



STUDIO MUSEUM IN HARLEM

NEW YORK, N.Y. /// BY MONICA SCHULTES

One of the best things about New York City is access to more than 170 museums. These cultural landmarks focus on education and community engagement and display the city's diverse history. One such iconic structure is the new Studio Museum of Harlem, which showcases the work of artists of African descent.

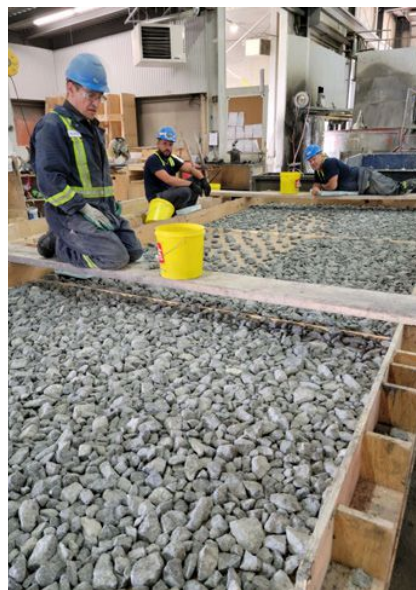
Located on 125th Street on the site of the Studio Museum's original home, the new building will double the space for exhibitions and house public events and educational programs. Scheduled to open in the fall of 2025, the museum will include studios for artists in residence as well as a cafe, lobby, and rooftop terrace.

Situated in the heart of Harlem, its dark, bold exterior is constructed with precast concrete, offering a stark contrast to the traditional architecture of the surrounding neighborhood. Comprising a series of stacked shapes over six stories, the different elevations shift in size and placement. The west façade of the building forms a single vertical wall, while the other three faces feature terraces and overhangs.



*Top: The stacked spaces make the most of fitting the museum program into the small site and pays homage to Harlem architecture, particularly the iconic stoop.
Rendering: Adjaye Associates.*

*Bottom: The museum design features an elegant and dynamic black-hued precast concrete façade.
Photo: Cooper Robertson.*



Left: The museum provides room for studios for artists in as well as a cafe, lobby, and rooftop terrace. It is slated to open in the fall of 2025. Photo: Cooper Robertson.

Right: Craftsmen at the precast concrete plant painstakingly installed individual aggregates at the bottom of the form to achieve the bold, charcoal-colored finish. Photo: Bétons Préfabriqués du Lac.

The stacked volumes provide 82,000 ft² of exhibition space and public areas. There is also a four-story monumental stair within the museum, which allows visitors to view artwork along the 85-ft-tall vertical gallery.

Local Architecture

Taking its cues from the brownstones of Harlem, the Studio Museum projects a dynamic façade with its textured precast concrete and windows of various sizes. “The design was inspired by the masonry architecture of Harlem and draws on its frames, apertures, and doorways. The use of precast concrete evokes the forms and textures of the architectural landscape of the neighborhood,” says Jonathan Pietro, senior associate at Cooper Robertson.

The polished finish on the precast concrete panels accentuates the charcoal-black aggregate. The finish emulates polished granite, and the black hues evoke urban sophistication. The result transforms the building itself into art, blending creativity with functionality. The precast concrete producer, Bétons Préfabriqués du Lac (BPD), placed the stones individually in the precast concrete form to achieve the desired effect.

The precast concrete creates a sculptural façade that is inviting and reflects the activity inside, describes Pietro. The design intent was a polished finish that exposed the large aggregate and the precast concrete producer went through several iterations perfecting that result.

The striking polished precast concrete panels are 7 in. thick; the remaining solid precast concrete panels are 5 in. thick and have a sandblasted finish. Precast concrete was also used strategically in the interior of the building. In the main lobby there is a tall precast concrete demising wall approximately 26 ft in height that is a feature of the lobby. The exposed precast concrete vestibule in the main entry draws visitors into the interior and complements

the stair tower clad in ¾-in.-thick terrazzo stone with its smaller aggregate in similar tones and finishes.

Museums engender pride in local communities. Just as the exhibits and art within the building tell a story, the building and spaces that make up the museum do the same. The Studio Museum demonstrates a connection to the community as it invites Harlem residents and visitors into a multiuse space that will be open to the public during museum hours and used for informal gatherings.

“The stacked composition of varying scales and apertures really open up the façade at street level and draw people in,” says Pietro. A set of glass doors that can be opened in different configurations are located below street level to welcome visitors down a set of steps or a “reverse stoop,” evocative of the New York City brownstone. This key architectural feature draws the visitor down into the lecture hall area, which serves as a gathering space with terraced seating.

Circulation is important in museum planning and flexibility is key because spaces are subject to change on a regular basis to display art installations. A dramatic solution to this concept is seen in the museum’s monumental stair tower. Clad in polished terrazzo, the four-story space spans the height of the building and at its apex is a clerestory window. “The vertical gallery is fitting for large-scale art display and the pyramid shape at the apex was inspired by local neighborhood cathedrals,” says Pietro.

Unique Panels

The Studio Museum relies on a steel frame for its lateral resistance system. The staggered boxes posed challenges for controlling seismic and wind loads. Every piece of precast concrete was custom, adding a layer of complexity as well as tight tolerances. This proved challenging to the building’s structural engineer of record, Simpson Gumpertz & Heger (SGH).

SGH has been involved in this unique project since 2015, recalls Kevin Poulin, principal at SGH. “It is not a typical precast building,” he emphasizes. The uniqueness and customization are unusual for precast concrete construction, which is often valued for its repetition and economies of scale. SGH consulting engineer Alexander Stephani agrees. “There were some panels that repeated, but there were over 200 different connection types and 230 unique panels. At that magnitude, every panel had to be designed and reviewed, so efficiency was not the primary goal.”

One of the most critical aspects in engineering precast concrete is the design of connections, which are necessary to transfer loads and restrain movement. The unique precast concrete components, including three-dimensional shapes with multiple sided finishes, required more than 200 unique connection types.

At the upper level of the building, one such precast concrete component spans 50 ft in length and weighs approximately 25 tons. “There is a large magnitude of forces hanging off the side of the building. We were dealing with significant loads, particularly very heavy seismic loads on this project,” says Stephani.

In addition to the unique shapes, custom connections, and tight tolerances, minimal joint spacing was required to align with the curtain wall system. “Despite some large spans, we worked hard to maintain the goal of three-quarter-inch joint spacing with very few exceptions,” recalls Stephani. “For example, in the gallery space the beam loading is over 100 pounds per square inch over 50 feet. In order to achieve that, the live load deflection is limited to less than one quarter.” Everything is studiously planned and aligned in this project, so any changes to the joint spacing would have a significant impact.

Critical Collaboration

The museum was constructed just inches from the adjacent building, but tight sites are common in New York City. It was a meticulous process that involved collaboration at every stage. SGH worked with BPDFL and the erector, Midwest Steel, to make it more efficient for the site requirements, including the crane reaches. Some panel sizes were modified to improve efficiency on the jobsite.

“Collaboration was critical for this project,” adds Pietro. The precast concrete producer participated in an extensive shop drawing process and countless meetings with Cooper Robertson, SGH, BPDFL, Sciam Construction, and other team members. “The complexity demanded that level of cooperation and coordination,” he says. One of the more complex facets of the project was installing the precast concrete.

Art Installation

Precast concrete producer BPDFL shipped panels to a storage yard in New Jersey where they were shuttled to the site as needed. Then the challenge of installing the large custom three-dimensional panels began. “The complexities of this job were staggering; this was the most difficult project that we have ever tackled,” says William Silengo, precast concrete superintendent with Midwest Steel.

PROJECT SPOTLIGHT STUDIO MUSEUM IN HARLEM

Location: New York, N.Y.

Owner: The Studio Museum in Harlem, New York, N.Y.

Design Architect: Adjaye Associates, New York, N.Y.

Executive Architect: Cooper Robertson, New York, N.Y.

Contractor: Sciam Construction, New York, N.Y.

Engineer: Simpson Gumpertz & Heger, New York, N.Y.

PCI-Certified Precast Concrete Producer:
Bétons Préfabriqués du Lac (BPDFL), Alma, QC, Canada

PCI-Certified Erector: Midwest Steel, Detroit, Mich.

Precast Concrete Components: 40,353 ft² of architectural precast concrete, of which 13,120 ft² was polished

Because of the interior soffit panels, custom rigging was designed for this project to transfer these thirty-ton panels from the crane. “The rigging plan required openings in the floor to allow us to drop our rigging down from the floor above,” says Silengo. “Each panel was detached from the crane and transferred from one set of chain falls to the next until it was in place, sometimes 40 feet into the building.”

During one stage of the installation, a weekend road closure of 124th Street allowed two cranes to work in tandem. “A temporary monorail system was required because the crane was so tight to the building there was no room to set it up with enough luffing jib,” Silengo says. A luffing jib is often used for vertical lifting in confined urban sites. Due to the limited reach and otherwise inaccessible interior, the precast concrete panels were fed to a monorail as Midwest Steel worked around the clock to finish by Monday morning.

Every aspect of this project was painstakingly complex. Despite the myriad challenges and complexities, the project is completed and awaits the grand opening of this iconic structure.

The facility is representative of the strength and vitality of the community it serves. “The façade design was driven in part by the museum’s desire to serve the public with an experience of art from the street and draw the community into the space,” says Pietro. The façade with its form, weight, and texture of the precast concrete creates a strong architectural presence that supports the museum’s goals.



See a time-lapse construction video at studiomuseum.org/the-building.