

‘Self-build’ Housing in Aboriginal Communities

Starting with a strong foundation

In 1994, World Vision Canada, a Christian humanitarian relief and development organization, began a program to focus on economic, social and community development in aboriginal communities across Canada. The program is guided by the 12 members of the World Vision Canada Aboriginal Council, ten of whom are of aboriginal ancestry.

The Council’s first task was to meet with members of a number of aboriginal communities in Saskatchewan, Manitoba and Northwestern Ontario to identify their most critical needs. All the communities agreed that the lack of adequate affordable housing was a top priority which required new and creative solutions. In fact, representatives of several communities already had been meeting to discuss forming some sort of housing co-operative to help address this problem.

Robert Maytwayashing, a former Councillor for the Lake Manitoba band, was one of the community members who was concerned about the housing situation. Familiar with World Vision’s work abroad, Robert was interested in the idea of implementing an innovative housing project, but notes that community members had to be convinced. “First Nations are generally leery of ‘Big Brother’ lending a helping hand,” he says. However, the community agreed to work with World Vision Canada when the organization proved its sincerity on another matter. The

Band Council had issued a cheque to World Vision Canada for a workshop which ultimately never took place. When Terry Leblanc, World Vision Canada’s Director of Aboriginal Programs, returned the cheque to the band, the Council came to view the organization as a potential trustworthy partner.

With input from the Lake Manitoba band and several other communities, and with the assistance of community development specialist Ernest Dyck, World Vision Canada developed a self-help, community-based approach through which community members could build their own houses using alternative, low-skill construction techniques. A proposal for pilot project funding was made to the Homegrown Solutions¹ program of the Canada Mortgage and Housing Corporation, which granted \$20,000 for either a stackwall or balewall house construction project.

Choosing straw

Once the pilot funding was obtained, the first step was to determine which alternative construction technique would be most suitable and appropriate. After a literature review and discussions, the ‘Nebraska-style’ balewall technique was selected. This technique, originally developed in Nebraska in the mid-1800s, uses straw bales pinned and reinforced with rebar and coated with stucco inside and out.

The balewall technique was chosen because it provides a high insulation level and high fire resistance and is relatively simple and affordable: \$50 or less per square foot if the home is ‘self-built.’ The other construction technique considered – stackwall, which uses pieces of firewood stacked on top of each other in a mortar matrix – was deemed unsuitable for low-skilled labour, less efficient and less insulating.

Making it happen

Three communities – Lake Manitoba, Sioux Valley and Cumberland House – had expressed interest in participating in the pilot project. Lake Manitoba and Sioux Valley are First Nations communities in Manitoba, and Cumberland House is a Métis settlement located beside the Cumberland reserve in Saskatchewan.

“It took seven or eight months to dream, visualize, promote and sell the project,” says Terry LeBlanc. The effort paid off as a variety of partners came on board. An engineer in Winnipeg, Yashe Boge, developed the house design free of charge and Delta Blueprinting from the Interlake region of Manitoba contributed the blueprints. World Vision Canada representatives and community members made presentations to business people who might be interested in the project – such as lumber, manufacturing, electrical and plumbing supply companies – and a number of businesses donated materials. Newton Enterprises contributed windows and doors, Manufab Building donated roof trusses and Mississauga Electrical supplied electrical components and installation. Schweitzer-Mauduit, which produces paper from waste flax straw, donated straw bales and paid to transport them to the community.

Representatives from the three communities travelled to Calgary for workshops with an architect who had worked with straw-bale housing, and to Window Rock, Arizona, to learn from members of the Navajo nation who had used the technique. The funding for these trips came from the Homegrown Solutions grant and from the communities themselves.

Building and financing

Construction began in Sioux Valley, then in Lake Manitoba and subsequently in Cumberland House. Two houses were well under way in Sioux Valley when they were destroyed by fires set by vandals. The community decided to focus on resolving the issues behind the vandalism before proceeding with further construction.

Construction of the first house in Lake Manitoba began in the fall of 1997, and the house was closed in before the winter. In conventional housing projects, work on the interior generally continues during the winter, but straw-bale housing experts recommended that the exterior be completed first and construction was halted for the winter. “We have learned since then that the technique can be accommodated to the seasons,” says Terry LeBlanc. Community members now have developed sufficient expertise in straw-bale housing construction and have begun to do interior finishing work during the winter months. In a region where winters are long, the ability to build houses all year long is important.

The Lake Manitoba house was completed in the fall of 1998. The cost of the house was an estimated \$45,000 after donations of labour and materials, or about \$43 per square foot (compared to \$70 per square foot for a conventional single-family home with modest furnishings). More houses are planned to be financed using band funds and through participation in federal programs available to First Nations communities.

The situation is different for Cumberland House. Because it is not a First Nations community, it does not have access to the same resources as the other two communities. Instead, Cumberland House has been experimenting with a co-operative revolving loan fund to finance the homes.

World Vision Canada has facilitated the formation of a housing co-operative in Cumberland House, and has provided management and administrative training. The goal is to raise the initial capital for the co-operative through construction of two homes using donations of labour, materials, land and

capital. These houses then are to be used as equity for loans from financial institutions, while their occupants pay rent at market rates. Funds from the loans and from the rental of the two houses will form the basis of a revolving mortgage loan fund which will capitalize the construction of the next two units (labour will be donated by co-op members through 'sweat equity'). These units, in turn, will be mortgaged by the co-op, the residents will pay rent and the funds obtained will be added to the loan fund.

At the end of the project (when ten houses have been built), the members of the co-operative will take title to the houses. At that time, the total debt of the co-op will be divided by the number of houses to determine the final mortgage on each home. The amount of the mortgages will not exceed the ability of each household to make the payments at rates provided through social assistance.

In practice, this model for funding construction has proved more difficult than anticipated, chiefly because of the problem of obtaining capital. The co-op recognized that it was not realistic to expect extensive donations of materials on an ongoing basis, and had hoped to obtain a capital grant from Saskatchewan Housing. Unfortunately, it was not successful in doing so. "The community has had to find ways to do things without cash resources and to find ways to increase cash resources – sometimes by soliciting contributions from individuals," Terry LeBlanc explains. As a result, the pace of construction has been slower in Cumberland House.

Lessons learned

Originally, World Vision and the communities agreed to try to work together in order to maximize the learnings from the project. The construction schedule was planned so that individuals from the various communities could work together to learn the construction techniques. The goal was to have individuals train other members of their communities in the straw-bale technique. However, because the various phases of the project took longer than expected and proceeded at different rhythms in each community, this method did not prove feasible.

Volunteer labour was an important component of the project, both in terms of the actual construction and with respect to the community-building function of the project. The future homeowners and their neighbours donated labour to the building effort. In addition, World Vision volunteers from outside the community helped with the construction. Robert Maytwayashing notes that it can be challenging to coordinate volunteer labour, keep construction moving, and sustain enthusiasm and momentum when inevitable delays occur. As a result, at some points in the construction, it was necessary to hire members of the community's regular construction crew to help speed things along.

Despite these challenges, the project demonstrated that self-build straw-bale construction is a practical alternative for aboriginal communities seeking affordable, energy-efficient housing. The high insulation value of the homes is a definite advantage in northern communities, and volunteers found the technique easy to learn and adaptable. "Sometimes people would have part of a bale up and then decide they wanted to do something differently and pull it down," says Robert Maytwayashing. "With this technique, it is relatively easy to make changes as you go along – you don't have to pull out nails or discard lumber." He also notes that the houses are very solid and would recommend the straw-bale housing technique to other aboriginal communities.

As First Nations communities move towards increased self-governance and locally-based project management, the lessons from this project are instructive. "We have learned that we can do it," says Terry LeBlanc. "Just because it has never been done doesn't mean it can't be done. There are innovative models of housing that can meet aboriginal housing needs more cheaply and effectively."

Ann Simpson

*Ann Simpson works on the **community stories** series for The Caledon Institute of Social Policy.*

For more information on the straw-bale housing project, contact Terry LeBlanc at 1-800-268-1650, ext. 3377 or via e-mail: leblanct@mb.sympatico.ca

Endnote

1. Homegrown Solutions is a partnership initiative of Canada Mortgage and Housing Corporation, the Canadian Housing Renewal Association (CHRA), the Co-operative Housing Federation of Canada, the Canadian Home Builders' Association and the Federation of Canadian Municipalities. The initiative is managed on a day-to-day basis by CHRA. Homegrown Solutions initially was funded in 1995 as a national demonstration program with the aim of helping locally-based community organizations meet needs for affordable housing by harnessing new and existing resources.

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1600 Scott Street, Suite 620
Ottawa, Ontario, Canada
K1Y 4N7
phone: (613) 729-3340 fax: (613) 729-3896
e-mail: caledon@caledoninst.org
website: <http://www.caledoninst.org>