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Water Conservation



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About CO₂RE

Created by Edmontonians for Edmontonians...

Carbon Dioxide Reduction Edmonton (CO₂RE) is a developing organization formed to implement Edmonton's Community-Wide Greenhouse Gas Emissions (GHG) Reduction and Energy Strategy. CO₂RE is supported by the City of Edmonton and a group of local organizations dedicated to implementing the strategy and reducing greenhouse gas (GHG) emissions in our city.

The CO₂RE mission is to work with Edmonton residents, businesses, institutions and industry providing services, programs and initiatives to assist in reducing energy use, thereby reducing the levels of the GHG emissions that are responsible for Climate Change.

CO₂RE goals include:

- up to a 6% reduction in GHG emissions (from 1990 levels) by the year 2010 and
- a 20% reduction in GHG emissions (from 1990 levels) by the year 2020.

Do your part...

We can do many things to reduce our emissions – and that includes making our homes and lifestyles more energy efficient. The publications in this series are a first step, providing Edmonton with specific how-to guides on improving home energy efficiency, saving money and reducing GHG emissions.

For more ideas on how to become more energy efficient, log onto our website at www.co2re.ca!

Free Membership

Why get a membership? Becoming a CO₂RE member is free and the more people who join us in taking action on climate change, the faster we will achieve our goals. CO₂RE is working with local companies to offer incentives on energy-efficient products and programs to further assist homeowners. You'll also receive a regular newsletter with new ideas and updates. Sign up today at www.co2re.ca.

Industrial and commercial/institutional companies can contact our manager at 944-CORE (2673) to find out how they can participate.

Introduction

Did you know that the water we use every day requires large amounts of electrical energy to treat, deliver and remove (waste water/ sewage) from our homes. Approximately 80% of Alberta's electricity is generated by burning coal, a major contributor of the Greenhouse Gases (GHG) responsible for global warming and climate change.

Reducing your water usage will not only save you money, it will reduce the amount of greenhouse gas emissions created by treating your water and wastewater (sewage).

What you pay on your monthly water bills goes toward the cost of current water and wastewater treatment and toward the ongoing creation and maintenance of treatment facilities. This booklet outlines a number of actions you can take to reduce your indoor water use including:

- No-cost changes,
- Low cost modifications to existing fixtures,
- Installing new plumbing fixtures and appliances.

New water efficient appliances, low flow showerheads and Ultra Low Flush (ULF) toilets are available that offer considerable cost savings and greenhouse gas (GHG) emission reductions. Figure 1 shows a breakdown of average water usage for Edmonton area homes.

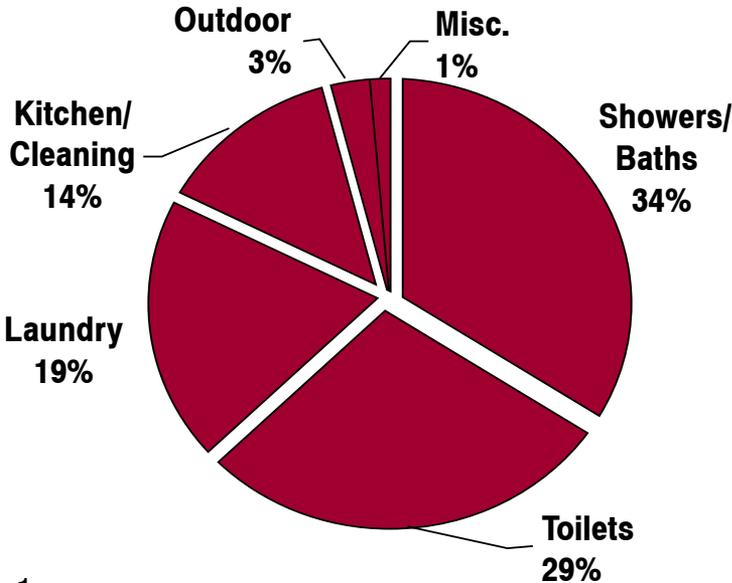


Figure 1

(Approximate averaged usage figures courtesy of EPCOR)

Conserving Water

Simply increasing your understanding of your water usage and knowing how to change usage habits can achieve significant savings.

Often a few simple inexpensive steps can reduce water consumption by 10% to 20%. More substantial actions such as upgrading to ultra low-flow toilets and showerheads combined with simple usage changes can produce savings in the 20% to 40% plus range.

In 2003* the average Edmonton single-family household (2.7 people) used approximately 597 litres of water per day or 18.1 m³ (cubic metres) monthly for indoor use. Average total yearly residential single-family usage, including outdoor use was 243,000 litres or 243 cubic m³ yearly.

You pay for both the water coming into your home and the wastewater (sewage) leaving your home based on the amount of metered water. The table below shows the 2003 indoor water usage costs for the average Edmonton single-family homeowner based on current charges and rates (fixed charges are not included).

Indoor Usage	Water	Sewer	GST	Total
221 m ³ / Year	\$244	\$193	\$30	\$467

A 20% Reduction would save you - \$93 yearly

A 40% Reduction would save you - \$187 yearly

+ Greenhouse Gas (GHG) reductions of 77 to 154 kg per year

The average family using a total of 243 cubic meters (m³) a year is responsible for the production and release of about 426 kilograms of Greenhouse Gases (GHG's) yearly.

Water Costs

In Edmonton, water costs to users is based on metered consumption – EPCOR residential water rates in 2003/04 were \$1.1058 for the first 60 cubic metres (m³) and \$1.1429 per m³ for usages over 60 m³ per month. Sewage charges are based on a per cubic metre charge of 87.39¢ per m³ of incoming water for a combined cost of \$1.98 per m³. Average residential customer water usage is approximately 20 m³ per month. Each cubic meter (m³) of water used, (includes wastewater) produces approximately 1.8 kg of GHG emissions.

Imperial and metric equivalents:

- 1 Imperial gallon = 4.54 litres
- 1 cubic metre (m³) = 1,000 litres
- 1 cubic metre (m³) = 220 Imperial gallons.

*2003 usage figures & costs provided by EPCOR

Water Usage

Most of your household water simply flows down the drain. Showers and baths, followed by toilet flushing are the biggest indoor uses for water. In the summer, residential water use can increase up to 50%, mostly due to outdoor usage such as lawn watering.

The average single-family Edmonton household of 2.7 people uses 597 litres or 131 gallons of water daily. About 175 litres is used for the toilet (based on EPCOR averaged figures of 13 litres per flush) and another 203 litres used for showering and baths.

A family of 4 in a single-family home will use about 885 litres/ day (indoors) or 195 gallons daily with 260 litres for the toilet and 300 litres for showers and baths.

No-Cost Changes

First, locate and repair any leaks in your water system.

The average household loses 14% of its water due to leaks.* A dripping faucet at a rate of one drip per second can waste over 8,000 litres of water a year.

You pay for water and sewage costs (plus energy costs if it is a hot water faucet). Most faucet leaks can be easily repaired by simply replacing the washers.

A leaking toilet can double or even triple your household water bill.

- If you hear the sound of running water or a faint hissing or trickling, your toilet may need repairs.
- Water often flows through the tank silently, causing many leaks to be overlooked. Check your toilet for slow leaks by putting some liquid food colouring in the toilet tank and waiting 15 minutes without flushing. If the colour appears in the bowl you have a leak.
- Leaks occur at the plug or flapper (Figure 2) when it begins to wear out. Check for cracking or colour from the flapper marking your fingers when you touch it.
- Damage or mineral deposits on the flapper, plug or valve seat may prevent a watertight fit. Remove deposits with fine steel wool or a plastic scouring pad and check for leaks. **In most cases it is more effective to simply replace the entire flapper valve assembly.**
- A flapper valve that doesn't seat properly can cause a constant leak. Adjust the lift wires, chain and other parts of the mechanism.
- A leak may result when the intake valve doesn't close completely. Adjust the float (if your toilet has one) to be lower in the water.
- Leaks can flow silently into the overflow tube. The water in most tanks should be at 1" below the overflow tube for best operation.

**Residential End Uses of Water, AWWA Research Foundation, 1999*

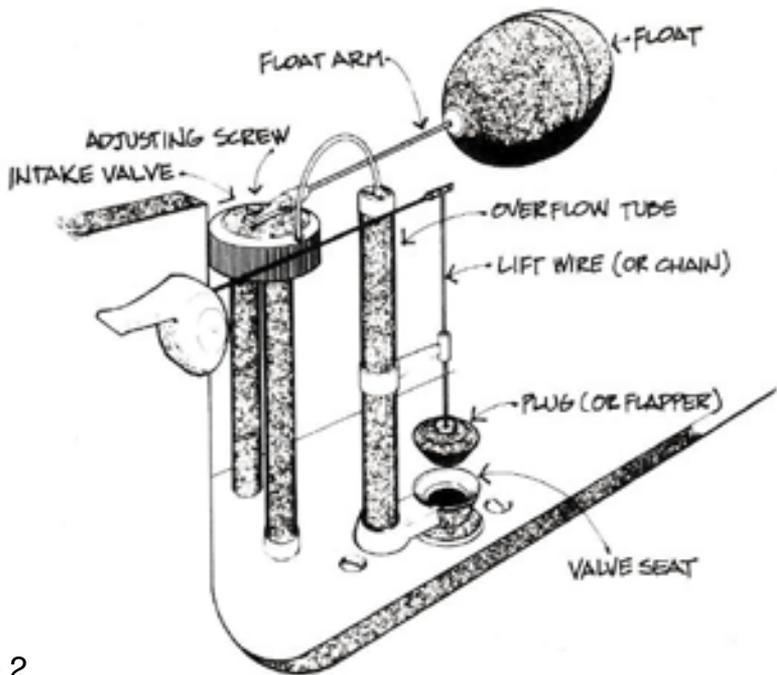


Figure 2

Become Water Wise and train yourself and your family to be aware of water usage and waste:

- Turn off the tap while you shave or brush your teeth.
- On average a 10 minute shower uses less water than filling a bath tub.
- Partly fill the sink with water to clean and scrub vegetables, then rinse before use.
- Don't use the toilet for tissue and small waste item disposal, use a waste basket.
- Wash full loads of laundry or adjust the water level to suit the load size. Use cold water washes and detergents whenever possible and rinse with cold water.
- Instead of running the tap to get cold water, keep a container of cold water in the fridge for drinking.
- Water the lawn sensibly: one hour once per week is usually sufficient, longer and the water is wasted. Avoid watering when it is windy or hot as the water evaporation can be as high as 50%. Watering in the early morning or evening will ensure your garden maximizes the water used instead of losing it to evaporation.

Low-Cost Changes

Toilets

A standard older model toilet uses 20 litres per flush. Newer low flush toilets use 13 litres per flush and new ultra-low flush (ULF) models use 3-6 litres.

The following table shows the yearly water usage and total costs for an average single-family household of 2.7 people for 20L, 13L and 6L toilets.

Water Usage (2.7 Users)	Size	Total Costs (Including GST)	GHG emissions (kilograms)
98 m ³	20L	\$207	172
64 m ³	13L	\$135	112
30 m ³	6L	\$64	53

The average (2.7) single-family household replacing a 20L toilet with a 6L ULF toilet could save approximately \$143 per year (based on 5 flushes per day per person) and reduce personal GHG emissions by 119 kg.

The average family replacing a newer 13L toilet with a 6L ULF model would still save approximately \$71 a year and reduce personal GHG emissions by 59 kg yearly.

A family of four with a 20L toilet could be using up to 146 m³ of water per year. Installing a 6L ULF toilet would save approximately \$216 a year and reduce personal GHG emissions by 179 kg.

If replacement of a standard toilet with a ULF model is not an option at this time there is a wide variety of water conservation devices available that can provide a short-term fix for existing toilets.

The cost savings by reducing toilet flush volumes are considerable compared to the cost of various water saving devices. However, some devices can affect the performance of your toilet so it is essential to purchase the correct unit for your toilet and install them to the manufacturer's directions.

Once in place these devices require periodic checks and adjustments to ensure that the toilet flushes properly.

Although these devices can be effective when properly installed they often have limited life spans and should be considered as a short-term water conservation strategy.

Examples are included for 2 types of water conservation products, a set of toilet dams and a floating flush saver.

Toilet Water Savers

Toilet dams (Figure 3) can reduce the water volume per flush by 20 to 30%, depending on your toilet model and design, while maintaining the depth (water head) needed for effective flushing. Good quality dams that can maintain a long-term seal and proper installation are essential for good performance.

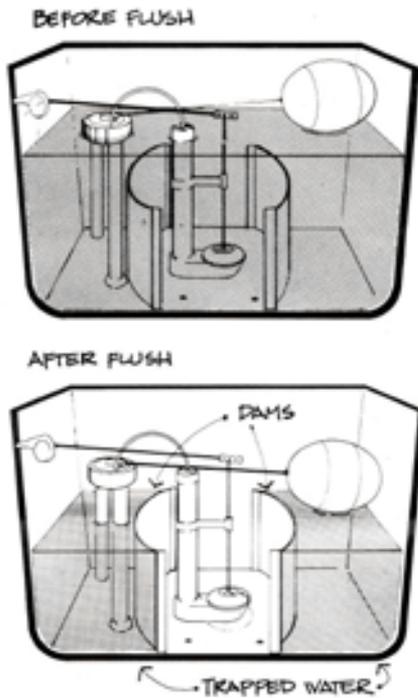


Figure 3

Other adjustable water-saving devices that attach to the fill valve assembly can save up to 30% per flush (Figure 4). You should be able to purchase them from the local hardware, plumbing shop or building supply store. If you install a toilet water saving device, be sure that it is the right type for your brand of toilet and that it is installed to manufacturer's directions and is adjusted so that the toilet flushes properly. Don't forget to check it every couple of months to ensure it is still operating properly.

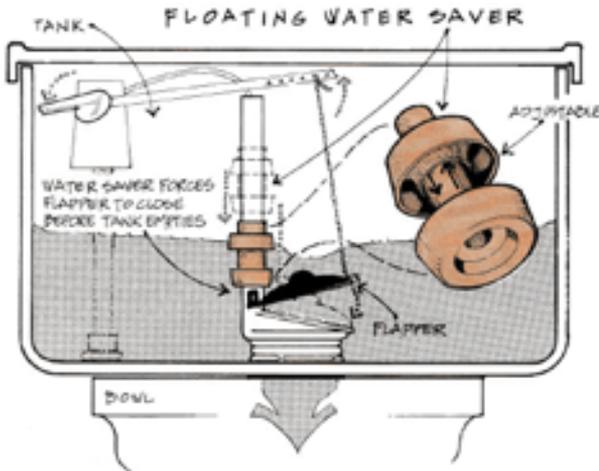


Figure 4

The example tables below show the estimated water conservation savings achievable from installing a toilet water conservation device.

Figures are based on 2003 /2004 water and wastewater costs and achieving a 20% reduction in toilet water usage for the average family of 2.7 and family of 4.

Toilet Usage (2.7 Users)	Water	Sewer	GST	Total
64 m ³ / Year - 20%	\$70.77	\$55.93	\$8.87	\$135
= 51 m ³ / Year	\$56.40	\$44.57	\$7.07	\$108
Cost Savings	\$14.37	\$11.36	\$1.80	\$28

The average single-family home could save approximately \$28 a year and reduce personal GHG emissions by 23 kilograms/ year.

Toilet Usage (4 Users)	Water	Sewer	GST	Total
95 m ³ / Year - 20%	\$105.05	\$83.02	\$13.16	\$201
= 76 m ³ / Year	\$84.04	\$66.42	\$10.53	\$161
Cost Savings	\$21.01	\$16.60	\$2.63	\$40

A family of 4 could save approximately \$40 a year and reduce personal GHG emissions by 33 kilograms/ year.

Although the savings are good in comparison to the purchase costs of the water saving devices available, replacing an existing toilet with a new 6 litre ULF toilet or newer dual flush 3L/ 6L toilet will generate the highest level of cost savings and GHG emission reductions.

Ultra Low Flush (ULF) Toilets

Replacing your existing toilet with a new ultra low flush toilet will reduce water usage by 47% to 70% per flush, depending on your existing unit. ULF toilets use 6 litres (6L) per flush and some newer models are now available that offer a 3L & 6L dual flushing feature.

The table below shows the averaged savings potentials based on a 47% reduction in toilet water usage by upgrading from a 13L model to a 6L ULF toilet.

Toilet Usage (2.7 Users)	Water	Sewer	GST	Total
64 m ³ / Year - 47%	\$70.77	\$55.92	\$8.87	\$135
= 30 m ³ / Year	\$33.17	\$26.22	\$4.16	\$64
Cost Savings	\$37.60	\$29.70	\$4.71	\$71

The average family (2.7) could save approximately \$71 a year and reduce personal GHG emissions by 59 kilograms/ year.

For a family of 4 the savings would be approximately \$108 a year and a reduction in personal GHG emissions of 89 kilograms/ year.

Showers

Conventional showerheads can deliver anywhere from 12.5 to 36 litres (2.5 - 8 gallons) of water per minute (at 60 pounds water pressure). One 10-minute shower at full flow could use between 125 and 360 L of water, of which approximately 50% would be heated water, (180 litres or 40 gallons) of hot water per shower. There are both low and moderate cost options available to reduce shower water usage.

An inexpensive flow restrictor (Figure 5) can be installed to reduce the flow rate by about 20% to 30% thus saving you water, sewage and water heating costs. There are two types of flow restrictors, one resembles a small washer, and the other is a cylindrical device.

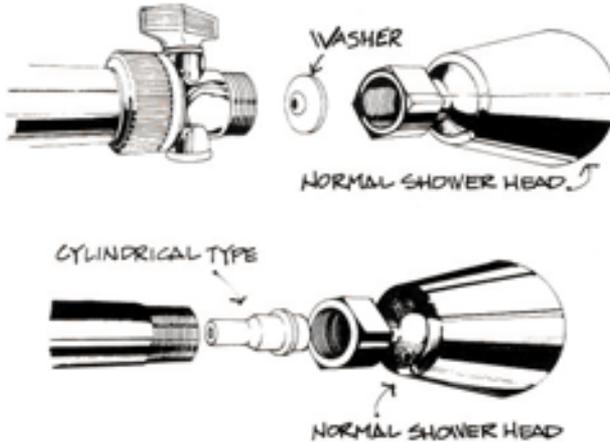


Figure 5

Installing Low Flow showerheads is the best option, reducing hot water usage by 30% to 50% compared to a standard showerhead without significantly reducing the “feel” of the shower.

The average Edmonton family of 2.7 people uses about 72 cubic meters yearly for showers and baths. Based on an estimated average usage of 40 cubic meters for showers, the following table identifies the savings potential of 40% with the installation of a low flow showerhead with a flow rate of 12 litres or less per minute.

Shower Usage (2.7 Users)	Water	Sewer	GST	Total
40 m ³ / Year - 40%	\$44.23	\$34.95	\$5.54	\$85
= 24 m ³ / Year	\$26.54	\$20.97	\$3.33	\$51
Cost Savings	\$17.69	\$13.98	\$2.21	\$34
*Hot Water Savings	40% of 17 GJ = 6.8 GJ		x \$10/ GJ	\$68

An average family could save approximately \$34 yearly in water costs, \$68 per year in water heating costs for a total savings of \$102 yearly and a total reduction in personal GHG emissions of 366 kilograms/ year.

For a family of 4 savings would be approximately \$54 yearly in water costs and \$100 per year in water heating costs for a total savings of \$154 yearly and a total reduction in personal GHG emissions of 538 kilograms/ year.

*Cost savings for gas water heating are based on the assumption that 30% of the average homes natural gas usage of 160 Gigajoules (GJ) a year or approximately 48 GJ is used for domestic water heating and 35% of that or 17 GJ is used for heating water for showers. Similar water heating savings could be achievable for homes equipped with an electric water heater.

Faucet (Taps) Aerators

Installing low flow faucet aerators is a cost effective way to reduce water usage in your existing kitchen and bathroom faucets (taps). Kitchen and bathroom taps account for about 14% of indoor water usage. Low flow aerators simply thread into your existing faucets (follow installation instructions) and reduce the water flow by mixing it with air to maintain a good flow while reducing water usage.

Standard faucets can have flow rates between 9 and 13 litres per minute (2 to 3 gallons per minute). Low flow faucet aerators are available with flow rates of 6 litres per minute (1.5 gallons per minute).

Faucet water usage for the average Edmonton family (2.7) is about 31 cubic meters (m³) yearly. The following table identifies the savings potentials (30%) with the installation of low flow faucet aerators (kitchen & bathroom taps) with a flow rate of 6 litres or less per minute (1.5 gallons per minute or less).

Cost savings for gas water heating are also included based on the assumption that 30% of the average homes natural gas usage of 160 Gigajoules (GJ) a year or approximately 48 GJ is used for domestic water heating and 15% of that or 7 GJ is used by faucets. Similar water heating savings would be achievable with electric water heaters.

Faucet Usage (2.7 Users)	Water	Sewer	GST	Total
31 m ³ / Year - 30%	\$34.28	\$27.09	\$4.29	\$65.66
= 22 m ³ / Year	\$24.33	\$19.23	\$3.05	\$46.61
Cost Savings	\$9.95	\$7.86	1.24	\$19.05
Hot Water Savings	30% of 7 GJ = 2.1 GJ		x \$10/ GJ	\$21

An average family (2.7 people) could save approximately \$19 yearly in water/ sewer costs, \$21 per year in water heating costs for a total savings of \$40 yearly and a personal GHG emission reduction of 120 kilograms/ year.

A family of 4 could save approximately \$29 yearly in water/ sewer costs, \$30 per year in water heating costs for a total savings of \$59 yearly and a personal GHG emission reduction of 174 kilograms/ year.

Water Heaters

Water Heater Performance

Most hot water tanks have factory temperature settings of 60°C (140°F), which is hot enough to cause scalding. You can lower the temperature setting for your hot water tank to 50°C (120°F), which is about as hot as your hand can tolerate.

Turning down the setting 10°C won't reduce water usage, but it will reduce your utility costs (gas or electric) for water heating.

If you have an electric water heater, lower the temperature by shutting off the power, remove the cover plates over the elements and make the adjustments with a screwdriver. For gas heaters simply turn down the temperature control.

Don't forget to drain the sediment and minerals from the bottom of your hot water tank at least once a year. The residue buildup in the bottom of the tank (Figure 6) acts as an insulator, causing your water heater to use more fuel.

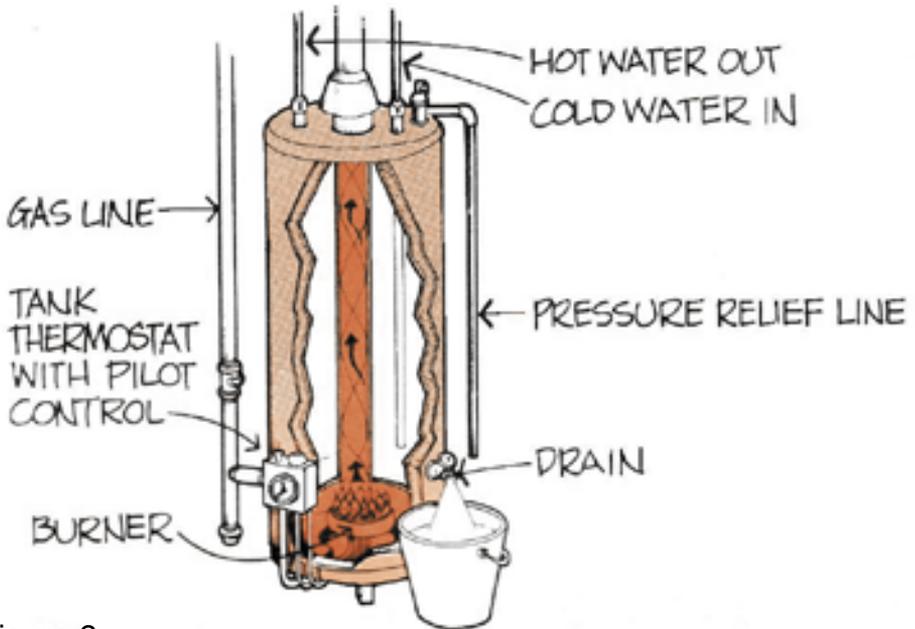


Figure 6

NOTE: If the drain valve does not open easily, do not force it.

Insulate Your Hot Water System

Heat loss accounts for about 15% of water heating costs. Wrapping the hot water tank and accessible pipes with insulation reduces the loss to 4%. Older tanks benefit most. You can purchase an inexpensive hot water tank blanket kit or use foil-faced fibreglass duct insulation from your local plumbing or hardware store (Figure 7).

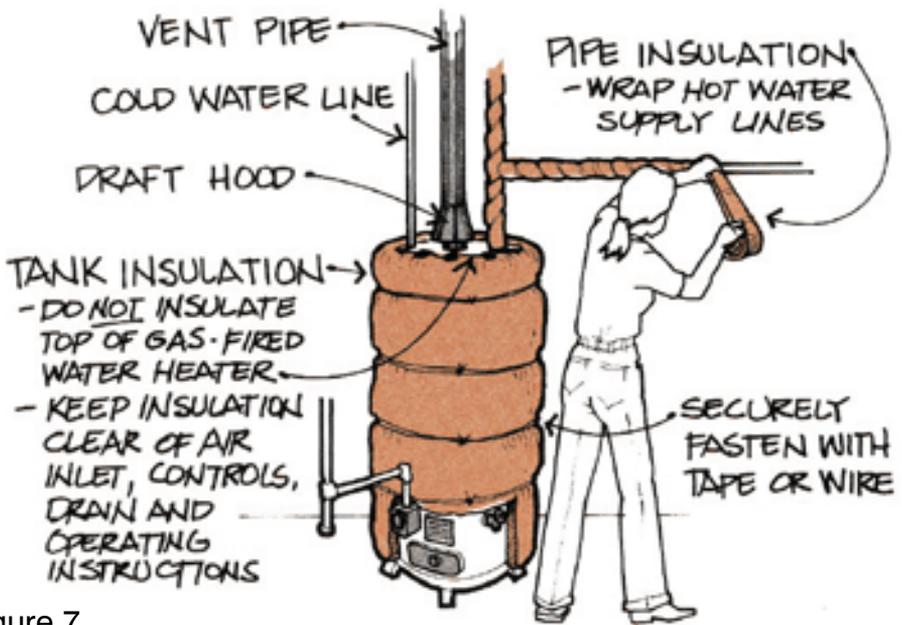


Figure 7

!!!Important!!! When insulating a gas water heater, be sure the top is not covered and the draft hood is not blocked. Also do not cover the air inlet, the controls or the operating instructions for the burner and pilot light. Make sure the insulation is securely fastened and won't come loose and cover the air inlet or controls.

Insulating hot water lines keeps the water in the pipes warmer, meaning less water has to be run to bring hot water to a faucet, thereby reducing water use.

Insulate Your Hot Tub

If you have a hot tub or spa with a gas heater, you can reduce your gas usage by approximately 40%. Use an insulated cover; add insulated skirting to built-in models, and wrap the pipes with insulation.

Installing a New Water Heater

Select Water Heater Location - To reduce heat loss through long runs of piping, locate a new hot water tank as close as possible to the areas where the most hot water is used.

Select a New Water Heater carefully - Match the size of a new water heater to the needs of your family. An over-sized unit wastes energy.

Higher efficiency gas-fired hot water tanks are available. One type is a "sealed combustion" water heater (Figure 8), which vents out the side of the house eliminating the need for a standard chimney. These units offer improved performance through higher efficiencies and ensure positive exhaust flows.

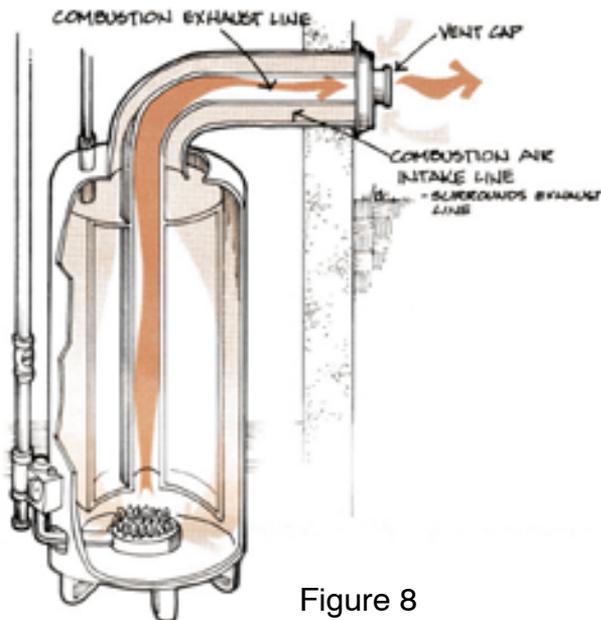


Figure 8

Outside air enters the vent system’s outer channel to supply combustion air. It has an inner channel for venting exhaust. Manufacturers are claiming seasonal efficiencies of 75% to 80%, which is a significant improvement over conventional units with efficiencies at 50 to 55%.

The table below shows example savings achievable with a high efficiency gas water heater. Figures are based on the assumption that the average home uses approximately 48 GJ for domestic water heating.

Water Heating (2.7 users)	Yearly Usage	Costs
Standard Tank - 50% Efficient	48 GJ x \$10/ GJ	\$480
High Efficiency Tank – 75% Efficient (uses 25% less natural gas)	36 GJ x \$10/ GJ	\$360

An average family (2.7) could save approximately \$120 a year and reduce GHG emissions by 600 kilograms yearly.

A family of four could save approximately \$178 a year and reduce GHG emissions by 894 kilograms yearly.

If purchasing an electric hot water tank, choose a unit with the highest insulation levels, dual heating elements and easily accessible temperature controls.

Instantaneous or tank-less water heaters: When a hot water tap is turned on, the cold water enters the heater and triggers the heating elements or burners to turn on; the water is then heated as it flows through the heating elements or heat exchanger. When the hot water tap is turned off, the system shuts down.

Standby losses associated with conventional water tanks (energy wasted to keep water warm when it is not being used) water wasted and hot water line losses are eliminated resulting in improved water efficiency and lower hot water bills. Gas-fired tank-less units have efficiencies of 75% to 83%. They can generate a maximum of 19 litres per minute of hot water, which can supply 2 major hot water applications at the same time i.e. a shower and a washing machine.

Electric tank-less units are available which manufacturers claim have an efficiency of 99%. These units generate between 7.5 and 13 litres per minute and can supply one major hot water application at a time (i.e. 1 large bath tub) or 2 sink hot water taps.

These units may be sufficient for a small family, but a large family with lots of clothes washing, dishwashing, showers and baths might find that there is not enough hot water production to meet the demand.

There are now larger whole house tank-less units available from manufacturers that claim to be able to supply all the hot water needs for an average home.

Companion hot water tanks are available with some high efficiency furnaces and with boiler-assisted heating systems. Hot water or glycol from the heater can be circulated through the coil in the tank to heat the water. If the heater (boiler or furnace) is a high efficiency unit, it will provide more efficient water heating than with a conventional hot water tank.

Solar water heating systems are another option. Performance data shows that solar collectors can contribute 30% to 50% of the annual water heating load for an average home. Solar water heating systems are becoming more affordable and are usually supplemented with a tank-less or conventional hot water system for year round use.

Additional information on solar water heating systems is available from Natural Resources Canada – Office of Energy Efficiency. Contact details are included under “Additional Resources” at the back of this publication.

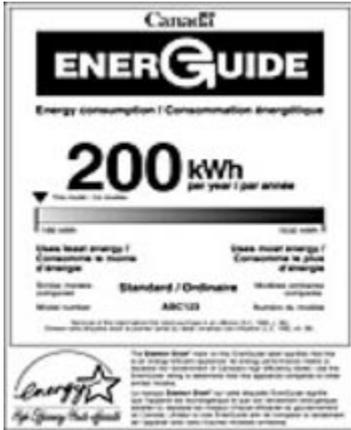
Appliances

With existing appliances such as clothes washers and dishwashers the only actions one can take are to be ***water wise and develop good usage habits*** including:

- Wash full loads of laundry or adjust the water level to suit the load size. Use cold water washes and detergents whenever possible and rinse with cold water.
- Wash full dishwasher loads only, use the rinse and hold cycle to clean food off plates until you have a full load.
- Use the shortest dishwasher cycle possible and use the no-heat economy drying cycle.

Purchasing New Appliances

If planning to purchase a new appliance, look for the “EnerGuide Label”. EnerGuide is a program from Natural Resources Canada that allows consumers to compare the energy efficiency of the many different models of household appliances sold in Canada. Check the EnerGuide rating on the appliance or in the manufacturer’s brochure – the lower the energy usage figure is (kilowatt hours per year) the lower the yearly operating costs.



How to read the EnerGuide label

- The large number is an appliance’s estimated annual energy consumption measured in kWh per year.
- The shaded bar scale displays the energy consumption range for appliance models of this type and size. The figure at the left end of the scale indicates the lowest energy-consumption rating; the figure on the right indicates the highest.
- An arrow just above the bar scale shows where the appliance ranks relative to similar models.
- The ENERGY STAR® symbol accompanies the EnerGuide label only on appliance models that achieve premium levels of energy efficiency, based on specific criteria endorsed by Natural Resources Canada.

Canada’s EnerGuide program is now complemented by the ENERGY STAR® program and symbol which goes one step further and identifies specific models that meet or exceed premium levels of energy efficiency.



When you see the ENERGY STAR on an EnerGuide label, you can be sure that the product is among the most energy efficient currently available.

Clothes Washers

If purchasing a new unit consider purchasing an ENERGY STAR qualified front-loading clothes washer. These units have advanced design features that deliver cleaning performance while using less energy and 30 to 50% less water than regular clothes washers. These washers extract more water from clothes during the spin cycle, reducing drying time, which saves energy and wear and tear on your clothes. To qualify for ENERGY STAR rating, clothes washers must have an EnerGuide energy consumption rating of less than 470 kWh a year.

Based on an average Edmonton family (2.7 people) usage of 40 cubic metres (m³) for clothes washing, the following tables identify the savings potentials (40%) achievable with the purchase of a high efficiency clothes washer.

Cost savings for gas water heating are also included and are based on the assumption that the average family's natural gas usage for domestic water heating is approximately 48 GJ a year and 10% of that (4.8 GJ) is water heating for clothes washing.

Laundry (2.7 Users)	Water	Sewer	GST	Total
40 m ³ / Year - 40%	\$44.23	\$34.95	\$5.54	\$85
= 24 m ³ / Year	\$26.54	\$20.97	\$3.32	\$51
Cost Savings	\$17.69	\$13.98	\$2.22	\$34
Hot Water Savings	40% of 4.8 GJ = 2 GJ		x \$10/ GJ	\$20

An average family (2.7) could save approximately \$34 yearly in water costs, \$20 per year in water heating costs for a total savings of \$54 yearly and a total reduction in personal GHG emissions of 127 kilograms/ year.

A family of 4 could save approximately \$51 yearly in water costs, \$30 per year in water heating costs for a total savings of \$81 yearly and a total reduction in personal GHG emissions of 191 kilograms/ year.

Dishwashers

If purchasing a new dishwasher again consider an ENERGY STAR certified unit. To qualify for ENERGY STAR rating, dishwashers must have an EnerGuide energy consumption rating of less than 455 kWh a year.

These units are at least 25% more water efficient than standard dishwashers and can save up to 20% on water heating costs by heating incoming water. The units use less hot water by using smart sensors to adjust the water cycle to match the load.

Become Water Wise!

Reducing your water usage will not only save you money, it will reduce the amount of greenhouse gas emissions created by your water usage, waste-water (sewage) treatment and water heating.

Additional Information Sources

Natural Resources Canada – Office of Energy Efficiency

www.oeenrncan.gc.ca – The Office of Energy Efficiency offers a wide range of free publications, programs and services to help Canadians save energy and reduce the greenhouse gas emissions that contribute to climate change.

EnerGuide for Houses (EGH) evaluations is a program from Natural Resources Canada. This detailed home assessment provides independent expert advice on the different systems of your home and what can be done to improve comfort, reduce energy bills, and cut down on greenhouse gas emissions that contribute to climate change. Consider having an EGH completed on your home.

Recommended Reading: *Keeping the Heat In* is a comprehensive source of energy efficiency how-to information for homeowners. This free publication is available from Natural Resources Canada. **Call toll free at 1-800-387-2000.**

Canada Mortgage and Housing Corp.

www.cmhc.ca/publications – CMHC is a valuable resource for information. The CMHC Order Desk is a one-stop shop for all free and priced publications, fact sheets, reports, videos and other CMHC resources. You can order online, or through their call centre at **1-800-668-2642**.

EPCOR

www.epcor.ca – The website contains information on energy and water efficiency with calculators, tools and downloadable publications to assist you in reducing your energy and water consumption.

Tools include a **Home Energy Audit**, a do-it-yourself home audit with a library of resources; **EPCOR House**, an animated tour of a typical home with efficiency information; and calculators for most major appliances, plus a **simple electricity calculator** and **water audit tool**. Tools are located in the EPCOR-Customer Service drop down menus.

Environment Canada

The Green Lane in Environment Canada's internet source for weather and environmental related to clean air, clean water and climate change. Visit them at www.ec.gc.ca

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