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- [Home](#)
- [H&HN Online](#)
- [Feature Articles](#)
- [InBox](#)
- [Scope](#)
- [Viewpoint](#)
- [Classified](#)
- [Staff](#)
- [Advertising Information](#)
- [Editorial Calendar](#)
- [Subscriptions](#)
- [E-mail Us](#)

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 Search Health Forum  
 Publications archives:

 


### Boulder's Eco-Friendly Hospital

By Margaret Van Cleave and Nick Rehnberg

*The newly opened Boulder Community Foothills Hospital is the first hospital to receive a LEED certification from the U.S. Green Building Council. But the real rewards are employee loyalty, community pride and patient satisfaction.*



Margaret Van Cleave Nick Rehnberg


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Boulder Community Foothills Hospital, a 60-bed acute care hospital in Boulder, Colo., has become the first hospital to achieve the prestigious Leadership in Energy and Environmental Design (LEED) certification from the U.S. Green Building Council. The LEED Green Building Rating System™ is an environmentally conscious, voluntary, consensus-based, national standard for buildings that fosters greater worker productivity and makes efficient use of materials and energy.

LEED certification provides a framework for assessing building performance and meeting goals for sustainability, for ensuring that construction minimally impacts the environment (during the process and afterward--by using recycled and local materials), for making efficient use of energy, for tapping natural lighting and, finally, for promoting a healthier indoor environment. The scientific standards for LEED certification emphasize sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. Fewer than 100 buildings worldwide have achieved LEED certification.

### The Impetus for Certification

The leaders at Boulder Community Foothills Hospital didn't start out seeking LEED certification when they were planning construction on their 200,000-square-foot facility. Joe McDonald, chief financial officer for Boulder Community Hospital (parent of Boulder Community Foothills) said the hospital initially intended to build a facility that was environmentally responsible.

But when two design firms, Boulder Associates and Oz Architecture, joined forces with the hospital and began their quest to build an environmentally friendly hospital, they found that LEED certification provided the framework they needed to reach their goals. McDonald said, "When we looked at building the hospital, obtaining LEED certification was a natural extension of our overall commitment to the environment. It's given us a chance to make a statement about what a hospital can be."

## The Benefits of a LEED-Certified Building

Building a hospital that meets LEED certification has done several important things for the hospital. Michael Moran, vice president of Boulder Community, says that the hospital's natural lighting, spectacular views and connection to nature--all of which were incorporated into the design from the beginning--have made it a unique facility.

In addition to the lighting and appearance, the building truly is a healthier place for patients, families and employees. The materials used inside the building--including the insulation, carpet, paint and casework--are healthier. According to a study done by the EPA on indoor air pollution, volatile organic compounds (VOC) may cause conjunctival irritation, headache, dyspnea, nausea, and nose and throat discomfort. Typically, large amounts of formaldehyde, one of the best-known VOC pollutants, exists in particleboard. All of the particleboard used in this hospital has no added formaldehyde. [\(See photo below.\)](#)

Additional benefits the hospital has reaped from the eco-friendly design include:

- Reduced overall maintenance costs;
- Minimized impact on the environment;
- Better energy efficiency (27 percent);
- Reduced water consumption through xeriscaping (over 50 percent);
- Good will of the community and staff;
- Lowered long-term operating costs;
- Support of the local economy (by using local contractors and 55 percent local materials).

However, as the first hospital to achieve LEED certification, Boulder Community Foothills encountered many challenges other buildings achieving certification had not faced. Kristi Ennis, project manager for Boulder Associates, says, "In terms of durability, in terms of infection control, sometimes the first, gut instinct for a solution doesn't make sense for health care. It's important to balance the suggestions from LEED with all of your own criteria."

Nevertheless, LEED certification is ideally suited to clients interested in long-term benefits, says Ennis. "When you evaluate operational costs and long-term costs, it may be easier to envision something that takes 12 years to pay off, because you are going to own the building for 60 years. It really is a good marriage."

## Community, Patient and Employee Reactions

In addition to creating a healthier healing environment, the hospital has built stronger relationships with the community, the patients and the employees.

**Community.** "When members of the community began to call to make sure we were going to build the hospital right, we were comfortable telling them, yes, we are," states Moran. The board knew it wasn't going to be easy but was committed to moving ahead with the project. "We knew the impact on health care if every hospital took this kind of approach," Moran recalls. "We knew we could be leaders for the environmental movement for the whole country."

Part of the LEED certification requirement is using local materials and employing local contractors. Strengthening its ties to the community, Boulder Community Foothills created jobs and enhanced its image as a responsible corporate citizen. An example of local materials is the sandstone chosen for the building. Using local stone not only supported the regional

economy, it helped the building fit in with its natural surroundings and landscape.

The hospital held open houses to educate the public on the great lengths the hospital took to be environmentally responsible. An example of that responsibility is the effort the contractors took to recycle materials; more than 64 percent of all waste was recycled during construction.

Local artists and community groups created much of the artwork and quilts used throughout the hospital. These items added to the local ambiance of the new building.

**Patients.** Patients appreciate the phenomenal healing environment created by more use of natural light and opportunities for privacy. "We saw no dips in our patient satisfaction scores when we opened, in spite of the complete transition," says Moran. Patients travel from neighboring cities to obtain care at the hospital because of its reputation and beauty, and because they want to support environmentally responsible construction.

Before the hospital opened its doors, air handlers spent more than two weeks blowing all contaminants out of the building. During construction, all the ducts were capped off with cellophane to contain the dust, and all the garbage was vacuumed out of the stud tracks, ensuring that any debris created in the construction process was cleaned out before the facility was opened.

**Employees.** Boulder Community Foothills didn't have the turnover issues new hospitals typically have when they first open. The pride and loyalty of employees can be seen in their willingness to volunteer for community education. "Before the hospital even opened, we had employees volunteering on their own time to do tours and set up open houses to educate the community on what we've accomplished," says McDonald.

A study conducted by the U.S. Green Building Council shows that absenteeism is reduced because employee satisfaction is improved in buildings with daylighting. The employees are extremely proud to work at the hospital, and it shows in their productivity levels.

## Recommendations to Hospitals Seeking Certification

Moran recommends that other administrators work with a project team that has expertise in LEED certification. Knowing what materials are available to meet a hospital's needs can be a challenging task. "I think it would benefit anyone who is considering certification to look around for people with experience," states Moran. "Obtaining LEED certification is a complicated process, and you need some highly skilled consultants and architects who are, first of all, committed to doing it."

Locating a construction company and subcontractors that are 100 percent committed to the certification is also vital to success. "Working with environmental leaders in the building industry is important, as is continuous communication with the customer," states Ennis. "Experience has shown designers which materials are both green and durable, and constant feedback from clients keeps them up to date with what is proving itself worthy of the unique needs of the health care industry, and what is not."

Boulder Community Foothills Hospital is dedicated to being both an environmentally responsible hospital and a good corporate citizen. Obtaining LEED certification has helped it continue to achieve these goals and to create a hospital with a one-of-a-kind, healthy healing environment.

***Margaret Van Cleave** is chief operating officer at Boulder Community Foothills Hospital, Boulder, Colo. **Nick Rehnberg** is a principal with Boulder Associates, an architecture and interior design firm in Boulder. As a result of its interest in sustainability, Boulder Associates is now on the LEED Application Guide for Healthcare corresponding committee. This committee is working to set the guidelines for future LEED qualifications in the health care industry.*

## GIVE US YOUR COMMENTS!

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#### **Patient Room at Boulder Community Foothills Hospital**

BCFH's focus on natural lighting, spectacular views and a connection to nature--all of which were incorporated into the design from the beginning--have contributed to the hospital's appeal for patients, families and staff. But less visible are other design considerations that have created a healthier and more efficient indoor environment.

The materials used inside the patient rooms--including the insulation, carpet, paint and casework--eliminate many common indoor pollutants, including volatile organic compounds (VOCs) that cause conjunctival irritation, headache, dyspnea, nausea, and nose and throat discomfort. For example, none of the particleboard contains formaldehyde, one of the best-known VOC pollutants.

[Return to text](#)

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