

BETHEL COLLEGE MENNONITE CHURCH CREATION CARE COMMITTEE CREATION STEWARDSHIP NOTES # 16, December 2005

What Is Greenbuild?

Most of us remember the federal and state legislation that was passed in the 1970's that awarded tax credits for installing alternative energy devices such as solar collectors and other energy conserving components. This came about as a result of the energy-conscious Carter administration. (Jimmy Carter was a nuclear engineer by training and recognized America's growing dependence on foreign energy resources.) The tax credits ended in the 1980's under a less-concerned administration. Most of the young companies that had sprung up specifically to build and market energy-conserving products went out of business when the tax credits dried up. That seemed to be the end of government interest in incentives to build energy-conserving structures for homes and business. Imagine my curiosity when my son Kenton, a designer/developer in Portland, Oregon, invited me to attend the Greenbuild International Conference & Expo Nov. 10-12, 2004 in Portland. What is meant when a product is considered "green"? A green product is a building component that has minimal or no negative environmental impacts or allows for the elimination or substitution of potentially hazardous material. The conference was sponsored by an industry-based group, The United States Green Building Council (USGBC).

Who is the USGBC and what are its goals?¹

The U.S. Green Building Council is the nation's foremost coalition of leaders (over 5500 organizations) from across the building industry working to promote buildings that are environmentally responsible, profitable and healthy places to live and work. The membership is comprised of visionary leaders representing: manufacturers, building owners, managers, designers and builders, financial and insurance firms, the press, educational institutions and nonprofit organizations, professional societies and trade associations, utilities, and state, local and federal government. The strength and diversity of the USGBC significantly enhances the resources available and the effectiveness of member efforts to improve the quality of our buildings. The Council does more than sponsor annual conferences (the 2006 conference will be held at Sarasota, Florida, September 19-22). It has developed a set of standards and a rating system (LEED™) by which building projects can be evaluated and conducts training classes to certify its members regarding the standards. Annually it recognizes the companies and individuals that have made the most significant contributions in six green building categories.

LEED™--Green Building Rating System²

The LEED™ (Leadership in Energy and Environmental Design) green building rating system was originally developed by the USGBC to provide a recognized standard for the construction industry to assess the environmental sustainability of building designs. Canadian Green Building Council (CaGBC) has since adapted the USGBC LEED™ rating system to the specific concerns and requirements of buildings in Canada. LEED™ is a point-based rating system; points are earned for building attributes considered environmentally beneficial. It has quantified most of the "green credits". For example, 5% of the building materials must be from salvaged materials to earn a point for the salvaged materials credit.

LEED™ 69 points (70 for LEED™ Canada) covers six topic areas:

Site Development: minimize storm water run-off, encourage car pooling and bicycling, increase urban density and green space.

Water Efficiency: eliminate site irrigation, reduce water consumption, minimize or treat wastewater

Energy Efficiency: reduce energy consumption, use renewable energy, eliminate ozone-depleting chemicals.

Material Selection: minimize construction waste, re-use existing building façade, use recycled and salvaged materials, use renewable construction materials and design and build more durable buildings

Indoor Environmental Quality: incorporate daylighting, use low off-emitting materials, provide operable windows and occupant control of work space, improve delivery of ventilation air

Innovation in Design: use a LEED Accredited Professional, greatly exceed requirements for a credit, incorporate innovative environmental features not covered in other areas.

Designers can pick and choose the credits most appropriate to their project to achieve a rating. LEED™ has four performance ratings:

26 to 32 points: **Certified** 33 to 38 points: **Silver** 39 to 51 points: **Gold** 52 or more: **Platinum**

The LEED™ system can be used in three ways: to serve as a design guide for the design team, to serve as a means of showing the client and other interested parties that the design has effectively addressed environmental issues, and certification provides increased market exposure and places the building in elite company among the most green buildings in North America. The new Library at the Associated Mennonite Biblical Seminary is designed to meet the “gold” certification.. This \$8,000,000 (estimated) building will make a minimal impact on the environment.. Key features include: a ground-source heat pump for heating and cooling, windows that maximize sunlight and provide efficient insulation, use of locally produced materials (40%), rain gardens around the building to make use of runoff rather than passing it off to city sewers, restored prairie grasses to minimize mowing, and bathroom facilities that reduce water use. For more information, refer to the “AMBS Window” insert in the Fall/Winter 2005 issue of *Our Faith*. There are over 2000 buildings that have been registered with the USGBC (over 200 with the CaGBC) to become LEED™ certified. Many developers, particularly those working on federal government and leading-edge private sector buildings, are requiring that building designs meet LEED™ Silver performance. Given that conventional new buildings would likely score only a few LEED™ points, achievement of any LEED™ level represents a significant reduction in building environmental impact and improvement of indoor environment.

The larger benefit of LEED™ buildings is an improved indoor environment (lower absenteeism, greater productivity, better thermal comfort), lower maintenance costs (commissioned building, more durable materials, smaller or eliminated building systems), higher corporate profile (increased product sales, marketing advantage, improved employee morale), and reduced risk of remedial measures (to deal with sick building syndrome or environmental contaminants). In general terms, the initial cost of building green is higher than conventional construction, with the increased cost escalating as a building is designed from "Certified" to "Platinum", but the energy saving increases incrementally as well. A "Certified" building may show a typical energy saving of 25 to 35% over a conventional structure while a "Platinum" building would typically have an energy saving of 60% or more. As a building is designed for a higher rating, not only is the additional cost per square foot higher, but the time it takes for the improvements to pay for themselves also takes longer.

The Portland Greenbuild International & Expo, November, 2004

About 7,000 individuals attended the conference in Portland to hear presentations and visit the several hundred booths. Many of the booths were showing or demonstrating products or processes that met the definition of "green" in some fashion. Perhaps a half dozen booths were showing off the uses for their photovoltaic panels that assist in providing lighting or power for other processes. Typically these were not for residences but for large commercial or government buildings. New types of insulation were shown that were installer friendly as well as environment friendly, one made from soybeans, another from cotton. Other companies showed building materials that were no longer giving off formaldehyde or other hazardous gases.

New construction methods were also demonstrated such as a type of styrofoam block which can be snapped together to provide a concrete form for pouring the walls of a building. At least two houses in this community have been built by this method. Insulated panels for building construction were also shown. These have been used in several homes in and around Newton. Not all products shown were new. For example, the Brick Industry Association reminded us that brick is "simply of the earth." Several companies have made a business of recycling maple gymnasium benches, beams from old warehouses, rosewood flooring from antique railroad ties, and much more. Many products were "engineered" such as flooring "stone" and a skylight that had an insulation rating of R20 yet still allowed 20% light transmission. The Clivus Multrum company was touting its no-flush composting toilet--not a new product--as well as a greywater irrigation system.

Perhaps a third of the exhibits were offering green design services or engineering support for green build design. The Conference & Expo demonstrated that commercial building is making great strides toward environmentally friendly design. But I kept pondering when will the concept of building green trickle down to the local developer and home builder?

Contributed by Emerson Wiens

¹Excerpted from www.usgbc.org

²Excerpted from www.enermodal.com/leed_explained.html