

Pictures are supplied by VELUX. Please do not copy, distribute or use the information in the mail or in any attachments.

# How to choose roof windows?

From the e-book you will learn:

- What to consider when choosing roof windows?
- How to choose windows according to the size of the room?
- Windows with bottom or top opening?
- Electric or solar windows? – Differences
- Remote window control – is it worth it?
- When to choose wooden windows, and when wooden-polyurethane windows?
- What is the collar for?
- How to choose a flashing for a window?
- What is lowered assembly? – Is it worth considering?
- Tips – how to save on the selection of windows

You will find the answers to all these questions (and many more!) in this e-book.



## It all starts with a project

Selection of windows should be done in terms of aesthetics, functionality and the size of the room. All these aspects affect the quality of lighting, visibility and general comfort of spending time in such a place.

The appropriate arrangement of window openings affects not only the aesthetics, but also the lighting of rooms. That's why **the window area should be min. 1/8 of the floor area.**

### Example

The attic is 4 m wide and 4 m long, with an area of 16 m<sup>2</sup>. In order to properly illuminate the entire room, you will need windows with a total area of 2 m<sup>2</sup>. This means, for example, three standard, single glazed windows with dimensions of approx. 0.6–0.7 m<sup>2</sup>.



The VELUX GDL CABRIO roof balcony consists of two parts . In order to open it, lift the upper sash to an angle of 45 ° and slide the lower sash forward with side rails. Thus, without any additional structure on the roof, you can create a balcony.



**8 m<sup>2</sup> attic = 1 m<sup>2</sup> window**

A VELUX balcony or VELUX balcony windows are the solutions meeting the lighting and windows arrangement requirements. These types of windows allow you to gain not only more light and air, but also a panoramic view.

## Windows arrangement

It is important that the windows are not above the line of sight. It is for you to be able to observe the surroundings from a sitting and standing position

To open the **VELUX GEL balcony** window, tilt the upper part of the window to an angle of 45 ° and stop it in any position. The lower vertical sash opens to the side..

**Balcony windows – an exit to the outside terrace**

## How to increase the amount of light in a room?

A single window is not enough? You can combine windows with each other in the so-called "combo sets" (windows placed side by side, horizontally)? You can add an extra bottom vertical window (extension of the sloping roof window). When the roof slope becomes a vertical wall, it is worth considering a sloping and vertical combination below the skylight, which can be tilt and turn.



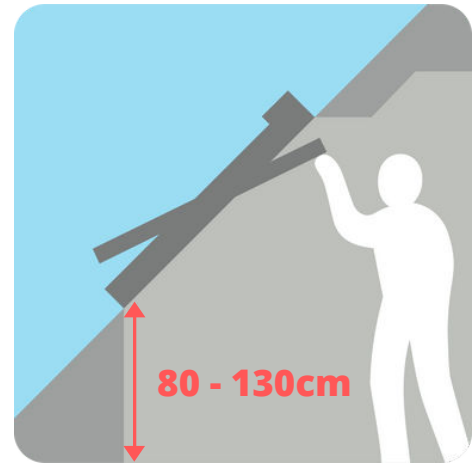
# Windows with top or bottom opening?



**Top opening**



**Roof window with top opening** - the lower edge should be 80-130 cm above the floor. This allows us to easily open the window and provides a perfect view, both from a sitting (approx. 90 cm from the floor) and a standing position. The closing handle should be placed at the height of 185 - 200 cm, In this way all household members can reach it.



15° - 44°

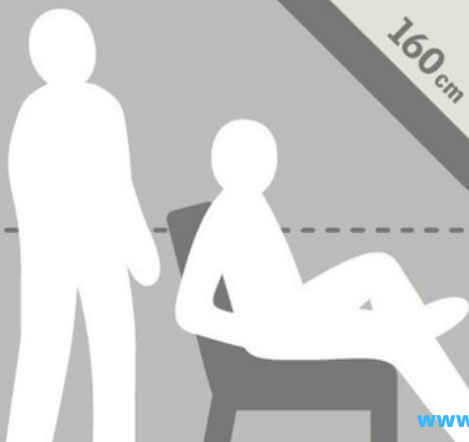
42° - 54°

52° - 90°

**The smaller the angle of the roof slope, the longer the window should be.**

200 cm

90 cm



160 cm

140 cm

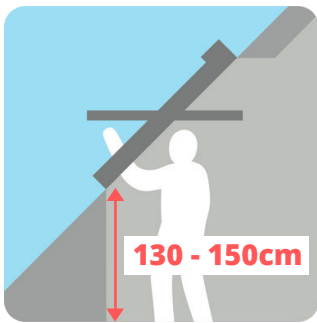
118 cm

98 cm

# Bottom opening

Fenbro

**Roof window with a bottom opening** - the bottom edge of the window should be at a height of 130-150 cm (or higher). To have access to the handle, it is not recommended to put any furniture under the window. The view will be mostly of the sky.



**The appearance of the windows** - regardless of the solution you choose (top or bottom opening), the windows look the same from the outside and inside (except for the appearance and position of the handle or the design of the diffuser).



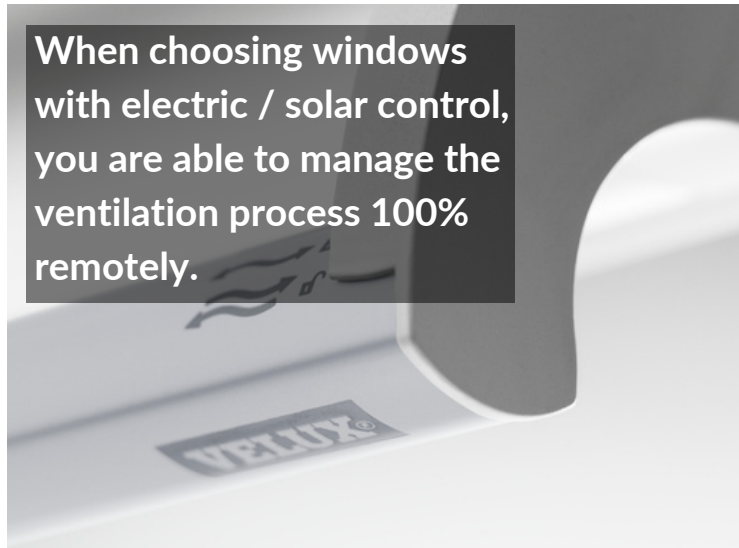
## Different rooms - Different needs - Different windows

Remember that you can mix products with each other: wooden windows, polyurethane windows, the same applies to the windows with top or bottom opening, the height of their installation and window accessories.

# Window ventilation

Did you know that cold air in unventilated rooms collects moisture? Too much humidity (> 80%) has a negative impact on our health. The use of built-in diffusers in roof windows solves this problem. When the windows are closed and the air inlet is open, fresh air flows into the room and hot air with steam is discharged outside, limiting the deposition of moisture. It happens e.g. in the bathrooms during long baths.

**All VELUX roof windows are equipped with ventilators.**



## Thermal insulation of roof windows

Windows are to protect against the escape of heat to the outside. Therefore, better-quality glazing (e.g. a triple glazed window with better parameters) should be used from the north, where the windows will have a lower heat transfer coefficient (they will be warmer) - e.g.  $U_w = 0.92-1.1 \text{ W / m}^2\text{K}$ . From the south, windows with a higher thermal coefficient - eg  $U_w = 1.3 \text{ W / m}^2\text{K}$  (with standard glazing) are recommended



Oszczędności

### Why are VELUX windows made of wood and not PVC (plastic)?

It is influenced by the following factors:

- high durability
- low heat transfer coefficient
- elegant appearance

## What are the windows made of?

The material used is 1st class pine wood. The frames of the window sash are made of glued elements (guaranteeing strength and resistance to deformation). The wood used for the production of windows is FSC certified (sustainable forest management).

Toughened outer pane

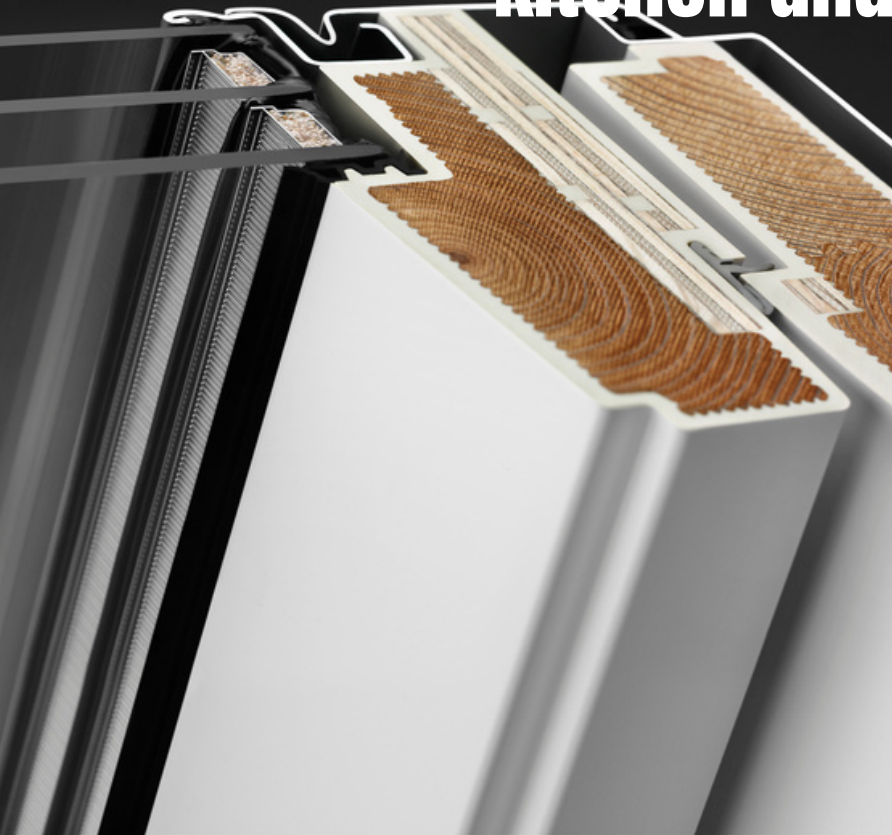
Grey insulating material (EPS material - ThermoTechnology™ - 92% air) is placed on the frame and sash joints. This material has 3 times better insulation than wood (which of course affects the favorable insulation parameters). All VELUX windows are classified in the thermal insulation class 4 (the highest one).

The surface of wooden windows is factory-protected with an impregnation and varnish coating.

The right window for every room

Fenbro

## Kitchen and bathroom



Windows made of **wood** are subjected to high-temperature treatment. This contributes to the favourable insulation parameters of the **polyurethane-coated** window (material resistant to moisture, maintenance-free). Windows are perfect for all rooms with increased humidity. The surface of these windows is smooth and uniform, which prevents the accumulation of moisture, dust and dirt on them.

### Benefits:

- windows do not turn yellow with time (resistance to UV radiation)
- no need for maintenance and renovation (painting)
- moisture resistant

In the **bathroom**, a very good solution is the upper opening. Thus, the lower edge of the window will be at a height of approx. 90 cm. This will allow you to place all the necessary cosmetics under the window without obstructing the view outside the window while showering.

If, on the other hand, you have neighbours and you want to maintain privacy - the ideal solution is to use blinds that are resistant to moisture and are easy to clean.





## The right choice of room windows

### Bedroom

Windows with the rain mute package will be perfect. If this is not enough to protect yourself against noise from the outside - you can also install an external roller shutter. All VELUX windows are equipped with air inlets, which will provide access to fresh air. Another accessory that you need to think about is the blackout blinds, which are essential to ensure complete darkness in the room. These changes will allow you to have a good night's sleep, regardless of the weather conditions.

### Kids room

In the kids room, the best solution is a window with an upper opening system. Why? Simply because a small child cannot open it (the handle is too high). The use of blackout blinds will certainly help kids fall asleep easier, even during the day.



## Remote control

### VELUX INTEGRA® electric control

It will work best when the window is too high (the lower edge is above 2m), and the lower opening is an insufficient solution for controlling the window and roller blinds. Everything is done remotely - using the application. The system supports windows as well as external and internal roller shutters.

#### How it works?

There is a built-in rain sensor that closes the windows automatically when rain is detected.

#### The advantages:

The possibility to control one or all windows at once - at the same time.

## Remote control

### VELUX INTEGRA® solar control

The system works in the same way as the one with electric control. The difference is that it is powered by a solar panel located in the upper outer part of the window.

#### Solar control - features:

- Factory built-in solar powered motor for opening a window with a rain sensor
- The system powered by a solar battery allows for simple installation of the window without running cables - it's especially convenient in already finished rooms
- A fully charged battery provides 300 cycles (closing-opening)



# Automated window control management

## VELUX ACTIVE

The system itself manages the windows in your home. After installing the VELUX ACTIVE application on your phone, you close and open windows, external / internal roller shutters, blinds and control the amount of air blown through the vents. You can do it all from anywhere, wherever you are.

### What's the situation at home?

Imagine you are on vacation. Even then you can close the window, roller blinds or ventilate the house at any time.

### Safety

If CO<sup>2</sup> rises to a dangerous level, VELUX ACTIVE will automatically open windows. This will also work when the humidity in the room is very high.

### VELUX ACTIVE + VELUX INTEGRA®

Both systems form a common package. Therefore, to use VELUX ACTIVE, you must first have a VELUX INTEGRA® electric or solar control installed.

### VELUX Active

Jest to absolutna innowacja na rynku w systemach okien dachowych.

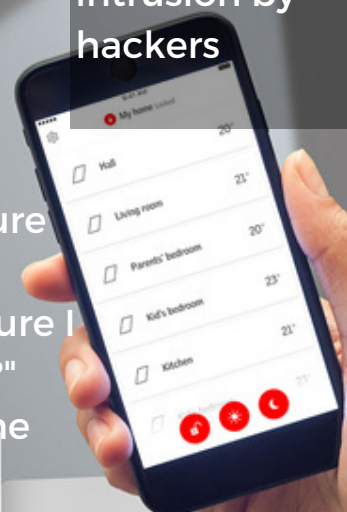
### The system

It is based on the data from weather stations and sensors in the installed windows. It measures the temperature and humidity in the room and CO<sup>2</sup> concentration.

### The advantages:

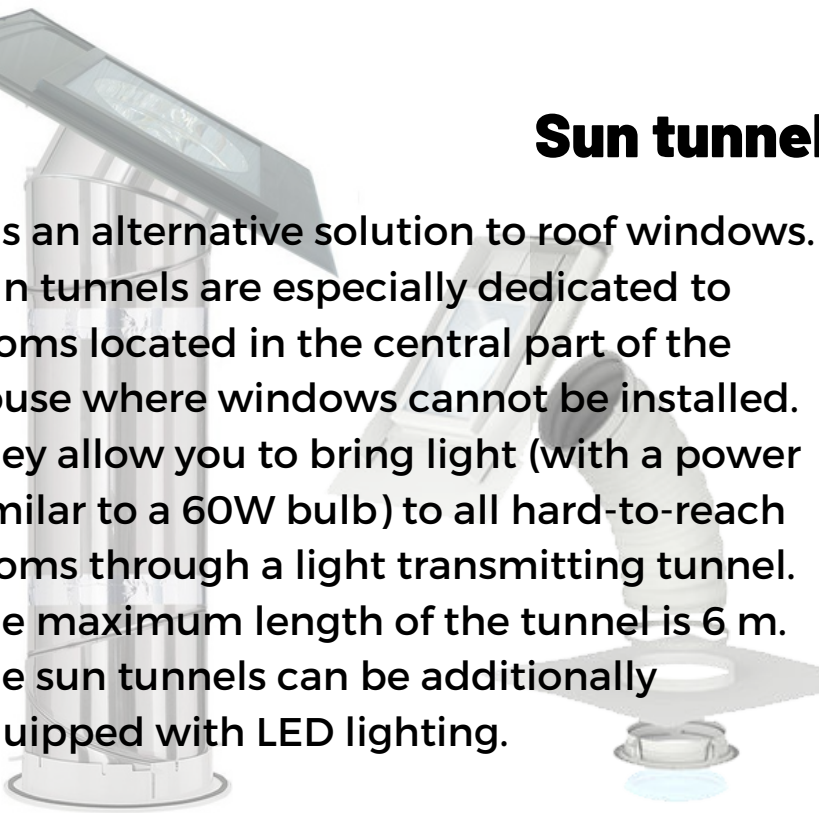
- Control
- Convenience
- Better air quality at home
- Optimum temperature
- No worries during a storm like "Are you sure I closed the windows?"
- System control via the app

The system is protected against intrusion by hackers



# Sun tunnels

It is an alternative solution to roof windows. Sun tunnels are especially dedicated to rooms located in the central part of the house where windows cannot be installed. They allow you to bring light (with a power similar to a 60W bulb) to all hard-to-reach rooms through a light transmitting tunnel. The maximum length of the tunnel is 6 m. The sun tunnels can be additionally equipped with LED lighting.



Sun tunnels can be installed in flat and sloped roofs.

Corridors, bathrooms, wardrobes - sun tunnels will be perfect in these places.

## Flexible sun tunnel



The sun tunnel creates a reflective coating that reflects up to 98% of the light rays. In this way you can forget about turning on light at home. It is worth pointing the lighting element to the south - then you will get even more light.

Savings



[www.fenbro.com](http://www.fenbro.com)



## Rigid sun tunnel

## Flat roof windows

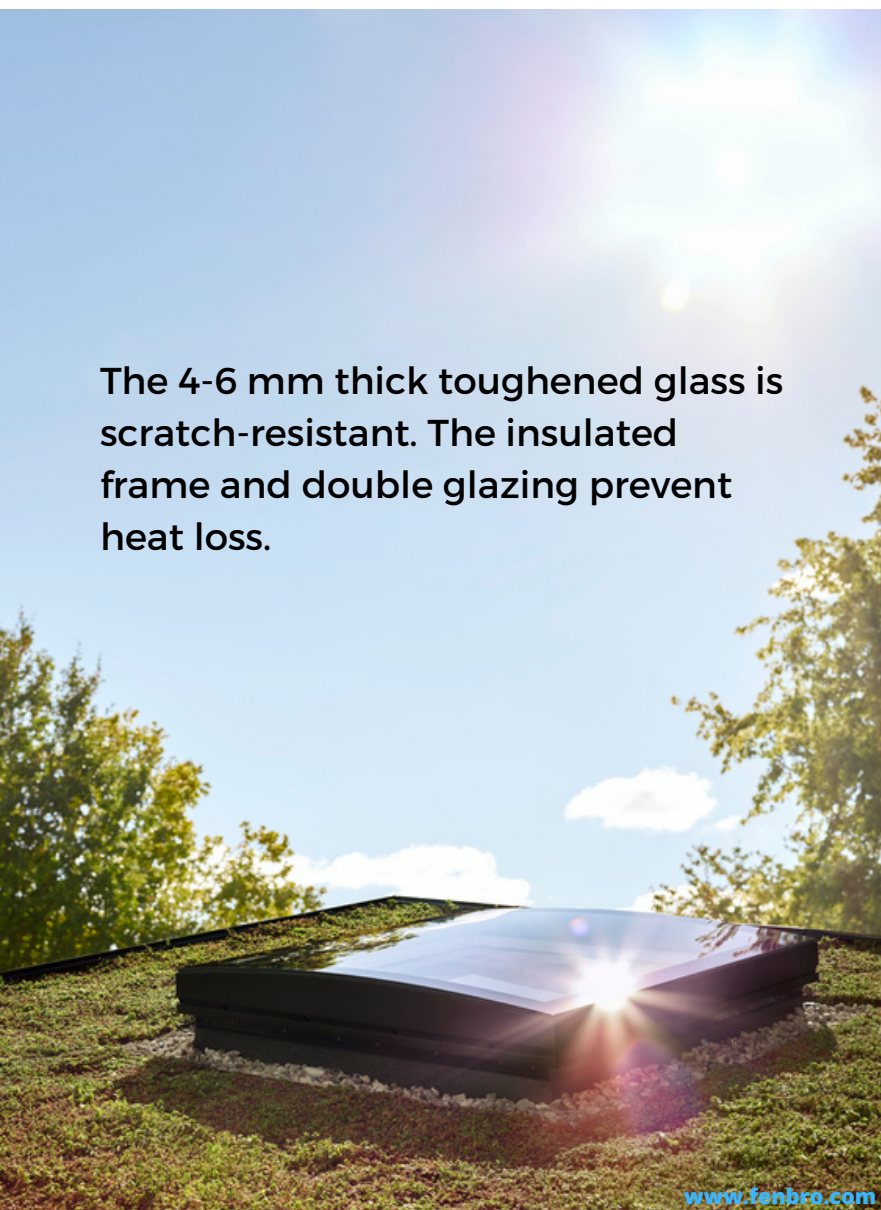
### Spherical glass module

It is characterised not only by attractive design, but also practicality. It gives more light during the day to centrally located rooms. This translates into savings on lighting.



Available in the following versions:  
non-opening, manual and electric.

The 4-6 mm thick toughened glass is scratch-resistant. The insulated frame and double glazing prevent heat loss.



# Types of roof windows



## Centre pivot windows:

- top or bottom opening system
- convenient cleaning of the glass thanks to the possibility of rotating the sash by 180 °



## Top-hung windows:

- ideal for roofs with the opening angle up to 45°
- stepless sash elevation of up to 45 ° for a perfect view



## Electric windows:

- control of windows and roller shutters using a wall keyboard or a smartphone application
- a quiet engine, invisible when the window is closed
- rain sensor as standard
- low power consumption in standby mode
- compatible with VELUX ACTIVE



## Solar centre pivot windows:

- factory built-in solar powered motor for opening a window with a rain sensor
- the system powered by a solar battery enables simple installation of the window without cables - especially convenient in already finished rooms
- a fully charged battery provides 300 cycles (closing-opening)

# Types of roof windows



## Bottom fixed windows:

- attractive window downward extension in rooms with a sloping roof
- attractive and wide view
- greater glazing area means even more light
- narrow connection between windows



## Sloping and vertical windows:

- attractive window extension in rooms with a sloping-vertical wall
- more glazing area and more light
- the view of the surroundings from the top of the window even to the floor



## Roof terrace windows and balconies:

- comfortable lit interior with unlimited views
- upper part with stepless opening sash up to 45 °
- allows you to go out to the terrace or create a balcony with a width of 114 cm



## Sloping and vertical window combinations:

- bring more light into the interior
- provide a panoramic view
- either a top or bottom opening system



# Types of roof windows



## Flat roof windows:

- illumination with natural light
- fresh air supply
- unique aesthetics of the room



## Sun tunnels:

- modern design fits perfectly with any interior arrangement
- flat roof elements blend well with the plane of the roof, especially in the case of pitched roofs
- high reflectivity of the light transmitting tunnel



## Rooflights:

- attic window and roof hatch at the same time
- made of glued wood
- equipped with a ventilation flap



## Smoke ventilation windows:

- the smoke ventilation system activates an electric chain drive that automatically opens the window
- this enables the maximum dispersion of smoke and heat from escape and fire routes.

## Roof windows flashings

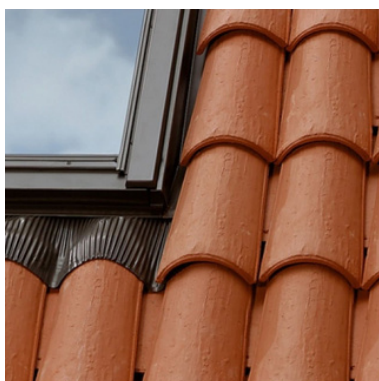
The flashings are used to seal a window (draining water and snow beyond its outline). They are selected depending on the type of roofing material and its angle of inclination. A flashing is an essential part of the roof window which cannot be installed without it.



**EDZ** - For profiled roofs with a profile height of up to 45 mm.

Sample coverage:  
ceramic tiles,  
concrete, metal tiles.

Roof pitch:  
20-90 °



**EDW** - For profiled roofs with a profile height of up to 120 mm. Sample

cover: tiles  
concrete or ceramic,  
roof tiles, thatch.

Roof pitch: 15-90 °



**EDS** - For flat roofing materials up to 16 mm thick (2 x 8 mm).

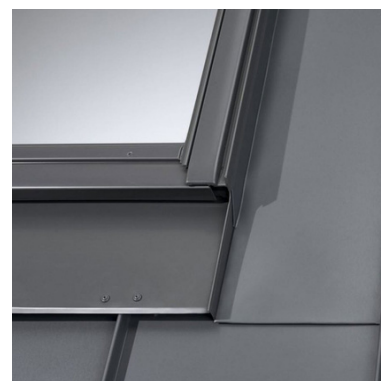
Examples of cover:  
bituminous shingle,  
roofing felt, flat sheet  
metal. Roof pitch: 15-90 °



**EDB** - For flat materials coverings with a thickness up to 38 mm (2 x 19 mm).

Sample coverage:  
plain tile  
placed in a "husk".

Roof pitch: 25-90 °



**EDQ** - Flashing for standing seal roofing between 25-40 mm.

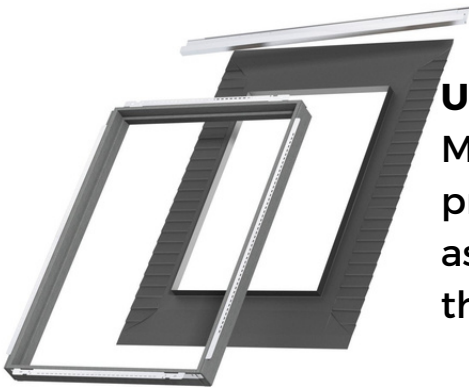
Roof pitch: 15-90 °

# Warm assembly system

## BDX warm recessed installation system

Roof windows are one of the elements in the roof structure. Their insulation is of great importance. No matter how good windows you choose, you will not guarantee warmth in the room unless the installation is carried out consistently.

### The "warm assembly" products



#### **Underfelt collar BDX:**

Made of 2-layer polyethylene with two levels of hardness. It provides a perfect fit to the window and the roof structure as well as effective thermal insulation of the outer surface of the window.



#### **Underfelt collar BFX:**

Made of pleated polypropylene non-woven fabric. It provides a perfect fit to the window, batten structure and tightness against moisture and wind, while maintaining the necessary ventilation of the lower layers of the roof.



#### **A telescopic, durable drainage gutter**

It is the top element of the BDX insulating collar.



#### **Vapour barrier BBX:**

It is a tight and durable connection between the window and the room's vapour barrier. Durable vapour-barrier foil, additionally reinforced in the corners, is integrated with a special profile sealing the connection with the window. This is the most effective thermal insulation protection against moisture from inside the room.

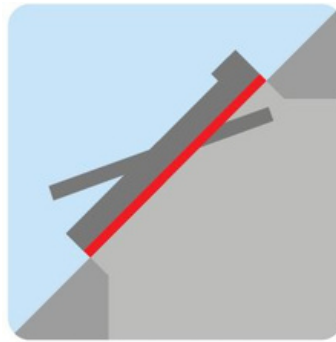


#### **Roof window recess LSB (LSC, LSD):**

These are shaped elements above and below the window, which provide more space for thermal insulation at the junction of the window with the roof. Aesthetically made of 2-layer foamed PVC with a thickness of 10 mm, available together with cover strips and BBX vapour barrier.

## Warm assembly

You can achieve even better insulation parameters by installing the window 4 cm lower in the roof structure ('the recessed installation')



Montaż standardowy



Montaż obniżony



All **VELUX** windows are adapted to recessed installation.

Benefits of the recessed installation:

- even better window insulation parameters
- even better integration of the window into the roof
- especially visible with flat roofing materials, e.g. flat tiles
- better interior lighting and outside view
- aesthetic appearance

## Flashings dedicated to the recessed installation



**EDN** - do materiałów profilowanych i dachówek płaskich

**EDJ** - do płaskich materiałów pokryciowych o grubości do 16 mm (2 x 8 mm)



# VELUX windows - three levels of comfort

Fenbro

## Standard Class

### WOODEN WINDOWS



Bottom opening

2 panes  
2 types of material  
2 methods of opening

Uw 1,3 W/m<sup>2</sup>K

### WOODEN-POLYURETHANE WINDOWS (moisture-resistant)



Top opening

## Standard Plus Class

### WOODEN WINDOWS



Bottom opening

3 panes  
2 types of material  
2 methods of opening

Uw 1,1 W/m<sup>2</sup>K

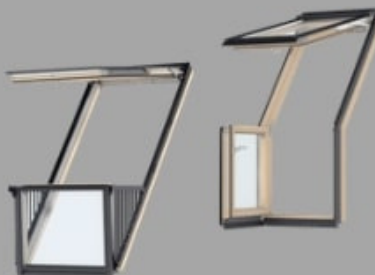
### WOODEN-POLYURETHANE WINDOWS (moisture-resistant)



Top opening

## Premium Class

### WOODEN WINDOWS



CABRIO® BALCONY AND ROOF TERRACE

Additional control  
option:  
electric/solar  
3 panes

Uw 1,1 W/m<sup>2</sup>K

### WOODEN-POLYURETHANE WINDOWS (moisture-resistant)



CENTRE-PIVOT  
WINDOWS

TOP HUNG  
WINDOWS

Combining windows into combi sets

**VELUX®**

„VELUX and the VELUX logo are registered trademarks of VKR Holding A / S”.

The photos in this e-book are provided by VELUX and may not be used or distributed without written consent. Pictures are supplied by VELUX. Please do not copy, distribute or use the information in the mail or in any attachments.