

R-2000 Initiative

R-2000: Value for Money – Value That Lasts



When you're buying a new home, you're looking for a well-built, comfortable home that fits your way of life. It has to be affordable and, as it's the single biggest investment many of us make in a lifetime, it should be a smart investment.

You're considering investing in an R-2000* home and ask, "Am I getting value for money?" The answer is "Yes!" You can prove it to yourself by reading further and taking the steps outlined at the end of this fact sheet.

What is R-2000?

R-2000 is a voluntary energy efficiency standard for new houses. It was developed by the Office of Energy Efficiency of Natural Resources Canada in cooperation with Canadian home-building professionals and the housing industry. It's flexible enough to work for any kind of house, no matter what the design, yet detailed enough to work as effectively in Whitehorse, Yukon Territory, as it does in St. John's, Newfoundland and Labrador. Not only that, an R-2000 home integrates many energy efficiency features that reduce greenhouse gas emissions that contribute to climate change.

R-2000 and Building Codes

Building to the R-2000 Standard is not the same as building to a building code. R-2000 is a national voluntary standard. Building codes are mandatory, are established in law, and can be national, provincial or municipal codes.

Over the years, developments in new materials and technologies have enabled Canada's provinces and territories to set higher standards in their respective building codes. In addition, more and better builder training (including R-2000 training) has contributed to improving the quality of new home building in Canada.

*R-2000 is an official mark of Natural Resources Canada.



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You can see the improvement by comparing Natural Resources Canada's EnerGuide for Houses rating of houses before the existence of the R-2000 Standard and the present rating more than 20 years later. This rating is part of a national system that evaluates the energy efficiency of houses across Canada – the higher the rating, the more energy-efficient the home. Homes constructed before 1983 have an average EnerGuide for Houses rating of 61. Between 1984 (a year that building codes underwent a major revision) and 1995, the typical rating rose to 66. Houses built between 1995 (another year in which codes were revised) and the present day are typically rated at 70.

But R-2000 homes have always beaten these numbers. For R-2000 homes to meet the energy target prescribed in the R-2000 Standard, they would achieve a rating of 80 or higher on this same EnerGuide for Houses scale.

Imagine an R-2000 home and an identical conventionally built home, located side by side. These EnerGuide for Houses ratings mean that the R-2000 home costs an average of about 30 percent less to heat than a conventionally built home.

R-2000 builders

At the heart of the R-2000 Initiative are the trained and certified R-2000 builders across Canada. Certified R-2000 builders are companies that have made a decision to offer their customers a special expertise – their focus is energy efficiency.

Certified R-2000 builders must undertake upgrade training every two years at a minimum. They have made a professional commitment to excellence, and it's a commitment that is reflected in the quality of their work.

R-2000 quality assurance

Certified R-2000 builders commit not just to following the R-2000 Standard in the way they build, but also to submitting to inspections from independent R-2000 experts for every house they build that is certified.

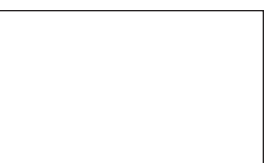
An R-2000 certificate and a label on your house prove that your builder has the most up-to-date energy efficiency training and that your house has been independently quality-assured and certified as meeting the R-2000 Standard. It is your guarantee of a quality-built home, which will save you money on energy bills over a lifetime.

What are the special features of an R-2000 home?

While R-2000 homes are most importantly comfortable and highly energy-efficient homes, they also have a lower environmental impact. In Canada, energy typically comes from fossil fuels such as coal, oil and gas. Because R-2000 homes use less energy, they help reduce the production of greenhouse gas emissions that contribute to climate change.

The R-2000 Standard requires that builders incorporate items from a "pick list" of tried and tested new environmentally responsible materials (for example, insulation that contains recycled materials or siding made from sawmill waste). R-2000 houses also include environmental features that are not energy-related, such as low-flow toilets that use less water to flush. Even small savings mount up to help protect the environment while lowering operating costs for homeowners.

To be efficient, a home must be airtight. And if it's airtight, it must be properly ventilated. Because R-2000 homes are airtight and use mechanical ventilation, they are well known for their excellent air quality. The R-2000 Standard is the basis for the Canadian Home



Builders' Association's "EnviroHome." The R-2000 building and certification process guarantees healthy ventilation for every certified R-2000 home. It's another factor that contributes to the comfort of R-2000 homes.

Building to the R-2000 Standard means having qualified experts building to the latest tried-and-tested technology. R-2000 homes continue to lead the way in introducing advanced energy efficiency technologies to everyday homes. Highly energy-efficient windows, advanced wall systems, integrated heating/domestic hot water systems and advanced ventilation systems are just some of the technological advantages of R-2000 homes.

R-2000 features help protect your investment

A recent analysis by NRCAN of a group of 14-year-old R-2000 homes in British Columbia¹ showed that these homes had stood up well to the test of time. Homes had needed little or no major repair, mechanical systems were still fully operational and energy savings were consistent.

A recent U.S. survey² demonstrates that home buyers value energy-efficient homes. The research suggests that homeowners can expect a return of two to four times the value of their energy upgrade costs when they sell their homes.

Because they recognize that your overall operating costs for an R-2000 home will be significantly reduced from those of conventionally built homes, some banks and lending agencies offer reduced rates for mortgages on R-2000 homes. Ask your bank if it recognizes the R-2000 difference in its customer lending rates.

The real value of an R-2000 home

The benefits you can't put a dollar value on

Comfort – R-2000 homes have fewer drafts, less noise and dust and fewer variations in temperature – all of which means improved year-round home comfort.

Healthy Indoor Air – Clean indoor air means fewer asthma attacks, fewer trips to the doctor and fewer restless nights. It also contributes to improved comfort for you and your family.

Environmental Responsibility – You can take pride in living in a home that has been built applying high environmental standards that minimize the impacts on the land and on landfill during construction, use recycled building products and build in targets for lower water usage and energy consumption.

Peace of Mind – R-2000 homes come with a certificate from the Government of Canada. This certificate means that your home has met the R-2000 energy target, that it has been built by a certified builder that is trained in NRCAN's R-2000 Standard, and that it has been quality-assured by independent R-2000 professionals whose job it is to ensure that every R-2000 home meets NRCAN's stringent requirements.

The dollar value of R-2000

Average annual energy consumption for a new home built after 2000 is about \$2,300.³ The average annual energy consumption for an R-2000 home is about \$1,700.⁴

Data from R-2000 builders show that the increased cost to upgrade a standard code-built home to the R-2000 Standard is between 4 and 6 percent of the total cost of the home. For a home priced at \$200,000, that's a cost premium of between \$8,000 and \$12,000.



¹ Proskiw, G., P. Eng. (prepared for NRCAN), *Long-Term Airtightness and Energy Performance of Wood-Frame Houses; Retesting of the Flair Project After 14 Years*, June 2001.

² Nevin, R. and Watson, G., "Evidence of Rational Market Values for Home Energy Efficiency," *The Appraisal Journal*, October 1998.

³ Averages are based on several assumptions, such as a family of four occupants, a room temperature of 21°C, standard heated water consumption, etc.

⁴ Information from NRCAN's R-2000 and EnerGuide for Houses data as of January 2003.

Now you can compare

Consider the example in the following table when you're shopping for a new home:

	Example calculation		Your calculation	
	Conventionally built house	R-2000 house	Conventionally built house	R-2000 house
1. Basic price	\$200,000	\$200,000		
2. R-2000 upgrade cost	\$0	\$10,000		
3. Total price (line 1 + line 2)	\$200,000	\$210,000		
4. Initial down payment	\$20,000	\$21,000		
5. Mortgage amount (line 3 – line 4)	\$180,000	\$189,000		
6. Interest rate	4.5%	4.5%		
7. Annual mortgage payments	\$11,956	\$12,552		
8. Annual energy costs	\$2,300	\$1,700		
9. Property tax	\$2,700	\$2,700		
10. Total annual payments (line 7 + line 8 + line 9)	\$16,956	\$16,952		

Your home is your family's most important investment. Make sure that your next home gives you value for money – think about buying an R-2000 home. Local R-2000 offices are available to provide you with information and contacts for qualified R-2000 builders. For the number of your local R-2000 office, call Natural Resources Canada's Office of Energy Efficiency toll-free at 1 800 387-2000 or visit the Web site at oee.nrcan.gc.ca/r-2000.



Leading Canadians to Energy Efficiency at Home, at Work and on the Road

The Office of Energy Efficiency of Natural Resources Canada strengthens and expands Canada's commitment to energy efficiency in order to help address the challenges of climate change.