



BTV WATER LEAK DETECTION GUIDE

What you need:

- Flashlight
- Food coloring
- Shut-off valve tag (included on the last page of this kit)
- Flathead screwdriver
- Phillips head screwdriver

WATER LEAKS: WHAT YOU SHOULD KNOW

Imagine that the dot inside these brackets [.] is the only hole in your home's water system. By its size alone, that hole may not seem worth tracking down. But that hole can waste more than 4,000 gallons of fresh water each month—enough water to take a shower every day for a year!

Consider how important water is for our families, pets, and environment, and you see that even tiny holes deserve immediate attention.

This kit is designed to help you find and repair water leaks—even the tiny ones!

GETTING STARTED

Use the checklists on the following pages to help direct your search for some fairly common—and a few not-so-common—water leaks.

How can you be sure your inspection will be as thorough as possible? The checklists cover three areas: *common indoor leaks*, *not-so-common indoor leaks*, and *outdoor leaks*. If you investigate the leak possibilities in the order shown, you'll uncover the greatest potential for savings in the first few places you look.

FIND YOUR SHUT OFF VALVE

Your main shut-off valve controls all of the water coming into your house. Everyone in your home should know the location of this valve, and how to turn it off. In case of an emergency such as a burst pipe, quick action could prevent costly flood damage.

If you don't know where this valve is located, it's important that you find out. The first step is to locate your water meter—this is typically in the basement, where the water service line enters the building. If you don't have a basement, your meter is likely in a protected crawlspace or closet near other plumbing. The main water shut-off valve will be located BEFORE your meter and should only be utilized during an emergency. Most homes have a secondary shut-off, which is located AFTER the meter—this is what should be operated during regular plumbing repairs. We have included an identification tag for you to cut out and attach to the main shut-off valve.

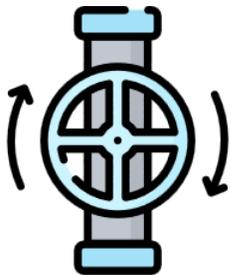
There are two types of valve: gate valve, and ball valve. See the photos below to determine which you have.

Gate valves are an older design and more prone to breaking—so use caution here!

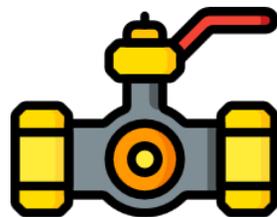
After finding your valve, turn it to make sure it isn't stuck. Water valves are generally closed by turning the handle clockwise. If the valve does not turn easily, **do not force it.**

When opening the valve to turn the water back on, open it fully, then close it just one quarter of a turn to make closing it easier the next time. You should also check every water fixture shut-off valve periodically.

Note: Burlington Water Resources staff are the only ones who may repair or replace a main shut-off valve. If you need assistance, please contact us at (802) 863-4501 to schedule an appointment with a technician.



GATE VALVE



BALL VALVE

PART I

COMMON INDOOR LEAKS

The Leaky Toilet

Accounting for more than 95% of all water waste, toilet leaks are caused by worn or damaged parts in the toilet flush tank. (Toilet flushes account for about 100 gallons of water use in your home each day—that's about 40% of your total household use!) Some of these leaks will empty directly into the sewer line without leaving any clues. Even so, you can check for these leaks. Common causes of leaky toilets include:

Float Arm Problem

Remove the lid from the top of the flush tank. See if the overflow pipe and the plunger ball are working properly. Do this by flushing the toilet, and watching the tank mechanism and listening. You should hear the water flow shut off.

If the water does not shut off, check the water level. If it has risen above the overflow pipe, gently bend the float arm down and flush again.

You may need to replace the plunger ball if the water level is about one inch below the

top of the overflow pipe and you can still hear water flowing.

A Tiny Pinhole

A pinhole opening below the overflow pipe's water line could produce an invisible leak. Check for this by shining a flashlight down into the overflow pipe. If you see running water, you have a leak that should be repaired.

Defective Plunger Ball (Flapper Valve)

This is often a silent leak which causes the tank to continually drain and refill. Check for a worn or improperly sealed plunger ball (flapper valve) by dropping a few drops of food coloring into the toilet tank. Do not flush. If a leak exists, the dye-colored water will seep into your toilet bowl in about 5 minutes. If it does, the plunger ball (flapper valve) may need to be replaced or realigned.



Water in the overflow pipe could also be caused by a pinhole in the float, or a worn washer on the inlet line.

PART 2

NOT-SO-COMMON INDOOR LEAKS

The Leaky Faucet

Dripping Faucet

A slow drip can waste as much as 20 gallons of water each day. A mere 1/16" leak wastes 100 gallons each day! With that much water—and money—going down the drain, it's important to get leaky faucets fixed as soon as possible.

If you notice that a faucet is dripping, first try closing it tightly. If it continues to drip, the most likely culprit is a worn or inappropriately sized washer (also called a 'stem washer'). With just a little effort, you may be able to replace the washer yourself. You may need an adjustable wrench, a flat-head screwdriver, and a Phillips head screwdriver for older plumbing fixtures. It may be more economical to rebuild or replace the faucet if there is no washer at all.

Changing a Washer

Before you start, turn off the water supply to the faucet by closing the fixture's shut-off valve. This will be under the sink. Turn the valve clockwise until it's tight. This shuts off the water to that faucet only, and will not impact the water service in any other part of your home.

Be certain that the replacement washer is the same size as the worn one—or that you have the correct size if the worn one was too big. If you need help, bring the old washer to your local hardware store and a sales associate can help you find the right fit.



Where to Look:

Water Heater Tank

The pressure valve release could be stuck. This valve is often found near the top of the tank, and is usually a large brass fitting threaded into the tank itself. If it's not working properly, you will see water leaking from it, dripping down the side of the tank and pooling on the floor.



Boiler

Listen for the sound of running water. If it is continuous and doesn't start and stop periodically, your boiler system may have a leak.

Water Softener

If you have a water softener, it could be wasting water if it is not recycling properly. The cycling process, regulated by a timer, often occurs between 2:00 a.m. and 4:00 a.m. You're likely to have a problem in this unit if you constantly hear the sound of running water.

Washing Machine

If you see water on the floor near the machine, it could mean a leak. You should contact a repair service to have it checked.

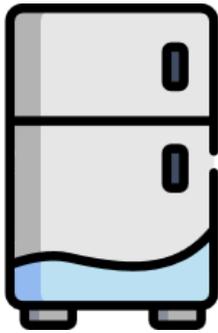
Humidifier

Water accumulated beneath the unit could mean a leak. If the overflow discharge is piped into a sewer or drainage line, you may not find visual signs of a leak. Listen for running water. If it's continuous, the float valve could be stuck.

Fire Suppression Systems

Many newer homes and businesses have these systems. Check to make sure sprinkler heads are tight and not leaking.

OTHER PLACES TO CHECK:

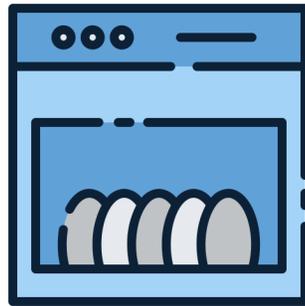


Refrigerator Ice Making Unit

A leak in the ice-making unit will cause excessive ice accumulation in the freezer, and may also produce small puddles of water under the refrigerator. You may want to call your local repair service if you notice either of these things.

Dishwasher

Water accumulated on the floor near the unit could be a sign of a leak. Contact your local repair service to check.



Bathtubs & Showers

Check the spout and showerhead for dripping water. You may need new washers on the faucet handles. You may be able to complete this repair by yourself by unscrewing the faucet and replacing the washer with one of the same size (or the correct size if the existing washer is too big.) Close your home's main shut-off valve before completing this repair!

PART 3

OUTDOOR LEAKS

Water Faucets

Each outdoor faucet should be checked for leaks. Make sure faucets are fully closed when not in use. If you find a leaky faucet, change the washer (after closing the shut-off valve.)

In colder climates, during the winter these inside shut-off valves should be closed to avoid freezing. Be sure to open the outside faucet AFTER you have shut the inside valve so that any water left in the system will drain. These shut-off valves are usually in your basement. One shut-off valve may control all of your outdoor faucets.

Automatic Irrigation Systems

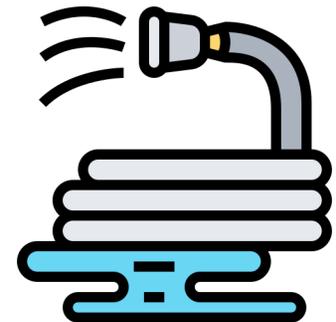
Soft spots on your lawn could indicate a leak in the irrigation system. Contact a local repair service if you suspect a leak in the system.

Swimming Pool

The pool system's automatic shut-off valve could be malfunctioning, causing a continuous cycle of water to be pumped in and then drained out. If the water level stays higher than normal, or the pool overflows when people are using it, your automatic shut-off valve may need to be serviced.

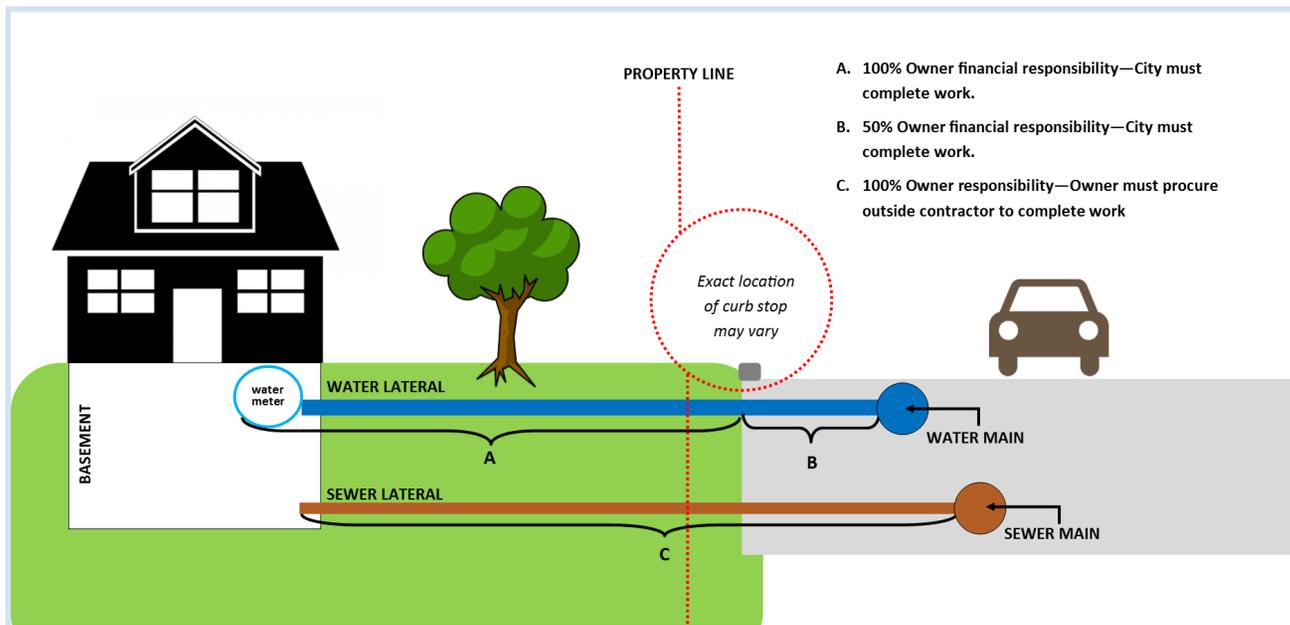
Service Connection Line

If you find any soft, wet spots on your lawn or hear running water outside of your home, you may have a leak in the service line to your house. Water soaks into the ground, causing the soft spots. Close your main shut-off valve. If the sound of running water continues, the outside service line may be leaking. While this would not impact your water bill, you should address this as the leaking could cause damage to your property.



What water infrastructure am I financially responsible for as a homeowner in Burlington?

As a homeowner, it's important to understand what utility infrastructure you are financially responsible for. The graphic below shows how the City's water and sewer infrastructure connect to your home, and includes a breakdown of what repairs are the homeowner's responsibility, and what repairs are the City's responsibility. NOTE: Financial responsibility for brand new service lines varies from this depiction!



WATER SERVICE MATERIALS

A water service line constructed from galvanized steel pre-dates 1960, and has a higher probability of leaking or breaking, and over time will lead to reduced flow capacity (i.e. low pressure) due to the build up of mineral deposits in the line.

You can determine the material type of your water service visually, or with a magnet. A plastic service line will appear blue in color—the image to the right shows a copper and galvanized line for reference. A copper pipe will appear greenish (if oxidized)—whereas a galvanized pipe will appear grey in color. Alternatively, you may take a heavy duty magnet and try sticking it to the pipe. If it sticks, it's galvanized steel—but a magnet won't adhere to copper or plastic.



We recommend that homeowners replace galvanized steel service lines before they become compromised. If you determine that you have a galvanized line in your home, contact us at (802) 863-4501 to schedule an appointment for a technician to provide a free replacement estimate.

You've checked everything—now what?

Let your water meter do some detective work! The flow indicator on your meter register spins when the meter is recording flow; it should not be moving if no water is being used. Please take a moment when no one in the household is using water and watch the indicator for rotation. If you see any movement then a plumbing fixture after the meter is calling for water and you just need to determine which one is the culprit. You can do this by turning off one plumbing fixture at a time then going back to look at the flow indicator to see if it has stopped spinning. Repeat as necessary. Unfortunately, we cannot assess or repair anything after the meter so you would need to contact a contractor for identified issues beyond the water meter. However, we do schedule appointments for our Meter Technicians to visit the home in order to troubleshoot and make repairs to the meter or the main shut off valve. Please remember that only City staff should be working on your water service line up to and including the meter for all properties in Burlington.

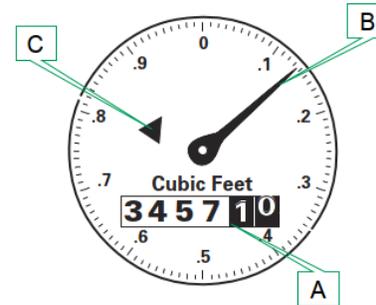
MAIN WATER SHUT-OFF VALVE

Customer Account Number

Check this valve annually to make sure it isn't stuck. Water valves are generally closed by turning the handle clockwise.



Questions about your water bill or usage can be directed to Burlington Water Resources at (802) 863-4501.



A. Dials

The dials of a water meter register function like the mileage odometer on a car. These numbers indicate the total flow that has passed through the meter. The register shown has recorded 345.710 cubic feet (CF) of water while in service.

B. Sweep Arm

Each full revolution of the register sweep arm indicates that 1 cubic foot (7.48 gallons) of water has passed through the meter. The markings at the outer edge of the register indicate tenths and hundredths of a cubic foot.

C. Flow Indicator

The flow indicator rotates when the water flows through the meter. If the triangle turns when all plumbing fixtures are off, then you may have a leak. This should be investigated.

If I found a leak, can I get a bill credit?

The department does offer credits on excessive consumption when the following criteria is met: 1) we can verify that the usage was recorded on the water meter, 2) the flows did not enter our wastewater collection system (e.g., burst pipe over a dirt floor, water removed by mitigation company, etc.) **and** 3) the cause was unintentional. We are unable to credit any portion of the water used and only offer a credit on the wastewater consumption above the average use of the property. In order to evaluate a potential credit, please remit a request that includes the exact cause of the excessive consumption and any supporting documents (e.g., photographs, repair invoices, receipts, etc.). This will be used to confirm the water didn't enter our collection system and attached to the adjustment for review during our annual audit.

