CI SYSTEM REFLECTIVE
CI SYSTEM PRISM LED

MAXIMUM EFFICIENCY: DAYLIGHT AND ARTIFICIAL LIGHTING TECHNOLOGY PERFECTLY COMBINED

Customized Intelligence
Serving the customer is our first priority

DAYLIGHT MEANS QUALITY OF LIFE

Natural daylight has a proven positive effect on health, well-being and productivity

"Daylight is one of our sources of life. Let there be light ... and our well-being immediately benefits. We feel more balanced and empowered – and our "inner clock" is perfectly in sync. However: Most people spend large periods of time in enclosed spaces. Therefore, optimum guiding of natural light into the building plays an important role in architecture.

Our quality of life increases the more daylight we feel. Intelligent daylight solutions by LAMILUX allow natural light to be utilised in a targeted way – for a **brighter, healthier and more attractive** life."

Andreas Danler, Head of Lighting Applications, Bartenbach GmbH

Bartenbach
research & development

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

- **Leader in quality – for the highest customer benefit**
- **Leader in innovation – for always being ahead in technology**
- **Leader in service – for fast, straightforward, reliable and friendly communication**
- **Leader in expertise – for the best technical and commercial advice on the market**
- **Leader in problem solving – for custom made solutions**

WORLD'S FIRST: COMBINING DAYLIGHT AND ARTIFICIAL LIGHT

What is a daylight solution? During the day, it helps to optimally guide the existing natural light into the building. What is an intelligent daylight solution? A daylight system that actually increases the luminous efficiency and light yield by technical means.

MORE DAYLIGHT – REFLECTIVE MATERIALS

LAMILUX equips the insides of the upstand for flat roof windows with a **highly reflective material**. The light yield during daylight increases by **50 percent**. This means: **More daylight** with the same opening size of the daylight element.

PERFECT COMBINATION – LED LIGHTING

Continuously dimmable **LED light strips** are integrated in the upstand. As darkness increases, they gradually compensate the missing daylight component: The **perfect combination** of **daylight** and **artificial light** for constant brightness. LAMILUX developed the system in collaboration with the internationally renowned light specialists, Bartenbach.

INFO: ORIENTATION ON THE DAYLIGHT QUOTIENT (DQ)

By referencing the daylight quotient (DQ), we can determine the amount of natural light incidence in interiors due to daylight systems. The portion of external illuminance lux (lx) that reaches the interior, is stated as a percentage. For example: If the external illuminance is 10,000 lux and 400 lux is measured at a table in the interior, then the daylight quotient is 4 percent.

DIN 5034 DEFINES REFERENCE VALUES

For office and workspace with skylights, the DIN 5034 requires a DQ greater than 4 percent. This is also the minimum standard for living space. However, indoor illumination only becomes optimal if a daylight quotient between five and ten percent is achieved.

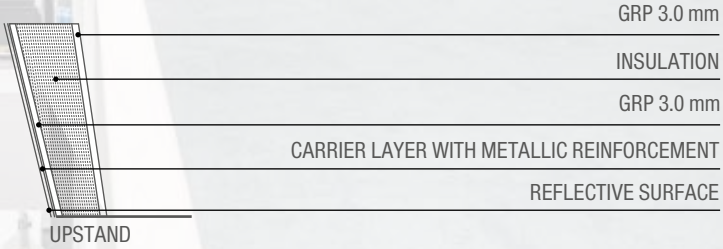
LAMILUX CI SYSTEM REFLECTIVE

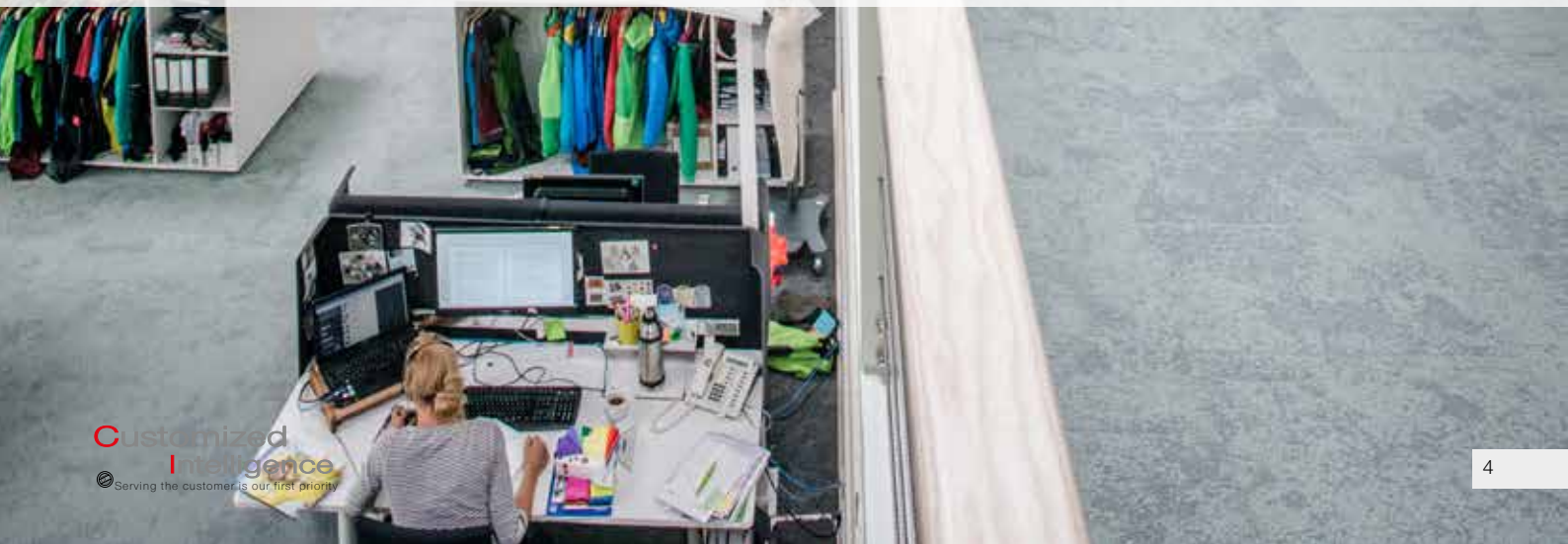
INCREASED USE OF NATURAL DAYLIGHT

Innovative reflector materials on the inside of the upstand help to significantly increase the usable daylight. It is possible to professionally compute and plan the natural light gain. The collaboration with the light specialists of Bartenbach GmbH demonstrate the benefits of the unique combination of an energy-efficient daylight system with a highly reflective inner surface.

MORE DAYLIGHT PER ROOFLIGHT DOME

For example: A workplace that is located directly under a 100/100 skylight, has a daylight quotient of approximately 4 percent (this is equivalent to 400 lx given an external illuminance of 10,000 lx). If you equip the upstand with reflective material, while keeping the same element size, the DQ increases to seven percent (700 lx at an external illuminance intensity of 10,000 lx).





Customized Intelligence
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FIFTY PERCENT MORE LIGHT

A state-of-the-art reflector material on the inside of the upstand ensures the highest luminous efficiency – thus setting a new standard in terms of the daylight quotient. The available interior daylight (light transmittance) increases by up to 50 percent – at the same time, the effect is totally glare-free and the energy input constant.

MORE DAYLIGHT WITH THE SAME OPENING SIZE

- The opening size of the daylight system remains the same, while illumination with natural light increases. Lighting designers can open up completely new opportunities for effectively utilising daylight and guiding it into the interior space.

NO GLARE EFFECT

- Although the aluminium material for lining the inside of the upstand is highly reflective – a copyrighted principle prevents glare inside the room.

ENERGY MANAGEMENT

- Lower heating and cooling loads mean up to 15 percent energy savings.
- A high daylight ratio can still be achieved with a smaller roof opening.
- Savings of up to 33 percent in energy for artificial lighting can be achieved (with the same opening size).
- Spaces can be illuminated with daylight for up to 25 percent longer every day.

White shaft
Maximum DQ at user level approx. 5%

Highly reflective shaft
Maximum DQ at user level approx. 8%

LAMILUX CI SYSTEM PRISM LED

MAXIMUM LIGHT DUE TO REFLECTIVE AND PRISM LEDS

The positive effect of daylight illumination on the well-being of persons can be enhanced – through lighting produced by continuously dimmable LED light strips. The light strips are installed circumferentially in the upper segment of the upstand and have an intelligent lighting control system to harmoniously offset the decreasing natural light during the day – right through to nightfall.

WELL-BEING AND MOTIVATION

The LED light strips create an illumination that is very similar to daylight; lighting with its circadian effect can be supplemented by artificial light as required. This unique combination

- is beneficial to the human sleep-wake cycle
- thereby contributing to more vitality and a better night's sleep
- promotes well-being and health
- ensures improved performance and motivation

INNOVATIVE TECHNOLOGY

Two light sources – daylight and artificial light – are interrelated and can be matched and controlled to suit the individual lighting needs. LAMILUX developed this innovative integration of an artificial light and a rooflight dome in collaboration with Bartenbach GmbH:

- Outstanding design with very narrow LED lighting strips
- Uniform and glare-free room illumination
- Absolutely flicker-free light dimming
- Extremely low heat output of the artificial light
- Very low energy consumption
- Long life cycle

Reference image neutral white light (4,000 K) to warm white light (2,700 K)

THE LIGHT COLOUR DETERMINES DAY AND EVENING

The combination of highly reflective material and LED light strips in a daylight system is the perfect all-in-one solution for maximum light yield. Natural light incidence is the most effective solution for illuminating spaces in an energy efficient manner. This effect is significantly enhanced by the reflector material – in the course of the day, the dwindling daylight can be additionally offset by continuously adjustable, switchable LED lighting.

ILLUMINANCE AND LIGHT COLOUR

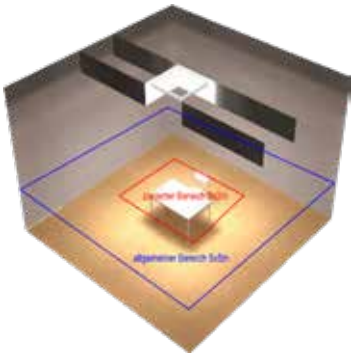
The perception of a lighting situation is largely driven by the factors illuminance (measured in lux, lx), and the light colour. The light colour is expressed as colour temperature in Kelvin (K). It characterises the colour appearance of the light from a light source. For comparison: The light colour of the sky mainly varies between 6,000 and 10,000 Kelvin.

RECOMMENDATION FROM EN 12464 STANDARD (AVERAGE MINIMUM ILLUMINATION)

- Corridors, stairs: 100-150 lx
- Kindergartens, classrooms: 300 lx
- Office workplace: 500 lx

SIZES AND VARIANTS

- Suitable for use in flat roof windows from 50/100 to 200/200 (two- and four-sided installation possible)
- Four-sided variant for standard upstands (also with concealed motor elements)
- Two-sided variant for open add-on parts (shading, cross beams, etc.)
- Optionally with warm white or neutral white LEDs



FOR EXAMPLE: ARTIFICIAL LIGHT DIMENSIONING WITH NEUTRAL WHITE LIGHT (MID-RANGE ILLUMINATION LEVEL | 4-SIDED | ROOM HEIGHT 2.5 M)

Dome size (top roof edge size)	80/80	100/100	120/120	150/150	Unit of measure-ment
Zoned area 4,000 K	452	631	806	1056	lx
General area 4,000 K	138	196	252	334	lx

Scan this to discover more about LAMILUX daylight systems!

ROOFLIGHT DOME F100

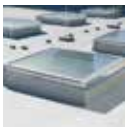
ROOFLIGHT DOME F100 ROUND VERSION
GLASS ELEMENT F100 ROUND VERSION

CONTINUOUS ROOFLIGHT B

GLASS ARCHITECTURE PR60

SMOKE AND HEAT EXHAUST
VENTILATION SYSTEMS

BUILDING CONTROL SYSTEMS



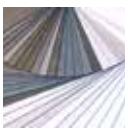
GLASS ELEMENT F

CONTINUOUS ROOFLIGHT W|R

CONTINUOUS ROOFLIGHT S

RENOVATION

SMOKE LIFT TWIN



FIBRE-REINFORCED
COMPOSITES

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