



ARGONNE EXPANDS GREEN BUILDINGS WITH MATERIAL DESIGN LABORATORY

The new Materials Design Laboratory (MDL) at Argonne will be the final building to complete Argonne’s Energy Quad, a group of four adjoining buildings designed to maximize collaboration between energy and materials scientists at Argonne.

From designing tailored superconductors to transforming the nation’s energy grid, and from developing better materials for wind turbines to finding replacements for silicon in next-generation computers, the MDL allows scientists to discover new materials, understand how they work, and put them to use.

Argonne broke ground on the MDL in the summer of 2017. In early FY 2018, construction progressed quickly and the concrete superstructure was completed. Throughout the last year, there has been significant progress on the building envelope and enclosure, including the roof, vapor barrier, air barrier, and glass curtain wall. Mechanical, electrical, and plumbing overhead rough-in has also progressed through every level of MDL. Other activities include architectural framing, drywall installation, the start of elevator installation, and shop drawing and submittal reviews to select finishes.

The MDL will encompass roughly 115,000 square feet of laboratory and office space, including 10,000 square feet of lab space for radiological research, in which scientists can work safely with radiological isotopes to determine their relevance to new energy technologies. Construction of the MDL is expected to generate approximately 2,375 jobs.



Team reviews construction progress for the MDL. Left to right: Chris Baltas (PMO), Terry Day (PMO), Aneta Kowalkowski (PMO), and Brian Van Acker (PMO)

At the MDL, researchers will investigate structures at scales all the way from a single electron on up. Scientists at the MDL will also study the interfaces where molecules come together in new materials, and they will be able to test the properties of a wide range of materials under extreme conditions.

Sustainability is a defining feature in the design of MDL and the facility is in line to achieve a Leadership in Energy and Environmental Design (LEED) “Gold” rating from the U.S. Green Buildings Council (USGBC). MDL will also comply with DOE’s Guiding Principles of High Performance Sustainable Buildings. Among the sustainable design features are high-efficiency lighting, recycled material content, energy recovery systems,

helium recovery systems, green power, high-efficiency HVAC systems, regionally sourced materials, certified wood, low-emitting materials, and enhanced commissioning.

Early in FY 2018, the project team identified a potential to incorporate innovative wastewater technologies into the project and achieve two additional LEED credits to support the Laboratory’s LEED certification. The design was modified and five hydrodynamic separators were installed over the summer to treat various stormwater tributary areas in the project’s boundary. These stormwater structures capture and retain stormwater sediment, trash, and floatables in a unit that saves site space and adapts to smaller or logistically difficult site locations.

A unique sustainability feature is a condensate cooler that captures waste heat from the steam system in the adjacent Energy Sciences Building. This system allows that heat to be used to preheat the MDL building hot-water system, saving energy in the process.

The MDL will be Argonne’s sixth LEED-certified building and will embody the best in class for providing a high-efficiency, modern laboratory to inspire innovation and breakthrough in energy and materials science.

**FOR MORE INFORMATION
PLEASE EMAIL**

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