PCI Journal
Precast/Prestressed Concrete Institute
July–August 2022
Volume 67, Number 4

Slabs, Panels, and Hollow-core

On the cover

The Beach in Jersey City, N.J., was constructed with an architectural precast concrete exterior and hollow-core slab on the floors and structural steel members. Courtesy of Newport Leasing Office.

Departments

PCI Journal (ISSN 0887-9672) is published bimonthly by the Precast/Prestressed Concrete Institute, 8770 W. Bryn Mawr Ave., Chicago, IL 60631. Original manuscripts and letters on published papers are accepted on review by the PCI Technical Review Committee. No payment is offered. Direct all correspondence to *PCI Journal* at journal@pci.org or Precast/Prestressed Concrete Institute, c/o *PCI Journal*, 8770 W. Bryn Mawr Ave., Suite 1150, Chicago, IL 60631. For information on advertising rates, send an email to adsales@pci.org. Subscription rates are $80 per year and $200 for three years in the United States, $170 per year and $470 for three years for international, and $80 per year and $200 for three years for electronic-only subscriptions anywhere in the world. A single or back issue is $15. International subscriptions are delivered by an international carrier; allow one to three weeks.

Postmaster: Please send address changes to *PCI Journal*, 8770 W. Bryn Mawr Ave., Suite 1150, Chicago, IL 60631. Periodicals postage rates paid at Chicago and additional mailing offices.

This paper is milled from a 3rd-party certified source

Waterfront apartments constructed with ease using precast concrete

The Beach, a new, three-tower complex of residential apartments, is ideally situated in the Newport residential community on the Gold Coast in Jersey City, N.J. The Newport community is designed from the ground up to provide space, luxury, convenience, and a balanced lifestyle for its residents.

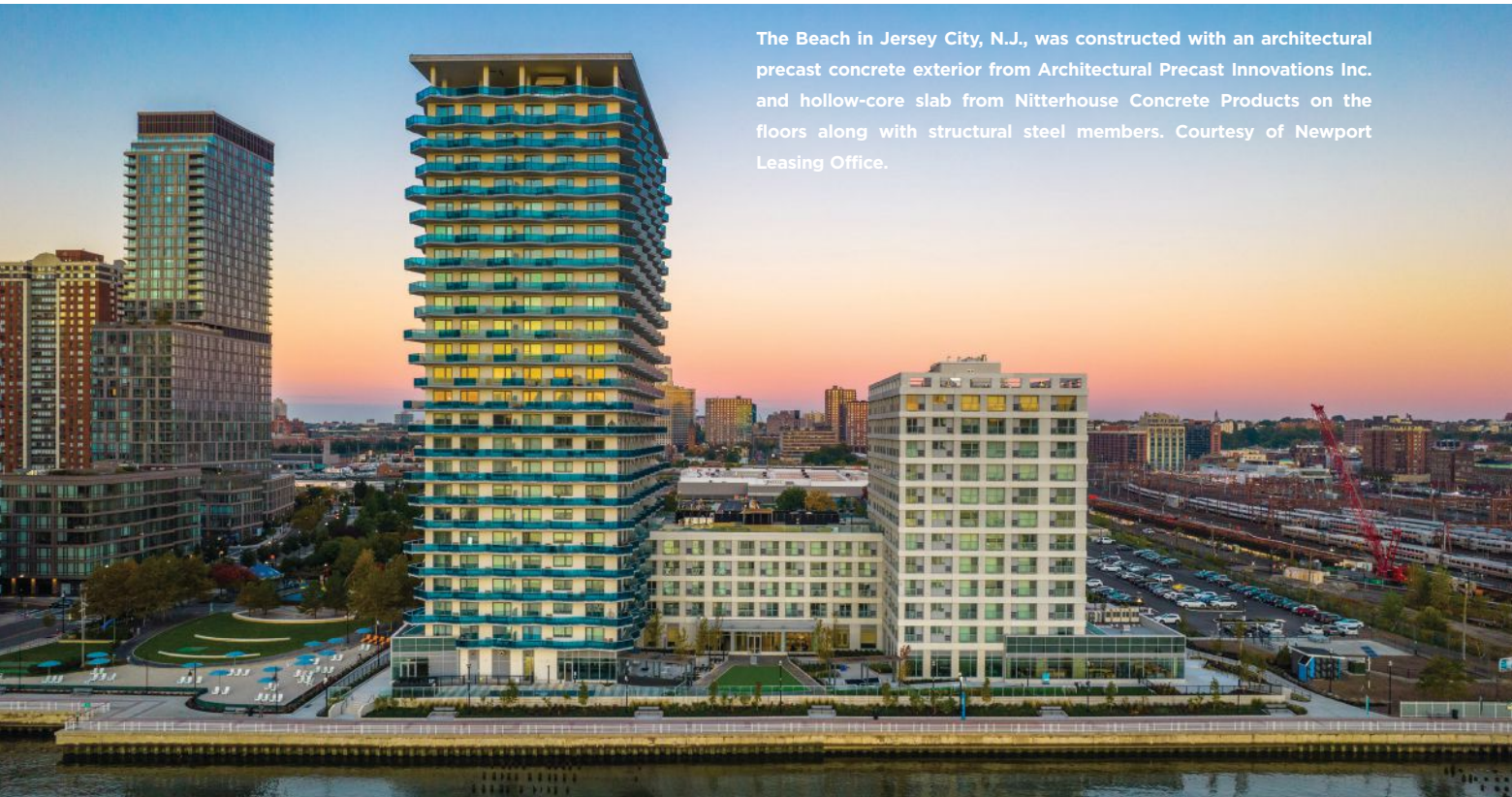
The general contractor, Tenth Street Construction LLC, and construction manager, Newport Construction LLC, of Jersey City, N.J., used precast concrete in much of the construction. "Precast was used in the twelve-story north tower and the five-story middle tower of The Beach," says Melissa Barron, director of Newport Construction. "The precast components consisted of architectural precast on the exterior that utilized formliner, colored concrete and sandblasted concrete, and hollow-core plank on the floors along with structural steel members." Architectural Precast Innovations Inc. provided the exterior precast concrete panels, and Nitterhouse Concrete Products provided the hollow-core components.

For a number of reasons, Newport Construction frequently uses precast concrete. "We have always loved using precast concrete for its efficiency, durability, ease of installation, and the overall look, so we try to implement it whenever possible," says Barron. "This type of design is incredibly cost efficient. It is almost as if you get a structure and a facade for the price of one."

In addition, she says, precast concrete opens up more opportunities for design. Because the bearing and structural members are on the outside walls along with on the structural middle pieces, precasters can craft the outsides of these pieces to match the building's design intent. "Those pieces always need to be installed for the structure, but with precast, you get an added bonus of being able to make them look aesthetically pleasing with endless design possibilities," Barron says. "Another benefit of precast is the ease and efficiency of installation. Once all the pieces are made, they are shipped out and put together like Legos. In our experience, installation of precast usually takes a fraction of the time as compared with a reinforced concrete building."

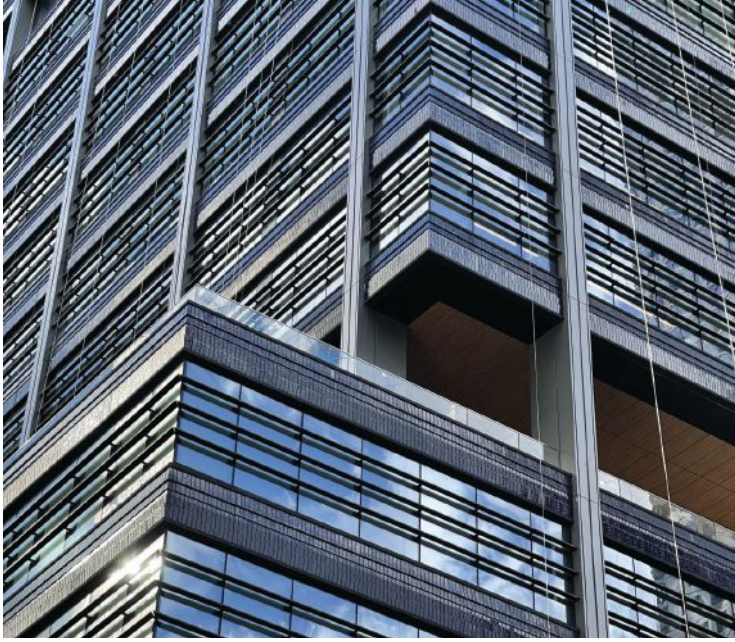
There were some challenges with the project, though. "The main challenge was lining up the precast wing building to the reinforced building and aligning the timing," she says. "The reinforced building was installed first, so we needed to ensure the pieces lined up properly, the expansion joints were correct, and the floors were all the same heights."

In the end, though, it all paid off, in that the project benefited from precast concrete in several ways. "From a design perspective, using precast allowed us to create residences without columns, which created open and unobstructed floorplans," Barron says. "Precast also allowed us to maintain the



The Beach in Jersey City, N.J., was constructed with an architectural precast concrete exterior from Architectural Precast Innovations Inc. and hollow-core slab from Nitterhouse Concrete Products on the floors along with structural steel members. Courtesy of Newport Leasing Office.

The Beach residential apartments' thick precast concrete exterior, provided by Architectural Precast Innovations Inc., helped meet the building's energy model requirements with the hollow-core by Nitterhouse contributing to floor and roof building codes. Courtesy of Newport Leasing Office.



Cobalt blue glazed brick on precast concrete spandrels gives One Willoughby Square in downtown Brooklyn, N.Y., a distinctive, high-end look. Courtesy of Michael Young.

project time line and schedule because the installation went so smoothly. Additionally, the thick precast exterior walls helped us pass our energy model, and the exterior will stand the test of time because the materials are so durable while still retaining the design concept."
—William Atkinson

Cobalt blue glazed brick highlights new 34-story Brooklyn tower

One Willoughby Square in Brooklyn, N.Y., is a 34-story tower that is organized to promote social and natural connectivity with a strategically located side core and column-free exposed structure that allows for wide-open work environments without obstruction. With the goal of creating a distinct identity in the Brooklyn skyline, designers for the project devised a contemporary take with gridded, oversized windows, an exposed concrete structure, and distinctive glazed brick spandrels.

Designers chose cobalt blue brick as a key component of the building's facade. This required close collaboration with the precast concrete producer, Architectural Precast Innovations Inc. of Middleburg, Pa., to monitor the glazed-brick design, formliner design, and transportation of the spandrels.

Each column-free floor plan supports space efficiency and creates a fluid connection to the outside with oversized windows that showcase natural light. Although it may appear to use standard precast concrete connections, the brick facade is fragile and required significant coordination to perfect the connection details. A total of 483 architectural precast concrete panels were used in the project, including glazed brick spandrels, precast concrete connections, and metal column covers.

The volume of bricks required could not all be produced up front, so the trade teams organized shipments throughout fabrication and scheduled precast concrete panel erection to maintain an accelerated time line with minimal disturbance to the surrounding area.

The results are impressive. Meeting ambitious design goals, precast concrete gives an aesthetic versatility that not only turned a vision into reality but also mitigated high expenses and lengthy construction times that would have accompanied hand laying this brick pattern on-site in downtown Brooklyn. By opting for precast concrete, the team was able to complete this project on an accelerated time line while remaining cost-effective.

Of course, there were challenges with the project. "The design was interesting in the respect that every cobalt blue brick seen on the building was hand-laid by our employees in a mat before the concrete could be placed," says Kristen Kratzer, marketing manager for Architectural Precast Innovations. "The corner pieces on the building were placed in a two-step process, which took some innovations."

Production also posed challenges. "For the production, again, the corner pieces were a challenge because it took a two-step process to place and cure one side, then flip and do the same process on the other side," she says.

Of course, being in the New York area, getting the architectural precast concrete panels to the building required some creativity. "Almost all New York City deliveries are a challenge," she says. "The site was tight, but with the logistics provided by Summers Trucking, we knew that the panels were in good hands."

Fortunately, installation posed little challenge. "We just had to be cautious when drilling through the bricks for anchors for window cleaners," she says.
—William Atkinson

Revised July 2022