

Operating a toilet can cost more money than you might think. A national study of residential water uses found that toilets can account for 26 percent of the water used in an American home. Whenever a toilet is flushed, there are charges for the water and wastewater related to your toilet’s consumption. While today’s federal requirements specify that toilets use no more than 1.6 gallons per flush, there are still many old and inefficient toilets in operation that consume 3.5, 5.0, or more gallons with each flush!

Determine how much water your toilet uses

Finding out how much water your toilet uses per flush is a great first step to deciding whether upgrading your toilet is a good investment.

- **Check the date:** Try looking inside the tank for a manufacturer’s stamp indicating when your toilet was made.

Manufacture Date	Estimated Flush Volume (gallons per flush)
1994 to present*	1.0 to 1.6
1980 to 1994*	3.5 to 4.5
1950 to 1980	5.0
Pre-1950s	7.0

* 1992 in Oregon

- **Measure the volume:** If you can’t find the date, or you want to be more exact, use a tape measure to calculate the volume of your toilet tank.
 1. Remove the toilet tank lid and measure the internal length and width of the tank.
 2. Measure the depth of the water in the tank. Flush the toilet and measure the depth of the water that remains in the bottom of the tank before it starts to refill (not all tanks will completely empty of water). Subtract the depth of the water that was left in the tank after flushing from the depth of water when the tank was full. This gives you the “net” height of the water.
 3. Use the calculation below to determine the approximate volume of water used to flush the toilet. Note that you add an additional 0.6 gallons per flush to account for water that is used to refill the bowl.

$$\begin{array}{ccccccc}
 \boxed{} & \times & \boxed{} & \times & \boxed{} & = & \boxed{} \div 231 = \boxed{} + 0.6 = \boxed{} \\
 \text{Length in} & & \text{Width in} & & \text{Height of} & & \text{Volume} & & \text{Tank} & & \text{Gallons} & & \text{Total Gallons} \\
 \text{inches} & & \text{inches} & & \text{water in} & & & & \text{Volume} & & \text{used in} & & \text{per Flush} \\
 & & & & \text{inches} & & & & \text{(GPF)} & & \text{bowl} & & \text{(GPF)}
 \end{array}$$

* This calculation is approximate and actual flush volumes will vary due to variables in tank shape, internal flush components and other factors.

Check your toilet for leaks

Sometimes it is easy to tell that your toilet is leaking – you hear the sound of running water or a faint hissing or trickling. But many times, water flows through the tanks silently, which is why toilet leaks are often overlooked.



To check your toilet for leaks, lift off the toilet tank lid. Without flushing, place 1 dye tablet (or 10 drops of food coloring) in the toilet tank. Wait at least 15 minutes and check the bowl of the toilet. If there is dye in the bowl, the toilet has a leak.

For more information on assessing and fixing simple toilet leaks- and to find out how to get free toilet leak detection tablets- visit the Portland Water Bureau Efficiency Program’s web site:



www.portlandoregon.gov/water/efficiency

Did you know that your old toilet could have another life as part of a roadway? If you decide to replace your toilet, (or sink!) don’t forget that it can be recycled.
Contact Metro’s Recycling Hotline 503-234-3000 for recycling locations near you.

Replace your toilet

Today it's easy to find a water-saving and high-performance toilet thanks to WaterSense – a national program sponsored by the United States Environmental Protection Agency. Only toilets that are 20 percent more water-efficient than standard toilets, and pass rigorous independent performance testing receive the WaterSense label.



A new WaterSense High-Efficiency Toilet could save a family of 4 over \$300 per year on their water and sewer bill. Review the table below to see how much a toilet upgrade could save you per person in your household.

Toilet flush volume (gallons/flush)	Flushes per person per day*	Gallons used per year	Cost per gallon**	Toilet cost per person per year
1.28	5	2336	\$0.0179679	\$41.97
1.6	5	2920	\$0.0179679	\$52.47
3.5	5	6388	\$0.0179679	\$114.77
5.0	5	9125	\$0.0179679	\$163.96

* National estimates say that each person flushes the toilet approximately five times daily.

** based on the 7/1/15 City of Portland residential rates for 1 Ccf (748 gallons) at \$13.44 (\$9.50 for sewer and \$3.94 for water).

Another resource for choosing a new toilet is the Maximum Performance Testing study of toilet performance. It is an excellent, unbiased source for information about the performance of popular toilet models and brands. Learn more about it here:

<http://www.map-testing.com/>

Composting toilets

Composting toilets are toilets designed to use little or no water. Toilet waste is treated on site through managed aerobic decomposition.

Composting toilets are allowed by Oregon plumbing code if the model and brand complies with the National Sanitation Foundation's NSF/ANSI Standard #41. Several composting toilet models are available on the market today. For more information visit: <http://oikos.com/library/compostingtoilet/>.



Dual-flush toilets

A dual-flush toilet is designed to give the user a choice between a standard volume flush for solid waste (usually 1.28 to 1.6 gallons), and a lower volume flush for liquids and toilet paper (0.8 to 1.0 gallons). Dual-flush toilets are becoming more common and can even be found at the Portland Airport in Oregon.

Preliminary field testing of dual-flush toilets in Washington, California, Oregon, Utah, and Canada, is showing that dual-flush toilet consumption is very similar to the 1.28 gallon per flush High-Efficiency Toilets.

<p>A dual-flush toilet with separate buttons for high and low volume flushes.</p>	<p>An example of a sign displayed in restrooms with dual flush toilets (similar to styles at the Portland airport).</p>

Using gray water to flush a toilet

Gray water – or wastewater from bathtubs, showers, washing machines or bathroom sinks – has been approved for flushing toilets in Oregon as an alternate method to the state plumbing code. A variety of water reuse systems have been approved for sale in the U.S. and can be bought “off-the-shelf”. Get more information on sizing, installing and maintaining your system from the Oregon Building Codes Division by calling 503-823-7300, or visiting:

<http://www.cbs.state.or.us/external/bcd/pdf/0990.pdf>

Using rainwater to flush a toilet

If you are thinking about harvesting rainwater for flushing toilets, you will need to follow the relevant rainwater harvesting code guides. Contact the Oregon Building Codes Division at 503-823-7300, or by visiting:

<http://www.cbs.state.or.us/external/bcd/pdf/3660.pdf>

If you live in Portland, get the specialty code at: <http://www.portlandonline.com/shared/cfm/image.cfm?id=68627>