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Renewing A Historic Manhattan Mansion

ICS Builders complete an award-winning preservation project.

The Marymount Middle School is a Manhattan-based private Catholic educational organization for girls owned by The Marymount School of New York. Originally operating out of three adjacent townhouses on Fifth Avenue, the school acquired a beaux-arts building at 2 East 82nd Street with an intention to devote the property exclusively to serving middle school students.

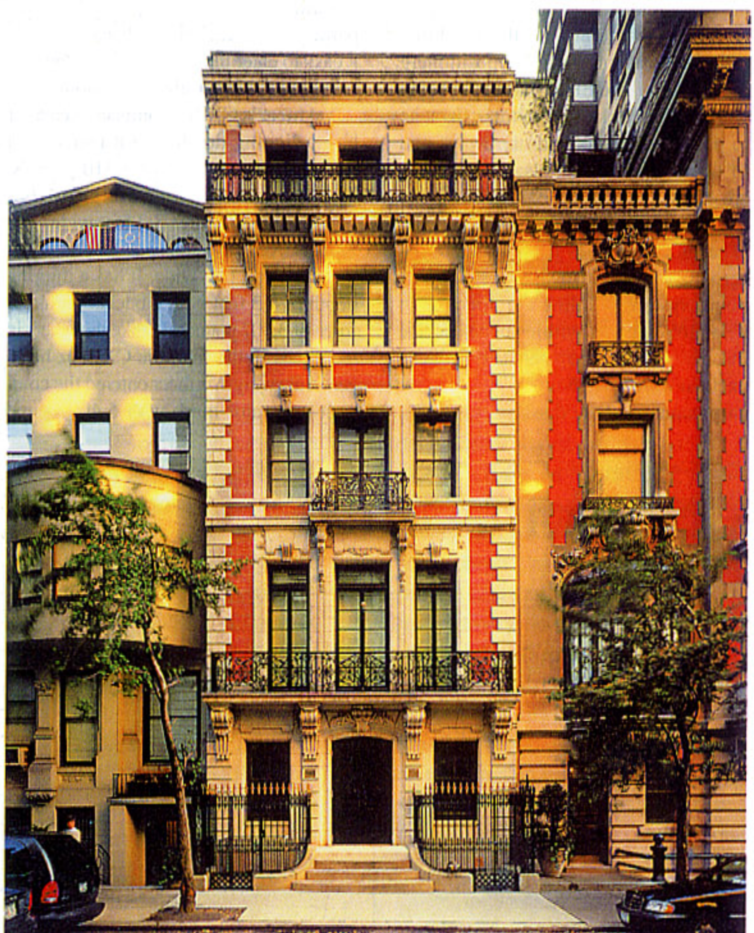
The six-story, early 1900s mansion was originally a private residence and had multiple uses prior to the school purchasing it. The building's wooden structure was significantly deteriorated due to water damage and age, and its floors sagged. Some of the interior decorative elements, including plaster and marble fireplaces, were cracked due to the building's settlement. Many plaster moldings, such as ceiling crown moldings, had pieces missing and had to be replicated. Woodwork and hand-carved wood columns were damaged. The property had water damage in several areas. Wooden window frames were significantly deteriorated. The building's marble, brick and limestone exterior required extensive repairs and preservation.

The 7,000-square-foot structure underwent an extensive structural redevelopment; exterior restoration; and interior demolition, renovation and reconstruction performed by Manhattan-based ICS Builders, Inc. The project received the New York City Landmarks Conservancy 2003 Lucy G. Moses Preservation Award.

Challenges and Solutions

Project challenges were primarily related to the location, site access, schedule, and historical character of the structure. According to Ted O'Rourke, ICS Builders, Inc. senior vice president, the project location "in the dense, historical and elite neighborhood of Manhattan's Upper East Side restricted ICS Builders' site access and work time." The construction team was allowed to work only

Six-story landmark building and home to Marymount Middle School underwent extensive structural and aesthetic reconstruction.



New sloped steel beams support five floors above while providing a column-free space for the school's dining room.

Monday to Friday, 8 a.m. to 5 p.m. In addition, ICS Builders' project manager agreed to accommodate the surgery schedule of a plastic surgeon whose office was located near the construction site. ICS refrained from performing noisy activities during surgeries.

The lack of materials storage space required very detailed and close coordination with subcontractors and vendors. The majority of materials and equipment were carried into the site and installed immediately upon delivery. "The entire process of construction and deliveries was managed through a complex, closely controlled schedule," adds O'Rourke.

Replacement of the structural system in an existing, landmark structure was a major challenge as well. The team removed nearly the entire wooden structure and replaced it with a new steel structure. Upon delivery, "workers moved structural steel elements into the site by hand, through window openings and up through the building, as there was no space on the street to erect a permanent crane," says O'Rourke.

Construction of scaffolds added to the logistical challenges. The neighbor on the south side didn't allow access to his site, forcing the contractor to install the scaffold above the adjacent property. The team devised and installed a hanging scaffold system suspended from the roof on that façade. On the west side, the team erected a conventional scaffold.

Exterior restoration interfaced with the interior work, especially at the roof area, where new structural steel was required to support the rooftop HVAC equipment. Agreements with neighbors required that new HVAC units not exceed certain heights. In addition, the team had to maintain interior ceiling heights, which required careful coordination of duct passages and penetrations.

Structural Redevelopment

The renovation process required the removal of the majority of the original wooden structure, and installation of the new steel structure. Structural elements were installed one floor at a time, beginning with the first floor. Installation of the entire new steel structure took eight weeks.

Another interesting aspect of the structural steel design involved the creation of the dining commons at the ground floor rear of the building. During the programming and planning phase, the school determined that the building would need to feature a dining room large enough to accommodate half of the 200 students and half of the faculty at one time. For planning reasons, the dining room had to be located in the rear of the first floor, directly above the kitchen.

In order to create a large dining room that met the school's needs, the team decided to expand the width of the building's rear portion, originally 17 feet wide, to the full extent of the 25-foot-wide lot. The expansion process necessitated construction of a new foundation and introduction of a steel structure to support five floors above, while allowing a column-free span below. The new concrete spread footing foundation was anchored to the bedrock 3 feet below the surface level. After the expansion, the building's footprint measured approximately 25 feet wide by 60 feet deep.

Steel framing had to follow the sloped skylight at the new extension's exterior that had been carefully negotiated with the Landmarks Preservation Commission and with the neighbors. The new steel structure was designed to bear five stories of a 90-year-old brick wall above. The structure had to be sized to virtually eliminate deflection, otherwise the brick wall would crack when the load was transferred. The large steel members were fabricated in multiple pieces, each one small enough to carry in through the front door and window openings.

When the new, bolted and welded steel structure was installed, the ICS team gradually transferred the weight of the five-story extension onto the new steel bents. The last phase in the structural redevelopment involved the demolition of the old masonry foundation walls below that resulted in a big, new dining room space with

New steel extends the back of the building while paralleling a new skylight located on an upper floor.

an attractive, sloped skylight along one side.

Façade/Exterior Restoration

Exterior restoration involved the replacement and consolidation of deteriorated decorative marble moldings at the front façade, the reconstruction of masonry parapets, the restoration of a decorative copper bay window, the restoration of decorative brick and limestone elements, and the replacement of building roofs. ICS replaced approximately 10 percent of the 1,500-square-foot front façade marble, while restoring the remaining 90 percent. The contractor also replaced 30 double-hung windows as well as the roof and waterproofing systems.

Exterior restoration also involved the rebuilding of the decorative iron and glass entrance door. Workers performed the front façade renovation from suspended and conventional scaffolds and the sidewalk bridge.

The team had to perform a search to identify a supplier capable of delivering replication marble to match the original exterior stone. The materials used to restore the façade included Vermont Danby marble, red-colored roman style brick at the front façades, buff-colored roman brick at the rear and court façades, and cast stone utilized as a replacement at rear and court parapet copings. Restorers used 20-ounce sheet copper and lead-coated copper in flashings and brick-matching glass-fiber-reinforced concrete at the court side flue cover.

Where marble had to be replaced, the crew performed Dutchman repairs (the replacement of exterior stone elements, fastened with stainless steel pins and epoxied to existing stone or back-up masonry). At larger stone areas, where the budget did not allow for the replacement of stone, workers applied consolidant to solidify eroded and weakened marble to prevent further erosion and deterioration. The team also reconstructed the parapets at the rear and the court sides, where parts of the masonry were missing.

Interior Work

Interior work involved complete demolition, reconstruction, and new construction or installation of two new steel stair towers, a new passenger elevator, handicapped access lift from the street level to the basement level, and a new skylight. It also involved a complete new MEPS infrastructure, electric service and distribution system, domestic water service and booster system, plus a fire protection service and a complete new HVAC system, including a 50-ton variable air volume rooftop Trane unit.

Interior finishes included the restoration of approximately 800 square feet of original panels and replacement of missing elements with imported wood that matched the original, 100-year-old mahogany, custom oak laboratory casework with epoxy resin tabletops in the science lab, custom plastic laminate casework in the art room, and custom lighting fixtures, including fixtures imported from Italy in common areas.

Reconstruction and restoration of 400 linear feet of decorative plaster, repairs to three marble fireplaces and preservation work on their wooden surrounds and decorative moldings was also part of the project. In addition, preservation and restoration of the entire entry lobby, removal from the site, restoration, and reinstallation of a decorative stained glass bay window added to the challenges. For the project, renovation of interiors involved engaging artisans to restore and replicate the original mahogany paneling, decorative plaster and other historical elements.

New dining room/common room was expanded by 300 square feet.

Technology

Multimedia and computer systems at the Marymount Middle School include wired and wireless environment using a T1 line and a VPN connection to the main campus on Fifth Avenue. All classrooms are designed and equipped as full multi-media facilities, each outfitted with computers, a DVD player, a VCR, Cable TV, and a surround sound system, all of which are integrated and can be projected on a large screen through a ceiling-mounted digital projector. ■