CHAPTER 4
PLUMBING FIXTURES

A plumbing fixture receives water and discharges its waste into a sanitary drainage system. Plumbing fixtures include water closets, lavatories, sinks, urinals, showers, bathtubs, laundry tubs, and drinking fountains. This chapter covers the installation and repair procedures for these fixtures.

4-1. Water Supply and Piping Requirement. A plumbing fixture must be supplied with a water flow rate that will fill it in a reasonable time. The pipe size required to supply each fixture depends on the psi pressure on the water main, length of piping in the building, number of fixtures, and, for water closets, the types of flushing devices. Table 4-1 shows the pipe diameter for various fixtures. (See Chapter 6 also for pipes and fittings.)

<table>
<thead>
<tr>
<th>Fixture</th>
<th>Pipe Diameter (inches)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavatory</td>
<td>1/2</td>
</tr>
<tr>
<td>Shower</td>
<td>1/2</td>
</tr>
<tr>
<td>Bathtub</td>
<td>1/2</td>
</tr>
<tr>
<td>Kitchen sink</td>
<td>1/2</td>
</tr>
<tr>
<td>Slop sink</td>
<td>1/2</td>
</tr>
<tr>
<td>Scullery sink</td>
<td>3/4</td>
</tr>
<tr>
<td>Laundry tub</td>
<td>1/2</td>
</tr>
<tr>
<td>Drinking fountain</td>
<td>1/2</td>
</tr>
<tr>
<td>Water-closet tank</td>
<td>1/2</td>
</tr>
<tr>
<td>Urinal with diaphragm-type flushometer</td>
<td>1/2</td>
</tr>
</tbody>
</table>

4-2. Water Closets. A water closet is a fixture used to carry organic body wastes to the sewer system. Water closets are made of vitreous china. They can be installed on a floor or suspended from a wall. They are available with various types of flushing action: washdown bowl, washdown bowl with jet, reverse-trap bowl, and siphon-jet bowl (Figure 4-1, page 4-2).

a. Bowls.

(1) Types. Each type has a built-in trap containing a water seal based on the same atmospheric pressure on both sides of the trap.

(a) Common washdown bowl. This bowl is the least expensive and the simplest type of water closet. The trap is at the front of the bowl, and the bowl is flushed by small streams of water running down from the rim.

(b) Washdown bowl with jet. This bowl is similar to the washdown bowl but is flushed differently. The unit has a small hole in the bottom which delivers a direct jet as the unit is flushed. The jet, directed into the upper arm of the trap, starts a siphoning action.
(c) Reverse-trap bowl. This bowl is similar to the washdown bowl, except that the trap is at the rear of the bowl, making the bowl longer. This bowl holds more water than the washdown bowl and is quieter in operation.

(d) Siphon-jet bowl. This bowl is the most efficient, the quietest, and the most expensive water closet. It looks like the reverse-trap bowl but holds more water. It is almost completely filled with water.

(2) Installation. Water-closet bowls are either floor-mounted or wall-hung.

**NOTE:** The method of installing water-closet bowls is the same regardless of the flushing action.

(a) Floor-mounted. To install a floor-mounted water-closet bowl, you will need the following items and materials: floor flange, water-closet bowl, level, wrench, and a wax or rubber gasket. When installing a water closet, use the following procedure and **Figure 4-2**.
Step 1. Place the floor flange over the closet bend until the flange rests on the finished floor, then make a joint for the type of piping being used.

Step 2. Put two bowl bolts with their threaded ends up into the flange slots. If the bowl needs four bolts, place the bowl properly on the flange and mark the spots for the two additional bolts. Set these bolts into the positions marked. For a wood floor, use bolts with wood threads at one end and machine threads at the other end. For tile or concrete floors, set heads of machined bolts in holes and fill with cement to floor level.

Step 3. Turn the bowl upside down on protective waste newspaper or wooden strips to avoid scratching. Set a wax gasket over the horn.

Step 4. Turn the bowl right side up and set it on the flange with the bolts through the holes of the bowl.

Step 5. Place a washer and nut on each bolt, tightening each alternately until the bowl is set.

Step 6. Check that the bowl is in a level position. If it is not level, use thin metal shims to make it level.

Step 7. Place a nut cap on each nut and tighten down. Do not overstress.

*Figure 4-2. Floor-mounted water-closet bowl*
(b) Wall-hung. Install the bowl after the finished wall is up. A wall-hung, water-closet bowl is installed on a carrier mounted between the wall studs. This type of water closet is used mainly in commercial buildings, but may also be found in residential buildings. Use the following procedure and Figure 4-3:

Step 1. Install a carrier using the manufacturer’s instructions.

Step 2. Connect the carrier’s outlet to rough-in waste pipe.

Step 3. Place a sealing gasket in the rear opening of the bowl.

Step 4. Place the bowl against the wall with the carrier’s bolts passing through the bowl’s holes.

Step 5. Place a washer and nut on each bolt.

Step 6. Tighten nuts alternately, keeping the bowl level.

Step 7. Place beauty caps over the bolts.

b. Tanks. Tanks are classified as close-coupled (floor-mounted) or wall-hung. A close-coupled tank is attached to a floor-mounted bowl. A wall-hung tank is attached to the wall above the bowl, using fittings for the bowl connection. The flushing mechanism is the same for both types.

(1) Close-Coupled (Floor-Mounted). To mount a floor-mounted tank, use the following procedure and Figure 4-4:

Step 1. Push the cone-shaped gasket over the tank’s flush outlet. If a cushion gasket is included, place it on the bowl, lining up the holes.

Step 2. Place the tank on the bowl with bolt holes lined up.

Step 3. Slide a rubber washer on each bolt and, from inside the tank, push bolts through the holes.
Step 4. Slide a washer over each bolt under the back lip of the bowl and tighten the nuts hand-tight.

Step 5. Tighten the nuts alternately to seat the cone gasket and tank on the bowl.

(2) Wall-Hung. To mount a wall-hung tank, use the following procedure and Figure 4-5 (page 4-6):

Step 1. Install a 2 - x 4-inch mounting board by notching the wall studs at the height recommended by the manufacturer.

Step 2. Install the elbow and spud connection (flange) to the rear of the bowl.

Step 3. Slide the slip nut, ring, and washer (in that order) onto the other end of the elbow.

Step 4. Attach the tank to the wall’s mounting board with screw bolts. Make sure the elbow is in the tank’s outlet and the tank is level.

Step 5. Connect elbow to tank outlet hand-tight.

Step 6. Check elbow alignment and tighten slip-joint nuts.
c. Flushing Mechanisms. Figure 4-6 shows tank mechanisms and flushometers.

(1) Tank Flushing Mechanisms. A tank’s flushing mechanism is mechanically operated to flush the water closet. The two most common mechanisms are the ball cock and float cup (Figure 4-6). Follow manufacturer’s instructions to install a flushing mechanism in a tank. After installation, connect the water supply service, check the flushing mechanism operation, and adjust it to maintain the proper water level in the tank.
(2) Flushometers. The flushometer valve delivers (under pressure) a preset amount of water directly into a water closet for flushing. The flushing action is quick and shuts off automatically. Always follow the manufacturer’s instructions to install a flushometer. After installation, turn on the water supply and operate the flushometer several times, checking for leaks and proper operation. The most common type of flushometers valves are the diaphragm and piston (Figure 4-6).

Figure 4-6. Flushing mechanisms
d. Tank Water Supply Connection. A close-coupled tank water supply is connected from the rough-in plumbing to a shutoff valve and from the valve to the inlet at the bottom of the tank. Use Figure 4-7 and the following procedure:

**Step 1.** Slide the chrome cover on the pipe projecting out from the wall and push it against the wall.

**Step 2.** Coat the threads with joint compound or teflon tape and screw the shutoff valve onto the pipe. Tighten the valve so that its other opening is straight.

**Step 3.** Bend the flexible tube with a spring bendeer to get a proper fit.

**Step 4.** Slide the inlet coupling nut on with tubing threads up, and attach it to the tank’s inlet and tighten hand-tight.

**Step 5.** Slide the coupling nut threads and compression ring down onto tubing. Screw the coupling nut onto the valve hand-tight.

**Step 6.** Tighten the inlet-coupling nut and valve-coupling nut.

**Step 7.** Open the shutoff valve for the water supply and check for leaks.

**Step 8.** Adjust to get a proper water level of 1 inch below the top of the overflow tube. If an adjustment is made, check the operation.

**Step 9.** Place the tank cover on the tank and install the water-closet spc.

e. Repairs and Maintenance. See Chapter 3 for water-closet stoppages.

(1) **Flushometers.** Use the repair procedures and illustration in Figure 4-8 when the valve is not flushing or will not stop flushing. Use Figure 4-9 (page 4-10) for handle repairs.

(2) **Tank Flushing Mechanisms.** Fixture control devices are used for flushing water closets, holding water in a lavatory bowl, and draining waste. These devices get much usage and wear. Use the illustrations and repair procedures in Figure 4-10 (pages 4-11 and 4-12) for ball cock and float cup repairs.
Diaphragm-Type

Step 1. Turn off water supply and remove outer cover.

Step 2. Remove inner cover. If cover will not remove easily, pry it off with a screwdriver.

Step 3. Remove relief valve.

Step 4. Remove valve seat.

Step 5. Remove clogged or worn diaphragm.

Step 6. Install new diaphragm.

Step 7. Reassemble the valve.

Step 8. Turn on water supply and check valve operation.

Piston-Type

Step 1. Turn off water supply and remove outer cover and gasket.

Step 2. Remove inner cover and gasket.

Step 3. Remove brass screws and retaining plate.

Step 4. Remove clogged or worn rubber cup.

Step 5. Install new rubber cup.

Step 6. Reassemble the valve.

Step 7. Turn on water supply and check valve operation.

Figure 4-8. Flushometer repairs
REPAIR PROCEDURES

Water leak at handle.

Step 1. Turn off water supply and unscrew retaining nut.
Step 2. Pull out handle body, which contains all parts up to the packing nut.
Step 3. Grip the handle body with a wrench and unscrew the packing nut with another wrench.
Step 4. Remove the worn packing washer; install new packing washer.
Step 5. Reassemble all parts.
Step 6. Turn on water supply and check handle for leaks and for proper operation.

Loose and wobbly handle.

Step 1. Turn off water supply and unscrew retaining nut.
Step 2. Pull out handle body, which contains all parts up to the packing nut.
Step 3. Grip the handle body with a wrench and unscrew the packing nut with another wrench.
Step 4. Grip the handle body with a wrench and unscrew the bushing with lock grip pliers.
Step 5. Remove worn bushing spring or plunger and replace worn part(s) with new ones.
Step 6. Reassemble all parts.
Step 7. Turn on water supply and check handle for leaks and for proper operation.

Figure 4-9. Flushometer handle repair
BALL COCK REPAIRS

Water level running into top of overflow pipe.

Step 1. Remove tank top and unscrew the float ball from the float rod.

Step 2. Shake the float ball to find out if water is in the ball. If water is inside the ball, replace the ball. If no water is in the ball, the float ball is functional.

Step 3. Screw the float ball back onto the rod.

Step 4. Place both hands on the middle of the float rod and carefully bend the ball side of the rod down about 1/2 inch.

Step 5. Flush water closet to see that the water level is about one inch below the top of the overflow pipe, then replace tank top.

Running water closet.

Step 1. Remove the tank top and turn off water supply at the shutoff valve.

Step 2. Flush the water closet to empty tank.

Step 3. Unscrew the flush (tank) ball from lift wire.

Step 4. Check bottom of flush ball for damage or wear.

Step 5. If damaged or worn, replace the flush ball with a new one.

Step 6. Clean the flush outlet valve with emery cloth or steel wool.

Step 7. Operate the handle to see that the flush ball sits evenly in the flush outlet valve.

Step 8. Turn on water supply and flush water closet to check repair, then replace tank top.

Faulty ball cock operation.

Step 1. Remove the tank top and turn off the water supply.

Step 2. Flush the water closet to empty the tank.

Figure 4-10. Tank mechanism repairs
BALL COCK REPAIRS (continued)

Step 3. Remove the float rod with the float ball attached.

Step 4. Remove screws or pins at the top of the ball cock assembly.

Step 5. Lift the plunger out of the assembly.

Step 6. Remove both washers and replace them.

Step 7. Reassemble ball cock assembly float rod with the float ball attached.

Step 8. Turn on water supply and check ball cock.

FLOAT CUP REPAIRS

Water level running into top of overflow pipe.

Step 1. Remove tank top. Then squeeze the top and bottom of the adjustment clip and move it down on the pull rod to lower the float cup.

Step 2. Flush the tank, then check incoming water level. Level should be about one inch below top of overflow pipe.

Step 3. Replace tank top if level is correct. If level is not correct, repeat steps 1 and 2 until it is correct.

Step 4. Replace tank top.

Running water closet.

Step 1. Remove tank top. Turn off water supply at shutoff valve and flush water closet to empty tank.

Step 2. Lift up the flapper ball and check bottom for damage or wear. If the flapper ball is damaged or worn, replace it.

Step 3. Clean outlet valve with emery cloth or steel wool.

Step 4. Operate handle to check that flapper ball sits evenly in the outlet valve.

Step 5. Turn on water supply and flush the water closet to check repair. Replace tank top.

Figure 4-10. Tank mechanism repairs (continued)
4-3. Lavatories. A lavatory is designed for washing one’s hands and face. Lavatories come in a variety of shapes, sizes, and colors. They are made of vitreous China, enameled cast iron, stainless steel, and plastic. Hot and cold water is supplied through the supply system and the waste drains into the sanitary sewer.

a. Types. Figure 4-11 shows examples of wall-hung, vanity, pedestal, and trough lavatories.

(1) Wall-Hung. This lavatory hangs on a bracket attached to the wall. It may or may not have legs for added support.

(2) Vanity. Vanities are installed on a cabinet or counter top with a stainless steel rim.

(3) Pedestal. This lavatory’s weight rests on the floor and does not require support.

(4) Trough. This lavatory is mostly used in commercial plants and certain military facilities.
b. **Installation.**

(1) **Wall-Hung.** Use the following procedure and Figure 4-12 to install a wall-hung lavatory:

*Step 1.* Install mounting board between studs at the proper height, using the same method as for a wall-hung flush tank [page 4-5].

*Step 2.* Attach hanger bracket(s) on the finished wall using proper length wood screws at the recommended height. The metal bracket(s) must be level.

*Step 3.* Place the lavatory on bracket(s) and push down. Make sure the lavatory is level.

(2) **Faucets.** See Chapter 7, paragraphs 7-4 and 7-5 (pages 7-8 through 7-15) for faucet installation and repairs.
(3) Drain Assembly. The waste from the lavatory maybe released by either a pull-out plug or pop-up plug (Figure 4-13). Installation of the flange is the same for both types. (Follow manufacturer's instructions to install the pop-up plug mechanism to attach the tailpiece.) To install a flange—

Step 1. Apply a ring of plumber's putty around the drain outlet and set the flange firmly into the outlet.

Step 2. Connect the flange to the bowl with the washer and locknut.

Step 3. Coat the flange threads with pipe-joint compound and screw on the tailpiece.

Step 4. Connect the P-trap between the rough-in waste outlet and the tailpiece (Figure 4-14, page 4-16). All connections should be made with washers and slipnuts to form leakproof joints.

Figure 4-13. Drain-plug assembly
4-4. Sinks. Sinks are available for different uses and come in several sizes and shapes, as shown in Figure 4-17 (page 4-18). They are made of enameled cast iron, enameled precoated steel, galvanized steel, and stainless steel. (See Chapter 7, paragraph 7-4, pages 7-8 and 7-9, for faucet installation.)

a. Scullery Sink. Scullery sinks are large, deep sinks used in mess-hall type facilities. Scullery sinks need only installation of faucets and connection to waste- and water-supply lines.

b. Slop Sink. Slop sinks are used for buckets and mops.

c. Kitchen Sink. Kitchen sinks can be either single- or double-compartment and can be wall-hung or set in a counter top. Kitchen sinks have a strainer to prevent food waste from entering the waste system (Figure 4-18, page 4-18). Connect the water service the same as for a lavatory (see Figure 4-15).
POPP-UP PLUG

Step 1. Loosen the clevis screw with pliers.

Step 2. Push the pop-up plug (stopper) down so that it sits snugly on the flange.

Step 3. Tighten the clevis screw. Check that it fits snugly on the flange.

Step 4. Squeeze the spring clip and pull out the pivot rod from the clevis hole. The stopper then should operate easily. Place the pivot rod through the next higher or lower hole in the clevis.

Step 5. Close the stopper and fill the bowl with water.

Step 6. Check the water level to be sure the stopper holds water in the bowl.

NOTE: If steps 1-6 do not fix the problem, continue on using the following steps:

Step 7. Tighten the pivot-ball retaining nut. If the leak continues, remove the nut with pliers.

Step 8. Squeeze the spring clip, sliding the pivot rod out of the clevis hole.

Step 9. Slide the pivot-ball retaining nut and worn washers off the pivot rod.

Step 10. Slide new washers (plastic or rubber) and the ball nut onto the pivot rod and tighten the pivot ball.

Step 11. Reassemble the pivot rod into the clevis hole.

Step 12. Run water into the lavatory and check the connection for leaks.

NOTE: Check the pop-up stopper’s ability to hold water after repairing the pivot-ball connection.

Figure 4-16. Pop-up plug repairs
Figure 4-17. Sinks

Figure 4-18. Kitchen sink drain assembly
4-5. Urinals. A urinal is a fixture that carries human liquid waste to the sewer. It is made of vitreous china or enameled cast-iron.

a. Types. Urinal types are wall-hung, stall, and trough (Figure 4-19, page 4-20).

(1) Wall-Hung. This urinal can have a built-in water-seal trap or a P-trap with a washdown or siphon-jet flushing action. The hushing device for a wall-hung urinal is a flushometer valve.

(2) Stall. The stall urinal is set into the floor. A beehive strainer covers the waste outlet, which is caulked to a P-trap below floor level. The flushing action is the washdown-type produced by a flushometer valve.

(3) Trough. A trough urinal is wall-hung with a flush tank. The urinal has perforated pipe across the rear, which allows water to flow down the back of the trough when flushed.

b. Installation.

(1) Wall-Hung. (See also manufacturer’s instructions.)

Step 1. Install the mounting board and bracket.

Step 2. Install the urinal on the bracket.

Step 3. Make the waste connection to rough-in piping.

Step 4. Make the water connection to rough-in piping to include the flushometer valve.

Step 5. Turn on main water supply and flush urinal several times, checking for leaks.

(2) Trough. (See manufacturer’s instructions or military construction drawing.)

Step 1. Install the mounting board for the trough and tank.

Step 2. Attach the tank to the wall and install the flushing mechanism.

Step 3. Install the hanger for the trough bowl.

Step 4. Attach the bowl to the wall.

Step 5. Install the waste connection to rough-in piping.

Step 6. Install the piping from the tank to the trough bowl.

Step 7. Install a water line between the tank and the rough-in piping.

Step 8. Turn on the main water supply and flush the urinal several times, checking for leaks.

(3) Flushometers. Refer to paragraph 4-1c(2) (page 4-7) for flushometers.
4-6. Showers. A shower has many advantages over a bathtub: (1) the small amount of space required for installation, (2) the small amount of water used compared with bathtub use, and (3) sanitation. Figure 4-20 shows the types of shower heads. The two types of individual shower installations are: tiled and the steel-stall. (Group showers are usually tile or concrete.)

a. Types.

(1) Tile. The tile shower has tile or marble walls on three sides with a waterproof shower curtain or door, which can be closed while the shower is in use. The tiled floor
slopes to the center (or rear) where a drain is placed. The wall should be waterproofed by setting the tile in waterproof cement. The floor is generally laid upon a lead shower pan, which forms a waterproof base on which to lay the tile, as shown in Figure 4-21 (page 4-22).

(2) Stall. The stall shower is a prefabricated unit with three sides and a base, fitted together. The sides are thin sheets of grooved steel, fitted together with a watertight joint. The base is usually precast concrete. Spray from the shower head causes considerable noise as it hits the thin steel, and the metal sides tend to rust rapidly.

b. Installation. Complete waterproofing is the most important requirement of shower installation. Tile installed with good quality waterproof cement provides a waterproofed wall. For the floor, a waterproof base (shower pan) under the shower is necessary, since water standing on the tile surface can seep through and cause leaks. (See Chapter 7, paragraph 7-4, pages 7-8 and 7-9, for faucet assembly and installation.

(1) Lead Shower Pan. Before installing the lead shower pan, a carpenter must rough in the general outline of the stall and lay a solid base of subflooring or plywood. Without a solid base, the shower pan is soft and flexible. If not supported properly, the pan will sag and leak under the weight of the tile. Inspect the rough-in of the trap underneath the flooring to ensure the outlet is correctly placed.

Many types of shower drains are available. The one in Figure 4-21 (page 4-22) has the proper length nipple for placing the seepage flange at a level with the lead pan threaded into the nipple. The lead pan is made by using a solid sheet of lead 6 to 8 inches larger than the size of the shower floor and bending up the edges at right angles to the desired height. Use Figure 4-21 (page 4-22) and the following procedure to install a lead shower pan:

Step 1. Cut a hole where the drain is located and lower the shower pan into place. The pan should rest firmly on the seepage flange of the shower drain.

Step 2. Coat the inside of the shower pan with asphalt.

Step 3. Paint with pipe-joint compound and putty under the top of the flange.

Step 4. Place the upper flange on top of the lower flange and attach them together to form a watertight joint between the shower waste and the shower pan.
**Step 5.** Thread the strainer down into the flanges to the desired level of the tile.

**Step 6.** Complete the installation by laying cement in the shower pan and tiling the floor.

(2) **Concrete Shower Pan.** Concrete shower pans with prefabricated, steel shower stalls are easy to install. They are often set up after the original construction. In this case, the cement base is laid directly on top of the floor.

**Figure 4-21. Shower pan installation**

**c. Water-Supply Connection.** The water supply for a shower may be hidden in the wall or exposed. Figure 4-22 shows exposed hot- and cold-water lines tied into a single water line ending in a shower head. The cold-water line is brought in on the right side while the hot-water line is brought in on the left. A variety of faucet and valve combinations is available on unexposed installations (Figure 4-23, page 4-24). The compression valve provides a tempered water line of chromium-plated tubing, ending in a gooseneck and shower head. In the single-handle mixing valve, the hot and cold water are mixed in a cast-brass mixing chamber. The handle controls a piston-like valve. By turning the valve handle clockwise, warmer water is supplied to the shower head. A greater variety of shower heads than valves is available (see Figure 4-20, page 4-21).

4-7. Bathtubs.

a. **Types.** A variety of built-in bathtubs is available. They are designed to be recessed for corner installation of square, rectangular, and angled tubs and tubs with one or more ledge seats. Tubs are made of enameled cast iron/steel, or fiberglass.

b. **Installation.** Modern cast-iron tubs are designed to rest on the floor and fit against the wall framing (studs). They need no wall support, except that steel tubs have flanges supported by 1-inch x 4-inch boards, nailed to the studs. Use a waterproofing cement to caulk the joint between the finished wall surface and the tub. The over-rim tub filling, with
or without a shower diverter, is mounted on the wall at one end of the tub. The drain may be the pull-out or pop-up type. A removable service panel in the wall behind the tub provides access to the trap and the water-supply valve.

4-8. Laundry Tubs. Laundry tubs are usually placed in the basement or utility room.

a. Types. The most common type is concrete with a metal rim, although enameled cast-iron/steel and plastic units are also available. They come in single- and double-compartment styles [Figure 4-24] page 4-24).

b. Installation. Use [Figure 4-25] (page 4-25) and the following procedure: (See Chapter 7, paragraph 7-4, pages 7-8 and 7-9, for faucet installation.)

Step 1. Assemble the metal stand by bolting its sections together.

Step 2. Place the stand in a convenient place in front of the rough-in piping and carefully set the tub on the stand.

Step 3. Connect the P-trap to the tub, as shown in [Figure 4-25] (page 4-25).

Step 4. Connect a swing-combination faucet to the hot- and cold-water supply lines. Usually, the faucet is furnished with a hose bibb for attaching a hose.

Figure 4-22. Shower with exposed piping
Figure 4-23. Showers with unexposed piping

Figure 4-24. Laundry tubs
4-9. Drinking Fountains. Drinking fountains, shown in Figure 4-26 (page 4-26), are made of porcelain enameled steel, cast iron, or stainless steel.

   a. Types. The three types of drinking fountains are—

   (1) Pedestal. The pedestal fountain needs no wall support.

   (2) Wall-Hung. The wall-hung fountain is bolted to a mounting board on the wall.

   (3) Electrically Cooled. The electrically cooled fountain has a refrigerating unit in which the water passes over refrigerating coils to be cooled before being supplied to the drinking outlet.

   b. Installation. Sanitation is an extremely important consideration when installing drinking fountains. Water from the drinking outlet should not fall back on the bubbler head. The bubbler head should project at least 3/4 inch above the rim of the fountain and be located so that a person’s mouth cannot touch it. The fountain drain should have a good strainer to keep chewing gum and other objects from entering the drain line.

   Fountains should be installed with the bubbler head at a height designed for the average user. The mounting must be sturdy to support considerable weight in addition to that of the fixture. Install a 1 1/4-inch P-trap below the waste pipe. The electrically cooled fountain requires a nearby electrical outlet. Follow the manufacturer’s instructions when installing a water fountain.