



The Prism Tower's unitized curtain-wall panels, thanks to Sotawal's "Zero/Zero sightline" operable sashes and Viracon's ceramic fritting, create a striking profile.

# Prism Tower

**Leave it to Christian de Portzamparc to find the implicit poetry in a New York zoning envelope. A long process involving three developers and several program revisions over 14 years has become a success story on multiple levels, giving its neighborhood a strikingly complex geometry, a livable community, and a technically impressive façade.**

HUGH FERRISS'S 1929 METROPOLIS OF TOMORROW drawing series, elucidating New York's 1916 zoning laws, remains a paradigm of aesthetic value arising from civic practicality. Ferriss placed the iceberg-like forms of legally allowable setbacks for light and air alongside the structures achievable with his day's technologies, the well-known wedding-cake setbacks. Today's parametric design tools allow the conception, modeling, and construction of angular buildings closer to Ferriss's purer abstractions.

The profile of the Prism Tower, a 40-story, 472-foot rental/condominium building northeast of Madison Square, recalls those Ferriss sketches, with the façade itself doing the work of the setback terraces. Its strikingly angled curtain walls maximize vision glass, translating complex floor plans into bright, crystalline residences. "Dare not to be square," says architect Christian de Portzamparc, summarizing the parti behind his latest contribution to New York.

Portzamparc's design features gemlike contours, clean yet unpredictable lines, exceptional light quality, and unparalleled views of neighboring icons like the Metropolitan Life Insurance and New York Life buildings. The angles of the building's two main volumes and side pavilions deviate arrestingly from the orthogonal norms of its neighborhood. In its own way, the Prism complicates the Manhattan grid as boldly as the Guggenheim Museum did a half-century ago.

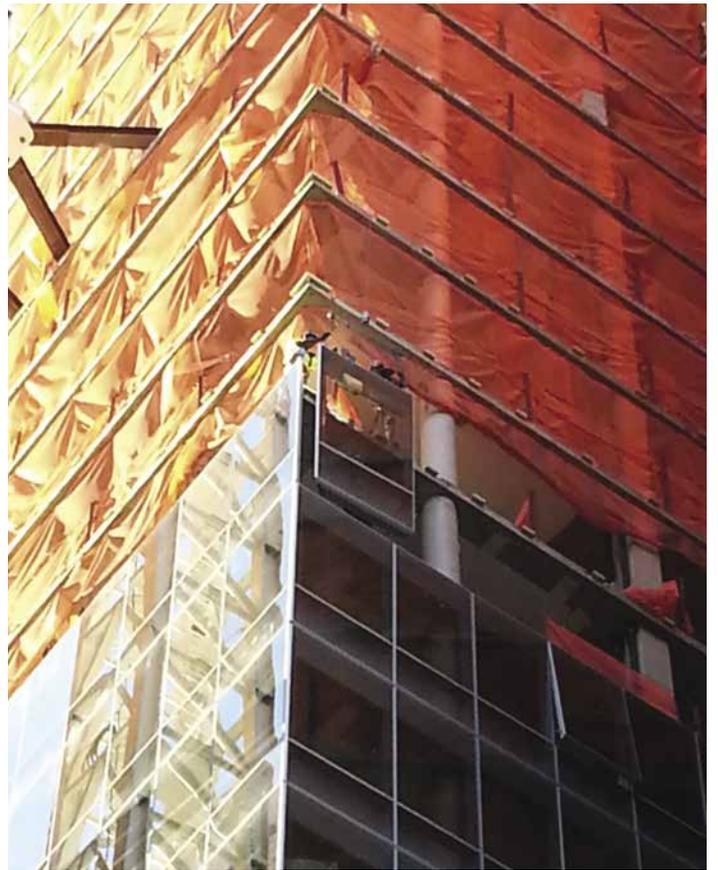
The Prism actually predates Portzamparc's better-known residential supertall, One57, if one considers the full period of design work (it was initially conceived in 2002) rather than the dates of construction. After a change in ownership in 2011, local architect of record Gary Handel made

interior modifications but no drastic changes to Portzamparc's design. Occupying an L-shaped site at the corner of 28th and Park Avenue, the building officially opened in 2015 and saw its final segments, an integrated subway station and two ground-floor restaurants, completed in mid-2016.

After bringing oblique angles and asymmetries to East 57th Street in the Louis Vuitton Moët Hennessy tower (1999) and challenging West 57th's sense of decorum with the fluid street-wall curves and pixelated, Klimt-inspired façades of One57 (2014), he contributes a skyscraper that balances infolded volumes and aggressive acute angles, standing alone with no party walls and maximizing views in multiple directions through oblique fenestration. Portzamparc credits zoning consultant Michael Parley for helping navigate New York's regulations, around which his design took form; his work also benefits from exceptional flexibility on the part of its construction team in translating his conceptions into material reality. The highly customized curtain walls, say participants in the process, were hard to execute but essential to the Prism's bracing atmosphere.

"The complex geometry of the building required tremendous amounts of computer modeling," recalls Patrick O'Neill, project manager at construction manager Lendlease. "Everybody's fear was the complicated three-dimensional jigsaw puzzle, and when we cut the pieces, they all have to come back together again at the end." With the purchase by Equity and Toll Brothers, the curtain-wall consultant role passed from Gordon H. Smith to Israel Berger and Associates (now part of Vidaris), who "set down the performance specification guidelines," O'Neill says. Sotawall fabricated the unitized curtain-wall panels at its facilities in Brampton, Ontario, using low-iron ceramic-fritted insulated glass from Viracon, cutting the extrusions, doing the joinery, and assembling the frames for shipping to the job site. O'Neill has special praise for Sotawall and installers W&W Glass for handling this complicated job, a true slab-supported curtain wall, distinct from the hybrid wall systems used on other projects.

The glass panels were typically 4 to 5 feet wide by one floor high, says Michael Haber, managing partner of W&W Glass, varying with the geometry of the building. "There are so many corners



**Clockwise from top left** Exterior façade inspections of the glass and joints. W&W Glass's team sets the unitized panels from a mobile mini-crane with winch positioned three floors above. The installers seal the tops of the unitized panels in preparation for the next floor of panels to be set. Panels are erected by a mini-crawler crane at the building podium.

on each floor, and because the walls either are inverted or they slope, the actual floorplan changes almost every single floor.... All of the dies were completely new and custom for this job,” allowing extrusion of complex shapes beyond what would have been readily available a few years ago. “The supporting hardware was all custom steel embeds that basically took a life of its own because of the complex geometry.” Coordinating the geometries of the concrete and the curtain walls, he says, with walls simultaneously sloping and changing angle in plan, was the most challenging aspect of the job.

The fastening of the wall panels to the structural concrete used Halfen channel inserts embedded into the top of the slabs, O’Neill says, rather than face-to-slab connections. “From those Halfen channels, aluminum anchor plates with an end hook were installed,” he reports. “When the unitized frames came, they had their associated engagement hook, which was bolted to the vertical mullions of the panel. Those had your typical barrel-bolt adjustments, which would deal with confirming the correct dead loading of the panel to the anchor as well as fine-tuning of the elevation of the panel [in] the exact location in the y plane of the frame.”

“Handel did a great job integrating Portzamparc’s concepts,” Haber recalls, producing the working drawings and coordinating interior and structural elements. “With the advances of modeling that we have now, it was a little bit easier to take Portzamparc’s concept and actually produce a product that mimicked [it].... You can achieve more complex shapes, now that we were able to model it in 3-D, a little bit better than we did 15 years ago.” Spandrel glass is minimal on this building, and “vision glass pretty much went floor to ceiling,” he continues; “the amount of natural light that was created into the building is tremendous, compared to the neighboring façades.”

The building uses “a custom operable window, which we call a Zero/Zero sightline window,” Haber notes. “You can’t see the operable sash from the outside or from the inside. The aluminum mullions that hold the curtain wall façade in place are actually coped and notched to receive the operable sash, so when that sash is closed, there’s not an extra sash line that you see. It’s basically one big piece of glass.” The outswing-awning-type operable vents are approximately 4 feet by 7 feet.

“It’s a European design that we’ve brought to America,” Haber continues. “There’re not too many Zero/Zero sightline operable windows of that magnitude in the city.” The system is not inordinately expensive, and W&W is now using it elsewhere. “Everyone wants to have more views of the outside as we get these buildings taller and taller; the Zero/Zero sightline basically achieves that.... We’ve taken the Zero/Zero-sightline mentality from the Prism Tower and made it a standard in our other residential wall systems for both rentals and condos.”

The result is an operable curtain wall of uncommon uniformity and clarity. “If you’re a bystander outside the building looking in,” O’Neill comments, “it becomes not impossible to the trained eye, but for a layman’s point of view it would be virtually

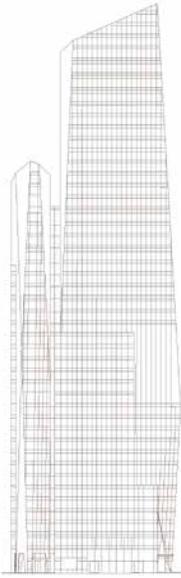


**Above** Christian de Portzamparc’s design, assembling the building out of four main volumes and optimizing internal light penetration, means that nearly every floorplan is unique and calls for extensive customization of curtain-wall components.



The Prism's angular geometries extend to its integrated subway entrance.  
**Facing** Sharply contoured volumes contrast dramatically with neighboring buildings, making the Prism Tower a local icon and a magnet for photographers.

This page and facing: Wade Zimmerman



impossible to know which units had operable vents.” Thermal performance is naturally critical in curtain walls with operable segments, particularly at each apex or transition point between planes; “in those areas there was a tremendous amount of aluminum,” O’Neill notes, but “there was no major issue with the thermal performance of the vents. The building’s aluminum components make key contributions to both its natural ventilation (and thus its overall energy efficiency) and its authoritative presence on the skyline.

Gerald Bianco, project executive and senior vice president at Lendlease, describes the flow of instructions and coordination among trades on this project as surprisingly smooth, despite the on/off/on history and the change of developers, culminating in the unusual dual-ownership arrangement. The building is unique in physical context as well as organizationally, he notes: “It sets back from the adjacent buildings to the south and west. Even [in] some of the lower floors, although they find themselves in some sense in a little bit of a canyon between the adjacent buildings, it affords you to have glass all the way around... there is an opportunity for light to come in and showcase [Portzamparc’s] design all the way around the slab.” Design consistency extends into the corner subway entrance, where “it was Portzamparc’s desire to have the curtain wall evolve into the station,” O’Neill reports. A polished stainless steel panel above the bend in the stairway to the platform gives mirror-quality reflection in and out of the station, extending the theme of high visibility below grade.

Though glazed façades on other recent high-end residential buildings may connote a certain corporate blandness, the Prism’s sharp contours redefine the standards for the neo-modernist tower typology. Combining bold design thinking with rigorous construction procedures, Portzamparc’s building marks a clear distinction between mundane luxury and pathbreaking architectural artistry.



## PRISM TOWER

Location: **400 Park Avenue South, New York, NY**

Owners/Clients: **Equity Residential, New York, NY; Toll Brothers City Living, Horsham, PA**

Architect: **Atelier Christian de Portzamparc, Paris, France**

Executive Architect: **Gary E. Handel and Associates, New York, NY**

Structural Engineer: **Desimone Consulting Engineers, New York, NY**

Mechanical Engineer: **Cosentini Associates, New York, NY**

Construction Manager: **Lendlease, New York, NY**

Curtain Wall Consultants: **Gordon H. Smith Corp., New York, NY; Israel Berger and Associates (now part of Vidaris), New York, NY**

Ornamental Metal Fabricator and Erector: **Coordinated Metals, Carlstadt, NJ**

Curtain Wall Erector: **W&W Glass, Nanuet, NY**