

CENTER FOR ENGINEERING AND COMPUTATIONAL SCIENCES

NEW FACILITY, RENOVATION OR DEMOLITION AND RECONSTRUCTION

NDSU seeks to meet North Dakota's workforce needs by recruiting and educating future generations of leaders in engineering, innovation, and entrepreneurship. The College of Engineering (COE) has more than 2,500 students in 12 different programs with nearly all currently choosing to be in person. The new facility will house numerous academic areas making it more efficient and creating interdisciplinary collaboration among high-demand, ground-breaking areas, including:

- **Precision agriculture and autonomous systems**

Designing the farm of the future that will improve the efficiency of food production for a growing global population.

- **Energy stewardship**

Harnessing our abundant resources in a manner that promotes the responsible and efficient generation, conversion, distribution, and storage of power and energy.

- **Computer science, cybersecurity, and artificial intelligence**

Providing advanced technological solutions for safety and security in a world that is becoming more driven by autonomous systems and marketplaces.

- **Entrepreneurship and commercialization of new technology**

Accelerating research to move innovative ideas from the laboratory into technology start-ups with solutions that benefit society.

The current engineering complex is comprised of seven buildings, and four of the buildings were constructed in 1965 when the engineering enrollment was approximately 300 students and virtually no research was being conducted. Since that time, only 20,000 square feet have been added, even though the enrollment and research operations have grown significantly (\$14.2 million in research awards were awarded to the COE in 2022). However, due to the space limitations, our research competes for resources needed by students. The request is to construct a new facility and to renovate some of the existing space. Engineering Administration and the Agricultural and Biosystems Engineering Building will both be demolished. Their operations will be transferred to the new facility.

An ultra-modern facility will advance NDSU's workforce and economy in multiple ways by: (1) supporting recruitment and retention of both North Dakota and out-of-state students; (2) providing a collaborative, interdisciplinary educational experience to ensure NDSU graduates field-ready engineers; (3) enabling NDSU to create high-quality, online content for new courses and programs via the facility's advanced educational and technical tools; and (4) generating even more return on investment through increased success on federal grants thanks to cutting-edge research lab space.

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NUMBER OF SQUARE FEET OF THE ENTIRE BUILDING (INCLUDE SQUARE FEET OF OLD BUILDING IF APPLICABLE)

The existing 163,575 gross square feet Engineering Complex of seven buildings, with most built in 1965. The proposed project will replace Engineering Administration with a new modern facility that creates accessibility to three other buildings. The tentative scope is approximately 120,000 gross square feet of new construction and partial renovation between 10,000 – 20,000 square feet.

NUMBER OF SQUARE FEET BY CATEGORY (CLASSROOMS, LABS, OR OTHER TYPES OF CATEGORIES)

These numbers are NET square feet of the new building and renovated space:

- Specialty Labs/Capstone – 27,000
- Teaching Labs – 27,000
- Research Labs – 21,000
- Technical/Academic Support Spaces – 10,000
- Collaboration/Entrepreneurial – 8,000
- Offices – 8,000
- Classrooms – 5,000
- The remainder of the space is mechanical, electrical, interior walls, bathrooms, corridors and other spaces not assignable.

TYPES AND NUMBERS OF ANTICIPATED CLASSES THAT WILL UTILIZE THE COMPLEX AND APPROXIMATE NUMBER OF STUDENTS THAT WILL UTILIZE THE BUILDING.

Specialty/Capstone and teaching laboratories will be designed for in-person engineering, precision agriculture and computer science students. Nearly all of NDSU's 2,500 engineering students are in person which helps North Dakota's workforce shortage, because 82% of North Dakota graduates and 42% of Minnesota graduates stayed in North Dakota after graduation. New research space will be added to the building because all of the academic disciplines in the complex conduct research, and laboratory space is needed for grant funding. Having separate laboratories dedicated to teaching and research is important for efficiency and safety.

WAS THE BUILDING LISTED ON THE NDUS PROJECTS LIST?

The Center for Engineering and Computational Sciences has been listed in NDSU's Master Plan since 2014. It has been on an NDUS list since that time, and in 2021, the project was approved for advancement as the number three priority.

LOCATION OF THE BUILDING (MAP IF POSSIBLE) AND IF THE INSTITUTION CURRENTLY OWNS THE LAND OR WILL NEED TO ACQUIRE THE LAND.

The land is owned by NDSU, so no purchase is needed. The location of the engineering building is in the very center of campus, reflecting the critical importance of these academic disciplines to NDSU's mission.

PROVIDE ANY DESIGNS, RENDERINGS OR BLUEPRINTS THAT ARE CURRENT AVAILABLE.

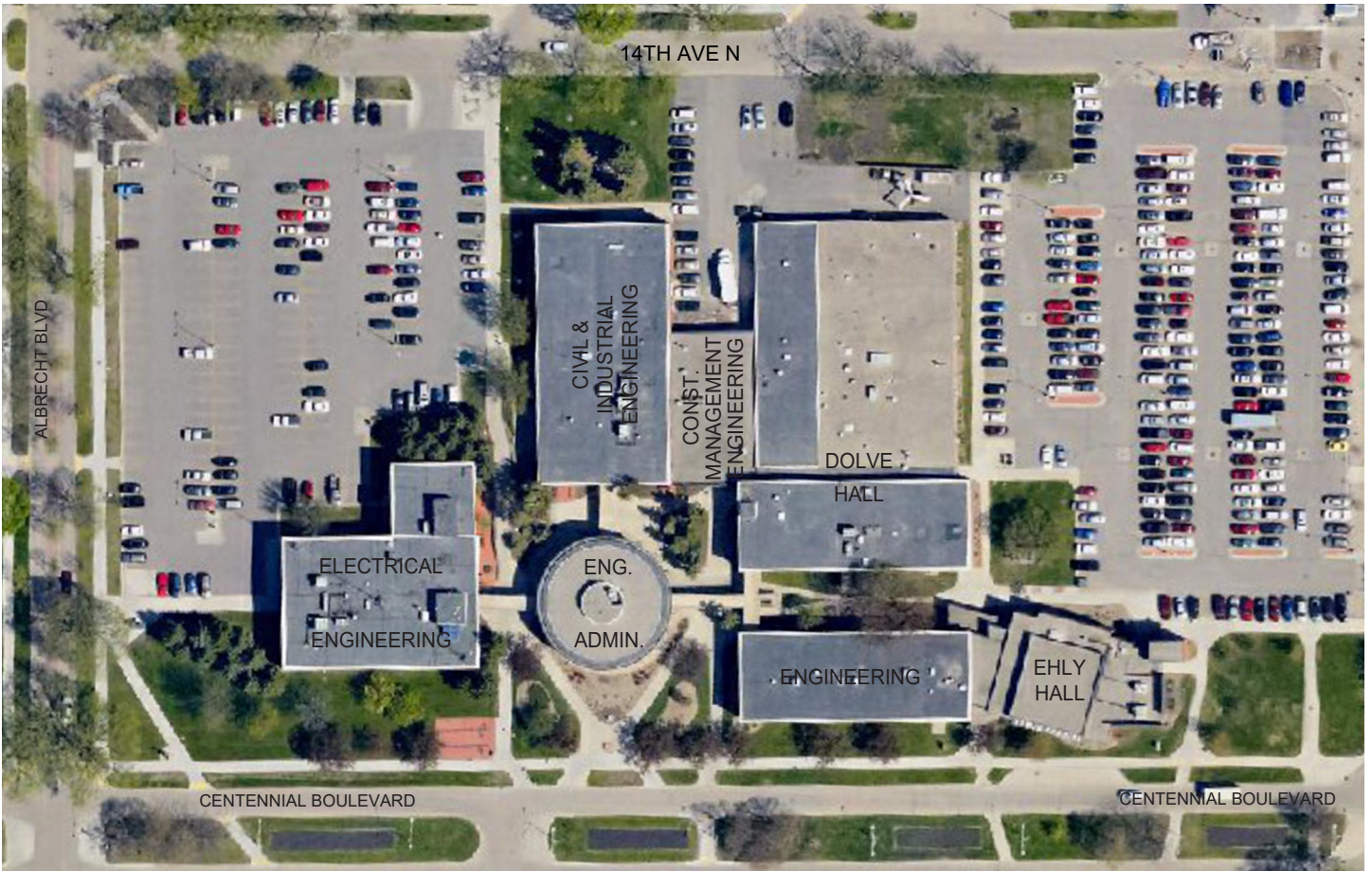
A rendering was created to give a perspective of what the infilled space would look like when Engineering Administration was demolished.

WILL ANY FUNDS BE RAISED FOR THE PROJECT OR HAVE FUNDS BEEN ALREADY RAISED (IS SO, PLEASE SHARE HOW MUCH)?

The Center for Engineering & Computational Sciences was included in HB1003 and passed the House of Representatives with a budget of \$84 million with a 30% local fund match requirement (i.e., \$58.8 million general funds and \$25.2 million private funds). Fundraising would start if all approvals were received.

HAS THIS BUILDING ALREADY BEEN FUNDED BY THE LEGISLATURE AND IF SO, PLEASE DESCRIBE THE USE OF THE NEW FUNDING?

No, this building has not been funded by the legislature.



CONCEPT A



NORTH DAKOTA STATE UNIVERSITY | ENGINEERING
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