



Paris landmark balances heritage, daylight and **EDGETECH** precision



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HAUSSMANNIAN ARCHITECTURE SHAPES THE FACE OF PARIS

The modernisation of the historic *Chambre des Notaires* in central Paris has reinterpreted a landmark embedded in the Haussmannian cityscape since the 19th century. To introduce greater openness, light and spatial depth, a crescent-shaped glass façade was created in the inner courtyard, making the dialogue between past and present visible. Eiffage Métal delivered the demanding façade construction, while Doering Berlin manufactured the curved insulating glass units. Supporting the project was the flexible Super Spacer® Tri-Seal™ Premium Plus spacer, which helps ensure the functional reliability of the edge seal across all storeys and contributes to the long-term durability of the new façade. Paris still bears the imprint

of the vast urban transformation launched in 1853 under Prefect Georges Eugène Haussmann. Thousands of old buildings were demolished and replaced, while broad boulevards, a modern sewer system and extensive green spaces reshaped the medieval city. The result remains unmistakable: typically six-storey buildings with uniform façades of light ochre limestone, wrought-iron balconies and pitched mansard roofs continue to define the capital's architectural identity. At 12 Avenue Victoria, the seat of the Paris Chamber of Notaries, also known as the *Hôtel du Châtelet*, is one of those enduring Haussmannian icons. Inaugurated in 1855, the building no longer met contemporary functional and technical requirements, prompting the Chamber to launch an architectural competition in 2019. The brief called for a design that would open the build-

In Paris, the modernisation of the historic *Chambre des Notaires* uses curved insulating glass and a seven-storey courtyard curtain wall to bring together light, transparency and technical performance. Supported by EDGETECH's Super Spacer®, the façade combines precise geometry, energy efficiency, durability and edge-seal reliability.

ing up, integrate contemporary digital working methods with the historic fabric, and refresh the image of a profession often perceived as closed. As Pierre Tarrade, President of the Chamber of Notaries, put it, the Hôtel du Châtelet embodies a subtle balance between heritage and modernity, much like the notarial profession itself. The winning consortium, Atelier Senzu + Lagneau Architectes, preserved the building's architectural heritage while bringing in a stronger sense of transparency. Elements that had obstructed light and depth for decades were removed, reopening the ground floor and making it feel accessible again. At the centre of the redesign is a semicircular glazed courtyard façade that follows the geometry of the existing structure and rises from the ground floor to the sixth storey. It draws daylight deep into the interior and marks the transition from the historic fabric to the modern working areas at the rear.

77 CURVED INSULATING GLASS UNITS FORM A 305 M² CURTAIN WALL

Wandrille Marchais, one of the founding partners of

Senzu, summed up the façade's technical character succinctly: the curved panes are self-supporting, eliminating the need for mullions and heavy structures while giving the open space and work areas a clear structure and direct access to intense daylight. The curved insulating glass units are supported at each floor by coated, welded T-section steel transoms whose bending radius precisely matches that of the glazing. A curtain wall system based on RAICO THERM+ 56 is mounted on these transoms. The glazing rests on an EPDM profile that also drains condensate and is secured by a pressure plate with an outer cover cap. Silicone setting blocks compensate locally for tolerances created by the curved panes, and a final silicone joint

completes the sealing. Butt joints between the panes are executed with a type B gasket profile. Integrated screw channels within the supporting structure allowed the bespoke aluminium cover caps to be screwed directly into place without welding on the façade. The 77 insulating glass units, each 35.52 millimetres thick, were designed as cylindrically curved, concave panes with fully finely ground edges. The outer pane comprises laminated glass made from 6-millimetre float glass and 6-millimetre SG COOL-LITE® SKN 176 II, bonded by a 1.52-millimetre PVB interlayer, a 16-millimetre Super Spacer® TriSeal™ Premium Plus spacer, and 6-millimetre float glass on the inside. A continuous stepped edge,

12.5 millimetres high, runs around the perimeter. Each unit has an arc length of 1,305 millimetres, an inner radius of 1,000 millimetres and a height of approximately 1,287 millimetres. The glazing is fixed at the head and base, while the vertical edges remain free. Load transfer is distributed evenly through three setting blocks per unit. Because the façade also had to provide protection against falls, it was statically designed in accordance with balustrade requirements. A soft-body impact test using a 50 kg impactor confirmed the construction's resistance.

TIGHT TOLERANCES DEMAND PRECISION IN FABRICATION AND INSTALLATION

The semicircular geometry of the seven-storey courtyard façade created strong interdependence among all components. Permissible tolerance deviations for the curved insulating glass units were up to five millimetres for the radius and up to seven millimetres for the height. Even very small deviations in the glass units or in the elevation of the steel transoms would have accumulated over the full height of the façade. As Benjamin Jourda-





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ne, Director of Operations Deputy at DO Bâtiment / Eiffage Métal, noted, a deviation of just one millimetre per floor would already have produced a noticeable offset over seven storeys, potentially causing fit issues, uneven clamping forces and varying silicone joint widths. Structural requirements increased that sensitivity further. The curved panes provide fall protection and are supported only at the head and base, which makes them particularly sensitive to deformations in the supporting structure. Glass can absorb

very little structural movement, so thermal length changes in the steel transoms or minimal settlements are transmitted directly into the panes and can create local stress peaks. According to Carsten Kunert, site manager at Doering Berlin GmbH, a flexible spacer such as Super Spacer® helps reliably accommodate the permitted tolerances in radius and height. Its ability to adapt to the individual glass geometry compensates for local deviations at the edge, avoids additional stress peaks and helps secure the functional reli-

ABOUT EDGETECH EUROPE GMBH

Located in Heinsberg, Germany, Edgetech Europe GmbH is a fully-owned subsidiary of Quanex Building Products Corporation, (NYSE: NX) a global, publicly traded manufacturing company primarily serving OEMs in the fenestration, cabinetry, solar, refrigeration and outdoor products markets. The company services markets in continental Europe with a total of 490 employees and 17 extruders. Considering itself 'A Part of Something Bigger', the company works to improve the performance and aesthetics of end products through continuous innovation - helping customers achieve greater production efficiencies, and giving back to communities where we operate.

ability of the edge seal over the full height of the façade. Installation posed equally exacting demands. Mounting the curved panes within a radial geometry required a tightly coordinated sequence across all storeys. Every transom and every pane was a unique element that could be installed only in a defined order and at a defined elevation. Small deviations in the position or angle of one transom directly affected the fit of the next unit. Errors in sequence, elevation or alignment could have led to clashes, inconsistent joint widths or insufficient clamping. The

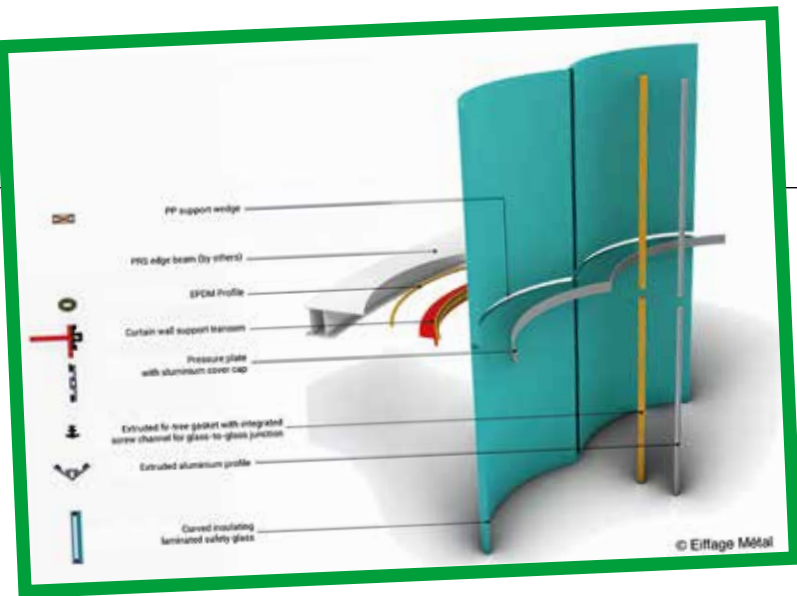
process therefore depended on highly precise, continuously monitored assembly, with each level determining the dimensional accuracy of the next.

FLEXIBILITY OF SUPER SPACER® AS A GUARANTEE FOR ENERGY EFFICIENCY AND DURABILITY

With a thermal transmittance of 1.0 W/m²K, the façade provides effective thermal insulation in winter. In summer, the solar-control coating limits overheating with a maximum total solar energy transmittance



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of 38 percent, while light transmission of at least 45 percent ensures sufficient daylight with minimal glare. The Super Spacer® system from Edgetech/Quanex also contributes to the façade's energy performance. Kunert said his company uses Super Spacer® spacers exclusively in the manufacture of curved glazing for several reasons, including the ability of the foam-based, metal-free system to reduce thermal bridges at the glass edge as customers increasingly specify glazing with demanding energy-performance values. Curved insulating glass units place particularly high demands on the edge seal. Their increased bending stiffness makes them more sensitive to climatic pressure fluctuations and temperature-related length changes, with the resulting pumping

movements acting directly on the sealant layer. The silicone-based structural foam spacer Super Spacer® TriSeal™ Premium Plus combines low thermal conductivity with high elasticity and reliable shape memory. It compensates for shear stresses caused by one-sided heating and climate-related volume changes, relieves the PIB primary seal, and distributes forces across the bonding surfaces and the lateral acrylic adhesive layer. In climatic zones with extreme or strongly fluctuating temperatures, this supports the long-term stability and functional reliability of the insulating glass units while reducing gas diffusion and condensation in the cavity. Mike Moran, Vice President Sales at Edgetech/Quanex, argued that in large-format, curved façade glazing, flexible spacer systems are struc-



ABOUT QUANEX

Quanex is a global manufacturer with core competences and a wide range of applications in various end markets. The company works with leading OEMs to provide innovative solutions in the areas of windows, doors, plastic fencing, solar panels, refrigerators and cabinets. In the future, Quanex plans to leverage its material science and process engineering expertise to expand into adjacent markets.

turally the only way to accommodate movement in a controlled manner.

He added that Super Spacer® TriSeal Premium is particularly well suited to manual application, which remains standard for curved insulating glass units, because the polyisobutylene primary seal is already factory-applied.

Edgetech
A SUBSIDIARY OF **Quanex**

Glabacher Straße 23
52525 Heinsberg -
GERMANY
Phone: +49 (0)2452.96491.0
info@edgetech-europe.com
SUPERSPACER.COM
QUANEX.COM