



# CI System Glass Architecture PR 60

Active energy management for passive buildings

# LAMILUX CI-System Glass Architecture PR 60



» Passive houses represent a high standard of energy efficiency in modern construction. Structures built in compliance with the Passive House standard only contain components which feature exceptional energy-efficient qualities, conserve a large amount of energy in buildings thanks to their insulation properties and thus provide an extremely airtight building envelope. When selecting components, architects and planners make the right choice if they acquire structural elements which are certified as suitable for use in a passive house. Such elements include the glass structures in the **LAMILUX CI System Glass Architecture PR 60** product range.

**Customisable in terms of shape, this aesthetically pleasing daylight system has been certified as a suitable Passive House component by the Passive House Institute in Darmstadt, Germany.**

LAMILUX CI System Glass Architecture PR 60 is setting benchmarks for energy efficiency standards in sloped glazing structures and embodies the high standard of energy efficiency at LAMILUX. We are leading the way into a sustainable construction future with new technologies. «

**Joachim Hessemer, graduate engineer**  
Technical Manager  
LAMILUX Daylight Elements



## The LAMILUX CI Philosophy

Customer value is the reason for our existence and is the focus of our activities. This requires harmony, identity and a balance between customer value and company strategy.

These guiding ideas for our company's actions and our day-to-day relationship with our customers are described in LAMILUX's company philosophy:

**Customized intelligence - Serving the customer is our mission:**

**This requires outstanding performance and leadership in all areas relevant to customers, particularly in the role of:**

- Quality leader - optimum benefit for customers
- Leader in innovation - at the cutting edge of technology
- Leader in service - fast, uncomplicated, reliable and friendly
- Leader in expertise - optimum sales and technical advisory services
- Leader in solving problems - individual, tailor-made solutions



LAMILUX CI SYSTEM GLASS ARCHITECTURE PR 60

## LAMILUX activeENERGY –

Active energy management with daylight systems

**You save energy** – by using more daylight!

**You conserve energy** – by installing optimum thermal insulation!

**You control energy** – by using easy-to-operate and automated flap systems for natural ventilation and roller blinds for solar protection and shade.



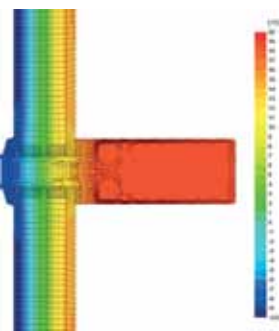
# The LAMILUX CI-System Glass Architecture PR 60

The first sloped glazing component suitable for passive houses

## Energy efficiency at its most beautiful

### Energy efficiency:

- First sloped glazing certified to the Passive House standard
- Top Passive House efficiency class – phA advanced component
- Thermal transmittance coefficient (UCWi) is 0.82 W/(m<sup>2</sup>K)
- Optimum solar gains
- Thermal performance calculated based on DIN EN ISO 10077-1 and 10077-2



12.6 isothermal line remains within the structure.

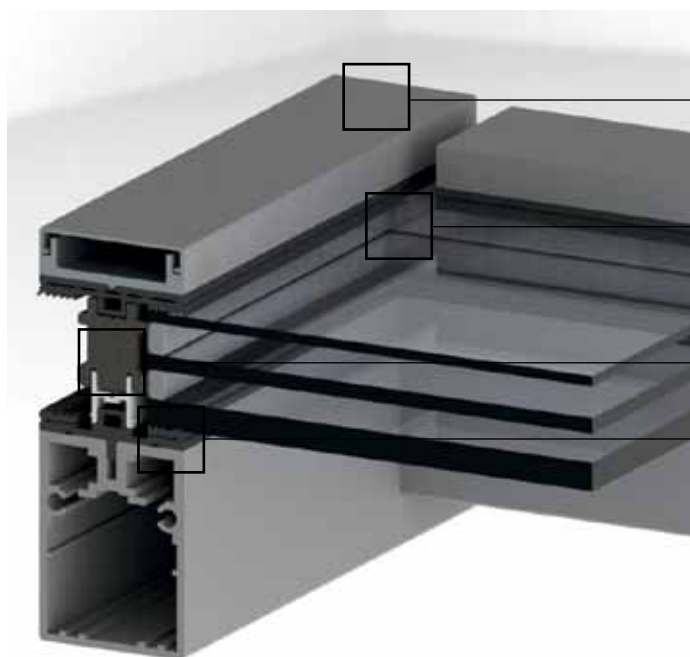
### Comfort and technology:

The intelligent use of highly efficient materials limits the minimum surface temperature on the inside of glass structures, thus preventing condensate and mould formation.

Mould grows on surfaces at a relative humidity of just 80 per cent or above. When the indoor temperature is 20°C and relative humidity is 50 per cent (standard conditions), this corresponds to a surface temperature of 12.6 °C.

Such data is used to calculate the fRsi value, a coefficient which indicates the likelihood of mould growth. If this value is less than 0.7, there is a risk of mould forming.

In **CI-System Glass Architecture PR 60**, the fRsi value is a stable 0.79, thus corresponding to a minimum surface temperature of 14.8 °C – An ideal value to ensure comfort and save energy.



**Cover strip with splash water duct**  
(optional with cover profile)

**NEW: "Warm edge"** with superspacer in serial-production triple glazing

**NEW: optimised impermeable core**

**NEW: optimised seal system**

# Advanced Component – Top efficiency class

LAMILUX CI System Glass Architecture PR 60 achieves best rating

» With its CI System Glass Architecture PR 60, LAMILUX has managed to bring onto the market the first certified post and rail system in the Sloped Glazing category. This provides energy and cost-conscious architects and planners with the first ever glass roof solution which is not only suitable for passive house constructions, but also complies with requirements for the top Passive House efficiency class phA. «

**Dr Benjamin Krick, engineer**  
Passive House Institute Darmstadt

## Tested and certified to a recognised standard

In addition to heat insulation properties, the balance of heat losses and heat gains is also relevant to analyses in accordance with the Passive House standard.

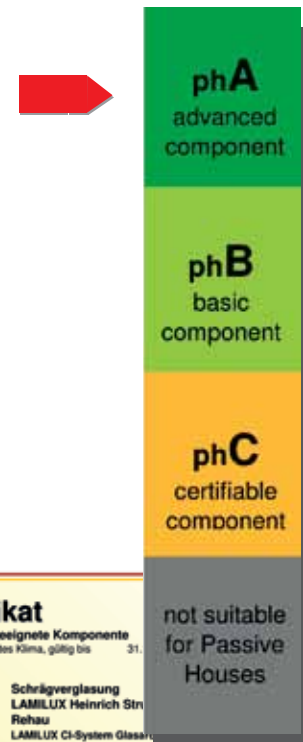
As solar gains are difficult to measure, established methods to determine heat losses are used. This involves quantifying areas where solar gains are not possible. Losses are defined using the  $\psi_{opak}$  value. The lower this value is, the higher the efficiency class is.

## Passive house efficiency classes

$\psi_{opak}$	Passive House efficiency class	Designation
$\leq 0,220 \text{ W}/(\text{mK})$	phC	Certifiable component
$\leq 0,155 \text{ W}/(\text{mK})$	phB	Basic component
$\leq 0,110 \text{ W}/(\text{mK})$	phA	Advanced component

## System and methods

- Aluminium post and rail system used in a vertical or inclined position with an internal screw channel and PE insulation in the glazing rebate.
- Calculation of thermal bridges using the BISCO heat transfer software programme
- Identification of thermal losses via glass support brackets and screws based on a three dimensional heat transfer analysis using the Solido software programme

|  | U-Wert [W/(m²K)] | Breite [mm] | $\psi_s$  [W/(m²K)] | $f_{R_{ext}, 0,25}$  [-] |
| --- | --- | --- | --- | --- |
| Abstandhalter |  |  | SuperSp. Tri-Seal® |  |
| Fliegel (t) | 0,91 | 60 | 0,034 | 0,79 |
| Plosten (m) | 0,91 | 60 | 0,034 | 0,79 |
| Glasträger-Wärmebrücke  $\psi_{GT}$  [W/K] |  |  |  | 0,010 |

 The certificate also includes a table for the Passive House efficiency class (phA, phB, phC) and a note that the component is 'not suitable for Passive Houses' if the efficiency class is phC or lower. The certificate is issued by the Passive House Institute Darmstadt, Dr. Wolfgang Feist.

# LAMILUX CI-SYSTEMS



ROOFLIGHT DOME F100



continuous ROOFLIGHT B



WINDOW WALLS



GLASS ARCHITECTURE KWS 60 / M



FRESH AIR SUPPLY DEVICES



GLASS ARCHITECTURE F



continuous ROOFLIGHT S



RECONSTRUCTION



SHEVS CONTROL TECHNOLOGY



FIBRE-REINFORCED PLASTICS

The technical data presented in this brochure was accurate when this brochure went to press and is subject to change without notice. Our technical specifications are based on calculations, specifications by suppliers or have been determined by independent testing authorities within the scope of applicable standards.

The calculation of thermal transmission coefficients for our plastic glazing took place according to the „method of finite elements“ with reference values in accordance with DIN EN 673 for insulated glass. Based on empirical values and specific characteristics of the plastics, a temperature vector of 15 K was defined as the vector between the outer surfaces of the material. Functional values refer only to test specimens in the dimensions planned for testing. We cannot provide any further guarantees of technical values. This applies in particular to modified installation situations or if dimensions are repeated on site.



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QM-System  
zertifiziert nach  
DIN EN ISO 9001

