

Green Buildings at Sandia

Sandia National Laboratories/New Mexico (Sandia) has responsibility for over 700 buildings, constituting over 6.5 million square feet of floor space. As responsible environmental stewards, Sandia applies sustainable design principles and building practices to all new construction projects, existing building renovation and remodeling projects, as well as the operations and maintenance practices for existing buildings.

Green Building at Sandia

Sandia is a member of the U.S. Green Building Council (USGBC), which is dedicated to promoting buildings that are environmentally responsible, profitable and healthy places to live and work. The USGBC developed the LEED (Leadership in Energy and Environmental Design) Green Building Rating System® as a voluntary, consensus-based national standard for developing high-performance, sustainable buildings. LEED certification is granted only to those building projects demonstrating superior performance in five key areas of human and environmental health: sustainable site development, water savings, energy efficiency, materials selection, and indoor environmental quality.

Sandia currently has five LEED Certified buildings onsite; more than any other organization in the State of New Mexico. Over 10 percent of Sandia's building square footage is LEED certified. Below are descriptions of Sandia's Green Buildings.

JCEL – LEED Silver – 66,143 GSF

The Joint Computational Engineering Laboratory (JCEL) is a 66,143 SF office/computational facility designed to accommodate top secret work. From the beginning, the building was conceived to be much more than a simple structure that houses Sandia scientists and engineers.



JCEL - the first LEED certified building at Sandia

The completion of JCEL is a significant achievement for Sandia in the area of sustainable design for the following reasons:

- JCEL is the first LEED project at Sandia and one of only a few within the DOE community.
- JCEL was the first LEED Silver building in the state.
- JCEL is the first building at Sandia to incorporate sustainable design from the beginning of the project. The process used for JCEL has since been used to incorporate sustainable design into four additional buildings at Sandia.

CINT – LEED Certified – 97,294 GSF

Sandia's Center for Integrated Nanotechnologies (CINT) is an unprecedented synthesis of advanced research laboratories, adaptive workspace and vernacular architecture. This 97,294 square-foot facility houses both labs and office space for some of the world's most advanced research in nanotechnology.

The Sandia CINT was designed with sustainable design, construction, and operation as a requirement. Using LEED as a central design guide, this sustainable facility maximizes site potential, water use and preservation, energy conservation and appropriate energy supply, building materials selection, and indoor environmental quality.



CINT - photo by Heidrich Blessing

Microsystems and Engineering Sciences Applications (MESA)

Microsystems and Engineering Sciences Applications (MESA) facilities complex at Sandia National Laboratories, is dedicated to advancement in integrated Micro Electro Mechanical Systems (MEMS). The buildings were planned to be the cornerstone of a campus-style technical area. The MESA complex of four new buildings includes approximately 377,000 square feet on a 30-acre site, dedicated to the design, analysis, prototyping, development and qualification of MEMS components.

MESA MicroFab – LEED Certified – 98,900 GSF

The MESA Microsystems Fabrication (MicroFab) facility is LEED certified. The MicroFab facility is the first microchip fabrication facility to obtain this prestigious certification. The MicroFab includes sophisticated safety systems and controls because of the hazardous materials used in the production of semiconductors. The MicroFab provides cleanrooms and transition cleanroom space; support labs; chemical and specialty gas rooms; and a service yard. A single-



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story office space for the cleanroom technicians is included with the MicroFab, which provides a physical connection to the new MESA Microsystems Laboratory (MicroLab) facility.



MESA MicroFab

MLAB – LEED Silver – 130,000 GSF

The Microsystems Laboratory (MLAB), is dedicated to light labs for chemical, electrical and laser work. The lab provides facilities for research and development of MEMS components, rapid prototyping and testing of the integrated systems.

MLAB maximizes day lighting into occupied spaces by placing the light sensitive labs on the interior of the building. All offices have windows that provide day lighting from the skylights above. On the south elevation, a sunscreen provides shading along all the offices.



MESA MicroLab

The building is mostly constructed of a cast-in place concrete frame to accommodate strict vibration criteria. Structural steel was used to construct the penthouses and visualization laboratory. The main exterior is clad in a mixture of architectural pre-cast concrete panels, composite stone panels and composite aluminum panels.

WIF – LEED Silver – 170,200 GSF

The Weapons Integration Facility (WIF) is a three story building that consists of both a classified and an unclassified portion, with the boundary of Sandia's Technical Area I passing through the building. The classified portion (WIF-C) houses Weapons, Computational and Engineering Sciences (C&ES) and Microsystems staff and will facilitate design, system integration and qualification of weapons systems. The unclassified portion (WIF-U) is that part of the building that houses C&ES staff and MESA partners and will enable collaboration and proximity between partners from industry, academia and Sandia scientists and engineers. The WIF facility is integrated into the MESA campus design and shares many of the green features of other new buildings. WIF has a 3kw photovoltaic demonstration system constructed on a previously contaminated site and was designed with the use of a day lighting model to maximize natural light.



MESA

More Green Buildings at Sandia

Sandia has two additional building projects currently registered under the LEED-NC Program. Sandia's most recent sustainable design efforts include incorporation of sustainability into the Long Range Development Plan (LRDP) and the Ten Year Site Plan (TYSP). In 2008 Sandia began a major effort to prioritize all of its buildings for LEED certification opportunities. The goal is to certify one or more buildings each year under the LEED-Existing Building or LEED Commercial Interior rating systems.

For more information on sustainable design and green building practices at Sandia, contact Jack Mizner at jhmizne@sandia.gov.