

Structural Insulated Glazing (SIG)

- Challenging glass
- Reduction of frame
- Academic interest
- Increased transparency
- PCT WO2014001503A1

SIGU has recently developed an innovative and promising technology in the field of insulated glass. The technology focuses on the booming research of load bearing glass: instead of dead load, the glass lites in an IG unit becomes a collaborating partner to reduce the surrounding window frame. Tests performed by two leading Benelux engineering universities (Ghent, BE and Delft, NL) demonstrates a fundamental gain of transparency. The patent pending SIG-technology concerns a structural warm-edge spacer.

Key-Technology

- Load bearing glazing sandwich
- Improved thermal edge performances

Two or more lites serves as stiffening and load bearing element for an embedded structural low-e spacer in composite. The lites are adhesively bonded with the spacer and sandwiches one or more layers of gas as thermal insulation. The edge and corner connections are dual sealed for reliable long term performance. As in traditional IG units, the glass lites can be standard float glass, tempered, heat-strengthened, laminated or a combination.

- Reliable dual sealed connection

- Easy clamping/(de)mounting

- Shortened delivery time

The spacer of the SIG-sandwich has an outer peripheral groove to realize a quick and easy connection with a (reduced) surrounding frame. The dry assembly of a SIG-unit significantly shortens the delivery time and simplifies replacement compared to wet silicones.

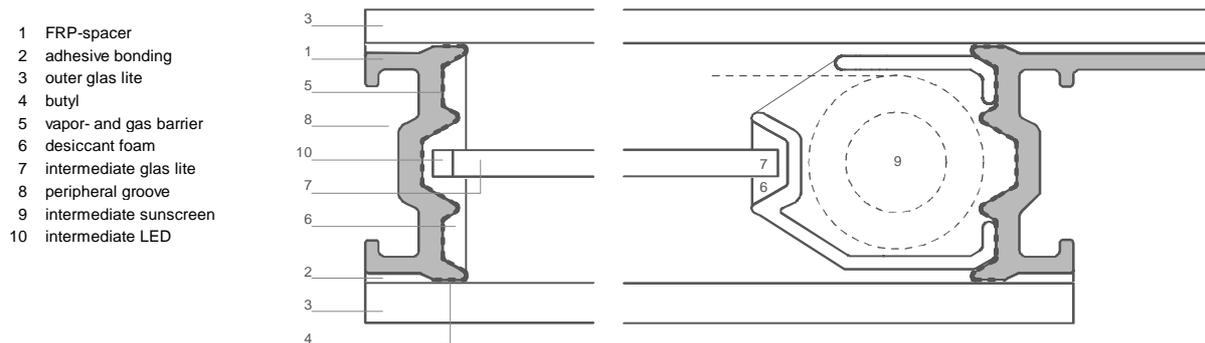


Fig. 1: Structural Insulated Glazing (SIG) unit with integrated sunshade and LED

- Option integrated design (screen, LED)

- Reduced costs & risks

- Sustainable design

- Impact resistant

The most advanced innovative SIG-embodiment is the triple-glazed unit embedding a single-spacer with a crumple zone: the edge connection separates two outer panes, encapsulates an inner lite and can easily embed an integrated sunshade or edge LED's, as illustrated in figure 1. This embodiment reduces costs (less spacer/edge seals) and opportunities for failure (less edge seals), improves heat transfer by an increased path length through the spacer and absorbs energy in case of impacts (seismic, hurricane).



Applications

Operable, sliding and fixed enclosures

All app-technology

Design flexibility

Multiple edge finishing's

The SIG-technology can be embedded in all kind of operable, sliding and fixed insulated enclosures such as curtain walls (butt, unitized and stick-built systems), traditional windows, skylights, roof windows, partition walls as well as in appliances such as fridges and freezers.

The frame that surrounds the spacer can have all material and design properties in function of the application: it can be a gasket (to achieve an all glass look), a customized and extending edge finishing (to characterize a project's design), a combination, etc.

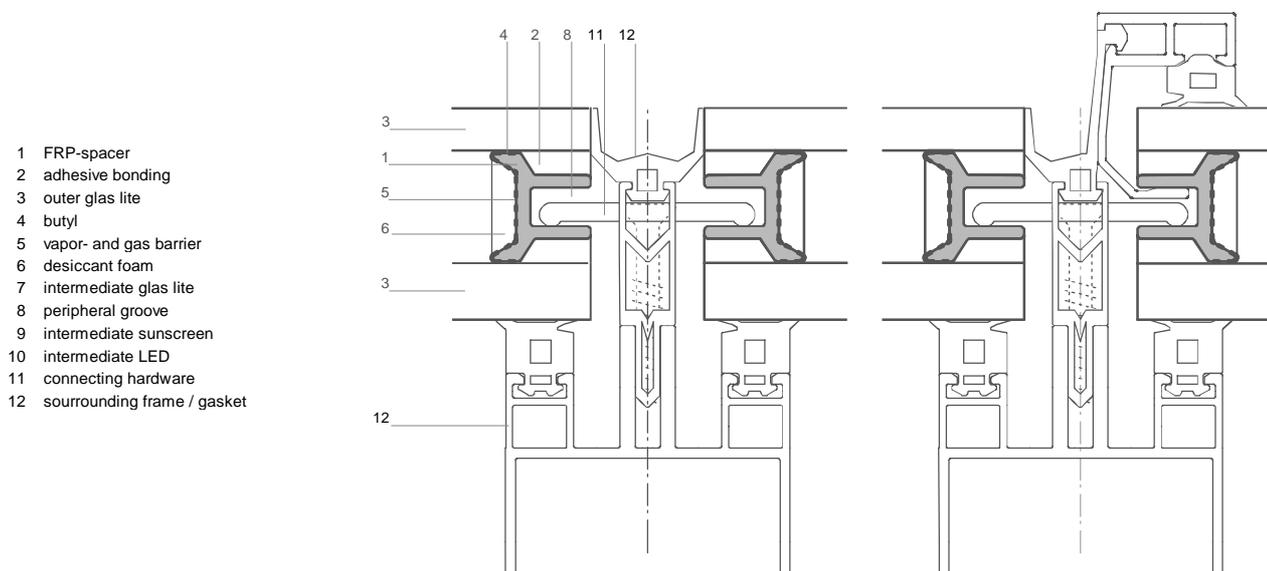


Fig. 2: Curtain wall with SIG-units surrounded by gaskets, resp. an extending edge finishing

Conclusion

Closing a market gap

Future standard

The SIG-technology is a simple key technology with exhausting behavior in different key areas closing a market gap: the combination of maximal transparency, improved thermal performance, the ease of integrating new functions in a glazing unit, freedom of design for architects/designers, application versatility and the opportunity to uniform design of applications poses the **SIG-technology** ready as a **new standard** for the **Future**.