In Construction: CUNY Research Center

Curving LEED-Gold buildings by KPF and Flad Architects usher in a "Decade of Science" in Harlem.
by Aaron Seward

Rendering of ASRC complex with green roofs on connector. Courtesy KPF
In 2006, the City University of New York kicked off an effort to double its number of science, technology, engineering, and mathematics graduates by 2015, dubbing the ten years to follow its “Decade of Science.” Pursuing this ambition, the university tapped KPF and Flad Architects to design a new multidisciplinary research facility with laboratories, classrooms, faculty and administrative offices, and a cafe on its south campus in Harlem. Now nearing completion, the Advanced Science Research Center (ASRC) features two glass-clad facing towers connected by a below-grade space that is topped by an intensive green roof. Altogether, the complex comprises 400,000 square feet. A future phase of construction will add another 200,000 square feet.

KPF, which also designed the master plan of CUNY’s south campus, arranged the two towers on a north-south axis, maintaining the college’s main circulation corridor and maximizing the ridgetop site’s spectacular views of Manhattan. This arrangement also allowed the designers to orient the buildings toward St. Nicholas Boulevard and keep a 200-foot distance from the existing structural biology building—a necessary step considering that excavating and driving piles for the new structures threatened to disrupt the sensitive equipment involved in that program’s ongoing experiments. As it was, digging out the foundation, an operation that involved carving through bedrock, took an entire year to complete.

The structural steel-framed towers themselves are each laid out on two distinct plans: rectangular volumes based around an ideal flexible module for lab spaces and more fluid, curvy volumes that house social spaces, offices, and meeting and break rooms. The curvy volumes, which are expressed by the building’s facade, look out onto the complex’s central green. The shared space below the
green contains the facility’s more sensitive, vibration-prone equipment, including a vivarium, imaging facilities, and a loading dock.

Materially, the two towers relate to each other. Each building’s base is clad in rusticated gneiss stone. Though it comes all the way from China, the designers picked this material because it most closely resembles the Manhattan schist that makes up the majority of City College’s historic Gothic Revival campus. Manhattan schist itself is no longer available as a building material.

Above this green-gray-white stone base, the towers are clad with a unitized low-e glass, structurally glazed curtain wall. The curtain wall has three distinct expressive zones. The curving sections that shelter the offices are made up of modules, 2 feet 6 inches wide by 16 feet high (the buildings’ average floor-to-floor height is 16 feet), that simulate the sinuous form without requiring the cost-prohibitive measure of curving the glass itself. Half the height of each module is vision glass, while the remainder is a medium-gray shadow box spandrel. The vision sections feature 10-inch-deep vertical glass fins that protrude from the wall’s 4-inch aluminum mullions. The fins feature vertical white line fritting that helps cut down on glare and heat loading. The tips of the fins are cut like prisms to catch the light and create a rainbow effect across the facade.

The orthogonal lab blocks are clad with 5-foot-wide modules that feature a gradient of white line fritting that goes up the vision panel from 30 percent to 50 percent to 80 percent. These sections of wall also feature the shadow box spandrel with a reveal expressing the floor line. At the north and south ends of the towers, the cladding shelters meeting rooms and vertical circulation spaces. Here the curtain wall features a 50 percent white line frit. The architects designed the glazing in close collaboration with the engineers, Cosentini (MEP) and LERA (structural). Lab buildings are notorious energy hogs due to the massive amounts of ventilation required to maintain a healthy, sterile environment. In order to achieve the building’s LEED Silver target, KPF kept upping the density of the curtain wall’s fritting, cutting down as much as possible on the solar heat gain. Their efforts were not in vain, as the facility is now on track for LEED Gold.

At the top of the towers yet another facade system takes over, a painted aluminum louvered cladding system. It conceals the buildings’ robust exhaust fans and features acoustical properties that cut down on the noise produced by these workhorses, a neighborly gesture that will help the residents of the campus’ nearby dormitory catch some much needed shut-eye, whether by day or night.
Detail of the glass curtain wall (left) and View of atrium of west building (right). John Chu
Third floor plan.