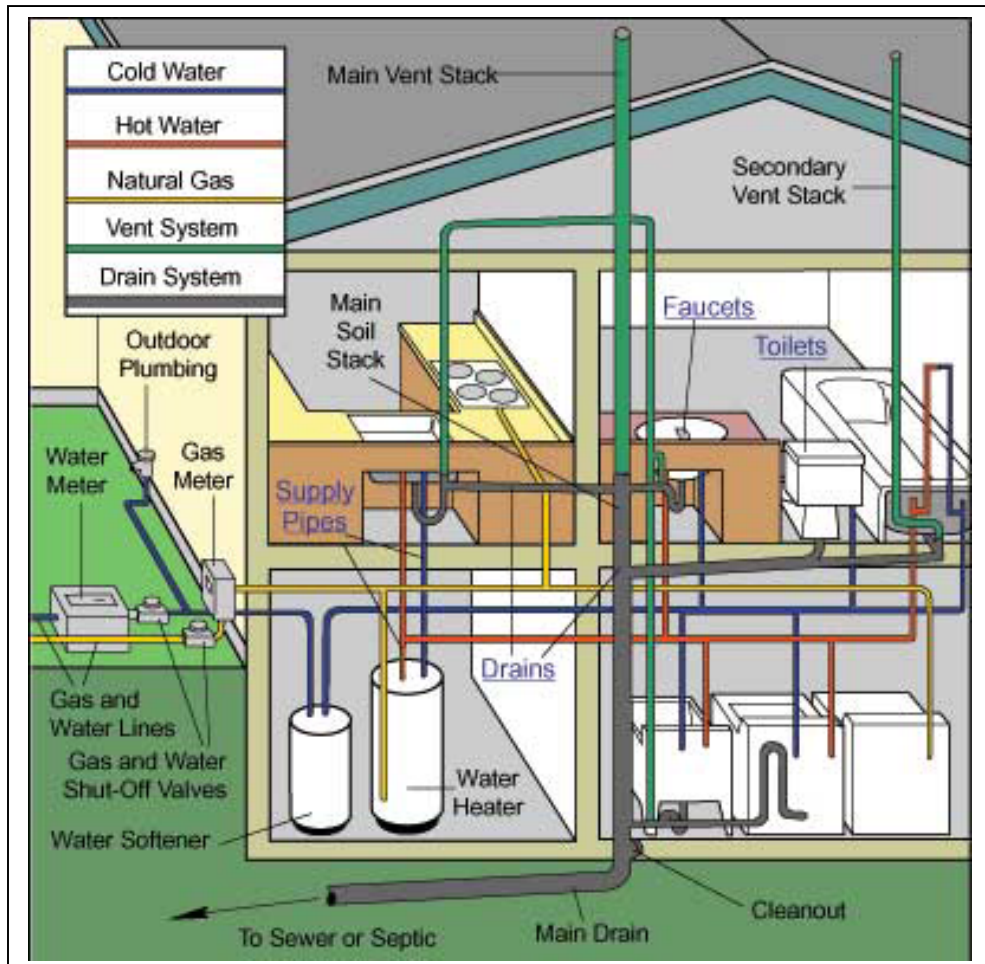




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PLUMBING

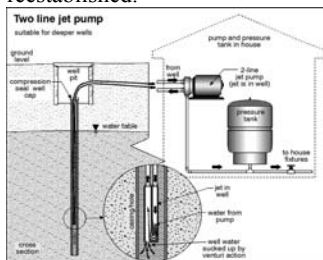
Reference Guide



WATER SUPPLY

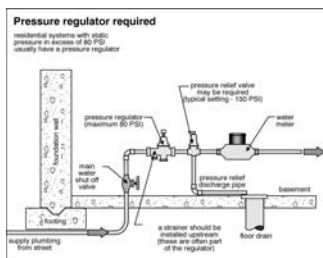
The water supply is either public or private well.

WELL WATER: If you have a well, water is pumped from the well by a motorized pump into a pressure tank and then into the supply system. When demand in the house causes pressure in the tank to drop, the pump turns on the water is drawn out of the well to refill the tank. They pump shuts off automatically when the pressure is reestablished.



A normal well cycles between 40 and 60 pounds per square inch (psi). A main shut-off valve is generally installed near where the supply line enters the home. It is important to know where this is located because you may need to shut off your water supply in the event of an emergency or when work has to be done. Regular water testing is an important step that private well owners can take to ensure that their water supply is both safe to drink and appealing to use.

PUBLIC WATER: Public water pressure is supplied at normally 60 PSI. From the main water supply pipe the pipe branches off to supply the water heater and the other plumbing fixtures such as showers, tubs and sinks.



Horizontal pipes may be installed on a slight decline so that, in case of power failures or major repairs, the entire system can be drained through a valve at its lowest point.

Supply pipes are sometimes designed with air chambers which act as shock absorbers when faucets are rapidly turned off. Without these, the system could develop ruptures from the pressure created by water flow being stopped abruptly. Sometimes, these chambers become filled with water and you will hear banging in the pipes, known as water hammer. If the banging persists, the air chambers can be re-established, by a plumber or a handy homeowner with the aid of a repair manual.

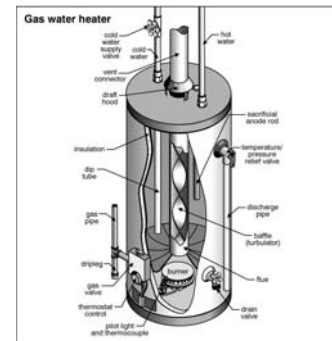
If your plumbing system is operating properly, water pressure should be consistent. For example, water coming out of an upstairs sink should be significantly reduced when the bathtub is running simultaneously. Sometimes, even if water pressure is in the normal range, water flow can be diminished if mineral deposits have built up on the inside surface of pipes or in faucet nozzle screens. These screens should be cleaned periodically.

Most interior residential water supply system use one or more of the following materials for piping: galvanized iron, copper, brass, lead or plastic. If your piping is lead, you may want to have your water laboratory-tested to determine if the lead is contaminating your water supply.

Regardless of the material used, all piping systems must be adequately supported by, or attached to the studs or joists with, compatible hangers, clamps or other approved devices.

WATER HEATERS

Most homes have their water heaters by electric, gas or oil-fired heaters. Tanks normally range in size from 30 to 82 gallons. Modern tanks are covered with a thin layer of enamel to prevent corrosion. Insulation is placed between the tank and the outer metal jacket to minimize heat loss and condensation.



To guard against excessive temperature or pressure, every water heater must have a temperature/pressure relief valve that automatically releases water when the temperature or pressure in the tank reaches its limit.

The temperature setting should be kept as low as is safe to conserve energy and prolong tank life. Water should be at least 110 degrees Fahrenheit to kill microbes, and no more than 130 to 140 degrees Fahrenheit to prevent scalding. Inside some tanks, replaceable magnesium rods are suspended in the water to attract corrosive electrolytes that would otherwise consume the tank walls. These rods can be checked and replaced periodically; however, as a practical matter, this is rarely done.

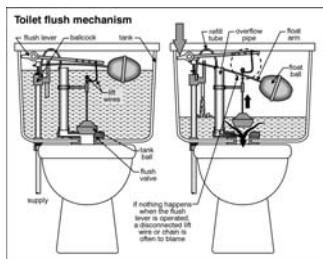
WATER SOFTENERS

In some geographic areas, water contains excessive amounts of calcium and magnesium, and is known as hard water. Hard water leaves rings around bathroom fixtures and can build up mineral deposits in water heaters and pipes. Water softeners remove these minerals and replace them

with sodium. The sodium in a properly operating system is minimal. However, if you are concerned with excess sodium your diet, the softener can be connected to the water heater only, so the drinking water is treated. Consider having the water analyzed to determine if there is reason for concern.

TOILETS

To most people, the workings of the toilet seem quite complicated-but they're really quite simple. When the tank handle is pushed or lifted, a connecting rod raises a rubber stopper from a valve at the bottom of the tank. Water from the tank rushes into the bowl and the tank's float ball drops with the water level. As water fills the bowl, gravity and a siphoning action draw the contents of the bowl through a trap and into the drainage system.



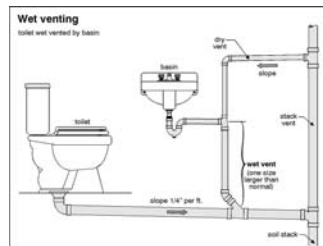
After the tank water is released, the rubber stopper drops down to seal the valve at the bottom of the tank. Water from the supply line flows through a ballcock valve to refill the bowl and then the tank. The float ball rises with the water on an arm that shuts off the ballcock valve when the water in the tank reaches the proper level.

WASTE VENT

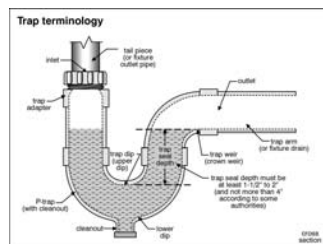
Used water and wastes are carried through drain-waste pipes to public sewage lines or on-site sewage systems. These pipes are sloped one quarter of an inch per foot since waste flows by gravity only. Overflowing fixtures and slow-draining wastes are signs that

our fixtures or drainage system should be checked.

Decomposing water material in the sewage system emits unhealthy fumes. To prevent sewer gases from flowing back into the house, each fixture's drain has a u-shaped pipe called a trap. A trap always should be filled with water to create a seal against sewer gases.



Usually, water draining out of the fixture will automatically seal the trap. However, improper venting can create a siphoning action that draws the water seal out of the trap, allowing sewer gases to enter the house.



Venting is necessary to maintain equal atmospheric pressure within the drain-waste pipe system and to safely dispose of sewer gases outside the house. Vent pipes are connected to the drain-waste system at each fixture's drain line, downstream from the trap, and extend outside of the house, usually from the roof.

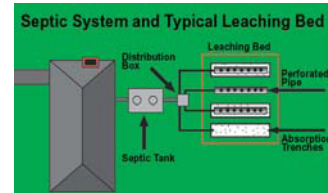
There shouldn't be any cross connections in your plumbing system. A cross connection is any point where contaminated water or wastes might mix with potable water such as the point where a sink or bathtub spout is below the flood rim of the fixture or a toilet ballcock valve is under water.

This could present a serious health hazard, for example, if there was ever a sudden drop in water pressure resulting from a water main break. Contaminated water or wastes would be drawn into the fresh water supply system through these cross connections.

SEPTIC SYSTEMS

A typical septic system consists of a tank and a drainfield, or seepage pit. A distribution pit box usually is installed between the tank and the drainfield to evenly distribute the sewage to all drainfield piping. The septic tank can hold 500 to 1500 gallons of waste water.

The septic tank separates the solid and liquid water so that the



solid material does not flow into the drainfield. Sewer flows through the tank inlet where solids settle to the bottom and form sludge, which is broken down by anaerobic bacteria. Liquid waste lies about the sludge and a layer or scum, consisting of buoyant greases and detergents, forms between baffles at the top.

As the liquid level rises in the tank, it will flow through the outlet pipe and into the drainfield. The drainfield consists of perforated pipes buried in gravel-filled trenches.

PUBLIC SEWER

A public sewer line is cast iron or schedule 40 PVC. The sewer line is generally a 3 to 4 inch diameter and has cleanouts on the interior of the home. New sewer line installations require cleanouts every 20 to 25 feet on the exterior piping. All piping must have a quarter inch per foot of pitch to allow for proper drainage.