

Steel Facade Makes a Statement in SoHo



In the heart of SoHo's cast iron district, a 240-ft. crane towers hovered above the 19th century buildings, hoisting the steel components for the new Scholastic building at 557 Broadway. The 10-story structure is a companion to Scholastic's flagship building next door, providing additional space for the company, which has offices throughout SoHo. It also offers an innovative modern take on the traditional architecture in the district.

Since SoHo is a landmark district, the new building had to have a design appropriate to its location and acceptable to the community. Gensler, in association with Pritzker prize-winning architect Aldo Rossi, developed a concept that would work within the SoHo context and also win approval from the New York City Landmarks Preservation Commission.

For the façade, Rossi chose to use architecturally exposed structural steel "to interpret the buildings of the surrounding area in a more modern idiom," according to Morris Adjmi, principal at Rossi's New York Studio di Architettura. The façade bears no ornamentation—the exposed steel itself is the ornamentation.

"The building was contextually designed," said Bill Higgins, of Higgins & Quasebarth, historic preservation consultants for the project. "Using contemporary metals, design and fabrication, the new structure has powerful genetic links to the 19th and early 20th century buildings that surround it."

Different Facades

Because it fronts both Broadway and Mercer Street, Rossi chose a different treatment for each building face, to fit the different architectural environment of each street. On the east side, the façade relates to the monumental forms on Broadway, while on the west side, the design relates to the shapes in the warehouses and industrial structures on Mercer Street. "The Broadway

Mercer Street Facade

Photo: Fran Solomon

façade, with its half-round engaged columns and spandrel sections, has more allusions to classical architecture and organization,” Higgins noted, “while the functional rear elevations of the Mercer façade, with its angular, beveled arches, reflect the simplest structural elements.”

Both façades are composed of standard A36 carbon steel plates and channels assembled to create forms that look like oversized structural elements — I-beams, columns and spandrels. The façade facing Broadway was even designed to feel at home with the Charles Rouss building next door, the Scholastic headquarters built between 1889 and 1900.



Broadway Facade
Photo: Fran Solomon



Photo: Courtesy of Helmark Steel

Off-Site Fabrication

To align the beams visually with its companion building, the façade design provided for three bays with four two-story levels and two single-story levels topped by a 10-ft. cornice. Reminiscent of methods used in the construction of 19th century cast-iron buildings, the steel components were designed and fabricated offsite, then assembled, welded and finished in the field, like “a kit of parts pieced together independently.”

Dana Edelman of Edelman Metals, the fabricators, explained “the use of structural components in an ornamental way made the job unusual in nature. However, the use of structural grade material for a meticulous architectural job also posed an inherent conflict. The dimensional variations were the issue since the allowable tolerances in the original field specifications were not acceptable from a visual standpoint when the components were assembled.”

Unusual Support System

According to Edelman, it was difficult to maintain the architectural integrity of the project. The tolerances had to be tightened up and tested for alignment in full-scale mockups in the shop. After welding, the components were ground smooth to achieve a look of continuity, then covered with zinc thermal spray to protect the exposed steel from rust or corrosion.

"We needed a high-performance coating system," said Gensler's project architect, Karen Andrich, who researched numerous options. "This is something not widely done because structural steel is not often used in this way."

The facades are not supported by the building's superstructure, but are stacked on one another, carrying their own gravity loads. Vertical loads are transferred directly down to the foundation. The facades are anchored back to the superstructure with 4-in. by 4-in. clip angles to sustain lateral wind and seismic loads.

"During construction the challenge was to coordinate the placement of the clip angles to avoid interfering with the moment connections of the structural steel," noted David Maltby of HRH, construction manager for the project. "All the connections have a 3-inch slot that allows the façade to expand and contract with changes in the weather."



Photo: Courtesy of Helmark Steel



Entrance to Scholastic Retail Store

Photo: Fran Solomon

The interior was also designed to mirror the cast iron construction of the district. In the upper eight stories, loft-like space is created by rolled I-beams that span 40 feet to leave as much column-free space as possible. The structural steel elements are exposed, as are the pre-cast concrete floor planks, becoming an architectural feature in themselves.

Conditioned air is circulated in an open plenum beneath a raised floor to avoid having to use ducts and a hung ceiling above, enhancing the sense of clear space. A portion of the strategically-placed structural members are coated with intumescent paint, which protects the steel against fire by expanding like a sponge when heated. It is a means of fireproofing through which the structural elements can be expressed since it allows the shape of the metal to be seen.

For the construction of the building, a 240-foot tall tower crane was erected to hoist the heavy components, which weigh more than a ton each. The crane is remarkable in itself as the tallest freestanding crane ever used in New York. It is not tied off to the building, but is cantilevered off the foundation and supported by eight 1 1/2-in. anchor bolts embedded in the 38-inch deep mat slab.

Furthermore, the crane was erected all in one shot, before the structure was built, rather than going up in stages along with the building. According to Maltby, this unconventional system was used because the lot was so narrow — only 50 feet wide, by 200 feet deep.

Enthusiasm for the project ran high among the members of the project team who stress that it was a truly collaborative effort. There is also general agreement among them on the “progressive, hands-on” role played by Scholastic, which Bill Higgins called “a thoughtful client and the real driving force behind the project.”



Scholastic Retail Store

Photo: Fran Solomon



Photo: Fran Solomon

NEW SCHOLASTIC BUILDING

Owner: Scholastic, Inc., New York, NY

Architects: Gensler, New York, NY and Aldo Rossi with Morris Adjmi/Studio di Architettura, New York, NY

Structural Engineer: Robert Silman Associates, New York, NY

Construction Manager: HRH Construction, New York, NY

Structural Steel Erector: Falcon Steel Co., Inc. Wilmington, DE