



SIKA FFI  
LAMINAR GLASS BONDING –  
VISIBLE ELEGANCE FOR  
OPAQUE PANELS

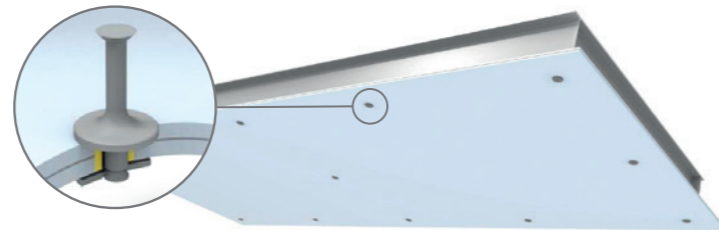
BUILDING TRUST



# LAMINAR GLASS BONDING – SIMPLE BUT EFFICIENT AND SAFE



**New construction:** uniform glass panel with laminar bonding (© sedak)



**Conventional construction:** glass panel with disturbing metal fittings (© sedak)

## AN INNOVATIVE WAY OF GLASS FIXATION

Glass in overhead applications is mostly laminated and requires either visible point fixings or a continuous edge support. Both are in strong contrast to the architect's vision of a uniform, pure glass surface.

Sika and sedak have jointly developed a novel laminated composite product comprising of one monolithic glass panel, a layer of self-leveling silicone adhesive Sikasil® GS-687 and a load transferring perforated metal panel. Utilizing the laminar silicone application allows the use of glass in overhead situations as well as in vertical details, e.g. spandrels and glass walls, without any visible mechanical fixings, thus creating a large even opaque glass surface.

An extraordinary additional advantage is the weight reduction up to 30%. In a recent project case the PVB-laminated safety glass composition of 2 x 12 mm has been replaced by a laminar composition comprising of 10 mm glass panel, 6 mm silicone layer and 3 mm aluminum back sheet.

## ADVANTAGES

- Visual benefits
  - No visible mechanical fixings
  - Glossy appearance of spandrels like vision glass
  - Uniform deflection pattern of glass panel
- Uniform stress distribution
- Excellent post-breakage behavior
- Material saving and weight reduction (up to 30%)
- Energy saving for glass tempering and laminating

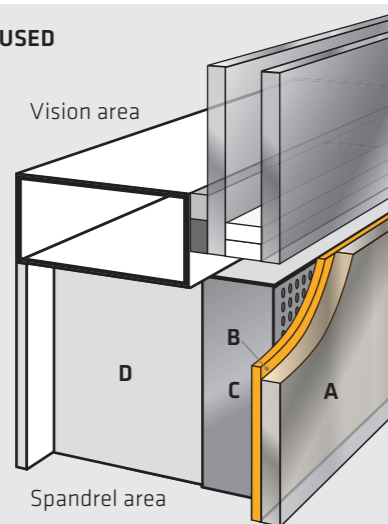
## Sikasil® GS-687

- Two-part self-leveling silicone adhesive
- Outstanding processing properties with piston and gear pumps
- Easily colorable or applicable on colored enamel coatings
- Excellent UV and weathering resistance
- Nearly unchanged mechanical strength over a wide range of temperature
- Almost unchanged adhesive strength up to 150 °C in application of dark panels
- Excellent post-breakage behavior
- Durability tested against EOTA ETAG No 002 (2012), ASTM C 1184 and ASTM C 920
- Consumption: 3-6 litre/m<sup>2</sup> (3-6 mm layer thickness)

## POST-BREAKAGE BEHAVIOR

Due to diminished performance at higher temperatures and under long-term loading the residual strength of a PVB-laminated glass unit is limited. As silicones' mechanical and adhesion properties are almost unchanged over a wide temperature range from -40 to +150 °C the laminar panels show an excellent post-breakage behavior. The metal back sheets reinforce the composition additionally.

## LAMINAR BONDED PANEL USED AS SPANDREL PANEL



- A Glass pane
- B Laminar silicone Sikasil® GS-687
- C Metal back sheet
- D Insulation layer

# PRODUCTION OF LAMINAR PANELS

Application of Sikasil® GS-687 can be adapted to panel size and speed of production. It ranges from manual mixing and application (1) to semi-automated scale-up (2).

## 1. MANUAL MIXING IN SMALL SCALE PRODUCTION OF SPANDREL PANELS



Manual mixing of 2-part Sikasil® GS 687 with cone agitator



Silicone application



Embedding metal back sheet

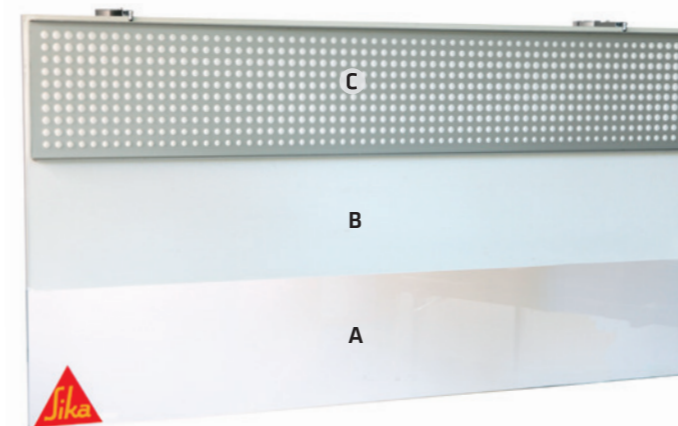
## 2. MACHINE MIXING AND APPLICATION



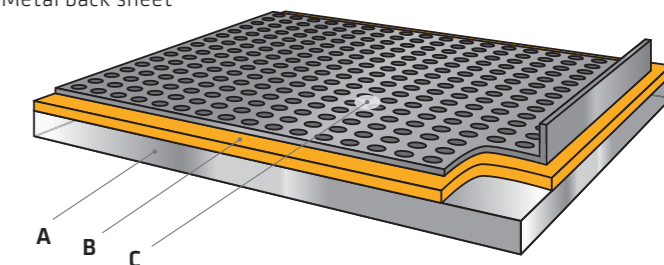
Further scale-up steps may be machine mixing of Sikasil® GS-687 with gear or piston pumps. Huge panels up to a size of 14 x 3.2 m for a mega project in USA are produced by sedak GmbH & Co KG, Gersthofen, Germany with a semi-automated machine including application of Sikasil® GS-687 and attaching the metal back sheets.

Photos machine application and front cover: René Müller Photographie/sedak

## PRINCIPLE OF LAMINAR SPANDREL



- A Glass pane
- B Laminar silicone Sikasil® GS-687
- C Metal back sheet



# GLOBAL BUT LOCAL PARTNERSHIP



## FOR MORE INFORMATION:

For more literature about Sika Facade and Fenestration solutions browse:

[www.sika.com/ffi-downloads](http://www.sika.com/ffi-downloads)

### WHO WE ARE

Sika is a specialty chemicals company with a leading position in the development and production of systems and products for bonding, sealing, damping, reinforcing and protecting in the building sector and the motor vehicle industry. Sika has subsidiaries in 84 countries around the world and manufactures in over 160 factories. Its more than 16 000 employees generate annual sales of CHF 5.14 billion.

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