



City Hall, Spruce Grove

Getting to Green

BY K-M. TRATT

LEED is the new wave that challenges the construction industry to move toward sustainability, and that means changes to the way contractors work.

How do you define a green building?

What is sustainability? Can a building be recycled? These are the kind of questions that the Leadership in Energy and Environmental Design (LEED) program wants everybody to think about.

If you haven't heard about LEED yet, you will. It is a voluntary, consensus-based national standard that provides a framework for assessing building performance and meeting sustainability goals. It is a comprehensive system that offers project certification, professional accreditation, training and practical resources.

What a contractor needs to know about LEED can be summed up in five words: You need to know more. Individuals are lining up to become LEED Accredited Professionals. It starts with some heavy reading material and up to 40 hours of study time, so it's safe to assume that there's a lot to know.



Alberta Urban Municipalities Building, Edmonton

“LEED IS MEANT TO TRANSFORM THE MARKETPLACE AND GET EVERYONE TO THINK,” SUGGESTS ALEX ZIMMERMAN, PRESIDENT OF THE CANADIAN GREEN BUILDING COUNCIL.

“LEED provides a framework to help us think more efficiently, but it’s not an end in itself,” says Vivian Manasc, a director of the Canadian Green Building Council (CaGBC) and chair of the Innovation & Design Continuing Education committee. “People are encouraged to make incrementally better decisions on each and every project, to manage their waste better, to reduce landfill,” she says. “The construction industry has a huge impact and they must be made conscious of it.” LEED Canada was introduced in part to confront ‘greenwash’ (where people claim to have green buildings but couldn’t prove it.) LEED Canada provides a means of defining what a green building is – in a Canadian context. It is designed to be flexible enough to accommodate a wide range of green building strategies and local or regional constraints. Flexibility is important because rules tend to change as the standard rises.

The current version of LEED Canada was adopted from the U.S. Green Building Council encompassing new and existing

commercial and industrial buildings. The system also applies to many other building types, including K-12 schools, multi-unit residential buildings, manufacturing plants and laboratories.

THE DECISION TO SEEK CERTIFICATION IS usually made by the owner and designer. The project is registered with LEED before construction and becomes eligible for certification once it is completed and occupied. What LEED certification means to most contractors is a changing of ways of doing things. Mind shift and learning curve are words most often used to describe what it takes to understand the process. Innovation and teamwork describe how to cope. It’s about integrated design and the lifespan of a building, from the moment there is an empty site, a blank sheet of paper and an idea, to the moment of deconstruction. “LEED is meant to transform the marketplace and get everyone to think,” says Alex Zimmerman, president of the CaGBC. “In many cases, if they want the credits they will have to change the way they do things. It’s about letting the market decide.”

Co-operation and collaboration are important aspects of the truly integrated design model, meaning contractors play an increased role in projects from beginning to end. They have greater say and a better understanding of why things are being done. Ideally, everyone shares responsibility for ensuring certification, but in many cases the general contractor bears the brunt of it. Of course, the project manager maintains a lead role. The contractor is not responsible for all the documentation all of the time, nor is the contractor involved in all LEED points. Contractual agreements should designate clearly who is responsible for what documentation.

There is also a significant amount of record-keeping, but documentation becomes routine over time. Years ago, for example, paperwork for safety requirements seemed onerous, now it’s common practice.

LEED is meant to encourage best practices and get people thinking about setting

“LEED WAS SELECTED AS THE REFERENCE TOOL FOR CaGBC PROBABLY BECAUSE IT COULD BECOME THE REFERENCE TOOL MOST NORTH AMERICANS CAN UNDERSTAND AND APPLY,” SAYS RICHARD ALLAN, A SENIOR ENGINEER WITH THE CITY OF CALGARY.

a higher standard. When best practices become common practice, the standard rises. It takes some familiarity, which is why a lot of companies already have one or more LEED Accredited Professionals on staff. The credentials indicate a willingness and ability to contribute in every possible way to a project. Many proposal packages stipulate that at least one Accredited Professional be involved in the project.

Paul Polson, vice-president at construction contractor Stuart Olson, arranged in-house CaGBC workshops for staff. The company’s project managers and estimators are now LEED Accredited Professionals. “I could see that the issues of sustainability and LEED in the construction industry were becoming bigger and bigger,” he says. “It makes sense, so rather than wait to let it happen, we’re on the front end of this and won’t have to scramble to get up to speed.”

LEED for Contractors is a workshop providing a comprehensive introduction to the standard. The CaGBC plans several of the three-hour seminars around Alberta, facilitated by Manasc, who is also a principal of Manasc Isaac Architects Ltd. The first was held late last year in Calgary and was oversubscribed. The workshop features a guide published by the Greater Vancouver Regional District (GVRD), *Introducing Green Buildings and LEED to Contractors*. Because of the material involved, the guide is available only by taking part in the workshop. “When it comes to using the guide, everybody favours learning it through the workshop,” says Helen Goodland, senior advisor for sustainable buildings with the GVRD. “They like the interaction, not just getting a big book and being told to go away,” she adds. “We encourage people to come into the classroom and talk to the individuals with experience about LEED issues and realities.”

THERE ARE FIVE KEY LEED SECTIONS, or initiatives – site sustainability, water efficiency, energy, atmosphere, materials and resources. Points are available in a sixth category – the innovation and design process. Most sections include at least one or more basic prerequisites and the rating

system is structured around sections, credits and points. Credits zero in on specific items, such as water use for landscaping or the recycled content of materials used. A few credits are pre-requisites that must be met, while the rest are voluntary. A building earns one or more points per credit by meeting or exceeding specific performance criteria. Credits can be gained by electing to have a certain percentage of the electricity come from green sources. Points are awarded for things such as reduction of water use through the use of waterless urinals and using natural ventilation (windows that open) to reduce energy use. A point can be earned for including a LEED Accredited Professional in the design process.

Energy-use standards of the Commercial Building Incentive Program (a federal energy-use and emissions-reduction incentive program) are written into the LEED Canada energy rating system. It means buildings must perform 25% better than the model national energy code as a prerequisite in the energy section.

Following an independent review and audits of the documentation submitted by the design and construction team, the CaGBC certifies the project ratings based on the total point score. There are four possible levels of certification: LEED Certified, Silver, Gold or Platinum, and a total of 64 points in 32 credit categories, with bonus points available in innovation and design. About half that amount is required to reach LEED Silver. Because it’s voluntary, it’s up to the project team to decide what level they want to go after. The cities of Calgary and Spruce Grove have included LEED Silver as a goal in their sustainable development policies, the first municipalities in Alberta to have such policies. Government bodies such as Alberta Infrastructure and Transportation support the LEED system, but are waiting for the design and construction industry to get caught up. “We would like to move toward making LEED policy, but we don’t feel the industry is there yet,” says John Gibson, director of Building Sciences with Alberta Infrastructure. “Contractors and design teams that have never done a LEED

project are just getting their feet wet, so as a provincial government, we don't feel the industry is ready for us to make something like LEED Silver a requirement," he says.

Alberta Infrastructure does have its own set of design standards and Master Certification Specifications, which are in the process of 'greening up'. There is also a new initiative in Calgary - Built Right, for residential buildings. Another set of standards recently introduced by the Building Owners and Managers Association (BOMA) of the Greater Calgary Area called Go Green.

There are many rating systems available globally and LEED is gaining a lot of momentum in North America. "LEED was selected as the reference tool for CaGBC probably because it could become the reference tool most North Americans can understand and apply," says Richard Allan, a senior engineer with the City of Calgary. "I believe that LEED will continue to be the North American standard." According to CaGBC, Alberta is a leader in the initiative, with 11 projects currently registered, following behind only B.C. and Ontario. The Alberta Urban Municipalities building in Edmonton was the first in the province to receive LEED certification. Other projects include the Canmore Civic Centre, the Crowfoot Library in Calgary, and the Spruce Grove city hall retrofit.

In Canada, there are currently 141 LEED projects in Canada that are registered or certified with both the CaGBC and USGBC. The number of projects may seem small, but they represent billions in construction dollars. "A rough estimate based on areas puts the construction value of these projects in excess of a billion dollars," says Zimmerman. "To put it in perspective, the total value of commercial and multi-family building construction for 2004 is estimated to be about \$67 billion. The important thing is the momentum," he notes. "The number of LEED projects is doubling every year."

A GREEN BUILDING ALSO PROMISES savings over the long haul, in terms of productivity and deconstruction costs. "In the total cost of running an office building, the



St. John Ambulance, Edmonton headquarters

single biggest expense is salaries," says Simon Knight, director of Climate Change Central and interim president of the Alberta chapter. "Improvements in green buildings have paid for themselves in productivity."

Knight points out a case study from York University, where it was calculated that the cost of operating a \$4 million building over its lifetime would be \$125 million, whereas a green building would cost only \$75 million.

Contractors are showing a lot of interest in LEED, but it's definitely a learning process. "The contractor can participate or not," says Dan Zembal, business development manager, K-LOR Contractors. "If a LEED bid needs a deconstruction or a 'green' process, that's what you bid on. It is a huge

IT IS A HUGE OPPORTUNITY, BUT CONTRACTORS HAVE TO BE EDUCATED AND TRAINED AND UNDERSTAND WHAT THE PROCESS IS ALL ABOUT," SAYS DAN ZEMBAL, BUSINESS DEVELOPMENT MANAGER, K-LOR CONTRACTORS LTD.

LEED Tips For Contractors

Most contractor involvement has to do with construction-related issues in the LEED areas of Sustainable Sites, Materials & Resources, and Indoor Environmental Quality.

Sustainable Sites

CONTRACTOR'S OBJECTIVES:

Minimal site disturbance and restoration of open spaces

THE CONTRACTOR SHOULD:

- Collect and understand all environmental reports documenting site contamination
- Be able to address remediation prior to development
- Know the soil condition of the site in order to take erosion control measures prior to and during construction

Materials & Resources

CONTRACTOR'S OBJECTIVES:

Conserve materials and resources
Minimize the environmental impact of transportation and shipping

THE CONTRACTOR SHOULD:

- Have a detailed waste management plan for the demolition and construction phases
- Keep accurate records of the amount of waste diverted from the landfill
- Consider source separation, have several recycling bins on site
- Keep thorough documentation of incorporated products that include recycled content
- Be aware of off-gassing issues
- Keep thorough documentation of all the parts of the building that will be re-used

Indoor Environmental Quality

CONTRACTOR'S OBJECTIVES:

Control materials with harmful emissions
Manage the construction process to minimize dust and other contaminants

THE CONTRACTOR SHOULD:

- Develop a plan to minimize dust and other pollutants during construction and educate all the sub-trades
- Be meticulous about using low-emission materials such as adhesives, paints and caulking
- Keep thorough documentation of incorporated products

Education

THE CONTRACTOR SHOULD:

- Sit down with a LEED Accredited Professional to discuss desired outcomes
- Meet with the subtrades, explain what you're doing
- Develop a training plan for sub-contractors and trades
- Develop a LEED checklist for each subtrade
- Ensure documentation requirements are written into each subtrade's contract
- Hold weekly meetings

Program Monitoring

Start early on in the process
Maintain ongoing site monitoring; watch for spillage and drainage
Assign a LEED 'Champion' to monitor, track and collect information
Perform random checks of products and materials to ensure compliance
Every point claimed must have supporting documentation

If a LEED bid needs a deconstruction or a 'green' process, that's what you bid on. You will have to come up with innovative ways of doing the things you have to do.

Credits for local materials involve the kind of documentation contractors are not used to. It will be necessary to track down where materials come from, which involves the entire supply chain.

Et Ceteras

Contractors play a significant role in materials selection. LEED points can be lost if the wrong materials are used.
There is no such thing as a 'LEED Certified' product.

Websites for LEED information:

www.cagbc.ca
www.climatechangecentral.com
www.usgbc.org
www.buildsmart.ca
www.calgary.ca
www.bconstruct.com/a_seminars.htm
www.gov.ab.ca
www.boma.ca
www.canadianarchitect.com
www.joconl.com
www.meritalberta.com

"CONTRACTORS NEED TO COME TO GRIPS WITH THE RELEVANT REGULATORY BODIES AND WHAT THE CLIENTS ARE SAYING," SAYS JOEL THOMPSON OF MERIT CONTRACTORS.

opportunity, but contractors have to be educated and trained and understand what the process is all about." A lot of contractors already regard LEED, and sustainability, as the right thing to do.

"As citizens and residents, contractors recognize the importance of sustainability, their families live in the community," says Dave Hackett, legislative co-ordinator for the city of Spruce Grove. "Clean & Green is one of our initiatives, but what does that mean unless you can put substance behind it? Contractors and subtrades will have to recognize that this is the way of the future, if they want to be a part of it."

That kind of speculation is sending ripples through the industry. Contractors react to the marketplace, so if the client requests something, the contractor is going to comply, according to Joel Thompson, vice-president of the Merit Contractors Association of Alberta. "It's another spin on project delivery strategy," he says. "Contractors need to come to grips with the relevant regulatory bodies and what the clients are saying," Thompson adds. "Contractors may have to adapt, but it's not a revolution in their individual universe. A LEED job has a bit of a different spin and character, but every job does."

Think ahead 50 years. By then, who will want that old building if it can't be recycled or re-used? Think about today. Minimum standards are being written into proposals with increasing frequency, and although the lowest bid for contractors has always been bottom line, that standard has already begun to change. ☐