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Façade Trends and Innovations

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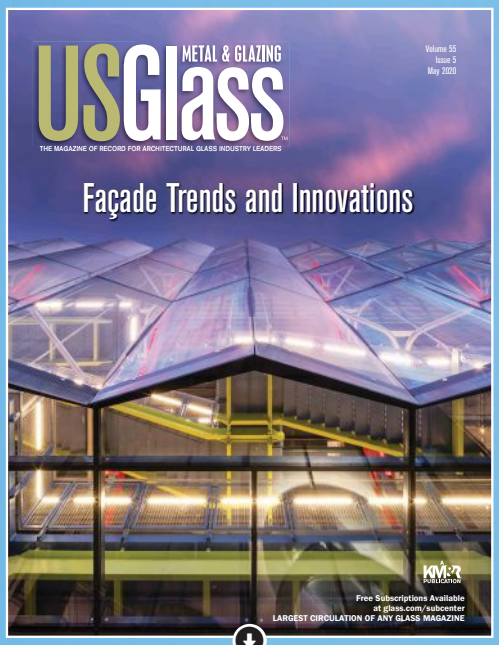

ON THE COVER
The International Spy Museum located in Washington, D.C. features glass supplied by Glas Troesch and laminated by BGT and installed by Roschmann Steel & Glass Constructions Inc. Turn to page 42 to read more.

Photo: Nic Lehoux

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Photos: © David Eichler

Photo: Nic Lehoux

Project Spotlight: The International Spy Museum

As people approach the new International Spy Museum building in Washington, D.C., they see a zigzagging glass façade that hangs in front of an exposed structural steel façade like a glass veil. It plays on the idea of the covert actions of the espionage activities and memorabilia displayed inside the museum.

Dirk Schulte, pre-construction executive for Roschmann Steel & Glass Constructions Inc., located in New Haven, Conn., explains that the museum is off of the National Mall in an area featuring brutalist architecture typical of Washington, D.C. The architect, Rogers Stirk Harbour + Partners, wanted to create a stark contrast from the surrounding architecture, instead opting for a post-modern aesthetic that highlights the character of the building's function. Schulte's company, along with structural engineer Eckersley O'Callaghan, helped design the façade. Glas Troesch supplied the coated glass that was laminated by BGT.

The pleated glass veil is not only a design feature, but a functional element that is a true part of the building envelope. The structural glass façade incorporates 17-foot high laminated glass suspended from the top of the building. The zigzag shape helps minimize the visual appearance of structural elements such as the filigree steel construction, which provides for the requisite static load carrying capacity. The steel structural element allowed for thinner lites and lower costs. The pleats also stabilize the façade by supporting themselves laterally between each other without vertical mullions. Each connection in the zigzagging façade are structurally bonded, similar to unitized curtainwall with four-sided structural glazing.

The zigzag shape of the International Spy Museum's structural glass façade helps minimize the visual appearance of structural elements such as the filigree steel construction, which provides for the requisite static load carrying capacity.

"In this case the glass is bonded to the steel element at the top and bottom and only includes steel members which are connecting glass panels between each other along the vertical. This creates a load transition from one panel to the other when the glass is being impacted by lateral loads such as windloads," says Schulte.

The zigzagging glass also allows the façade to point both north and south. The south-facing panels include ceramic frit vertical stripes to shade the interior while providing a diffused, almost secret translucency, says Schulte. The north-facing panels are clear and have a low-E coating.

"They provide a completely different view of the museum from the outside," says Schulte.

Engineering studies and laboratory tests were conducted, verifying that if a laminated glass lite or an entire panel broke the structural system would still be intact and maintain the integrity of the entire envelope.