



Meter to Tap

Maintaining high-quality drinking water in household plumbing



Where to get more information

- Contact your water provider or utility for more information
- US Environmental Protection Agency's (EPA's) Water Health Series and Water on Tap (www.epa.gov/safewater)
- EPA's WaterSense for helpful information on water-efficient products for the home (www.epa.gov/watersense)
- American Water Works Association's (AWWA's) consumer website, DrinkTap.org (drinktap.org)
- AWWA's brochure on household backflow prevention, *Backflow prevention is a two-way proposition*
- Canadian Institute of Plumbing and Heating has a consumer website. www.ciph.com/becausewatermatters



American Water Works Association

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Did you know that after water from your water utility enters your home, conditions in your home plumbing system can affect the water's quality? Your water utility wants to help you maintain high-quality water throughout your household plumbing system. Use this brochure yourself, or use it to work with a licensed plumber, to inspect your cold and hot water plumbing system. Identify areas for improvement for a well-designed, properly constructed and maintained household plumbing system. Follow the 10 simple tips to help ensure your tap water quality and understand how water quality is affected by the plumbing conditions in your home.

Do you have a plumbing problem?

The most common signs that your plumbing might be affecting the quality of your drinking water are changes in the water's color, taste and smell. This includes discolored water, stains on fixtures and laundry, and particles or sediment. Follow these water quality tips and contact your water utility if problems persist.

About your water service pipe

The *water service line* is the pipe that connects the water main outside your home to your household plumbing. Contact your water utility to determine if the water service pipe is owned by you or the utility. Then determine your water service pipe material. If it is lead or galvanized, you should consider replacing the pipe. A leaking water service pipe should be replaced immediately.

Top plumbing tips for homeowners

1. Learn about your tap water's quality. Review the water quality report issued every year by your water utility.
2. Use cold tap water for drinking and food preparation.
3. Maintain home water treatment systems, including filters, treatment devices and water softeners, as recommended by the manufacturer.
4. Use water taps regularly. Flush cold water taps (open the faucets) throughout your home for several minutes when water has not been used for several days.
5. Be sure the plumbing system is constructed properly, including the installation of appropriate backflow protection.
6. Replace old plumbing, especially lead-containing and galvanized plumbing material.
7. Flush cold water taps following household plumbing construction or repair.
8. Drain and flush your hot water heater annually.
9. Maintain the hot water heater's temperature as recommended by the manufacturer.
10. Take action when you experience a change in the taste, smell or color of your water, or notice particles in your water or stains on fixtures and laundry.





Household backflow protection

A *cross connection* happens when your drinking water plumbing is connected or in contact with a non-drinking water system such as a lawn sprayer, soap dispenser, fire sprinkler system, swimming pool, irrigation system, or water heating and cooling system. When water flows back from the non-drinking water system into your drinking water plumbing system, your drinking water becomes contaminated. Signs of contamination include discolored water and unusual smells. A licensed plumber can check your household water system for cross connections and install *backflow prevention devices* to protect against contamination of your drinking water.

Household water heaters

Water heaters are a major part of a household water system, and it is important to properly maintain these systems. Sediment, corrosion and bacterial growth can build up in hot water systems. Unusual odors that smell like rotten eggs, burnt match or a sewer, or a decline in water pressure can be signs the water heater may require maintenance. Contact a licensed plumber or follow the manufacturer's instructions to flush and drain your water heater annually and to check the condition of the heater's *dip tube*, which is the component that carries incoming cold water to the bottom of the tank.

It's important to follow the instructions on setting the water heater temperature. A temperature set below the recommended temperature can allow bacteria to grow. Temperatures that are too high can cause scalding.

Tankless hot water heaters can help minimize water heater concerns, but can allow particles to build up in systems with high levels of calcium carbonate—also known as water hardness. You may need to pretreat your household water with a water softener. Contact your water utility to learn about your water's hardness and if the water is corrosive to certain plumbing materials.



When *not* to worry

When your water utility provides water that is very cold, such as during the winter or from a groundwater source, the water heats up within your household plumbing system naturally before it reaches the tap. This increase in temperature allows dissolved air to be released in the form of air bubbles. Air bubbles can appear milky or cloudy. Allow the water to sit in a glass or pitcher for a few minutes and the water bubbles will rise to the surface and disappear.

Construction can also introduce air into your water system. Flushing your cold water taps after construction, or after the water supply has been off, will allow the air to escape.



Household water treatment devices

Water treatment devices can filter and soften your water. Proper installation and operation are important. When these devices are not maintained according to the manufacturers' instructions, you may experience water quality problems.

Old household pipes

Older pipes are at greater risk of leaking and corroding or releasing metals such as iron, lead, copper or zinc into your water. Have a plumber help you consider whether you should remove lead pipes and solder, and flush your system. Milky or white colored water that does not dissipate upon sitting in a glass could be caused by



old galvanized pipe that requires replacement. The type of pipe in your house may vary throughout

your plumbing. Also, the connection of different pipe materials (such as galvanized and copper pipe) can contribute to corrosion of the pipe and a buildup of metal particles in water.

Installing new pipe and fixtures

When new plumbing is installed, it is important to flush your household water system (open the taps and let the water run). A licensed plumber should provide instructions on how to flush the system. This should include flushing water throughout your house by opening cold water faucets one at a time, starting with the lowest floor (such as the basement) up to the highest floor in your house. Do not flush a hot water faucet until after the cold water system has been flushed.

New copper pipe or the corrosion of copper pipe can cause bluish green water and stains and a metallic taste. Following installation of new pipe and flushing your water system, continue to run cold water for five minutes once a day for at least three days. Sometimes new copper pipe can require up to a few years to stop causing problems, and lack of water use can worsen the situation. If the water has been stagnant for several hours, flushing your water for several minutes will reduce a metallic flavor.



New plastic pipe may also release chemicals for a period of time after installation and cause a plastic or burnt plastic smell in the water. You may also experience odors when PVC solvent is used during plumbing installation. Follow the same flushing instructions recommended for new copper pipe.

Household water usage

Minimal or no household water usage can cause water quality problems at the tap, such as discolored water and sulfur and musty odors. To minimize water quality changes, flush cold water taps when household water is not used for long periods of time. This brings fresh water in from the main in the street. You may want to fill a pitcher with cold water after a lot of household water usage and store it in the refrigerator for use as you need it.

Rust or iron can build up in the plumbing system, causing brown or yellow colored water, stained fixtures and laundry, and a metallic flavor. If you regularly experience discolored water, especially immediately after periods of long stagnation, have your plumber check for and replace old galvanized pipe. If no galvanized pipe is found, have your plumber thoroughly flush your water heater and household plumbing system.

