

Columbia University Northwest Corner Building Facade

**A glass and aluminum
curtain wall system
creates a fitting
expression of structure
on a 21st-century
laboratory building.**

FAMED SPANISH ARCHITECT José Rafael Moneo is known for his elegantly conservative stone-clad institutional buildings. So his design for Columbia University's Northwest Corner Building—an interdisciplinary sciences facility containing a library, faculty offices, student breakout space, and 70,000 square feet of state-of-the-art laboratories—may come as a surprise to some. Nestled among the beaux-arts grandeur of the McKim, Meade, and White campus, between Chandler and Pupin halls to be exact, the 14-story, 188,000-gross-square-foot structure is clad entirely in a unitized curtain wall system of glass and louvered aluminum panels. "Moneo's design expresses that it's a modern building, capable of looking to the future, an appropriate place for the sciences of the 21st century," says Joseph Mannino, Associate Vice President of Columbia University Facilities.

Moneo's cladding concept is integrally linked to the building's steel structural system. The entire elevation of the structure is designed as one giant truss with both internal and external bracing elements. The perimeter diagonals occupy select bays in a rational load pattern that the architect developed with structural engineering firm Arup. Moneo then expressed the diagonals on the exterior with opaque diagonally louvered aluminum panels. The panels, and diagonals themselves, were applied somewhat randomly and in painterly fashion. They alternate with panels of pure glazing, and panels with vision strips sandwiched between horizontal aluminum louvers, in a composition that speaks both to the artist and the structural engineer.

The placement of these cladding elements also relates to the building's program, which is divided in plan between east and west. The east, or campus-facing elevation houses faculty offices



Left The facade expresses the building's truss diagonals.
Below left Four 18-foot-8-inch-high by 5-foot-wide panels make up each bay of the double-height lab floors.
Previous spread A glass-enclosed lounge looks north to upper Manhattan.



and student breakout spaces, whereas the west face, which looks out on Broadway, houses the laboratory functions. While the labs boast generous 18-foot floor-to-floor heights, the offices are subdivided in mezzanines, two per lab floor, creating an interesting tension between the two sides of the building. Moneo clad the east face entirely in glass, with the exception of its connection with Pupin Hall, where the louvered aluminum panels are used. This arrangement puts the indoor activity on view to the campus, an effect that the architect likens to a beehive. The lab side of the building, where more concentration is called on from the occupants, features the majority of the diagonally louvered opaque panels and the horizontally louvered vision strip panels. Again there is an exception, at the upper left hand corner of the elevation, where the all-glass system takes over.

Executive architect Davis Brody Bond Aedas and facade consultant R.A. Heintges Associates honed this cladding concept into a unitized curtain wall system. In the unitized system, four 18-foot-8-inch-high-by-5-foot-wide panels make up a single bay of the double-height lab floors. On the office floors, the all-glass modules are of the same dimensions, though they are made up of two glass lites placed one atop the other, so they read as half as high. The 1-inch-thick insulated glass units are a standard product, VE12M from Viracon. In the metal system they have 1/4-inch outer and inner lites, though in the all-glazed condition they come with a 3/8-inch outer lite, and a 1/4-inch inner lite. The extra thickness on the outer lite helps to prevent wave distortion and pillowing. The IGUs also feature thermally broken, warm-edge spacers—stainless steel spacers between the glass lites that offer higher thermal performance than

Right The east elevation is clad with glass, exposing activity in offices and student spaces to the campus.

the typical aluminum spacers.

The system was fabricated in a collaborative effort between curtain wall contractor W&W Glass Systems, Inc., Canadian firm Sota Glazing Inc., and Kansas City-based metal experts A. Zahner Company. Zahner provided the aluminum panels and louvers, which snap into the Sota-built the curtain wall system. W&W erected the completed system on site. "It's very hard to get decent color control with anodized aluminum," explains Heintges. "You can't just start mixing up batches as any slight variation in the alloying constituents will cause a different color. We had to keep a tight control on the source of aluminum and keep in close contact with Zahner and Sota.

The cladding system includes more than 1,000 panels and construction manager Turner was pressed to keep the site orderly and moving smoothly. Because of the building's configuration there was not a lot of room to store panels onsite before they were put in place. Turner had to carefully coordinate trucking and installation in an intricate three-day cycle with two rigs on the roof chasing each other around and around the building while W&W's ornamental ironworkers clipped the system into place. All in all, it took six months to erect the facade, no shabby figure. Maninno is excited. "We're ready to occupy this building in the fall," he says, "and cap off three and a half years of construction." ■

Left: Adam Friedberg; top: Turner Construction; previous spread: Adam Friedberg

Adam Friedberg



COLUMBIA UNIVERSITY NORTHWEST CORNER BUILDING FACADE

Location: **Broadway and West 120th Street, New York, NY**

Owner: **Columbia University, New York, NY**

Design Architect: **Rafael Moneo Valles Arquitecto,**

Moneo Brock Studio, Madrid, Spain

Architect of Record: **Davis Brody Bond Aedas, New York, NY**

Structural Engineer: **Ove Arup & Partners Consulting Engineers, PC, New York, NY**

Mechanical Engineer: **Ove Arup & Partners Consulting Engineers, PC, New York, NY**

Construction Manager: **Turner Construction Company, New York, NY**

Curtain Wall Consultant: **R.A. Heintges & Associates, New York, NY**

Structural Steel Erector: **DCM Erectors, Inc., New York, NY**

Miscellaneous Iron Fabricator and Erector: **Post Road Iron Works, Inc., Greenwich, CT**

Ornamental Metal Fabricator and Erector: **Empire City Iron Works, Long Island City, NY**

Curtain Wall Fabricator: **Sota Glazing Inc., Brampton, ON**

Curtain Wall Erector: **W&W Glass, LLC, Nanuet, NY**

Metal Deck Erector: **Solera / DCM, New York, NY**