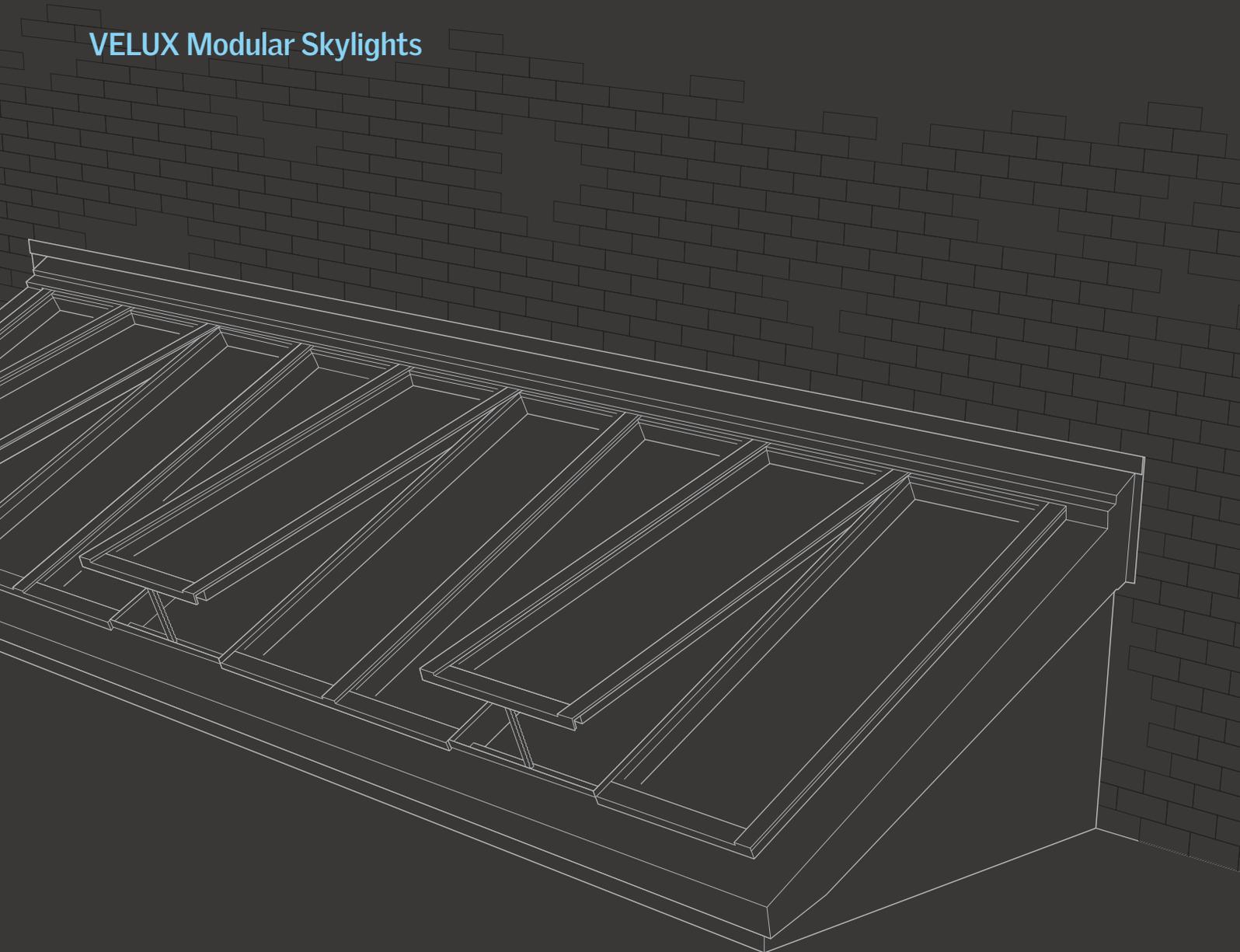


**VELUX®**

Commercial

# Sub-construction for Wall-mounted Longlight 5-45°

VELUX Modular Skylights



## Index

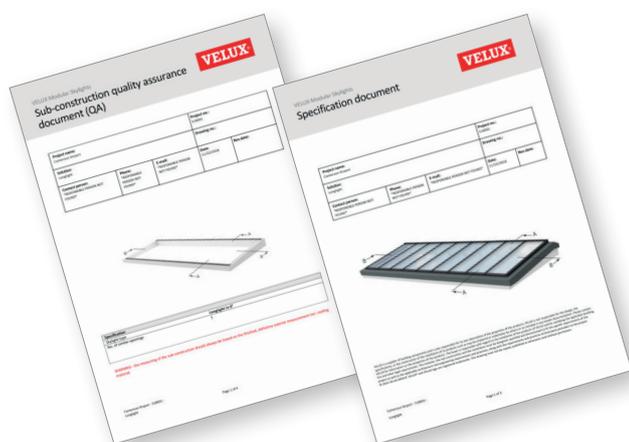
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Sub-construction for Wall-mounted Longlight 5-45°	3
Building site measurements – Axonometric	4
Building site measurements	5
Sub-construction variants	6
Securing modular skylights to the sub-construction	8
Using steel profile	8
Straightness of steel profile	8
Using flat steel	9
Straightness of flat steel	9
Using wooden battens	10
Securing modular skylights to the wall	11
Connecting flashing to the wall	12
Connecting to the roof	13
Static information for dimensioning	14
Sub-construction dimensioning requirements	14

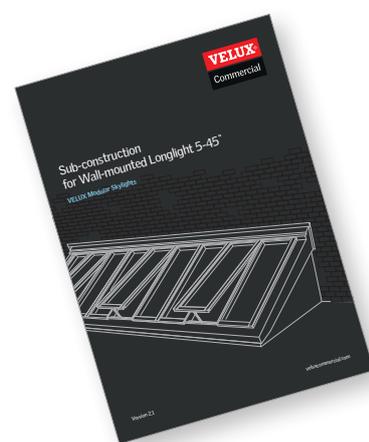
## Before you start

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Before you can build a durable and secure sub-construction to provide the supporting base of the VELUX modular skylights, you will need to have the following three specification documents at hand and follow them closely:



Sub-construction quality assurance (QA) document and specification document. These two documents must be obtained through your local VELUX Commercial sales office.



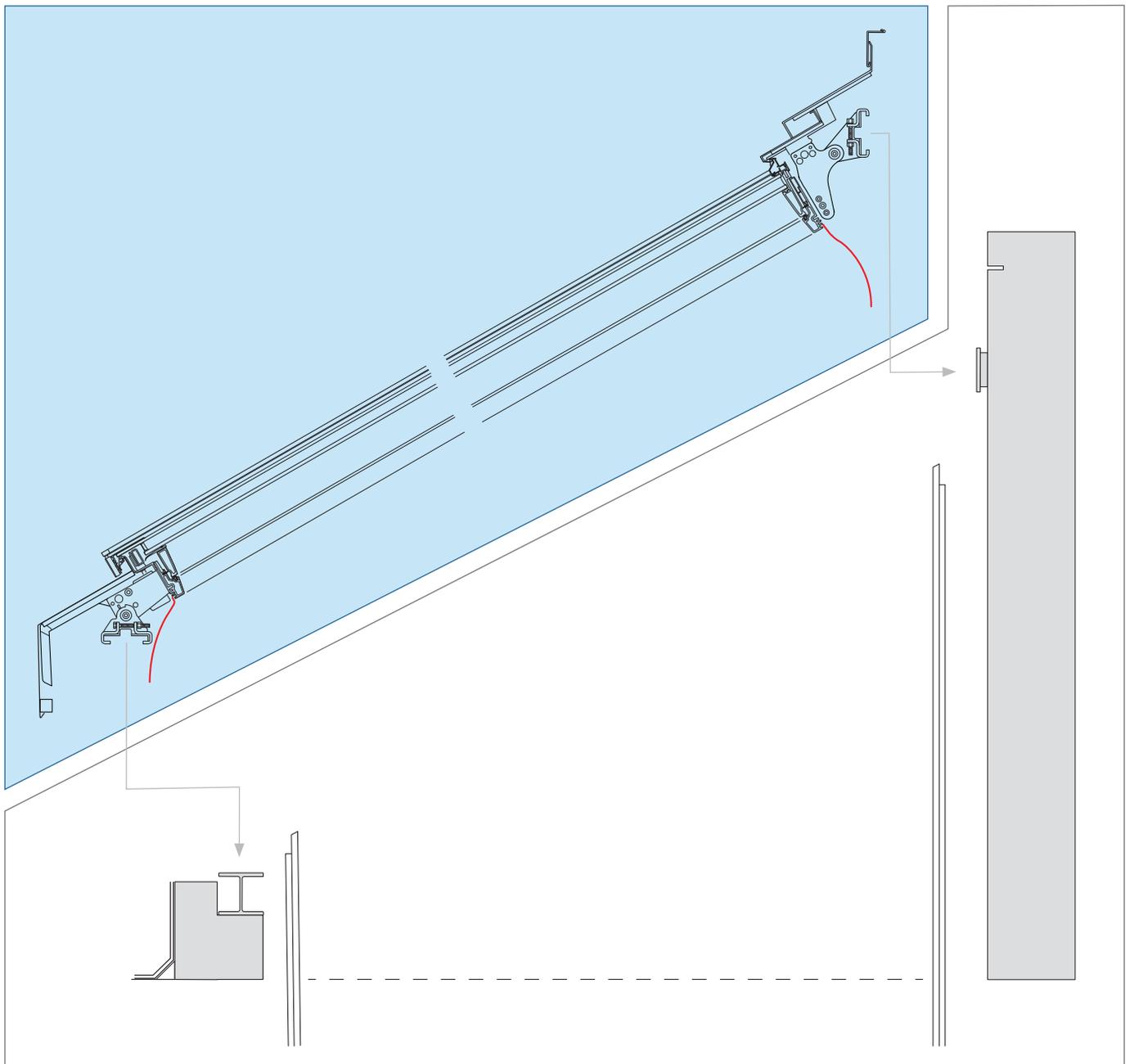
This is the Sub-construction document for Wall-mounted Longlight 5-45°. You are browsing the brochure now.

## Sub-construction for Wall-mounted Longlight 5-45°

VELUX modular skylights installed in a Wall-mounted Longlight solution are built on a sub-construction made of steel, concrete or wood. The sub-construction raises the modules above the roof surface, protecting the construction against water and drifting snow, and provides the supporting base for the modular skylights.

The sub-construction is not included in the VELUX delivery. The sub-construction as shown in the drawing only represents general principles and must be designed and dimensioned to fit the specific building project, local architectural style and practice, and the directions of other building suppliers.

### Wall-mounted Longlight 5-45° A delivery of VELUX Commercial



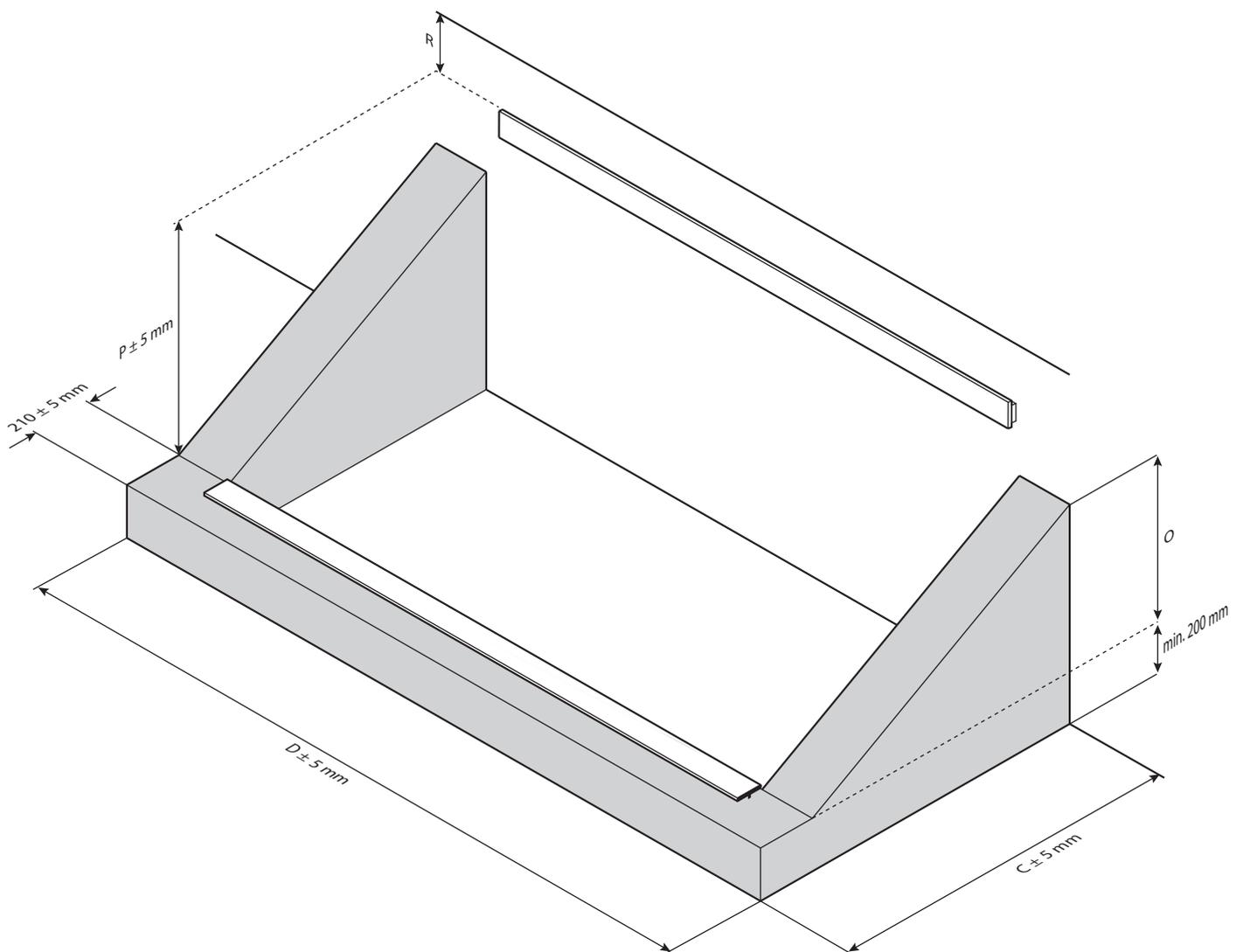
### On-site sub-construction This is not delivered by VELUX Commercial

To ensure a high quality installation of VELUX modular skylights and to prevent condensation occurring within the sub-construction, it is highly recommended to install the BCX vapour barrier connection strip. The factory-finished BCX creates an easy connection between the VELUX modular skylights and the vapour barrier of the building. BCX is CE-marked in accordance with EN 13984.

## Building site measurements – Axonometric

Axonometric	
C	Sub-construction width – Tolerance $\pm 5$ mm
D	Sub-construction length – Tolerance $\pm 5$ mm
O	Difference in height of sub-construction
P	Mounting height, wall steel profile. Measured from sub-construction to top of steel profile – Tolerance $\pm 5$ mm
R	Flashing groove placement – Tolerance $- 10$ mm, $+ 35$ mm. * Groove size: Height 8-10 mm, Depth 35 mm

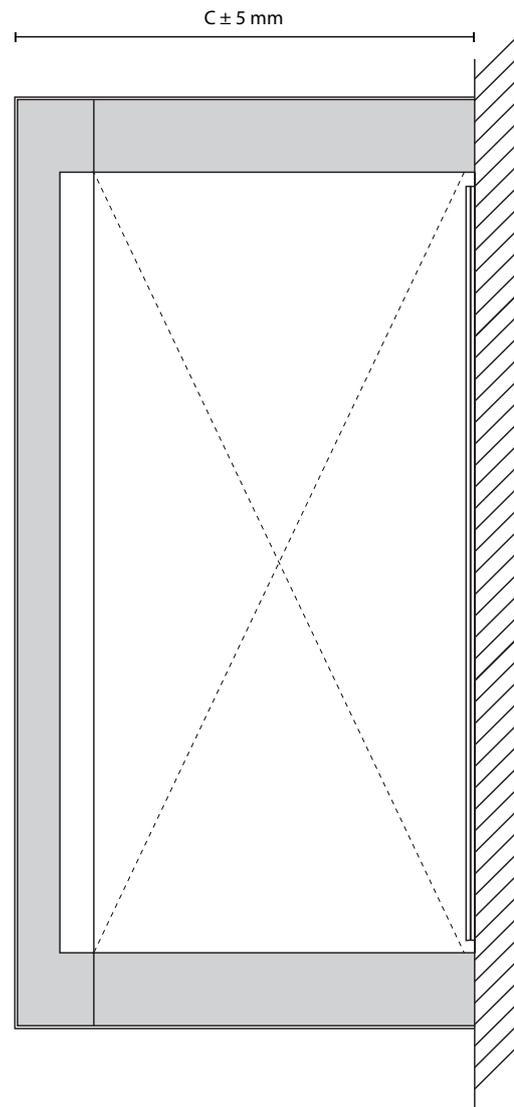
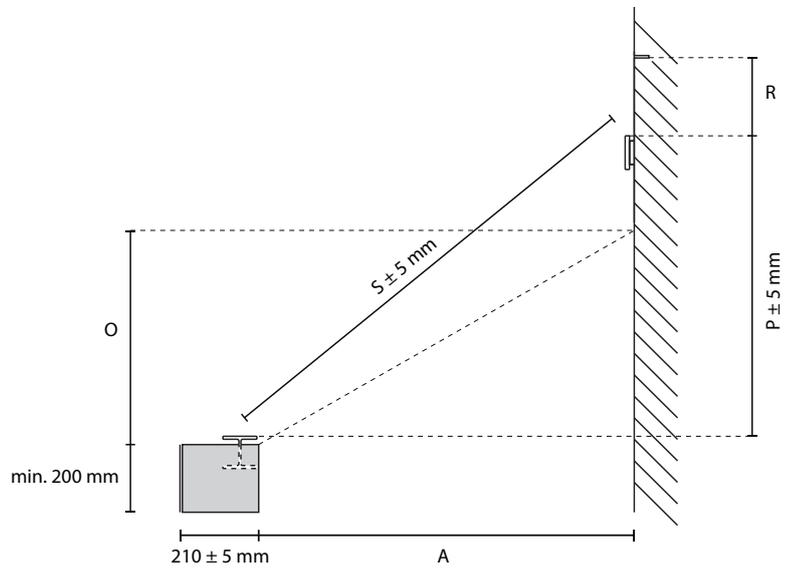
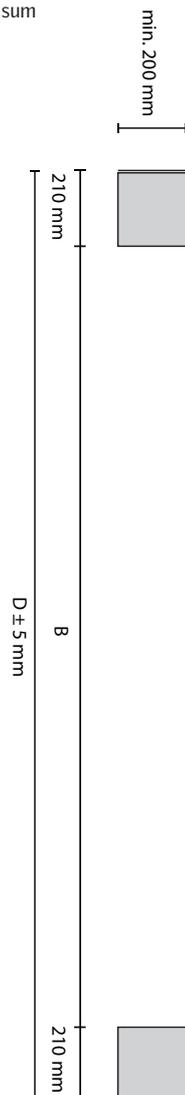
- Minimum length of bottom steel profile is equal to opening length (B (see next page))
- Length of top steel profile is equal to total sum of module width in the skylight



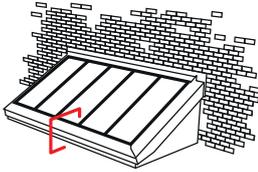
## Building site measurements

Plan	
A	Opening width
B	Opening length
C	Sub-construction width – Tolerance $\pm 5$ mm
D	Sub-construction length – Tolerance $\pm 5$ mm
O	Difference in height of sub-construction
P	Mounting height, wall steel profile. Measured from sub-construction to top of steel profile – Tolerance $\pm 5$ mm
R	Flashing groove placement – Tolerance $-10$ mm, $+35$ mm. * Groove size: Height 8-10 mm, Depth 35 mm
S	Distance between steel, internal measurement between steel – Tolerance $\pm 5$ mm

- Minimum length of bottom steel profile is equal to opening length (B)
- Length of top steel profile is equal to total sum of module width in the skylight



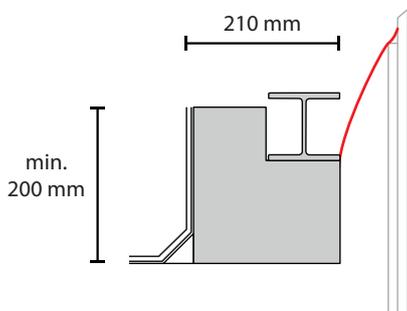
## Sub-construction variants



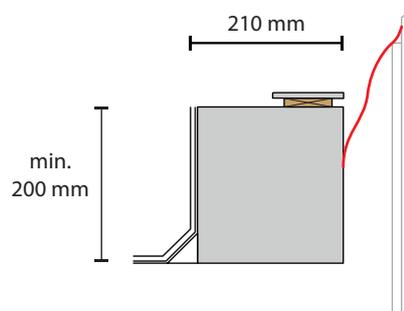
### Cross-section bottom

Options of sub-constructions for Wall-mounted Longlight solutions. Please note that the width stated indicates the distance from the exterior of the roofing material to the interior edge of the steel profile or wooden batten.

**Steel with steel profile**

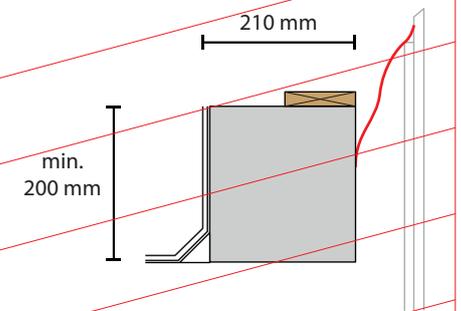


**Steel with flat steel**

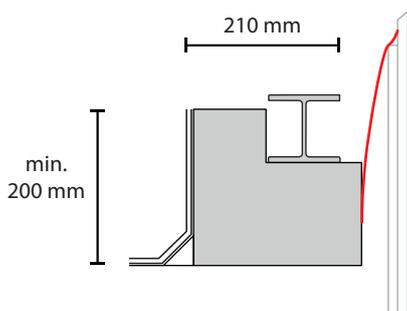


**Not recommended by VELUX Commercial**

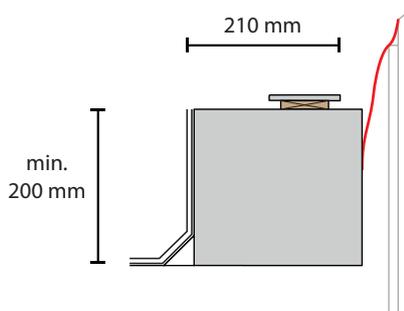
**Steel with wooden batten**



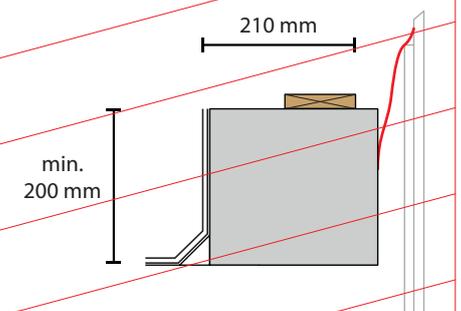
**Concrete with steel profile**



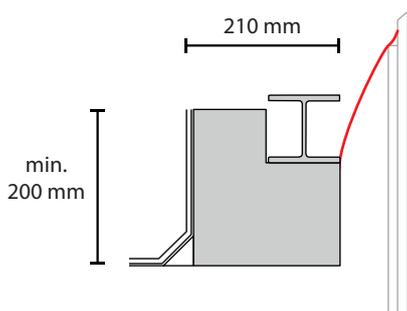
**Concrete with flat steel**



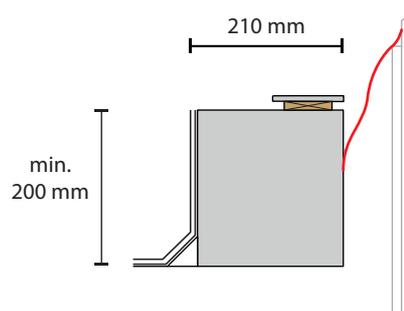
**Concrete with wooden batten**



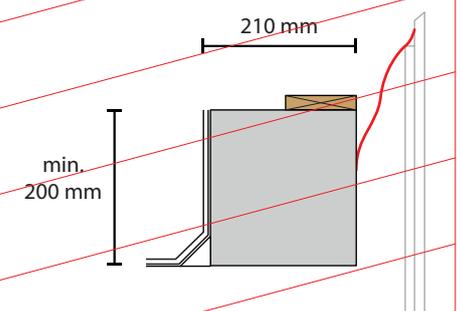
**Wood with steel profile**



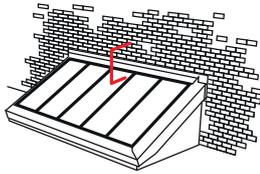
**Wood with flat steel**



**Wood with wooden batten**

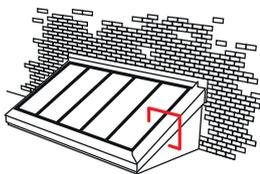
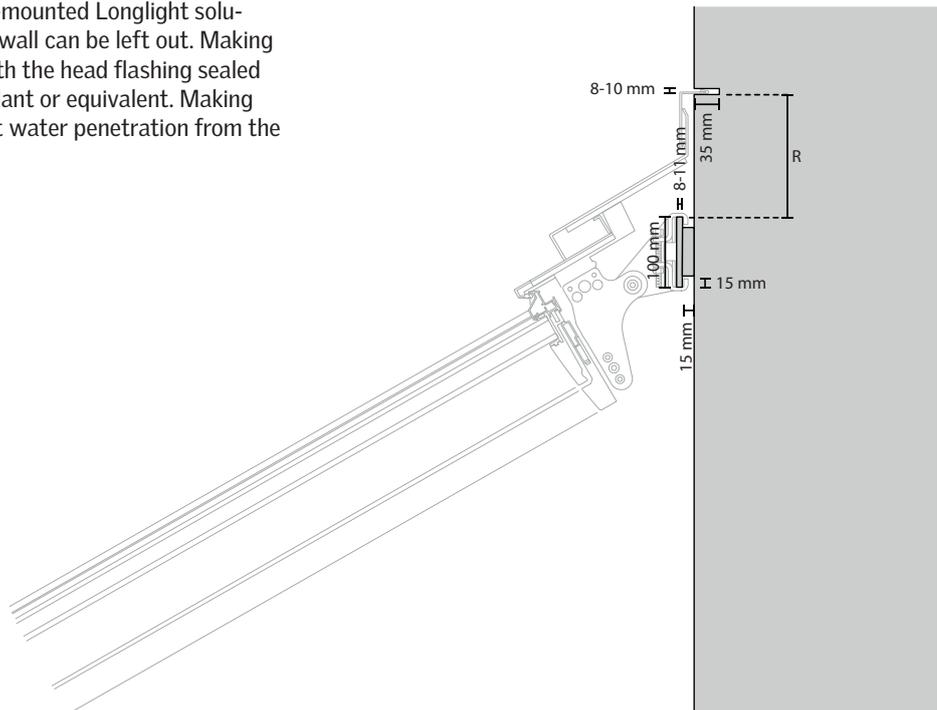


## Sub-construction variants



### Cross-section top

Options of sub-constructions for Wall-mounted Longlight solutions. Note, that the top groove in the wall can be left out. Making it a single water protection system with the head flashing sealed to the wall with a suitable mastic, sealant or equivalent. Making the sealant the only protection against water penetration from the wall above the skylight.



### Longitudinal section

In the gable construction for Wall-mounted Longlight at 5-45° pitch, the height of the sub-construction must be at least 200 mm measured from finished roof surface. It is important that the surface of the gable construction is suitable for fixation of screws.

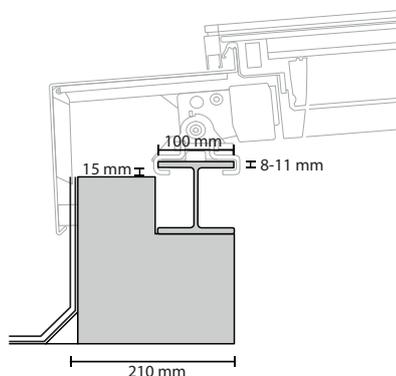


## Securing modular skylights to the sub-construction

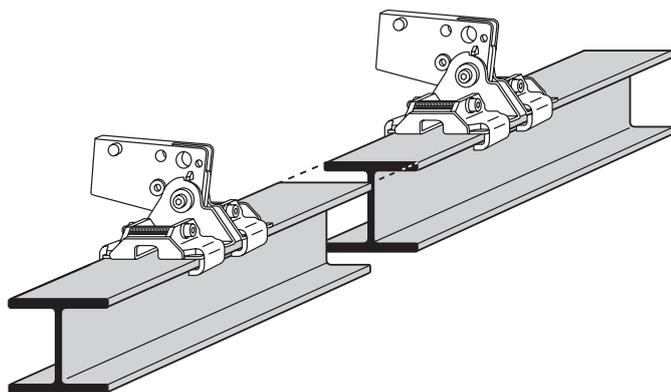
The sub-construction can be finished at the top and bottom with steel profile, which provides a level and stable surface for the skylight modules and forms a base for fitting installation brackets with clamps.

### Using steel profile

When mounting the modular skylight on a steel profile, the top flange of the profile must be 100 mm in width and 8-11 mm in thickness. In addition there must be at least 15 mm free space underneath the flange both vertically and horizontally to give room for the clamp.



Steel, concrete or wood construction with steel profile

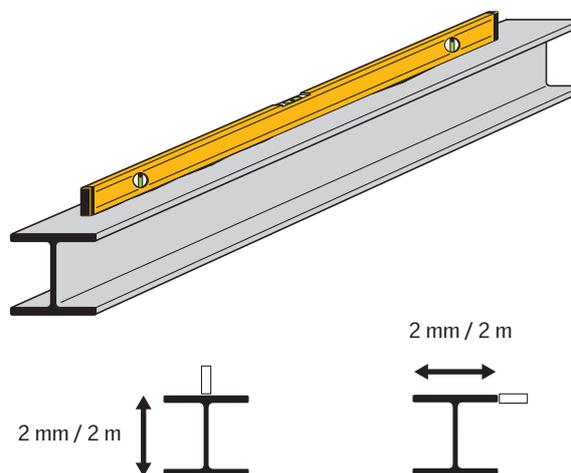


Connection of steel profiles must not collide with clamps

**The number and size of fixings for securing the steel profile to the sub-construction must be dimensioned by the customer to fit each project.**

### Straightness of steel profile

Requirements as to the straightness of the steel profile are 2 mm per 2 meters both horizontally and vertically.



The following standard steel profiles are suited for installation of VELUX modular skylights in Wall-mounted Longlight solutions.

EU steel beams	British steel beams	US steel beams
INP 220	UB 178 x 102 x 19	W 12 x 22
IPE 200	UB 203 x 102 x 23	W 12 x 19
HE100A	UB 254 x 102 x 22	W 10 x 19
HE100B	UB 254 x 102 x 25	W 10 x 17
	UB 305 x 102 x 25	W 8 x 15
	UB 305 x 102 x 28	W 6 x 16
	UB 305 x 102 x 33	W 4 x 13
		S 8 x 23
		S 8 x 18.4

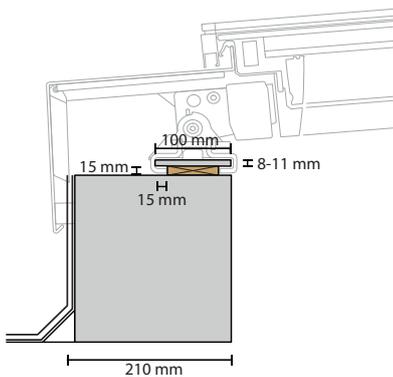
In case a stronger construction is needed, the steel profile can be replaced with a stronger profile. In this case, longer installation bolts must be ordered separately from a VELUX Commercial sales office.

The following profiles can be combined with the longer bolts.

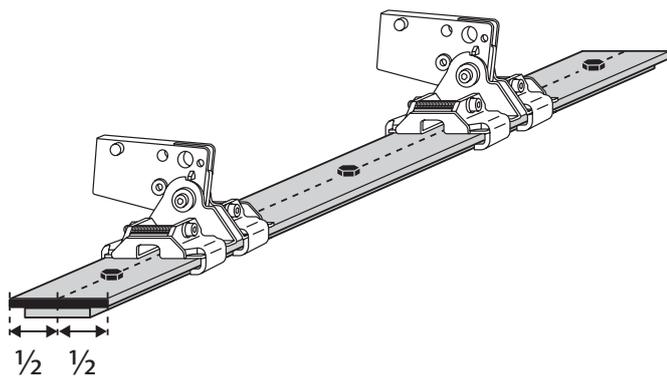
EU steel beams	US steel beams
INP 240, 260, 280	S 10 x 25.4
IPE 220, 240	
HE120A	
HE120B	

## Using flat steel profile

When the sub-construction is finished with a flat steel profile, the steel profile must be 100 mm in width and 8-11 mm in height. In addition there must be at least 15 mm free space underneath the steel both vertically and horizontally to give room for the clamps.

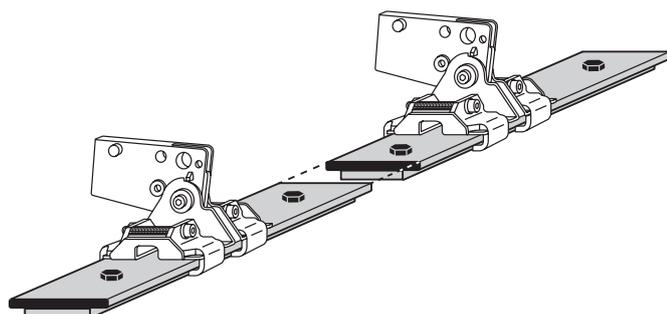


### Steel, concrete or wood construction with flat steel



- The distance pieces under the flat steel profile must be for the full length of the steel profile
- The flat steel profile must be secured using screws along the middle of the steel profile

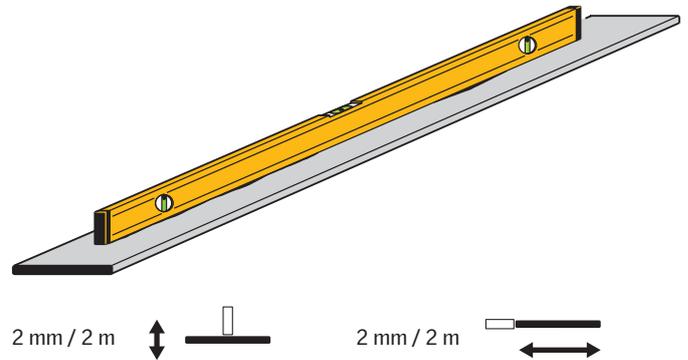
**The number and size of fixings for securing the flat steel profile to the sub-construction must be dimensioned by the customer to fit each project.**



- Connection of flat steel profiles must not collide with clamps

## Straightness of flat steel

Requirements as to the straightness of the flat steel are 2 mm per 2 meters both horizontally and vertically.



The following standard flat steel profiles are suited for installation of VELUX modular skylights in Wall-mounted Longlight solutions.

Standard EU flat steel	Standard US flat steel
100 x 8	5/16 x 4
100 x 10	3/8 x 4

In case a stronger construction is needed, the steel profile can be replaced with a stronger profile. In this case, longer installation bolts must be ordered separately from a VELUX Commercial sales office.

The following flat steel profiles can be used combined with the longer bolts.

Standard EU flat steel	Standard US flat steel
110 x 8	3/8 x 4 1/2
110 x 10	
120 x 8	
120 x 10	

## Using wooden battens

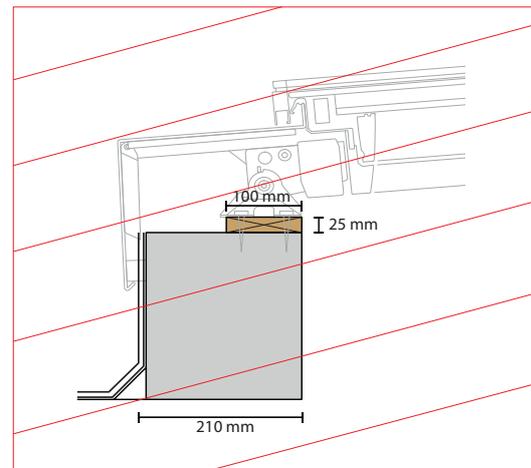
The sub-construction for Wall-mounted Longlight can also be finished with the use of a wooden batten on which the mounting brackets of the modular skylight can be secured directly, without having to use the mounting clamps.

The skylight modules are mounted on the batten using screws through the bottom and top mounting brackets.

There are 4 holes in each mounting bracket, 2 x  $\phi 5$  and 2 x  $\phi 8.5$ .

**These screws are not included in the VELUX delivery, and the correct dimensions must be ensured by the customer.**

**Not recommended by VELUX Commercial**

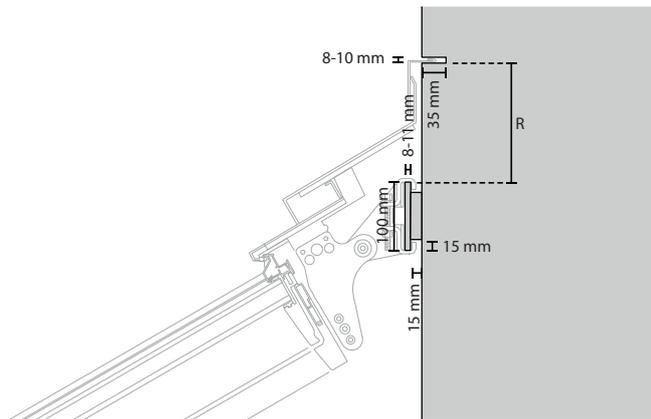


Steel, concrete or wood construction with wooden batten

## Securing modular skylights to the wall

### Flat steel profile

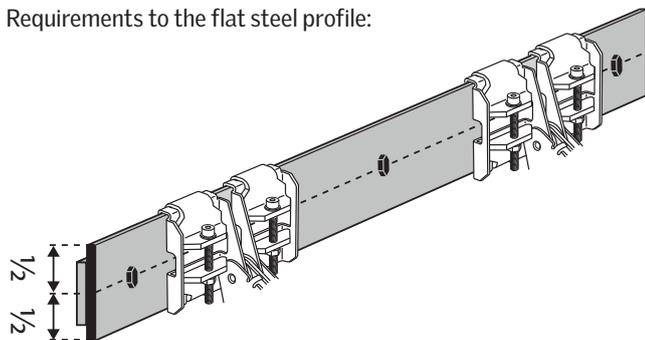
Wall-mounted modular skylights must be mounted on a flat steel profile on the wall. The steel profile must be 100 mm wide and 8-11 mm thick. There must be at least 15 mm free space underneath the steel, both vertically and horizontally to allow room for the clamps.



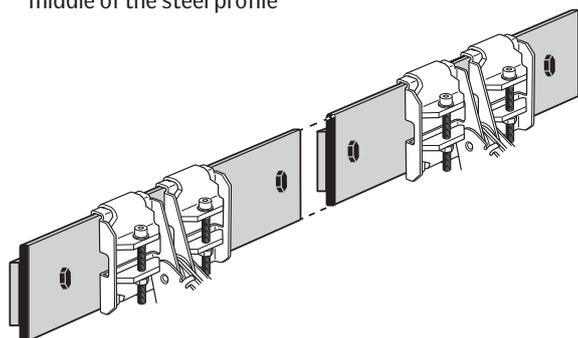
Steel, concrete or wood construction with flat steel profile

**The number and size of fixings for securing the steel profile to the building must be dimensioned by the customer to fit each project.**

Requirements to the flat steel profile:



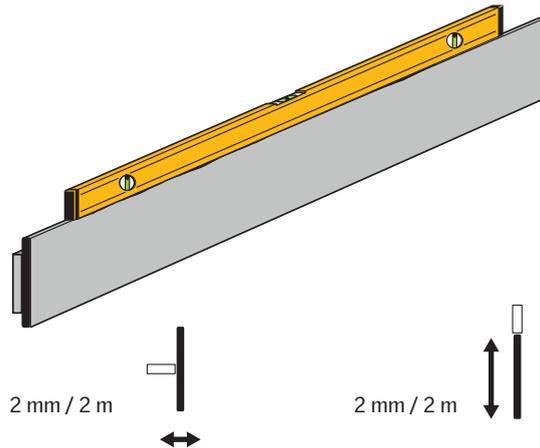
- The blocking-up of the steel must be in the full length of the steel profile
- The steel profile must be secured using screws or bolts along the middle of the steel profile



- Connection of steel profiles must not collide with clamps

### Straightness of steel profile

Requirements as to the straightness of the flat steel are 2 mm per 2 meters both horizontally and vertically.



The following standard flat steel profiles are suited for installation of VELUX modular skylights in Wall-mounted Longlight solutions.

Standard EU flat steel	Standard US flat steel
100 x 8	5/16 x 4
100 x 10	3/8 x 4

In case a stronger construction is needed, the steel profile can be replaced with a stronger profile. In this case, longer installation bolts must be ordered separately from a VELUX Commercial sales office.

The following flat steel profiles can be used combined with the longer bolts.

Standard EU flat steel	Standard US flat steel
110 x 8	3/8 x 4 1/2
110 x 10	
120 x 8	
120 x 10	

## Connecting flashing to the wall

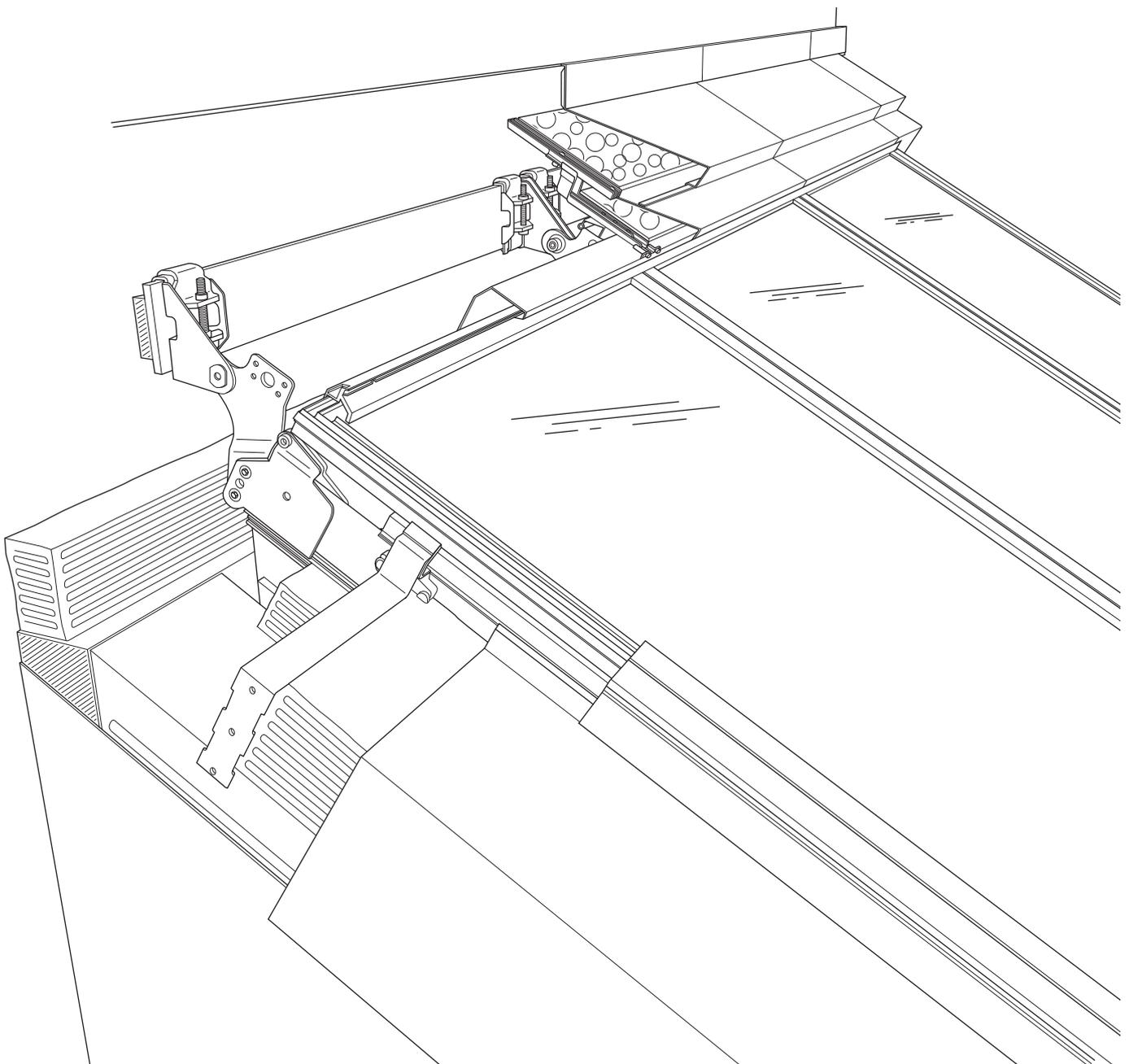
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The surface of the wall must be suited for fixing screws, cutting a groove in and applying mastic or sealant to. These must be prepared according to applicable standards.

When cutting a groove for the top head flashing, the groove must subsequently be sealed again.

If the wall is not suited for cutting a groove, the top head flashing is left out, and the main head flashing is secured to the wall using a sealant. In this case, the sealant is the only water protection. The choice of sealant to use in the groove and on the flashing must be according to national requirements, local practice, and the directions of other building suppliers.

The sealant is not part of the VELUX delivery.

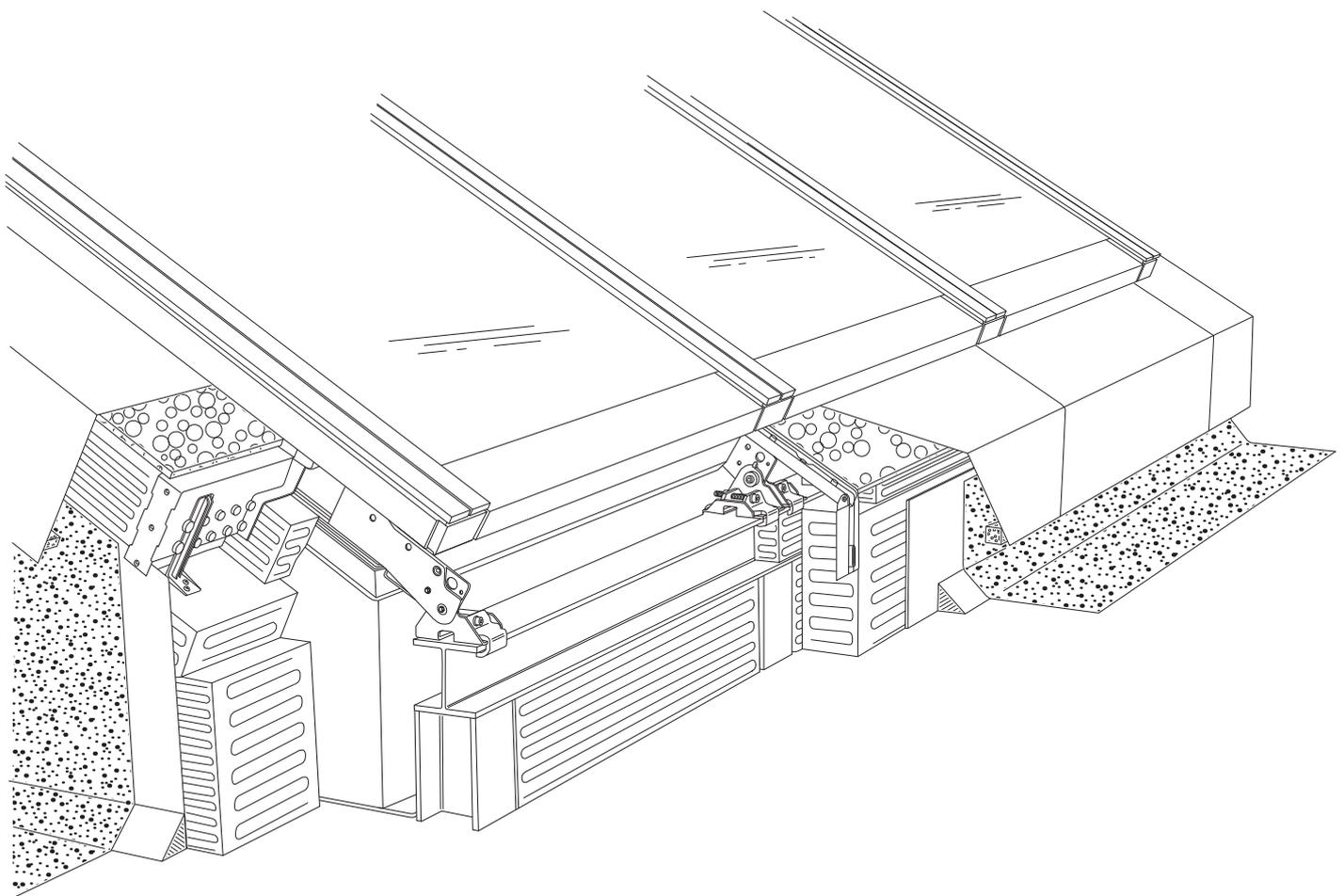


## Connecting to the roof

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The surface on which roofing felt is laid must be prepared according to applicable standards for roofing materials and best building practice.

The ideal installation order, is to apply the roofing felt to the outside of the sub-construction before mounting the skylights.

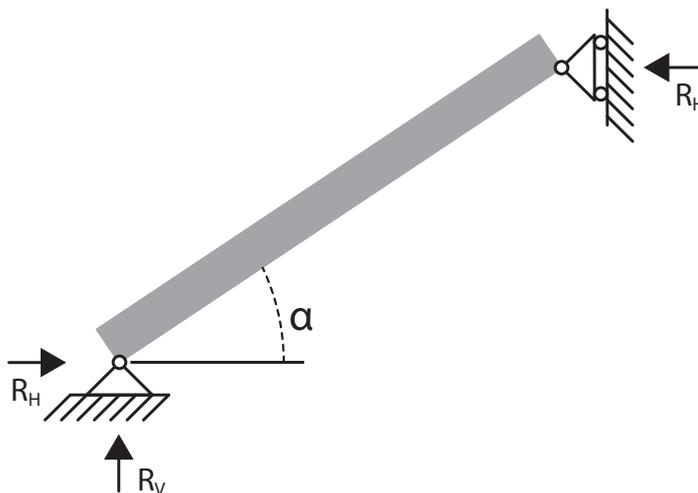


## Static information for dimensioning

As an additional service, VELUX Commercial offers to provide static calculation for the skylight solution based on the actual loads given by the customer. For static calculation please contact a VELUX Commercial sales office.

en by the customer. For static calculation please contact a VELUX Commercial sales office.

### Static model of reactions

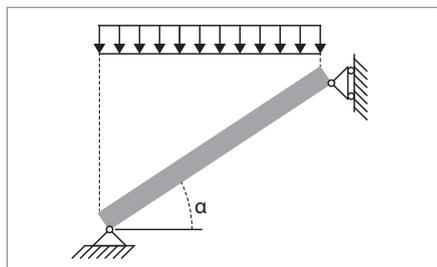


### Characteristic loads

Fill out please

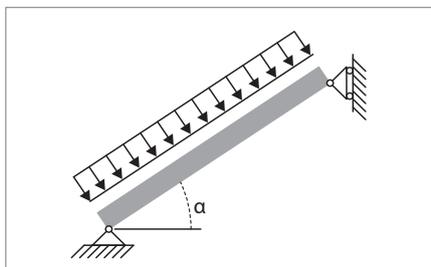
Name of your project:

Snowload pressure in kN/m<sup>2</sup>



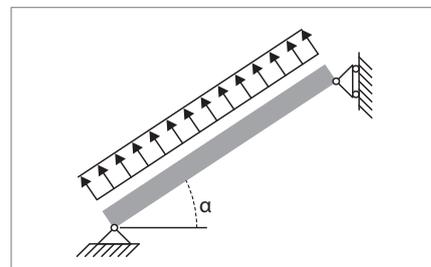
kN/m<sup>2</sup>

Windload pressure in kN/m<sup>2</sup>



kN/m<sup>2</sup>

Windload suction in kN/m<sup>2</sup>

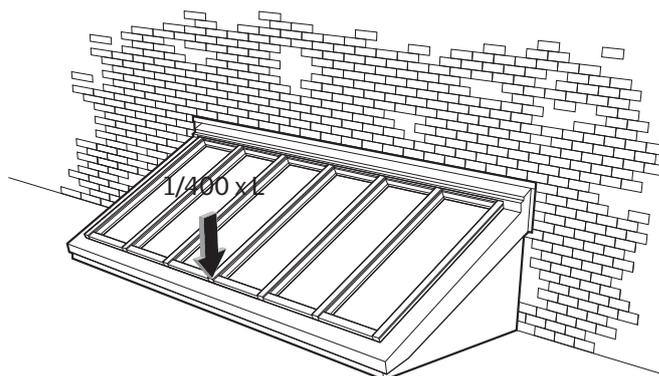


kN/m<sup>2</sup>

## Sub-construction dimensioning requirements

The roof construction is subject to deflection after installation of the skylight modules. These deflections includes subsequent roof covering, various building installations and external loads such as snow and wind etc. The sub-construction must be designed to withstand all these loads and the deflections must be limited to maximum 1/400 over the full length of the sub-construction.

After completing the sub-construction, it must be secured against water penetrating the roof construction and insulation.



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