

Energy for the future

The environment and energy issues are on everyone's radar these days. It has become clear that without a strategic plan for the future, we could find ourselves in an energy crisis and if we don't improve on our current energy systems, we will continue to make a negative impact on our climate.

OACETT has formed an Environmental Committee with representatives from our sister associations in Alberta and British Columbia. Chaired by OACETT IETO Councillor Greg Miller, C.E.T., the aim of the committee is to explore the environmental issues that affect our members in their professional lives. Here the committee takes a look at three topics that can help make a positive impact on energy issues: the "greening" of our buildings through LEED certification, provincial incentive programs and grants and regulatory guidelines that address green house gas emissions.

GREEN BUILDINGS – GREEN FUTURE

The emerging "green market" is rapidly becoming a trillion dollar global market. As a result, green buildings and the use of sustainable products, systems and materials have come to the forefront of every building owner, operator, designer and the consumer in their everyday lives. It has been the result of environmental stewardship and investments in innovation.

The argument of whether or not climate change is a real threat is essentially behind us and we have now moved on to finding solutions on how can we solve this global crisis and minimize our dependence on our rapidly depleting resources.

It is a well documented fact that buildings and infrastructure account for nearly 40 percent of the world's greenhouse gas emissions. According to the Canadian Green Building Council's report "A Business Case for Green Buildings in Canada", there are approximately 500,000 commercial/institutional buildings in Canada and these buildings have a dramatic impact on their occupants and the environment. One estimate suggests that buildings in Canada account for:

- 1/3 of Canada's energy production
- 50 percent of the extracted natural resources
- 25 percent of our landfill waste
- 10 percent of our airborne particulates
- 35 percent of our greenhouse gases

It is for that reason that engineering technicians and technologists, as part of the team involved with the design, operation and maintenance of buildings and their systems must be encouraged to develop innovative solutions for buildings and communities that are: environmentally responsible, profitable and healthy places to live, work and play.

This Canadian Green Building Council (CaGBC) is the organization responsible for the administration of the increas-

Plans Future



ingly popular LEED (Leadership in Energy and Environmental Design) certification program in Canada. LEED is a building rating system that was developed by the US Green Building Council (USGBC). According to the USGBC's website LEED is a third-party certification program and the nationally accepted benchmark for the design, construction and operation of high performance green buildings. LEED gives building owners and operators the tools they need to have an immediate and measurable impact on their buildings' performance.

Technicians and technologists will often act as a liaison between the engineer/designer and the actual construction in the field so it is important that they are aware of the purpose and implementation of the LEED technology.

LEED Canada

LEED Canada promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health:

- Sustainable sites
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality

An additional category, Innovation & design process, addresses sustainable building expertise as well as design mea-

asures not covered under these five environmental categories.

The LEED program is administered by the CaGBC with changes from the U.S. version to reflect Canadian climates, construction practices and regulations. The LEED Canada rating systems currently are:

- New construction
- Multi-Unit Residential Buildings
- Campus and multiple buildings
- Commercial interiors
- Core and shell

Rating systems that are being developed for adaptation in Canada include:

- Existing buildings - Expected for launch in 2009
- Homes - Currently a pilot project with launch in 2009
- Neighbourhood developments - Expected for launch in 2009

The idea of green buildings does not need to be complicated - it can be as simple as a change to building orientation and light fixtures. Simple things can be implemented to reduce the overall energy consumption of a building without doing a complete overhaul.

Design costs may be higher than for non-LEED buildings and there needs to be more in depth analysis of energy-related issues through audits. There may also be additional costs required for correspondence, submittals, audits and calcula-

tions. Technicians and technologists involved in these projects need to be aware of audit procedures and required documents.

Even with higher initial costs, the energy savings from LEED buildings justify the money spent. With four possible levels of certification (certified, silver, gold and platinum), the engineering team has the flexibility to use a variety of approaches to meet their goals, regardless of what the limitations and requirements are for their project.

PROVINCIAL PROGRAMS AND GRANTS

Whether you are an individual, community, city, province or country, the focus of energy efficiency is all on our minds. To help drive our thoughts and actions

to energy efficiency, the provincial government offers many grant programs as incentive to achieve energy efficient success. Ontario is assisting municipalities to reduce their energy costs and reduce their environmental impact by exploring cutting-edge green building technologies. The Municipal Eco Challenge Fund (MECF) is one of many grant programs implemented to educate the public and bringing awareness of energy efficiency tools and resources available to us.

Ontario's \$20 million Municipal Eco Challenge Fund (MECF) is designed to assist municipalities commencing infrastructure projects that will conserve energy and reduce greenhouse gas emissions. The grant program includes \$14 million to build more energy efficient municipal buildings. The fund's remaining \$6 million will provide municipalities

with training, tools and technical support, in cooperation with the Association of Municipalities of Ontario and the Canada Green Building Council.

The MECF is split into two application categories. The first category is for standard retrofit projects. As of April 2008, municipalities can apply for a grant to cover up to 25 percent of retrofit costs, up to a maximum of \$100,000. The second category is for showcase/demonstration retrofit projects. As of May 2008, municipalities can apply for up to \$500,000 in grants for "showcase" projects. Showcase projects will support and highlight new ground-breaking energy efficient technologies that are not "typical" and not normally used – such as using LED lights for general office ceiling lighting. Municipalities can apply to cover up to 50 percent of "showcase" retrofit

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