ENGINEERING A STRONGER NEVADA

A proposed new engineering building will solidify Nevada as the West’s destination for advanced manufacturing

by JOANNA TRIEGE and CURTIS VICKERS’07 M.A.

The proposed addition to the College of Engineering complex will not only help the college meet a rapidly expanding student enrollment, it will also help Nevada nurture many of the emerging industries associated with advanced manufacturing, including new technologies in unmanned autonomous systems, batteries and energy storage.
The College of Engineering has long been a cornerstone of the University’s effort to become a high-impact research institution. Now, plans for a new building will make an even greater impact on Nevada’s future.

Enrollment is growing. Faculty positions are being added each year. New courses of study are being created. Industry demand for graduates is stronger than ever. As northern Nevada continues on its mission to become the West’s go-to location for advanced manufacturing, the University’s College of Engineering appears to be bursting at the seams.

“The University has always been dedicated to supporting the community around it, and within the community there is an ever-growing demand for engineers – technically proficient, creative and expertly trained engineers,” says President Marc Johnson. “And our students want to go into this field. They see the career opportunities that will be available to them after graduation, right here in Reno, and they want an education that will prepare them for those opportunities.”

The University has a well-established engineering complex, including Paul Laxalt Mineral Engineering, Paul Laxalt Mineral Research, Palmer Engineering, Scrugham Engineering and Mines, the Harry Reid Engineering Laboratory and the Earthquake Engineering Laboratory. However, with unprecedented growth comes the need for expanded and updated facilities. A proposed new 87,000-square-foot engineering building would strategically complement the existing complex, catapulting the college’s research capacity and allowing more students to train shoulder-to-shoulder with faculty who are solving real-world problems.

Unprecedented growth

Student enrollment in the College of Engineering has nearly doubled in the past decade, rising from 1,578 in 2006 to 2,815 in 2015 (see chart on page 9) and making the college the fastest growing on campus. To accommodate increasing enrollment and to grow research programs, the college plans to add 40 new positions to its existing 80-member faculty in the next five years, along with 100 additional graduate student assistants. The College of Engineering course catalog is keeping pace with this expansion: last year, new minors in batteries and energy storage technologies and cybersecurity were offered, and starting this year students will have the option to major in biomedical engineering.

“We are delighted by the unprecedented growth and increased interest in engineering fields that we’ve seen over the last decade,” says Manos Maragakis, dean of the College of Engineering. “As we look forward, we are eager to expand upon and improve the resources that we have available for teaching, for research and for developing mutually beneficial partnerships with the booming advanced manufacturing industry as well as other industries in northern Nevada.”

Focus on advanced manufacturing

Governor Brian Sandoval ’86 (English) and Steve Hill, director of the Governor’s Office of Economic Development, have both clearly communicated that Nevada’s emerging economy will be built upon a foundation of diverse companies that make use of advanced manufacturing. A broad concept, advanced manufacturing includes a range of industries and focuses on the development of new technology and techniques to produce everything from cars to nanotech
components. At its heart, advanced manufacturing is concerned with producing better products more efficiently and more responsibly.

“Our ability to produce technologies and products more efficiently allows the state and the country to stay competitive on a global basis,” Hill says. “Producing more intelligently while using fewer resources is a responsible, sustainable manufacturing approach. Working with the University to refine advanced manufacturing techniques will spur the knowledge-based economy that is key to the state’s growth and continued vitality.”

Each year, more businesses that hire engineers are putting down roots in northern Nevada, from auto manufacturer Tesla and robotics manufacturer Hamilton Company to cloud services provider Switch. These businesses join long-standing local institutions that are just as eager for Nevada graduates, like NV Energy and Barrick Gold Corporation. “The University of Nevada, Reno consistently graduates students prepared to excel,” says Andy Cole, executive director of Barrick U.S.A. “At every level of Barrick, you will find talented Nevada graduates contributing to the success not only of our company but of our community.”

A new building for a new Nevada

As the College of Engineering continues to grow in response to the needs of its students, its faculty, the state and the country, the need for additional space and updated facilities to complement the existing campus engineering complex has become apparent. The proposed new building, currently envisioned at 87,000 square feet and four stories, is planned to allow faculty and students plenty of space to conduct research, interact with each other across departments and invite local industry leaders in to collaborate as well. Having space that specifically addresses faculty’s need to research, give hands-on instruction, and forge industry partnerships will allow the University to attract the additional outstanding educators needed to meet increased student enrollment. The planned method of funding the $86 million project is a combination of state contributions, existing student capital improvement fees and private donor support. In addition to the proposed new building, Palmer Engineering will be renovated and outfitted with state-of-the-art laboratories and increased collaboration space (see box on page 9).

“We are committed to promoting a stronger Nevada, and it’s clear that engineering and advanced manufacturing are the way forward for our region,” says Mike Melarkey ’72 (political science), president of the Bretzlfaff Foundation, which has substantially supported the design phase of the proposed new building project. “The demand for additional updated space couldn’t be more clear, from the students who come here specifically to study engineering to the businesses that choose to settle in northern Nevada and want to partner with the University. We are proud to support this vital project.”

Additional support for the engineering building’s design has been received from NV Energy, Barrick Gold Corporation, Stuart Fegin, the Educational Pathways International Foundation, Dick and Charlotte McConnell and EBARA International Corporation.

The College of Engineering is committed to offering students a globally competitive education and being a catalyst for the state’s economic development. The new engineering building is critical for its success.

To learn more about supporting University buildings and projects, please contact John Carothers, vice president of development and alumni relations, at (775) 784-1352 or jcarothers@ unr.edu.

Building Highlights

Research laboratories

The building features 45 research laboratories. All but three of the labs do not currently exist in the College of Engineering. The mix of wet and dry labs are for use by four of the five departments in the College:

• Chemical and Material Engineering
• Computer Science and Engineering
• Electrical and Biomedical Engineering
• Mechanical Engineering

Teaching labs and classrooms

Instructional spaces in the building include three shared teaching labs and one large computer lab to accommodate classes of 50 students. These spaces do not currently exist in the College of Engineering.

Collaboration spaces are located throughout the building to promote interaction between the various departments within the college.

Offices and workstations

The building includes 50 offices for faculty who are eager to partner with private industry to develop and implement new technologies that will provide a competitive advantage to Nevada companies.

Workstations will be provided for 150 graduate students who will conduct research in the laboratories.
Demand for academic programs in the College of Engineering has increased dramatically over the last ten years. Given a rise in regional demand for engineering graduates, enrollment is expected to accelerate in the coming years.

### College of Engineering Enrollment Totals by Degree

<table>
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<th>Year</th>
<th>B.S.</th>
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<th>Ph.D.</th>
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Seventy-five years after its construction, the Palmer Engineering Building is undergoing renovations to ensure it fulfills its role in the growing engineering department while preserving the building’s historic nature. Upon completion, the renovations will bring the entire usable space of the building up to 34,787 feet of classrooms and laboratories updated with the technology and equipment necessary to keep pace with advances in the field. Ron Zurek, vice president of administration and finance, said, “Palmer is a complete renovation, including seismic, ADA and life safety upgrades, new electrical and HVAC systems and five new classrooms. It will also include several new labs—Advanced Materials and Microscopy, Multi Physics and Complex Fluids, Material Processing, Advanced Manufacturing, Small Scale Robotics and teaching lab.”

The Palmer Engineering Building renovations have been designed to complement the proposed engineering building. The $13 million project has been funded entirely through slot taxes. Renovations will be completed in 2017.