



Building a Greener Future

Canada's Home
Building Industry
and the Environment

Canadian
Home Builders'
Association



Canadians want to see progress in addressing important environmental issues such as climate change, air quality and protection of our natural resources. The good news is that Canada's professional new home builders and renovators are helping homeowners take a leadership role on the environmental front.

In both new home construction and home renovations, Canada's housing sector is setting the standard for environmental performance.

Greenhouse gas emissions are being cut. Energy efficiency is continuously improving. Indoor air quality is advancing. And we are using our natural resources more prudently.

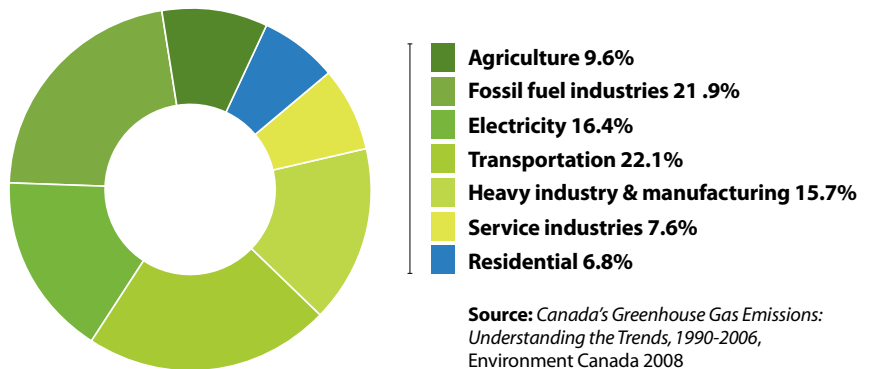
This publication highlights some of the impressive environmental achievements in the housing sector – and points the way towards even “greener” homes in the future.

How Do Our Homes Fit into the Climate Change Picture?

Climate change is the central environmental issue of our time. At the end of 2006, Canada's GHG emissions had actually increased by 21% since 1990.

Chart One shows where these emissions come from. Notably, in 2006, Canadian homes accounted for just under 7% of the total, according to Environment Canada.

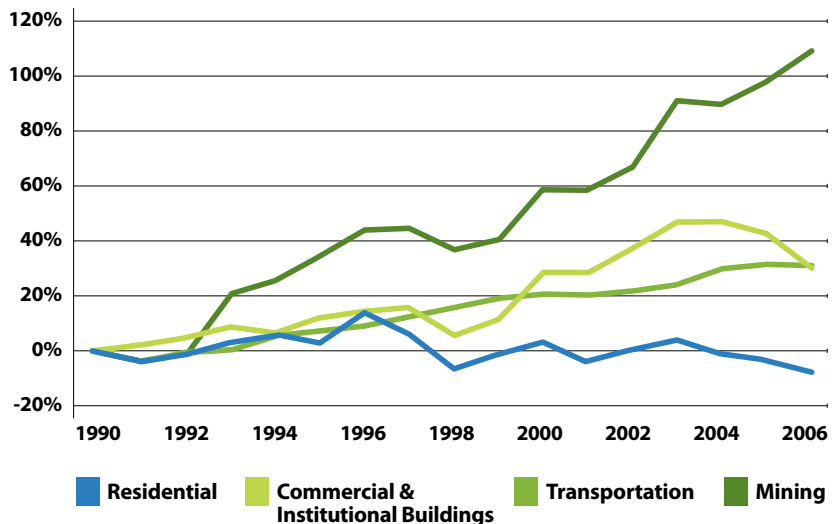
Chart One:
Where Do Canada's Greenhouse Gas Emissions Come From?



The residential sector has shown strong leadership in reducing its GHG emissions. At the end of 2006, Canadian homes were releasing 8.1% less GHG emissions than in 1990, despite a 30% increase in the number of homes in the country.

Chart Two shows the success of the housing sector in cutting GHG emissions compared with other sectors of our economy.

Chart Two:
Changes in Greenhouse Gas Emissions Between 1990 and 2006





EnviroHome: Leading the Way Towards a Greener Future

Photo:
Stratus EnviroHome/
Effect Home Builders,
Edmonton, Alberta

The remarkable improvement in the energy efficiency of Canadian homes has come about through a process of ongoing innovation and incremental change. New home builders and renovators are constantly looking for better ways to build, in order to deliver greater value and higher performance to consumers.

This continuous environmental improvement owes much to the development of the R-2000 Initiative. R-2000 operates as an ongoing partnership between Natural Resources Canada and the Canadian Home Builders' Association (CHBA).

The R-2000 Standard established the concept of the "House as a System" – pointing to the importance of considering all aspects of home performance and occupant comfort. Today, the benefits of R-2000 building science are

indispensable and can be found in every new home built. You can learn more about R-2000 homes at www.r2000.chba.ca.

CHBA's EnviroHome designation was created to recognize R-2000 builders and homes that deliver exceptional environmental performance. With the ongoing support of TD Canada Trust, EnviroHome represents the longest running private sector initiative to recognize environmentally responsible new homes. You can learn more about EnviroHome at www.envirohome.chba.ca.

In 2009, Edmonton's Effect Home Builders was recognized by the CHBA for their Stratus EnviroHome – an R-2000 home that uses less than half the energy of most green-labeled homes, and about 70% less than the typical new home.

"Energy efficiency in the residential sector improved 25% from 1990 to 2005, allowing Canadians to save \$6.1 billion in energy costs in 2005.

"These energy efficiency savings translate into an average savings of \$488 per Canadian household in 2005".

Source: Energy Efficiency Trends in Canada – 1990 to 2005, Natural Resources Canada, 2008

Energy Efficiency

Of all the ways that homes impact the environment, none are more important than energy use. Between 1990 and 2006, the energy efficiency of Canadian homes improved significantly. Newly-built homes are far more energy efficient. Existing homes have also improved as homeowners upgrade to better heating equipment, windows, insulation and more efficient appliances.

Energy-efficient new homes and energy-wise home renovations represent real environmental progress. They show that individual Canadians are taking the lead in protecting our environment.

Water Efficiency

Conserving our water resources has also become very important. We want to ensure that our communities have long-term water security and that our rivers and lakes remain healthy.

The good news is that advances in water-consuming household equipment are delivering equal or better performance, while using far less water. For instance, high-efficiency toilets require just 4.8 litres per flush – a 30% improvement over low-flush units, and far less water than required by older conventional 13 litre/flush toilets.



Similar improvements have been made in bathroom faucets and showerheads. New, water-efficient products deliver great performance and tremendous water savings.

Outdoors, the growing use of native plants and low-water landscaping helps reduce irrigation requirements. New approaches to storm water management and the use of more water-permeable surfaces protect groundwater and reduce wastewater treatment costs.

Resource Efficiency

Recent years have seen a strong movement towards “greener” building products and materials. Canada is a world leader in sustainable forestry practices. As well, an ever-increasing number of building products are manufactured using recycled waste materials. And modern construction practices reduce the volume of materials needed to build a new home, while increasing performance and quality.

Waste Management Practices

The construction and demolition of buildings account for about 25 % of all solid waste going to landfill in Canada. The home building industry and governments have recognized that this needs to change.

Across the country, builders are adopting new construction management practices to cut waste production, and ensure that remaining wastes are recycled and reused, wherever possible. In some provinces, new construction waste programs are now in place to accelerate this trend. It is expected that the amount of new home and renovation construction wastes going into landfill sites will shrink dramatically over the coming decade.



Green Renovation: Helping Homeowners Cut Costs and Protect Our Environment

Canada’s twelve million existing homes represent enormous potential for saving energy and reducing environmental impacts.

Homeowners are responding to this by asking professional renovators for “green” options when they plan a renovation project. Given the diversity of construction methods and equipment in existing homes, such expert help is essential to delivering value, lower operating

costs, improved performance and increased occupant comfort. To help homeowners understand the process of planning a green renovation, the CHBA has published the *Homeowners’ Guide to Green Renovation*. This booklet lays out a three-step planning process that is applicable to any home and any renovation project. Homeowners can download this 12-page publication at www.chba.ca.

A Disciplined Approach to Building Science and Codes

As we reduce energy and water consumption, and look for ways to use natural resources more efficiently, we must also ensure that high-performance homes provide a safe, healthy and comfortable living environment for Canadians.

The construction of high-performance homes requires a solid foundation of building science.

The research needed to support this important work benefits from ongoing collaboration between the home building industry and key federal government agencies with an interest in housing and building science.

This work is the focus of the CHBA's Technical Research Committee (TRC). Members include builders from across Canada, allied industry groups representing product and material manufacturers, standards organizations, warranty officials and a wide range of government representatives. Key federal government agencies participate in TRC:

- The Institute for Research in Construction (IRC), which is part of Canada's National Research Council, conducts a wide range of scientific research on housing systems and materials, supporting innovation within the industry. The IRC is also the support agency for Canada's national building code process, which brings a disciplined, science-based approach to establishing model building code regulations for use across Canada.
- Canada Mortgage and Housing Corporation (CMHC), Canada's national housing agency, which carries out a wide range of technical, economic and environmental research that supports quality housing for all Canadians.
- Natural Resources Canada (NRCan), which has a specific interest in the energy efficiency and environmental performance of housing. Through energy research, and support of initiatives like R-2000, ENERGY STAR®, the EnerGuide Rating System, and ecoENERGY Grants for homeowners, NRCan works with our industry to help make all homes more energy efficient.



Towards an Even Greener Future

Improving the environmental performance of Canadian homes is an ongoing process. Over the last two decades, a great deal of progress has been made. In the years ahead, this will continue.

Canada's R-2000 Standard, which has played a central role in the development of more energy-efficient and environmentally responsible home building practices, is being upgraded with the support of the Canadian Home Builders' Association. The new Standard will ensure that R-2000 homes represent the leading edge in energy performance and environmental features.

So what lies ahead for new home buyers looking for a greener home? Even greater energy efficiency. Increased use of products and materials that protect indoor air quality. Advanced construction practices that get the most from our natural resources. And the increased use of renewable energy from the sun.

Today's green homes will just keep on getting greener.