



OKALUX HPI High Performance Insulation Glazing

Designing Energy Efficient Buildings

OKALUX

Wir denken Architekturglas weiter.

OKALUX and sustainability:

Optimal energy efficiency with the highest possible convenience for the user with OKALUX functional glazing – our contribution for the buildings of tomorrow.

We create everything with lasting value in mind. Every step, from the idea through the processing to the finished project, is carried out with conviction and a dedication to sustainability.

Innovative High Performance Insulation Glass Module

In order to safeguard our constructed environment on a lasting basis, buildings must not only fulfill high functional and energetic requirements but also meet sophisticated aesthetic demands. The insulation glass module OKALUX HPI with its integrated vacuum panel is perfect for planners and architects, who want a product which achieves the highest heat insulation, can be integrated in all standard façade system and allows for individual designs.

—	Extreme low U-values	04-05
—	Trendsetting Efficiency	06-07
—	Modular Design	08-09
—	Benefits at a Glance	10-11



Wir denken Architekturglas weiter.

OKALUX HPI – highly-efficient heat insulation for aesthetic glass façades.

Sustainable Thermal Insulation Combined with Numerous Design Variations

OKALUX HPI is an innovative, high performance insulation glass module which combines nearly unlimited design variations with excellent heat insulation. Each module contains a vacuum insulation insert out of fumed silica integrated into the cavity and which achieves excellent U-values up to $0.11 \text{ W}/(\text{m}^2/\text{K})$ | $0.02 \text{ Btu}/(\text{hr ft}^2 \text{ }^\circ\text{F})$. The constructive depth of the vacuum module corresponds to the depth of conventional insulating glass allowing for its effortless integration in all standard façade systems.

Insulation Materials in Comparison



Vacuum Insulation Panel



Expanded Polystyrene (EPS)



Extruded Polystyrene (XPS)



Glass Mineral Wool



Rock Mineral Wool

The thermal conductivity of the insulation units is extremely low. Those are 10 times thinner than other insulation materials.

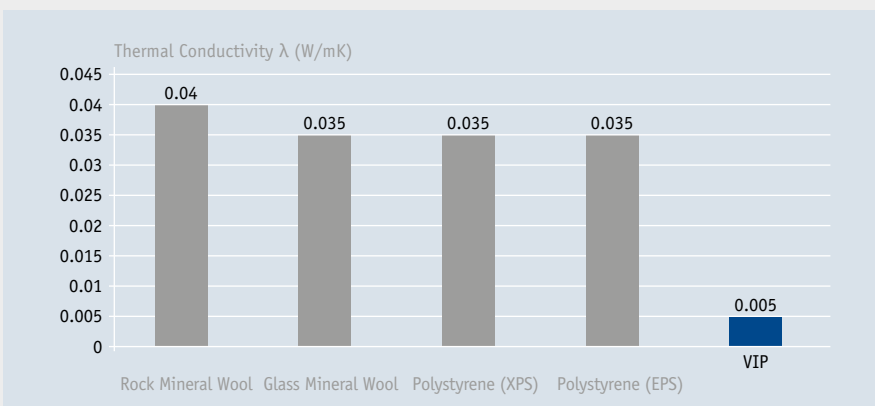
As a comparison: to achieve a U-value of $0.15 \text{ W}/\text{m}^2\text{K}$ | $0.03 \text{ Btu}/(\text{hr ft}^2 \text{ }^\circ\text{F})$ an unit with mineral wool requires a thickness of 250 mm whereas a vacuum insulation panel requires a thickness of merely 30 mm.

Extreme low U-values



© Camenzind Evolution | Ferit Kuyas (FK)

When mounted in front of storey ceilings, in parapet areas or peripheral zones, OKALUX HPI achieves first-class U-values and contributes to a considerable improvement of the energy balance of the building shell. Because of its narrow build-up, OKALUX HPI offers efficient insulation even in the narrowest space, as for example, in restorations. An added plus is that construction costs are reduced and useable interior space gained.



The thermal transmittance coefficient of the vacuum insulation inserts corresponds to that of a well insulated wall.

The Building Shell as a Milestone for Integrated Optimization



©Eibe Sönnecken

In the ETA-Factory on the campus of the TU Darmstadt, OKALUX HPI makes a valuable contribution to the total energy balance of the building. Building shell, technical building equipment, process technology and production plants are integrated in a total energetic system in the model project. In this interaction, the HPI modules guarantee that the high demands on heat protection of the entire façade are especially met on the north side.

ETA-Factory
on the Campus Lichtwiese
of the Technische Universität
(TU) Darmstadt | DE

LP 1-3: TU Darmstadt
LP 3-9: Dietz Joppien
Architekten AG

OKALUX HPI with glass fibre
tissue



©Eibe Sönnecken

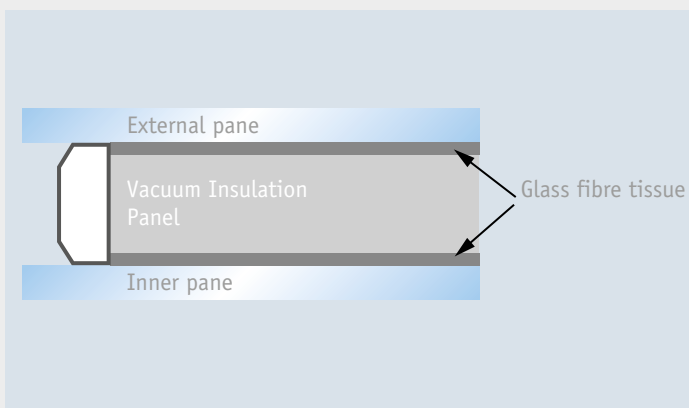
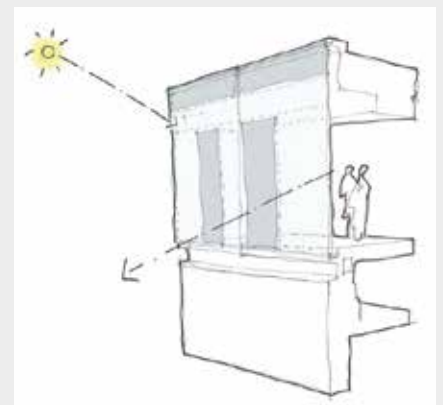


Diagram section HPI module

Individual Design, Optimal Values

In cooperation with OKALUX, the architectural office Mikkelsen Arkitekter developed so-called multifunctional modules (MFM) for the extension of the institute building. This system solution makes it possible to imbed different OKALUX products in one façade element – without additional transoms. A combination of OKATECH HPI and KAPILUX was used in Copenhagen. The number, build-up and position of HPI elements can be adjusted accordingly to meet the demands on translucency, shading and the amount of daylight entry.





Extension for
the Institute of
Sports Sciences
and Nutrition at
the University of
Copenhagen | DK

Mikkelsen
Arkitekter A/S

Multifunctional
Module (MFM) with
a combination
of OKATECH HPI
expanded alu and
KAPILUX T

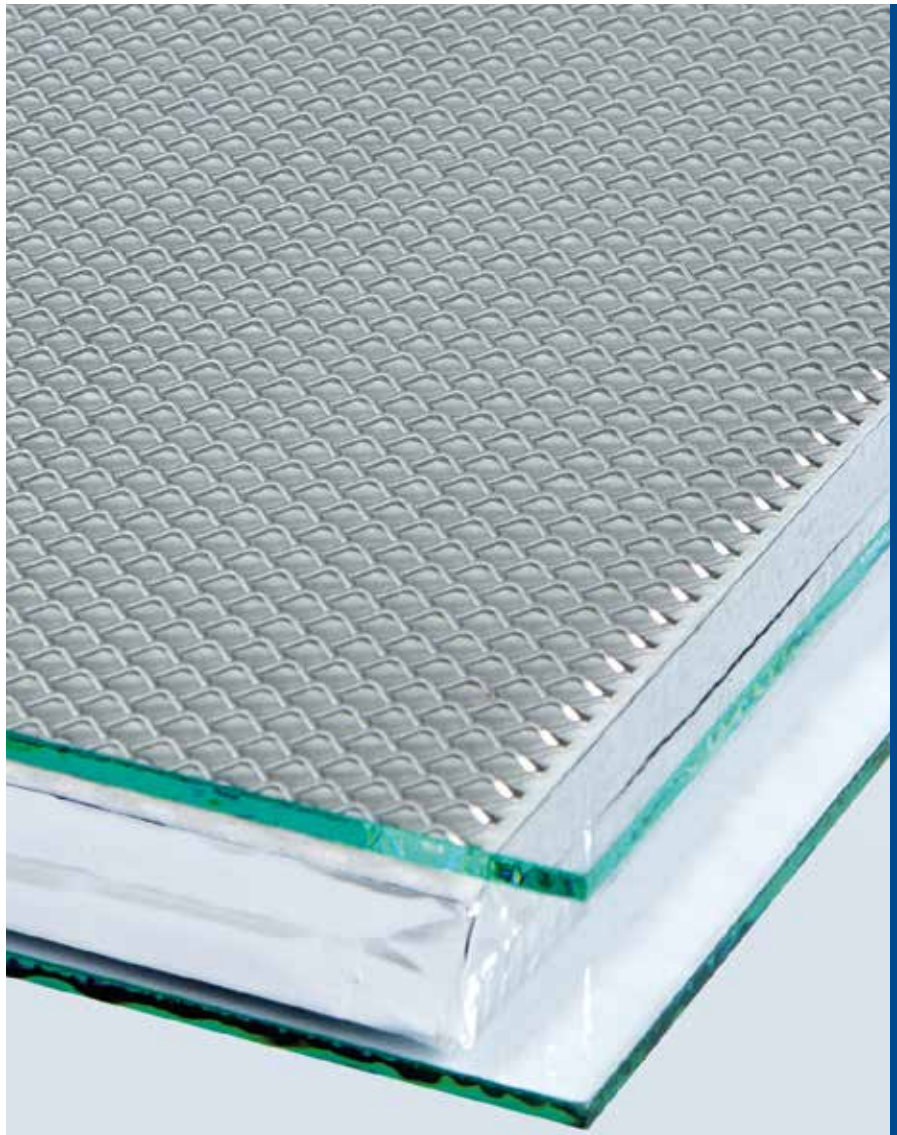


©Mikkelsen Arkitekter A/S

With the multifunctional modules, the different OKALUX products can be imbedded exactly where their specific functions are desired. KAPILUX inserts in the fanlight disperse the daylight deeply into the interior, OKATECH HPI with expanded aluminum metal is arranged in those areas, in which sun shading is required.

Multifunctional Design Variety

OKALUX HPI offers a wide range of individual design possibilities: numerous material inserts out of metal, wood or capillaries can be combined with the new insulation element as well as digital printing. In this way, architects and planners benefit from energetically optimised solutions with a myriad of design possibilities. The HPI insulating glass elements can be delivered in widths up to 2.00 m and heights up to 4.00 m. The thickness varies from 20 to 40 mm depending on the U-value required.



OKACOLOR HPI

Digital print Onyx



OKATECH HPI

Expanded alu



OKALUX HPI

Glass fibre tissue black



OKACOLOR HPI

Lacquer grey

OKALUX HPI: Benefits at a Glance

Perfect Thermal Insulation

- Optimises the energy standard of façades
- Adaptable as required

Cost Saving

- Thanks to its slender build-up, construction and installation costs are reduced as well as processes simplified
- Useable interior space is gained (additional income)
- Maintenance-free and easy to clean

Bespoke Appearance and High Standards of Design

- Aesthetic appearance independent of any façade construction
- Compatible with all standard façade systems and even structural glazing
- Enables continuity in façade design
- The constructive depth is comparable to that of a conventional glass unit – Areas facing the interior of the room can be free designed
- Suitable with restoration projects as well as individual, bespoke design solutions



©Eibe Sönnecken



OKALUX + KAPILUX



OKASOLAR



OKASOLAR 3D



OKALUX HPI



OKATECH



OKAWOOD



OKACOLOR



OKASTONE

OKALUX GmbH
Am Jöspershecklein 1
97828 Marktheidenfeld | Germany
Telefon: +49 (0) 9391 900-0
Telefax: +49 (0) 9391 900-100
info@okalux.de
www.okalux.com



DGNB
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

OKALUX is member of the
German Sustainable Building
Council.



We take architectural glass a step ahead.