

Build Smart. Build Green.



Green Building Guide New Homes



EnerGuide and Energy Star Ratings

EnerGuide is a Natural Resources Canada rating system that assists consumers in purchasing the most energy-efficient equipment on the market. The EnerGuide label is a tool to help consumers 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



The BC and Federal governments are providing incentives for the installation of energy efficient appliances and excluding PST from some Energy Star rated appliances.

Energy Ratings for New Homes

Built Green™

Built Green™ is an industry driven voluntary program that promotes green building practices to reduce the impact that building has on the environment. Built Green™ provides a certification level for new single family dwellings and row houses based on the EnerGuide for Houses rating system. Ask your builder if they are a part of the Built Green™ program. For more information on Built Green™ go to www.builtgreencanada.ca.

EnerGuide for New Homes

EnerGuide includes a rating for the energy efficiency of a new home. EnerGuide for New Houses provides information required to understand the energy efficiency of your new home and provides an estimate of how much energy you can expect to use per year for electricity, oil and gas. EnerGuide for New Houses provides an overall energy rating for your new house between 0 and 100. New houses should rate at least 68, with highly efficient houses ranging between 80 and 100. For more information on EnerGuide for New Houses go to www.oee.nrcan.gc.ca/residential/personal/new-homes.cfm?attr=4

R-2000

R-2000 is a national certification system that requires homes to be built using environmentally friendly and renewable products. It includes comprehensive training and certification for home builders, as well as quality assurance inspection, testing and certification of new houses to guarantee that they meet the R-2000 Standard. R-2000 homes are about 30 percent more energy efficient than conventional new homes and must achieve a minimum energy efficiency rating of 80 on the EnerGuide rating scale. For more information go to www.r2000.chba.ca.



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Green building practices can be utilized in the design and construction of a new home.

Green building practices incorporate increased efficiency of resource use — energy, water, and materials — while reducing the direct and indirect impacts on human health and the environment during the building's lifecycle.

Did you know employing green building techniques in the construction of your new home can create an energy efficient building that significantly reduces annual utility costs?

Did you know air borne pollutants are 2-5 times higher indoors than outdoors? Green building techniques improve indoor air quality through improved ventilation and use of products that emit little or no volatile organic compounds which can be harmful to respiratory health.

Did you know the cost of making a new home Solar Ready (ready for the future installation of roof-mounted solar domestic hot water systems) is approximately \$300, considerably less than the cost of retrofitting an existing home?

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

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



During the design, planning and construction phase of building your new home consider and incorporate where possible these following Green Building practices.

Design and Position

The design of your house and the way it is positioned on the lot can play a significant role in energy consumption. To minimize the amount of energy required to maintain a comfortable temperature in your house incorporate the following into the building design:

- Position the house on the lot to respond to daily sun/shade patterns
- Maximize passive solar gain to decrease heating needs in winter
- Construct your home to maximize thermal mass potential for winter night time heating.
- Ensure solar shading in summer to reduce need for air conditioning
- Maximize exposure to natural light to reduce need for artificial lighting
- Utilize trees to regulate inside temperatures
Planting deciduous trees on the east and west aspects of your home provides shade in summer, but allows solar warming in winter
- Use window overhangs as a passive solar feature. They will block summer sun when it is high in the sky, but allow in winter sun when it is lower in the sky

Heating and Cooling

Heating and cooling homes can be a major component of total energy use. To reduce energy consumption and greenhouse gas emissions associated with heating and cooling you can:

- Install high efficiency appliances (PST Free)
- Install a ground, water or air source heat pump (PST Free)
- Install thermostats that utilize two or more zones so different parts of the house can be kept at different temperatures depending on their use

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 reduce this major source of energy use including:

- Power vented or sealed combustion domestic hot water systems
- “Tankless” instantaneous hot water heaters
- Geoexchange hot water heating system
- Drainwater heat recovery unit (PST Free)
- Solar hot water system - \$1000 incentive is available from Solar BC, see www.solarbc.ca (PST Free)

Windows and Doors

Windows and doors can be an area of major heat loss in winter and heat gain in summer. To combat this, install ENERGY STAR rated windows and doors in your new home (PST Free)

Building Materials

Construction materials can play a major role in the energy efficiency and the environmental footprint of a home. When designing your home consider the following:

- High insulation values - The BC building code now includes higher insulation requirements for homes. North Okanagan values are
Attic – R44 Cathedral Ceilings – R28 Exterior Walls – R20 Foundation walls to 2 feet below grade – R12
- Use of environmentally sensitive or recycled construction materials such as:
 - High volume fly-ash concrete
 - Non-toxic finishing materials
 - Sustainably harvested sourced timber
 - Gypsum wallboard with recycled and/or recovered content
 - Insulation materials with recycled content
 - 100% recycled content carpet underlay
 - Carpet with a min. of 50% recycled content
 - Natural cementitious stone/stucco/brick or fibre-cement siding
 - Recycled or reclaimed exterior cladding material

Appliances and Electronics

Major energy savings can be gained by using energy efficient appliances. Ensure all appliances installed in your new home are ENERGY STAR rated. The following appliances have Energy Star ratings in Canada:

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

BC Hydro provides rebates on:

- Energy Star rated refrigerators (PST Free)
- Energy Star rated freezers (PST Free)
- Energy Star rated washing machines (PST Free)

Utilizing Renewable Energy

Non-renewable forms of energy are finite and emit greenhouse gases. Renewable energy alternatives provide sustainable options for heating and lighting our homes and powering appliances. Options for renewable energy use in houses include:

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

Air Quality

The materials used in the construction of your home can impact indoor air quality. To ensure good air quality in your new 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

To minimize the energy required to light your home:

- Install fluorescent, compact fluorescent light bulbs or LEDs with energy star ratings
- Maximize sources of natural light in the design of your home to reduce the need for artificial lighting during the day

Water Conservation

Potable water is a limited and 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. When building your new home consider the following:

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

