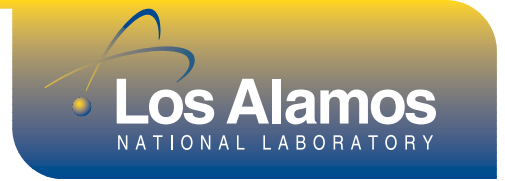


# Los Alamos Builds for the Future



Los Alamos National Laboratory occupies nearly 40 square miles of U.S. Department of Energy land. Facilities include about 2,100 buildings that contain roughly 8.9 million gross square feet and carry a replacement value of \$5.9 billion with utilities and other infrastructure included. Efficient use of these buildings grows more difficult as they age, and an increasing number of facilities require replacement due to poor or failing condition. In fact, more than half are more than 40 years old and 80 percent are more than 20 years old. The laboratory is competing with industry and academia for top scientists and engineers who may not want to work in aging, outdated facilities or low-quality portable buildings.

With help and guidance from Congress and the National Nuclear Security Administration, the laboratory is engaged in a facility renaissance. Integrated with its Ten-Year Comprehensive Site Plan, the campus now boasts new buildings for computer scientists and staff engaged in homeland defense. Key experiments in support of the nation's nuclear weapons stockpile are taking place in DARHT, a state-of-the-art radiographic hydrotest facility. Planning has begun to replace aging structures used for national security sciences and analytical chemistry. Replacement and decommissioning of other facilities is under way. With continued investment, Los Alamos hopes to complete the transformation to a modern scientific center that attracts and retains world-class talent with its physical as well as its intellectual assets.

## Recently Completed Facilities

**The Nicholas C. Metropolis Center for Modeling and Simulation** was dedicated in May 2002, but eager computer scientists and weapons designers were moving in four months earlier. Completed more than three months ahead of schedule and \$13 million under budget, the 303,000-square-foot Center houses "Q," one of the world's largest and most capable computers. The Center is a

cornerstone of NNSA's tri-lab (Los Alamos, Lawrence Livermore and Sandia national laboratories) mission to maintain the safety, reliability and performance of the nation's nuclear weapons through predictive science. All three laboratories share Q through fast, secure networks.

- Budget: Actual construction cost \$86 million; returned \$13 million to DOE.



Artist's concept of the new National Security Sciences Building; ground was broken in September 2003.

*Los Alamos National Laboratory's Ten-Year Comprehensive Site Plan is the foundation for strategic planning of the physical complex. Continued re-investment based on the Site Plan through line-item construction and the National Nuclear Security Administration's Facilities and Infrastructure Re-capitalization Program are essential to reverse ongoing deterioration. Facilities built for the Cold War must be replaced with a smaller set of modern facilities that better support the NNSA missions, while reducing the maintenance backlog and costs of operations.*

- Safety: One lost work day in more than 600,000 labor hours by 1,000 workers.
- Facts:
  - 43,500-square-foot computer room.
  - 7.1 megawatts of power, expandable to 30 MW.
  - 15 awards for project management.

## The 164,000 square-foot **Nonproliferation and International Security Center**

consolidates widely scattered work in nuclear safeguards, nonproliferation and weapons assessment and provides offices and laboratories for about 450 workers.

- Started in February 2000 next to the Metropolis Center, staff moved into the NISC building in April 2003.
- Budget and safety: Construction cost of \$58.7 million. The NISC was completed under budget and ahead of schedule, with no lost workday accidents.

## The **Chemistry and Metallurgy Research Building Upgrade Project**

brought a 50-year-old, 550,000-square-foot laboratory up to current safety standards, maintaining regulatory compliance for key stockpile stewardship work during the planning for a smaller replacement facility. CMR is the only facility used for analysis and characterization of special nuclear materials in support of stockpile stewardship and other DOE nuclear programs. Upgrades to electrical,

ventilation, fire suppression and other key systems were completed ahead of schedule in the spring of 2002 for \$15 million below the final budget.

- Budget: Original estimate of \$174 million; final estimate of \$106 million; actual cost \$91 million allowed return of \$15 million to DOE.
- Safety: 150,000 labor hours; no illnesses or injuries.
- Facts:
  - Nineteen separate sub-projects; multidisciplinary team, extensive agency coordination.
  - Six awards for preventing more than \$8 million in potential waste; DOE award for Excellence in Acquisition.

Phase 2 of the **Dual-Axis Radiographic Hydrodynamic Test Facility** construction was completed in March 2003. Incorporating the world's most powerful high-resolution, flash X-ray technology, DARHT is a sophisticated diagnostic tool for non-nuclear, above-ground experiments that provides clues about how aging stockpile components behave.

- The second axis will permit three-dimensional, time-sequenced views of imploding mock nuclear weapon primaries, and is scheduled to be operational in 2005.
- Budget: Overall project cost was \$259.6 million, of which \$105 million was for the first axis that began operation in Fall 2000.

The devastating Cerro Grande Fire of May 2000 taught the Laboratory many lessons about emergency preparation that went directly into the design of the 38,000-square-foot **Emergency Operations Center** that was completed in Summer 2003 using Cerro Grande Rehabilitation Project funds.

- Budget: \$21 million, completed two months ahead of schedule and \$800,000 under budget.

## Ongoing Construction

Los Alamos is replacing much of its physical security system with modern equipment to ensure even stronger protection for its nuclear materials. The **Nuclear Materials Safeguards and Security Upgrades**, Phase 1 is providing a new central security control system and associated facility and communications infrastructure.

- Budget: \$61 million total estimated cost.

Another major initiative is the **consolidation of vulnerable office and laboratory space** in key divisions of Los Alamos' nuclear weapons stewardship program hit hard by the Cerro Grande Fire. When completed, primarily with general plant projects funding over the next several years, the effort will reduce by roughly 25 percent the infrastructure requiring maintenance and result in significant operational savings.

The Laboratory also has completed **eight office buildings** for employees previously housed in substandard and portable buildings and three more are under construction, each providing about 20,000 square feet. These design-build projects take about a year to build; just one new building allowed removal of 17 substandard transportable structures.

## New Construction

The **National Security Sciences Building** will house computational and theoretical work as well as senior management; it will replace a 45-year-old, substandard building with much higher energy costs.

- Ground breaking ceremony held in August 2003.
- Planned at 275,000 square feet, the new facility will provide office space for 700 and incorporate a 400-space parking structure. Completion is scheduled for fiscal year 2006.
- Budget: Total project cost is \$97 million. Inclusion of a replacement NNSA Site Operations building for 125 people would raise the estimate to roughly \$105 million.

The Laboratory has begun design of the **Chemistry and Metallurgy Research Building Replacement Project**. NNSA has held public hearings to begin assessing environmental impacts for an approximately 200,000-square-foot building to replace the 50-year-old CMR.

- The modern facility will consolidate analytical actinide chemistry, material characterization and metallography work for stockpile stewardship. Locating it near the existing plutonium facility will improve security at reduced cost.
- The new facility will permit demolition of the 550,000-square-foot CMR.

Planned in collaboration with Sandia National Laboratories, Los Alamos will build a new **Center for Integrated Nanotechnology** near the Sigma complex at Technical Area 3. The Center will provide laboratories and offices for researchers in this exciting new field.

- Budget: Approximately \$20 million total estimated cost at Los Alamos.

## Building Removal

NNSA is supporting the removal of non-contaminated buildings at the Laboratory and other sites with funds from its Facilities and Infrastructure Recapitalization Program, in response to recent congressional directives to reduce at least one square foot of old facilities for each new square foot constructed. Los Alamos anticipates doing significantly better than that.

Removal of obsolete facilities is part of the Laboratory's overall strategy of carrying out its mission with fewer facilities that are easier to maintain and with reduced operating costs. More than 300,000 square feet of facilities were identified for removal in the Site Plan over the next two years. More than one million square feet of facilities have been identified for removal within the next 10 years.

- Removal of the Sherwood Building in TA-3 was completed in fall 2001.
- Omega West reactor has been removed
- Scyllac Building demolition has begun.



Los Alamos National Laboratory is operated by the University of California for the U.S. Department of Energy's National Nuclear Security Administration