

ECO-LOGIC: BUILDING IT GREEN

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The term “building green” has become a buzz word in the residential construction industry. Developers, contractors, and manufacturers are selling it and home owners are demanding it. But just what does it mean?

Recently, a program called LEED (Leadership in Energy and Environmental Design) has come to the fore, helping buyers design or purchase green homes. Timber framers have a vital role with clients under this program.

LEED for Homes is an international third-party certification system measuring the green performance in eight categories: innovation and design, location and linkages, sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental control, and finally education and awareness.

Clients can choose to build or purchase homes that meet four different standards: Certified (45–59 points), Silver (60–74 points), Gold (75–89 points), Platinum (90–136 points). According to the Canada Green Building Council, LEED for Homes is rolling out across Canada in Spring 2009. However, projects can be registered through the U.S. Green Building Council. Currently, 50 pilot projects are under review in Canada and many professionals are now being accredited to review future projects.

It is important for timber framers to align themselves with LEED Accredited team members, since designers and general contractors tend to take a leadership role helping homeowners decide which points they want to obtain. Some of the issues timber framers may track during the design include the following:

Innovation and Design. Your participation is not limited to timbers. Participate in design think-sessions and contribute ideas. For example, you can add up to 17 points by constructing a green roof for your client.

Material Selection. Clients may push for points through good material selection. As a timber framer, you may be asked for Forest Stewardship Council (FSC)-certified wood and document the percentage of recycled materials you use. Requested to do so or not, make sure your stains, adhesives, and sealants have low VOC (volatile organic compounds) content.

Energy Demand. LEED for Homes promotes a variety of energy sources such as geothermal, heat pumps, solar panels, wind and water turbines; energy efficiencies like Energy Star appliances and furnaces, electronic controls, and on-demand hot water tanks; architectural and engineering features such as vegetation for shade and windbreaks, living walls and roofs, day lighting, extra insulation, and passive solar.

Consult the structural engineer early on if stronger roof components are needed for the additional dead load of mechanical systems, solar panels or green roofs. In the interest of further energy conservation, Structural insulated panels (SIPs) may be used. SIPs create a tighter building envelope and a higher insulative value.

Dennis Anderson of Anderson Custom Homes in Colorado encourages his clients to find the right mix of energy sources and conservation to meet their budget and the site's characteristics. “It's important to first find the low hanging fruit.” Guard against over enthusiasm; the latest technology isn't necessarily the best match for the site. For example, solar panels are well-suited for housing on south facing slopes, but not necessarily those facing North. In this case, it would be better to look first at trees for shade, and facing the house to take advantage of passive solar heating, utilizing walk-out basements for natural cooling.

Indoor Air Quality. The intent here is to improve the overall indoor air quality reducing the creation of pollutants. You can do this by prohibiting urea-formaldehyde resins and protecting all materials from moisture.

Sustainable Sites. Under LEED for Homes, contractors must limit site disturbances. So before the frame arrives, make a plan with the contractor or client. Limit your work area to 40 ft. from the building face and 5 ft. from roadways. Before leaving the building site, clean up and remediate all your materials and equipment.

Waste Management. Diverting construction waste from landfills is critical. You will need to document waste costs, have a strategy, enforcement program, sorting area, qualified handlers and haulers and to collect way-slips for what you dispose. To minimize societal waste overall, it is helpful to source salvaged and refurbished products, tools and machinery.

In addition to supporting the overall LEED certification, timber framers can directly contribute points through their own efforts, such as:

- Obtain a FSC chain-of-custody (CoC) certification (2 points).
- Get certified as a LEED Accredited Professional (1 point).
- Be a part of the integrated project team (contributes to 1 point).
- Help the team ensure the building is oriented for solar design (contributes to 1 point).
- Provide the team with a durability plan for your timbers. This should include an inspection list, address moisture control and strategies for green maintenance (contributes to 2 points).
- Discuss strategies for innovative or regional design, such as increased roof overhangs. (Each approved ruling for innovation is worth 1 point, up to 4 points.)
- Minimize disturbance area of the site, which could include a strategy for re-erection of the timber package to minimize the crew's and crane's disruption, including "no-disturbance" zones (1 point).
- Use non-toxic pest control methods (Each worth ½ point):
 1. Keep all wood 12 in. above soil.
 2. Seal external cracks and joints and install pestproof screening.
 3. Include no wood-to-concrete connections, or separate with dividers.
 4. Ensure mature plants are 24 in. away from home.
 5. Treat wood with borate product to 3 ft. above foundation.
 6. Provide a detailed cut list of timber package (contributes to 1 point).
- Reduce your waste and cuttings by one of the following formulas (up to 3 points):
 1. Pounds waste per sq. ft.
 2. Cubic yards waste per 1,000 sq. ft.
 3. Percentage of waste diverted.
- Ensure the adequate insulation and sealing of walls dividing the house and garage, eliminating heat loss, and air and pollution leakage.

Enhance public awareness. This can be through your web site, listing features and benefits of LEED homes as well as your durability plan. You can also encourage your client to hold an open house and display LEED signage and you can pursue media outlets to publish something on the project.

Documentation. LEED for Homes does require in-depth documentation. If the project claims a point in any category, there must be paperwork to prove it. Assembling the necessary documentation is an ongoing effort and should not be put off. It may seem daunting at first, but quickly becomes routine. As a timber framer, get involved directly. Keep an accurate paper-trail and photo records. Be aware of how your actions fit within the overall strategy. And, record and document any staff time and cost associated with LEED efforts.

In addition to LEED, there are more than 70 highly regarded local or regional green building programs. But if you want to take the next step toward LEED certification you can go to www.usgbc.org/LEED/homes and familiarize yourself with their rating system.

To register a project, connect with a LEED for Homes provider or LEED Accredited Professional (LEED AP). They are responsible for performance testing and compliance, and have the oversight for the project to ensure it meets LEED goals. Finally, sit down with the client, architect, general contractor, and LEED AP to determine what level of certification you'll be targeting, using what points.

Only you can decide if you want to pursue the extra effort to tackle certification of your green buildings and your building practices, but it does appear that "green" is here to stay. Many who already practice green are reaping the benefits. In the end, if clients continue to increase the demand, it may become a moot point and only time until you are enjoying them too.

—This article was a dedicated volunteer team effort from the British Columbia Log & Timber Building Industry Association. Kevin Simoes of Streamline Design Ltd. did the bulk of the writing, Aaron Moore of Brian Moore Log Homes, Richard Shatto of Calico Log Inc. and Colin Williams, BC LTBI Executive Director, all contributed or edited.

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