

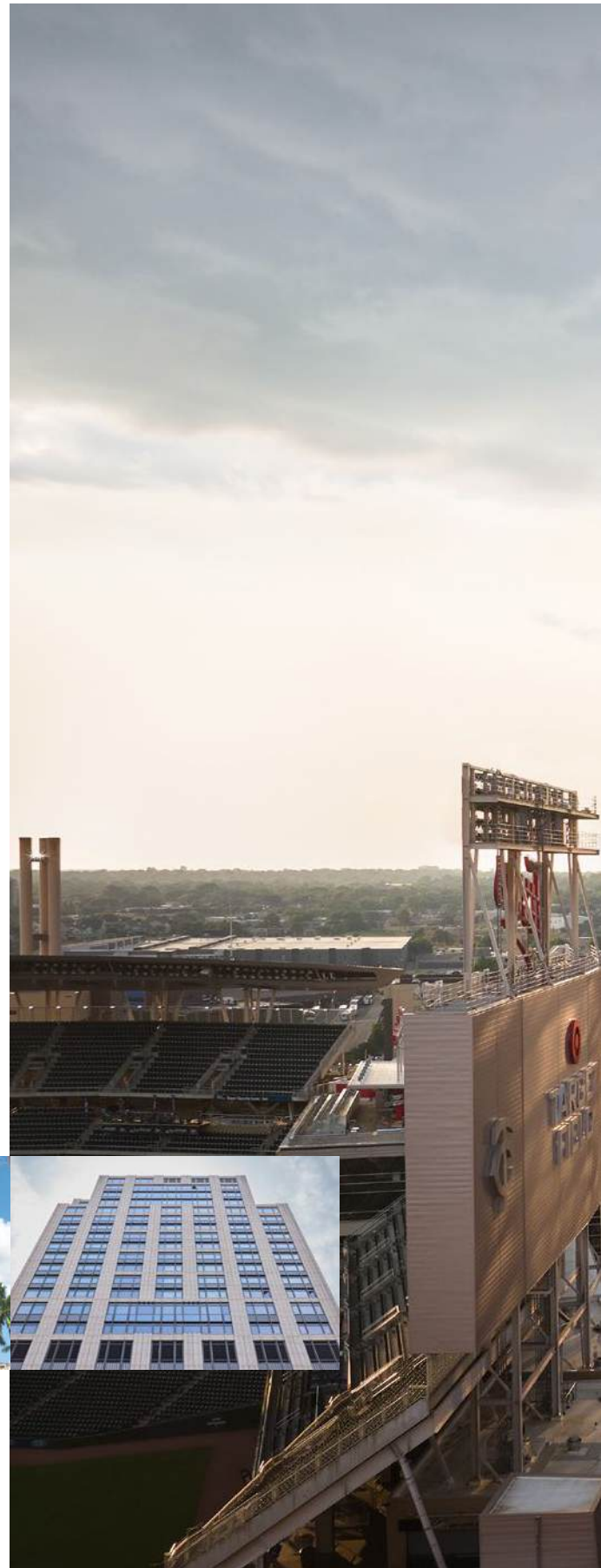
CASE  
STUDIES

# Precast Concrete ELEVATES CONSTRUCTION

PRECAST CONCRETE IS THE IDEAL BUILDING MATERIAL  
FOR YOUR NEXT MID- OR HIGH-RISE PROJECT



BY DEBORAH R. HUSO AND MASON NICHOLS



*Left to right:*

*The Couture, Milwaukee, Wis. Photo: Peer Canvas for International Concrete Products.*

*Mission Rock A - The Canyon, San Francisco, Calif. Photo: Jason O'Rear.*

*One Flagler, West Palm Beach, Fla. Photo: Taylor Palma, ShowingTime+.*

*The Delecor, New York, N.Y. Photo: Zachary Maxwell Stertz Photography.*

*North Loop Green, Minneapolis, Minn. Photo: Wells.*







*Located directly across the street from Target Field, home of the Minnesota Twins, North Loop Green is a 34-story mixed-use building with a façade of glass and precast concrete. Photo: Wells.*

## NORTH LOOP GREEN

MINNEAPOLIS, MINN. /// BY DEBORAH R. HUSO

Located directly across the street from Minneapolis's Target Field, home of the Minnesota Twins, North Loop Green is a 34-story, mixed-use building with 354 luxury rental units, 96 short-term rental units, 17,000 ft<sup>2</sup> of ground-level retail and dining space, 14 stories of office space, underground parking, and a 1-acre park.

"The building is a work-play-live-type community," says Mark Miller, senior project manager with Kraus-Anderson Construction Company. "The North Loop area is the hottest real estate area in Minneapolis. It has one leg in the old railroad, warehouse, and mills district with the Mississippi River and another foot in the metropolitan downtown area."

### Blending Old and New

When Hines Living hired Kraus-Anderson as general contractor on the project, they were looking for a modern structure that also complemented the historic neighborhood adjacent to it. "The east and west elevations [of the building] were always going to be all glass," says Gary Pooley, regional sales manager for Albany, Minn.-based building solutions manufacturer Wells. "The north and south elevations are a combination of glass and precast."

"[Precast] was a quick way to get a panel system on the walls so window installation could start," says Nathan Roscovius, senior project manager at Wells. "Speed was a major factor because the panelized design allowed us to cover two rooms at once. All the panels were premanufactured with multiple openings for window installation."

Pooley says that because there is more glass than precast concrete on the structure, the architects wanted precast concrete panels to span horizontally, floor to floor. "The challenge was the windows because joints typically have to be centered on columns," he says. The precast concrete was attached on the edge of the floor deck, so vertical panel joints could be placed wherever needed. The panels had a "kickstand" of sorts that held them up from the slab. These were made of slotted steel angles to allow for stability as well as installation tolerances to get them into the correct place.

The purposely inconsistent pattern of the precast concrete panels presented a significant challenge for Wells as well. "The size of the windows only allowed for a depth of one foot of precast for the beam," Roscovius says, noting that they had an almost 30 ft × 9 ft 8 in. opening in the panels with only a foot of concrete above and below the windows. "We put prestressing in and used knife plates back to the floor for gravity loading."

*The east and west elevations of North Loop Green are all glass, while the north and south elevations are a combination of glass and precast concrete. Photo: Wells.*

The building's architectural panels have a horizontal orientation that includes reveals to create a pattern on the mixed-use high-rise's exterior façade. With a 7-in. depth, each panel frames a series of windows recessed into the cladding, creating shadowboxes.

A large part of the predesign process focused on where the glazing would lie within each panel because the windows were to be field-installed and insulated. By optimizing the panel design, each window avoids a cold-spot gap, improving insulation and energy efficiency while reducing condensation buildup.

### Tight Jobsite and Construction Schedule

The surrounding architecture was a big part of what drove the design team to consider precast concrete for the building's façade. The project developer chose precast concrete architectural panels in a red-brown etched finish that complemented surrounding historic warehouse structures.

To settle on the color, Wells provided project designer ESG Architects with a full-size building panel mock-up that was hoisted to the 18th floor level to see how it looked in relation to the surrounding city structures.

Panel erection began in June 2022. Kraus-Anderson provided two large tower cranes for installing the precast concrete panels. To ensure the project remained on schedule, the Wells team worked a unique shift from midafternoon to nearly 10 p.m. each night, while the other trades worked from dawn until midafternoon. This two-shift schedule allowed for use of the cranes all day to meet the different needs of project partners, accelerating construction.

However, the tight jobsite made for challenges with light rail and Target Field adjacent to the site. "Every time there was a Twins game, we couldn't set panels," Pooley says. "They had only enough room to park one semi with two panels per load."

Wells devoted a lot of study to how to connect windows to the precast concrete panels, which were completely solid (insulation was completed on-site by a subcontractor).

Kraus-Anderson proposed using a plastic angle connection to fasten windows to the panels because there was so little space for putting in wood blocking. Instead, they attached a wood nailer to the back of each panel, so they could then attach windows to the post-applied treated wood nailer. "We liked that [solution] because then the window installer could tweak the size of the rough opening," Pooley says. With 2500 window openings, it alleviated concerns related to the precision of panel openings.

The fabricated portion of the project took about a year to complete, with 212 days devoted to panel manufacturing and 308 days of installation happening simultaneously with production. North Loop Green was completed in 2024.



## PROJECT SPOTLIGHT NORTH LOOP GREEN

Location: Minneapolis, Minn.

Size of Structure: 1,037,120 ft<sup>2</sup>

Cost: \$250 million

Owner: Hines Living, Minneapolis, Minn.

Architect: ESG Architects, Minneapolis, Minn.

Contractor: Kraus-Anderson, Minneapolis, Minn.

PCI-Certified Precast Concrete Producer: Wells, Albany, Minn.

Aggregate Supplier: Fister Quarries Group Inc., Batavia, Ill.

Precast concrete components: 455 architectural solid wall panels and "roll cast" L-shaped panels and 91 architectural solid wall panels with formliner, totaling 365,817 ft<sup>2</sup>





## THE COUTURE

MILWAUKEE, WIS. /// BY DEBORAH R. HUSO

The design and development of The Couture on Milwaukee's downtown lakefront has been in the works since 2013, when the city was looking for ways to transform a former downtown transit center that had fallen into disrepair.

"There is not a lot of [residential construction] on the lakefront in Milwaukee," says Jim Miller, director of project management with Germantown, Wis.-based International Concrete Products, the mixed-use residential building's precast concrete manufacturer. "Its [construction was] part of the whole revitalization of downtown."

Located on Wisconsin's most prominent development site, The Couture's position not only showcases Lake Michigan and city views in all directions but takes its architectural vision from the curving lake. A mixed-use structure, The Couture has 41 floors of residential space plus restaurant and retail at the bottom. Milwaukee's streetcar, The Hop, makes a stop at the building.

### Elliptical Architecture Solution

Precast concrete provided a flexible design solution for the building's elliptical architecture while also offering a bright white finish that reflects heat and makes The Couture a standout on the city skyline. Completed in May 2024, the slender, 44-story tower stands at 517 ft, making it the tallest residential building in Wisconsin and the third tallest building overall.

*Top: Completed in May 2024, The Couture's slender, 44-story tower stands at 517 ft, making it the tallest residential building in Wisconsin and the third tallest building overall.*

*Right: The Couture takes its architectural vision from the curving lake with the help of elliptical precast concrete panels.*

*Photos: Peer Canvas for International Concrete Products.*



While the structure of the building is cast-in-place concrete, its façade "had to be precast from the get-go to achieve the aesthetics—the curvature and bright white finish—the design team was looking for," explains Stephanie Kohl, customer experience manager with International Concrete Products.

Construction finally started in May 2021. International Concrete Products manufactured 708 oval-shaped architectural precast concrete panels featuring a bright white, acid-etched finish. They used 26 different forms per floor, repeating the forms through 36 of the floors, all the way up the building. The largest panel was 24 × 12 ft.

"The overall forming process was challenging because the building was an oval," Miller says. "Each panel required two to three radiuses to make the form."

### Precast Concrete Follows Podium to Speed Construction

Precast concrete allowed the building team to enclose the structure faster while minimizing site disturbance. Erection began once





## PROJECT SPOTLIGHT THE COUTURE

Location: Milwaukee, Wis.

Size of Structure: 750,000 ft<sup>2</sup>

Cost: \$2.2 million for precast concrete portion;  
total project cost of \$146 million

Owner: Barrett Lo Visionary Development, Milwaukee, Wis.

Architect: RINKA, Milwaukee, Wis.

Contractor: J.H. Findorff & Son, Milwaukee, Wis.

Structural Engineer: Thornton Tomasetti, Milwaukee, Wis.

PCI-Certified Precast Concrete Producer:  
International Concrete Products, Germantown, Wis.

Aggregate Supplier: Fister Quarries Group Inc., Batavia, Ill.

Precast Concrete Components: 708 panels, totaling 62,100 ft<sup>2</sup>

the cast-in-place structural tower was six floors ahead. International Concrete Products then followed closely behind with panel installation.

"We were about six floors behind the whole way," Miller says, topping out the precast approximately two weeks after the structural tower's completion. To allow the structural tower construction to run simultaneously with precast concrete panel installation, the precast concrete erection team worked at night, using the same tower cranes as the builders of the structural core.

Each of the panels were gravity-loaded to each floor and then tied back with lateral tieback restraints. "We had to make sure they had enough path lighting for construction at night," Miller says. "But there were advantages to [night construction] because the area is pretty busy during the day for getting trucks in and out."

In addition to the residential tower, The Couture also features a transportation hub and includes a public park with green space as well as a commercial and restaurant space.





*Preglazed white architectural precast concrete panels with a burnished finish compose One Flagler's exterior façade.  
Photo: Taylor Palma, ShowingTime+.*

## ONE FLAGLER

WEST PALM BEACH, FLA. /// BY DEBORAH R. HUSO

In recent years, developer Related Ross has been working hard to establish West Palm Beach as a global business city. The first piece of their planned development puzzle was the Class A office structure, One Flagler. As part one of a large urban development strategy, Related Ross wanted a waterfront building that was sleek and modern and could also be constructed speedily.

"The trellis-like exoskeleton of One Flagler is unique in its depth, going far beyond the convention of a glass office tower, providing shade from the Florida sun on the entire surface of the façade," says Jordan Rathlev, executive vice president, development, Related Ross, West Palm Beach. "The striking expression demanded high consistency, tight tolerances, and climate resistance, considering West Palm Beach's coastal environment and need to withstand UV exposure, humidity, and salt air."

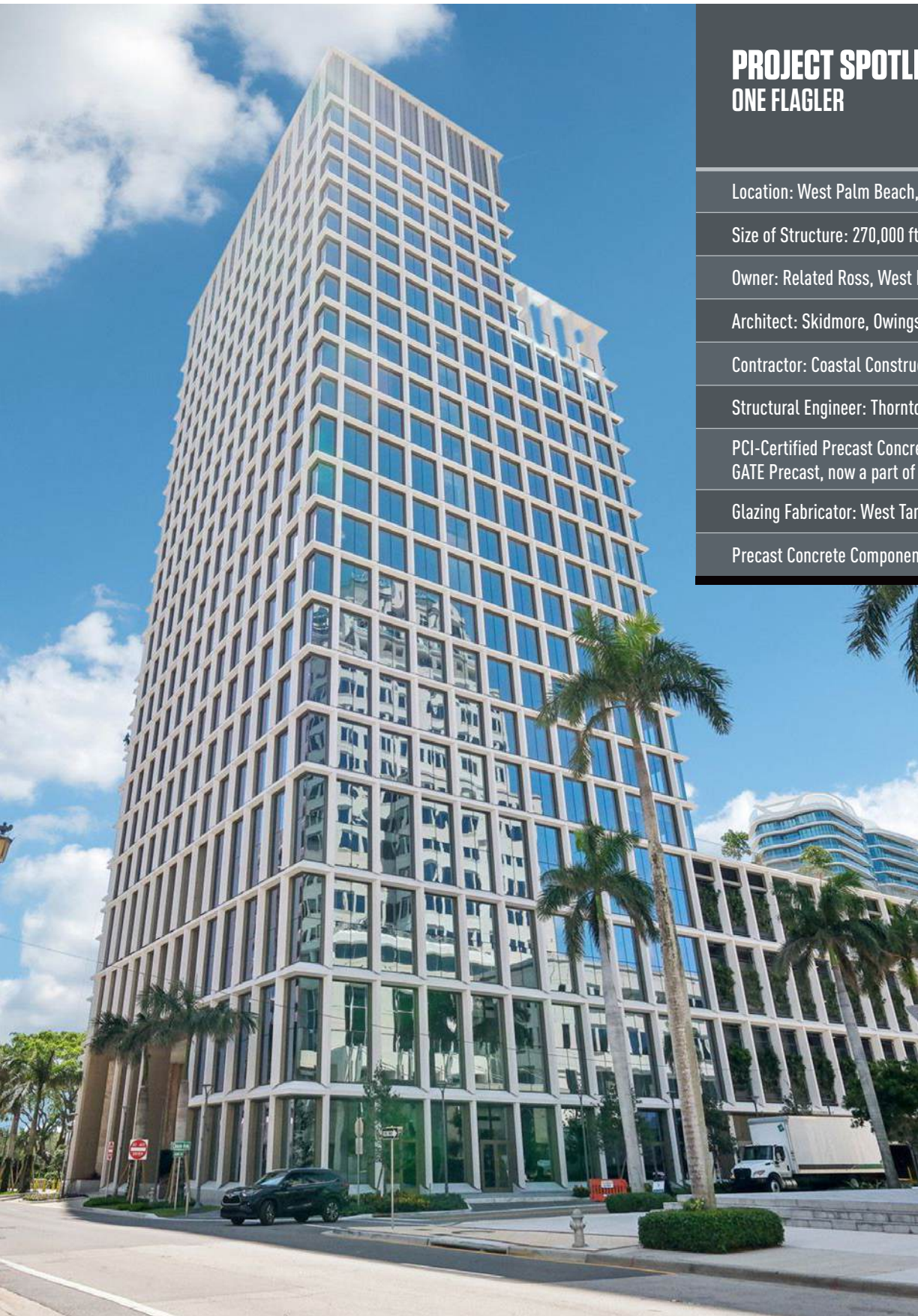
## Meeting Design and Project Timeline Goals

In light of these considerations, precast concrete quickly emerged as the façade material of choice. "The developer was very adamant about efficiency, speed, and quality," says Michael Trosset, director of architectural systems for GATE Precast in Kissimmee, Fla. "Unitizing the façade through preglazing was a big focus," Trosset explains. Related Ross found inspiration in the mixed-use Domino Sugar Factory building in Brooklyn, N.Y., with its glistening white precast concrete façade and shaded window profiles.

"The architect was really focused on the aesthetics of the building," Trosset adds. "[New York-based architectural firm] Skidmore, Owings & Merrill [SOM] didn't want to see joints. But then the developer didn't want to slow the construction schedule and wanted donut panels."

To accomplish both design and construction schedule goals, Related Ross looked to architectural precast concrete panels for the building façade. "The façade as a whole was a driver," explains





# PROJECT SPOTLIGHT

## ONE FLAGLER

Location: West Palm Beach, Fla.

Size of Structure: 270,000 ft<sup>2</sup>

Owner: Related Ross, West Palm Beach, Fla.

Architect: Skidmore, Owings & Merrill (SOM), New York, N.Y.

Contractor: Coastal Construction, West Palm Beach, Fla.

Structural Engineer: Thornton Tomasetti, Miami, Fla.

PCI-Certified Precast Concrete Producer:  
GATE Precast, now a part of Wells, Kissimmee, Fla.

Glazing Fabricator: West Tampa Glass, Tampa, Fla.

Precast Concrete Components: 708 panels, totaling 62,100 ft<sup>2</sup>

*The trellis-like, precast concrete exoskeleton of One Flagler is unique in its depth, providing shade from the Florida sun on the entire surface of the façade. Photo: Taylor Palma, ShowingTime+.*



Joseph Chase, AIA, principal at SOM. “The client wanted double-pane, high-performing glass as part of an insulated high-performing façade.”

Designed as a state-of-the-art, innovative office building that inspires and encourages workplace collaboration, One Flagler spans 270,000 ft<sup>2</sup> along the Intracoastal Waterway. Twenty-five stories high, with panoramic water and city views, the LEED gold-certified structure offers not only office space to its tenants but also fine dining, fitness, and conference facilities.

## Preglazing and Hidden Joints Make for a Seamless Profile

The structure of One Flagler is cast-in-place concrete with post-tensioning elements. “We actually started the project out from the perspective of doing cast in place with structure and façade as a single element,” Chase explains. “We ended up with precast concrete for two fundamental reasons: it was far superior for the aesthetic we wanted and, secondly, precast concrete was so much faster.”

Preglazed white architectural precast concrete panels with a burnished finish compose the building’s exterior façade. SOM designed the panels to provide integral sunshade elements, with projections of 2 ft 6 in. and preinstalled 8 ft 4 in. × 10 ft 11 in. low-E insulated windows for ultra-clear visibility along with thermal performance.

“The precast concrete option always assumed the preglazed approach,” says Chase, “because it’s a faster install and [offers] better-quality seals and weatherization. We wanted to limit sealant work in the field.” Chase notes that the depth of the window sills also helped make the building more efficient by limiting glare and providing inherent self-shading.

The team started the color sampling process for the architectural precast concrete early in the game. “The client really wanted a building that appeared like stone,” Chase says. “GATE Precast came to the table with a crushed limestone and natural sand aggregate and worked with a variety of additives to get the right shade of white, followed by a burnishing process after the panels were released from the molds.”

Trosset says creating the burnished finish was the most challenging part of manufacturing the panels. “When you pour architectural precast, you sandblast to expose a matrix of materials, but with a burnished finish, you’re just knocking off the cement paste so you don’t have that same surety of consistency,” he explains. “There was a big learning curve there to take such a low-exposure finish and make it consistent for 1000 pieces, but it was a huge success. Those panels not only look like stone but feel like stone.”

## Precast Concrete Offers Puzzle-Piece Fit

GATE Precast, now a part of Wells, worked with SOM in a design-assist capacity to create a modern and clean exterior façade, beginning panel manufacture in October 2022. The team gave extra attention to panel joining, so that panel jambs and sills would tuck behind adjacent panels to conceal joints and create a more seamless appearance.

The panels essentially fit together like puzzle pieces, overlapping slightly in both directions. This clever design not only hides the joints between panels; it also keeps them watertight. Chase indicates the hidden joints gives the building “a more monolithic, classical look.”

The team also developed special corner panels made as one solid piece, so there are no corner joints either, making the corner pieces stronger and more watertight as well.

The project included 48 unique panel types. Most of the panels were double module units with double sills. Precast concrete installation was occurring simultaneously with concrete podium construction. From level 7 and higher, the panels were fairly typical and repetitive, according to Trosset. “We had some panels, column wraps, and beam wraps around steel, but everything else was mostly donut pieces.” They also used donut panels on the parking structure, but without windows.

To shape large, bulky parts of the panels, GATE used lightweight expanded polystyrene foam cut with a computer-controlled machine to form the inside of the panels. This made them much lighter and easier to handle during construction without changing their appearance or load capacity. The largest panel measured 20 ft × 10 ft 9 in. and weighed 28,500 lb. GATE and SOM worked together to optimize panel size to fit on trucks and be easily hoisted up by crane.

Because panel installation was occurring simultaneously with construction of the podium, the erection crew worked night shifts with tower cranes to attach the panels. According to Trosset, GATE’s installation team was typically 7 to 10 floors behind the cast-in-place team. Trosset didn’t really see the night work as a challenge: “When you look at the lack of traffic and pedestrians, it offers a different kind of efficiency.” The installation team erected five to six panels per shift.

Most of the panels were bolted rather than welded connections due to preglazing. To eliminate the institutional look of joints, GATE Precast, now a part of Wells, reduced the header and vertical sections so that panels on the next floor would swallow the profile below and hide the joint. They used the same process in the jamb for adjacent panels. Thus, all the joints were shifted under the head or on the inside of the vertical jambs.

Of course, that created its own challenge, according to Trosset: “Once you set the first panel, you had to work around the building in that flow. So sequencing was critical.” Panel installation took 39 weeks.

Completed in 2025 and fully leased, One Flagler reflects what SOM calls “the rich tradition of Florida’s tropical modernism,” presiding like a lighthouse over the entry to West Palm Beach at the Royal Park Bridge.

“The building’s sculptural trellis frame, intersecting volumes, and staggered terraces were meticulously engineered to optimize not only aesthetics and tenant experience, but also environmental performance,” says Rathlev. “Its excellent long-term durability allows for more efficient material use and quality control, helping the project align with its LEED gold certification goals, too.”