

GREAT SCOTT! A HISTORY OF INNOVATION AT NORTH CAROLINA STATE UNIVERSITY, 1950 - 2019



At the turn of the millenia, NC State needed to expand its campus to keep up with the innovations of the time. Thankfully, North Carolina passed a bond bill that raised millions of dollars throughout the decade and was used to fund growth at NC State.

The bonds also allowed for the development of State's plan for mixed-use neighborhoods. This allowed students to have easier access to cutting-edge technologies and opportunities.

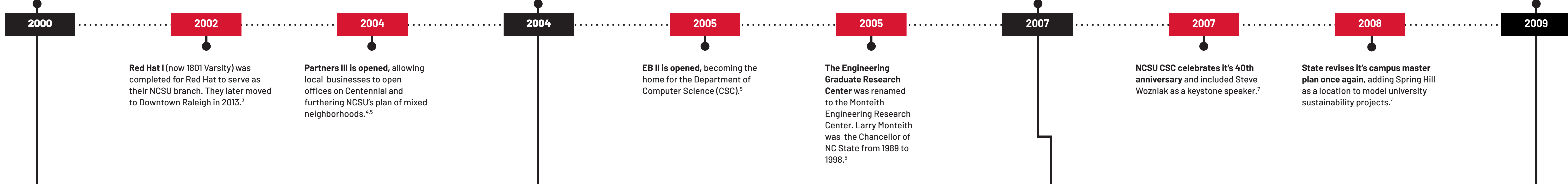
By having access to these new technologies, NC State is helping future engineers understand how their tools work and help avoid technology being, as Licklider states, an "implacable, alien force that lies beyond our control and influence."^{1a}

The State of North Carolina approves of issuing bonds to raise money for the UNC School System. This helped raise money for NCSU to build up Centennial Campus, which was started in 1984.²

EB I opens its doors for the Material Sciences Engineering (MSE) and Chemical and Biomolecular Engineering (CBE) departments.⁵

State revises its Campus Master Plan, setting the course for the growth of the university for the next few years.⁸

The ground for Hunt Library is broken and construction begins.⁹



BONDS

During November of 2000, the largest capital bond issue for higher education in the U.S. was passed in the state of North Carolina. The bond aided in the building of many new facilities to several of North Carolina's universities and community colleges in support of jobs and educational development. A portion of the total bond was allocated for the renovation of existing buildings as well as maintenance. Due to the requirement that institutions had to have prior expansion planning, most of the money was distributed to the larger universities. Community colleges were not given as much funds due to this requirement but were allocated money in order to maintain and renovate current buildings.

North Carolina State University was eligible for a large sum of the total bond amount. This allowed Centennial Campus to host many projects towards innovation. The addition of many new facilities that housed partnerships with companies also added to the job market, deflecting some of the impacts of the economic recession that began during the early 2000s. The economic recession also provided a pull of construction companies that were willing to work within the budget set by the universities in order for the cost of new construction to remain reasonably feasible. Working to the university's advantage, the negotiation period and time frame of construction was efficient and helped create one of the larger expansions to Centennial Campus. Providing the financial resources to construct already planned improvements, the bonds gave way to the university continuing its legacy of providing a quality education for its students and future generations to come.²

EB I OPENS ITS DOORS

EB I opened its doors in 2004.⁵ As the first engineering building to open on Centennial Campus, it serves as the center of technological innovation. EB I became the home of the Department of Material Sciences Engineering (MSE) and the Department of Chemical and Biomolecular Engineering (CBE).

MSE is currently researching Computational Materials Science to help predict how materials will react in situations without resorting to time consuming trial and error.⁸

CBE is studying Computational Science and Engineering and is using it to analyse and solve problems using mathematical equations.⁵

Engineering Building I. Image from the Department of MSE website.



"Used thoughtfully and with skill, technology becomes much more than a means of production or consumption. It becomes a means of experience. It gives us more ways to lead rich and engaged lives."^{1b}

HUNT FOR A FUTURE

In 2009, the ground was broken for Hunt Library, the future center of innovation on Centennial Campus. Working in collaboration with world renowned Norwegian architect firm, Snøhetta, and the local architect firm, Pearce Brinkley Cease + Lee, the firms designed and constructed the new library to incorporate the values of sustainability and innovation to parallel the university's goals for the future.¹⁴

A major component of the library's innovation includes the use of the bookBot storage and retrieval system that has the ability to house two million books at a time. Robots operate to reduce the usage of space and efficiently store books and research material helping to allocate more space for students to utilize.¹²

The library also features a makerspace for 3D printing and scanning, visualization/teaching labs, graduate/research commons as well as nearly 100 study rooms.

The library would later be honored and awarded for its sustainability and design, receiving the 2014 "Stanford Prize for Innovation in Research Libraries," as well as 2017 Library Journal's "New Landmark Libraries," as well as being a "green" building at the LEED Silver level to name a few.¹³

The James B. Hunt Jr. Library. Image from the NCSU Library System.



A DECADE'S IMPACT ON TECHNOLOGICAL INNOVATION

The 2000s set the groundwork for a lot of future innovations at NC State. The issuing of bonds in 2000 really allowed the university to expand explosively and make a new campus centered on innovation and research.² Red Hat moving in in 2002 set the tone for an open source campus, as well as the creation of the EOS computing environment.³ Two years later, Partners III opened its doors to local businesses and marked the furthering of States plan for mixed neighborhoods.^{4,5} That same year, Engineering Building I welcomed the MSE and CBE departments, giving them access to new resources and equipment.⁵ Engineering Building II opened in 2005, becoming the home of the CSC department.⁶ 2007 saw the revision of the Campus Master Plan, which was changed once again in 2008.⁸ Most importantly, construction of Hunt Library, the crown jewel of innovation at NC State University, began in 2009.⁹ Thanks to these events, the present and future of innovation within this campus was secured.



PLANS FOR THE FUTURE

Ever since the first master plan that included Centennial Campus back in 1987, NC State has changed and evolved. There have been multiple iterations of the Master Plan since then, each one adding or subtracting ideas as the styles, ideas, and needs of the university changed with time. In each iteration, however, was the idea of mixed use neighborhoods. This idea dominated the design of Centennial and is what makes it such a wellspring of potential. The basic premise is to mix different types of buildings in small neighborhoods to encourage interaction between different groups. In this case, the concept was used to place students and employers in close proximity by having corporate office space share a building or neighborhood with a classroom. For example, in Venture IV a classroom and the Delta Testing Center are located next to the office space of a local corporation. Hopefully, this will lead to greater interaction between the businesses on campus and the students they will hopefully hire.

This proximity also helps to produce innovations because of the resources afforded to the companies by being on campus. This allows graduate students to work alongside some of the top innovators in their field and apply their research to more relevant problems.⁸

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