

181 Fremont SAN FRANCISCO, CA

Owner

Jay Paul Company

Vitro Certified™ Fabricator

Hartung Glass Industries

Architect

Heller Manus Architects

Vitro Glass Product

Solarban® 70 Glass

Glazing Contractor

Benson Industries Inc.

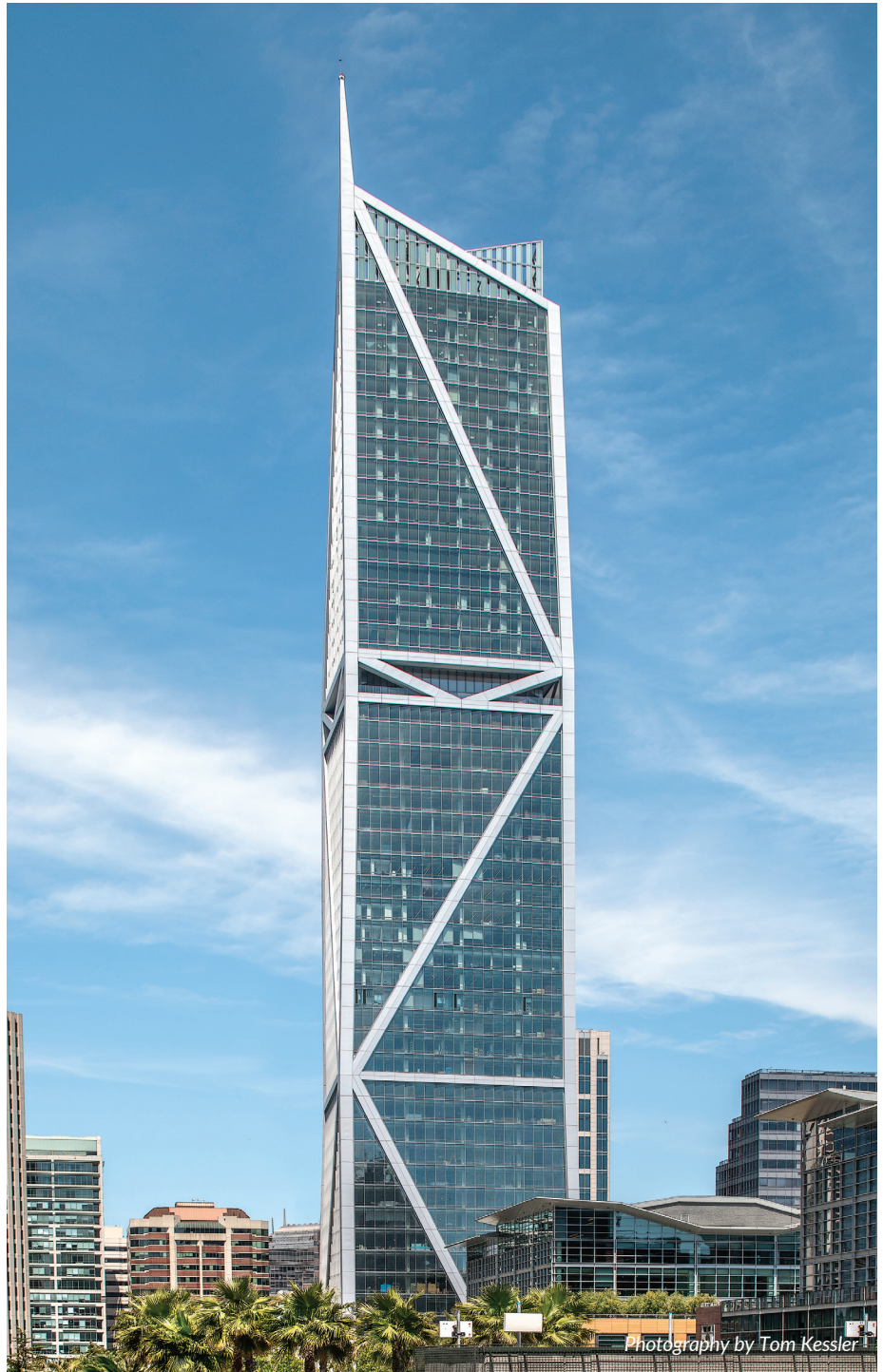
PROJECT BACKGROUND

Designed to be the most resilient tall condominium on the West Coast, 181 Fremont is a model of engineering and orchestration. One of the first projects managed through the *Vitro Concierge Program™*, the design, fabrication and installation of the tower's signature sawtooth-pattern curtainwall required months of sustained coordination between Vitro Architectural Glass, Benson Industries Inc., and Hartung Glass Industries, a *Vitro Certified™* Network member.

As the glazing contractor, Benson Industries, a world leader in complex curtainwall and façade systems, took a central role in the project. Working through the intricate sawtooth-glass geometry with Heller Manus Architects, the company provided renderings and did extensive modeling of multiple design elements as they were proposed by the design team.

"The variety of sawtooth-adjointed diagonal panel designs created hundreds of different curtainwall units," said Jeffrey Heymann, vice president of business development for Benson Industries. "Each unique unit had its own 3D model, where the connections and milling could be studied in depth."

Ultimately, the project required more than 6,000 insulating glass units (IGUs), which consumed more than 240,000 square-feet of *Solarban® 70* glass (formerly *Solarban® 70XL* glass). "Because



Photography by Tom Kessler

181 Fremont is distinguished by a sawtooth pattern throughout the curtainwall that acts as a passive solar design system that blocks heat while transmitting light.

181 Fremont, San Francisco, California

of the design of the building's diagonal columns, we fabricated more than 1,300 units that were triangles and gables," explained Craig Shelton, sales manager for Hartung Glass Industries. "Fifteen hundred IGUs were heat-treated and laminated. We also had to fabricate some pretty big units. Roughly 800 were in the range of 58-by-125 inches to 58-by-144 inches."

Chuck McMullen, senior account manager for Vitro Glass, said producing the individual sawtooth panels created challenges as well. "The large triangles were difficult to heat-strengthen," he said. "The sharp angles had a tendency to curl at the points. There were also many different-sized triangles, so as the building rose in height, the panel sizes would change."

Getting the right fit took several months of modeling, yet the glass units are now part of a resilient building façade that can handle high wind forces and seismic events up to 8.0 magnitude.

"When we design a façade in a high seismic zone, we talk about resiliency," Heymann said. "We accommodate large lateral movements to mitigate damage to the frames so the building can be repaired quickly. For 181 Fremont, the sealant joint between the glass and the aluminum frame is a half-inch larger than that of a typical Benson project. This design ensures that, at the most extreme seismic racking, the glass never touches aluminum."

The innovative sawtooth façade also minimizes wind load. Traditional smooth-sided buildings accelerate winds and increase stress on the buildings. The angled glass design of 181 Fremont disrupts airflow and reduces such stresses.

To fulfill project demand for 181 Fremont, Hartung Glass manufactured most of the IGUs at its Wilsonville, Oregon location, with others produced at company facilities in Texas, California and Washington. "All units were custom-crated and shipped to Benson's fabrication facilities in Phoenix and Tijuana, where they were unitized," said Shelton.

Opened in May 2018 as the tallest mixed-use high-rise on the West Coast, 181 Fremont encompasses 435,000 square-feet of Class A office space and 17 floors of luxury condominiums, including a \$42 million penthouse. Since the project was completed, homeowners have purchased most of the 67 residential units, which offer bridge-to-bridge views of San Francisco and the Bay. The tower's office space has been fully leased by Facebook.

Shelton said that the *Vetro Concierge Program*™ made a significant contribution to the project's success, which was one of the biggest and most complex in Hartung Glass's history due to the volume, sizes, configurations and release schedules involved.

"The custom coordination provided by Julia Giba, our Vitro program manager, was critical, because we didn't have to hope and pray that the glass was in stock. Julia was there whenever we needed her. She held the glass for us and awaited releases as needed for production.

"181 Fremont is an outstanding example of this program's excellence in supporting Hartung's goal to provide an exceptional, consistent and repeatable customer experience across multiple locations," he added.



The angled design of 181 Fremont disrupts airflow to minimize wind load and reduce stress on the glass and frames.

About the *Vetro Concierge Program*™

The *Vetro Concierge Program*™ is designed to help ensure supply-chain success for large or complex construction projects fabricated with products from Vitro Architectural Glass (formerly PPG glass). It's available at no cost to members of the *Vetro Certified*™ Network and their glazing contractor customers in the U.S. and Canada.

While most projects, even very large ones, can be handled effectively by *Vetro Certified*™ Network's normal supply chain approach and with standard Vitro inventory, some unique projects with atypical glass

configurations or non-standard glass components require extra production and logistics management. The *Vetro Concierge Program*™ provides customized coordination through a dedicated *Vetro Concierge Program*™ manager, who will align Vitro inventory and production schedules, even providing priority access and reserving inventory and glass production scheduling.

To learn more about the *Vetro Concierge Program*™, visit Concierge.VetroGlazings.com, call 412-820-8004 or email concierge@vitro.com.

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