

CAMPUS



Behind the century-old neo-Gothic facade of the Central King Building a remarkable transformation in campus life is unfolding. The cavernous rooms on the former high school's third floor have been replaced with luminous, technology-filled teaching labs and classrooms, smaller “break-out” rooms for independent group study and a 120-seat lecture hall tucked into an intimate space with built-in video conferencing equipment for recording and streaming classes. The once-dingy corridors now beckon students with benches and working-height countertops, large writing surfaces and plenty of natural light.

TRANSFORMATION FOR

A suite of biology labs on the floor above houses scientific instruments such as a fish “treadmill,” a large tank with simulated ocean currents, and a growing collection of species – from a striped remora fish with unique suction powers, to a black ghost knifefish emitting a weak electric field, to a tank of coral-tinted eyeless cavefish studied for their adaptations to an extreme environment.

And that is just the beginning of the changes rippling across the 45-acre campus.





The gut-level renovation of the five-story CKB as it's known is but the first wave of a \$300 million capital building program that is transforming research, teaching and community life at NJIT. Three new buildings are soon to follow: a 24,500 sq. ft. life sciences and engineering building; a 200,000 sq. ft. Wellness and Events Center with a 3,500-seat arena, an indoor pool, track and turf field and conference rooms; and a seven-story parking garage next to the Enterprise Development Center on the western edge of campus.

The new facilities, funded in part by the 2013 Higher Education Capital Facilities Grant Program, reflect the university's evolution from a commuter school where engineering students once dashed from class to class and then back to their cars, to a diversified Tier I research institution with an expanding residential population. Indeed, the university's growing reputation as a leader in science, technology, engineering and mathematics (STEM) education has prompted a surge in students, who now number well over 11,000, the recent addition of 70 new faculty members, and the creation of the New Jersey Innovation Institute (NJII), a research and development engine that connects the university with private- and public-sector partners around the world.

"The changes on the NJIT campus are broad and deep," said President Joel S. Bloom. "As the demand for students with STEM backgrounds exceeds the supply, we are

Architect's rendering of the Life Sciences and Engineering Building.

committed to meeting what amounts to an urgent national challenge."

While serving different sectors of campus life, the new buildings have a common purpose: to promote a rich, collaborative climate that encourages students, faculty, alumni and partners from industry, academia and government to share their experiences and ideas, generate new ones and successfully develop them. Part of the 2008 facilities master plan, with further guidance from NJIT's strategic plan, *2020 Vision*, the building program has won the enthusiastic buy-in of alumni: each of three major building projects has an NJIT firm or graduate either at the helm or in a prominent role.

Karen Cilento '12, an Albert Dorman Honors College student and graduate of the College of Architecture and Design (COAD), recounts jumping at the chance to join the Marvel Architects team designing the CKB renovation.

"I was excited to join this project because I am very familiar with what students on campus need and I wanted the opportunity to design spaces that would not only meet that need, but exceed it in an exciting way," she noted. "As an alumna, I understand the university culture: NJIT students are hard-working and are constantly brainstorming ideas and discussing their coursework. We're creating a new environment that encourages this kind of interaction."

TRANSFORMING TEACHING

In designing the third floor, "we were very interested in this idea of informal learning and spontaneous collaboration. Particularly at NJIT, where there are architects and engineers, math and business majors, there is great potential for innovation if you can create the opportunity for people to share ideas, to cross-pollinate these closely linked disciplines," she said, adding that it was therefore important to "create spaces people would want to stay in, to occupy."

Before the first nail was sunk, Blake Haggerty, director of NJIT's Technology Support Center, and his team held focus groups of students and faculty to get a better handle on 21st-century teaching and learning needs.

"What we heard loud and clear from the community was infrastructure, technology and furnishings," Haggerty recalled, pointing to details such as the multi-port electrical plugs on classroom floors for students' devices and desks large enough to accommodate both their books and laptops. "Students take notes and access their textbooks on their computers now. Some even record lectures on their phones."

And rather than recreate traditional "sage-on-a-stage" classrooms with the lecturer rigidly front-and-center, the chairs, desks and tables have wheels so they can be moved and reconfigured to suit a given class. "Maybe the professor is in the center of the room with screens around the room and the students are working in groups," said Andrew Christ '94, '01, vice president for real estate and capital operations.

Small rooms with whiteboards and flat-screen monitors adjacent to some of the large classrooms allow groups of students to "leave, return and report," while also providing space for teamwork outside of class, noted Basil Baltzis, vice provost for academic affairs, adding, "We've put an emphasis on spaces that support cooperative learning, including formal groups to gather to work on projects, as well as spaces in open areas and hallways where students can study alone, informally work with their peers and socialize."

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To encourage students and faculty to share and explain their ideas, the public spaces of the building are blanketed with writing surfaces such as whiteboards, chalkboards and tack panels. Enclosing some of the smaller rooms with glass walls gives passers-by a window on their peers' creativity.

On a recent afternoon, a rat snake named Dave slumbered in his terrarium in one of the teaching labs despite the tanks of squabbling red swamp crayfish and Madagascar hissing cockroaches close by. In an empty room next door, a trio of biology students was similarly relaxed, hunkered down in conversation at a small cluster of desks.

"We come in here to study – and sometimes just to hang out," said Peter Takacs '16, of Woodbridge, who said he enjoyed the new rooms' modern aspect, up-to-date features and cheerful light. "The smaller classrooms also allow for more friendly discussions during class time."

Cilento called the top two floors "a warm-up" for the bottom three. Over the next year and a half, they will be transformed into the Center for Innovation and Discovery, a space programmed to bring together students from various disciplines, faculty and partners from industry. The two floors accessed from a new grand entry stairway on Summit Street and a sunken court will house areas for students with both open and enclosed study lounges, math and science engagement centers, a writing center and new classroom models, including a technology-intensive room with round tables, each with a flat panel screen, where groups of nine students or so can work collectively on problems. The lowest level of the building, accessed from Martin Luther King, Jr. Boulevard, will feature NJIT's Innovation Labs, giving students a direct connection to professional research and development.



TOP: A rendering of the Central King Building as viewed from Dr. Martin Luther King, Jr. Blvd.

CENTER: Students have access to state-of-the-art technology in a suite of biology labs.

BOTTOM: A striped remora fish in the lab of Assistant Professor of Biological Sciences Daphne Soares.

TRANSFORMING RESEARCH

“It’s exciting to see the progression of the institute both in the stature of its academic programs and the advanced facilities and campus environment. It is also exciting for me personally and professionally to be a part of it,” said Stephen Aluotto ’80, president of Morristown-based NK Architects, following the October groundbreaking ceremony for the new life sciences and engineering building his firm has designed.

The four-story facility, which will be appended to the existing Otto H. York Center for Environmental Engineering and Science and house shared laboratories and meeting spaces, IT infrastructure and cutting-edge scientific instruments, is designed to promote collaboration and convergence within fields ranging from biomedical engineering and the biological sciences to electrical engineering and healthcare technologies. With a particular focus on biotechnology, biosensors and medical devices and nanotechnology, the long-term goal is to come up with new applications in clinical healthcare, therapeutic interventions and pharmaceutical drug development.

With its shared labs, large open atrium and flexible spaces, the building is meant to do for research what the CKB does for teaching: to enable formal and also encourage “informal and spontaneous collaboration,” in this case, among researchers from different disciplines, Aluotto said.

Pamela Hitscherich, a Ph.D. student in biomedical engineering who spoke at the groundbreaking, called these opportunities critical.

“One of the great features of open labs is how well they promote teaching, learning and discussion – and not just from the top down,” she said. “By talking to each other, we will

learn about each other’s research and open ourselves up to discussion, debate and fresh new perspectives. Great ideas often begin with a conversation – and an open mind.”

TRANSFORMING COMMUNITY

AECOM, the global engineering firm founded by Albert Dorman ’45, ’99 HON, is leading construction of the Wellness and Events Center, which broke ground in November on the site of the athletic field. It has been designed as a multi-purpose venue with a fitness center, a running track, a 10,000 sq. ft. indoor turf field for intramural and intercollegiate play, a 25-meter indoor pool, an arena that will hold up to 3,500 spectators, conferencing capacity for as many as 4,200 people, study areas and lounges.

The three-story building aims to bind the campus together in several ways. It will face onto a new soccer field planned for the site of the current athletic center, providing stadium seating for spectators, contain an internal path for students walking from Lock Street to the main campus and include a 30-foot wide promenade for socializing on its eastern

side facing Tiernan Hall. Its glass-walled front gives the campus a view inside.

“The Wellness and Events Center is transformative in a different way from the other two buildings – it provides the entire community with the opportunity for more of the true college experience,” Christ said, adding that he envisions concerts, international trade conferences, Convocation and possibly even elements of graduation taking place there.

Lenny Kaplan, NJIT’s athletic director, called the center “a unique opportunity to create a new focal point for the entire community. At some point over the course of their time at NJIT, everyone will have spent some time there.”

“Kids will see this place before they decide to come here and they’ll spend time there once they arrive. Over the years we’ve gone from no residential community on campus to almost 2,000 students and they need something to do. This will be a great place to hang out, watch NJIT teams compete, play intramurals or sit in other small seating pods with their friends,” he noted. “Alumni will return for games and events. Parents will come, too.”

COAD Dean Urs Gauchat calls college buildings “catalysts that spark a sense of



The new Wellness and Events Center will provide arena space for the annual Convocation ceremony and other university events.

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university community, where ideas are born, friendships are made and attachments to the institution are formed.”

The Wellness and Events Center, Kaplan argues, is where NJIT’s “engineers, architects, computer scientists and athletes will all come together, where in the end, we’re all Highlanders.”

TRANSFORMING UNIVERSITY HEIGHTS

“When I think back to my existence here as a commuting student, I either parked off campus or took the train – needless to say, at times, it was not a very pleasant walk to campus – and primarily hung out in the second

floor lounge of the Student Center. That was about it,” Aluotto said. “Now there is parking right here and I get the sense of a burgeoning campus environment that is at the same time better integrated with the neighborhood.”

“Visibility is important,” he added, noting that the new science building and the CKB renovation feature glass facades facing Summit Street to give passers-by a view of what’s happening inside, putting “science on display” and thus “connecting the internal activities of the building to the streetscape and the energy of the intersection of Summit and Warren Streets.”

“We don’t want to create buildings that are friendly on the inside and hostile on the outside. They should not be fortresses,” says Gauchat, a key participant in the discussions around the campus’s development. “We want them to add to the street life. Ultimately,

we would like to join with Rutgers to make University Heights a pedestrian-friendly precinct. The vision is a college town.”

On the road, Kaplan relishes the power of NJIT’s athletic teams to unite the community. But as he greets alumni who flock to games in cities such as Providence, Houston or Washington, he invariably asks: “When was the last time you went back to campus?”

“Many times the answer is “not since graduation” or “it’s been a while,” he recounts. “I always say in response: ‘come back and I’ll give you a tour. You will see the tremendous growth of the campus and the unlimited potential of the university, which is represented best by our students.’” ■

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