
Posted on Tue, Mar. 30, 2004

'Green' buildings

ENERGY EFFICIENCY, THOUGHTFUL DESIGN PAY OFF

By Paul Rogers
Mercury News

Every summer night in a basement in Menlo Park, six huge stainless steel machines crank out ice while the Bay Area sleeps.

A popular restaurant? A swank hotel? No. It's the cutting edge of environmentally friendly architecture.

When the ice melts in the building along Sand Hill Road, chilled water runs past a large fan, creating cold air that is pumped through vents in the floor during the day. The icy air cools the structure, reducing energy bills and the need for air conditioning during peak electricity demand times.

The ice system is a centerpiece of the William and Flora Hewlett Foundation's new headquarters, a 48,000-square-foot building that is part Earth Day and part bottom line. Completed in 2002, the building, which uses 35 percent less energy and 15 percent less water than a typical building its size, was recently certified as one of California's top examples of "green building."

Green building is a fast-growing trend aiming to design buildings that consume less energy and water; use recycled materials; and keep employees healthy and productive with lots of natural light, good ventilation and fewer toxic paints and adhesives.

"Construction costs are more expensive at the front end," said Paul Brest, president of the Hewlett Foundation. "But it is clear that over time, you capture the savings. Anybody can do this, or at least parts of it."

During the past four years, the amount of commercial and high-rise residential building space certified under national green building standards has increased from 8 million square feet in 2000 to 149 million square feet today, according to the U.S. Green Building Council, a non-profit organization in Washington, D.C., made up of architects, designers, planners and other building professionals.

The council's 4-year-old rating system, known as LEED -- for Leadership in Energy and Environmental Design -- is the most commonly used rating to certify environmentally sustainable architecture in the nation.

Governments and private companies also are catching the green building bug.

Three years ago, the San Jose City Council voted to require the U.S. Green Building Council's standards on all new city government buildings larger than 10,000 square feet. More than a dozen other cities, including Los Angeles, Portland, Ore., Seattle and Dallas, and the University of California, have passed similar rules.

Private companies that have built green-certified buildings in the past five years include Ford in Irvine, the Gap in San Bruno and Aspect Communications in San Jose.

"This is becoming more of a mainstream thing," said Taryn Holowka, spokeswoman for the U.S. Green Building Council. "It is about economics as much as environmentalism."

A study in October by the California Sustainable Building Task Force, a collection of building industry representatives and state agency officials, with help from Lawrence Berkeley National Laboratory, found that constructing a certified green building costs on average about 2 percent more than a traditional building of the same size. But the extra cost yields a tenfold savings over 20 years through lower energy and water bills, reduced waste disposal costs and increased productivity and health of workers, the report concluded.

For example, an extra investment of \$100,000 to install green features into a \$5 million project would save at least \$1 million during the next 20 years, the report stated.

Under the radar

Environmental advances in cars have received significant attention. Toyota and Honda's gas-electric hybrid vehicles, for instance, are familiar to many Americans. But a similar green revolution happening in the building industry has so far flown under the public's radar.

The reason? Duct work, window glazing and water-efficient appliances may not be as sexy as cars that drive 600 miles between fill-ups. But buildings have a huge impact on the environment, too.

According to the U.S. Department of Energy's Center for Sustainable Development, buildings consume 40 percent of the world's energy, 25 percent of its wood harvest and 16 percent of its water.

The designers at Menlo Park's Hewlett Foundation building have worked to turn their building into a showcase of the possible.

"A place can be beautiful and green at the same time," said Sharon Refvem, an architect with Hawley, Peterson & Snyder in Mountain View, who helped design the building. "You don't choose between Spanish, Mission and Green. You can do any style in a green building."

The Hewlett building, which cost \$23 million to construct, is certified with a gold rating under the U.S. Green Building Council's standards, the first commercial building in California with that status.

Its landscaping is drought-tolerant. Insulation comes from recycled denim -- the shredded factory scraps left over from making blue jeans. Solar shingles line the roof. More than 83 percent of the wood, including the cherry trim, second-growth redwood siding, framing lumber and outdoor benches, is certified as having been grown sustainably. Tiles in showers and restrooms are made of recycled glass. The carpets are made of recycled nylon.

"People come in here all the time, they look around and they say, 'Wow!'" said Eric Brown, the foundation's communications director. "We want to be an exemplar of good practices. Our environmental grant-making focuses on energy and the West. This seemed like a no-brainer."

The building's windows and roof have reflective coatings to cut down on heat. Motion sensors turn off the lights in unoccupied rooms. Storm water is filtered in natural swales outside. Heat and cool air are pumped through vents in the floor, so only the lowest six feet of each room is cooled or heated, saving energy.

One common feature of green buildings is an effort to reduce the risk of "sick building syndrome." To be certified green, buildings must have significant natural light and minimal use of toxic paints and adhesives. Workers also must be able to control their own temperature, through windows or nearby vents.

"People are your most expensive asset. If you can keep them happy, you save costs," said Jo Carol Conover, project manager for the Hewlett building, with Bennington/Conover in Cupertino.

Smart library

San Jose's first green-certified city building is the West Valley branch of the San Jose Public Library, completed last spring. The library has a white rubber membrane on the roof to reflect heat. Furniture is made of recycled wood. There is extensive insulation, as well as water-saving appliances and landscaping.

"It's a pleasant environment," said Pam Crider, the library's branch manager. "It has a comfortable living room area, lots of natural light and a colorful children's area. When you take into account the amount of water and energy savings, I like to think that our library is serving as a model to other city buildings."

The \$7.9 million library cost about \$500,000 more because of the green features, a 6 percent premium, said Rodney Rapson, a senior city architect. But it is saving roughly \$900 a month in electricity costs, in addition to other savings in water bills. Now that the green techniques are becoming more mainstream, future green libraries should cost only about 2 percent more than traditional buildings, he said.

Persuading developers

Still, some private developers have been reluctant. The techniques are new. Materials can be more difficult to find. And it costs \$750 to \$7,500, depending on the size of a building, to have it certified by the U.S. Green Building Council.

"In this market, anything that looks like it is going to be a negative or add an extra cost up front is going to be harder to sell," said Crisand Giles, executive director of the Eastern Division of the Home Builders Association of Northern California in San Ramon.

Also, there is no national certification system for homes. The U.S. Green Building Council is working on one.

California already has the most green-certified buildings -- 140 as of last August -- of any state. Gov. Arnold Schwarzenegger has made more a priority. In his State of the State address earlier this year, Schwarzenegger announced he will create a "Green Bank" of public loan guarantees and private financing to offer incentives to developers to retrofit existing buildings for energy efficiency.

`` I intend to show the world that economic growth and the environment can coexist," Schwarzenegger said. `` And if you want to see it, then come to California."

OTHER PROMINENT 'GREEN' BUILDINGS IN CALIFORNIA

- Toyota Motor Sales South Campus Office Development, Torrance; 630,000 square feet; completed in 2002.
- State Capitol Area East End Complex 225, Sacramento; 479,000 square feet; completed in 2003.

IF YOU'RE INTERESTED

For more information about green buildings, see:

U.S. Green Building Council: www.usgbc.org

San Jose Green Building Program: www.ci.san-jose.ca.us/esd/gb-home.htm

Whole Building Design Guide: www.wbdg.org

California Integrated Waste Management Board: www.ciwmb.ca.gov/greenbuilding

Contact Paul Rogers at progers@mercurynews.com or (408) 920-5045.