

Build Smart. Build Green.



Green Building Guide Renovating and Retrofitting



Are you planning on renovating your home? Make the most of your renovations and energy efficiency at the same time.

Want to save money on energy costs, make your home more comfortable and contribute to a healthier environment?

Did you know that the Federal and Provincial Governments have incentives for renovations and retrofits that increase the energy efficiency of your home?

Did you know insulating basement and attic walls can reduce your energy bill by as much as 30%?

Did you know air leaks in your home could add up to the equivalent of leaving a window open?

Did you know tree planting around your home can result in average energy cost savings of 20-25%, as compared to an unsheltered home?

Green building practices concentrate on:

- Providing greater energy efficiency and reducing pollution
- Reducing water usage
- Preserving natural resources
- Providing healthier indoor air
- Improving durability and reducing maintenance

Green building practices result in:

- A decreased impact on the environment
- Decreased energy and water use
- Decreased greenhouse gas emissions
- A healthier more pleasant environment to live in
- Lower costs for the life cycle of the building



Government Support

The BC and Federal governments are providing incentives for making your home more energy efficient. Numerous energy saving goods are PST free and incentives are available for retrofitting existing homes under the LiveSmart BC program and ecoEnergy Retrofit program.

Go to www.livesmartbc.ca/ and www.ecoaction.gc.ca/index-eng.cfm or call 1.866.430.8765 for specific information.

To access the incentives an energy assessment of your home is required before and after improvements are made. The cost of one of these assessments will be covered by the Livesmart BC program if you make the improvements recommended after the first assessment. The energy advisor conducting these assessments will handle the paperwork for provincial and federal incentives.

EnerGuide and Energy Star Ratings

EnerGuide is a Natural Resources Canada initiative that helps consumers purchase the most energy-efficient equipment on the market. The EnerGuide label is a tool to help you make an energy-wise choice when buying a new appliance. It shows how much energy appliances consume in a year of normal service and makes it easy to compare the energy efficiency of each model to others of the same size and class.



For some of these products, ENERGY STAR goes one step further and identifies specific models that meet or exceed premium levels of energy efficiency. The international ENERGY STAR symbol may even appear on an EnerGuide label. When you see the ENERGY STAR symbol you can be sure that the product is among the most energy efficient available. For more information on ENERGY STAR and EnerGuide see www.oee.nrcan.gc.ca/residential/energystar-energuide-r2000.cfm?attr=4



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Green Building Practices When Renovating and/or Retrofitting an Existing Home

If you are renovating your home, you can utilize Green Building practices in the design and construction of the renovation. Green building incorporates practices that increase the efficient use of resources — energy, water, and materials — while reducing the direct and indirect impacts on human health and the environment during the building's lifecycle.

Heating and Cooling

Heating and cooling homes can be a major component of total household energy use. If you need to replace your furnace or would like to make a change to your existing heating and cooling system consider any of the following:

- Upgrading to a high efficiency furnace* (Some Models PST Free)
- Installing a ground, water or air source heat pump* (PST Free)
- Replace electric baseboard thermostats with electronic, programmable thermostats that comply with the BC Energy Efficiency Act*

Hot Water

Domestic hot water accounts for between 20 and 25% of household energy consumption. There are numerous efficient water technologies on the market that can be used to replace inefficient systems including:

- Power vented or sealed combustion domestic hot water systems
- High efficiency gas water heaters* (PST Free)
 - "Tankless" instantaneous hot water heaters.
 - Geoexchange hot water heating system*
 - Drainwater heat recovery unit* (PST Free)
 - Solar hot water system* ** (PST Free)

Windows and Doors

Older homes often only have single pane windows resulting in low insulation levels and can be a major source of drafts. To improve energy efficiency in an older home consider:

- Replacing windows and doors with Energy Star rated windows and doors* (PST Free)
- Using storm windows in the winter (can be exterior or interior).
- Seal around all windows and doors with caulking and weather stripping*

Insulation

Increasing the insulation in the following parts of older homes can make a significant difference in keeping them warm in winter and cool in summer:

- Attic insulation* (PST Free)
- Exterior wall insulation* (PST Free)
- Basement insulation* (PST Free)
- Basement header insulation* (PST Free)
- Crawl space wall or floor above crawl space insulation* (PST Free)
- Exposed floor insulation* (PST Free)

Appliances and Electronics

Major energy savings can be gained by replacing old appliances with new ENERGY STAR rated appliances. Energy Star ratings are available on many appliances including:

- Household appliances
- Electronic equipment
- Heating and cooling systems
- Lighting fixtures

BC Hydro provides rebates on:

- Energy Star rated refrigerators and old, working refrigerators (PST Free)
- Energy Star rated freezers (PST Free)
- Energy Star rated washing machines (PST Free)

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Utilizing Renewable Energy

Non-renewable forms of energy are finite and can be a major contributor to greenhouse gas emissions. Renewable energy alternatives provide sustainable energy options for homes and can be retrofitted into existing buildings. Consider the following in your renovation:

- Geoexchange heating and cooling (PST Free)
- Solar hot water heating** (PST Free)
- Geoexchange hot water heating systems
- Wind power
- Hydro power
- Photovoltaic solar cells for electricity generation.

Air Quality

The materials used in renovating your home can impact indoor air quality. To ensure good air quality in your home consider the following:

- Use low VOC emitting materials such as
 - paint
 - carpet underlay
 - sub floor sheathing
 - adhesives
- Provide for natural ventilation with windows that open

Lighting

Changing the type of light bulbs can reduce the energy required to light your home and as more efficient bulbs have significantly longer lifetimes, reduce the frequency needed to change them. Look for the following types of replacement light bulbs:

- Compact fluorescent
- LEDs

When renovating your home, look for ways to increase sources of natural light to reduce the need for artificial lighting during the day.

Water Conservation

Potable water is a limited, valuable resource in the North Okanagan. Water conservation reduces pressure on supply, reduces energy and chemicals used in providing potable water and decreases the amount of waste water requiring treatment after it leaves your home. The following actions will result in a reduction your household water use:

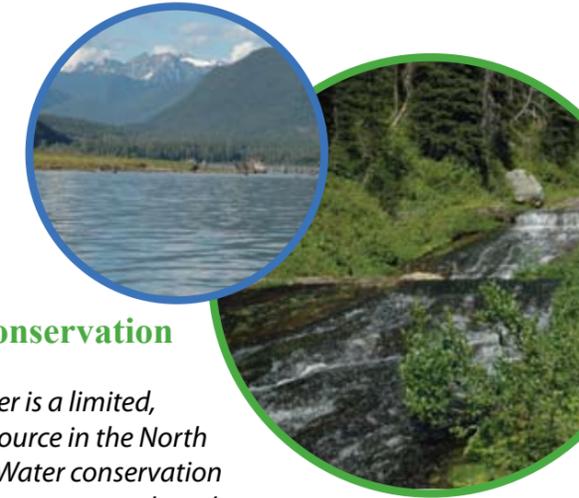
Indoors

- Install low-flow fixtures – kitchen, bathroom and laundry faucets and shower heads – required by the BC Building Code
- Install ultra-low flow toilets, (6 liters per flush) - now required by the BC Building Code- or dual flush toilets with a choice of 3 or 6 liters per flush
- Install a water saving dishwasher and/or washing machine

Outdoors

Outside use of water is a major component of total household water use. Measures you can take to reduce your outside water needs include:

- Establish water efficient landscaping which utilizes drought tolerant and native plants
- Minimize lawns
- Install high efficiency irrigation systems such as drip irrigation
- Use non potable water for irrigation
- Install a rainwater cistern for irrigation use



* Livesmart BC and/or ecoENERGY incentive available for retrofit with this product

** In addition to Livesmart incentives a \$1000 incentive is available from Solar BC, go to www.solarbc.ca