Energy Conservation Kit

Energy Conservation Kit

The purpose of the Kit

The residential real estate market is a diverse and ever-changing component of both our national economy and our day-to-day life. This is due to the development of improved building practices, availability of better building materials, adoption of new building standards, and implementation of evolving government policies. Greater consumer awareness of environmental issues, and concern over rising energy costs, is moving us towards a "greener" society. Homes that are more energy-efficient may command more money than their less energy-efficient counterparts, in some cases increasing in value up to $20 for every $1 saved in energy costs. They are also more comfortable than homes that are not energy-efficient.

This kit has been designed to provide you, the homeowner, with the necessary information to take advantage of opportunities to improve energy-conservation in your home. This kit has been designed in the following way:

1. **The Checklist –** captures critical information on the energy-efficiency of a home, and the factors that impact this. The Checklist may have been completed by your real estate representative, and presented to you. If not, you can use the Checklist to review the energy-efficient features of your home.
2. **The Energy Conservation Kit –** will provide detailed room-by-room information on possible energy-efficient upgrades, renovations, and any rebate programs that you may qualify for.

The Checklist components will be addressed in greater detail in each chapter of the kit. Each section of the Checklist corresponds directly with the chapters of the Kit:

- Building Envelope
- Bedrooms/Home Office
- Washrooms
- Kitchen
- Laundry Room
- Basement
- Heating and Cooling
- Exterior

In each section, the following components will be addressed:

– Description of the area of the home and a breakdown of the Checklist section that deals with that area.
– Tips that you can easily implement for little or no cost to improve comfort and energy efficiency in your home.
– Upgrade Opportunities that address home improvements that take a greater commitment, either of time or money, and could significantly improve a home's comfort and energy efficiency. These can be done by a homeowner who has skills in this area or a professional.
– If You're Renovating are things to consider if you are contemplating making considerable changes to your home, and these recommendations could make a serious impact on a home's comfort and energy efficiency. These changes should be undertaken by a professional or a homeowner who has skills in these areas.

Building Envelope

The building envelope refers to the external walls (including the basement walls), the attic insulation, windows, and doors. If any part of the building envelope has been breached, the comfort and energy-efficiency of a home may be seriously compromised.

The better the building envelope, the lower the heating and cooling costs, and the greater the comfort within the home.

Building Envelope

Building Envelope

When completing the Checklist, notice what sort of attic insulation exists. Is it:

Batt or blanket insulation?
This is the insulation that is cut to fit between joists in the attic, and is probably pink in colour.

Loose fill insulation?
Can be granular or fluffy in texture, and has been either blown in or poured. Could be Cellulose, Glass or Mineral Wool.

Building Envelope

Attic Insulation .....Yes/No Type? _____
Attic hatch sealed?..... ....Yes/No
Attic hatch insulated?.....Yes/No
Windows.....Age in years _____ Double pane? ___ Single pane? __
Doors.....Wood? __ Steel? __ Glass Insert? __
Comfort components.....Drafts? __ Where?_____

The attic hatch should be sealed with removable sealant and insulated to minimize heat loss, and restrict air movement. This will reduce drafts and increase comfort in the home.

Windows often do not significantly impact the home's overall energy-efficiency to the extent that is commonly believed, except for single-pane or broken windows. However, windows with storm windows, or double-paned windows, or windows that have been properly weather stripped, can reduce drafts and make a home more comfortable.

Doors need to be weatherstripped, much the same as windows. If the door isn't fitting snugly, the weatherstripping should be fixed or added.

If drafts are significant, mark down where you find them. This can assist you in determining what weatherstripping needs to be fixed or added.

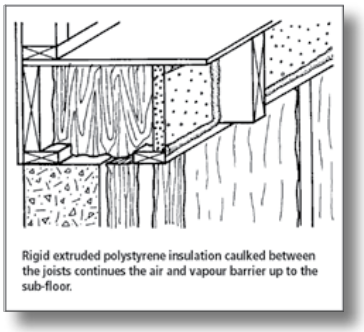
Building Envelope

Tips - can easily be implemented for little or no cost to improve comfort and energy efficiency in the home.

- Insulate the attic hatch by cutting a piece of rigid insulation and affixing it to the top of the attic hatch
- Seal the attic hatch with removable sealant
- Add weatherstripping to older, drafty windows
- Insulate and seal the attic hatch frame, which is often simply trim that has been added by the builder

Upgrade Opportunities - address those home improvements that take a greater commitment, either of time or money, but could significantly improve a home's comfort and energy efficiency, and can be done by a professional or a homeowner skilled in these areas.

- Insulate the basement walls, including sealing and insulating the headers between the joists



Rigid extruded polystyrene insulation caulked between the joists continues the air and vapour barrier up to the sub-floor.

- Insulate crawlspaces
- Blow in insulation where possible, such as in the attic
- Upgrade doors or windows, particularly if they are old and drafty

If You're Renovating - things to consider if significant home improvements are planned, and could make a serious impact on a home's comfort and energy efficiency. These changes should be undertaken by a professional or a homeowner who has skills in this area.

- Adding insulation to the exterior of the basement walls
- Consider window placement – if you are adding windows to your home, perhaps through an addition, consider minimizing the northern facing windows and increasing the size of the southerly windows

Building Envelope

Grant/Rebate Opportunities

- Federal Retrofit Program (Natural Resources Canada) information can be found at **http://www.oee.nrcan.gc.ca website**

Attic Insulation

Grants listed reflect 100 percent of roof area being of one type. When the roof has more than one type (e.g. attic and cathedral), all applicable grants are pro-rated based on area type that is entirely insulated. Increase the insulation value 100 percent of:	*Single Family Home Starting Point*		
	up to R-12	*+R-12 to R-25*	*+R-25 to R-35*
your attic to achieve a total minimum insulation value of RSI 7 (R-40)	*$400*	*$200*	*N/A*
your attic to achieve a total minimum insulation value of RSI 8.8 (R-50)	*$600*	*$300*	*$100*
your flat roof and/or cathedral ceiling to achieve a total minimum insulation value of RSI 5 (R-28)	*$600*	*$200*	*N/A*
your uninsulated flat roof and/or cathedral ceiling by a minimum of RSI 1.8 (R-10) [Starting Point: Uninsulated]	*$400*		

Exterior Wall Insulation

A minimum of 20 percent of total exterior wall surface must be insulated to qualify. The grant is based on the percentage of surface area insulated.	*Minimum Additional Insulation*		
		R-3.8 to R-9	*+R-9*
	20%	*$180*	*$300*
	40%	*$360*	*$600*
	60%	*$540*	*$900*
	80%	*$720*	*$1,200*
	100%	*$900*	*$1,500*

Building Envelope

Grant/Rebate Opportunities

Basement Insulation

	Minimum Additional Insulation		
		R-10 to R-	+R-23
A minimum of 20 percent of the basement's total wall surface must be insulated to qualify. The grant is based on the percentage of surface area insulated.	20%	$100	$200
	40%	$200	$400
	60%	$300	$600
	80%	$400	$800
	100%	$500	$1,000

Minimum Additional Insulation	Single Family Home
Seal all of your basement header area and increase all of its insulation value by a minimum of RSI 3.5 (R-20).	$100

Crawl Space Insulation

	Minimum Additional Insulation	
	R-10 to R-23	+R-23
100 percent of the crawl space's total wall surface must be insulated to qualify, or	$400	$800
Insulate 100 percent of the floor above the crawl space to increase its insulation value by a minimum of RSI 4.2 (R-24) to qualify.	N/A	$200

Building Envelope

Grant/Rebate Opportunities

Air Sealing

Perform air sealing to improve the air tightness of the home/building to reach the target as indicated in your energy efficiency evaluation report. **Bonus:** You can obtain an additional $150 incentive if you reach 20 percent better than target.	*Single Family Home* *$150*

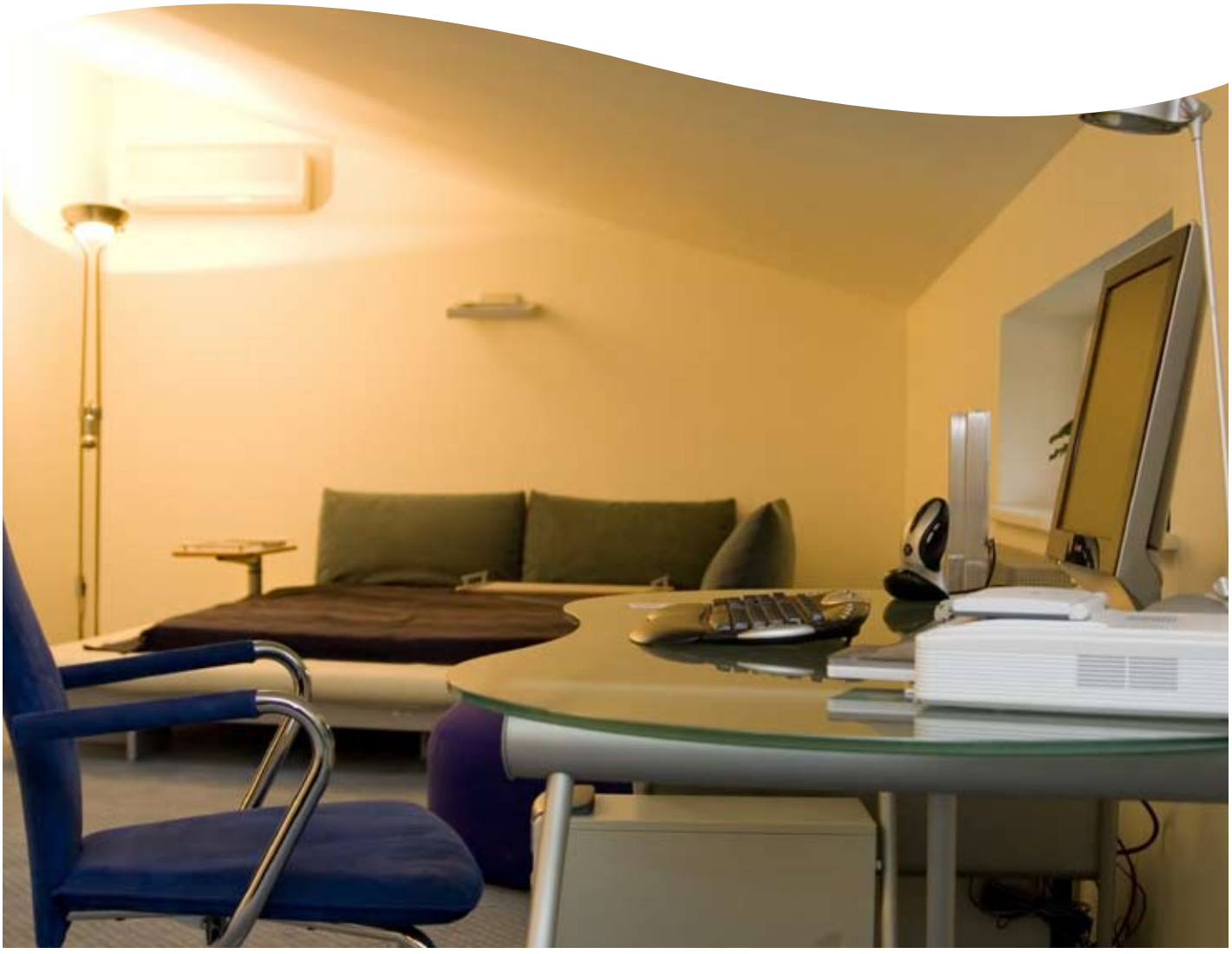
Doors/Windows/Skylights (heated space only)

	Single Family Home per unit replaced
Replace windows and skylights with models that are ENERGY STAR® qualified for your climate zone.	*$30*
Replace your exterior door(s) with an ENERGY STAR® qualified model(s) for your climate zone.	*$30*

- **Ontario will match the federal rebate provided, up to a maximum for $5,000 per home, as long as a qualifying audit has been completed**
- **$150 towards initial energy efficiency audit, provided by Ontario for its citizens**

Bedrooms/Home Office

The bedrooms/home office areas of the home have unique issues to consider in that there are typically a number of small appliances contained within that are used somewhat infrequently. These include televisions, computers, printers, re-chargers, shredders, clock radios, electric toothbrushes, and so on.



Bedrooms/Home Office

Bedrooms/Home Office

Bedrooms/Home Office

Light bulbs.....Traditional? ____ CFL? _____ LED? _____ (include number of bulbs)
Drapery/Window Coverings....Yes/No Type? _____
Ceiling fans?.....Yes/No
Flooring type? _____

In these rooms, note the types of light bulbs used – traditional or CFL bulbs. CFL bulbs use significantly less energy, but provide the same amount of light. Most CFLs cannot be used with dimmer switches.

Indicate what types of window coverings are used. Heavier drapes can be used to minimize drafts on windows.

Ceiling fans are an energy-efficient alternative to running the air conditioner.

Flooring choices are important because some synthetic material carpets have off-gases that can negatively impact air quality in the home. Hardwood floors are a more eco-friendly option.

Tips

- Use power bars to reduce phantom loads, or the energy used by an appliance simply by being plugged in
- Purchase an LCD television over a plasma, to reduce energy consumption significantly
- Preferably use a notebook computer over a desktop to reduce energy consumption
- Replace traditional light bulbs with CFLs

Upgrade Opportunities

- Install a ceiling fan to use in place of air conditioning
- Replace office equipment with ENERGY STAR rated equipment
- Replace existing synthetic carpet with hardwood flooring, or natural fibre carpet

If You're Renovating

- Use environmentally-friendly building and finishing materials, including low or no VOC (volatile organic compounds) paint
- Consider window placement, if possible, to reduce or minimize northern exposure and increase southern exposure

Bedrooms/Home Office

Grant/Rebate Opportunities

- The Ontario government is providing a point-of-sale PST exemption for certain ENERGY STAR qualified household products purchased, rented or leased after July 19, 2007 and before July 20, 2008. The exemption will apply to refrigerators, dishwashers, clothes washers, freezers, dehumidifiers, room air conditioners, and qualifying ENERGY STAR light bulbs and decorative light strings. The PST exemption for qualifying ENERGY STAR products is expected to provide approximately $36 million to Ontario consumers in 2007-08 and a further $15 million in 2008-09.

To qualify:

- The product must be listed, at the time of purchase, as ENERGY STAR qualified by the Office of Energy Efficiency, Natural Resources Canada.
- The purchase must be a first-time sale, rental or lease for at least one year, of a new qualifying appliance.
- A purchase order or sales contract must be entered into after July 19, 2007 and before July 20, 2008 and the qualifying appliance must be delivered on or before September 1, 2008. Installation costs for qualifying built-in appliances and delivery charges for ENERGY STAR products are also eligible for the PST exemption.

Washrooms

Small changes to the washroom's components can add up to worthwhile savings in both water and energy. Long showers and frequent toilet flushing can add up to a significant amount of waste water, and money, literally being flushed away.

Washrooms

Washrooms

Washrooms

Toilets.....13L tank? ____ Low flow toilet?____
Showerhead.....Traditional? ____ Low flow? _____
Urinal.....Yes/No

Did you know?

Standard, early model toilets can use up to 16L to flush – an unnecessary waste of water. Today's water-efficient models use 6L of water to flush, and many have dual flush options. You should be able to find the tank size printed on the toilet, behind the seat or in the toilet bowl.

- A urinal can save up to 10L perflush, compared to a standard, large tank toilet flush, and may be a good investment for a busy household.

Did you know?

Low-flow showerheads can save approximately 50% of the water used during a shower, without sacrificing water pressure. A typical 10 minute shower can use up to 190L of water using a standard showerhead.

Washrooms

Washrooms

Tips

- Turn down the temperature on your water heater to 120F (49C), and take cooler baths and showers
- Turn off the water when you are brushing your teeth
- Use towels two or three times before laundering them
- Time showers to be five minutes in length
- Replace light bulbs with CFLs, if possible

Upgrade Opportunities

- Replace a 13L tank toilet with a low-flow toilet that uses only 6L per flush
- Replace showerheads with low-flow showerheads

If You're Renovating

- Consider installing a urinal, in addition to a low-flow toilet
- Consider installing a locally-sourced or eco-friendly flooring option

Grant/Rebate Opportunities

- Federal Retrofit Program (Natural Resources Canada)

Toilet Replacement	
Replace your toilet with a low-flush or dual-flush toilet rated at 6 litres per flush or less that meets the Los Angeles Supplementary Purchase Specification (SPS) and with a flush performance of 350 grams or more. A product list is available on the Veritec Consulting Inc. Web site at veritec.ca .	*Single Family Home per unit replaced*
	$50

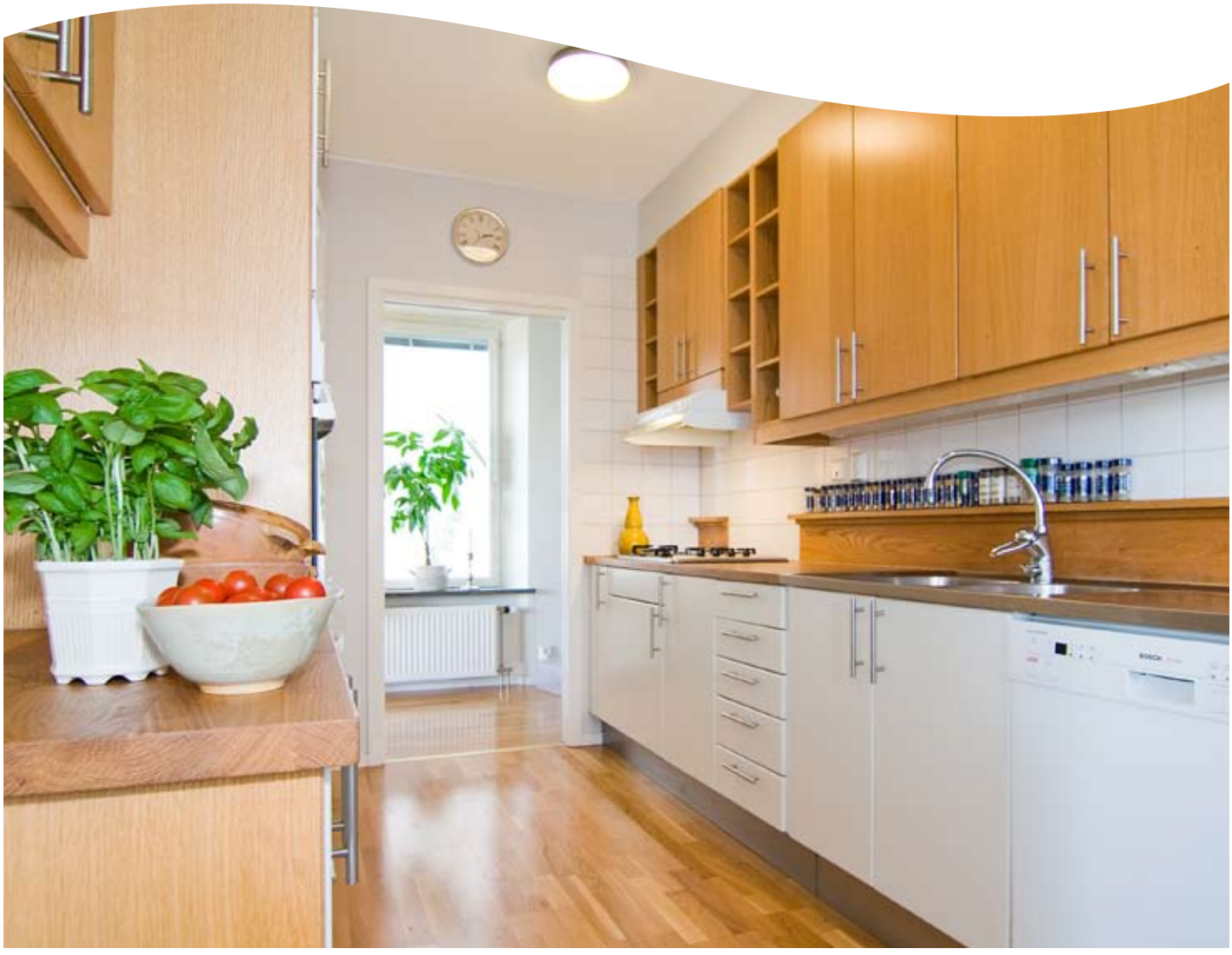
- Ontario will match the federal rebate provided, up to a maximum for $5,000 per home, as long as a qualifying audit has been completed
- Some municipalities offer rebates for low-flow toilets

Did you know?

The City offers Toronto residents a $60 or $75 cash incentive to replace a water-guzzling toilet with a City-selected water-efficient model. Residents must live in detached houses, semis, duplexes (buildings with up to six units), individual condos and townhouses.

Kitchen

The kitchen presents a number of possibilities for improving energy-efficiency in the home, considering appliances, fuel sources and behaviours.



Kitchen

Kitchen

Appliances

Dishwasher - ENERGY STAR rated?	Yes/No	EnerGuide rating? _____	
Refrigerator - ENERGY STAR rated?	Yes/No	EnerGuide rating? _____	
Range - ENERGY STAR rated?	Yes/No	EnerGuide rating? _____	Gas/Electric?
Microwave - ENERGY STAR rated?	Yes/No	EnerGuide rating? _____	Gas/Electric?

Flooring type? _____

All appliances sold today should have an EnerGuide rating that comes clearly posted. If they are ENERGY STAR rated, they will have that sticker affixed on them, as well. If you can't find that information on the appliance, refer to the ENERGY STAR and EnerGuide websites for a product listing.

Ranges, stoves and ovens, can use natural gas and/or electricity as their fuel source. Switching fuel from electricity to natural gas, in these cases, is advised as they will cook faster, more evenly and will use less energy than purely electrical models.

Flooring that is synthetic is not the most eco-friendly choice. Consider changing the flooring to tile, hardwood, cork or bamboo for a more earth-friendly option.

Tips

- Use the microwave to cook rather than the oven; cooking time will be cut, and energy use will be dramatically less
- Avoid opening the refrigerator or freezer unless you know what you are looking for
- Warm the oven for just as long as you need to get it to the temperature that you require
- Turn the water off when rinsing dishes
- Run the dishwasher only when it's full
- Install low flow faucets to reduce water consumption
- Replace light bulbs with CFLs

Upgrade Opportunities

- Replace inefficient appliances with more efficient appliances
- Switch an electric range to a natural gas one, if possible (ventilation is required)

Kitchen

If You're Renovating

- Ensure ventilation is appropriate for your needs – a new hood fan may provide better ventilation
- Minimize windows that have a northern exposure and maximize a southern exposure, if possible
- Replace cabinets, countertops and other materials with locally sourced materials to minimize the impact to the environment

Grant/Rebate Opportunities

- **Through the Ontario Power Authority, sales tax relief is offered on certain purchases:**

The Ontario government is providing a point-of-sale PST exemption for certain ENERGY STAR qualified household products purchased, rented or leased after July 19, 2007 and before July 20, 2008. The exemption will apply to refrigerators, dishwashers, clothes washers, freezers, dehumidifiers, room air conditioners, and qualifying ENERGY STAR light bulbs and decorative light strings. The PST exemption for qualifying ENERGY STAR products is expected to provide approximately $36 million to Ontario consumers in 2007-08 and a further $15 million in 2008-09.

To qualify:

- The product must be listed, at the time of purchase, as ENERGY STAR qualified by the Office of Energy Efficiency, Natural Resources Canada.
- The purchase must be a first-time sale, rental or lease for at least one year, of a new qualifying appliance.
- A purchase order or sales contract must be entered into after July 19, 2007 and before July 20, 2008 and the qualifying appliance must be delivered on or before September 1, 2008. Installation costs for qualifying built-in appliances and delivery charges for ENERGY STAR products are also eligible for the PST exemption.
- Utility companies will also offer, from time to time, rebates on purchases

Laundry Room

The laundry room provides ample opportunities for saving both water and energy. The components that should be considered are air drying capabilities, front load washers, gas dryers with sensor drying.

Laundry Room

Laundry Room

Laundry Room

Front load clothes washer .....Yes/No
Natural gas hookup.....Yes/No
Natural gas clothes dryer.....Yes/No
Air drying facilities.....Yes/No
Flooring type? _____

A front load clothes washer can save up to 40% of the water typically used in a top load washer. A front load washer uses less water and tends to get clothes cleaner as they are not sitting in a tub of dirty water.

A natural gas hookup in the laundry will provide you with the opportunity to use a natural gas clothes dryer. Using natural gas will cut drying times and will save on home operating costs. A natural gas clothes dryer may cost slightly more initially to purchase, but will save that amount many times over the life of the machine.

Clothes drying could include areas to hang clothes in the laundry room itself, in the basement, or outside on a clothesline. Many municipalities do not allow clotheslines in urban and suburban areas, but rural areas generally allow it.

If the floor is made of a synthetic material, it may be wise to consider a more earth-friendly choice that is water resistant, such as tile.

Tips

- Hang a clothesline outside, if possible; if not, find an area of the home where you are able to hang clothes to dry
- If possible, use the sensor mode on the clothes dryer to minimize drying time and conserve energy
- Remove lint from the dryer filter every time the dryer is used
- Clean dryer vent regularly (output pipe) to prevent build up

Upgrade Opportunities

- Replace washer with a front loader to reduce water consumption
- Replace electric dryer with a natural gas dryer to save energy and reduce drying time

If You're Renovating

- Include space for hanging clothes to dry
- Install gas line for natural gas dryer

Laundry Room

Grant/Rebate Opportunities

- The Ontario government is providing a point-of-sale PST exemption for certain ENERGY STAR qualified household products purchased, rented or leased after July 19, 2007 and before July 20, 2008. The exemption will apply to refrigerators, dishwashers, clothes washers, freezers, dehumidifiers, room air conditioners, and qualifying ENERGY STAR light bulbs and decorative light strings. The PST exemption for qualifying ENERGY STAR products is expected to provide approximately $36 million to Ontario consumers in 2007-08 and a further $15 million in 2008-09.

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- The purchase must be a first-time sale, rental or lease for at least one year, of a new qualifying appliance.
- A purchase order or sales contract must be entered into after July 19, 2007 and before July 20, 2008 and the qualifying appliance must be delivered on or before September 1, 2008.

Installation costs for qualifying built-in appliances and delivery charges for ENERGY STAR products are also eligible for the PST exemption.

Did you know?

As part of the Wash 'n' Save program, the City of Toronto offers Toronto residents a $60 rebate on the purchase of an eligible water efficient clothes washer that will save water, energy and money.

Basement

The basement, especially in older homes, can be a serious source of energy loss. Typically in older homes, basements are not insulated to the same extent that the upper floors of a home are, or could be completely uninsulated. The basement of a home includes the crawlspaces, insulation and finishing elements, as well as the hot water tank.

Basement

Basement

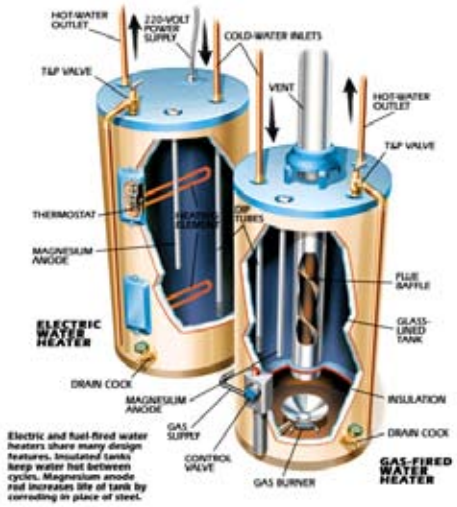
Basement

Hot Water Tank.....Electric ____ Natural Gas ____ Solar _____
Instantaneous ____ Condensing ____ Rented/Owned
HWT insulated?.....Yes/No
Walls insulated?.....Yes/No/Partially _____
Basement finished?.....Yes/No If Yes, year it was finished _____
Crawlspace?.....Yes/No Insulated?.....Yes/No

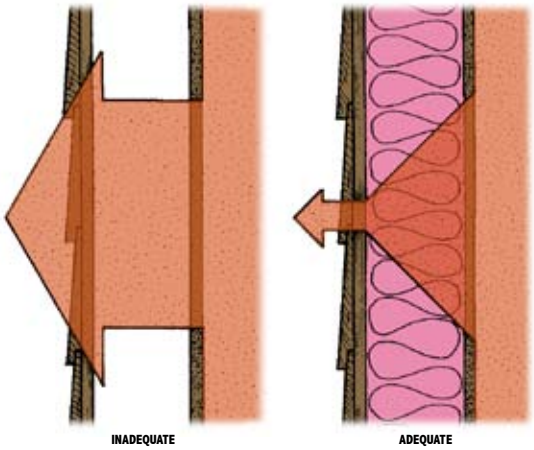
The hot water tank could be fueled by a number of different fuel sources **natural gas, electric, or solar.**

The type of fuel used will significantly impact home operating costs.

Insulating a hot water tank with a specifically designed insulating blanket will save money in the long run by keeping hot water hot, reducing the need for water to be heated and reheated as it sits, waiting to be used.



If the walls are uninsulated, a lot of heat could be escaping from the home, drastically increasing home operating costs. New home building code requires that basements are fully insulated. Even if the basement is finished, be sure to see what sort of insulation is behind the walls – if the basement was finished many years ago, it is likely that the insulation that exists is inadequate.



Basement

Tips

- Insulate the hot water tank and the input and output pipes
- Plug any holes leading to the outside with expandable foam

Upgrade opportunities

- Evaluate if the hot water tank is appropriate for your needs and replace with more appropriate size and fuel source
- Add insulation to basement walls and crawlspace

If You're Renovating

- Reinstall the ducting in ventilation systems – older ventilation systems may be drafty or poorly hung; by reinstalling the ductwork, you'll be able to ensure that drafts are kept to a minimum, and that it is hung with a minimum number of turns
- Ensure that the walls are well-insulated, floor to ceiling
- Confirm that moisture is not penetrating the building envelope
- Assess ductwork to ensure that there are not leaks or sharp turns
- Prepare floor properly for flooring, including the installation of a proper subfloor
- Consider installing a solar-powered hot water tank, if space permits

Basement

Grant/Rebate Opportunities

Federal retrofit program
Natural Resources Canada website
www.oee.nrcan.gc.ca

Domestic Hot Water System	*Single Family Home*
Install a solar domestic hot water system that meets CAN/CSA Standards.	*$500*
Replace your domestic hot water heater with an instantaneous gas water heater that has an energy factor (EF) of 0.80 or better. (*per equipment installed)	*$200*
Replace your domestic hot water heater with a condensing water heater that has an EF of 0.80 or better. (*per equipment installed)	*$300*
Install a drain-water heat recovery (DWHR) system. Grants are based on the length of the pipe installed.	
• three quarter (3/4) metre to one (1) metre (* per unit installed)	*$50
• over one (1) metre (* per unit installed)	*$100
The grant level for DWHR technology relative to the savings and other technologies is currently under review and could be adjusted in the near future. If adjusted upward, grants would be retroactively adjusted.	

Basement

Grant/Rebate Opportunities

Basement Insulation

	Minimum Additional Insulation		
		R-10 to R-	+R-23
A minimum of 20 percent of the basement's total wall surface must be insulated to qualify. The grant is based on the percentage of surface area insulated.	20%	$100	$200
	40%	$200	$400
	60%	$300	$600
	80%	$400	$800
	100%	$500	$1,000

Minimum Additional Insulation	Single Family Home
Seal all of your basement header area and increase all of its insulation value by a minimum of RSI 3.5 (R-20).	$100

Crawl Space Insulation

	Minimum Additional Insulation	
	R-10 to R-23	+R-23
100 percent of the crawl space's total wall surface must be insulated to qualify, or	$400	$800
Insulate 100 percent of the floor above the crawl space to increase its insulation value by a minimum of RSI 4.2 (R-24) to qualify.	N/A	$200

Ontario matches the Federal Retrofit Program grants, up to $5,000, for residents, as long as there is a qualifying audit completed on the home

Heating and Cooling

Energy efficiency is the cornerstone of an effective heating and cooling system. Providing comfort in the home is the main goal of both the furnace and air conditioning systems.

Heating and Cooling

Heating and cooling

Heating and Cooling

Furnace.....Forced Air/Oil/Propane/Electric baseboard
Furnace Motor.....DC/ECM or AC
Furnace Efficiency.....High/Mid/Low
Ductwork.....Sealed properly? Yes/No
Air conditioner.....SEER _____ Year installed _____ Size _____ tonne(s)
HRV?.....Yes/No
Electrostatic air cleaner?....Yes/No

Furnaces can be fueled by natural gas, oil or propane.

GAS

OIL

PROPANE

All furnace motors use electricity, but some are more efficient than others. The furnace motor could be either DC (direct current) or ECM (electronically commutated motor). An ECM motor is considered to be more efficient, and is preferable to an AC, or alternating current, motor.

DC

ECM

AC

Heating and cooling

Furnace efficiency is measured as low, mid or high efficiency; older furnaces that are considered to be low efficiency may only be 55% - 68% effective, while high efficiency are 90% - 96% efficient or more. Mid-efficiency furnaces are between 78-82% efficient. A simple way to to determine their efficiency is how they are vented: low-efficiency will be vented up through a chimney, mid-efficiency furnaces are vented up a chimney with a metal liner, and high-efficiency will be vented directly out an exterior wall.

Mid-Efffciency

High-Efffciency

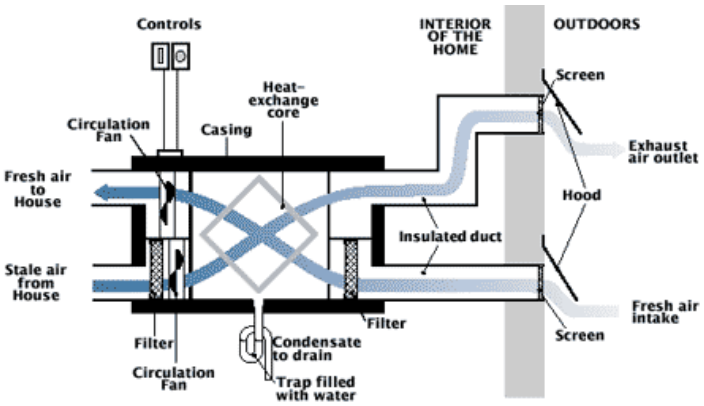
An inspection of the ductwork will indicate if there are any holes or seams that require sealing. Ideally, there will not be any gaps in the ductwork.

Each air conditioning unit has a SEER, or seasonal energy efficiency ratio, that is associated with it. The SEER indicates the energy-efficiency of the unit, as it measures the output of cold air in relation to energy consumption. The calculation for a SEER ratio is:

SEER = Btu / Watts per hour

The standard SEER today is 13 in Ontario, but a homeowner should consider purchasing a higher SEER rated unit to decrease monthly home operating costs, and significantly reduce the lifecycle cost over the life of the unit (approximately 15 years). To find the SEER associated with the unit, check the owner's manual.

HRV, or heat recovery ventilation systems, allow homes to maintain high air quality without excessive incurring additional energy costs. It consists of two separate air-handling systems; one that collects and exhausts stale indoor air, and the other that draws outdoor air in and distributes it through the home.



An electronic air cleaner will remove very small particles from the air that affect air quality.

Heating and Cooling

Heating and cooling

Tips

- Reduce target temperature on the heating system to 19C in the winter, and increase the target temperature to 26C in the summer
- Install and use a programmable, set-back thermostat
- Use ceiling fans, standing fans or open windows to cool spaces
- Use drapery to minimize cool drafts in the winter and minimize solar heat in the summer
- Turn off air conditioners if no one will be in the home for an extended period of time

Upgrade Opportunities

- Replace furnace with a higher efficiency model
- Replace air conditioner with a more efficient model
- Install ceiling fans and use them in the summer
- Install a HRV (heat recovery ventilation system) to improve air quality and provide adequate combustion air (required for oil or natural-gas fuel burning appliances running concurrently)
- Use natural gas whenever possible

If You're Renovating

- Consider installing a geothermal unit, if space allows for it

Grant/Rebate Opportunities

Install a heat recovery ventilator that is certified by the Home Ventilating Institute. (See **www.hvi.org**) (*per equipment installed)	***$500***

Basement

Grant/Rebate Opportunities

Heating system	Grant Amounts	
Replace your heating equipment with:	Single Family Home	
	For 1st system	For 2nd system
an ENERGY STAR® qualified gas furnace that has a 90.0% annual fuel utilization efficiency (AFUE) or better	$300	$150
an ENERGY STAR® qualified gas furnace that has a 92.0% AFUE or better, and a DC variable-speed motor	$500	$250
an ENERGY STAR® qualified oil or gas boiler that has an 85.0% AFUE or better	$600	$300
an ENERGY STAR® qualified oil furnace that has an 83.0% AFUE or better	$300	$150
an ENERGY STAR® qualified oil furnace that has an 85.0% AFUE or better, and a DC variable-speed motor	$500	$250
a CAN/CSA-C448 compliant ground- or water-source heat pump	$3,500	N/A
Install an ENERGY STAR® qualified air-source heat pump. (*per equipment installed)	$400	NA
Install a minimum of 5 electronic thermostats for electric baseboard heaters. Electric baseboards must be the primary system. (**for each set of 5 installed)	$30	N/A
Replace your wood-burning appliance with a model that meets either CSA-B415.1-M92 (Performance Testing of Solid-Fuel-Burning Heating Appliances) or the U.S. Environmental Protection Agency (EPA) wood-burning appliance standards (40 CFR Part 60). (*per equipment replaced)	$300	$150

Basement

Grant/Rebate Opportunities

Ventilation System	***Grant Amounts***	
Replace your ventilation equipment with:	*Single Family Home*	
	For 1st system	*For 2nd system*
Install a heat recovery ventilator that is certified by the Home Ventilating Institute. (See **www.hvi.org**) (*per equipment installed)	*$300*	*N/A*

Cooling System [Replacement Only]	***Grant Amounts***	
Replace your cooling equipment with:	*Single Family Home*	
	For 1st system	*For 2nd system*
Replace your central air conditioner with an ENERGY STAR® qualified unit.	*$200*	*N/A*
Replace your window air conditioner(s) with an ENERGY STAR® qualified unit(s). (*per unit replaced)	**$20*	*N/A*

Basement

Grant/Rebate Opportunities

Domestic Hot Water System	***Grant Amounts***	
Replace your domestic water system equipment with:	*Single Family Home*	
	For 1st system	*For 2nd system*
Install a solar domestic hot water system that meets CAN/CSA Standards.	*$500*	*N/A*
Replace your domestic hot water heater with an instantaneous gas water heater that has an energy factor (EF) of 0.80 or better. (*per equipment installed)	*$200*	*N/A*
Replace your domestic hot water heater with a condensing water heater that has an EF of 0.80 or better. (*per equipment installed)	*$300*	*N/A*
Replace your domestic hot water heater with a condensing water heater that has an EF of 0.80 or better. (*per equipment installed)		
three quarter (3/4) metre to one (1) metre (* per unit installed)	*$50	*N/A*
over one (1) metre (* per unit installed)	*$100	*N/A*
The grant level for DWHR technology relative to the savings and other technologies is currently under review and could be adjusted in the near future. If adjusted upward, grants would be retroactively adjusted.		
Replace your window air conditioner(s) with an ENERGY STAR® qualified unit(s). (*per unit replaced)	*$20	*N/A*

Ontario matches the Federal Retrofit Program grants, up to $5,000, for residents, as long as there is a qualifying audit completed on the home.

Exterior

The exterior of the home can impact energy-efficiency within the home. This includes the landscaping choices and physical updates to the home, including awnings.

Exterior

Exterior

Landscaping?.....Yes/No

Types of plants/trees _____

Awnings?.....Yes/No
Deck?.....Yes/No

Building materials? _____

Ideally there will be deciduous trees planted in front of southern exposure windows, and coniferous trees in front of northern facing windows. Deciduous trees provide shade in the summer, and allow sunshine through to provide solar heat in the winter. Coniferous trees provide shade in the summer and act as a barrier in the winter to cold, northern winds.

Native plants are more eco-friendly and require less water and pesticides to flourish.

Awnings provide shade to windows that receive direct sunlight, and could reduce home operating costs by reducing the need for air conditioning.

Decking materials should ideally be locally sourced to be the most eco-friendly. Treated wood, such as old railway ties, should not be used as they are laced with toxic chemicals.

Tips

- Plant native grasses and plants that are appropriate for the growing zones
- Water as needed, and only what is needed
- Wash cars less frequently - turn off the hose when it is not in use

Upgrade Opportunities

- Install awnings on windows that receive a lot of natural sunlight, which will cut down on cooling costs
- Plant deciduous trees in front of southern facing windows and coniferous in front of northern facing windows

If You're Renovating

- Use environmentally-friendly building materials for decking and external structures