



Project information

Project: *Branching out*

Completion date: October 2018

Featured products: Chemically toughened and curved thin glass (1mm) laminated with Saflex® Clear, Saflex® Structural, and Vanceva® Colors PVB interlayers

Client: Technische Universität Darmstadt

Project managers: Philipp Amir Chhadeh and Eva-Marie Bodelle

Consultants: Miriam Schuster, Timon Peters, Sascha Hickert, Marcel Hörbert, Valentin Adam, and Fabian Rieß

Supervisors: Michael Drass, Ulrich Knaack, and Jens Schneider

Laminators: TU Darmstadt and Fotoverbundglas Marl GmbH

Total area: 30 m² laminated thin glass



Branching out

Saflex® and Vanceva® interlayers help create a colorful pavilion featured at Glasstec 2018

At Glasstec 2018—the world’s leading trade fair for the glass industry—industry leaders and university students had the opportunity to showcase state-of-the-art glass construction using thin glass.

A team from Technische Universität Darmstadt and Fotoverbundglas Marl GmbH built and showcased a pavilion made of paper tubing and thin laminated glass. Under the supervision of Professors Jens Schneider, Ulrich Knaack, and Michael Drass, TU Darmstadt students Eva-Marie Bodelle and Philipp Amir Chhadeh constructed the pavilion.

Their challenge was to use paper and glass as construction materials. Because of the eco-friendly nature of the paper material, the team conceived a design reminiscent of an arbor. The pavilion held 30 thin glass leaves, about a third laminated with transparent Saflex® PVB interlayer and the other leaves featuring Vanceva® Color PVB interlayers.

To laminate the curved thin glass, the team used LAMIPRESS® machinery from Fotoverbundglas Marl GmbH. The laminator combines the energies of overpressure, vacuum, and contact heat—eliminating an autoclaving process. Because the LAMIPRESS operation is very intuitive, the students and staff were able to do the lamination themselves, which also involved curving the glass and adding a clamp to create a rigid connection between the thin glass laminate and the cardboard substructure.

For the clear leaves, Saflex Clear was used as the interlayer between two 1-mm thin glass sheets. For the colored leaves, Vanceva 4614 (a color combination that features Vanceva Sapphire, Vanceva Sahara Sun, and Vanceva Coral Rose) created the desired green appearance.

To curve the glass leaves, negative formwork was used to bend the glass during lamination. During the cooling process, it was necessary to prevent the glass from bending back again. With a successful cooling

process, the laminate can keep its curved shape at room temperature. To reduce construction time, steel clamps were also laminated in the same step as the glass pane lamination. Saflex Structural was used to laminate the steel plates and the thin glass, securing the glass in the desired position. The end product was a laminated combination of steel and glass with different intermediate layers. Then, the pavilion was successfully exhibited at Glasstec 2018 with the help of special knot and fastener solutions.

Congratulations to the student who made this live display of glass technology a complete success!

In 2020, the LAMIPRESS machinery will come to the Glass Competence Center (GCC) of TU Darmstadt under the direction of Professor Schneider to further research lamination processes. The GCC conducts research on the entire glass-finishing process, including washing, cutting, drilling, grinding, laminating, and thermal tempering.

About Vanceva

Producing a broad spectrum of colors and moods that are unachievable using stock selections of glass, Vanceva® Color interlayers by Eastman give architects and designers more creative freedom with glass than ever before. Vanceva interlayers can be combined to produce more than 17,000 transparent, translucent, or solid color options to help create the desired tone and intensity. When Vanceva interlayers are combined with tinted or reflective glass, the design possibilities are nearly limitless. No other interlayer brand delivers the complete spectrum of colors for laminated glass like Vanceva colors.

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