
    - b. Low consumption valves shall have dual filtered type diaphragm kit for flush discharge accuracy.
    - c. Valve shall be non-hold-open, solenoid operator, skirted high back pressure vacuum breaker with bottom hex coupling nut, back-check control stop will have free spinning vandal resistant stop cap and sweat solder adapter kit with cast set screw wall flange.
    - d. Valve shall include Optima EL-1500 self-adaptive infrared sensor with indicator light, (2) chrome plated wall cover plates (for 2-gang electrical box) with vandal resistant screws.
    - e. Valve, body, cover, tailpiece and control stop shall be in conformance with ASTM Alloy Classification for Semi-Red Brass.
    - f. Valve shall be Sloan Valve Company WEUS-1010.1311-0.13 ES-S.
- G. Flush (Metering) Valve: ASME A112.18.1; exposed chrome plated, porous felt type for 1/2 inch supply with oscillating handle, or push button, screwdriver stop and vacuum breaker.
- H. Carriers:
  - 1. Manufacturers:
    - a. **Jay R. Smith Mfg. Co. / Morris Group International. 0636 or 0637** (Basis of Design Product)
    - b. **Zurn Industries, LLC / Rexnord Corporation.**
    - c. **MIFAB, Inc.**
  - 2. Wall Mounted Carrier: ASME A112.6.1; cast iron or ductile iron frame with tubular legs, lugs for floor and wall attachment, threaded fixture studs for fixture hanger, bearing studs, elastomeric gasket or approved setting compound, for fixture to flange connection.
- I. Disabled Access: Approved type where required.

## **2.4 LAVATORIES**

- A. Manufacturers: Vitreous China/Porcelain Enameled Cast Iron.
  - 1. **American Standard / American Standard Brands.**
  - 2. **Kohler Company.**
  - 3. **Crane Plumbing / American Standard Brands.**
- B. Manufacturers: Integral basin type.
  - 1. **Corian / E. I. du Pont de Nemours and Company (DuPont) self-draining with integral bowl or approved equal**



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2. **Corian / E. I. du Pont de Nemours and Company (DuPont) integral Linear Lavatory**
  - a. Or approved equal.

See separate 'Linear Lavatory' document

C. **Manufacturers:**

1. Deck mounted Faucets. Sensor-Operated Hard-wired
  - a. **Sloan Valve Company Solis EAF-275** Chrome Plated (Basis of Design Product)
  - b. **Chicago Faucets / the Geberit Group.**
  - c. **American Standard / American Standard Brands.**
2. Wall mounted Faucets. Sensor-Operated Hard-wired
  - a. **Lovair L-182C. Chrome**
    - 1) Contractor shall provide 10% of the total number of faucets installed (5 or more), minimum one (1), as attic stock to LAWA FTSD.
    - 2) Contractor shall calibrate all faucet sensors with Lovair remote to properly adjust sensors for basin depth and light reflectance.
    - 3) Contractor shall provide one (1) Lovair remote per Terminal to LAWA FTSD.
3. Wall mounted Soap Dispenser. Pump Activated.
  - a. **Lovair L-484C. Chrome**
    - 1) Contractor shall provide 10% of the total number of soap dispenser installed (5 or more), minimum 1, as attic stock to LAWA FTSD.

D. Wall Hung Basins: size as required, with 4 inch high back; drillings on 4 inch or 8 inch centers or single hold punch, rectangular basin with splash lip, front overflow, and soap depression.

E. Counter Top Basins: self-rimming lavatory-size as required with drillings on 4 inch or 8 inch centers, front overflow, soap depression, seal of putty, caulking, or concealed vinyl gasket.

F. Undercounter Lavatory: unglazed rim for under counter mount with rear overflow, size as required with drillings on 4 inch or 8 inch centers or single hole.

G. **Manufacturers:**

1. **American Standard / American Standard Brands.**
2. **BrassCraft Mfg. / Masco Corporation.**
3. **Chicago Faucets / the Geberit Group.**

H. Metered Faucet: ASME A112.18.1; chrome plated metered manual mixing faucet low voltage or battery operated solenoid operator and infrared sensor, water economy aerator spray and cover plate.



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- I. Disabled Access: Approved type where required with insulated stops, supplies, trap and drain outlet, offset grid strainer.
- J. Carriers: where required.
  - 1. Manufacturers:
    - a. **Jay R. Smith Mfg. Co. / Morris Group International.**
    - b. **Zurn Industries, LLC / Rexnord Corporation.**
    - c. **MIFAB, Inc.**
- K. Lavatory insulation kit where required: Tru-Bro, Plumerex, or approved equal.
- L. Waste Outlets:
  - 1. Manufacturers:
    - a. **American Standard / American Standard Brands.**
    - b. **Brasscraft Mfg. / Masco Corporation.**
    - c. **Chicago Faucets / the Geberit Group.**
  - 2. Descriptions:
    - a. All Lavatory Types Unless Otherwise Noted:
      - 1) Description: Lavatory waste outlets with open strainer waste & trap shall have a cast brass waste connection with brass compression ring and brass slip unit connected to concealed piping in wall. Connect to concealed piping using cast brass waste connection with brass compression ring and brass slip unit.
      - 2) C.P. brass open strainer waste outlet with 17-gauge 1-1/4 inch tail piece, unless otherwise noted.
      - 3) 1-1/4 inch by 1-1/2 inch cast brass P-trap without cleanout.
      - 4) 17 gauge copper tubing wall outlet with set-screw type cast brass escutcheon.
      - 5) Waste Outlets for handicap lavatories: Open strainer waste outlet with offset waste.
- M. Fixture Supports:
  - 1. Manufacturers:
    - a. **Jay R. Smith Mfg. Co. / Morris Group International.**
    - b. **American Standard / American Standard Brands.**
    - c. **Chicago Faucets / the Geberit Group.**
  - 2. Descriptions:
    - a. All Lavatory Types Unless Otherwise Noted:
      - 1) Description: For lavatories, provide concealed adjustable iron uprights with concealed arm chair carriers.
      - 2) Locations: All lavatories.



- 3) For stud walls, supports with 3-inch x 1-inch rectangular uprights welded to base.
- 4) For Handicap Accessible Lavatories: Provide concealed adjustable iron arm chair carriers.

## 2.5 SINKS

### A. Manufacturers: Fixtures.

1. Stainless Steel:
  - a. **Elkay Manufacturing Company.**
  - b. **Franke.**
  - c. **Just Manufacturing.**

### B. Manufacturers: Faucets.

1. **Chicago Faucets / the Geberit Group.**
2. **Sloan Valve Company.**
3. **American Standard / American Standard Brands.**

### C. Warewashing Sink:

1. Three compartment, self-rimming, counter-mounting, stainless-steel commercial sink with two integral metal drain boards in counter with five (5) holes, faucet openings eight (8) inches on centers.
2. Sink shall be No. 18 USSG genuine 18-8 solid stainless steel and shall be bonded to and reinforced with heavy gauge formed metal.
3. Underside shall be sound deadened.
4. Provide one piece with bowls welded integrally to tops.
5. Horizontal and vertical corners of bowls shall be rounded to 1-3/4 inch radius.
6. Joints shall be welded and ground smooth.
7. Bottom shall be pitched to drain outlet and drilled for trim as required.
8. Provide wood strips for fastening top to cabinets.
9. Type SK1:
  - a. Size: 33 inch x 21 ¼ inch x 5 ½ inch deep with five (5) holes, four (4) faucet openings one (1) stainless steel air-gap fitting (8) inches on centers.

### D. Supplies, Stops, Fittings:

1. Chrome plated combination rigid supply fitting with grid strainer or crumb strainer, loose key stops, chrome plated trap and drain outlet.
2. Manufacturers:
  - a. **Brasscraft Mfg. / Masco Corporation.**
  - b. **Chicago Faucets / the Geberit Group.**
  - c. **Zurn Industries, LLC / Rexnord Corporation.**





- E. Waste Outlets:
  - 1. Manufacturers:
    - a. **American Standard / American Standard Brands.**
    - b. **Brasscraft Mfg. / Masco Corporation.**
    - c. **Chicago Faucets / the Geberit Group.**
  - 2. Descriptions:
    - a. Type: All Sinks.
      - 1) Provide 316 stainless steel open strainer waste with 1 ½ inch 17 gauge copper tubing tailpiece.
      - 2) 1-1/2 in. x 2 in., cast brass P-trap without cleanout, with 17 gage copper tubing.
      - 3) Connect to concealed waste piping using C.P. cast brass wall outlet nipple with C.P. brass set screw and escutcheon.
      - 4) Waste outlets for handicap stainless steel sinks: Provide open strainer waste.
    - b. Traps for handicap accessible fixtures shall run close to backwall to clear knees (if more than six [6] inches off wall). Provide ½ inch insulation on exposed drainage piping.

## **2.6 ELECTRIC WATER COOLERS**

- A. Manufacturers:
  - 1. **Elkay Manufacturing Company.**
  - 2. **Haws Corporation.**
  - 3. **Halsey Taylor.**
- B. Furnish materials in accordance with LADBS.
- C. Fountain:
  - 1. ARI 1010; stainless steel, single or dual height, type as required; with stainless steel top, stainless steel body, elevated anti-squirt bubbler with stream guard, automatic stream regulator, push button, mounting bracket, or floor anchored carrier refrigerated with integral air cooled condenser and stainless steel grille.
  - 2. Capacity: 8 gph of 50 degrees F water with inlet at 80 degrees F and room temperature of 90 degrees F.
  - 3. Electrical: 115/1/60 compressor, 6 foot cord and plug for connection to electric wiring system including grounding connector.

## **2.7 WALL MOUNTED OPERATIONS LEVEL DRINKING FOUNTAINS**

- A. Drinking Fountains (combination high-low fountains at new construction):
  - 1. Manufacturers:



- a. **Elkay Manufacturing Company.**
- b. **Halsey Taylor.**
- c. **Haws Corporation.**
2. Type wall mount.
3. Description: Accessible, ARI 1010, Type PB, pressure with bubbler, Style W, wall-mounting drinking fountain for adult, child and ADA-mounting height.
  - a. Cabinet: Single, all stainless steel.
  - b. Bubbler: One, with adjustable stream regulator, located on each cabinet deck.
  - c. Control: Push button.
  - d. Supply: NPS 3/8 (DN 10) with ball, gate, or globe valve.
  - e. Filter: One or more water filters complying with NSF 42 and NSF 53 for cyst and lead reduction to below EPA standards; with capacity sized for unit peak flow rate.
  - f. Drain(s): Grid with NPS 1-1/4 (DN 32) minimum horizontal waste and trap complying with ASME A112.18.1.
  - g. Support: Type I, drinking fountain carrier.

## **2.8 FIXTURE SUPPORTS**

- A. Manufacturers:
  1. **Jay R. Smith Mfg. Co. / Morris Group International.**
  2. **MIFAB, Inc.**
  3. **Zurn Industries, LLC / Rexnord Corporation.**
- B. Description: ASME A112.6.1M, water cooler carriers. Include vertical, steel uprights with feet and tie rods and bearing plates with mounting studs matching fixture to be supported.
  1. Type I: Hanger-type carrier with two vertical uprights.
  2. Type II: Bilevel, hanger-type carrier with three vertical uprights.
  3. Supports for Accessible Fixtures: Include rectangular, vertical, steel uprights instead of steel pipe uprights.

## **2.9 MOP SINKS**

- A. Enameled Cast Iron or Terrazzo
- B. Manufacturers:
  1. **Commercial Enameling Company (CECO) 871 (Basis of Design Product)**
  2. **American Standard / American Standard Brands.**
  3. **Kohler Company.**
- C. Floor Mounted Basin: 28"x28"x12" high minimum chrome plated strainer, rim guard, 3" cast iron P-trap with adjustable floor flange.



- D. Faucet:
  - 1. Exposed wall type supply with lever handles, spout wall brace, vacuum breaker, hose end spout, strainers, eccentric adjustable inlets, integral screwdriver stops with covering caps and adjustable threaded wall flanges.
  - 2. Manufacturers:
    - a. **Chicago Faucets / the Geberit Group 305-VB-R** (Basis of Design Product)
    - b. **Speakman.**
    - c. **T & S Brass and Bronze Works, Inc.**
- E. Accessories:
  - 1. 5 feet of 1/2 inch diameter plain end reinforced plastic rubber hose.
  - 2. Hose clamp hanger.
  - 3. Mop hanger.

## **2.10 PROTECTIVE SHIELDING GUARDS**

- A. Protective Shielding Pipe Covers:
  - 1. Manufacturers:
    - a. **Engineered Brass Company.**
    - b. **Truebro / IPS Corporation.**
    - c. **Zurn Industries, LLC / Rexnord Corporation.**
  - 2. Description: Manufactured insulating wraps for covering plumbing fixture hot- and cold-water supplies and trap and drain piping. Comply with Americans with Disabilities Act (ADA) requirements.

## **2.11 GARBAGE DISPOSER**

- A. Garbage disposer to be stainless steel grinder, chamber and blades, fully sound insulated, 1-horsepower, 120-volt, 1 phase, InSinkErator, Evolution Excel Series 3-stage grind, Jam-sensor circuit and sound baffle collar or approved equal.
- B. Provide stainless steel or chrome plated air gap fitting at dishwasher only.

## **PART 3 - EXECUTION**

### **3.1 INSTALLATION**

- A. Install each fixture with trap, easily removable for servicing and cleaning.
- B. Install and secure fixtures in place with wall supports, carriers and bolts.
- C. Seal fixtures to wall and floor surfaces with sealant color to match fixture.



### **3.2 PLUMBING FIXTURE INSTALLATION**

- A. Install off-floor supports, affixed to building substrate, for wall-mounting fixtures.
  - 1. Use carrier supports with waste fitting and seal for back-outlet fixtures.
  - 2. Use carrier supports without waste fitting for fixtures with tubular waste piping.
  - 3. Use chair-type carrier supports with rectangular steel uprights for accessible fixtures.
  - 4. Lag fixture carrier base plates or feet to slab with lead expansion shields and insert bolts in all bolt holes.
  - 5. Where wall hung water closets are supported adjacent to stud walls, provide rear anchor foot assembly bolted to slab.
  
- B. Install water-supply piping with stop on each supply to each fixture to be connected to water distribution piping. Attach supplies to supports or substrate within pipe spaces behind fixtures. Install stops in locations where they can be easily reached for operation.
  - 1. Exception: Use ball or gate valves if supply stops are not specified with fixture. Valves as required.
  
- C. Install trap and tubular waste piping on drain outlet of each fixture to be directly connected to sanitary drainage system.
  
- D. Install flushometer valves for accessible water closets and urinals with handle mounted on wide side of compartment. Install other actuators in locations that are easy for people with disabilities to reach.
  
- E. Install toilet seats on water closets.
  
- F. Install water-supply flow-control fittings with specified flow rates in fixture supplies at stop valves.
  
- G. Install faucet flow-control fittings with specified flow rates and patterns in faucet spouts if faucets are not available with required rates and patterns. Include adapters if required.
  
- H. Install shower flow-control fittings with specified maximum flow rates in shower arms.
  
- I. Install traps on fixture outlets.
  - 1. Exception: Omit trap on fixtures with integral traps.
  - 2. Exception: Omit trap on indirect wastes, unless otherwise indicated.
  
- J. Seal joints between fixtures and walls, floors, and countertops using sanitary-type, one-part, mildew-resistant silicone sealant. Match sealant color to fixture color.

### **3.3 APPLICATIONS**

- A. Use carrier off-floor supports for wall-mounting fixtures, unless otherwise indicated.
  
- B. Use mounting frames for recessed water coolers, unless otherwise indicated.



- C. Set remote water coolers on floor, unless otherwise indicated.
- D. Use chrome-plated brass or copper tube, fittings, and valves in locations exposed to view. Plain copper tube, fittings, and valves may be used in concealed locations.

### **3.4 DRINKING FOUNTAINS AND WATER COOLERS INSTALLATION**

- A. Install off-floor supports affixed to building substrate and attach wall-mounting fixtures, unless otherwise indicated.
- B. Install mounting frames affixed to building construction and attach recessed water coolers to mounting frames, unless otherwise indicated.
  - 1. On block walls, fasten wall hanger to 18 inch by 4 inch built-in iron backing plates,
  - 2. Fasten wall hanger to concealed adjustable iron chair carrier. For block walls, use supports
  - 3. For stud walls, use supports
- C. Install water-supply piping with shutoff valve on supply to each fixture to be connected to water distribution piping. Use ball, or gate valve. Install valves in locations where they can be easily reached for operation.
- D. Install trap and waste piping on drain outlet of each fixture to be connected to sanitary drainage system.
- E. Seal joints between fixtures and walls and floors using sanitary-type, one-part, mildew-resistant, silicone sealant. Match sealant color to fixture color.
- F. Do not install filter until after domestic water piping system has been disinfected and flushed.

END OF SECTION 22 40 00