

Architects'

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TO GLASS & METAL

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Gotham Glazing

Glassy NYC
Projects Shine
Inside and Out

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An aerial photograph of a city street, likely in New York City. On the left is a tall, multi-story brick building with many windows. On the right is a modern glass skyscraper with a curved facade. The street in the middle has several yellow taxis, a white truck, and other vehicles. The sky is clear and blue.

City Lites

New York Projects Put
Glass at Center Stage

By Nick St. Denis

New York City is chock full of new glassy projects, including the Prism Tower at 400 Park Avenue South (façade pictured here).



Photo: W&W Glass, LLC

No metropolitan area is more familiar with glass and construction over the past few years than New York City. Here's a look at some recently completed projects you won't want to miss the next time you're in the Big Apple.

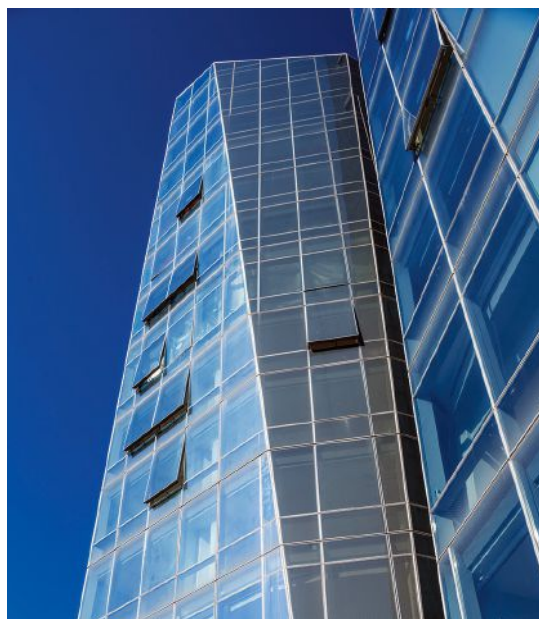
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THE PRISM TOWER

Zoning laws for a new 40-story residential building at 400 Park Avenue South would have normally required terraced setbacks to allow the appropriate amount of sunlight down to the street. The recently completed Prism Tower had other ideas.

The design team of Handel Architects and Paris-based Agence Elizabeth et Christian de Portzamparc (AECdP) navigated an extensive and complicated zoning process by using fragmented and angled façade components to achieve the required light path. The result was a unique glass exterior that features various angles from 10 to 60 degrees of inclination.

Various degrees of splay and glass shapes on all sides of the facade required custom extrusion dies and silicone gaskets to keep the system fully air- and water-tight. The completely custom unitized curtainwall system, using Viracon glass, was supplied by Canada-based Sotawall and installed by W&W Glass.



A Long Road

The design phase began in 2003-2004 and, though approved in 2006, it was shelved shortly after for economic reasons.

Following the recession, two new owners—Equity Partners and Toll Brothers—resurrected the project and kept the original envelope design so they wouldn't have to go all the way back through the planning process again. Handel and AECdP collaborated on the project throughout.

The revitalized project was permitted in August 2012, construction began that September, and it was substantially completed in 2016.

Pushing the Envelope

The building features 250,000 square feet of external envelope and a .56 envelope-to-floor area ratio, which Handel project architect Emil Stojakovic says is about 30 percent more than a normal rectangular building. Due to the various angles, each floor had its own unique plan.

The all-glass façade used three basic glass types, and within those an assortment of patterned frits to total 16 unique glass variations. “In my opinion, it is the most beautiful glass curtainwall I’ve ever worked on,” says Stojakovic.

The architects collaborated closely with Sotawall and Viracon early in the process to ensure all the glass components of the design could be achieved.

Between the two iterations of designs while the project was shelved, a code change took effect that included more stringent energy requirements. “We typically can meet energy code by doing 40 percent vision glass,” says Stojakovic. “In this case, we had about 74 percent vision glass. We had to do a study to ensure it could meet energy codes, which it did.”

The angles of the façade also posed a challenge in implementing operable windows in an outward sloping wall, as they had to be retracted by a crank. This was another success, and when closed, the zero-edge profile operable windows allow for a seamless aesthetic from the outside of the building.

Piecing it Together

Once the job was reactivated, W&W was brought in to help with visual and performance mockups, and eventually to install the glass.

W&W managing partner Mike Haber says logistics were critical on the project, as it included so few like parts. “Because of the geometry, different sizes and frits, we had to be very careful to ensure the right piece was put in the right place on every floor,” he says. “The layout and the prep work were time-consuming.”

The glazier had more than 30 workers on the job daily. “We had people doing surveying, anchors, setting panels, plus guys who were just unloading,” says Haber, adding that simply getting a tractor trailer in and out of the area is a challenge.

“The lines and folds in the façade are wonderful,” Haber says. “With the inverted walls and sloped walls, and the way they meet, it’s something you don’t see much of in New York City.”

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THE COPPER BUILDINGS



Photo: Evan Joseph



Photo: Field Condition>Selects

A matching pair of highrise buildings on New York City’s East River are joined at the hip—or at least close to it.

The new 626 First Avenue development, designed by SHoP Architects and dubbed the “Copper Buildings,” consists of two residential towers climbing 49 and 40 stories high, respectively, and connected by a fully glazed sky bridge. The bridge, which features floor-to-ceiling glazed units, spans the 27th, 28th and 29th floors and houses a connecting pool, fitness center/spa and lounge.

While the glass-happy link between the buildings is an eye-catching feature, their dynamic façades garner plenty of well-earned attention as well.

The north and south facades of the buildings are clad with copper panels and openings, backed by standard curtainwall. The east and west sides are all curtainwall glass to maximize views. Collectively, the façades span approximately 440,000 square feet, with nearly 260,000 square feet of glass and more than 180,000 square feet of panels used on the project.

“The façade is a really good example of how the buildings—from the exterior to interiors—look entirely custom, like nothing else in the city,” says JDS principal Simon Koster. “But we actually worked with a really basic kit of parts because we knew production times had to be relatively quick and inexpensive.”

Staying Lean

Jangho, which designed, manufactured and installed the curtainwall, worked closely with the project team on sourcing.

The façade components were sourced from seven different countries. The glass came from China; extrusions from Asia and the U.S.; window hardware, copper and stainless steel from Germany; and specialty glass from Switzerland and Belgium. Assembly was done in Mexico.

The building exteriors consist of 18 different façade types, which were necessary because both buildings “lean” in opposite directions. Only four different glass sizes were used for all the standard floors.

“The key to cost-effectiveness in curtainwall is the repetitive nature of it,” says Koster ... “What makes the façade look unique is the alignment, but the kit of parts is exactly the same for every panel.”

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PARK AVENUE PLAZA ATRIUM

A recent renovation and redesign of a 28,000-square-foot public atrium at a prominent Midtown Manhattan office tower went big with glass.

While the layout is centered on eight 30-foot-high acrylic panel pillars, it's the massive metallic-looking glass wall cladding that make the atrium pop. The atrium is home to BlackRock Financial Institution.

"This installation appears bold and strong—a solid match to the characteristics of its office inhabitants," according to architect Janson Goldstein. "It also offers a sense of peace, a place of respite in a city that never sleeps."

Collingwood, Ontario-based Architectural Glass of North America (AGNORA) was called on to fabricate the many low-iron, heat-strengthened and backpainted oversize laminated panels.

No Easy Task

The architect collaborated with design consulting firm Front on the glass portion of the redesign. Front, in fact, went to AGNORA in search of oversized laminates before it had even chosen a glazier. Broomall, Pa.-based M. Cohen and Sons was eventually contracted for the installation.

AGNORA project manager Andrew Chisholm says his company went through an extensive process to prove it could

achieve the specific metallic paint color via ceramic frit before it was awarded the job. It supplied samples and eventually a near full-size production mockup to showcase its precision and accuracy.

Early in production, all key stakeholders in the project visited the fabrication facility to inspect the early run of lites. This was to ensure that the heat-strengthened laminations fell into an acceptable range of flatness and that the ceramic frit color was maintained through multiple and extended release dates.

Going Bigger

The largest glass on the project initially was to be 272 inches in height, but during production, AGNORA's transport partner Briway Carriers became capable of transporting glass up to 300 inches from Pilkington. The project client decided to take advantage of the larger sizes and increased its order to the maximum height.

In the end, one glass wall was constructed of 67 three-foot-wide lites spanning 23.6 feet high, and another wall was made up of 34 three-foot-by-17.4-foot units. Strips of custom-formed glass tubes filled with LED lighting sit at the top of each panel.

Additional backpainted lites below a portion of the glass wall serve as backup cladding behind cable-hung planters.



Photos: AGNORA

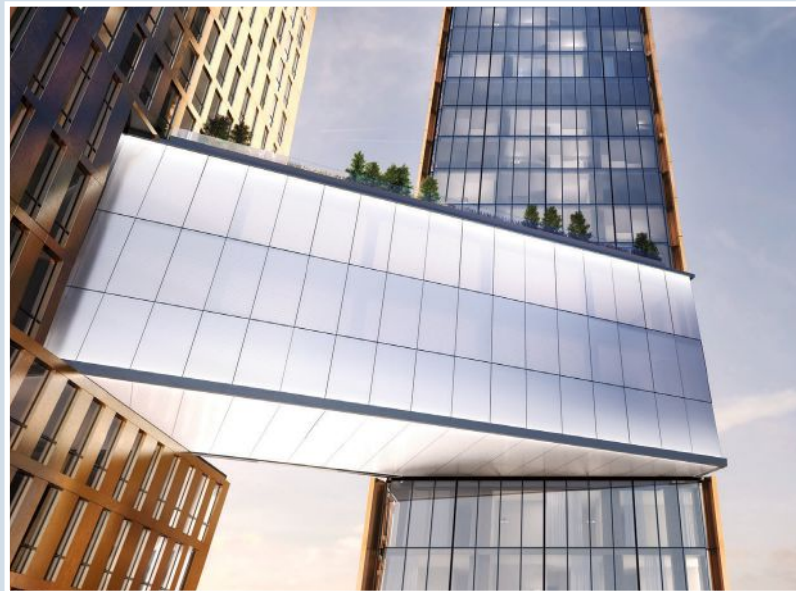


Image: MARCH

“The resulting bright and inviting atrium provides respite from the dense urban surroundings,” a description from *Front* reads.

Chisholm stressed the importance of everyone on the project team staying connected throughout the long process from inception to delivery. “In keeping everyone up to speed with different people coming to the party at different times, you have to communicate consistently over a long period of time,” he says. “Everyone realized how many stakeholders there were, and that communication from all parties was key.”

In the Copper

Cost was a major concern in achieving the copper aspect of the building. Copper plate was never a realistic option, as the copper itself would’ve cost more than the entire property, Koster says. So the project team explored other possibilities, such as anodizing aluminum in a copper color. However, that solution wouldn’t provide the desired “aging” patina effect.

Another option was copper stainless steel, but again, the amount needed would’ve blown up the budget. So they continued to flesh out other ideas and finally came to a solution: laminating a thin sheet of copper to stainless steel, with a gypsum-based composite panel in between.

Other Glazing Considerations

To optimize energy efficiency, engineering firm BuroHappold’s mechanical, electric and plumbing engineers worked closely with its facade team on solutions to improve the performance of the building envelope, determining optimal window-to-wall ratio, U-value and solar orientation of the towers.

The project had to meet strict acoustical ratings, requiring laminated glass on the outer lite of the insulating glass units (IGU) for glazing facing the river.

The bridge has a unique glass element of its own. Though it’s three floors high, the designers wanted the exterior to look uniform. So in addition to an acoustical laminate, the IGUs on the bridge include a Sefar interlayer, which gives the exterior side a reflective color while maintaining visual transparency from inside.

“That whole assembly is probably the better part of two inches thick and is one of most complicated Sefar applications ever done,” says Koster.

A Final Look

The project’s design began in March 2013. The foundation and excavation work started that fall and took longer than intended because the project team had to excavate an entire city block. However, because of efficient planning and the early purchase of many components, including those for the facade, the rest of the project went smoothly. It was almost completed by the end of 2016, and occupants began moving in at the start of this year. **AGG**

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