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Mission of University of Michigan Facility for Peaceful Post-World War II Nuclear Research Expanded with First Phase of Rehabilitation Completed

More renovations planned to accommodate a broad range of energy-related research

ANN ARBOR, Mich., Sept. 16, 2009 – The first phase of the rehabilitation of the

Michigan Memorial Phoenix Laboratory (MMPL), handled concurrently with the

decommissioning of the world's first nuclear reactor used for research into the beneficial potential for atomic energy, is complete. MMPL, located on the University of Michigan's Ann Arbor campus, was constructed in 1955 as a memorial to honor the Michigan men and women who lost their lives in World War II service.

According to Steve Donoghue, University of Michigan project design manager, after the Ford Nuclear Reactor, located in an adjoining building, ceased operation in July 2003 the MMPL no longer functioned as research space. The university decided to decommission the reactor and to renovate the MMPL with state-of-the art research laboratories. At the same time, the building's mission was expanded beyond nuclear energy research to encompass a broad range of energy-related research initiatives.

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The Ann Arbor office of Lord, Aeck & Sargent served as architect for the \$9.5 million rehabilitation project, the scope of which included renovation of the building's third floor to accommodate hydrogen fuel-cell research, the upgrade of the entire building's mechanical and electrical infrastructure, restoration of the masonry exterior, and replacement of the exterior windows. Two thirds of the project funding came from the State of Michigan's 2005 Supplemental Capital Outlay, and the remainder was funded by the University's investment proceeds.

Complex systems installations make for safe, energy-efficient laboratories

Beginning with the 9,750-square-foot third floor, which was gutted so that only the columns and two stairways remained, Lord, Aeck & Sargent designed two large, flexible laboratories where space can be adjusted to suit the research being undertaken. Currently, the floor houses the Hydrogen Energy Technology Lab (HETL), where chemical engineering faculty and graduate students are doing research into ways to generate clean energy and reduce polluting emissions from automobiles. The third floor also houses office and conference room space.

"Because of the type of research being done in the HETL, many gases are used, including ammonia, hydrogen and carbon monoxide. That required the design and installation of a system of sensors to detect gas leaks and lower the amount of explosive potential," said Tom Grace, who served as Lord, Aeck & Sargent's MMPL project architect. "Also, because the MMPL has low floor-to-floor height, one of our biggest challenges was the complex installation of the gas delivery system along with the new mechanical, electrical and life-safety systems, and the laboratory's fume hoods and gas cabinets."

"Designing a safe, code-compliant space for containing, monitoring and exhausting hydrogen and other flammable gases in an existing building is a very hard thing to do," Donoghue confirmed.

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"I am very happy with Lord, Aeck & Sargent's ability to manage the complexity of the design and still pull off an aesthetically pleasing space that sets the tone for new labs we're building on campus," he added.

Grace noted that the new third-floor labs – and the entire 34,641-square-foot building – now have a highly efficient energy recovery system that captures and reuses heat from the air before it leaves the building, thereby lowering the amount of energy required to heat the facility.

As part of the first phase of work on the MMPL, Lord, Aeck & Sargent also designed the building's new fire and life safety system; replaced all of its windows with a new double-glaze curtain wall system that maintains the historic character of the three-story, post-war modernist style building while providing a more efficient thermal envelope; and cleaned and tuckpointed the building's stone masonry.

Lord, Aeck & Sargent will be the architect for Phase 2 work, which will include a renovation of the MMPL's ground floor for energy storage research as well as an addition to house a memorial museum and the offices of the Michigan Memorial Phoenix Energy Institute. Initial planning will begin this month.

The project team

The Michigan Memorial Phoenix Laboratory Building project team included:

- Lord, Aeck & Sargent, Inc. (Ann Arbor, Mich.), architect
- Stantec (Ann Arbor, Mich.), MEP/FP engineer, structural engineer and civil engineer
- Hughes Associates (Baltimore), chemical consultant
- Barton-Malow (Southfield, Mich.), general contractor
- Boone & Darr (Ann Arbor, Mich.), mechanical contractor

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. Lord, Aeck & Sargent has offices in Ann Arbor, Michigan; Atlanta, Georgia; and Chapel Hill, North Carolina. For more information, visit the firm at <u>www.lordaecksargent.com</u>.