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## Building On Success

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# Building On Success

The new Science and Engineering Building will be a sophisticated facility where interdisciplinary research and education will flourish **By LaNelda Rolley**

**T**o the casual observer, the large construction site on the north side of the UNLV campus is simply a sign of the times: Another major university building is being erected to accommodate the institution's continuing growth.

But to the UNLV faculty who will move into the new Science and Engineering Building, the construction site represents much more.

To them, it is the future of research at UNLV – a physical manifestation of the university's continuing advancement as a nationally recognized research institution.

The Science and Engineering Building (SEB) will seek “to create a world-class environment for interdisciplinary research and education,” according to Mark Rudin, interim vice president for research and graduate dean.

“The building will support innovative research approaches and will house new technologies that are conceived and developed through collaboration among faculty in the sciences, engineering, fine arts, and allied units on campus,” Rudin says. “It

will truly be a remarkable environment for research.”

The SEB's interdisciplinary focus exemplifies a trend in higher education and private industry to foster collaborative research to advance knowledge, Rudin adds. The building is strategically located on campus – on Cottage Grove Avenue just north of the Thomas T. Beam Engineering Complex – to support research in the disciplines of science, engineering, and entertainment technology, which are based in that area. It is anticipated that the interdisciplinary approach to programming the building will not only support and enhance ongoing research, but will also serve as an attraction to national and international researchers.

#### **Establishing the Need**

The vision for the SEB began to take shape several years ago as community and state leaders, including Gov. Kenny Guinn, key legislators, and members of the Nevada Development Authority and the Las Vegas Chamber of Commerce, identified economic diversification as one of the



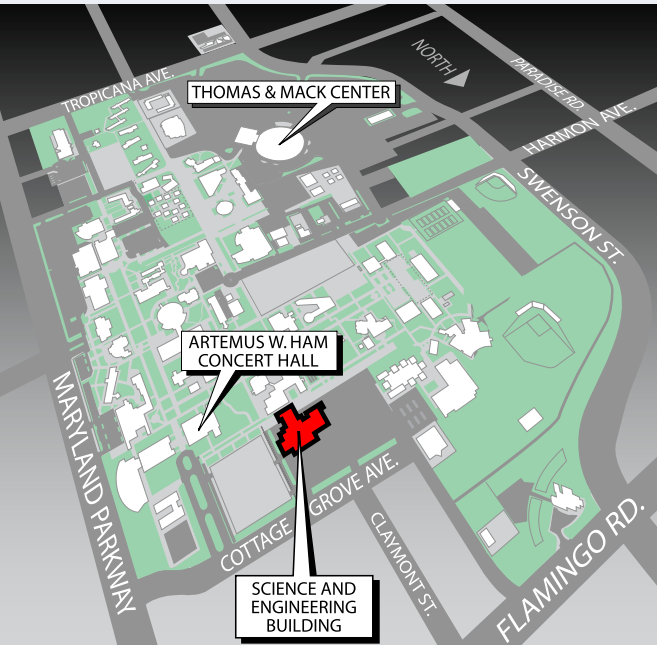
state’s top priorities. They highlighted the need to provide additional space for the education of a highly sophisticated workforce and for research on new technologies with commercialization potential that would support a more diverse Nevada economy.

In the meantime, enrollment growth has placed heavy demands on UNLV’s engineering and sciences colleges. From 1996 to 2005, the university experienced a 66.5 percent increase in the number of undergraduate and graduate students seeking degrees from the Howard R. Hughes College of Engineering and the College of Sciences.

Additionally, UNLV had been successful in attracting faculty from the top institutions across the nation but began to find limited space for research. An analysis conducted in 2000 revealed that the university had only 96,862 square feet of science and engineering space, compared to the national average of 359,862 square feet for doctorate-granting research universities.

Another striking statistic came from a February 2002 study conducted by the Nevada Development Authority indicating that 80 percent of Nevada’s top high school students left the state for their post-secondary education and did not return upon completion of their degrees.

It became clear a new science and engineering facility would be critical to the future of UNLV and Nevada. University, government, and the private sector representatives recognized a shared interest in building such a facility and began to commit time and resources to advocating it. Support for the new building expanded, and it moved from the university’s wish list to the top of the state’s planning and construction project list. The building was approved by the 2001-03 Nevada Legislature.



The Planning Process

Faculty input was considered critically important to the SEB planning effort. The university began holding visioning sessions early on involving faculty committees, as well as a steering committee composed of key administrative and faculty leaders, including Dr. Peg Rees, associate vice president for research and community outreach; Thomas Hagge, associate vice president for facilities management and planning; Susan Hobbes, director of planning and construction; Dr. Rod Metcalf, associate professor of geoscience; and Dr. Bill Culbreth, associate dean of the Howard R. Hughes College of Engineering. The science, engineering, and fine arts deans were also fully engaged in the planning process.

The visioning sessions set the stage for the building, and four major objectives were identified: 1) provide an academic setting to foster collaboration and interaction among the disciplines of science, engineering, and fine arts; 2) optimize lab space and operational systems to gain functional efficiency in the circulation of people, data, and materials; 3) utilize sustainable design principles to conserve water, energy, and natural resources; and 4) accommodate future growth.

An overarching goal in planning the building was to ensure that it would enhance research activity involving the following interdisciplinary research areas:

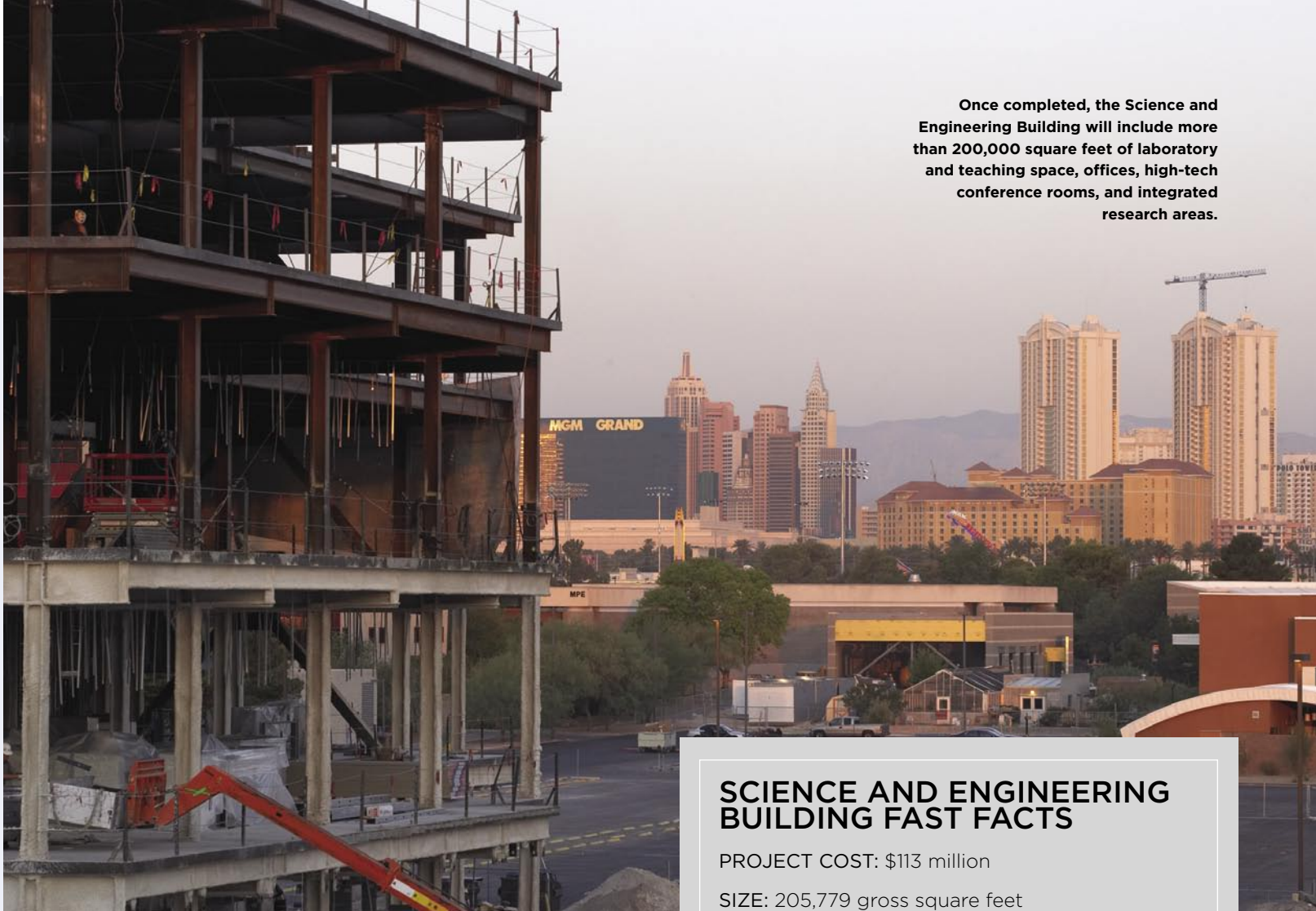
- Information, data, and communications technology;
  - Arid lands environmental science, policy, and engineering;
  - Energy and materials science and engineering; and
  - Entertainment and convention technology and engineering.
- In support of these areas, a dozen core laboratories, listed below, were programmed into the building.
- National Supercomputing Center for Energy and the Environment
  - Earth Materials and Environmental Chemistry Center
  - Environmental Soil Analysis Center
  - Geographic Information Systems Laboratory
  - Graphics and Visualization Laboratory
  - Greenhouse
  - Imaging and Electron Microscopy Center
  - Nanotechnology Center
  - Nevada Isotope Geochronology Center
  - Nuclear Magnetic Resonance Laboratory
  - X-Ray Diffraction – Single Crystal Laboratory
  - X-Ray Diffraction – Earth Materials Laboratory

An Environmentally Friendly Design

The momentum in planning the building continued to grow as drawings emerged from the architects, revealing an environmentally conscious, state-of-the-art facility.

“A central design goal was for the building to obtain the Leadership in Energy and Environmental Design (LEED) certification,” Rudin says, noting that the certification is a green-building rating system for developing high-performance, sustainable buildings.

The architects – Dekker, Perich, Sabatini of Las Vegas



Once completed, the Science and Engineering Building will include more than 200,000 square feet of laboratory and teaching space, offices, high-tech conference rooms, and integrated research areas.

SCIENCE AND ENGINEERING BUILDING FAST FACTS

- PROJECT COST: \$113 million
- SIZE: 205,779 gross square feet
- ARCHITECTURE FIRM: Dekker, Perich, Sabatini, Las Vegas
- CONSTRUCTION FIRM: Sletten Construction, Nevada
- ESTIMATED COMPLETION DATE: 2008
- SPECIAL FEATURES:
- ⦿ Designed for interdisciplinary teaching and research with flexible classrooms and a 200-seat auditorium
  - ⦿ State-of-the-art laboratories
  - ⦿ “Smart” conference rooms
  - ⦿ Integrated research space
  - ⦿ Satellite energy plant, housed in a separate building, to provide heating and cooling for the SEB and future buildings on the north side of campus
  - ⦿ Space for 116 offices
  - ⦿ Digital production facility for distance learning
  - ⦿ Design received 2004 Citation Award in the Unbuilt Category for the AIA (American Institute of Architects) Nevada Design Awards

MAP: DAVE MELTON; PHOTOGRAPH: AARON MAYES