

AHEAD OF THE CURVE CASE STUDY

49-51 CHAMBERS
New York City, NY





“We can make whatever you want. Give us your dream, your vision: If it’s at all possible, we can figure it out and make it work.”

Maurice Benor, Graham Sales Rep

+ PROJECT SNAPSHOT

Owner/Developer
The Chetrit Group

Installer
Westside Windows and Doors

Architect
Woods Bagot

Historic Consultant
Ward Dennis

Façade Consultant
Frank Seta & Associates

Graham Windows
S2200 Historic Double Hung, S6800 In-swing Casement, S1400 Historic Fixed, and 6500H Offset Fixed.

+ AHEAD OF THE CURVE

A lot of companies say they overcome challenges. Graham Architectural Products really does.

Consider the windows in Lower Manhattan’s lustrous 49 Chambers building.

When constructed as the Emigrant Industrial Savings Bank in 1912, it was the largest bank building in the United States. The 17-story structure featured curved glass windows in 140 of its nearly 1,100 openings. These were not windows with rounded tops; these were windows with bent glass, like antique china cabinets.

In the 1980s, when the building was serving as a municipal center, those windows were replaced with flat windows made by Graham. Although the building was designated a New York City Landmark in 1985, Dennis Kelly, Graham’s executive vice president, says, “The New York City Landmarks Preservation Commission wasn’t quite as strong as it is today. And those windows were made with the best technology of the times for historic renovation.”

The Chetrit Group purchased the building in 2013 with plans to convert it into luxury condos. But Landmarks was now more influential, and the rules had changed. Landmarks would have to approve every aspect of the planned transformation, including the windows.

The owners, due to cost considerations, wanted new flat windows. According to Graham Rep Maurice Benor, the owners told Landmarks that the curved windows would not be able to deliver the necessary water and thermal performance. But Landmarks wanted the building restored to its

original glory, which meant curved windows if at all possible. “The Chetrit Group had no choice,” Benor recalls, “Landmarks essentially said, ‘Prove it. Show us. Build one and test it.’”

Graham was wary of even attempting a mockup. It had never made a window with curved glass. “We make round-tops all the time,” says Kelly. “I think we’re definitely the best in the industry at that. But this was a curved-in-plan which meant the glass is bowed. So when we thought about all the different pieces that go into making such a window, we pushed back and said, ‘No thank you.’”

When Landmarks persisted, Graham relented, agreeing to make a fixed (i.e., non-operable) window with curved glass that would replicate the original sightlines.

Kelly explains, “We thought, okay, with a fixed window, we won’t have to account for operating parts that are bypassing each other. With operating windows, you’d have, at most, a sixteenth of an inch clearance between operating parts. So, what if, after you’ve bent all this stuff, one piece is off a thirty-second of an inch in one direction and another piece is off a thirty-second of an inch in the other direction? They’re going to hit.”

That fixed window was approved by Landmarks. But, as it turned out, fixed windows would not meet the New York City building code for fresh air.

“So then,” Kelly says, “The Chetrit Group came back to us and said, ‘Okay, you have to make them operating.’ And that’s when we took a big swallow and said, ‘Okay, well...’”

Graham set about building a mockup. It wasn’t easy. “There were 24 pieces of metal being bent that could move in any direction,” Kelly says.

“Then you have the glass, and that can move on you, too.”

“We built the first one by hand and then put it in our test chamber and ran air, water, and structural loads on it. The consultants, along with the owner and a few other people, came down to witness the test. And it performed very well. It exceeded our expectations. Everybody was very pleased, including ourselves, so basically we made the commitment to build the rest of them.”

“A lot of people make windows with curved glass, but in fixed windows,” says Benor. “We did it in a window that goes up and down. That’s the amazing part. Others can bend the glass, bend the aluminum, and leave it stationary. To make it work is a whole trick in itself.”

While the curved window was the greatest challenge, it was not Graham’s sole challenge. There was a significant acoustic hurdle, as well.

A number of windows on one elevation were located near air conditioning chillers and the noise was excessive. OITC (Outdoor/Indoor Transmission Class) requirements, used to measure the sound transfer between outdoor and indoor spaces, had to be met, but so did Landmarks’ matching sightline requirements.

Graham’s soundproofing solution featured two windows – one inside the other – separated by more than a foot. It satisfied Landmarks’ scrutiny, while also delivering the necessary acoustic performance.

“It was a crazy hurdle,” says Benor. “Another one. Then again, that’s what we do. We can make whatever you want. Give us your dream, your vision: If it’s at all possible, we can figure it out and make it work.”



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