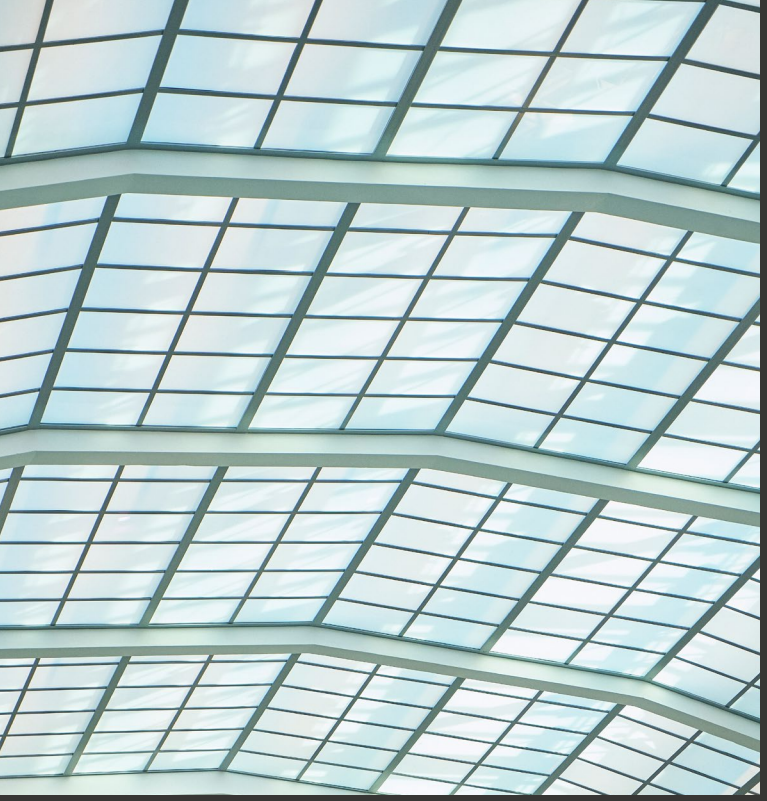
VELUX Glazing Panels

Bespoke daylight solutions for public and commercial buildings

commercial.velux.com

VELUX®

Commercial



Front cover: Dual pitched solution, Concession Porsches Poissy, France.
This page: Mono pitched solution & Step solution, Øbro Hall, Copenhagen, Denmark.

Bespoke daylight solution in elegant design

VELUX Glazing Panels are bespoke glass rooflights with slim and shallow profiles for optimal daylight influx. They enable the creation of a wide range of rooflight designs from flush installations in a pitched roof to pyramids on a flat roof.

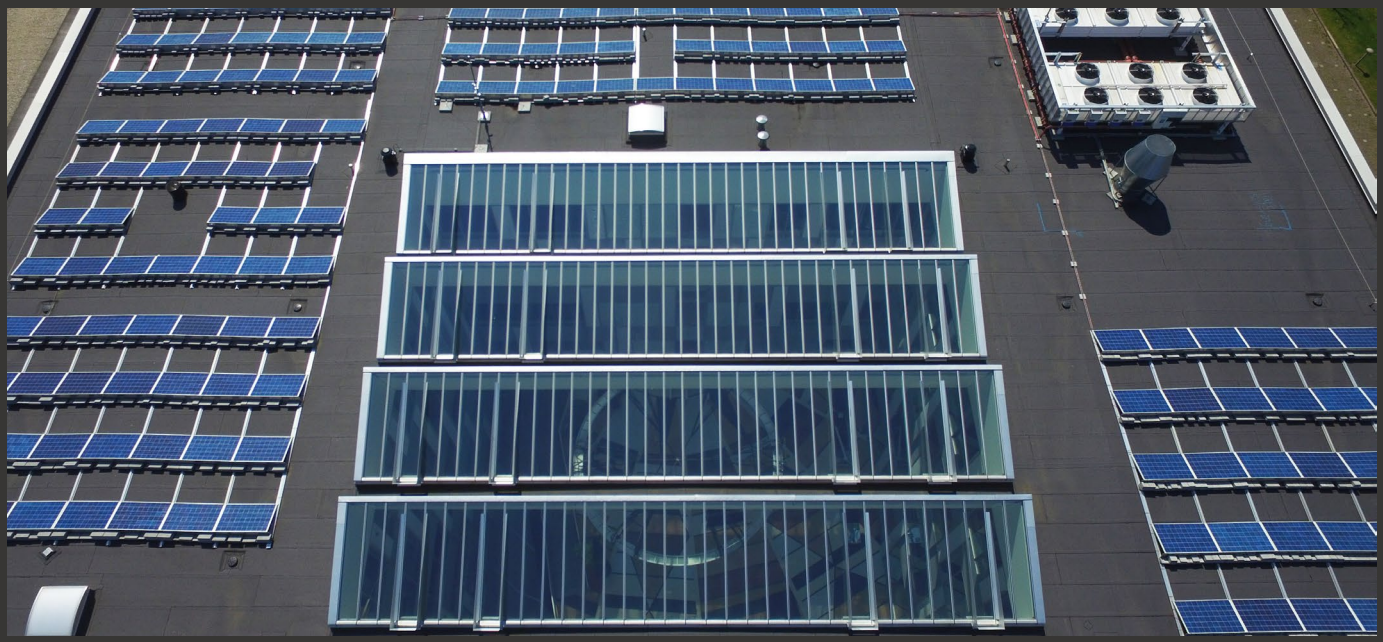
VELUX Glazing Panels are ideal for refurbishment projects of public and commercial buildings.

VELUX Glazing Panels come as fixed or venting options with double or triple glazing for design flexibility. Venting panels are top-hung and available in comfort and smoke ventilation versions.

Index

Mono pitched solution in saw tooth roofs, National College for Advanced Transport & Infrastructure, Doncaster, Great Britain.

Atrium mono pitched solution,
MT Højgaard, Søborg, Denmark
Certificate: DGNB Gold



Serving your daylighting needs every step of the way

VELUX Commercial offers daylighting and ventilation solutions for industrial, commercial and public buildings. Our domes, rooflights and glazing systems provide plenty of daylight and fresh air, transforming the indoor spaces into inspiring and productive places.

With us as your partner, you have installation and technical expertise close at hand Together, we can develop long-lasting and high-quality results for your building.

We are here to support you throughout the building project, from specification and design to installation and maintenance. We will carefully listen to your specific needs and help you select the best possible solution.

As part of the VELUX Group, we draw on 80 years of expertise in daylighting solutions. Today, we are a team of 1,100 people working within manufacturing, sales and global support functions in 15 countries.

VELUX Commercial offers solutions in following categories:

Domes and flat roof windows
Our complete range of prefabricated, ready-to-install domes and flat roof windows provide single sources of daylight and fresh air as well as smoke and heat exhaust ventilation.

Vario Continuous Rooflights
Our economic continuous rooflight systems provide large areas of natural, diffused light as well as comfort and certified smoke and heat exhaust ventilation options in a lightweight construction.

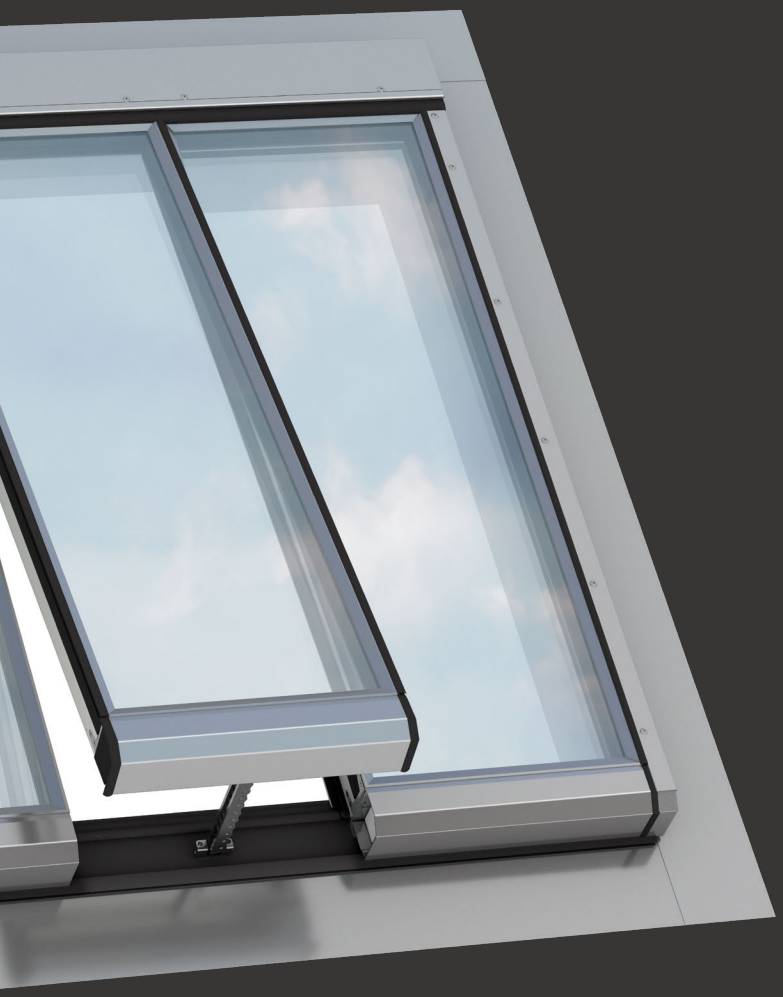
GRILLODUR®
This lightweight, fiberglass solution provides glare-free and shadow-free illumination, along with fall-through safety and options for comfort and smoke and heat exhaust ventilation.

Glass systems
Our reliable glass systems with design flexibility enable you to produce a building with optimal daylight and fresh air as well as smoke and heat exhaust ventilation to support occupant wellbeing.

Smoke exhaust and comfort ventilation
Our solutions for smoke and heat exhaust ventilation, comfort ventilation and daylight and heat control ensure safety and occupant wellbeing.

Support
We offer a wide range of support in the design, specification and installation phases, as well as, service and maintenance. For easy specification, download our detailed 2D illustrations and technical drawings or our detailed 3D CAD/BIM objects.

Improving well-being and comfort
With people spending up to 90% of their time indoors, designing with daylight becomes increasingly important to enhance well-being. Innovative daylight design connects the inside of buildings to the world outside. Natural light helps stimulate the mind and creates comfortable environments for work, study, and leisure. When thermal control is combined with natural light and fresh air, comfort and well-being are maximised.



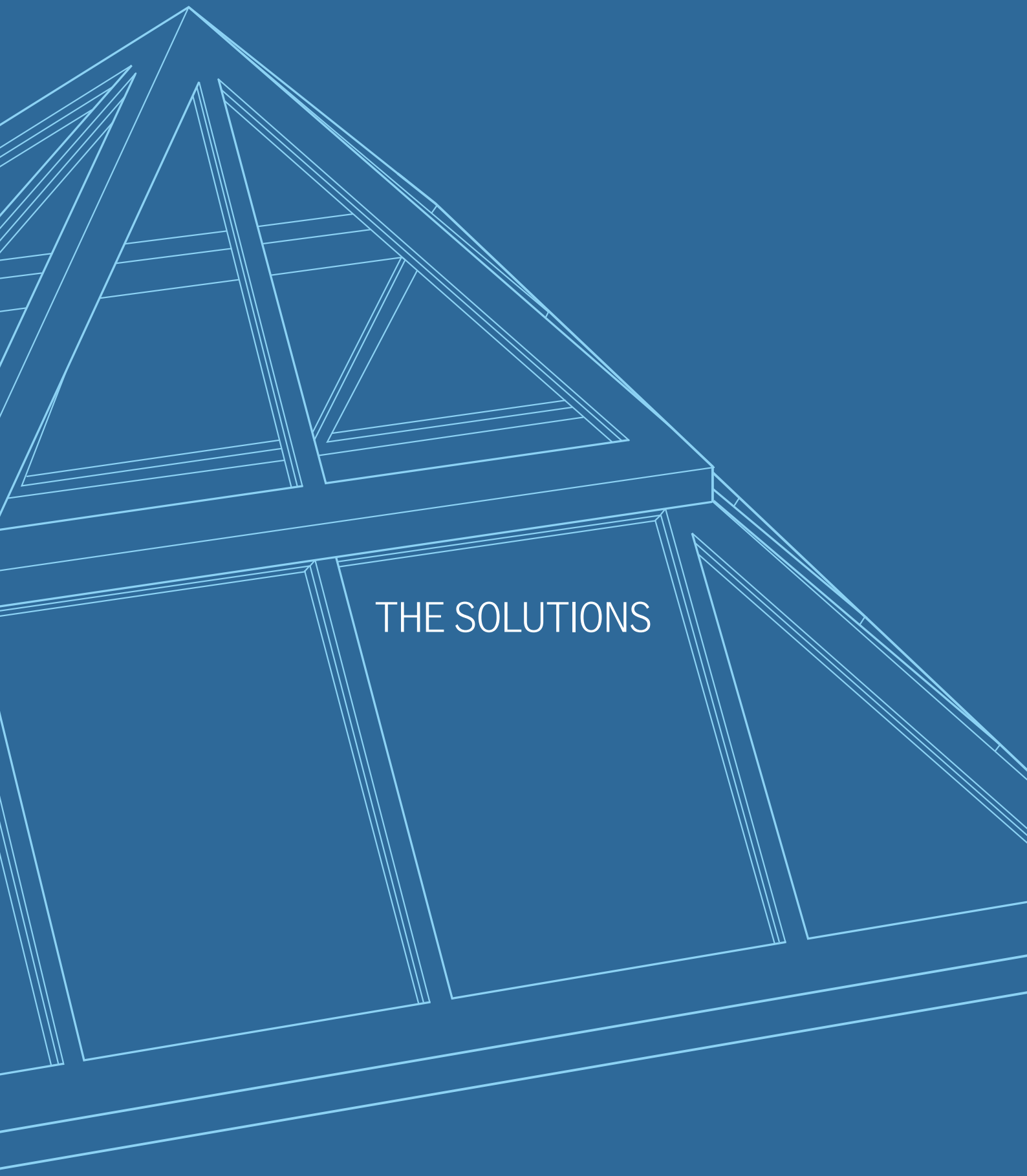
Daylight and ventilation with additional comfort features
VELUX Commercial offers several unique features to help create grand daylight designs. The availability of sun protection and opening modules for ventilation help reduce heat and glare exposure, providing climate control.

Daylight and artificial light
A key difference between daylight and artificial light is daylight's evolving light levels, color, and direction throughout the day. The direction in which light falls is also dependent on the location of windows and lighting fixtures. Daylight penetrating through façade windows and rooflights provide an evolving light direction, while electric lights in the ceiling provide vertical illumination.
Try our Daylight Visualizer tool for a precise and visual daylight analysis of any given rooflight installation.

Smoke ventilation
Skylights play a major role in keeping the building and its occupants safe by removing toxic smoke in the event of a fire. To make sure people are safe, our innovative rooflight solutions can be complemented with accessories that provide several benefits. Smoke ventilation systems channel the smoke and heat through the roof and are designed to facilitate the safe escape of people. The type of fire ventilation that VELUX Commercial provides is natural fire ventilation.

Our products can be configured to automatically open and close according to changes within the building environment. VELUX Commercial offers a wide range of natural comfort ventilation and natural smoke and heat exhaust ventilation rooflights. Changes to the environment such as building temperature or smoke detection can trigger your building management system to adjust hinges, opening rooflight panels in order to help to control indoor comfort or ventilate smoke in the event of a fire.

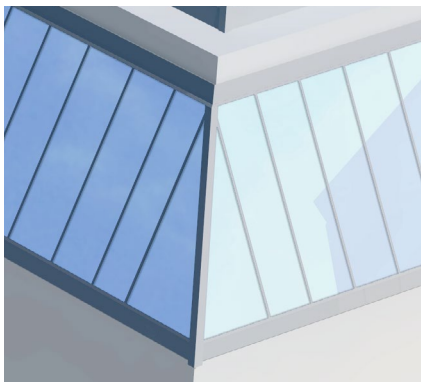
Safety on the roof
To ensure safety during installation, maintenance and inspection, VELUX rooflights can be offered with a range of metal fall-through protection systems that can be either pre-installed or installed on-site. Whether a warehouse, factory, or an office building – VELUX Commercial can help you select the safest solution.



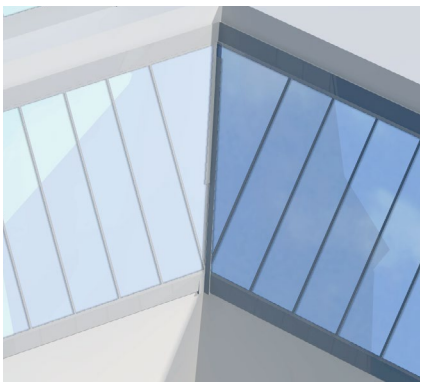
THE SOLUTIONS

Overview solutions

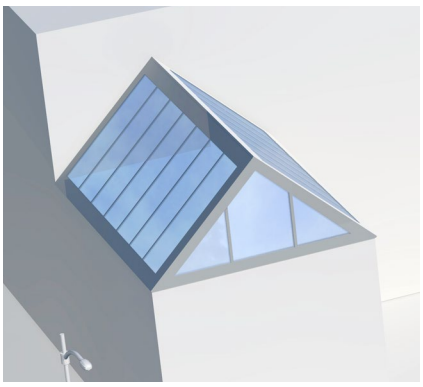
VELUX Glazing Panels can be configured in multiple solutions, by combining the various installation opportunities with gable and corner solutions. Please note, for any given solution it is mandatory to perform static calculations. The following pages describes the various design options.



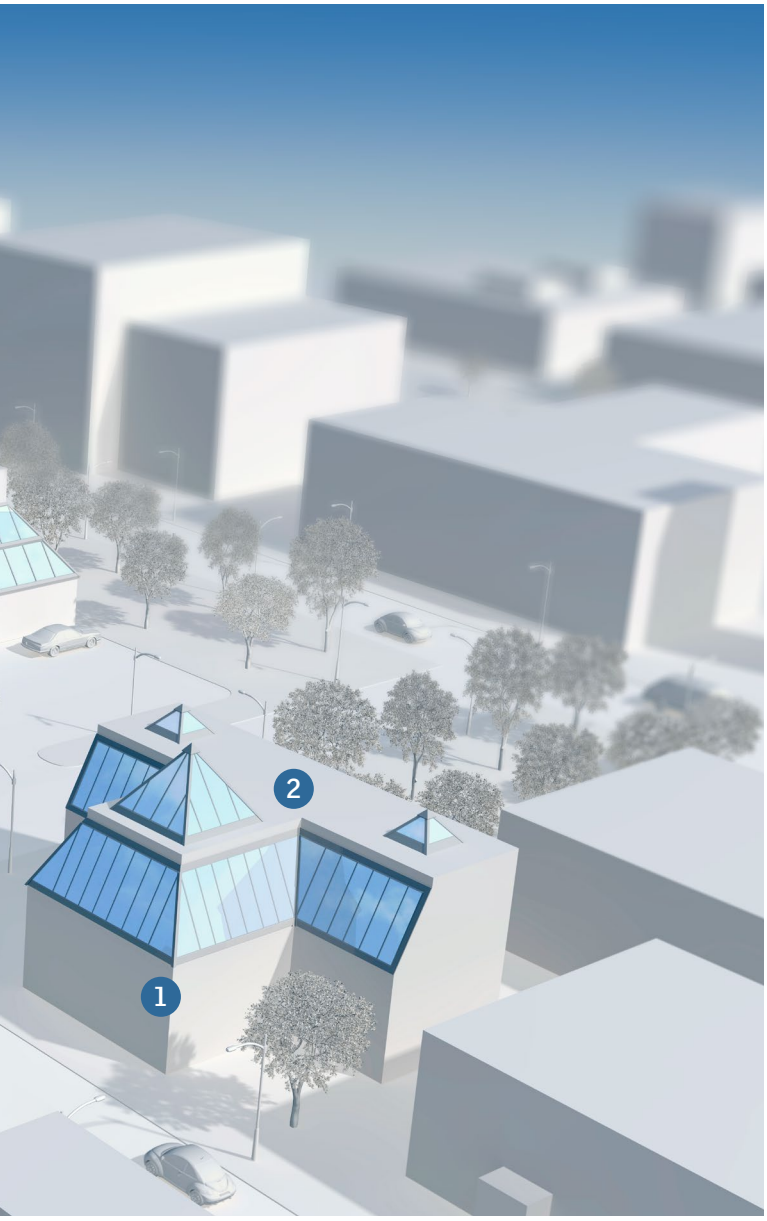
1 Hip
A hip is an external facing corner solution used to connect two adjacent sloping sides of a rooflight. It is commonly used to create hipped gables in dual pitched solutions.

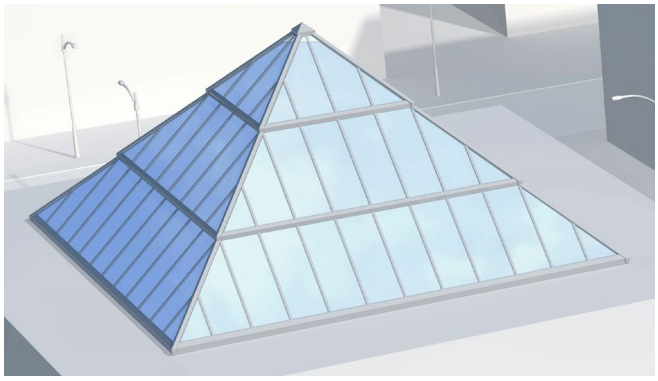


2 Valley
A valley is an internal facing corner solution used in the intersection between two individual rooflights. It can be used to connect two adjacent rooflights.

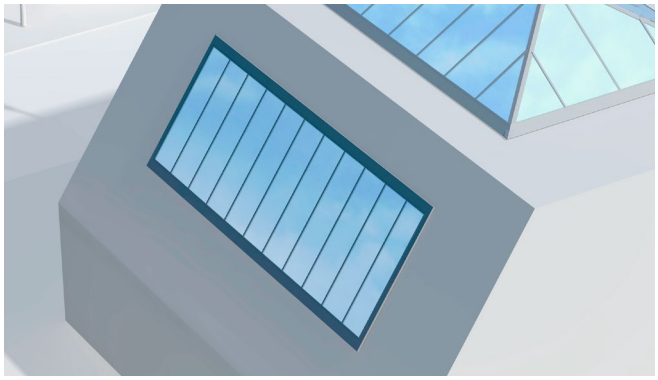


3 Vertical glass gable
A vertical glass gable is a section of vertical glazing made up of one or more panels located at the end of a mono pitched solution or dual pitched solution.

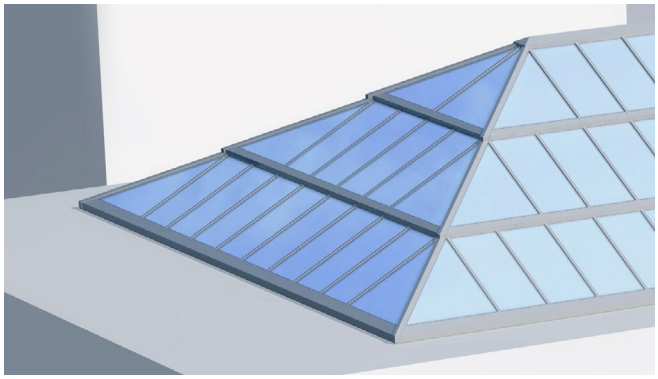




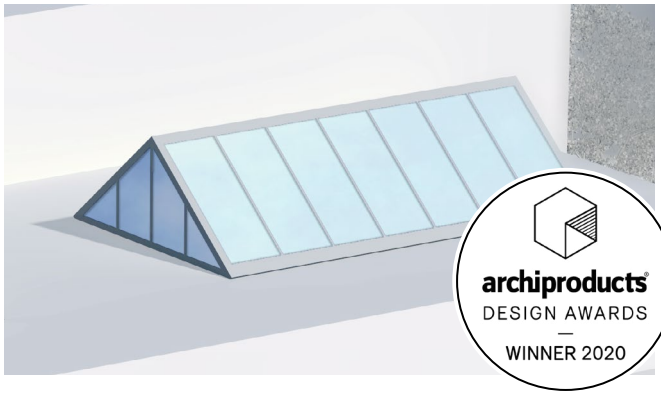
5 Pyramid solutions
A pyramid is comprised of multiple sides of panels connected using hipped corner solutions. For a small solution, it is possible to create a self-supporting pyramid, for bigger solutions, a support structure with hips and beams is required.



6 Mono pitched solutions
Mono pitched solutions are single rows of VELUX Glazing Panels installed between 15-90° on either an upstand (on a flat roof) or a flush installation in a sloped roof. Solutions mounted against a vertical wall can be installed in pitches between 15-60°.



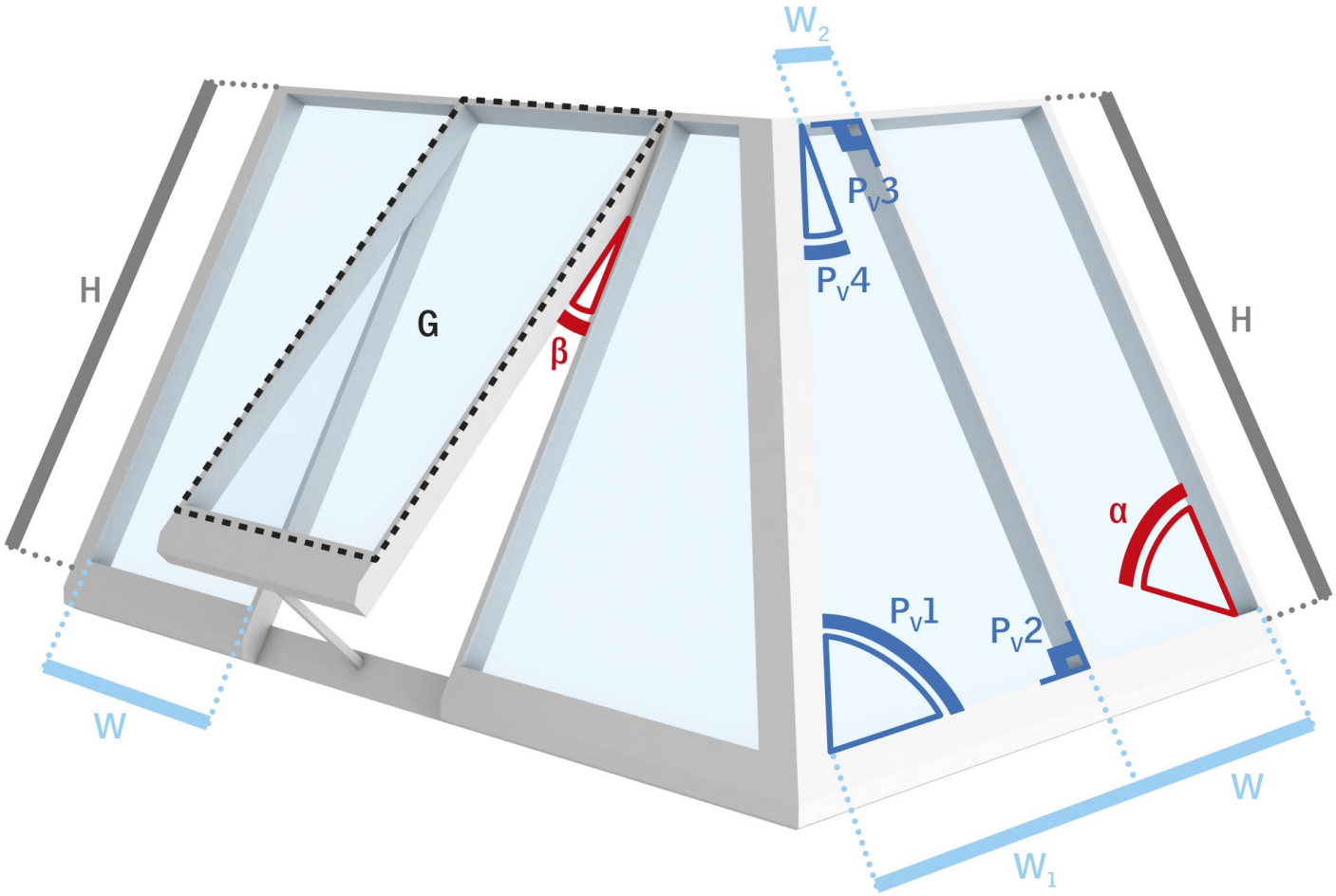
4 Step solutions
VELUX Glazing Panels can be configured in a step solution by installing multiple rows of panels on top of each other using a structural beam to connect the rows.



7 Dual pitched solutions
Dual pitched solutions are two rows of VELUX Glazing Panels connected at the top, creating a ridge. For self-supporting solutions, the installation pitch is between 25-60°. It is possible to create a supported dual pitched solution with pitches of 15° or above by introducing a girder at the ridge.

Panel design options

The tables to the right describe the design options such as the size of the panels and installation pitch. To confirm the size of the panel, a static calculation incorporating snow and wind loads is required for the specific project.



Configuration options

		Fixed, comfort and smoke evacuation panels outside the scope of EN 12101-2	
		Double glazing	**Triple glazing**
W	Module width	264 mm – 1200 mm (fixed or crossbar solution)	256 mm – 1200 mm (fixed or crossbar solution) 651 mm – 1200 mm (hidden actuator)
	Panel width	Module width – 4 mm	Module width – 6 mm
W_{1-2}	Shaped panel	Measurement limitations per shaped type, please contact your local VELUX Commercial sales office	Measurement limitations per shaped type, please contact your local VELUX Commercial sales office
H	Panel height	260 mm – 2900 mm	250 mm – 3000 mm
	Ratio	W/H: 1:6 or 6:1	W/H: 1:6 or 6:1
G	Panel area**	max. 2 m^2	max. 3 m^2
β	Opening angles	0° – 45° (max. opening to horizontal)	0° – 45° (max. opening to horizontal)
P_V	Corner angles	Fixed panels 25° – 155°. Venting panels only with 90° corners.	Fixed panels 25° – 155°. Venting panels only with 90° corners.
α	Installation pitch	15° – 90° (ponding groove if pitch is under 25°)*	15° – 90° (ponding groove if pitch is under 25°)*

		Smoke venting panels, in accordance with EN 12101-2	
		Double glazing	**Triple glazing**
W	Module width	504 – 1200 mm (crossbar solution)	506 mm – 1200 mm (crossbar solution) 851 mm – 1200 mm (hidden actuator)
	Panel width	Module width – 4 mm	Module width – 6 mm
H	Panel height	600 mm – 2900 mm	500 mm – 3000 mm (crossbar solution) 500 mm – 2366 mm (hidden actuator)
	Ratio	W/H: 1:6 or 6:1	W/H: 1:6 or 6:1
G	Panel area**	max. 2 m^2	max. 2 m^2
β	Opening angle	0° – 45°	8° – 45°
α	Installation pitch	15° – 60° (ponding groove if pitch is under 25°)*	15° – 50° (ponding groove if pitch is under 25°)*
	Glazing weigth	max. 40 kg/m^2	max. 50 kg/ m^2
	Wind deflector	Not available	Available in size 200 and 400 mm high
	Solutions	Be aware that the above guidance only applies to some solutions, please contact your local VVELUX Commercial sales office	Be aware that the above guidance only applies to some solutions, please contact your local VELUX Commercial sales office

For more information regarding venting panels, see page 26.
* For more information regarding ponding groove, see page 25.
** Based on panel width x height.

Panels

The prefabricated panel consists of aluminium frame profiles with a glazing unit sealed into the frame. When the panels are joint together on-site, the outer gasket and an inside drainage profile must be mounted to secure drainage and a weather-tight solution.

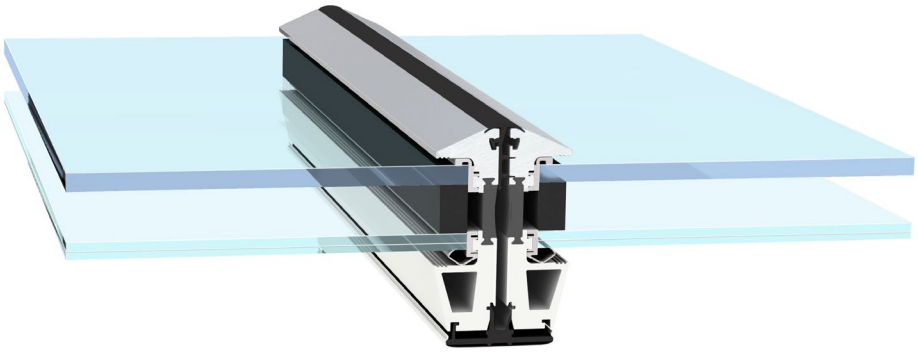
Double glazing

Frame profile height: 74 mm
Panel joint height: 82 mm
Panel joint width: 50 mm

U-value

Thermal transmittance in accordance with EN 14351-1:

Panels with double glazing:
U_w = 1.6 W/m²K



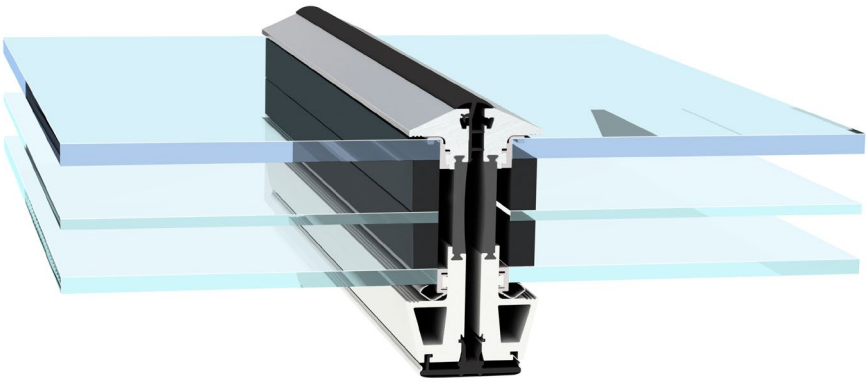
Triple glazing

Frame profile height: 98 mm
Panel joint height: 106 mm
Panel joint width: 52 mm

U-value

Thermal transmittance in accordance with EN 14351-1:

Panels with triple glazing:
U_w = 1.0-1.1 W/m²K



Glazing

Control daylight and heat to create a better indoor climate. VELUX Glazing Panels come with double or triple glazing with low emissivity (LowE) and sun protection coatings. The coatings are optimised to meet the desired levels of solar heat gain, sun protection, light transmittance and colour rendering. Below you can find some examples and the effect of the coatings. Information about other available glazing variants and technical values, see page 31.

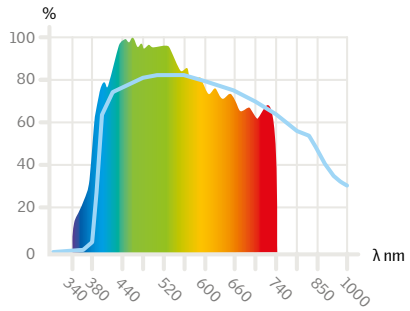
Double glazing unit with sun protection coating

Spectral values (wave length in nm) Visible daylight tau

All of the mentioned values are in accordance with EN 410.

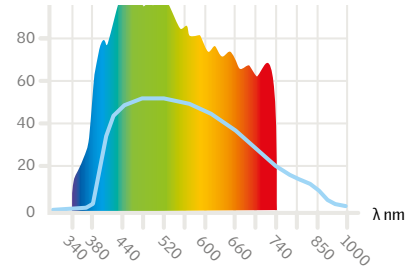
Double glazing with low emissivity coating (LowE)

Variant 40L
Light transmittance: τ_v-value = 80%
Solar factor: g-value = 64%
Colour rendering index: R_a = 97



Double glazing with light sun protection coating (Sun1)

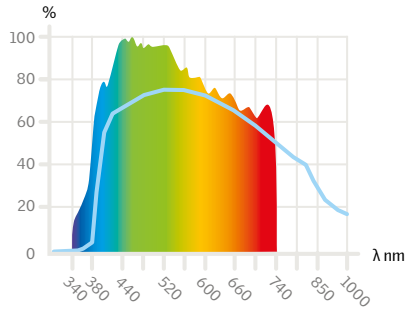
Variant 41L
Light transmittance: τ_v-value = 50%
Solar factor: g-value = 27%
Colour rendering index: R_a = 91



Triple glazing unit with sun protection coating

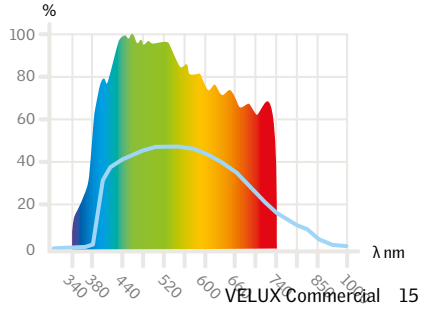
Triple glazing with low emissivity coating (LowE)

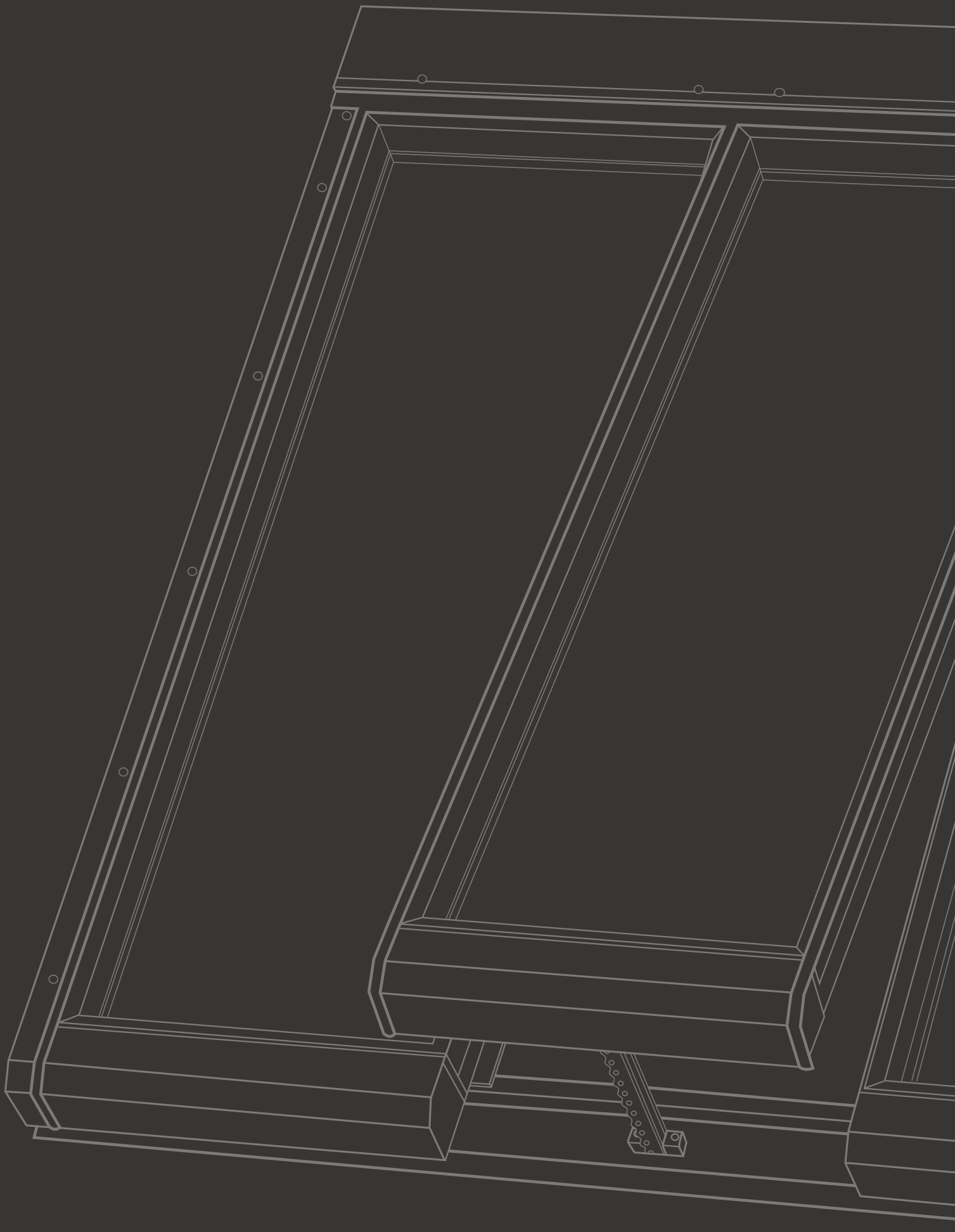
Variant 46L
Light transmittance: τ_v-value = 73%
Solar factor: g-value = 53%
Colour rendering index: R_a = 96



Triple glazing with light sun protection coating (Sun1)

Variant 47L
Light transmittance: τ_v-value = 47%
Solar factor: g-value = 26%
Colour rendering index: R_a = 83





PERFORMANCE AND TECHNICAL DATA

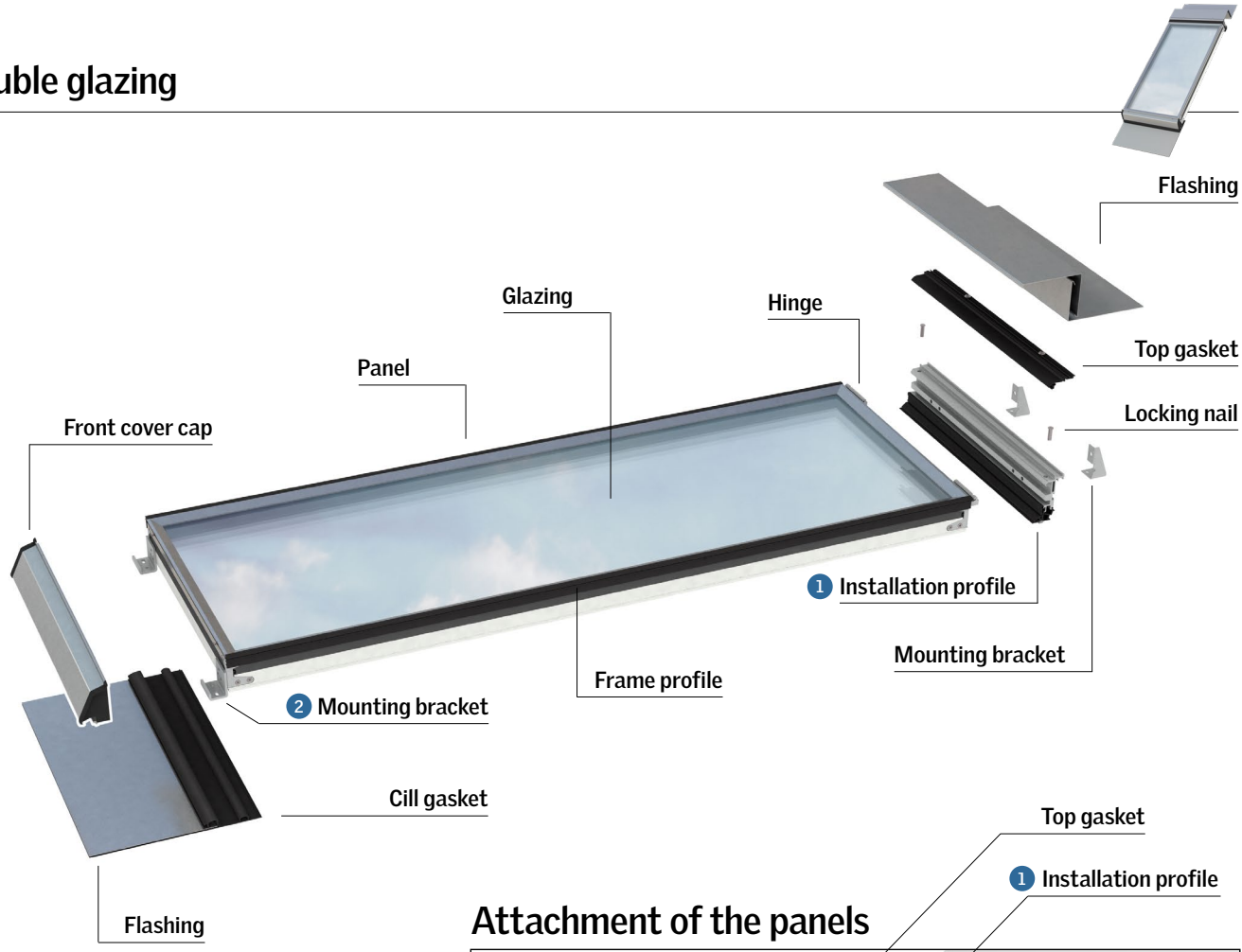
Main components and attachment to the roof

VELUX Glazing Panels are attached to the roof in the top and the bottom of the panels. At the top, the panel is installed using an installation profile (1) which must be fastened to the sub-construction or wall in wall-mounted solutions.
For a self-supported dual pitched solution a dual pitched installation profile is used thus a sub-construction is not required in the top.
In the bottom, the panel is attached using a pre-mounted mounting bracket (2) which for fixed panels must be screwed into the sub-construction. For venting panels, the mounting bracket must not be screwed into the sub-construction.

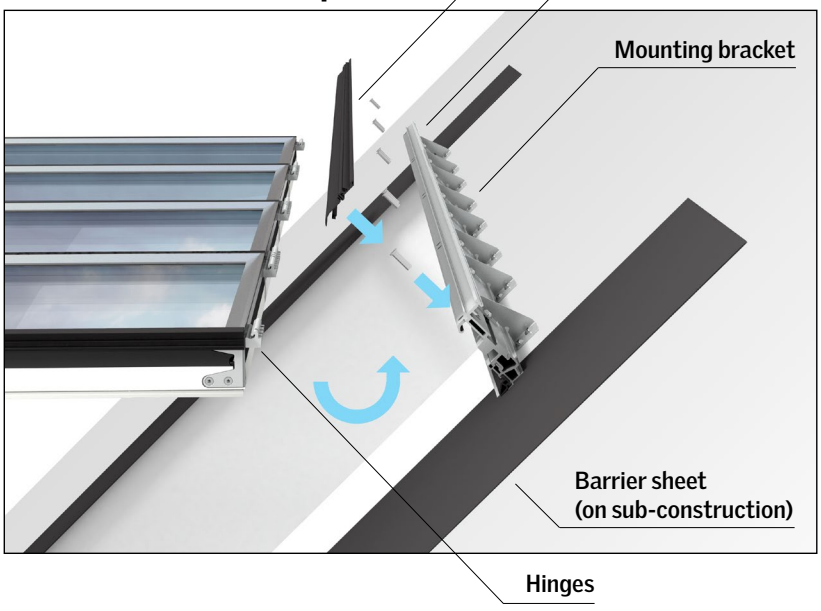
At the ends, the panel is finished against a side gable which is screwed into the sub-construction or a wall. The installation is completed with gaskets and flashings, ensuring a weathertight solution.

The individual panel and main parts of the accessories are prefabricated off-site, making the installation easier on-site.
Due to the bespoke nature of the panels, the installation must be carried out by a trained installer or with support from a VELUX Commercial technician.

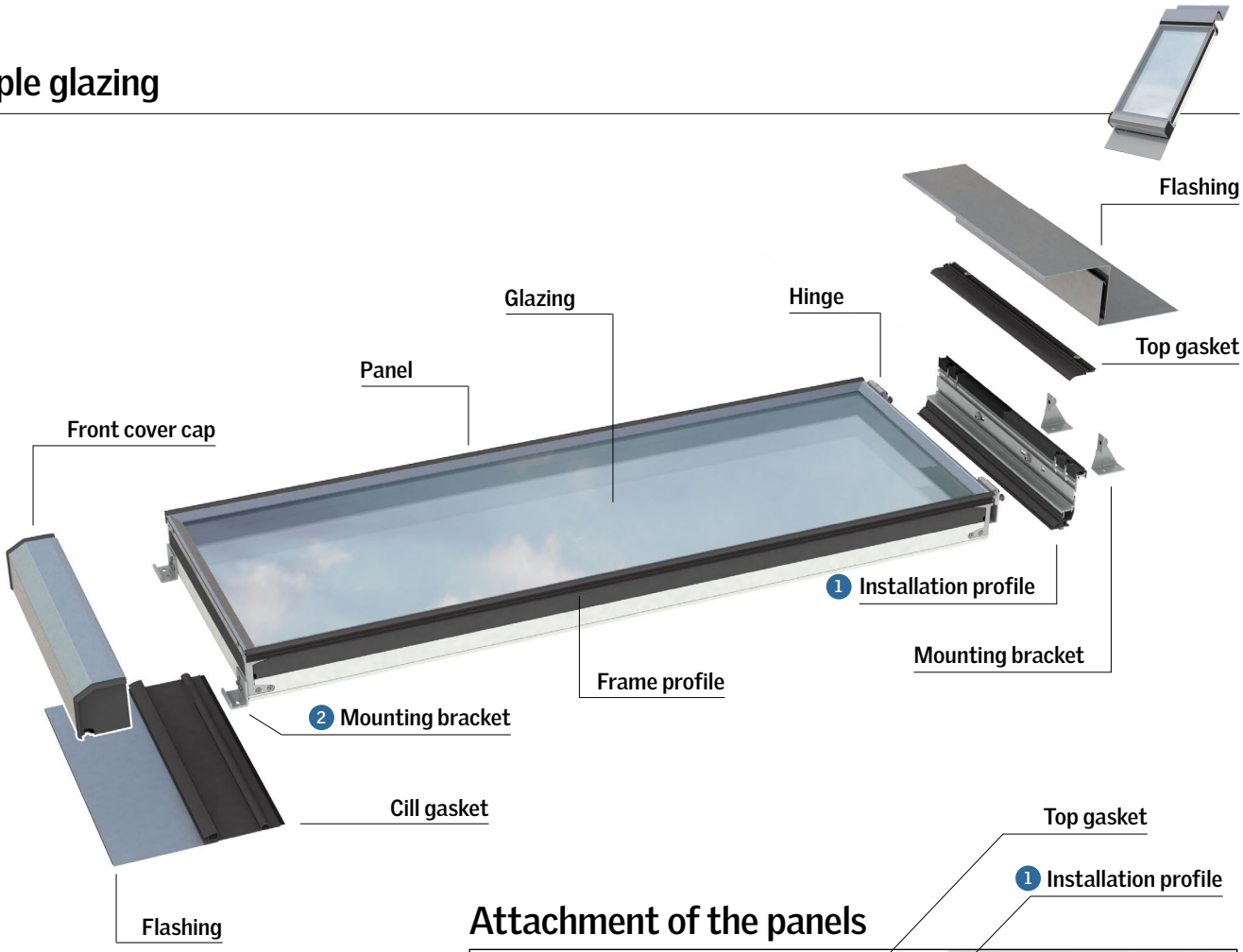
Double glazing



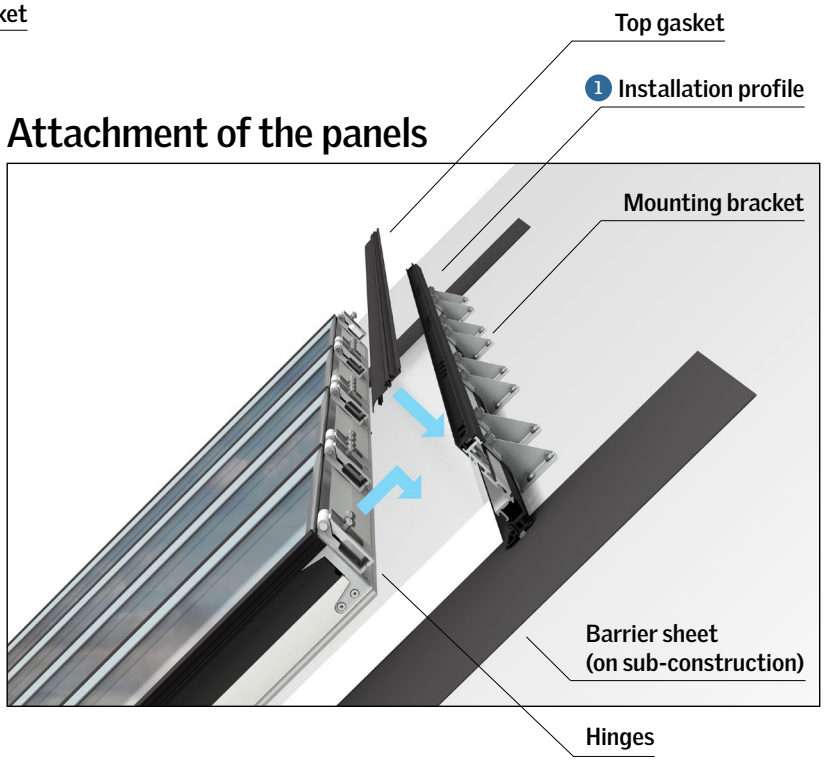
Attachment of the panels



Triple glazing



Attachment of the panels



Material and colours

Double glazing

Hinge

Exterior view

Frame profile*

Material: Aluminium & polyurethane core
Surface: Nature anodized or polyester powder coated
Exterior colour: RAL 9010/9005/7016, gloss 30
Interior colour: Same as exterior or wet coloured painted RAL 9010

Front cover cap* & rubber plug

Material: Aluminium (2 mm), EPDM rubber plug & polystyrene insulation
Surface: Nature anodized or polyester powder coated
Colour: RAL 9010/9005/7016, gloss 30

Installation profile

Material: Aluminium, PVC & EPDM rubber gasket

Flashing*

Material: Aluminium (1 mm)
Surface: Nature anodized or pre-painted
Colour: RAL 9010/9005/7016, gloss 30

Side gable + fixing angle profile

Material: Foamed PVC & aluminium, including a EPDM rubber plug.
NB: Can be delivered without a fixing angle profile depending on installation.

Cill gasket

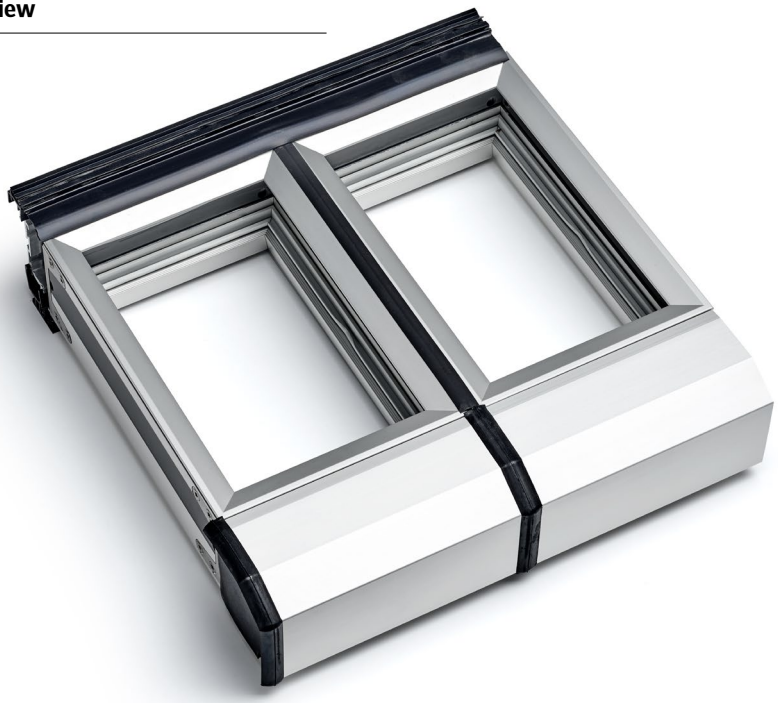
Material: Black EPDM rubber

* Other RAL colours can be ordered at additional cost. Contact your local VELUX Commercial sales office for more information.

Triple glazing

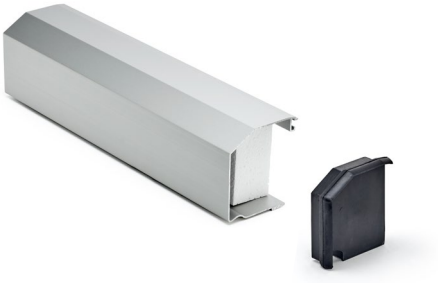
Hinge

Exterior view



Frame profile*

Material: Aluminium & polyurethane core
Surface: Nature anodized or polyester powder coated
Exterior colour: RAL 9010/9005/7016, gloss 30
Interior colour: Same as exterior or wet coloured painted RAL 9010



Front cover cap* & rubber plug

Material: Aluminium (2 mm), EPDM rubber plug & polystyrene insulation
Surface: Nature anodized or polyester powder coated
Colour: RAL 9010/9005/7016, gloss 30

Installation profile

Material: Aluminium, PVC & EPDM rubber gasket

Flashing*

Material: Aluminium (1 mm)
Surface: Nature anodized or pre-painted
Colour: RAL 9010/9005/7016, gloss 30

Side gable + fixing angle profile

Material: Foamed PVC & aluminium.
NB: Can be delivered without a fixing angle profile depending on installation.

Cill gasket

Material: Black EPDM rubber

* Other RAL colours can be ordered at additional cost. Contact your local VELUX Commercial sales office for more information.

Double glazing and triple glazing

Cover cap*

Material: Steel (0.5mm)
Surface: Polyester powder coated
Colour: Same as interior frame profile
NB: Nature anodized frame surface will be matched with a similar colour coating

Drainage profile

Material: Hard PVC with soft PVC gasket lips

Mounting bracket

Material: Steel (4 mm)

Top gasket

Material: Black EPDM rubber

Outer gasket

Material: 2 component TPE profile

Barrier sheet

Material: Bitumen-based membrane

Aluminium crossbar for double glazing panel
For comfort and smoke ventilation

Material: Aluminium square pipe (reinforced with steel u-profile for panel width > 700 mm)
Surface: Nature anodized or polyester powder coated
Colour: Same as interior frame profile

Steel crossbar for double glazing panel
For comfort ventilation

Material: Steel square pipe with aluminium cover
Surface: Nature anodized or polyester powder coated
Colour: Same as interior frame profile

Steel crossbar for triple glazing panel
For comfort and smoke ventilation

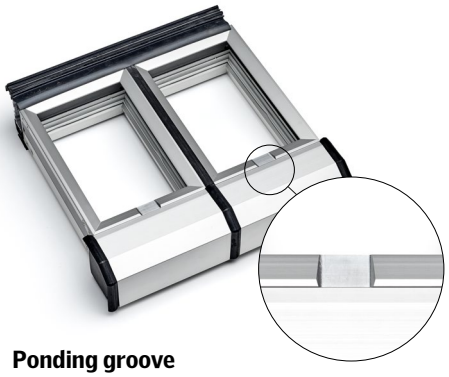
Material: Steel square pipe with aluminium cover
Surface: Nature anodized or polyester powder coated
Colour: Same as interior frame profile

Installation profile – dual pitched for double glazing panel

Material: Aluminium, PVC, EPDM rubber gasket & steel bracket

Installation profile – dual pitched for triple glazing panel

Material: Aluminium, PVC, EPDM rubber gasket & steel bracket



Ponding groove

When installing VELUX Glazing Panels below 25°, both double and triple glazing variants, the panels will be manufactured with a ponding groove in the bottom of the panels to minimise ponding water on the glazing.

** Other RAL colours can be ordered at additional cost. Contact your local VELUX Commercial sales office for more information.*

Venting panels

For venting panels there are several options of actuators available. Double glazing panels have one configuration option; a visible actuator operating on a crossbar (see images 1 and 2 to the right) installed in the panel in parallel with the bottom frame profile.

Triple glazing panels have two configuration options; a hidden chain actuator (see image 3 to the right) only visible when the panel is open, or a visible actuator operating on a crossbar (see images 1 and 2 to the right) installed in the panel in parallel with the bottom frame profile.

For both double and triple glazing, the visible actuator is available as a spindle 1 or a chain 2 version. The chain stroke or spindle length depends on the size of the panel and installation pitch. In addition, it is possible to convert a rectangular fixed panel to a venting panel by post-installing a visible actuator and a crossbar. This will increase the ventilation flow in the building without opening up the building envelope again.

The venting panels must be controlled by a separate Open System ±24 V DC (OS ±24 V DC), which is not included in the VELUX delivery. Connection to a fieldbus system requires a separate control box between fieldbus system and actuator.

Smoke ventilation

For some solutions a selection of the actuators can be configured for smoke ventilation in accordance with EN 12101-2. When using a smoke venting panel for comfort ventilation, it must be ensured that the panel, in open position, does not get above horizontal. The actuator stroke for comfort venting function must be limited accordingly by the control system time to maintain lifetime expectancy and guarantee of the actuator and for example can be done by limiting the drive time in most simple control setup. The maximum stroke length and drive time for comfort ventilation depend on the project specific panel size and installation pitch.

With or without wind deflector
Whenever it is required to obtain an aerodynamic free area (Aa) declared in accordance with EN 12101-2, VELUX Group recommends to install a triple glazing venting panel with prefabricated wind deflector. The wind deflector is designed to change the wind profile over the glazing panels in open position, in order to minimise the risk of air intake and allow outtake of smoke even under unfavourable wind conditions. Please note that triple glazing venting panels require a wind deflector, when a EN 12101-2 solution is needed.

For double glazing venting panel a deflector is not available and therefore the expressed aerodynamic free area (Aa) is wind sensitive. This means that when choosing /designing with double glazing panels, the wind sensitivity of these smoke ventilators must be considered already in the design phase and steps must be taken to incorporate the products as part of a total solution that can be approved by the local fire authorities. This solution could consist of, for instance, a wind direction sensor, a custom made wind deflector or another device that always ensures a sufficient aerodynamic area.

Smoke ventilation systems
A smoke ventilation system always has a building specific design, incorporating smoke ventilators, controls, air inlets and mechanical ventilation. Designing a smoke ventilation system is therefore a rather complex matter, which must be addressed by skilled and authorized fire engineers in order to obtain an adequate level of performance and safety. The design covers all relevant parameters such as the location of the building, height and shape of the roof, position of ventilators on the roof, relative position to each other, facades and doors providing air intake, mechanical ventilation, evacuation plan and escape routes, and the natural and artificial wind obstacles in the surroundings of the building. The VELUX Group provides the essential performance characteristics of each individual CE-marked VELUX Glazing Panels in accordance with EN 12101-2, but cannot validate the functionality and safety of the complete system.

Smoke evacuation outside the scope of EN 12101-2
Further to above, VELUX Glazing venting panels, with both double glazing and triple glazing, can be used for smoke evacuation purposes outside the scope of EN 12101-2, whenever they meet the requirements in national regulations and/or practical guides.
The methods to define the geometric area accountable for cold smoke evacuation are nationally regulated and should be respected together with the rules of applicability.

Please contact your local VELUX Commercial sales office for detailed design possibility as to smoke ventilation with VELUX Glazing Panels. Furthermore, please be aware that it is the responsibility of the building owner – together with the local fire authorities, if necessary – to ensure the system is specified, installed and operated in accordance with current national legislation and requirements.

Please note that the venting panel operate with high closing force, which can cause serious injury in case of entrapment. VELUX Glazing Panels have a recommended minimum installation height of 2.5 m above floor level (inside) and ground level (outside). In case of installation below that level, safety measures must be applied by the installer/user to prevent serious injury. No instruction or measure can eliminate the inherent hazards resulting from installation heights below 2.5 m.

The VELUX Group will not accept responsibility for damages, injury or death resulting from such installation. The installer/user is ultimately responsible for own omissions and actions. Measures could for instance be to install a motion sensor that is able to disconnect power from the control unit in case of any movement in the immediate vicinity of the VELUX Glazing Panels.

1 Spindle actuator with crossbar

2 Chain actuator with crossbar

3 Chain actuator hidden in front cover cap (only available for triple glazing)

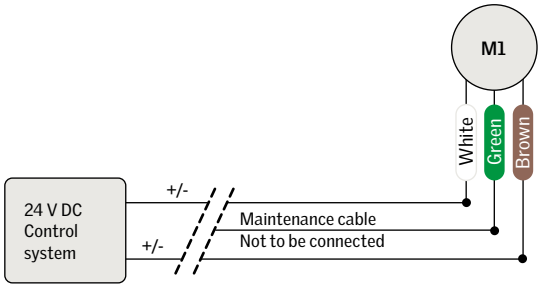
Electrical system

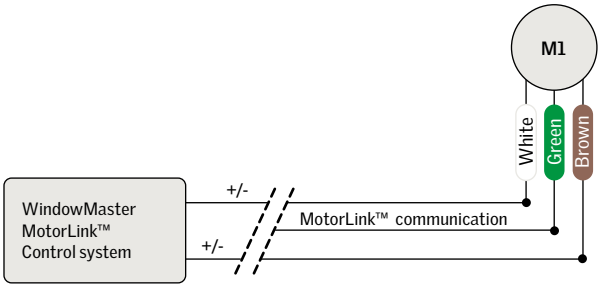
In the Open system ±24 V DC (OS ±24 V DC), the actuators are controlled by ±24 V DC. In addition, the actuator can be integrated in common building automation fieldbus systems, e.g. KNX, BACnet, LON and Modbus, through the integrated MotorLink™ technology.

Connection to a fieldbus system requires a separate control box between fieldbus system and actuator.

Planning for the electrical system:

- Control system is not a part of the VELUX Glazing Panels venting panels, but can for small stand-alone comfort venting systems be purchased separately
- Wiring between the control system and the actuator is not part of the VELUX delivery
- The actuator can be controlled by either ±24 V DC or WindowMaster MotorLink™





Electrical control components

VELUX can provide following components for comfort venting panels.

Control unit*	Control unit*	Control switch
		
WCC 103	**WCC 310/320**	**WSK 102/103**
WCC 103 0101 EU (3 Amp) WCC 103 0401 UK (3 Amp)	WCC 310 S 0410 (10 Amp) WCC 320 S 0810 (20 Amp)	WSK 102 (Fuga) WSK 103 N101 (Fuga)

* Choice of control unit depend on actuator type

Wind and rain sensor	Rain sensor
	
WLA 330	**WLA 331**

Glazing Unit

Technical values

Double Glazing = DG Triple Glazing = TG	Coating		Construction	Light transmittance	Solar factor	Thermal transmittance	Thermal transmittance of the entire window in accordance with EN 14351-1	
							area > 2.3 m²	area ≤ 2.3 m²
		IGU	Insulating Glass Unit (IGU)	τ_v	g	U_g	U_w	U_w
		code	(outside - inside)	%	%	W/m²K	W/m²K	W/m²K
DG	**LowE**	40L	6H - 18 Argon - 6.76F LowE (33.2)	80	64	1.1	-	1.6
DG	**LowE**	40LT	6H - 16 Argon - 8.76F LowE (44.2)	81	62	1.1	-	1.6
DG	**LowE**	40LT	6H - 16 Argon - 9.52F LowE (44.4)	80	64	1.1	-	1.6
DG	**LowE**	42LTS	6H + HST - 16 Argon - 9.52F LowE (44.4)	80	64	1.1	-	1.6
DG	**Sun1**	41L	6H Sun1 - 18 Argon - 6.76F LowE (33.2)	50	27	1.0	-	1.6
DG	**Sun1**	41T	8H Sun1 - 14 Argon - 8.76F LowE (44.2)	49	27	1.0	-	1.6
DG	**Sun1**	43LT	6H Sun1 - 16 Argon - 9.52F Low E (44.4)	49	27	1.0	-	1.6
DG	**Sun1**	43LTS	6H Sun1 + HST - 16 Argon - 9.52F LowE (44.4)	49	27	1.0	-	1.6
TG	**LowE**	46L	6H LowE - 20 Argon - 4H - 18 Argon - 6.76F LowE (33.2)	73	53	0.5	0.80	1.0
TG	**LowE**	46LT	6H LowE - 16 Argon - 6H - 18 Argon - 8.76F LowE (44.2)	72	53	0.5	0.80	1.0
TG	**LowE**	48LT	6H LowE - 16 Argon - 6H - 18 Argon - 9.52F LowE (44.4)	72	51	0.5	0.80	1.0
TG	**LowE**	48LTS	6H LowE + HST - 16 Argon - 6H + HST - 18 Argon - 9.52F LowE (44.4)	72	51	0.6	0.80	1.1
TG	**Sun1**	47L	6H Sun1 - 20 Argon - 4H - 18 Argon - 6.76F LowE (33.2)	47	26	0.5	0.80	1.0
TG	**Sun1**	47LT	6H Sun1 - 16 Argon - 6H - 18 Argon - 8.76F LowE (44.2)	46	25	0.5	0.80	1.0
TG	**Sun1**	49LT	6H Sun1 - 16 Argon - 6H - 18 Argon - 9.52F LowE (44.4)	45	25	0.5	0.80	1.0
TG	**Sun1**	49LTS	6H Sun1 + HST - 16 Argon - 6H + HST - 18 Argon - 9.52F LowE (44.4)	45	25	0.5	0.80	1.0

Glazing unit construction	
IGU example (43LTS)	6H Sun1 + HST - 16 Argon - 9.52F LowE (44.4)
F	Float
H	Toughened
HST	Heat soak tested
44.4	Laminated glass, 4 mm float - 4 x 0.38 PVB foil - 4 mm float
LowE	Low-emissivity coating
Sun1	Light sun protection coating

Classifications

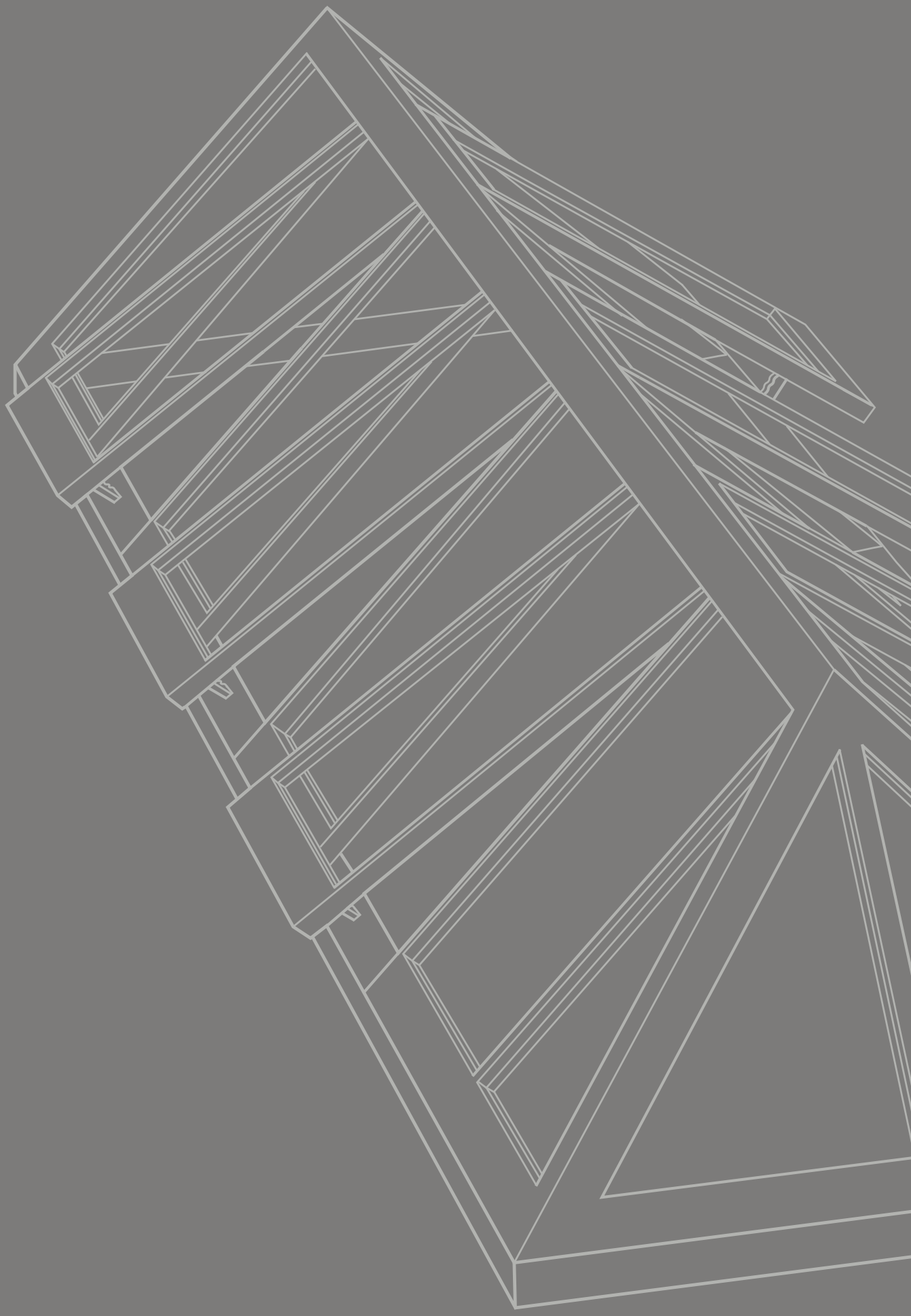
Essential characteristic

Essential characteristic performances according to EN 14351-1		
Essential characteristics	**Performance**	
Resistance to windload, EN12210	Class C4 [1]	
Watertightness, EN12208	Class E1200 [2]	
Thermal transmittance, EN ISO 10077-1, EN ISO 10077-2	Double glazing 1.6 W/m²K [3]	Triple glazing 1.0 - 1.1 W/m²K [3]
Air permeability, EN12207	Class 4 [2]	
Reaction to fire, EN13501-1	Class B, s1-d0	
Acoustic performance, EN ISO 140-3, EN ISO 717-1	NPD	

1) For panel width > 800 mm: NPD, for panel height > 2100 mm: NPD
2) For triple glazing panel > 2.52 m²: NPD
3) For specific type and size, see Glazing Unit table page 29.
NPD = No Performance Determined

Essential characteristic performances according to EN 12101-2		
Essential characteristics	**Performance (double glazing) ****	**Performance (triple glazing)**
Operational reliability	Re 50	Re 1000
Aerodynamic free area (A_a) [m²]	*	*
Resistance to heat	B 300	B 300
Opening under load	SL 800	SL 1000
Low ambient temperature	T(-05)	T(-15)
Stability under wind load	WL 1500	WL 3000 (hidden actuator) WL 2200 (crossbar)
Reaction to fire, EN13501-1	B-s1,d0	B-s1,d0

* A_a is project specific and must be calculated for each project.
** A VELUX wind deflector is not available for double glazing smoke venting panels and therefore the solution is wind sensitive.
NB: For smoke venting solutions, please consult with your local VELUX Commercial sales office.



SUPP0RT

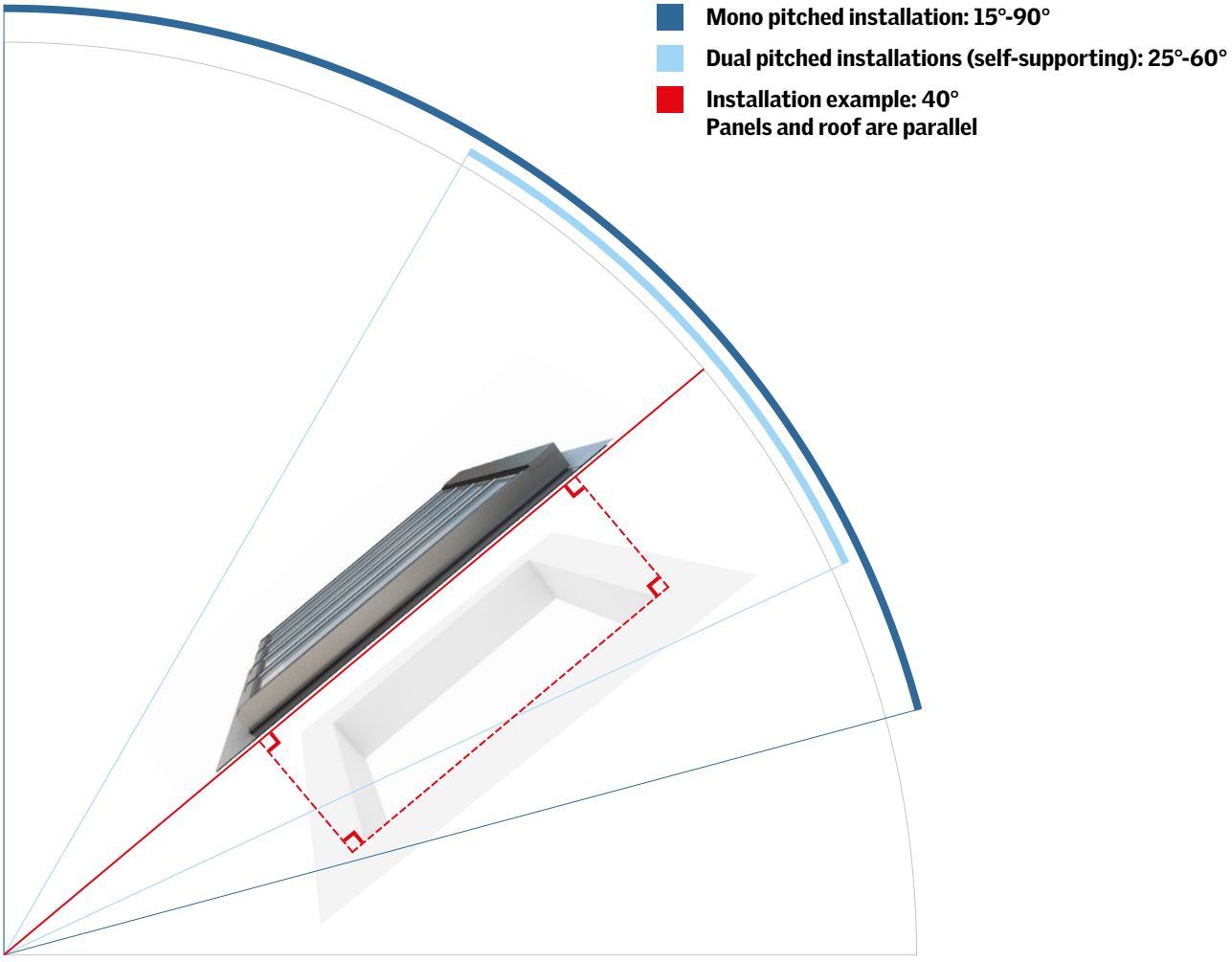
Sub-construction

VELUX Glazing Panels require an accurate, fixed and dimensioned sub-construction. The strength of the sub-construction must be calculated for the individual project, based on the building design and application size. It is the responsibility of the customer to have a static calculation of the sub-construction done by a static engineer.

Consequently, the sub-construction is not a part of the bespoke panel system. The VELUX Group is not responsible for the sub-construction. All solutions are project specific, thus a general sub-construction document cannot be provided. For each project, a project specific sub-construction drawing will be prepared with measurements for the outer geometry of the sub-construction. Please note that there will be no indication or description for the composition of the sub-construction.

To be able to correctly install VELUX Glazing Panels, the sub-construction must be parallel to the panel itself.

Please observe that a lateral slope on the panels is NOT possible.

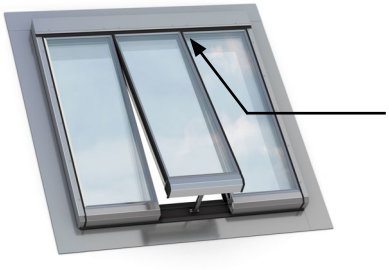


Data plate

Information about the panels

All VELUX Glazing Panels, have a data plate sticker. The data plate helps to identify the product and must NOT be removed.

If a product is damaged or malfunctioning, the information on the data plate must be given to the your local VELUX Commercial sales office.



VELUX® UGP 07501875 0Z46LST X1_1A

CE 19

www.VELUX.com/ce EN 14351-1:2006 + A2:2016

31BM08

SO: 5020003710

Product code

Production code

Sales order number

Example of data plate and position

Product code structure

UGP	07501875	0	Z	46	LST	X1	_	1	A
Window type	**Panel size**	**Interior colour**	**Exterior colour**	**Glazing type**	**Glazing variant**	**Panel variant**	**Actuator**	**Branding**	**Panel generation**
UGP = VELUX Glazing Panels	Above is a size example in mm	0 = If "0" it is same colour as exterior colour	Z = Natur anodized	40 = DG/LowE	L = 6 mm outer glass	Shape indication	C = Hidden actuator comfort (only used for TG panels)	1 = VELUX	A = Launch 2020
	Panel width and panel height	1 = Wet coloured paint, white 9010	1 = 9010 gloss 30	41 = DG/Sun1	F = Float glass	Example: X1 = Square	A = Hidden actuator smoke ventilation (only used for TG panels)		
		9 = Wet coloured paint, Non standard	2 = 9005 gloss 30	46 = TG/LowE	S = Heat soak tested glass	All possible panel variants have different indications	_ = Panel used as fixed or as venting with a visible actuator (a crossbar is ordered separately)		
			3 = 7016 gloss 30	47 = TG/Sun1	T = 4+4 mm inner glass				
			8 = Special colour	99 = Non standard	X = Non standard				

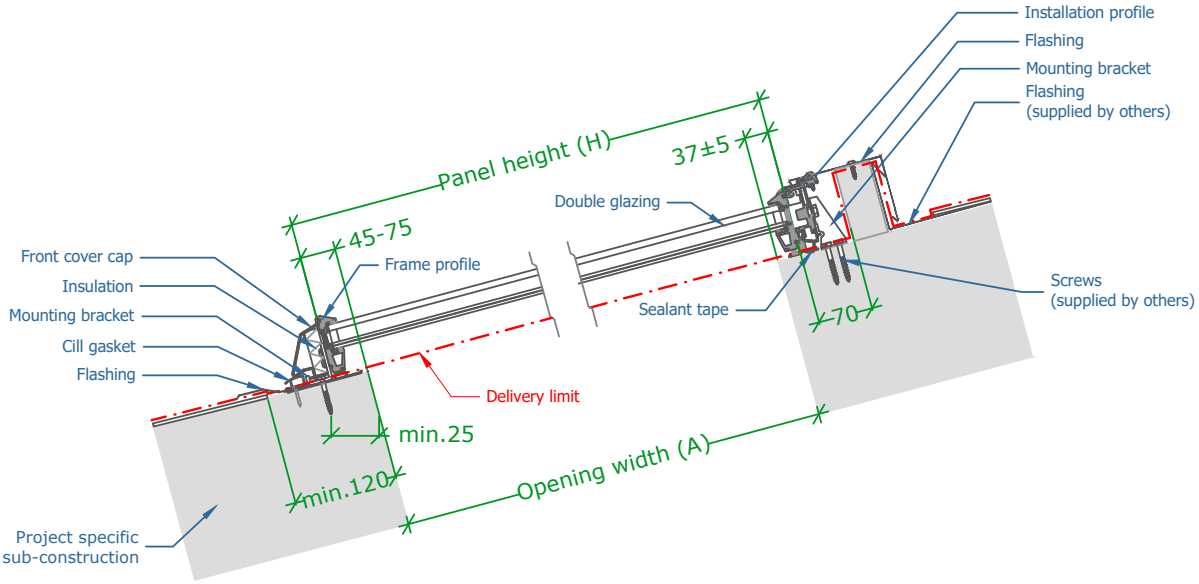
DG = Double Glazing
TG = Triple Glazing

Sectional drawings

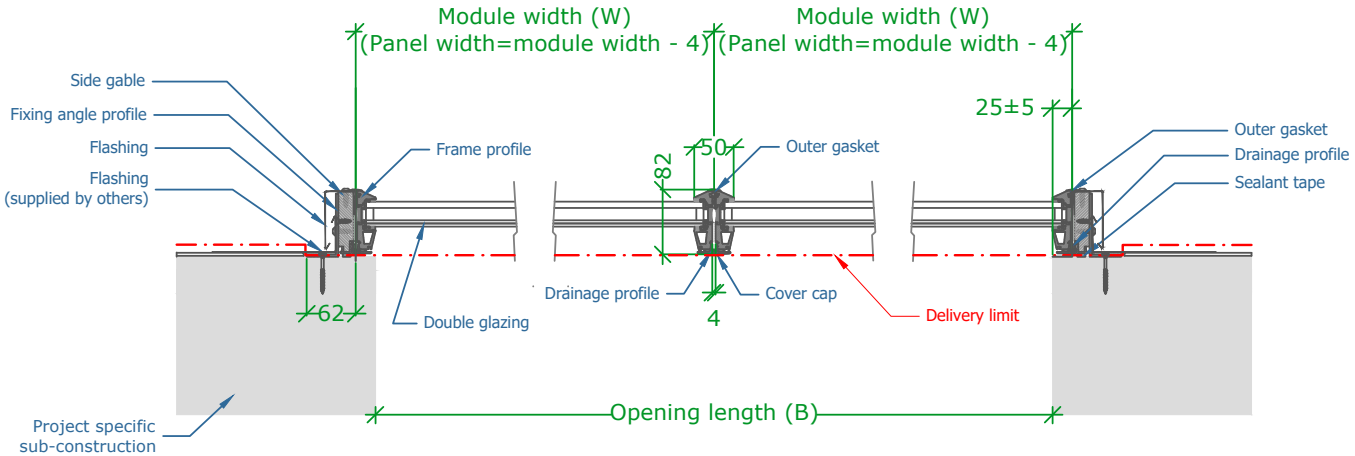
Examples of sectional drawings. The full assortment is available at our website.

Mono pitched

Double glazing



Cross-section

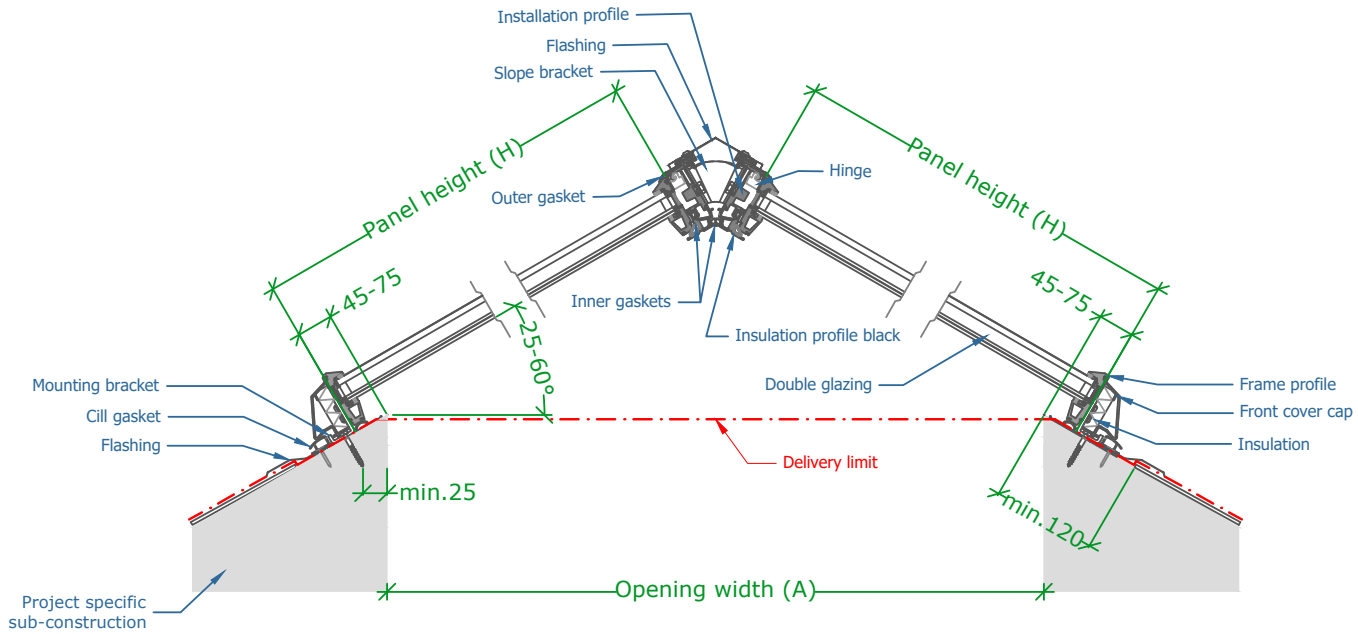


Longitudinal section

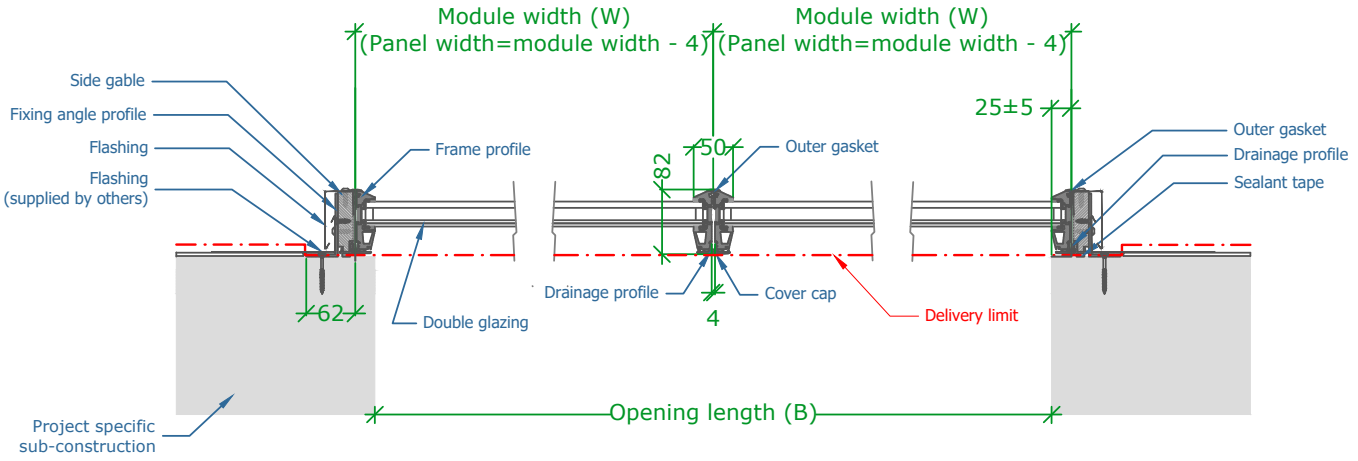
Please observe that a lateral slope on the panels is NOT possible.

Dual pitched

Double glazing



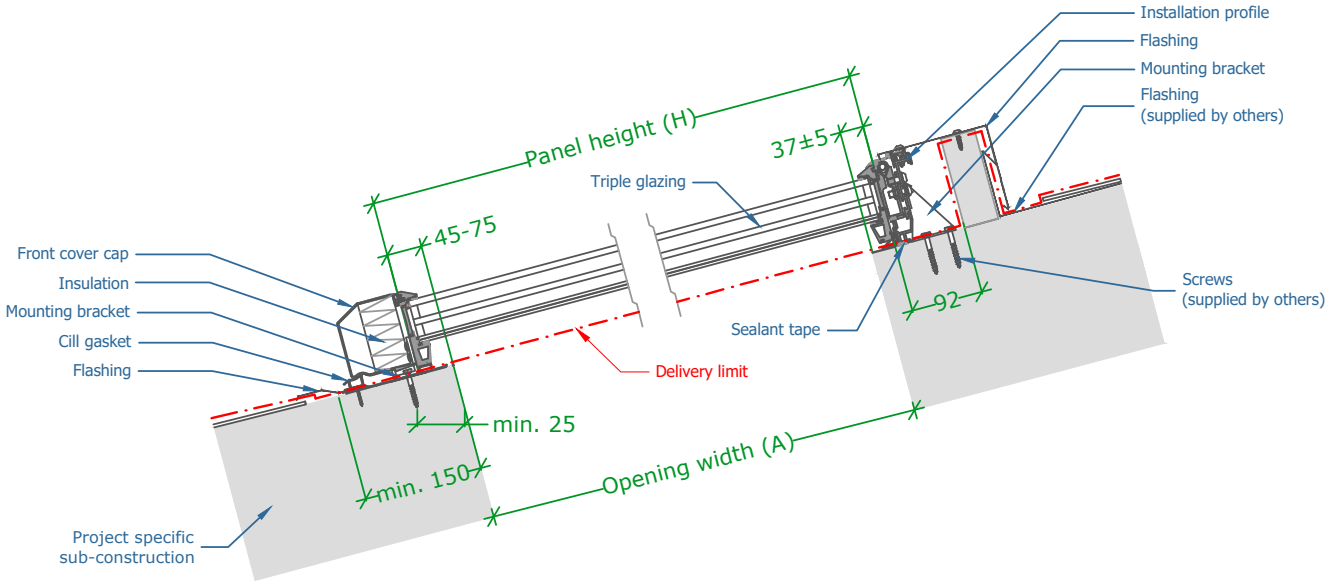
Cross-section



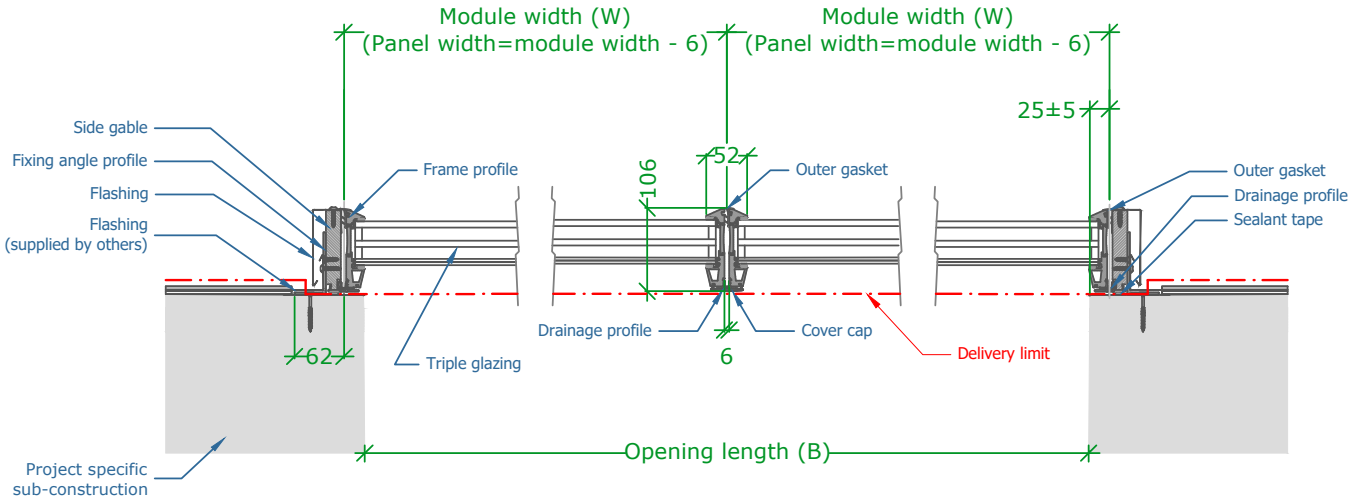
Longitudinal section

Mono pitched

Triple glazing



Cross-section

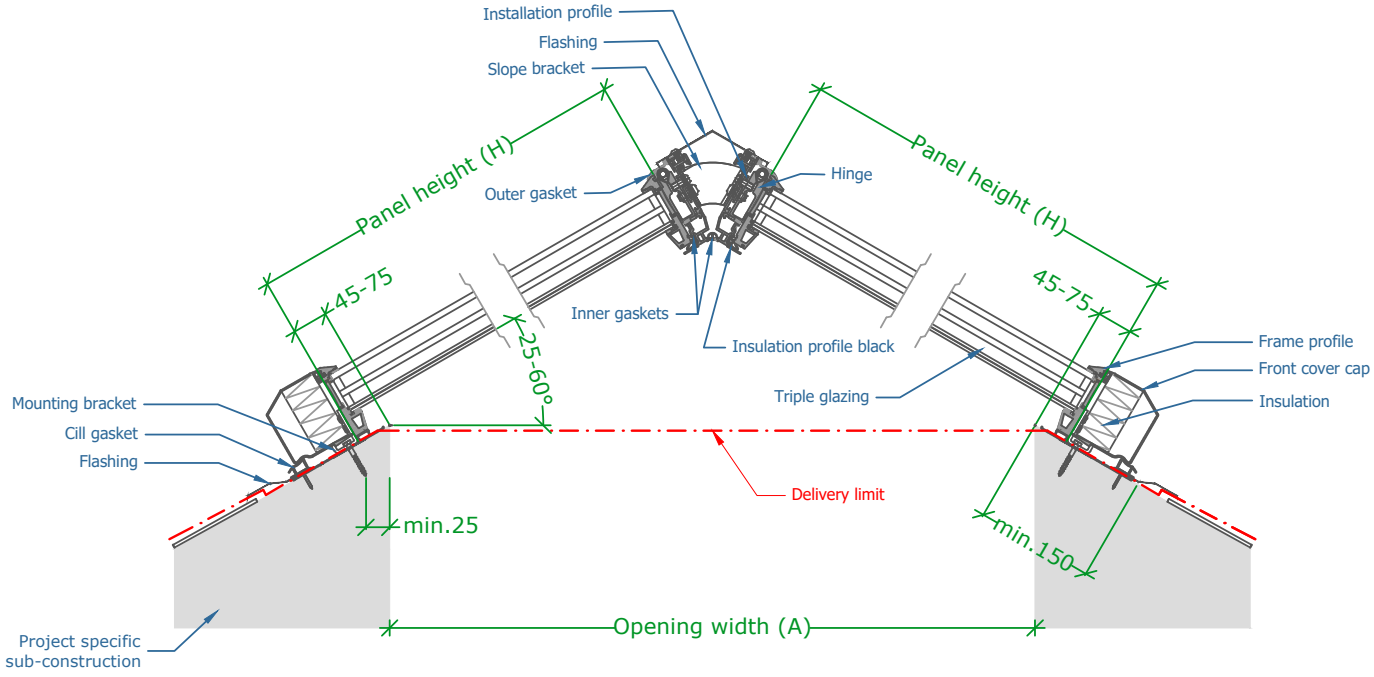


Longitudinal section

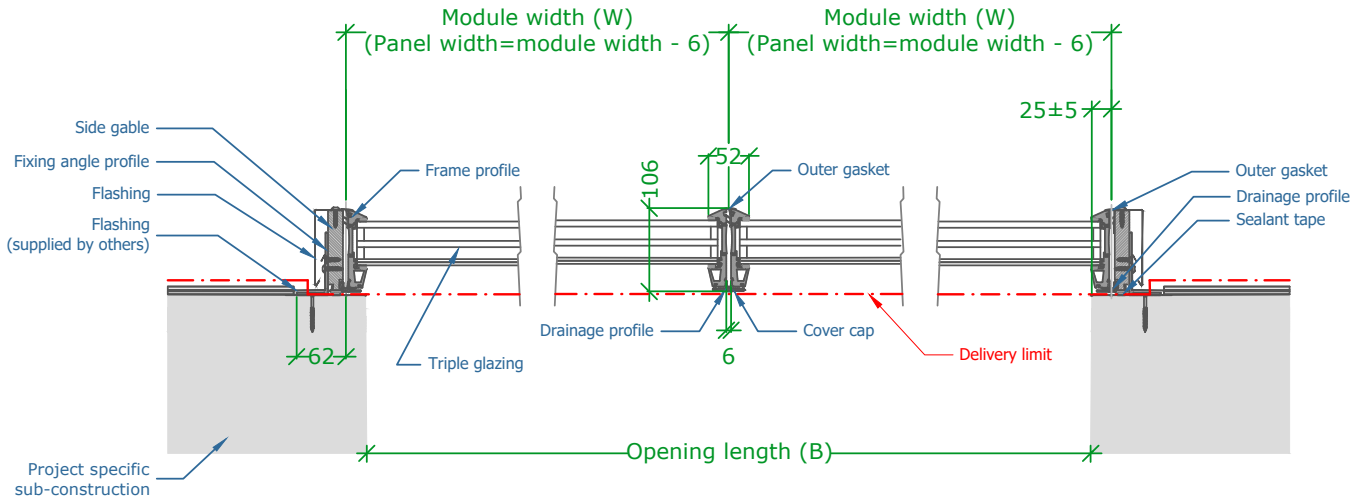
Please observe that a lateral slope on the panels is NOT possible.

Dual pitched

Triple glazing



Cross-section



Longitudinal section

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