A new collaborative science building becomes a catalyst for the campus’ future.
Every USF undergraduate student will experience a class in the new Center for Science and Innovation.

client VISION

With a focus on educating future science leaders, the University of San Francisco undertook the creation of a new interdisciplinary science building. Through a collaborative process rooted in the University’s traditions and values, the Center for Science and Innovation (CSI) became the centerpiece of a strategic initiative to elevate USF’s presence as a leading science institution.

design BREAKTHROUGH

Thinking beyond the building to how the CSI could contribute to the University’s broader mission and strategic goals led USF to locate the new facility in the heart of the campus on Harney Plaza. Site constraints prompted further innovations: the design integrates the 56,000-square-foot program with a transformed plaza and major campus pathways, bringing science education into day-to-day campus life.

organizational VALUE

The CSI will reinvigorate the University’s academic identity and strengthen its connections to alumni, institutions and businesses with its prominent location and strong connection to Harney Plaza. Flexible, state-of-the-art laboratories, classrooms and informal learning areas are designed to catalyze interdisciplinary learning and easily accommodate future curriculum change.

springboard INSIGHT

Aligning the CSI’s design with the University’s mission and core values provided a mechanism for evaluating design and program decisions that extend the building’s value beyond fulfilling the immediate programmatic needs.
The highly visible campus enjoys a dynamic context defined by dense residential neighborhoods and major thoroughfares. Therefore, USF’s master planning principles are driven by a well-considered relationship between the campus academic identity and its residential context.

The final site was initially overlooked due to its many constraints. The design team reinvestigated its possibilities, which ultimately led to a solution that packed a significant program into a constrained site by introducing a garden level that also provides an anchor for a rejuvenated student plaza.

By pulling the CSI directly into the heart of the campus, adjacent to the very central but outdated Harney Plaza, the design transforms the campus core from an underused open space into a landscaped crossroads for interdisciplinary scientific inquiry. This critical move allows the CSI to serve as more than just a new science building: it augments the campus’ spirit of intellectual curiosity and social engagement, harnessing necessary support and funding from the entire USF community. The site change also helped to secure the support of neighbors who were concerned about new development along the campus edge.

The University of San Francisco continues an academic tradition with the goal of educating future leaders concerned with contributing to a better world. This has particular resonance in the Bay Area, where academic training and research can directly influence innovations in the biotechnology, health and environmental science industries that reverberate on a global scale.

Capitalizing on the strength of its existing undergraduate science program while recognizing the need to support continued excellence in scientific exploration, the University embarked on an evaluation to determine whether to replace the cramped 1966 Harney Hall, built when science enrollments were just half of today’s levels. The University concluded that a next-generation science facility was needed to carry their mission into the future.

The Center for Science and Innovation signals a new emphasis on interdisciplinary science education, and will also welcome new students and faculty into a longstanding and unique academic tradition.
To complement the surrounding campus, the CSI is organized along newly introduced pathways that create a seamless connection between the Campus Walk and the garden levels of the CSI, located partly below the plaza. Through its connection to the site, the facility also enables interdisciplinary discourse that leads to scientific discovery and a sense of community.
The building is designed so that half of the square footage is tucked below grade and the smaller, above-grade volume lets more natural sunlight into the plaza.

The initial master plan called for the CSI to be located at the north side of the University Center. When NBBJ proposed moving the building to connect to the south and re-address the plaza, the advantages of siting at the center in a more prominent campus position made fitting a large program on a small site a creative challenge, not a deal breaker.

Since the allowable area of the building footprint on the south side was smaller, the team designed the building so that half of the square footage is tucked below grade and the smaller, above-grade volume lets more natural sunlight into the plaza.

To accommodate the program, a garden level was introduced. Carved through the middle of the plaza and planted with trees, it serves as a main pedestrian path through the campus.

The "G" Level incorporates a full glass façade with translucent channel glass at the tiered classroom space. The façade lights the interior lobby and circulation spaces and allows a strong connection between the interiors and the exterior pedestrian plaza. The labs are also day lit by skylights to the plaza above. The three-part strategy of cutting a canyon through the plaza, incorporating a glass façade and adding skylights over teaching labs creates the illusion of being at grade.

Labs are carved into the Garden Level through the middle of the plaza.
Taking a cue from the Jesuit spirit of inquiry and collaboration, the design team worked closely with USF science faculty and facilities managers to refine the CSI’s program and vision. Through a series of interviews and meetings with key stakeholders, the client and design team gathered feedback about goals and needs. The process revealed a high degree of consensus around seven core values that define the university, which acted as guiding principles for the new building.

These principles helped the client and design team evaluate different program elements, adjacencies and design strategies. Perhaps most importantly, the building’s original site along the northern edge of campus—which was close to residential areas—was found to be inconsistent with the University’s goal to invigorate science education at a campus-wide level.

By considering how the building will advance the University’s mission, enhance the campus and its larger community, and demonstrate a concern for humanity and the world, the client and design team were able to shape an innovative solution that supports each core value on multiple levels.

The strong visual connection of the CSI building, the plaza and the campus further underscores the building’s role as an interdisciplinary hub.
The CSI embodies the University’s mission to train future leaders who will improve society through science. Offering state-of-the-art laboratories and classrooms, integrated with informal learning areas for collaboration and reflection, the new facility fosters a campus-wide culture of scientific inquiry that builds upon the University’s commitment to academic excellence and service.

With the number of graduate admission rates for medical- and PhD-level programs at twice the national average, USF had specific goals for learning spaces: to revolutionize basic and translational sciences; germinate new boundary-crossing curricula; expand student research with faculty; prepare all students for an increasingly technological world; provide critical biology training to nursing majors; and grow new collaborations between business programs and the sciences.

To support collaboration and to accommodate future growth and curriculum shifts, the design of the CSI supports three types of learning processes and scales:

1. Industry-standard laboratories and classrooms provide formal hands-on training and exchange.
2. Informal areas surround these spaces to accommodate post-class discussions between students and faculty.
3. More intimate, relaxed areas encourage reflection, study and the processing of ideas.

With over 75% of all learning taking place outside the classroom, the CSI team designed informal spaces to support casual learning in normally overlooked places.
A SUSTAINABLE FUTURE

The CSI embraces the University’s commitment to environmental stewardship and social responsibility. The result is an environmentally integrated building that will evoke a sense of relevance, place and pride for future generations.

The building’s site orientation takes advantage of sun and wind patterns to maximize daylight and natural ventilation. A high-performance curtain wall of fritted glass and flexible shades regulates heat gain, resulting in a 42% energy savings over Title 24 (California’s standard for energy use).

The restoration of green space and native plantings in Harney Plaza creates an informal outdoor learning environment for students, and a natural habitat for San Francisco’s bird and plant species.

A catchment system filters stormwater runoff through the CSI’s vegetated roof—which also forms the plaza—and into a cistern that feeds back into the campus grey water supply, realizing a 43% reduction in water consumption.
“With universities around the country stressing research over teaching, we want to build a space that encourages both. The new Center will allow faculty to bring students into the labs to enhance collaborative and interdisciplinary work. Every undergraduate will be exposed to state-of-the-art science teaching and research facilities.” — Jennifer E. Turpin, Ph.D., Provost Vice President of Academic Affairs
ABOUT NBBJ

NBBJ is an award-winning global design and architecture firm focused on helping clients capitalize on the relationship between people and the design of physical space to enhance organizational performance.

From academic research and university medical schools, to simulation centers and campus planning, NBBJ is a global leader in creating performance-based learning environments. Consistently recognized by clients for our creative and professional design process, NBBJ has partnered with 12 of U.S. News & World Report’s Top 25 Universities, including Harvard, Stanford, Duke and the California Institute of Technology. Our expertise encompasses multiple disciplines, with architects, lab specialists, economists and sustainability experts working together to design innovative centers for learning.

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