

# Green Renovation Toolkit



## WATER CONSERVATION

Water is perhaps our most precious commodity - only 2% of all water on the planet is fresh water, and of that only a small portion is accessible to supply all our needs. We are a notoriously water-wasteful society. However, there are many simple changes that can be made to reduce water consumption considerably. These reductions affect not only water bills, but electrical bills as well - hot water heating is the biggest energy user next to space heating - about 15% of a typical energy bill goes into water heating.<sup>1</sup>

Environment Canada provides suggestions on how to reduce water consumption in a home or business on their website.<sup>2</sup> The three rules of water conservation are: reduce, repair and retrofit. By following these rules a typical household/business can save 40% or more of its water consumption, with no effect on lifestyle.

### 1. Low-flow faucets

Low-flow faucets use up to 50% less water than older taps, while maintaining good water pressure and flow. Water is mixed with air through the use of an aerator, saving on average 5 liters of water per minute compared to a normal flow bathroom faucet. Most new faucets are aerated, but it is best to confirm they are before purchasing.

### 2. Low-flow showerheads

A low-flow showerhead can be bought for as little as \$8 and uses only 60% of the water of a high-flow showerhead. This is one of those easy changes with a quick return, as heated water is a large portion of most energy bills.

The use of a low-flow showerhead has been estimated to save 27,000 liters of water per year in a typical household. This translates into not only a lower water bill, but also savings of \$35 or more per year in water heating costs, depending on the type of heat source. Showering less frequently and for a shorter duration are other obvious ways to conserve water.

### 3. Low-flow toilets and toilet dams

Toilets are responsible for about 30% of total household water use. Older toilet models use anywhere between 13 and 20 litres of water per flush. Today's ultra-low flow models use 6 litres of water or less to flush, which can save up to 70% of the water use of a normal toilet, and up to 30% of indoor water use.

Some models have a dual flush option, allowing for a smaller (approx. 3 litres) or bigger flush (approx. 6 litres) depending on the need. In some provinces, such as British Columbia, there are provincial regulations requiring that all new toilets use 6 litres per flush or less. B.C. statistics state that a family of four can save up to 80,000 litres of water per year with a 6-litre toilet and even more with a high efficiency model.

Water-saver flush kits, or toilet dams, provide an inexpensive way to reduce water use in toilets without replacing them. These kits can displace the size of a water tank by approximately 5 litres, saving thousands of litres of water per year. Caution should be used if inserting rocks or other objects, instead of a kit, as they can break down over time. Hardware and plumbing stores can recommend which type of toilet dam would work best for your toilet.

### 4. Waterless urinals and compost toilets

The ultimate choice in water-saving toilets is one that uses no water at all. Waterless urinals can be costly to purchase, but reduce water bills considerably. For information on local suppliers, check the Ecology Action Centre website.<sup>3</sup>

Compost toilets offer another good option. Properly maintained composting toilets provide an odor-free method of turning human waste into usable compost, again without needing water to do so. Currently the Building Code requires at least one plumbed-in toilet per residence, if a water supply is present.

## 5. Grey water systems

Grey water is water that is not up to drinking standards, but is also not heavily polluted. About 50-80% of domestic wastewater can be categorized as grey water, and includes bath/shower and dishwasher. Filtering, and redirecting this water to applications where it does not need to meet drinking standards, such as toilet flushing and garden irrigation are obvious, but rarely implemented water saving strategies. Drinking water is precious, and should be valued as such.

## 6. Fix leaks

Just as it is important to fill gaps around windows and doors to retain the heat, it is important to fix leaky toilets, showerheads and faucets. It is easy to forget about a leak, especially in today's busy world, but leaks can have a significant impact on water use. A toilet that continuously runs after flushing can waste up to 200,000 litres per year, and a hot water faucet that leaks one drip per second will waste 9,000 litres per year. That's enough water for 160 full cycles

on an automatic dishwasher, and a significant heating bill if it's the hot water tap that is at fault.<sup>4</sup>

Most common leaks are found at toilets, faucets, showerheads, service lines or sprinkler systems.<sup>5</sup>

## 7. Insulating water tanks and water pipes

Insulating water heaters and water pipes will keep water warmer, and help reduce the amount of water wasted while waiting for tap water to reach the desired temperature. One way to measure these amounts is to collect the cold water that precedes the hot with a container. This water can be used for drinking, cleaning, watering your plants or something else instead of letting it disappear down the drain, unused.

## 8. Water barrels

In Nova Scotia a regular roof can collect about 15,000 litres of water per month or 85,000 litres per year. This water can be used for indoor and out-

door purposes instead of running off unused into storm water drains.

A simple rain barrel on the outside of a building can collect enough rainwater to water gardens and in/outdoor plants. More extensive systems can filter water to drinking water standards, or be used in grey water systems for bathing, toilets etc.

## 9. High-efficiency appliances

EnergyStar rates the most energy, and water-efficient appliances available. Natural Resources Canada has a handy calculator<sup>6</sup> to determine operating costs of appliances over its expected lifetime. It is helpful to compare those in use, to those being considered for purchase. This information can help resolve whether it is cost effective to replace old appliances, ranging from washing machines to toasters. With any purchase, it is important to consider buying local and reducing the amount of "stuff" bought, if a smaller/lighter energy footprint is the end goal.

## Bibliography

*Smart Power: An Urban Guide to Renewable Energy and Efficiency*, William H. Kemp (2004)

*Natural Remodeling for the Not-So-Green House*, Carol Venolia & Kelly Lerner (2006)

*Healthy Housing Renovation Planner: Renovate the Healthy Way*, Canadian Mortgage and Housing Corporation (CMHC) (1999)

*Hot Water Answers*, Conserve Nova Scotia

## Resources:

Ecology Action Centre: [www.ecologyaction.ca/newhome](http://www.ecologyaction.ca/newhome) tel. (902) 442-2202

CMHC: [www.cmhc-schl.gc.ca](http://www.cmhc-schl.gc.ca) tel. (902) 426-4715 or (902) 426-5780

Conserve Nova Scotia: [www.conservens.ca](http://www.conservens.ca) tel. (902) 424-0790

EnerInfo Hotline: 1-800-670-4636

Nova Scotia Green Sheets: [www.ecologyaction.ca/newhome](http://www.ecologyaction.ca/newhome)

EnerGuide home energy evaluations:

- Clean Nova Scotia: [www.cleanns.ns.ca](http://www.cleanns.ns.ca) tel. (902) 420-3474
- Sustainable Housing: [www.sustainablehousing.ca](http://www.sustainablehousing.ca) tel. 1-877-722-2842

Efficiency information for small and medium-sized businesses:

- Eco-Efficiency Centre: [www.eco-efficiency.management.dal.ca](http://www.eco-efficiency.management.dal.ca) tel. (902) 461- 6704

Interesting facts on water and water consumption can be found on the websites listed in the endnotes and at the following websites:

Environment Canada: [www.ec.gc.ca/Water/en/e\\_quickfacts.htm](http://www.ec.gc.ca/Water/en/e_quickfacts.htm) and [www.ec.gc.ca/Water/en/info/pubs/nttw/e\\_nttwi.htm](http://www.ec.gc.ca/Water/en/info/pubs/nttw/e_nttwi.htm)

OECD water use: [www.environmentalindicators.com/htdocs/indicators/6wate.htm](http://www.environmentalindicators.com/htdocs/indicators/6wate.htm)

## EndNotes:

1. [oee.nrcan.gc.ca/residential/personal/new-homes/water-conservation.cfm?attr=4](http://oee.nrcan.gc.ca/residential/personal/new-homes/water-conservation.cfm?attr=4)
2. [ec.gc.ca/WATER/en/manage/effic/e\\_indiv.htm](http://ec.gc.ca/WATER/en/manage/effic/e_indiv.htm)
3. [ecologyaction.ca/newhome/suppliers.htm](http://ecologyaction.ca/newhome/suppliers.htm)
4. [oee.nrcan.gc.ca/residential/personal/new-homes/water-conservation.cfm?attr=4](http://oee.nrcan.gc.ca/residential/personal/new-homes/water-conservation.cfm?attr=4)
5. [crd.bc.ca/water/conservation/household/leakdetection.htm](http://crd.bc.ca/water/conservation/household/leakdetection.htm)
6. [oee.nrcan.gc.ca/equipment/english/page26.cfm?attr=4](http://oee.nrcan.gc.ca/equipment/english/page26.cfm?attr=4)