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“ROTO-ROOTER PIPELINE”

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WHAT ARE LOW-FLOW (GREEN) TOILETS?

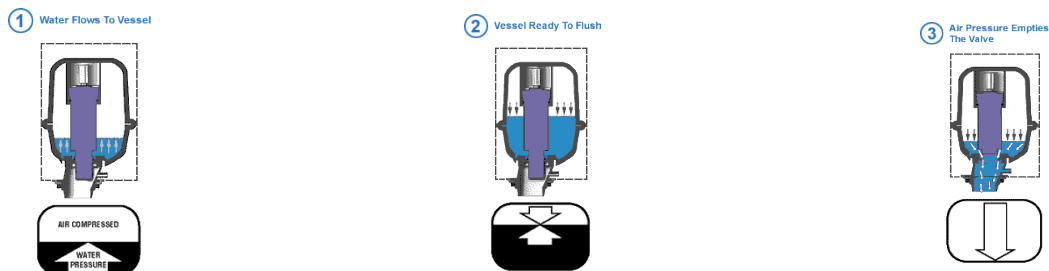
A **low-flow** or “**GREEN**” toilet is a flush toilet that uses significantly less water than a full-flush toilet. Low-flow toilets use 1.6 gallons or less per flush as opposed to about 3.5 gallons as was the norm in the 1980s and prior. They came into use in the United States in the 1990’s, in response to water conservation concerns. Low-flow toilets include single-flush models and dual-flush toilets, which typically use 1.6 GPF for the full flush and 1.1 GPF for a reduced flush.

In 1988 Massachusetts became the first state in the country to mandate the use of low flow toilets in new construction and remodeling. In 1992, President George H. W. Bush signed the Energy Policy Act. This law made 1.6 gallons per flush a mandatory federal maximum for new toilets. This law went into effect in January 1, 1994 for residential buildings and January 1, 1997 for commercial buildings.

The first generation of low-flow toilets were designed like traditional toilets. A valve would open and the water would passively flow into the bowl. The resulting water pressure was often inadequate to carry away waste. In addition to tank-type toilets that “pull” waste down, there are also now pressure-assist models, which use water pressure to effectively “push” waste.

The Mendelsohn House apartment complex in San Francisco replaced every 3.5 gallon traditional toilets in their 189 apartment units with 1.0 gallon high efficiency toilets equipped with Flushmate IV pressure vessels. This single apartment complex saved four million gallons of water per year.

How The Flushmate IV Works



The **FLUSHMATE**® system traps air and as it fills with water, it uses the water supply line pressure to compress the trapped air inside. The compressed air is what forces the water into the bowl, so instead of the “pulling” or siphon action of a gravity unit, the pressure-assist unit “pushes” waste out. This vigorous flushing action cleans the bowl better than gravity units.

The Environmental Protection Agency's *WaterSense* program provides certification that toilets meet the goal of using less than 1.6 gallons per flush. Units that meet or exceed this standard can carry the WaterSense sticker. The EPA estimates that the average U.S. home will save \$90 per year, and \$2,000 over the lifetime of the toilets. <http://www.epa.gov/watersense/>

Problems

Many people disliked the early low-flow toilets because they had a generally poor design that often required more than one flush to rid the bowl of solid waste; two flushes of a low-flush toilet would thus use as much water as a single, but more effective, flush of a standard toilet. In response, Congressman Joe Knollenberg from Michigan tried to repeal the law but was unsuccessful. Design and performance of low flow and ultra low flow toilets has significantly improved since 1994.

In 2011, the San Francisco Chronicle reported that, low-flow toilets are estimated to have saved the city of San Francisco 20 million gallons of water per year, the reduction in water volume has caused waste sludge to now back up in the city sewer lines that were designed expecting a higher ratio of water to solids. The city is attempting to solve this by adding chlorine bleach to the lines, a proposal that has now raised environmental objections (no-win!!). In house drain system design, smaller diameter drain pipes are being used to improve flow by forcing waste to run higher in the pipe and therefore have less tendency to settle along the pipe.

The Truth About High-Efficiency, Low-Flow (GREEN) Toilets

Problems with first-generation “low flow” toilets were infamous in the early 1990’s. Some consumers complained that the toilets clogged too often, needed several flushes to clear the bowl, or caused problems with their home plumbing. Although later generations of water-saving toilets have resolved such issues, misconceptions have persisted and kept many consumers from saving both water and money. With new designs and technological advancements, today’s high-efficiency toilets use less than 1.3 gallons per flush and perform as well as—or better than—conventional, less efficient models.

The EPA’s WaterSense program is making it easy for consumers to identify high-efficiency toilets in the marketplace. Toilets that are certified by independent, third-party testing to meet EPA’s rigorous criteria for both efficiency and performance can earn the WaterSense label. Look for WaterSense labeled toilets and don’t let these myths keep you from saving water and saving money!

<http://www.epa.gov/watersense/> *Roto-Rooter Plumbing of Des Moines offers Vitra brand toilets which carry the WaterSense label.*

MYTH: Low-flow = poor performance

FACT: WaterSense labeled toilets get the job done.

Many tend to associate lower flow with lower flushing power. Not true. New technology and design advancements, such as pressure-assisted flushers and modifications to bowl contours allow high-efficiency toilets to flush better than first-generation low-flow toilets. All WaterSense labeled toilets have met EPA’s efficiency and performance requirements, meaning double-flushing and clogging should not be an issue (but remember—any toilet will clog if used as a trash can).

MYTH: High-efficiency toilets cause problems with home plumbing systems.

FACT: WaterSense labeled toilets meet or exceed plumbing standards.

Some consumers worry that lower flows may back up pipes and ruin home plumbing. There is no need to worry. WaterSense labeled high-efficiency toilets meet or exceed all national plumbing standards required of all toilets.

MYTH: High-efficiency toilets are too expensive.

FACT: With the potential for rebates and lower water bills, WaterSense labeled toilets can save you more money than you think.

Considering the potential savings on water bills, it could be more costly *not* to purchase a WaterSense labeled toilet. Also, many local utilities offer rebates ranging from \$25 to more than \$200 to replace older toilets with new, water-efficient models. In many cases, with cost savings and rebates, a WaterSense labeled toilet can pay for itself in only a few years.

MYTH: High-efficiency toilets are not available in the style I want.

FACT: WaterSense labeled toilets are available in a wide range of models.

Numerous WaterSense labeled toilets are already available at retailers in a range of styles for standard to high-end bathrooms. EPA's WaterSense label helps consumers easily identify high-performing, high-efficiency toilets, so look for the WaterSense label and start saving water while you upgrade your



bathroom!

It might surprise you that out of all of the things in your house or business that use water, a toilet is by far the thirstiest. In a 2010, a study by Northeastern University noted that without water conservation, **toilets account for about 26 percent of water in U.S. single-family homes**. More-efficient and better-functioning flushers can significantly reduce the water wasted. Estimated such conservation methods would reduce toilet water use to only about 10 percent of the total.

Toilets and Water Use

According to the U.S. Environmental Protection Agency, you might flush 140,000 times throughout your lifetime. If your toilet was made before 1995, it can use as much as 5 gallons of water every time you flush. Toilets made from 1996 or later use much less water, no more than 1.6 gallons per flush. In a single year, you can save thousands of gallons of water with a low-flow toilet.

Types of High-Efficiency Toilets

High-efficiency toilets use even less water than typical low-flow toilets -- less than 1.3 gallons per flush. Another option is a dual-flush toilet, which has two buttons instead of one handle -- one button lets you flush liquid waste using less than 1 gallon of water; the other lets you use a full 1.6 gallons to flush solid waste.

Replacement vs. Maintenance

You should plan to switch to a low-flow device, but you can save some water by repairing and maintaining your current toilet. In addition, you can help reduce your current toilet's water usage with a few simple fixes. First, displace some of the water in your tank to make your toilet draw less water with each flush. Fill a plastic bottle with some sand or rocks and water, and place it in the toilet tank. You can displace up to a gallon of water this way. Next, test for leaks. Put a few drops of food coloring in the toilet tank to check whether any color leaks into the bowl; this can indicate a hidden leak that needs repairing.

Alternatives

There are other devices to save water, though they are less common for home use. For example, some waterless urinals use special traps with lightweight oil, allowing water and urine to pass through and preventing odors. Composting toilets use little or no water; they collect wastes in a vault or pit where the matter decomposes naturally. Composting toilets are available for residential use, as well as for parks and campgrounds. The Federal Energy Management Program notes that these are not necessarily cost-effective.



There are various types of low-flow toilets available, but most use either a gravity or pressure-assisted technology to work. They have varying designs ranging from basic to luxurious. For example, one top-of-the-line low-flow toilet, made by Toto, comes with an optional sound module that can be used to

mask bodily noises with everything from the sound of a toilet flushing to the sounds of a running brook or crashing ocean waves.

Sound effects may be a bit over-the-top, but saving water is always a good idea.

With water shortages becoming more common, numerous states and nations are enacting regulations to conserve water. The efforts have centered primarily on water efficiency — ways to meet our needs using the least amount of water. If your home has an old toilet, it makes sense — economically and environmentally — to replace it with a water-conserving model that will use much less water than a conventional toilet.

In rural areas not served by municipal wastewater treatment plants, water-efficient toilets reduce the amount of waste flowing into septic tanks and leach fields, extending the lives of these systems. If you use well water, an efficient toilet will also cut down the run time of your well pump, reducing electrical consumption. Plus, the less your pump runs, the longer it will remain in service.

What will fit?

To be sure the toilet you purchase will fit, check the distance from the wall to the center of the toilet's outlet (the pipe into which the toilet drains). This is often referred to as the "rough-in." It's usually either 10 or 12 inches.

What Will It Cost?

Water-efficient toilets range in cost from about \$100 to a few hundred dollars. If you can save a little more water while still getting a good flush, it will be worth a little extra money, because you'll save on your utility bill in the long run.

Cost estimates for installation of a new, 1.6 gallons per flush toilet (includes removal of existing toilet):

Materials only: \$200 - \$300 (does not include ADA toilets)

Roto-Rooter's installation charge: \$125 +

Costs do not include taxes.

Call [Roto-Rooter](tel:515-278-5668) today at 515-278-5668 to change out your old toilet.

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