



Buying a Water-Efficient Toilet

What to Look for When Buying a Toilet

Whether you're buying a new home, updating an existing property or just finally taking the plunge and carrying out that bathroom renovation you've always wanted, choosing the right toilet can be one of the most important — and most often overlooked — decisions you will make.

A high-quality toilet can help you save money, protect the environment and conserve water, all without sacrificing performance or peace of mind. Choose the wrong toilet, and you could wind up flushing your hard-earned dollars down the drain.

But with more than 1,000 different models on the market to choose from, how do you know what to look for — and which toilet is right for your family?

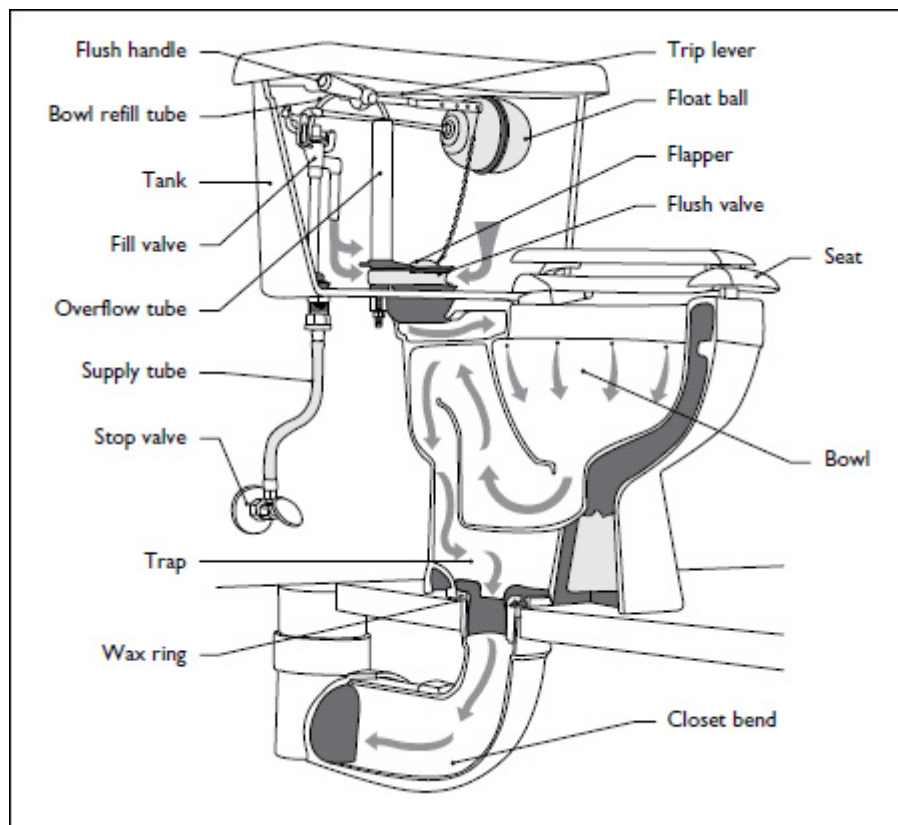


Figure 1 — Parts of a toilet

The MaP Report: Get the Facts Before You Buy

To help consumers make a more informed decision, in 2003, Canada Mortgage and Housing Corporation (CMHC) joined the Canadian Water and Wastewater Association (CWWA) and nearly two dozen other housing and municipal partners across Canada and the United States to create the *Maximum Performance (MaP) Testing Program*.

The goal of the MaP initiative was to test a wide range of popular toilet models under realistic conditions. Then, each of the models tested was given a grade based on its overall performance.

The resulting report contains a wealth of information to help consumers compare different toilets and decide which model is right for them. The report is updated on a regular basis to reflect the latest models and changes in performance standards. The most up-to-date edition is available free of charge from the CWWA website at www.cwwa.ca.

Some municipalities across Canada now offer toilet rebates for models that have been rated under the MaP's rigorous testing and received a high score.

How to Read the MaP Tables

For consumers, the most useful information in the MaP report is likely contained within the tables of the report's appendices, where more than 600 popular toilet models are ranked by both the manufacturer's name and the rated performance of each model. To make them easier to follow, the performance ratings are colour-coded according to the type of toilet and level of performance. As well, one of the appendices lists models in order of performance.

Consumers can use the MaP tables to simply find out which models received the highest overall scores. Or, if they already have a specific manufacturer or model in mind, they can look it up by the make and model number to find out which features it offers and see how well it performed compared to similar models.

At first glance, the MaP tables can seem somewhat daunting. But for the average consumer, there are just a few key things to keep in mind to help you find the information you need quickly and easily.

First, consumers should look only at those toilet models in rows that are colour-coded either **pink** (for 6-L, pressure- or power-assisted toilets), **light green** (for 4-L, pressure-assisted toilets) or **white** (for gravity-fed and vacuum-assisted models). All dark green and yellow-coded rows are strictly for commercial-use models only. It is the intention of the publishers of the MaP report to eventually produce two separate reports — one for residential fixtures and another for commercial fixtures.

The next thing to look at is the column titled "MaP Flush Performance." This column identifies how many grams of solid waste are removed from each toilet with a single flush. From the MaP testing, it has become apparent that, for the vast majority of

consumers, any toilet with a MaP score of 350 g or more should be more than sufficient to handle almost any household need.

The next two columns indicate whether or not a toilet meets the specifications of the Los Angeles Department of Water and Power's Supplementary Purchase Specification (SPS) and WaterSense (WS) programs — two leading indicators of toilet performance and efficiency. The SPS and WS requirements are virtually identical, except that all 6-L (effective flush volume) toilets are tested to SPS requirements and all 4.8-L toilets are tested to WS requirements. Both sets of requirements ensure that the toilet model is fitted with high-quality trim components (including the fill valve and flapper) which should help the toilet continue to flush with the same volume of water over time.

Any toilet with a SPS or WS rating is likely to be water-efficient and have satisfactory flushing performance. A "NE" in these columns indicates that the toilet is currently *Not Eligible* for SPS or WaterSense testing — usually because it is intended for commercial rather than residential use.

The remaining columns offer more detailed information about such features as:

- whether a toilet is a one- or two-piece model,
- the size of the flush valve,
- whether it has a round (R) or elongated (E) bowl,
- whether the toilet is standard-height or comfort-height (indicated by the symbol ADA for Americans with Disabilities Act),
- the type of flush technology or mounting it uses, and
- several other features.

Typically, most residential toilets have round (R) bowls, though elongated (E) bowls are becoming more common, as are comfort-height bowls.

The light-blue shaded columns identify which models are considered to be high-efficiency toilets (indicated by the designation "HET"). High-efficiency toilets generally offer significantly better water savings than other toilets, without compromising flushing performance. HETs must flush with no more than 4.8 L. Dual-flush models, that is, toilets that offer the consumer the choice of using a full 6-L flush to remove solid waste or a half flush to remove liquid waste, also qualify as HETs (since the average flush volume of a dual-flush toilet meets the 4.8-L requirement).

Last but not least, it is important to always be sure that the model number of the toilet you are looking at exactly matches the model number in the MaP tables. New toilet models are being introduced constantly, so if the model number does not precisely match the combination of terms and numbers provided in the MaP report, then the toilet may not have been MaP-tested and its performance level may not

have been determined.

WaterSense: It Just Makes Sense!

The MaP report is a handy reference guide for consumers who are interested in doing a little research before they make a buying decision. Another option is to choose any toilet model that has been approved by the U.S. Environmental Protection Agency (EPA) WaterSense program for high-efficiency toilets.

To earn the WaterSense label, a toilet must be able to flush at least 350 g of waste in a single flush. This is generally more than sufficient for the vast majority of households, as the average waste volume most toilets handle can be less than 150 g.

Additional Considerations

There are a number of additional considerations besides flushing performance that you should think about when buying a toilet. These include the following:

Rough-in Dimension

The vast majority of North American homes have a rough-in dimension (the distance from the wall behind the toilet to the centre of the floor flange) of 305 mm (12 in.). However, you should measure your rough-in distance before you buy to ensure your new toilet will fit the existing space.

One-Piece vs. Two-Piece

One-piece toilets (where the tank and bowl are purchased as a single unit) can be easier to clean and may have less opportunity to leak at the junction between the tank and bowl than two-piece models. However, one-piece toilets can also be more expensive, as well as heavier and harder to install.

Bowl Height

Toilet bowls generally come in one of two heights: regular or “comfort-height.” Comfort-height bowls are slightly higher than regular bowls, which many people find makes them more comfortable to use. If you are tall, have bad knees or have a disability, you may want to consider a comfort-height bowl. Toilet bowls qualified by the Americans with Disabilities Act (ADA), for example, must measure between 430 and 480 mm (17 and 19 in.) from the finished floor to the top of the seat.

Bowl Shape

Up until a few years ago, almost all residential toilets had round bowls with doughnut-shaped toilet seats. Toilets in office buildings, airports and other

commercial spaces, on the other hand, tended to have egg-shaped or elongated bowls. Today, many homeowners are opting to install elongated bowls in their homes. The choice is primarily a matter of personal preference, though toilets with elongated bowls may not fit easily in some smaller bathrooms.

Single- or Dual-Flush

Dual-flush toilets were originally introduced to help conserve water. But with the development of single-flush models that use only 4.8 L of water or less, the comparative water savings of dual-flush toilets has eroded somewhat. The choice between single- and dual-flush toilets is now related more to personal consumer preference than to any real water savings.

Flushing Performance

Toilet models with the highest MaP performance scores can flush between 800 – 1,000 g of waste. But for most consumers, any toilet model (preferably WaterSense-approved) with a MaP score of 350 g or more will likely meet or exceed their flushing performance needs.

Gravity or Pressure-Assisted

Most residential toilets work by means of simple gravity — water is stored in the tank at a higher level than the water in the bowl. When the toilet is flushed, water flows by gravity from the tank to the bowl. Water is then pulled from the bowl into the drain by a siphon effect, then down the drain to the sewer. With pressure-assisted models, the water is stored in a canister inside the toilet tank, where it is kept at the same pressure as the water that is supplied to the toilet. When the toilet is flushed, the pressurized water forces a power flush action through the bowl. Up until 2003, pressure-assisted models generally offered better performance than gravity models. Today, however, gravity and pressure-assisted toilets both offer relatively equal flushing power, making the choice between them more a matter of personal preference than performance.

Flapper Size

Flappers (or flush valves) on nearly all North American toilets are either 50 mm (2 in.) or 75 mm (3 in.) in diameter. Generally speaking, a 75-mm (3-in.) flapper will allow water to discharge from the tank to the bowl much faster, resulting in better performance. While a 75-mm (3-in.) flapper is not a guarantee of more flushing power, nearly all high-performance toilets produced by major manufacturers are now equipped with a flapper of that size.

Trap Diameter (Siphonic vs. Washdown)

Until recently, virtually all residential toilets in North America were siphonic,

meaning they used the natural siphon created by the flushing water in the toilet trap to “pull” waste from the bowl. The smaller the toilet trap, the easier it is to create the necessary suction. But smaller traps can also make it more difficult for the waste to pass through. Washdown toilets, on the other hand, use the water entering the bowl to help “push” the waste through the trap. Because they don’t need to rely only on a siphon, washdown toilets can have a considerably larger trap diameter. But, because of the way they work, they also tend to have a much smaller water surface area in the toilet bowl. As a result, washdown toilets generally tend to clog less often than siphonic toilets, but they may also require more frequent cleaning.

Drainline Carry

Despite some early concerns, extensive testing has shown that water-efficient toilets provide more than enough water to transport waste through your home’s drainpipes to the sewer. If you find your toilet is frequently plugged, it is more likely a sign that your drainpipes are partially or fully blocked than your toilet is not functioning properly.

Lined vs. Unlined Tank

Toilets come with lined (insulated) or unlined tanks. The lining helps prevent the condensation, or “sweating,” that can form on the outside of the tank during hot, humid summer months due to the presence of cold water in the tank. A lined tank may not be necessary if your home is air-conditioned, your indoor air is relatively dry and your municipal or well water is not too cold. If unsure, consult with a local toilet installer or retailer to find out what is recommended for your area.

Supplementary Purchase Specification (SPS)

Another performance criterion that can be used to identify high performance toilets is the Supplementary Purchase Specification (SPS), created by the Los Angeles Department of Water and Power to measure the performance and durability of toilets over the long term. To meet the SPS standards, a toilet must have chemically resistant trim components that won’t be damaged from exposure to chlorine. It must also have a pilot fill valve (or equivalent) to ensure that the water level in the tank remains at the proper level over time, regardless of changes in the water pressure. Furthermore, it must not permit any adjustment that would allow the toilet to flush with more than 7.6 L of water. To find out if a toilet meets the SPS requirements, look up its name and model in the MaP report tables, or purchase a WaterSense-certified toilet, which guarantees the same stringent requirements.

With these considerations in mind, you should be ready and able to choose a toilet that’s right for your home, your pocketbook — and the environment.