

Building energy-efficient homes in remote communities: planning for success

Building energy-efficient homes requires careful planning and attention to detail under the best of circumstances. Planning for success takes on special meaning in the North and other remote regions of Canada.

An estimated 250 000 people live in Canada's 350 remote communities (a community is considered "remote" if it is not on the provincial/territorial electrical grid). Basic necessities, including building materials and fuel, are transported to these communities over long distances by truck, boat, barge or plane. As a result, it may be weeks or even months between supply shipments and for someone building an energy-efficient house, that could spell disaster.

In remote communities, planning for success begins long before the first tool is picked up.

The first consideration in building an energy-efficient house in the North is the structure's design and orientation on the lot. This also holds true for entire communities, which can be designed and constructed with energy efficiency in mind. When designing a home in the North, the lifestyle of its occupants should also be taken into account. The good news is that a home that suits a rugged, northern lifestyle can still be energy-efficient.

Selecting an appropriate heating and ventilation system for the climate and area is the second important consideration. With this in mind, the new community of Peawanuck in northern Ontario was chosen as a site for a demonstration project involving five makes of energy-efficient wood-heating appliances.

The project was initiated under the Remote Community Demonstration Program (RCDP) of Energy, Mines and Resources Canada (EMR). RCDP is designed to help communities and individuals in remote areas find ways to exploit local energy sources, develop and employ energy-efficient technologies, and build energy-efficient homes.

EMR's partner in the project was the Weenusk Indian Band, whose members were clearly determined to live in comfortable, energy-efficient homes after their former community was wiped out by a flood. The project offered an actual community showcase of the relationship between energy-efficient housing and properly sized, located and installed wood stove systems. It also furthered the safe use and proper maintenance of residential wood stove operations in remote native communities. And finally, it resulted in significant fuel savings: residents estimate that wood use dropped to two to three cords per year from the 15 cords used in their previous homes.

Planning skills is also an essential ingredient for success in the North. A properly oriented and designed home will not be energy-efficient unless proper techniques are followed throughout construction.

That means a home builder or community may have to send local tradespeople for special training, or have the training, such as an R-2000 Builders' Workshop, brought directly to the community.

The Island Lake Tribal Council in northern Manitoba launched such an initiative when they sent more than 30 tradespeople from several bands for special training on energy-efficient housing construction. The skills acquired at this special builder's course were then put to use in constructing the first-ever energy-efficient homes on northern Manitoba reserves. This project also received RCDP funding.

The suitability of R-2000 housing in remote communities was also put to the test under RCDP.

In this project, the Selkirk Indian Band built eight R-2000 houses at Pelly Crossing, Yukon. Workshops were developed and delivered for tenants and maintenance staff, and a comprehensive monitoring pro-

gram was implemented to assess the project. In addition to improving the quality of housing in Pelly Crossing, each of the R-2000 homes has saved approximately 900 litres of oil per year, which will reduce the flow of money out of the community.

Despite the efforts of RCDP and other government programs, significant impediments remain to energy-efficient home construction in remote communities. One of the most obvious is the availability of building materials.

To overcome the problems of availability and cost, many home builders in the North join together to order building materials in bulk. They are also learning to order all their supplies at one time and to ensure that everything is delivered as promised. In remote communities, even the absence of a few sheets of insulation or wallboard can wreak havoc on the best-laid plans.

Despite the obstacles, it has been proven time and again that energy-efficient homes can be built in remote communities. That is an indication both of the adaptability of Canadian housing technology and of the determination and ingenuity of our northern residents.



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