

HOMEOWNERS'  
GUIDE TO

# GREEN RENOVATION

Get the Home  
You Always Wanted and  
Give the Environment  
a Break



Canadian  
Home Builders'  
Association





## **THINKING ABOUT RENOVATING?**

**Then it's the right time to “green” your home.**

Any project, large or small, can be a step towards a greener, more environmentally friendly home.

There are lots of good reasons to think green when you plan to make changes to your home.

A green renovation helps to reduce your impact on the environment. It also means a better home—a healthier and more comfortable living space, lower monthly operating costs and increased value. A home to enjoy, a home to be proud of!



# A GREENER HOME BEGINS WITH A PLAN



There are many opportunities to make good environmental choices for your renovation. From fixtures to appliances, from insulation to windows and heating equipment—many of today’s products and systems deliver better performance with less environmental impact than even a decade ago.

**Professional renovators know how to put it all together**, how to match old and new, and how to integrate state-of-the-art technology with the existing structure of your home. **Take advantage of their expertise to make your home easier on the environment and better for you and your family.**

When you are ready to start planning, your renovator can guide you through your green choices, pointing out the features, costs and benefits that matter to you.

## THREE STEPS TO “GREENING” YOUR RENOVATION PLAN

There are **three important steps** you and your renovator need to work through when greening your renovation project.

- Increasing the energy and water efficiency of your home
- Ensuring clean indoor air
- Choosing resource-smart materials and products

Depending on the type of renovation work you are doing, not every step will be equally important for your project, or relevant. However, it’s a good idea to review each step carefully to make sure you don’t miss an option that could benefit you, your family and the environment.



## STEP ONE **USE ENERGY AND WATER EFFICIENTLY—AND SAVE MONEY**

Of all the green options, **by far the most important is saving energy and water.** This is because the decisions you make today will have a big impact on the environment, and your wallet, for many years to come.

### **GREENING TIP:**

**One of the best steps you can take before planning your renovation is to get a home energy assessment from an independent certified home energy evaluator.**

**Think about it.** Homes last a long time. Heating equipment, windows and water-consuming fixtures have a lifespan of decades. When you renovate, you have the opportunity to reduce significantly the amount of energy and water your home uses. At the same time, you will cut the cost of operating your home, now and in the future—in a world of uncertain energy prices, that's a comforting thought!

There is a wide range of energy and water efficiency improvements you can make:

- Replace or upgrade your heating system with high-efficiency equipment. For natural gas or oil-fired furnaces, look for *Energy Star*® certified products. Some systems, such as heat pumps, combine heating and cooling. Other systems combine space and water heating.
- If your project includes opening up exterior walls or re-siding your home, take the opportunity to add insulation.
- When installing new windows, choose higher-performance windows and look for *Energy Star*® certification. Energy-saving features include multiple glazing (i.e. double or triple panes), gas fill, low-e coating and insulating spacers.



# GET A HOME ENERGY AUDIT

One of the best steps you can take before planning your renovation is to get a home energy assessment from an independent certified home energy evaluator.

Your energy assessment will identify how your home uses energy, where it is being wasted, and how to improve the comfort of your home, and cut heating and cooling costs.

The assessment report will be very useful when you and your renovator sit down to plan your renovation.

For your home to qualify for a federal eco-ENERGY Retrofit-Homes grant, the assessment must be done by an evaluator who is certified by Natural Resources Canada (NRCan).

Your provincial government and/or utility may also offer incentives for energy efficiency upgrades to your home.

To find a certified energy evaluator in your area, visit the Natural Resources Canada Office of Energy Efficiency website at:

<http://oee.nrcan.gc.ca>



- Your renovator may recommend different combinations of window features for different sides of your home, to maximize solar gain, for instance, or to prevent overheating.
- Upgrade light fixtures and bulbs to compact fluorescent, halogen and LED lights. Think about skylights and light tubes to cut down the use of artificial light during the daytime.
- If your water heating equipment is getting old, consider replacing it. Today's new systems are considerably more energy-efficient. On-demand water heaters are even more efficient because they reduce "standby losses".
- When choosing new plumbing fixtures for your kitchen or bathroom renovation, look for products with *WaterSense*® certification—these are among the most efficient on the market.
- If you want to enlarge your home, good design can help to "right-size" your plans. A well-designed renovation makes efficient use of space—both existing and new—and lets you fit more living into less space, reducing future energy use.
- Don't forget about green landscaping—from harvesting rainwater for outdoor use, to selecting drought-tolerant plant and grass species, to placing trees and shrubs to provide summer shading for your home.



## STEP TWO ENSURE CLEAN AIR FOR A HEALTHY HOME

**Renovation is the perfect opportunity to deal with your indoor living environment**—to improve the quality of the air you breathe, and protect your family’s health from molds, chemicals and other pollutants.

### **GREENING TIP:**

**Renovating your home offers many opportunities to improve how it works and provide you with increased comfort and reduced monthly operating costs.**

A poor indoor environment also affects the house itself. For instance, moisture can cause premature deterioration and reduce the lifespan of the home or its components.

- **Does your home have existing indoor air quality problems?** These can range from high winter humidity levels and excess window condensation, to mold problems and to allergy issues related to dust, pollen or other pollutants in the air. Most often you can see, touch or smell the problems; however, if you or your renovator suspect your home may have issues, do a thorough inspection of the entire house. Dealing with existing conditions is the right place to start. Your renovator can advise you on ways to get rid of the problems.

- **Does your home have adequate ventilation?**

A healthy home needs proper ventilation to bring in fresh air and get rid of stale or moist air, chemicals and other indoor pollutants. Ask your renovator for advice on how to ensure proper ventilation throughout the year. Consider adding a heat recovery ventilator that delivers fresh air without extra heating costs.

- **Keep pollutants out of your house.** Once you have identified possible problems and their solutions, you want to avoid bringing new problems into the house. Select products and materials for your renovation that won’t compromise the air in your home. Talk with your renovator about other measures to protect the air in your home (see sidebar).



## YOUR HOME AS A SYSTEM

Professional renovators know that the various parts of your home must work together *as a system* to create a comfortable, durable and energy-efficient living environment.

“House As a System” thinking is important when planning a renovation, because changes you make to one part of your home can affect other parts.

For instance, replacing older windows and sealing air leaks will reduce “accidental” ventilation and cold drafts – a good thing.

A professional renovator knows that as your home gets more airtight, additional ventilation may be needed to keep indoor air fresh and healthy. The use of a heat-recovery ventilator offers an effective way to achieve this, while keeping heating costs down.

Renovating your home offers many opportunities to improve how it works and provide you with increased comfort and reduced monthly operating costs. That’s what *House As a System* thinking is all about.

## “CLEAN AIR” PRODUCTS AND MATERIALS



There are a wide variety of materials, products and building techniques that can contribute to keeping indoor air cleaner and healthier.

**Pre-finished hardwood flooring**

**Ceramic, stone, marble and other hard-surface tiles for flooring and walls**

**Wool or cotton rugs**

**Carpeting with latex-free backing**

**Low- or no-VOC paints and adhesives**

**Low-VOC water-based finishes**

**Products with reduced formaldehyde levels**

**Solid wood cabinets and vanities**

**Sealing of exposed particle board and medium-density fibreboard (MDF)**

**Range hoods vented to the outside**

**Sealed combustion furnaces and hot water heaters**

**Sub-slab depressurization system to prevent the entry of radon and soil gasses into the house**

**High-efficiency (HEPA) air filters**

**...and much more**



## STEP THREE

# CHOOSE RESOURCE- SMART MATERIALS AND PRODUCTS

Homeowners have a lot of options when it comes to **choosing resource-smart products for their green renovation**, and new items are making it into the marketplace all the time.

### GREENING TIP:

**When you are considering a renovation product or material that claims to be “greener”, the manufacturer should provide clear information supporting their green claim. Your renovator can help you obtain this information.**

Here are a few examples of the type of products that are better for the environment:

- **Materials made from recycled waste.** Paper waste is used in insulation, fibreboard and many other building products, even kitchen counters. Recycled glass shows up in glass fibre insulation and tiles. Plastics are reused in carpeting, pavers and decking materials. Steel is reused to make new steel studs. Interior trim is made from wood cut-offs or wood dust. And so on.
- **Products made from easily renewable or well-managed sources.** Flooring made from fast-growing bamboo and sustainably harvested wood are prime examples.
- **Natural materials** that involve less processing, such as linoleum and stone.

- **Locally produced products.** Transportation is energy-intensive. Where available, the use of locally produced materials or products can offer environmental advantages.
- **Durable products that will last longer,** such as 40- or 50-year roof tiles. Every time you need to replace an item, there are environmental costs related to the production of the new and the disposal of the old. A quality product that performs well over a long time may be a little more expensive upfront but can save you money and be better for the environment over time.

### **REUSE, RECYCLE AND REDUCE WASTE**

As part of the planning, ask your renovator to take stock of what materials in your home can be reused.



## AVOID “GREEN-WASHING”— ASK ABOUT GREEN CLAIMS

It’s not always easy to determine if a product is truly environmentally friendly, or if one product is greener than another.

When you are considering a renovation product or material that claims to be “greener”, the manufacturer should provide clear information supporting their green claim. Your renovator can help you obtain this information.

Today, there is a very wide array of green product claims being made, so you deserve clear, straightforward information that helps you decide if a product really is better for the environment.

If a manufacturer’s green claim information doesn’t make sense to you, be sure to ask your renovator for advice.



Many homes have “hidden treasures” like high-quality hardwood that can be refinished, or framing lumber, baseboards or trim that can be reused.

### ABOUT COSTS

You may wonder if greening your renovation will increase the cost of the project.

In some cases, initial costs can increase, but these may well be offset by lower home operating costs once the work is completed. Actual costs depend on the kind of renovation work you are having done, and the range of green features you choose to incorporate into your renovation project.

One thing is almost always true — including green upgrades when you are undertaking other renovation work is much less expensive than doing these things separately at a later

date. In many cases, the additional cost of moving to a more energy- or water-efficient product, or choosing a greener material or product, is quite small.

Your investment in energy and water efficiency will pay off in several ways—first, by lowering your own operating costs now, and in the future; and, second, by making your home a more desirable property for others, if you decide to sell your home in the future.

It is also a personal decision. A growing number of people put a premium on “living green”, and simply want their home to be healthier to live in and have less environmental impact.

If your renovation plans go beyond your budget, talk with your renovator about alternatives and options, including breaking your project into several phases to spread the costs over a longer period.

# CHECKLIST FOR YOUR GREEN RENOVATION

Use this list to help you and your renovator plan your green renovation.

## PRE-RENOVATION INSPECTION

- Renovator inspection
- Energy audit
- Equipment inspection: heating, cooling, ventilation, hot water, etc.

## KITCHEN

- Restricted-flow taps (aerator)
- Energy-efficient windows, doors and skylights
- Energy-efficient appliances
- Energy-efficient lighting
- Task lighting
- Low-maintenance, durable flooring (tile, linoleum, hardwood, ceramic)
- Low-emission cabinets (hardwood, sealed particle board)
- Low-emission countertop (solid surface, laminates)
- Low- or no-VOC paints
- Low-emission cements, grouts and caulking
- Range hood vented to the outside
- Built-in recycling centre

## BATHROOM

- Low-flow toilet, showerhead and faucets
- Low-maintenance, durable, non-slip flooring (tile, linoleum)
- Low-emission cabinets (hardwood, sealed particle board)
- Low-emission countertop (solid surface, laminates)

- Waterproof wall finish
- Low- or no-VOC paints
- Low-emission cements, grouts and caulking
- Energy-efficient windows and skylights
- Energy-efficient lighting

## LIVING, DINING AND BEDROOM AREAS

- Energy-efficient windows and exterior doors
- Programmable thermostats
- Energy-efficient lighting
- Area lighting
- Automatic timers and dimmer switches
- Low-emission, easy-maintenance flooring (hardwood, cork, marble, ceramic)
- Carpeting and area rugs from natural or recycled material
- Low-emission trim and mouldings
- Low-emission solid wood doors
- Low- or no-VOC paints and varnishes
- Low-emission cements, grouts and caulking

## BASEMENT

- Determine and deal with sources of mold (repair, replacement, etc.)
- Air and moisture sealing of walls
- Moisture and soil gas sealing of floors
- Upgraded insulation
- Ventilation
- Energy-efficient lighting
- Low-emission finishing materials

## MECHANICAL ROOM OR AREA

- Energy-efficient, sealed-combustion and correctly sized heating equipment
- Energy-efficient hot water tank
- Energy-efficient furnace fan motor
- Separate, direct air supply for equipment
- Insulated hot water pipes
- Air filtration and humidification/dehumidification
- Whole-house ventilation system (heat recovery ventilator)
- Effective, balanced, sealed ductwork or distribution system
- Water purification system
- Central vacuum exhausted outdoors

## ATTIC

- Upgraded insulation
- Air sealing
- Weather-stripping and insulating attic hatch
- Ventilation to the exterior

## THE STRUCTURE, OR WHAT YOU DO NOT SEE

- Insulation
- Air sealing (windows, doors, electrical outlets)

- Vapour barrier (where applicable)
- Framing, sheathing, underlay: low-emission, resource-efficient
- Drywall with recycled content

## THE EXTERIOR

- Low-maintenance, durable exterior finishes
- Low-maintenance trim, soffits and fascia
- Air and moisture protection, flashing
- Long-lasting roofing
- Eavestroughing
- Drainage away from the foundation
- Properly located air intakes and exhausts for systems and appliances
- Effective lighting for safety, with motion-activated switches
- Roof overhang for shading
- Ice dam prevention

## LANDSCAPING

- Drought-resistant native plants (xeriscaping)
- Reduced lawn area (less water and fertilizer)
- Cistern or rain collection system
- Composter for organic wastes
- Organic garden
- Trees for windbreak and shade

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