

SIKA CONTRIBUTION TO SUSTAINABLE CONSTRUCTION

SEALING SUSTAINABILITY IN STRUCTURAL GLAZING

BEYOND DESIGN:

HIGH PERFORMANCE STRUCTURAL GLAZING

There is an increasing demand for bolder and creative facade design with more natural lighting, while improving the insulation properties and energy efficiency of the building and its facade. Glass comes thus as an answer to these demands, along with the improvement of structural glazing as a whole.

New specifications call for high-tech products which must meet highly specific demands and guarantee peak performance in every respect.

Sika supplies a wide range of innovative facade products for every demand, with proven durability, compatibility with diverse substrates, strength, flexibility, as well as temperature and UV resistance. Sika supplies also compatible weather sealants and glazing tapes.

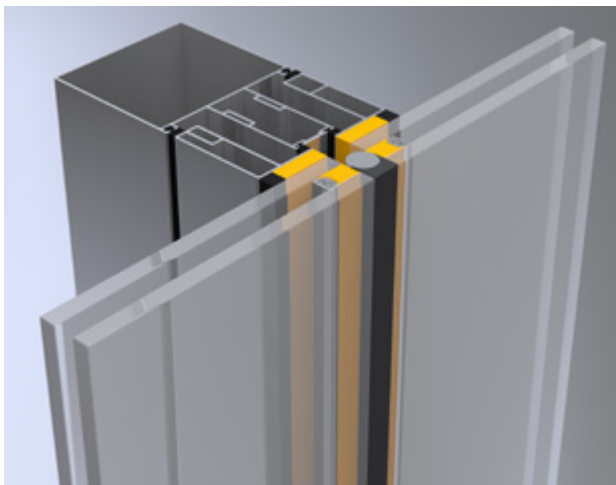
Of course structural glazing (SG) joints for glazed facade elements and insulating glass (IG) must be properly dimensioned in order to withstand the loads such as from wind, climate and glass load.

CASE STUDY

The higher strength of the adhesives has an enormous impact on the design and on savings of material consumptions, by allowing slimmer connection and profile sections. To illustrate how important innovation in the design of structural glazing

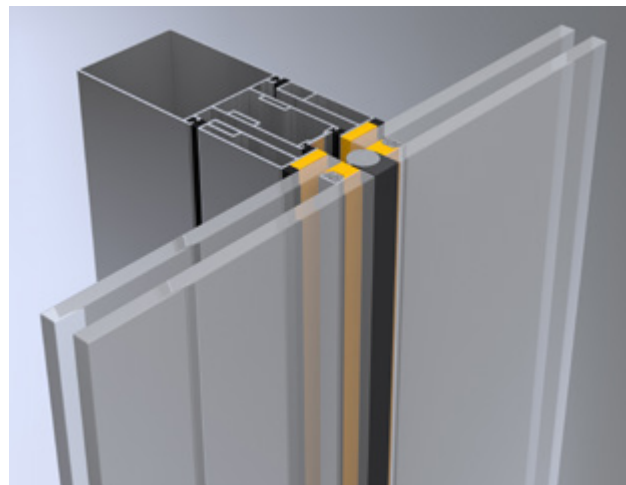
systems can be, two systems are analysed for a 170 m high-rise tower project in Central Asia, with 60,000 m², a wind load of 7 kPa and glass dimensions of 1.2 x 3.0 m.

OLD SYSTEM (95 MM WIDTH)



- IG sealant dimension: 17 x 12 mm
- SG joint dimension: 30 x 9.5 mm
- Size of spacer tape: 9 x 9.5 mm
- Width of mullon: 95 mm

NEW SYSTEM (75 MM WIDTH)



- IG sealant dimension: 13 x 12 mm
- SG joint dimension: 21 x 6.4 mm
- Size of spacer tape: 6 x 6.4 mm
- Width of mullon: 75 mm

The old system is built with standard products vs. the new optimized system, using high-strength Sika silicone adhesives.

SEALING SUSTAINABILITY IN STRUCTURAL GLAZING

HIGH-STRENGTH ADHESIVES SAVING COSTS AND MATERIALS REDUCING ENVIRONMENTAL IMPACTS

For the analysed project, the relative savings of using Sikasil® SG-550 and Sikasil® IG-25 HM Plus high-strength silicone adhesives compared to the standard products are thus:

- 55% Structural glazing (SG) joints
- 25% Insulated glass (IG) joints
- 55% Spacer tape
- 10% Aluminium material for frame
- 20% Aluminium frame width and thus less energy loss

Just the gains in SG and IG joints correspond to 39 tons of silicone adhesives. This corresponds to an avoided Carbon Footprint of more than 100 tons CO₂-eq. and an avoided Cumulative Energy Demand of over 3,000 GJ. Additionally, there are also relevant savings from reducing the amount of aluminium and polyurethane spacer tape.

The Sika solution not only brings a relevant quantitative contribution to a sustainable high performance structural glazing solution, but it also helps fulfil the customer requirements from an economic and technical point of view.



Victoria Gate Leeds, UK; similar project.

CONCLUSIONS

High performance structural glazing saves resources and increases the quality of living. Sika is dedicated to sustainable development and takes responsibility to provide sustainable solutions in order to improve material, water and energy efficiency in construction and industry.

The project allows Sika to demonstrate its competence and expertise in sustainability, including all relevant quantitative contributions to a sustainable construction. The value created

by far outweighs the impacts associated with production, distribution and use. Sika is committed to measure, improve and communicate sustainable value creation. "More Value – Less Impact" refers to the company's life cycle approach and commitment to maximize the value of its solutions to all stakeholders while reducing resource consumption and impacts on the environment.

To learn more about Sika's Sustainable Solutions, please consult www.sika.com/sustainability

For further information please contact:

Mark Schneider, Head Global Product Sustainability, product.sustainability@ch.sika.com