

## OKASOLAR

Glazing with Integral Daylight Control



*Wir denken Architekturglas weiter.*



Windmill Library,  
Las Vegas | US  
JMA Architecture  
Studios

OKASOLAR W

© OKALUX

#### **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.

## Effective Daylight Systems

OKASOLAR was scientifically developed with light designers to optimize incidental light and shading. With fixed louvres in the cavity, OKASOLAR glass modules selectively direct daylight and protect against immediate solar radiation.

—	<b>Intelligent Light Control</b>	<b>04-05</b>
—	<b>Optimized TSET</b>	<b>06-07</b>
—	<b>Adjustable Light Transmission</b>	<b>08-09</b>
—	<b>Efficient Shading</b>	<b>10-11</b>
—	<b>High Functionality</b>	<b>12-13</b>
—	<b>Technical Data</b>	<b>14-15</b>



*Wir denken Architekturglas weiter.*

OKASOLAR – for a perfect balance of sun protection and use of daylight!

## Pleasant Daylight Atmosphere

Natural light has a major influence on the psychological and physiological well-being of people as well as on concentration and performance. The quantity and quality of light also influences the energetic total system of a building.

OKASOLAR, with its integrated light direction system, considers all these aspects at once so that design, sun protection and the effective use of daylight are united to create a perfect balance.







Kö-Bogen,  
Düsseldorf | DE  
Studio Daniel  
Libeskind

OKASOLAR S + W



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OKASOLAR has been installed into numerous projects and, with its application, proven that the most sophisticated designs can be realized when daylight is considered in the planning stage of a building. Functional glass in the Kö-Bogen ensures effective thermal sun protection while directing diffuse daylight deep inside the building.

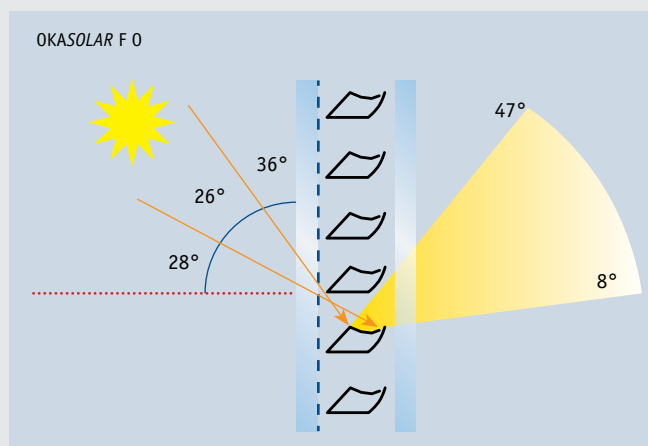
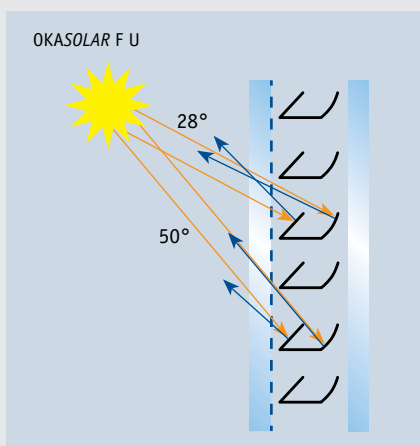
## Daylight-efficient Building Envelopes

Energetic requirements on the building shell are increasing. OKASOLAR F with especially formed louvres effectively help optimizing the energy balance of a building. The cross section of OKASOLAR F are extremely narrow – only 16 mm are needed in the cavity. They are perfectly designed for use in triple insulating glass and in narrow glazing configurations.



Profilmetall  
Engineering GmbH  
Marktheidenfeld | DE

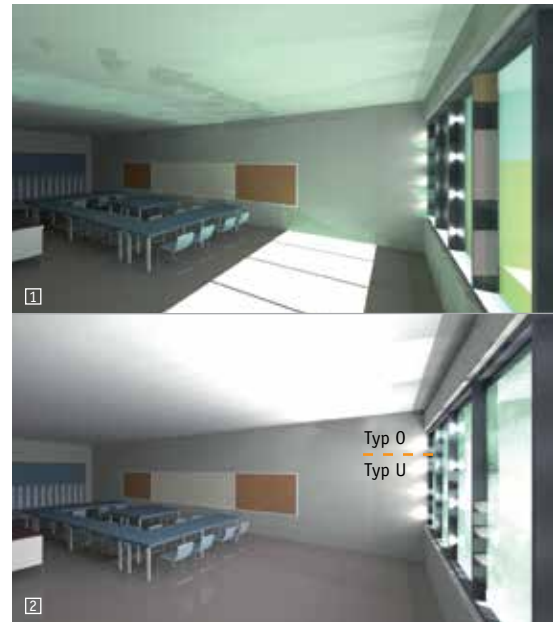
OKASOLAR F O  
OKASOLAR F U



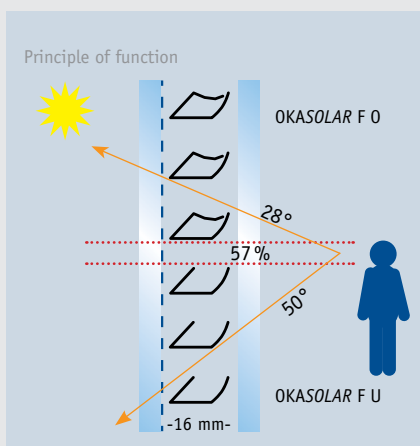
Perfect interaction:  
OKASOLAR F O reflects the  
daylight deep into the room.  
OKASOLAR F U reflects the  
majority of solar radiation  
back into the atmosphere.



We can react to your special lighting needs by combining the louvre types OKASOLAR F O and OKASOLAR F U in one element. The even illumination reduces the amount of artificial light needed – thus lowering the costs of power supply. Furthermore, the heat input in the building as well as the cooling loads are considerably reduced in the summer. In addition, the use of daylight creates a pleasant atmosphere providing maximum comfort to the occupants.



The simulation shows: when compared with common insulating glass (Fig. 1), the daylight conditions can be optimized by using OKASOLAR F O and OKASOLAR F U (Fig. 2).



Thanks to the extremely narrow cross section, the horizontal transparency could be improved to 57 %.

OKASOLAR F integrates itself harmoniously into the building shell and supports a positive total energy balance – ideal for sustainable buildings or the refurbishment of existing ones.



## Saving Energy the Intelligent Way



Cité du Design  
St. Etienne | FR  
LIN Architects  
Urbanists

OKASOLAR W + S



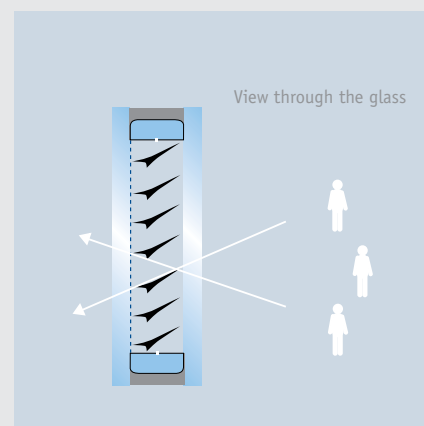
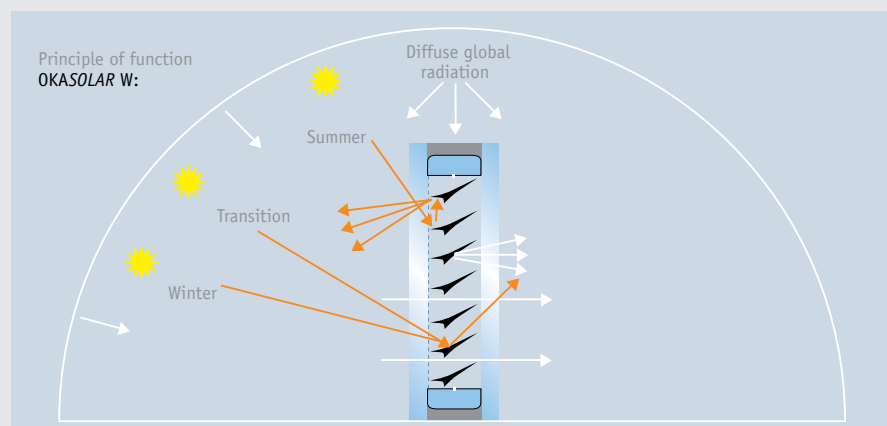
Terminal A  
Airport Luxembourg-  
Findel | LU  
Atelier Paczowski &  
Fritsch

OKASOLAR W

Office building  
Iserlohn | DE  
Martin Schrodtt

OKASOLAR W

OKASOLAR W optimizes the energy balance of a building considerably – and this is not only due to the thermal sun protection. The louvres direct the daylight inside of the rooms which contributes to reduce the energy consumption of artificial light. In addition, the energy required for cooling is reduced due to the fact that the incoming solar energy is reflected.





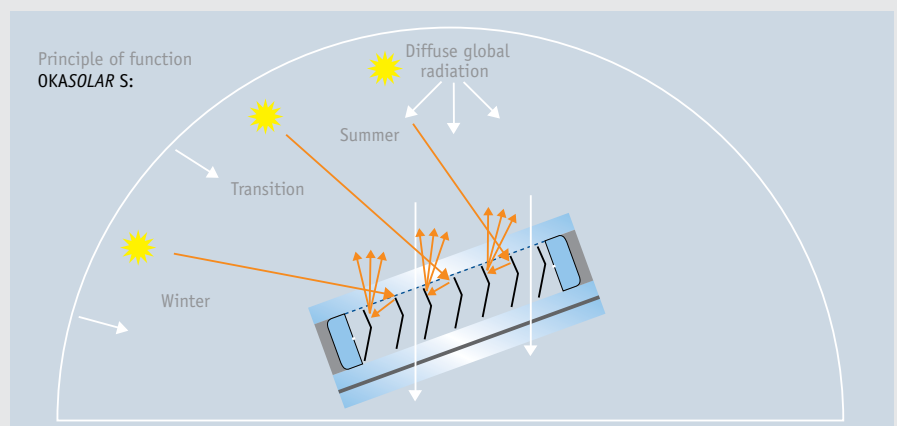


© Rainer Rehfeld

OKASOLAR W plays an important role in energy management for buildings. As a direction-selective daylight system, this functional glass ensures that the energy input varies in accordance with the season. OKASOLAR is able to achieve a difference of as much as 300 percent in light transmission and total solar energy transmittance between summer and winter!

## Efficient Sun Protection for Skylight Glazing

OKASOLAR S is especially appropriate for overhead glazing and ensures an even illumination of the rooms with diffuse daylight. A direct radiation of the sunlight can be almost entirely eliminated if desired. The precise setting of the shading system for a building is made at the factory based on exact solar assessment.





Audi  
Electronics Centre  
Ingolstadt | DE  
RKW Rhode,  
Kellermann,  
Wawrowsky  
Architects

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Hospital Miltenberg-  
Erlenbach GmbH | DE  
Beck Metallbau  
GmbH

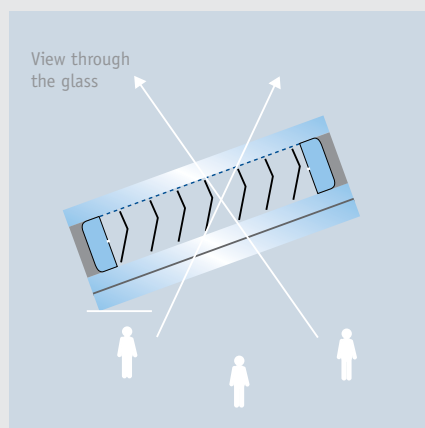
OKASOLAR S



© Christian Schwab



© Christian Schwab



The integrated shading systems create a pleasant atmosphere in the interior. They ensure an even and in particular, glare-free illumination at any time of day or year. The good transparency is also very pleasant for the user.

## Maintenance-free Solar Control

OKASOLAR contributes to save energy and operating costs. The durably installed inserts allow to avoid any maintenance and cleaning requirements – together with advanced functionality. Any consequential costs for repair and maintenance contracts can be fully disregarded. With respect to the life cycle of a façade, its optimal cost-performance ratio gives OKASOLAR a clear advantage over interior and exterior shading systems.



©Christian Hofmann/Architekturbüro Werner Haase

VR-Bank,  
Sennfeld | DE  
Architekturbüro  
Werner Haase

OKASOLAR W



## OKASOLAR: Benefits at a Glance

### High Functionality

- Effective, direction-selective sun protection
- Daylight direction towards building interior
- Light transmission precisely and specifically adjustable to the project
- Fire protection according to requirements
- Variety of special formats possible
- Visibility as bird protection function

### Sustainability

- Daylight entry reduces need for artificial light
- Reduction of cooling load in summer, solar gains in winter time
- Fully recyclable
- Louvres fully and durably protected inside the cavity
- No additional cost for maintenance, repair or cleaning

### User Comfort

- Comfortable daylight atmosphere in the entire interior
- Outstanding vision to the outside
- Effective privacy protection













### Special Characteristics of OKASOLAR F

- Patented supporting profiles in the louvre grid to compensate thermal expansion
- No visible lateral light gaps
- Filigree construction for triple glazing
- Optimized louvre geometry to reduce glare



©Ali Moshiri

## Technical Data

Products	View	Structure	Application	Dimensions max. [m <sup>2</sup> ] [ft <sup>2</sup> ]	Cavity [mm]	Louvre distance [mm]	Krypton: U <sub>g</sub> -value [W/(m <sup>2</sup> K)] <sup>1</sup> [Btu/(hr ft <sup>2</sup> °F)]
<b>OKASOLAR® F O</b> Triple Glazing			Façade	7 [75.35]	16+10	9,5	0,6 [0.11]
<b>OKASOLAR® F U</b> Triple Glazing			Façade	7 [75.35]	16+10	9,5	0,6 [0.11]
<b>OKASOLAR® W</b> Triple Glazing			Façade	7 [75.35]	22+10	17	0,6 [0.11]
<b>OKASOLAR® W</b> Double Glazing			Façade	7 [75.35]	22	17	1,0 [0.18]
<b>OKASOLAR® S</b> Triple Glazing			Roof	7 [75.35]	24+10	24,7	0,6 [0.11]
<b>OKASOLAR® S</b> Double Glazing			Roof	7 [75.35]	24	24,7	1,1 [0.19]

### Our special services

- TSET calculations based on individual coatings
- Calculation of the effective thermal properties
- Elaboration of solar assessment (incl. shading properties)



ALL OKASOLAR systems can be fitted as well with fire resistant glass matching E60 as per DIN EN 1363.

Argon: U <sub>g</sub> -value [W/m <sup>2</sup> K] <sup>1</sup> [Btu/(hr·ft <sup>2</sup> ·°F)]	Air: U <sub>g</sub> -value [W/m <sup>2</sup> K] <sup>1</sup> [Btu/(hr·ft <sup>2</sup> ·°F)]	TSET, SHGC % min. <sup>2</sup>	TSET, SGGC % max. <sup>2</sup>	Light transmission % min. <sup>2</sup>	Light transmission max. <sup>2</sup>	Special features
0,9 [0.16]	1,1 [0.19]	9	25	2	37	Retro-reflective and additional direction of light to the ceiling in the interior, can be combined with OKASOLAR F U
0,9 [0.16]	1,1 [0.19]	9	26	2	37	Retro-reflective and additional direction of light to the ceiling in the interior, can be combined with OKASOLAR F O
0,8 [0.14]	1,1 [0.19]	11	31	4	44	Transparency depending on the angle, efficient screening, light to the top of the room
1,4 [0.25]	1,8 [0.32]	12	33	4	50	Transparency depending on the angle, efficient screening, light to the top of the room
0,8 [0.14]	1,1 [0.19]	8	29	1	35	Partial transparency, very good glare protection, direction-selective light control
1,3 [0.23]	1,9 [0.33]	9	32	1	40	Partial transparency, very good glare protection, direction-selective light control

All technical values, such as light transmission, total solar energy transmittance and U<sub>g</sub>-values (Btu) can be adjusted matching requirements by varying other constructions and glass types.

The listed values are estimates. They were determined on the basis of measurements conducted by certified test institutes and the calculations derived from them in compliance with the relevant valid standards. Values determined on a project-specific basis may vary from the above values. The values continue to vary if other coatings are used. You will find more detailed, glass-specific information on soundproofing, fire protection, building and personal protection etc. in the internet [www.okalux.com](http://www.okalux.com), along with specified texts which we will provide on request.

<sup>1</sup> DIN EN 673 | <sup>2</sup> DIN EN 410

Subject to technical changes



OKALUX + KAPILUX



OKASOLAR



OKASOLAR 3D



OKALUX HPI



OKATECH



OKAWOOD



OKACOLOR



OKASTONE

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**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.*