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LEED Building

FOCUS



JIM GEBBEN

James Moyer, Grand Valley's assistant vice president of facilities planning, says the university has learned plenty from its experience with LEED design and construction over the years.

Affordable platinum

Pete Daly
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James Moyer says the Mary Idema Pew Library at GVSU in Allendale won't be too fancy when it opens to students in May 2013. Nonetheless, the \$65 million building is intended to qualify for the highest LEED certification.

"We don't do fancy LEED buildings with wings flying off the side," joked Moyer, assistant vice president of facilities planning at GVSU. "We just do a building we can afford to own for 30 years."

Although the ceremonial groundbreaking took place last fall, GVSU waited for the end of the 2010/2011 school year before actual excavation began in May in the center of the busy campus. The deep foundations will require removal of about 1,800 truckloads of dirt from the site of the 150,000-square-foot building, which will contain about 700,000 books.

Moyer said the LEED certification goal for the Pew Library is platinum. "My spreadsheets say that we're there, but we have to get through the certification process."

There are now 15 GVSU facilities built to LEED-certified standards of sustainability and energy efficiency, according to Moyer. The first one was the GVSU Michigan Alternative and Renewable Energy Center in Muskegon, completed in 2003 and certified in 2004. Building MAREC to qualify for LEED Gold — it was the first New

Construction Gold facility built in Michigan — entailed “a premium of almost a million bucks,” said Moyer, but it was a learning experience.

One year later, GVSU built Lake Ontario Hall, which was certified as LEED Silver. “And we don’t think we spent a dime more on the construction,” he said, comparing it to a standard construction project. “What we did was make a lot better choices,” he said, by selecting sustainable and recycled materials and energy-efficient designs, lighting and mechanicals.

Part of the strategy was “to try to make sure we understood the cost associated” with sustainable standards, he added.

“We think we came out with a building that met our requirements without the cost. Since then we have been pushing that lesson forward,” said Moyer.

Lake Ontario Hall is home to the university’s Sustainable Community Development Initiative main office and is the flagship of Grand Valley’s LEED certified buildings.

The 53,000-square-foot building has low-flow plumbing, motion and heat sensors to control lights, indoor air quality management, a heat-reflective roof to save heating energy in the winter and cooling energy in the summer, and “green housekeeping” that uses environmentally friendly chemicals and processes.

The Pew Library will be unique among GVSU facilities in that it will have an HVAC system that distributes heated or cooled air under the floor and releases it lower into the rooms as opposed to releasing it from the ceilings, as in conventional buildings.

“It takes a lot of energy to push that air down to the people, but if we can deliver it at their feet or what we call the breathing zone, it’s a bit easier to get the air there. So that saves energy and costs us less to pump it into the breathing zone,” said Moyer.

Under-floor HVAC was originally developed for mainframe computer rooms, where extra cooling is critical for the equipment. Now that technology is spreading to spaces occupied by people, Moyer said. It does add some height to the buildings, however, requiring about 18 inches of space under the floors, although some of that is negated by less space required above the ceiling panels.

Other energy savings will come from low-flow fresh water plumbing, heat exchangers that remove heat from indoor air being vented in winter and return it to incoming air, and energy-efficient electrical transformers that may cost about \$1,000 more than normal but recover that cost in the first year of operation, according to Moyer.

“We’re using the most energy-efficient lighting we can find that’s on the market and proven at this point in time,” said Moyer, adding that the lighting choice is mainly LEDs.

He also noted that the building has an energy-efficient “skin,” characterized by Jennifer Durham as “a very high-performing system.” Durham is with SHW Group, the architectural firm that designed the Pew Library. As senior project manager, she said one example of the high-performance skin is the windows, which are triple-pane, whereas conventional buildings usually have dual-pane windows.

“In the placement of the windows on the building, we took care to shade them as much as possible from direct sunlight. That’s where a lot of heat gain comes from,” said Durham. To that end, the south side of the Pew Library will be fitted with horizontal architectural louvers blocking direct sunlight into the windows. Vertical architectural louvers will be installed on the west side.

SHW Group, with an office in Berkley, Mich., as well as several in Texas and Virginia, specializes in LEED designs for educational facilities. SHW Group designed the Central Michigan University College of Education building, which was just awarded LEED Gold certification. The firm has other LEED projects at Western Michigan University and Jackson Community College.

According to Durham, facilities built with funds from the state of Michigan are required to follow a standard of sustainable design. LEED standards are used as a guideline, although Michigan does not require that the projects are LEED-certified.

While all state-funded educational facility construction in Michigan adheres to the basics of LEED construction, “Grand Valley makes an extra effort at it. They definitely have that as a very high priority,” said Durham.

Durham said some renewable energy systems or products cost more up front, but she said that, even through the recession, SHW didn’t see people backing away from building to LEED standards. She said clients who want to build to LEED standards “are really looking for the long-term savings.”

What would she tell clients who ask about the cost of LEED standards?

Basic LEED certification, she said, “does not cost the owner any more in

construction costs than a standard building. Sometimes some of the higher certification levels do start to add some cost, because you're looking at some special systems that have a longer payoff — things like solar energy, solar heating for hot water, or converting solar energy to power."

"Right now, the technology doesn't provide the payoff we like," she added. "So if we can stick with some of the more standard systems, like just improving the building envelope and using good recycled materials and renewable materials, we're able to do that through the cost of a standard building."

Moyer would go back to the issue of choices. The Pew Library might not have included the sub-floor HVAC system if energy efficiency wasn't important. "The price of petroleum is driving us to make better decisions. The cost of oil focuses your attention," said Moyer.

According to the SHW Group website, the Mary Idema Pew Library Learning and Information Commons is "a model for the new 21st-century digital learning environment," replacing GVSU's Zumberge Library, which itself was an award-winning design when built in 1968.

The Pew Library will have about 200,000 volumes (or the equivalent) on the shelves and another 500,000 in a condensed storage system that automatically retrieves a book upon electronic request. The building also will feature a green roof and natural lighting.

The general contractor on the Pew Library project is Pioneer Construction, with civil engineering by Fishbeck, Thompson, Carr & Huber.