

Water Efficiency in the Bathroom

TOILETS



THE CORPORATION OF THE CITY OF

ST. THOMAS

Three-quarters of all the water you use in your home goes down your bathroom drains and the biggest single water guzzler is your toilet.

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Ways to reduce Water Use in the Bathroom

- Avoid running water when brushing your teeth, shaving, washing up and cleaning. Fill a cup or the sink with some water when doing these tasks. You can save about 60—80% of the water normally used each time;
- Never use the toilet as a garbage can;
- Try a shorter shower instead of a full bathtub of water. Install a low-flow showerhead (see section on “Showering and Bathing”)

Toilets



Up to 45% of the water consumed in your home is flushed down the toilet. Every time you flush your toilet between 13 and 26 litres of water is sent to the sewage treatment plant—more than half of that water is flushed unnecessarily! Think of it this way—over the course of a year each one of us will flush about 30,000 litres of water down the toilet

to dispose of a comparatively meager 650 litres of body waste (assuming 4.5 flushes/person/day, and an 18 litre toilet).

Replace Your Toilet

The most effective way to reduce the amount of water used for flushing toilets is to replace your existing high water use toilet with the new Ontario Plumbing Code Standard, an Ultra Low Flush (ULF) toilet. A ULF toilet is specially designed to function with only 6 litres of water per flush instead of 13 or more litres. They provide the same flush power with a lot less water. Although the tank holds 13 litres, it only releases 6 litres with each flush. The other 7 litres are used to “push start” the “flushed” 6 litres of water through the bowl. This increased energy means less water is required. Other improvements include a flow pattern in the bowl that directs more water through the trapway so that water doesn’t swirl as much. The trapway develops a siphoning action that creates more flushing power without using more water. You get the performance you expect with water savings of over 70% per flush.

How Much Can I Save?

Average Savings Expected with a 6-litre Toilet Replacement:

2 Person Family
10 flushes/day or \$47.00/year

4 Person Family
20 flushes/day or \$94.00/year

6 Person Family
30 flushes/day or \$140.00/year

Worth Noting

As of January 1996, 6 litre ULF toilets became the new Ontario Plumbing Code standard for new construction and are fast becoming the standard for renovations. If replacing your toilet is not an option at this time, be sure to check the toilet for leaks and, if need be, make the necessary repairs.

The older the toilet the more water it uses per flush

Toilet Age	Litres of water Per flush
Prior to 1985	20 +
1985—1995	13
1996 +	6

Testing for Toilet Leaks

Toilets are notorious for their hidden leaks. They can waste hundreds of litres of water a day undetected. In fact, a toilet that continues to run after flushing can waste 20 to 40 litres per hour—that’s 200,000 to 400,000 litres of water in one year—enough to fill a large in-ground swimming pool. This water could cost you hundreds of dollars on your next water bill. Leaks occur when the toilet is out of adjustment or when parts are worn, so it is important to check periodically for leaks. If you discover a leak you may be able to repair it by following the tips provided in this Guide. Before attempting to repair your toilet please read the following pages.



To test for leaks, put some food colouring in the holding tank and wait about 15 to 30 minutes. If, without flushing, the colour shows up in the bowl, you have a leak that could be costing you hundreds of dollars each year.

How Your Toilet Works

Generally speaking, a standard two-piece toilet with an upper tank bolted to a base can be repaired easily. There are some situations, depending on the style of the toilet and the type of repair required, when it is wise to call a licensed plumber to avoid costly complications. Before trying to repair a toilet, we must understand how the system works.

1. Depressing the handle causes the flush ball (or flapper in some toilets) to lift off the flush valve, allowing the release of water from the tank into the toilet bowl.
2. The flush ball seats itself back on to the flush valve, shutting off the flow of water to the bowl.
3. The float ball lowers with the decreasing water level. This action lifts the inlet valve in the ballcock assembly unit that controls the flow of water into the tank.
4. Fresh water flows through the ballcock assembly into the tank. This causes the float ball to rise with the level of water. As the float ball rises, it depresses the inlet valve and shuts off the water flow when the tank is full.



Note: There are many different names for the same part in toilets. Some names change with the age and style of toilet. Every attempt has been made to use the most common names for the different parts.

Once it has been determined that there is a water leak in your toilet you must now determine the cause of the leak. The most common reasons for toilet leaks are:

- A. The float ball needs adjusting or replacing.
- B. The ballcock assembly (or inlet valve) is faulty and continues to allow water to enter the tank.
- C. The flush valve needs adjusting, cleaning or the flush ball (or flapper) needs replacing.

To determine the most likely reason why your toilet is leaking, remove the top of the tank and check the water level in the tank.

Leaking Toilet Problem	Basic Repair Techniques
<p>A. If the water is high and continually running into the top of the overflow tube, the float ball needs adjusting or replacing.</p> <p>Tools and materials required:</p> <ul style="list-style-type: none"> • Screwdriver, new float ball, if required, petroleum jelly 	<ol style="list-style-type: none"> 1. Lift the float ball and gently bend the attached float arm down slightly to keep the tank's water level between 12.5 mm and 25 mm (1/2" and 1") below the top of the overflow pipe. The float arm can also be adjusted by turning the float adjusting screw found at the ballcock end of the float arm. Plastic rods cannot be adjusted by bending. 2. If adjusting the float arm does not stop the water from flowing, check the condition of the float ball. Replace the float ball if there is water inside it. 3. To remove a cracked float ball from the float arm, grasp the float arm with locking pliers and twist the float ball counterclockwise. Replace the ball, coating the threads of the float arm with petroleum jelly before reattaching. 4. If the water still runs after doing steps 1, 2 and 3 above, you will probably need to repair or replace the ballcock assembly, as noted below.

Leaking Toilet Problem	Basic Repair Techniques
<p>B. If the problem is neither the flush ball nor the float ball, the ballcock assembly (inlet of refill valve) needs to be repaired or better still, replaced.</p> <p>Tools and materials required:</p> <ul style="list-style-type: none"> • Screwdriver, new ballcock assembly and washers, if needed 	<ol style="list-style-type: none"> 1. Turn off shut-off valve and flush toilet to remove all water in the tank. 2. It is very difficult to repair a ballcock assembly, though some can be repaired with the aid of a plumbing guidebook or a licensed plumber. 3. To replace a faulty ballcock assembly, remove and take to the store for an exact match. Most units can be removed by unscrewing the two screws in the linkage arm. 4. Check the condition of the washers as well and buy exact replacements. 5. Install the new ballcock assembly by reattaching the two screws. 6. Turn off the shut-off valve and test your repair by flushing. The water level should be 12.5 mm to 25 mm (1/2" to 1") below the top of the overflow tube. 7. If the water level is not right, try the dye test again, consult a plumbing guidebook and/or call a licensed plumber.

Leaking Toilet Problem	Basic Repair Techniques
<p>C. If the water level in the tank is more than 25 mm (1") below the top of the overflow tube, the flush valve or flush ball (flapper) needs adjusting, cleaning or replacement.</p> <p>Tools and materials required:</p> <ul style="list-style-type: none"> • Needle nose pliers, new flush ball/flapper if needed, emery cloth or steel wool or a non-abrasive scouring pad 	<ol style="list-style-type: none"> 1. Before working on the flush valve or ball/flapper turn off the water to the toilet or the main shutoff valve. 2. Flush the toilet to empty the tank. 3. Observe the ball/flapper as you flush the toilet. If it fails to drop directly onto the flush valve try realigning it by adjusting the lift wires or lift chain. 4. Adjust lift wires so that wires are straight and operate smoothly when handle is pushed. Adjust lift chain so it hangs straight from handle lever with about 12.5 mm (1/2") slack. Excess chain can be shortened by hooking the chain in a different hole or by removing links with needle nose pliers. 5. Check flush ball/flapper for signs of damage or wear. If the ball/flapper is worn it will allow water to leak into the bowl between flushes. If there is damage or wear, the flush ball/flapper should be replaced. (TIP: rub finger on the flush valve seat before cleaning it, if finger is black replace the flush ball/flapper. The black marking indicate a deterioration of the ball/flapper rubber.) Unhook the lift chain/wire and remove the ball/flapper and take it to the store for an exact match. Reattach the ball/flapper to the lift chain/wires. 6. If the flush ball/flapper is okay, check the condition of the flush valve where the ball/flapper rests. Mineral deposits and sediment on the flush valve seat can prevent the ball/flapper from sealing tightly and permit water to run continuously into the bowl. 7. If the flush valve seat needs cleaning gently scour inside the seat and its rim. Clean brass with an emery cloth or steel wool, plastic with non-abrasive scouring pad. 8. Replace the flush valve if cleaning and adjusting are unsuccessful or if the surface is pitted or damaged. This is a more complicate repair that may require the aid of a home plumbing repair guide.

Other Water Saving Devices for Toilets

Most hardware stores carry "toilet toys". These are devices that reduce the flow of water in the toilet through displacement or retention of water or by altering the flushing mechanism. Be aware that these alternative methods only save you an average of 2 to 5 litres per flush and may compromise the toilet's ability to flush properly.