

News Release

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Contact: Anne Taylor Carros
Lord, Aeck & Sargent
404-253-6710
acarros@lasarchitect.com
or
Ann Kohut
Kohut Communications Consulting
770-913-9747
annielk@bellsouth.net

Science Building Addition Opens at Eastern Michigan University With Existing Building Renovations Underway

\$90 million science complex design focuses on sustainability and energy efficiency.

Modernized facilities will aid EMU in training Michigan's next generation of workers in the sciences.

YPSILANTI, Mich., Feb. 23, 2011 – A spherical planetarium/classroom at the top of the glass and brick exterior of a new five-story building with metal sunshades, a green roof, and a rain garden act together to provide a dressed up entry to the western edge of the Eastern Michigan University (EMU) campus. These features are all part of the \$90 million, energy-efficient addition to and renovation of the Mark Jefferson Science Building, a green design and construction project pursuing LEED silver certification from the U.S. Green Building Council and designed by the Ann Arbor, Michigan, office of architecture firm [Lord, Aeck & Sargent](#).

Phase 1 of the project, an 80,000-square-foot addition, was completed in December. Phase 2 is a complete renovation of the existing 180,000-square-foot building, originally constructed in 1969. It began in January and is targeted for August 2012 completion.

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The new addition houses the biology, chemistry, geography and geology, physics and astronomy, and psychology departments and includes 36 laboratories on the first two floors with faculty offices on the third through fifth.

“Our existing science facilities were designed in an era when EMU’s mission was primarily teaching, but today we need science facilities that will help us mentor large numbers of undergraduate and graduate research students,” said Wade Tornquist, associate dean of EMU’s College of Arts & Sciences. Tornquist, who as chair of the Facility Advisory Committee worked closely with Lord, Aeck & Sargent to convey the vision of the project’s stakeholders, said the science facilities needed to be modernized with the addition of laboratories and upgrading of classrooms to add the technology required for modern learning methods.

“The idea was to modernize the old and make it seamless as you walk from the addition into the older building,” Tornquist said.

“The project is important because of the widely held belief in Michigan that the state can provide more and higher paying new jobs through training of our next generation of workers in the sciences. With the new EMU Science Complex we can provide state-of-the-art labs and learning environments, which are good for recruiting students interested in the sciences, and we can give these students a first-rate education that will be highly valued by Michigan employers,” Tornquist noted.

Building design focuses on sustainability

In designing the site and new addition’s exterior envelope, attention was given to sustainability strategies such as stormwater management and daylighting.

Facing west, the new addition is connected through pedestrian walkways to the Mark Jefferson Science Building and runs parallel to its entire length, masking the front of the ’60s era brick and stone trim building. The addition continues beyond the older building to the north,

where it also joins with EMU's Strong Hall, another science building. This continuing portion of the addition is two stories high and is topped by an extensive green roof planted with drought-resistant sedums native to Michigan. The roof is part of the project's natural stormwater management system and helps to retain and treat stormwater. A small plaza for class gathering on the green roof provides students an opportunity to learn about sustainable building design.

"We wanted the building addition to be infused with natural daylight, so we designed the front as a brick and glass curtainwall. But because the building faces west, the addition would also be prone to heat buildup," said Terry Sargent, Lord, Aeck & Sargent design principal in charge of the EMU project. "To address that, we carefully designed the glazing systems with tinted frit glass and stainless steel mesh sunshades that span the façade's vertical distance."

The addition's main entry is on the second level, where a suspension bridge allows commuters to enter from a nearby parking area to the west. Below the bridge is a rain garden, or bioswale, that improves the building site's ability to absorb rainwater through the creation of naturalized pre-treatment basins that improve water quality and encourage infiltration. Planted with native plants to look like wetlands, the basins absorb most of the stormwater, and any overflow drains into EMU's stormwater management system.

Energy efficiency is key

Perhaps the EMU Science Complex' greatest contribution to sustainability is its reduction of energy use through the design of a dedicated outdoor air system (DOAS) with radiant cooling and a dual energy recovery system. Installed in the addition, but also serving the older building, this is one of the first chilled beam systems in Michigan, according to Jim Nicolow, a Lord, Aeck & Sargent principal and the firm's director of sustainability.

“We’ve completed the energy model, and based on our calculations, we anticipate the EMU project will achieve a perfect LEED energy optimization score of 10 points plus an extra point for exemplary performance,” Nicolow said.

“Science buildings are energy hogs because of the fume hoods in the labs, so a goal of this project was to keep energy costs down,” EMU’s Tornquist added. “Our projections are that the cost of operating the new science complex won’t be much more than it previously cost to operate the Mark Jefferson building.”

Atrium puts science on display

A striking feature of the building addition is its atrium, which puts science on display literally from the top down. The atrium offers a five-story view from the ground floor up to a suspended spherical planetarium/classroom that appears to float from above. Originally intended as a spherical classroom, students in EMU’s department of physics and astronomy now also use it as a planetarium, thanks to the gift of a planetarium projector from the department’s faculty and staff members.

“The spherical planetarium/classroom can be used for meetings and seminars because you can project images on the walls. It’s also an excellent place for teaching astronomy to schoolchildren, who come here on Fridays to learn about the heavens, and for outreach to community residents, who can come on weekends for planetarium shows,” Tornquist said.

“From the outside, it helps accomplish an EMU goal to dress up the campus, especially at night when it’s lit up. It’s a theater you can see from underneath, outside and inside. I really like that it adds a unique design element with the simplicity and complexity of a sphere, yet it’s also functional.”

Aside from the planetarium/classroom, the atrium itself addresses another EMU goal for the project, to create more interaction spaces for students. “The atrium provides plenty of places for students to mingle and talk or sit and do homework,” Tornquist said.

“We also created the atrium to bring in natural daylight and to put science on display,” Sargent said. “We used extensive interior glazing in the atrium both to allow light entering from outside to infiltrate the labs and to ensure that those who enter know they’re in a science building. They can even look through glass-backed fume hoods and watch experiments taking place in two labs flanking the main entry.”

Project funding

The EMU Science Complex was funded by the university through the sale of bonds and a 4 percent tuition increase approved in 2005 by the Eastern Michigan University Board of Regents and earmarked for capital projects.

The Project Team

The project team for both phases of the EMU Science Complex includes:

- Lord, Aeck & Sargent (Ann Arbor, Mich. office) – architect
- Beckett & Raeder (Ann Arbor, Mich. office) – civil engineer and landscape architect
- Peter Basso Associates (Troy, Mich. office) – MEP/FP engineer
- Robert Darvas Associates (Ann Arbor, Mich.) – structural engineer
- Christman/Dumas (a joint venture of The Christman Company and Dumas Concepts in Building (EMU field office) – construction manager
- AECOM (Detroit office) – program manager

About Lord, Aeck & Sargent

Lord, Aeck & Sargent is an award-winning architectural firm serving clients in scientific, academic, historic preservation, arts and cultural, and multi-family housing and mixed-use markets. The firm’s core values are responsive design, technological expertise and exceptional service. In 2003, The Construction Specifications Institute awarded Lord, Aeck & Sargent its Environmental Sensitivity Award for showing exceptional devotion to the use of sustainable and environmentally friendly materials, and for striving to create functional, sensitive and healthy buildings for clients. In 2007, Lord, Aeck & Sargent was one of the first architecture firms to adopt [The 2030 Challenge](#), an initiative whose ultimate goal is the design of carbon-neutral buildings, or buildings that use no fossil-fuel greenhouse gas-emitting energy to operate, by the year 2030. Lord, Aeck & Sargent has offices in Ann Arbor, Michigan; Atlanta, Georgia; and Chapel Hill, North Carolina. For more information, visit the firm at www.lordaecksargent.com.