FINANCE AND COMMERCE THURSDAY Real Estate

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GREEN DESIGN AND CONSTRUCTION

Clinic leads nation in sustainability

Clean air, recycled materials helped the Duluth Clinic First Street Building achieve LEED-gold certification.

BY FRANK JOSSI

A $63 million SMDC Health System expansion in Duluth recently became the largest health-care facility in the country to receive certification for employing green building techniques.

The U.S. Green Building Council's Leadership in Energy and Environmental Design program awarded gold certification in January to the 236,000-square-foot Duluth Clinic First Street Building, which houses a cancer center and other health services.

Designed by a team of consultants and hospital personnel, the clinic features wood from sustainable forests and emits virtually no volatile organic compounds. The building's high-efficiency heating and cooling units use 25 percent less energy and 30 percent less water than comparable health-care centers.

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>
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Harvey Anderson, vice president of facilities for the health system, said the new expansion uses about the same amount of energy as a nearby SMDC building, despite having 52,000 more square feet and five additional energy-demanding machines.

SMDC Health System's Duluth Clinic First Street Building is the largest health care facility in the country to receive a LEED-gold certification. The care center opened in April 2006, and received its gold rating in January from the U.S. Green Building Council. (Photo courtesy of Kim Kaiser at SMDC Health System)

"It's been a very favorable result, and it has met what we specified in terms of energy usage," Anderson said.

Although LEED certification was always a goal, the clinic's first priority was to provide its staff and patients with the highest possible level of indoor air quality. For example, the clinic's design team opted for linoleum rather than vinyl floors because they are healthier, even though the LEED program offers no credit for that decision, Anderson said.

Even furniture was unpacked before it was brought into the building, in order to keep out VOCs found in packaging, he said.

The clinic opened in April 2006, and patients often comment on the "beauty of the new place," Anderson said.

"It's been very positive for the medical staff and employees," he said. "They're proud of it. They will tell visitors, 'this is what we've done, isn't this great?'"

Earning LEED credits

LEED uses a credit system to determine certification. Capturing those credits cost money in some cases, but next to nothing in others.

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Green Roofs

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Another benefit is the increased life expectancy of a roof's waterproofing membrane by reducing environmental stresses such as heat and ultraviolet light. Green roofs can also provide LEED credits and usable space for building occupants, ranging from community gardens to lawn bowling facilities.

Public benefits focus on stormwater management and the reduction of the urban heat island — the overheating of cities relative to the neighboring countryside by as much as 15 degrees Fahrenheit. A 2-degree reduction in the urban heat island, according to a study by Environment Canada's Adaptation and Impacts Research Group, can reduce summer peak load demand by approximately 4 percent. This translates into hundreds of millions of dollars in savings.

Other public benefits can include a reduction in particulate matter, aesthetic improvements, energy savings, and the preservation of rare or endangered flora and fauna.

Obstacles

While the number of green roofs has increased in the United States, there are several barriers that we need to continue to address.

One major barrier is the higher initial cost for most projects, coupled with uncertainty about the exact nature of the benefits for private building owners. A second barrier is the need for more training for design and implementation professionals.

High costs are a continual challenge. Many factors influence the cost of a green roof, but by integrating it into the overall building design and function, it's possible to save money in other areas, such as roof drains, site level stormwater management, and heating and ventilation equipment.

In Germany and other European countries, the development of hundreds of millions of square feet of green roofs is the result of government investment to increase stormwater retention and reduce urban heat island. Similar incentives, both directly and through regulation, are needed from all levels of government to fully exploit the multiple infrastructure benefits of green roofs.

Implementation

When adopting a green roof policy, its form will depend on local priorities.

For example, Chicago is adopting a green standard that does not prioritize any particular benefits of green roof technology.

Contrarily, Portland, Ore., is utilizing green roofs as a means to manage stormwater runoff. As a result, green roofs that wish to qualify for incentives have to follow certain performance criteria.

Minneapolis has introduced the Stormwater Credit Program. Currently, the sewer system in Minneapolis is funded through a utility fee. Property owners are charged a monthly fee based on the total area of impermeable surface on a property. Credits are available to property owners that use green roofs or other strategies to reduce the volume of stormwater that enters the system.

Projects such as the Phillips Eco-Enterprise Center, Central Library and Fire Station 14 in Minneapolis demonstrate a growing interest in implementing green roofs throughout the community.

These projects are important and innovative, but they remain only the beginning in terms of the potential to convert our wasted rooftops into a powerful force for more healthy and sustainable communities.

Jennifer Sprout is the director of local market development at Green Roofs for Healthy Cities, an Ontario-based industry association that promotes the development of green roofs throughout North America. To learn about the group's training courses or accreditation programs, visit http:www.greenroofs.org.

Duluth Clinic

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For example, more than 77 percent of the wood used in the building came from certified forests at a premium cost, said Mark Strelnieks, project manager for developer M. A. Mortenson Co.

On the other hand, the clinic received credits for green housekeeping practices it had already instituted on campus. More credits came from creating a self-directed tour of the facility highlighting its green elements through signage and a brochure.

LEED certification also requires that buildings reach at least a 5 percent threshold in the use of recycled materials. The First Street Building turned in a score of 18 percent, Strelnieks said.

Everything from carpet to acoustic tiles have recycled content in them, he said, and more than 42 percent of the clinic's building materials were purchased within 500 miles of Duluth, saving on transportation costs.

The hospital further managed to divert from landfills 77 percent — or 5,700 tons — of the waste produced during construction.

Even something as simple as placing an indoor bicycle rack in the building added more LEED credits, Anderson said, since it provides a place for people who use alternative forms of transportation — like him — to store equipment.

Anderson credits the clinic's senior management staff and board of directors with having the foresight to spend the time and money required for a healthy, LEED-certified building.

Lessons learned

The project turned out to be a learning experience for Ron Kirk, a consultant on the SMDC expansion.

The clinic had been designed before LEED certification became a priority, Kirk said, and that led to at least one missed opportunity. The fresh air and heat ducts on the clinic's roof were too far apart to introduce heat exchange technology, which reduces energy use.

"Heat recovery wasn't possible because of the design," said Kirk. "That was one lesson I learned. You need to start early on these things, while you're in the design process."

Kirk is now working on a Duluth ice arena, where he hopes to reduce energy use by 50 percent.

Although building green requires more planning, the clinic's extra labor costs amounted to around $500,000 — not even 1 percent of the cost of construction, said consultant James Brew.

LEED certification costs on average 1.84 percent more than using traditional materials, Brew said, while the time to recoup those extra costs in energy savings takes around 2.6 years.

But for the Duluth clinic, it was health issues — not financial ones — that propelled the project forward.

"I think it's important to put LEED in perspective. It's a tool, not an end," said Kirk. "The vision of the hospital was to use green architecture as a means to creating a healthy building."

Frank Jossi is a St. Paul-based writer and regular contributor to Finance and Commerce.