Campbell and Salice-Conley Halls

Though a less common building material for residential structures, the new halls' structural steel framing enabled a unique openness.

Structural steel provides flexibility and open spaces at Fordham University's Rose Hill campus.

Boston-based Sasaki Associates has no shortage of experience using structural steel to create instant architectural classics for academic institutions across the country. But their recent commission to design Campbell and Salice-Conley halls, undergraduate dormitories on Fordham University's Rose Hill Campus in upper Manhattan, came with a couple of idiosyncratic constraints.

One of those was aesthetic. Fordham's campus is full of heavy Gothic halls, centered around a cathedral; school administrators wanted to ensure the new dormitories would simultaneously fit in with the older buildings yet also feature a light, modern architecture that opened up the campus visually to the surrounding city. Sasaki developed its proposal around strategies of uniting those seemingly opposed goals.

Elements of the facade design cleverly pay homage to the older buildings. Eleven-inch-deep mullions in the curtain wall extend all the way up the height of the four seven-story towers that comprise Campbell and Salice-Conley, such that the windows are recessed 6 inches, while major curtain wall elements are recessed up to 24 inches back from the face of masonry, giving the masonry a Gothic sense of solidity and shadow. A band of ⅛-inch-thick aluminum break metal painted grey in the shop extends 12 inches above the top of the masonry and creates a parapet, the metal lending a crisp shadow line with intermittent breaks to suggest the crenellated parapets of Fordham's older architecture. Two cantilevered canopies over the first floor entrances jut out 15 feet from the exterior wall, with the canopy over Campbell Hall a particular visual focal point as a recessed metal trellis allows sunlight to filter onto the entry terrace. "It's intended almost like a clearstory opening set into the canopy," says Sasaki's Vinicius Gorgati, principal architect on

Left The buildings' four seven-story steel-framed towers offer an opportunity to bring daylight into student spaces.

Right First floor spaces are designed with airy, column-free plans that encourage student interaction.

the project along with Ricardo Dumont and Victor Vizgatis.

While a slate curtain wall echoes the look and feel of the older campus buildings' load-bearing masonry, the four seven-story towers are actually constructed with a steel frame, making it possible for the building to realize the desired openness and porosity of the first floor.

The 1,100 tons of structural steel used in constructing the final plan played a large role in making possible other design features that Sasaki, and structural steel engineers Lemessurier Consultants, considered important.

Aside from the first story, which is an airy 14 feet in height and includes a café, classrooms, and laundry rooms, each residential floor is 10 feet high and anchored around a shared lounge connected to lounges on floors above or below via a balcony. Eight or more suites per floor are each organized into a grouping of sleeping rooms, kitchen, and living space connected by a corridor. Within the walls separating suites are steel columns, ranging in size from W12x40 to W12x106 and in length from 20 to 50 feet.

Because of the sheer number of rooms—116 suites, each with a kitchen, a living and dining space, bathrooms as well as a mix of single and double bed configuration bedrooms—all of which need to be fed exhaust and supply air, a significant amount of ductwork had to run below the beams. "We were limited to a depth of not more than 12 inches for the beams so that we could have mechanical systems running below, rather than going through deep penetrations that would be needed if we used W16s. We had to thin up the structure in order to make the W12s happen," says Gregory Shreve, the project's structural engineer from Lemessurier.

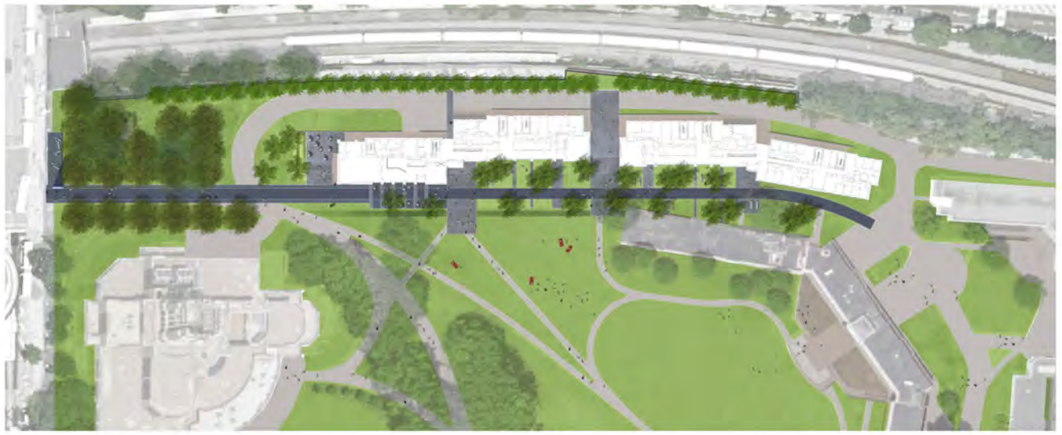
A similar design pressure came from the architectural side of planning, with the high windows Sasaki wanted for each floor leaving little vertical room for deep beams. "The 14-inch-deep perimeter beams were engineered to strike a balance between carrying the load of the exterior masonry wall assembly and maximizing window height to allow for optimal daylighting and views," says Justin Finnicum, another Sasaki architect managing the project. Steel rebar reinforcement of the concrete slab edge coupled with a sizeable bent plate, welded continuously to the top of the perimeter beam, worked together with the perimeter beams to carry the imposed loads to the steel columns. The payoff, however, was the sense of openness achieved by being able to look through the windowed lounge areas from one wall of the dorm to the other—not to mention its contribution to Fordham's first LEED Gold certification.

The other constraint shaping Sasaki's design and execution of Campbell and Salice-Conley halls was a geographical one. Fordham's campus directly abuts the Metro-North rail line, a major artery of transportation between New York City and neighboring cities in New York and Connecticut. For years, a parking lot on the campus' Western edge had formed an unsightly, uninviting buffer between the rail line and the rest of campus to the east. Fordham's administrators hoped to kill two birds with one stone by building new dormitories on that lot, improving the image they presented their neighbors to the west, while adding desirable new living space to entice upperclassmen who might be eyeing a move off campus.

The choice of this lot for the building site presented some challenges. A steep 12-foot-high slope down from the campus level to the adjacent railway tracks meant that a 1,000-foot-long retaining wall had to be constructed before work could begin on the dorms themselves. Constructing the wall had to be done quickly and be as carefully planned out as possible. "The MTA had someone supervising our construction the whole time, making sure we didn't do anything that could threaten or interrupt the train line," says Joe Scaltro, Fordham's senior project manager. The nearby tracks even dictated the movements of the steel erectors and their machinery. "There are many rules regulating

Opening spread and this spread: Robert Benson Photography

Above Perimeter steel beams were engineered to strike a balance between supporting the exterior masonry wall assembly and maximizing window height. **Below** The site's adjacency to railroad tracks necessitated strict coordination between steel erectors and the MTA.



Above: Robert Benson Photography; left: Sasaki Associates

Right The buildings' architecture references the historic campus while visually uniting it with the surrounding city.

crane use adjacent to the rail line, so erectors couldn't lift up a piece of steel and carry it over the 'no-fly zone,'" Finnicum explains.

To expedite the dormitory erection process, all primary connections were field bolted, rather than field welded, which would have required a safety supervisor and foreman in addition to a welder. Welding would allow very clean connections between crossbraces and gusset plates, but since the team decided to use bolting instead, elements of the bracing system had to be increased in size. Larger gusset plates were needed to allow sufficient spacing between the bolts required on each side. Using larger gusset plates, in turn, required tighter overall engineering and coordination between mechanical, electrical, and plumbing systems in order to avoid the clashes that can mean rework losses in terms of both time and cost. "Dealing with the shallowness of the structural sandwich we were allowed to use, while keeping the tonnage reasonable, was a challenge," Shreve says.

Campbell and Salice-Conley halls are now an established part of campus, but were there any early bumps in the road? When asked if students had any complaints about the design of their new dormitories, Scaltro replied, "Well, some people complained that the TV in the laundry room is always turned to ESPN." If hundreds of college students can't come up with a stronger criticism than that, it's safe to count the project as a success for Sasaki, Lemessurier, and the construction team, and a strong addition to Fordham's expanding campus.

Robert Benson Photography

CAMPBELL AND SALICE-CONLEY HALLS

Location: **Fordham University Rose Hill Campus, Bronx, NY**
Owner: **Fordham University**, *New York, NY*
Architect: **Sasaki Associates, Inc.**, *Boston, MA*
Structural Engineer: **LeMessurier Consultants**, *Cambridge, MA*
Mechanical Engineer: **Cosentini Associates**, *New York, NY*
Construction Manager: **Gotham Construction Co.**, *New York, NY*
Curtain Wall Consultant: **Frank Seta & Associates**, *New York, NY*
Structural Steel Erector: **A.J. McNulty & Co., Inc.**, *Maspeth, NY*
Miscellaneous Iron Fabricator and Erector: **Post Road Iron Works**, *Greenwich, CT*
Architectural Metal Fabricator and Erector: **Enterprise Architectural Sales, Inc.**, *New York, NY*
Ornamental Metal Fabricator and Erector: **Post Road Iron Works**, *Greenwich, CT*
Curtain Wall Erector: **Enterprise Architectural Sales, Inc.**, *New York, NY*