

City of Bellaire

Leak Detection and Water Conservation

Where Does All That Water Go?

The average person in Bellaire uses approximately 100 gallons per day. That's just over 3,000 gallons per month for each person in your house. Multiply that by a family of 4 and water usage can easily reach 12,000 gallons per month. An average of 14% of residential water is lost through leaking fixtures or pipes. Since your sewer bill is calculated using water consumption, not only do you pay for the lost water, but you also pay more for sewer. So how can you reduce the amount of water you use and the amount of water you lose? It's easy to check how much water is used and whether you have a leak in your home. We'll give you some tips for finding leaks and for water conservation.

Be a Leak Detector

An easy way to check whether you have leaks in your house is to read your water meter. Learning to read your water meter can pay off. First, turn off all the water in your house. (Remember to wait for hot water heaters, toilets, and ice cube makers to refill, and for any regeneration of water softeners.) Next, go to your water meter and jot down all the numbers you see. To check for slow leaks, read your water meter before and after a period when no water is being used. This may be when you plan to leave the house for a period of time like going to work, running errands, or shopping. If the readings are different after a period of time (at least one hour), then you probably have a leak. Your meter is a smart meter which is constantly checking for water usage patterns indicative of leaks. If your meter detects such a pattern, it will display a picture of a faucet with water drops falling from it.



Some areas to check for leaks include toilets, faucets, malfunctioning water softeners, water consuming appliances such as dish and clothes washers, swimming pools, water heaters, and irrigation systems. Some leaks can be hard to find such as swimming pool leaks, underground leaks, foundation leaks, and leaks behind walls. These may require the assistance of a plumber to locate. Even a small drip can add up to big bucks.

Water Usage and Leak Sizes

Drips Per Minute	Water Wasted Per Month	Water Wasted Per Year	Average Annual Cost* for Water and Sewer
10	43 Gallons	516 Gallons	\$3.49
30	130 Gallons	1,560 Gallons	\$10.55
60	259 Gallons	3,108 Gallons	\$21.01
120	518 Gallons	6,216 Gallons	\$42.02
300	1,296 Gallons	15,552 Gallons	\$105.13

* Based on water rates adopted October 1, 2017 assuming a resident in the 8,001 – 10,000 gallon rate tier.

Leak Detection and Water Conservation

Visually inspect the pipes in your home. Also look for any tell-tale watermarks on walls or ceilings. Be sure to look under each sink in your home and around the floor of the toilet.

Check the pressure relief valve on your hot water heater. Often once the pressure relief valve opens, it continues to leak until the valve is replaced. These valves can be dripping on the floor around the hot water heater or may be plumbed outside. If you find a leak, contact a plumber or someone well versed in this type of repair. Hot water tanks can build up pressure in the home water system and if not relieved through the relief valve, can cause severe damage.

In the yard, check the outside hose bibs or any other above ground water line. Signs of an outside leak include a wet spot, actual flow of water over the ground surface, or green algae growing in the area. Also, look for any leaks around the valve on the hose bibs and backflow preventers. Irrigation system backflow preventers frequently break during hard freezes and can leak profusely.

Don't forget to check your in-ground irrigation system often and be sure there are no broken or missing sprinkler heads. Be sure to check the sprinkler system valves for leaks too. Sprinkler heads can lose around 20 gallons per minute - that's 300 gallons if the zone runs for only 15 minutes. Multiply that by 3 times per week, and that's over 3,600 gallons per month for one broken sprinkler head. One broken sprinkler head could cost \$28 per month on your Utility bill. If there has recently been a freeze, check your irrigation system's backflow preventer. They often break in hard freezes if not drained beforehand.



Pay attention to your garden hoses. Left unattended, a garden hose can pour out hundreds of gallons of water in just one hour. Check all hoses, connectors and spigots regularly to make sure they are in good working order. Replace or repair damaged or leaking hoses, nozzles, spigots and connectors. Outfit your hose with a spray nozzle so water flows only as needed. When finished, turn it off at the faucet instead of at the nozzle to avoid leaks.

Toilets

Leaks - Toilets are often the biggest culprit of high-water usage. They are the most common form of residential leak. Sometimes they continue flowing water because the flapper sticks, the chain is caught on something inside the tank, or parts are worn out inside the tank. Since the water flows down the sewer, leaking toilets don't necessarily leave any signs of a leak, until you get the bill.



The average leaky toilet can waste about 200 gallons of water per day. That's over 6,000 gallons a month (close to \$50 at the highest price tier) for just one leaking toilet! Some toilets may produce a running water sound that is easy to hear. Some leaks are visible as a small trickle running from the rim to the water in the bowl. Toilet leaks are often silent and can be intermittent, allowing loss of water to go unnoticed for

long periods of time. To detect silent leaks, remove the lid from the toilet tank, remove any colored or bleaching cleaning agents. Flush to clear the water in the bowl. Then add dye tablets, leak detector fluid, a few drops of food coloring, or a colored instant drink mix to the toilet tank. If there is a leak in the toilet,

Leak Detection and Water Conservation

color will appear in the bowl within 60 minutes. Flush the remaining color from the tank as soon as the test is complete.

Conservation - When you replace a toilet, consider a low-flow high-efficiency toilet. Older toilets can use as much as 3.5 gallons with each flush whereas newer models can use as little as 0.8 gallons per flush. If your toilet flushed 6 times a day, switching to a high efficiency model could save close to 500 gallons of water per month.

Kitchen and Bath Fixtures

Leaks - Replace leaky drain plugs in sinks and bathtubs. Check your showerhead and faucets for leaks and repair them as soon as possible. Even the smallest drip can add up to big bucks.

Conservation - To save water, consider replacing your shower head with a low flow unit. The older the showerhead, the more water it uses. Older fixtures can deliver as high as 8 gallons per minute. Most new showerheads deliver 2.5 gallons of water per minute. Some newer models deliver less than 2.0 gallons per minute.



Appliances

Leaks - Clothes and dish washing machines have hoses and connections that can wear over time and begin leaking. Check the hoses often. If you are going on vacation, consider turning the water off to these units to avoid a major event if the hose breaks while you are away.



Conservation - When you replace your clothes or dish washer, consider a water-efficient model that uses less water. Older and inefficient clothes washing machines can use as much as 40 gallons of water per load. Older dishwashers can use 11 gallons per load.

When purchasing a standard-size dishwasher, consider a model that uses 6.5 gallons of water per cycle or less. Compact models should use 4.0 gallons or less per cycle.

Operate the clothes and dish washer only when you have a full load.

Swimming Pools

Leaks - Are you re-filling your swimming pool more often? It could have a leak. Water evaporates from swimming pools, but if you find yourself refilling it more frequently, it might be a sign of a problem. Many people have an automatic fill feature on their pool, so they are not aware how much re-filling takes place. There is a simple test to see if you have a pool leak – the bucket method. Put a brick (for weight) in a 5-gallon bucket and place the bucket on the steps of your pool. Fill the bucket with water to match the pool's water level. Turn off the recirculating pump as well as any auto-refill device you may have. Wait 24 hours and compare the pool water level to the level of water in the bucket. If both the pool and bucket water have gone down but remain even, your pool is losing water due to normal evaporation. However, if the pool water level is now lower than the bucket water level, you likely have a leak. Soggy soil, mushy spots, and/or



Leak Detection and Water Conservation

unusual grass growth patterns around the underground pool plumbing lines can also be a sign of an underground pool leak. Standing water near the pool equipment is a sign you may have leaking equipment. If you suspect a leak, call a local pool professional.

Water Heaters

Leaks – Usually water heaters leak at the pressure relief valve. Check the valve for drips and look for standing water under the hot water heater. If repairs are needed, contact a plumber.

Conservation – The most common type of water heater is the tank storage water heater. Ranging in size from 20 to 80 gallons (or larger) and usually fueled by electricity or natural gas, storage water heaters work by heating water in an insulated tank. If you need to replace your water heater, consider a high efficiency tank storage water heater or consider a tankless demand water heater which only heats water when used and does not have a storage tank. A gas burner or electric element heats water only when there is a demand. Hot water never runs out, but the flow rate may be limited. By minimizing standby losses from the tank, energy consumption can be reduced by 10–15%. Before buying a demand water heater, though, be aware that they aren't appropriate for every situation since they have a limited flow rate. If you have a couple of teenagers in the house, or if you need hot water for several tasks simultaneously, a demand water heater might require staging some uses.



Irrigation Systems

Leaks – Run each zone of your irrigation system and check each sprinkler head while in use to identify broken sprinkler heads. Also check each of the valves while the related zone is running.



Irrigation systems are required to have backflow preventers which prevent contaminated water from entering into your home's supply of drinking water. The most common backflow preventer is a pressure vacuum breaker (PVB). Take precautions to prevent your PVB from breaking during a freeze by shutting off the inlet water to the PVB and draining the PVB by opening the siphon valves (bleeder valves). Make sure your sprinkler control unit is turned off while your sprinkler is in this winterized state. Be sure to close the siphon valves and re-open the inlet water supply before using your sprinkler system.

Conservation - To save water, consider reducing the frequency of irrigating and/or the length of time your irrigation system runs. A rain sensor will signal the system not to run if it is raining. You generally do not need to irrigate your St. Augustine grass lawn from November through March. November through February is the time frame water consumption is measured for the purposes of calculating your winter sewer average consumption, so not irrigating during this time period will help save you money on sewer charges year-round.

Leak Detection and Water Conservation

Resident Utility Portal (powered by AquaHawk)

The Bellaire resident utility portal powered by AquaHawk is a free service for City of Bellaire customers that allows customers to monitor their water usage, set and receive water usage alerts, and gives them the tools to control monthly water bills. Customers interested in using the portal must register to create a new account (<https://www.bellairetx.gov/utilityportal>).



More Information on Water Conservation

For more information on how to conserve water visit the Environmental Protection Agency website (<https://www.epa.gov/watersense>).