

Bendheim's team was able to supply a system incorporating approximately 24,000-square-feet of 3/4-inch specialty tempered-and-laminated decorative glass in various designs, as well as dozens of custom metal elements, within the specified budget.

On the north and south sides of the structure, the approximately 3-foot-by-10-foot glass panels are vertically oriented and offset, creating a staggered appearance that evokes a glass curtain wall. The translucent white laminated glass features two levels of opacity. More transparent white glass in the foreground, combined with denser white panels in the background, enhance the sense of depth and create a "fade" effect. Throughout the day, the glass facade transforms with the changing sunlight and reflections.

By Lauren Volker  
Photography by  
Kelly Drake Photography,  
courtesy of Bendheim  
Drawings and renderings  
by Bendheim

# Jewel Box

**Bendheim's weightless glass facade floats over a concrete parking structure in Chicago's West Loop neighborhood.**

## 1 SOUTH HALSTED PARKING STRUCTURE

Client **Fifield Companies,  
Chicago**

Architect **FitzGerald  
Associates Architects**

Fabricator **Bendheim Wall  
Systems Inc.**

Contractor **Lendlease, Chicago**

Engineering **Bendheim Wall  
Systems Inc.**

Glazing Contractor **Reflection  
Window + Wall, Chicago**

Where **Chicago**

Seeking an elegant exterior for its real estate client's very public, corner parking structure in the heart of Chicago's West Loop neighborhood, Chicago-based FitzGerald Associates Architects enlisted architectural glass experts Bendheim. The firm tasked Bendheim with creating a thoughtfully designed facade that would coordinate with—but not disappear against—the rest of the development, all the while masking the utilitarian role of the structure, which sits in front of a 45-story residential tower and atop approximately 10,000 square feet of retail.

Bendheim, established in 1927 in Greenwich Village, New York City, is a fourth-generation, family-owned and operated business. More than 90 percent of the company's business is done in custom-designed glass, which it fabricates in the United States from components sourced from North America and Europe. The company's plant in Wayne, New Jersey, is fully vertically integrated—including cutting, polishing, tempering, laminating, and back-painting—allowing Bendheim to provide a wide variety of decorative glass to its customers on time and on budget.

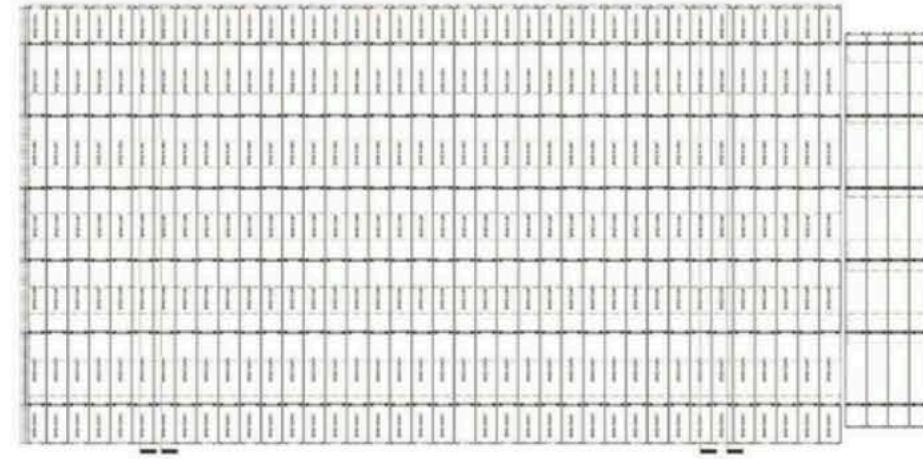
"The best way to describe Bendheim is that we can do just about anything with glass on the interior or exterior of the building, so long as it is decorative in nature," says Jen Miret, director of marketing. "We rarely work with regular clear window glass, unless there is something unusual and special about the application."

Known for its decorative laminated and textured glass varieties, Bendheim's most noteworthy recent projects include the interior of the National Museum of African American History and Culture's Contemplative Court, the interior and exterior applications at the Museum of the Bible, and the back-lit "lantern" facade at South Street Seaport's Pier 17. However, it was the company's first-ever ventilated glass facade in the United States—a retrofit project in San Jose, California—that inspired the look and feel of the 1 South Halsted Parking Structure.

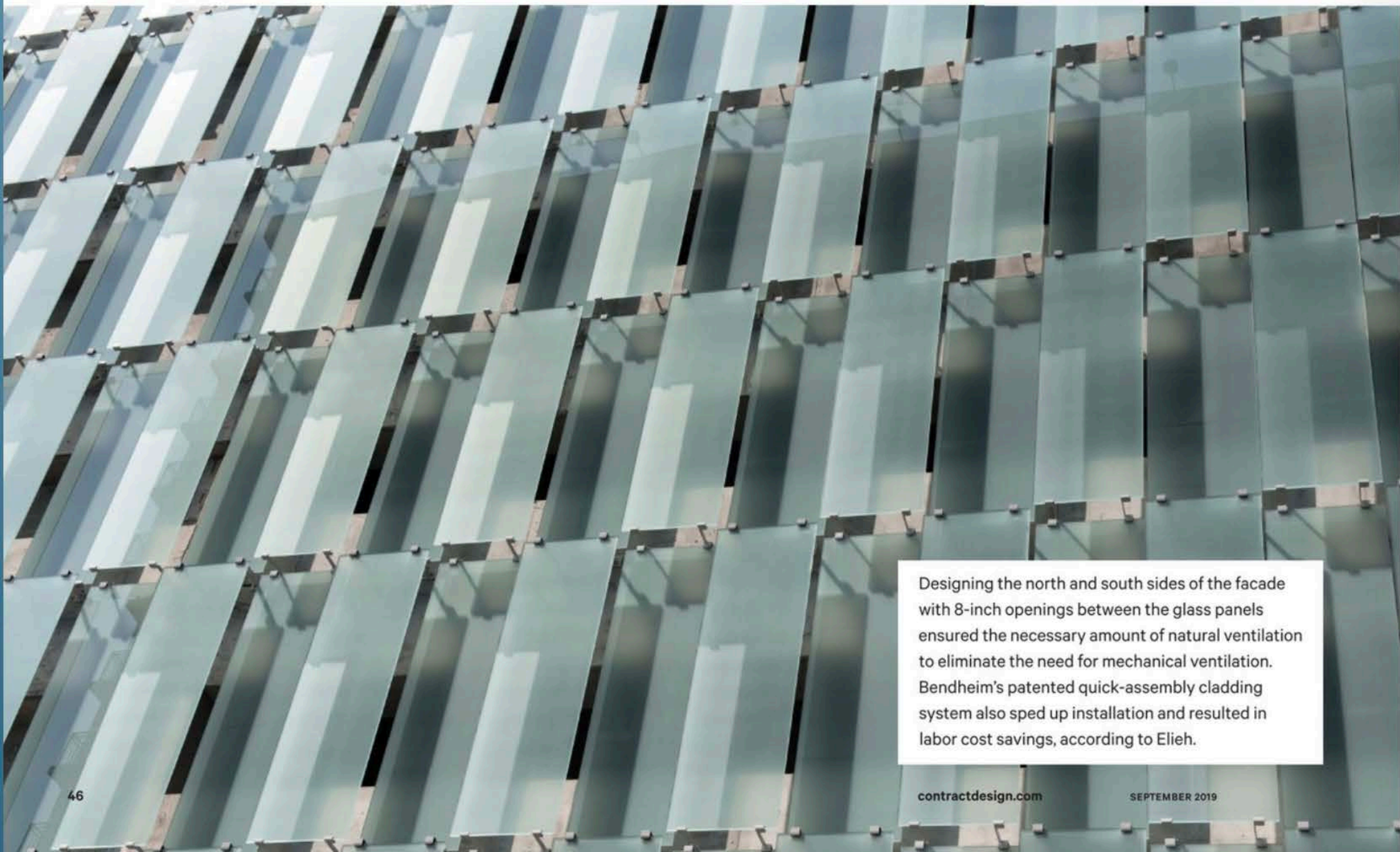
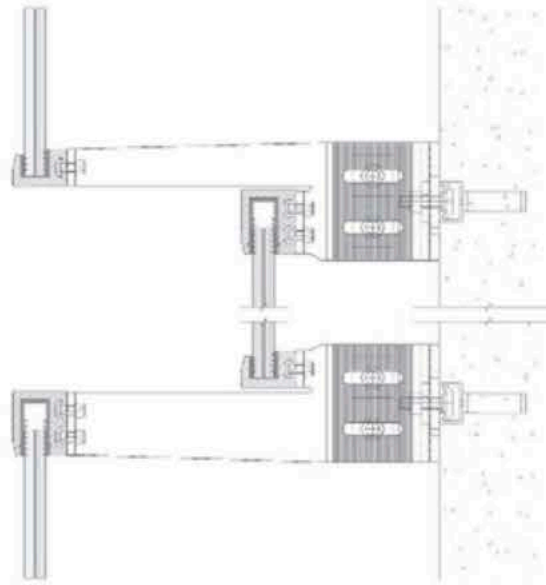


EXTERIOR DETAIL

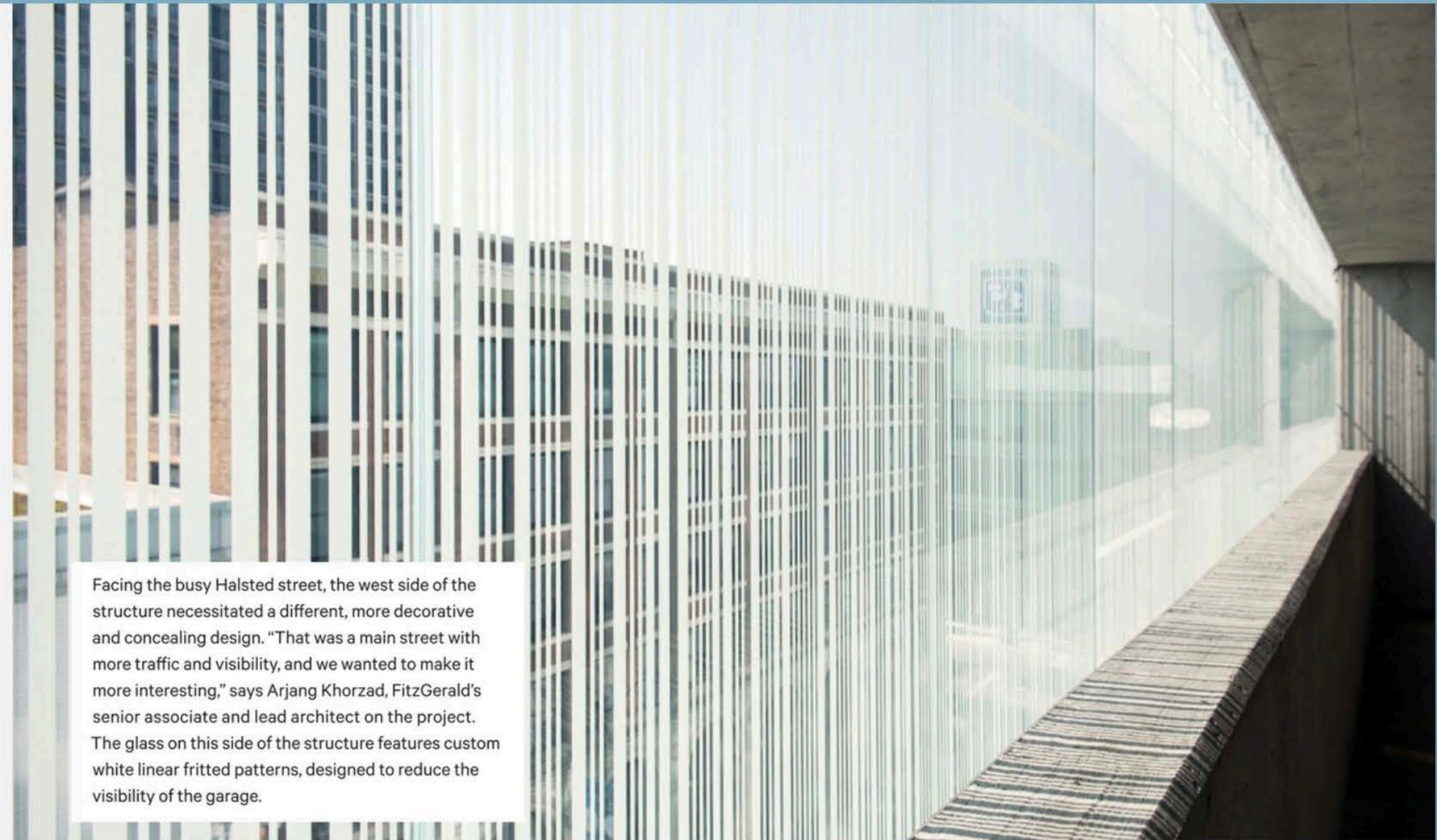
For the parking structure, Chicago building code required 20 percent of the total facade area on each elevation be open for natural ventilation. The final design for the custom, offset Bendheim glass layout on the north and south sides of the structure met this requirement, providing the necessary amount of natural ventilation to eliminate the need for mechanical systems.



The primary objective was to design an elegant, naturally-ventilated, budget-friendly glass facade. "Custom facade design is a multistep process we own from inception to completion," says Said Elieh, director of technical design at Bendheim. "It includes concept 3D modeling, engineering, and evaluation—to ensure the solution can be easily produced and installed, surpasses the structural requirements, and is economical."



Designing the north and south sides of the facade with 8-inch openings between the glass panels ensured the necessary amount of natural ventilation to eliminate the need for mechanical ventilation. Bendheim's patented quick-assembly cladding system also sped up installation and resulted in labor cost savings, according to Elieh.



Facing the busy Halsted street, the west side of the structure necessitated a different, more decorative and concealing design. "That was a main street with more traffic and visibility, and we wanted to make it more interesting," says Arjang Khorzad, FitzGerald's senior associate and lead architect on the project. The glass on this side of the structure features custom white linear fritted patterns, designed to reduce the visibility of the garage.



Bendheim collaborated with the architects to produce three different patterns in ceramic fritted glass. The designs were then flipped, rotated, and staggered to create a non-repetitive pattern. "Designs without discernable repeat tend to perform extremely well in privacy applications," Elieh says. In fact, despite being nearly 50 percent open, the glass pattern on the west facade successfully obscures the views of parked vehicles from the street, presenting a uniform appearance. The flat wall layout with minimal open joints further contributes to the privacy effect. In the evening, the west facade's pattern-fritted glass is back-lit, highlighting its white linear design and creating a soft glow.



"To create a more seamless, shadow-free appearance and eliminate the need for costly structural steel supports behind the glass, our team devised a method to attach the cladding directly to the building walls and slabs through concrete embeds," Elieh says. Significant adjustability—two inches vertically, horizontally, and in-and-out—had to be built into the glass system to achieve this money-saving design. Adding this much tolerance into the system also eliminated the use of unsightly shims.