The Next Generation of Green

Oakland's latest wave of LEED certified buildings includes energy-efficient high rises and a net zero energy home

BY JENNIFER ROBERTS

Above left: ZETA demonstration home.

Above right: Shorenstein building at 555 12th St.

Left: Mills College Graduate School of Business.

Long before sustainability came into style, Oakland has been a green city. In 1869 the City declared Lake Merritt a National Wildlife Refuge, the first in North America. Located on the edge of downtown, the lake continues to be an important Pacific Flyway stopover for waterfowl.

Oakland is also a place where energy conservation comes naturally. With walkable neighborhoods, bikable streets and excellent public transit, people have always been able to live and work here without relying on a car. And with its mild climate and bay-cooled breezes, it takes less energy to keep buildings comfortable in Oakland than in most places.

Even the green roofs that are all the rage today aren't new to Oakland. Since the 1960s, a 5-story parking garage at the downtown Kaiser Center has been topped with a 3.5-acre public roof garden complete with mature trees, lawns and a pond.

Given this history, it's no surprise that Oakland is fast becoming a hub for green buildings of all types, from high rise office buildings to educational facilities to affordable and innovative homes.

Green from the Ground Up

The Jack London Market building recently received the Silver level of certification from the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) green building rating system.

Scheduled to open later this year, the 60,000 square foot public market will house small businesses selling fresh fruit, vegetables, meats, fish, cheeses and specialty products. The building also includes 100,000 square feet of Class A office space. The Jack London Market is the centerpiece of an ongoing $375 million redevelopment of Jack London Square undertaken by Ellis Partners LLC and Transbay Holdings.

The building was designed to be 15 percent more energy efficient than required by California's building energy efficiency code. Low-flow water fixtures will reduce water use by 40 percent compared to standard practice. Eighty-five percent of the project's construction waste was recycled rather than sent to landfills, and 33 percent of the new building materials contain recycled content.

"Incorporating green practices into our construction and building operations makes sense ethically and it makes sense financially," said Jim Ellis, Managing Principal of Ellis Partners LLC. "For both the Market and the Class A office space above, this is a tremendous amenity to offer the many Bay Area businesses that maintain a commitment to environmental responsibility."

Green Operations

While new buildings often get the spotlight, there is a booming market for rehabbing existing buildings for energy and water savings.

At Oakland City Center, two high-rise office buildings recently achieved Gold certification from the LEED for Existing Buildings: Operations and Maintenance version of the rating system. LEED-EB certification requires landlords to undertake efforts to maximize operational efficiency while minimizing environmental impacts.

Owned and operated by Shorenstein Properties, 555 12 St. and 1111 Broadway are also ENERGY STAR certified. The federal ENERGY STAR program has ranked these buildings, which collectively encompass more than 1 million square feet of office and retail space, as more energy efficient than 94 percent of office buildings in the United States.

As part of the retrofit process, Shorenstein conducted detailed energy audits to identify ways to reduce energy consumption. Lighting was upgraded and mechanical systems fine-tuned to operate more efficiently. Major equipment such as chillers and pumps are continuously monitored for energy consumption and have variable-speed drives so they are used only when necessary to meet the demand of the building.

These efforts reduce energy costs, said Shorenstein's John Dolby, and the LEED-EB certification "helps with marketing. We're now seeing about 50 percent of brokers and tenants inquiring about LEED certification."

As part of the buildings' ongoing green operations, Shorenstein provides comprehensive recycling and composting programs for its tenants, including e-waste collection and recycling.

Dolby said that the tenants were very enthusiastic about Shorenstein's decision to upgrade the buildings' environmental performance and seek LEED-EB certification. It can be a challenge to obtain LEED-EB certification for buildings with multiple tenants, he said. "You really need the tenants to embrace it. If they don't, it's very hard to achieve."

Buildings Teaching Sustainability

At Mills College, women preparing for business leadership now attend classes in a facility boasting state-of-the-art educational technology and environmental performance. In August 2009, Mills opened the doors of a new building housing the Lorry I. Lokey Graduate School of Business. Mills officials expect the building to receive Gold certification from the LEED for New Construction green building rating system.

Designed by Bohlin Cywinski Jackson, the 28,500 square foot building's contemporary architecture stands in bold contrast to the Mission-style architecture of most of the campus buildings. This is the college's second LEED certified facility; a natural sciences building completed in 2007 received Platinum certification.

The business school facility, which was built for a cost of $21.4 million, has been designed to use 22 percent less energy than required by California's building energy efficiency code.

The facility is also something of a water miser. When it rains, excess rainwater flows off the building's vegetated green roof and is channeled into a ground-level pond planted with irises that can withstand flooding. From there, the runoff flows into a 4,000 gallon underground storage tank. After being filtered, the water is used for flushing toilets.

"We expect to save 100,000 gallons of water annually due to rainwater collection and highly efficient fixtures," said Karen Fiene, Mills College's Campus Architect.

The next generation of business leaders may be the biggest advocates for sustainability. Students "ask how green you are when they're first considering colleges," said Fiene.

It's not just higher education that's going green. The new 27,000 square foot Upper School building at the K–12 Head-Royce School in the Oakland hills is also LEED Gold certified. The building is just one element of the school's comprehensive green initiative that emphasizes ecological sustainability in its operations and educational programs.

And at the Oakland Museum of California, visitors will soon be able to experience art, history and natural science in the museum's newly expanded and renovated facility. Slated to reopen on May 1, the museum is on target to achieve LEED Silver certification, with green features including high quality, energy-efficient lighting systems.

Going green isn't a new fad at the museum, said museum project coordinator Bill McMorris. Long before green roofs became trendy, generations of visitors to the museum have enjoyed the terraced roof gardens on top of the 40-year-old mid-century modern building.

Green at Home

On the residential front, developers across Oakland continue to embrace energy, water and resource conservation. A number of affordable housing developments have recently been certified by GreenPoint Rated, a rating system for residential buildings in California. These include East Bay Asian Local Development Corporation's Jack London Gateway Senior Housing, Northern California Land Trust's Noodle Factory and BRIDGE Housing's 99-unit Ironhorse at Central Station.

Oakland is also home to an innovative project that may be forging one path to a future where people can live well using less energy. ZETA Communities, a designer and fabricator of factory-built multifamily housing and mixed-use structures, launched its first "net zero energy" live/work townhome in Oakland in 2009.

The phrase "net zero energy" may not be on the tip of a typical homeowner's tongue, but it has got California's building industry buzzing. That's because the State has a set a goal that all new residential construction will be net zero energy by 2020, and all new commercial construction by 2030.

Simply put, a net zero energy building is one that produces at least as much energy as it consumes over the course of a year.

ZETA's demonstration townhome has been awarded Platinum certification, the highest LEED rating available. The building also earned the GreenPoint Rated label.

A key strategy for achieving a net zero energy home is creating a very tight and efficient building envelope, said Shilpa Sankaran, ZETA's Vice President of Business Operations. "The way to achieve that is by building in a factory and using precision building techniques to ensure tightness," she said.

The Oakland townhouse includes expected features such as high levels of insulation, efficient mechanical systems and solar panels to generate electricity. It also includes less common techniques such as an insulated basement area where heat can be stored and released as needed, reducing heating and cooling needs. A wastewater recovery system captures heat from wastewater and uses it to preheat shower water.

So far, net zero energy homes are few and far between. "Most buildings you hear about that are net zero energy to date are based on energy models," said Sankaran. "But it's all just modeling until it's measured."

To verify the energy performance of the 1,540 square foot townhome, ZETA is monitoring and testing it for a full year while it is occupied.

Although ZETA is headquartered in San Francisco, this demonstration project has an Oakland address. "We had explored a number of sites," Sankaran said. "Oakland's building department was very collaborative with us and the owner of the property. They understood the vision of producing an example of what net zero energy could be and pushing the envelope of green building."

The City's proactive efforts to attract green businesses and green buildings got the company's attention.

"The incentives the City of Oakland can offer to sustainable and green businesses are overwhelming," Sankaran said.