reliance on fossil-fuel energy sources built into structures, such as building-specific wind- and solar-energy converters.

"There's just been an explosion of interest in technologies that will help buildings use less power," Morrison says.

Peter Love, the Chief Energy Conservation Officer of the Ontario Power Authority, says standards play a valuable part in the green building movement. He explains that as concerns over climate change and energy supplies grow, governments are paying more attention to lowering their energy use and greenhouse-gas emissions. Many governments—such as those in Ontario, New Brunswick, Quebec and Manitoba—have already included mandates for sustainable building practices for public structures in their energy policies.

Love says governments are able to do this because existing standards have shown it is possible to reduce energy-use in buildings.

"Regulatory programs are possible because of the standards," Love says. "It's possible for governments to say they are going to have buildings that meet certain energy-efficiency levels because they know that thousands of buildings have already been built to those standards."

There are still some challenges facing builders when it comes to constructing structures with a green theme. One key challenge, says Love, is the cost of building a green structure.

"It's more expensive, there's no doubt about it," says Love. "But with reduced operating costs, the lifetime costs of the house are much lower."

He says developers typically want to build as cost-efficiently as possible, and to create as much physical space as they can with whatever funding is available. The developer then passes the operating expenses, including what it costs to heat the structure and keep it lit, on to the building's occupant.

However, he expects this to change as the momentum of the green building movement grows. "Nobody wants to be at the back of the pack," he says. "And as more companies start building energy-efficiency into their designs, more people will start jumping on board."

For Manitoba Hydro, a proponent of reduced power consumption, its green headquarters is a matter of practicing what it preaches.

"Our new building will be a world-class model of energy-efficiency and sustainability," says Bill Henderson, the company's senior communications advisor. "It's a practical demonstration of our commitment to those principles. ■

Deconstruction without destruction

Contributing to sustainability

As efforts to reduce the environmental impact of building construction gain momentum, attention is often largely focused on energy efficiency. Related considerations such as building site planning, water efficiency, material recycling and indoor-air quality can also make a significant contribution to its sustainability.

A Canadian technical committee is in the process of developing two standards that will help meet another important sustainable building goal: conserving materials and resources.

"We hear a lot about sustainability in terms of the building's performance," says Michael Clapham, a Natural Resources Canada employee, and member of that technical committee. Clapham delivered a presentation based on the committee's work on disassembly and adaptability in building design, in Washington, D.C., at the first Symposium on Common Ground, Consensus Building and Continual Improvement.

"The goal is to increase the sustainability of the materials used in the building. It's all part of the three Rs (reduce, reuse, recycle) hierarchy of sustainability: how can we make it easier to reuse materials, and how do we make it easier to recycle or replace materials after they've reached the end of their life," Clapham explains.

One of the proposed standards (CSA-Z782-06) will offer guidance on how to build structures that can be taken apart without destroying their individual parts.

"We want to get companies thinking about these concepts," he says. Members of the technical committee are now recruiting engineering and architecture companies to test the guidelines for practicality.

The second standard deals with taking apart existing structures in such a way as to preserve the materials for re-use, and when that isn't possible, preserving the energy embedded in the materials through recycling.

"We're still in the early days of this," says Clapham. "Currently we're doing a literature search to find out what's already been done so we do not reinvent the wheel." As the demand increases for greener building practices, Clapham says he expects the technical committee to consider creating more standards in order to meet sustainability goals.

"The performance of the building is just one aspect of sustainability," he adds. "We're looking at how to reduce the environmental impact of the building and economically reuse or recycle the materials at end-of-life." ■