# VELUX modular skylights Sub-construction for northlight





## Sub-construction for northlight at 25-90° pitch

VELUX modular skylights installed in a northlight solution are build on a sub-construction made of steel, wood or concrete finished with a steel profile at the top of the bottom section. 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.

### Axonometric

A: Opening widthB: Opening lenghtMinimum length of steel profiles is equal to opening length (B)



### **Building site measurements**

#### Elevation

A: Opening height

B: Opening lenght

Lenght of steel profiles is equal to opening length (B)





### Sub-construction variants

#### **Cross section**

When replacing old northlight installations with VELUX modular skylights, reuse of the existing sub-construction in the new installation is often required. In such cases, the possible variations of existing sub-constructions will be unlimited. Some examples are shown below as to what they could look like and how to prepare them for installation of VELUX modular skylights.

Wood constructions - bottom and top section



For installation on steel profile

<sup>nnin</sup> <sup>450</sup> <sup>mn</sup> <sup>for</sup> <sup>55</sup> <sup>55</sup> <sup>1</sup> <sup>125</sup> <sup>mn</sup> <sup>for</sup> <sup>255</sup> <sup>1</sup> <sup>125</sup> <sup>mn</sup> <sup>for</sup> <sup>255</sup> <sup>1</sup> <sup>130</sup> <sup>mn</sup> <sup>for</sup> <sup>5</sup> <sup>15</sup> <sup>15</sup> <sup>mn</sup> <sup>15</sup> <sup>15</sup> <sup>mn</sup>

For installation on flat steel

### Sub-construction variants





For installation on steel profile

For installation on flat steel







For installation on steel profile

For installation on flat steel

#### Longitudinal section



In the gable construction for northlight at 25-90° pitch, the distance from the exterior of the roofing material to the interior of the wood/steel/concrete must be at least 100 mm and can in principle be unlimited.



### Securing modular skylights to the sub-construction

#### Top of modular skylights

In the top of the skylight module, the installation brackets are fixed directly to the wooden batten of the sub-construction without using clamps. The screws are supplied by VELUX Company Ltd.

#### Bottom of modular skylights

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

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

The following steel profiles are qualified for installation with VELUX modular skylights in northlight solutions:

- INP 220
- IPE 200
- HE100A
- HE100B

To be able to fix the clamps to the steel profile, it is important to ensure 30 mm space between the steel profile and the sub-construction.

When installing the modular skylight on flat steel, the steel 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.



- The blocking-up of the steel must be for the full length of the flat steel profile
- The steel can be secured using screws along the middle of the profile



Connection of steel profiles must not collide with clamps

#### Straightness of steel profile

Requirements as to the straightness of the steel profile is 2 mm per 2 meters not exceeding 6 mm parallel to the modular skylights and 10 mm perpendicular to the modular skylights along the full length of the sub-construction.



#### Straightness of flat steel

Requirements as to the straightness of the steel profile is 2 mm per 2 meters not exceeding 6 mm parallel to the modular skylights and 10 mm perpendicular to the modular skylights along the full length of the sub-construction.



# Connecting to the roof

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

Before installing VELUX modular skylights, the sub-construction must be prepared with felt paper.

During the installation of VELUX modular skylights, strips of roofing felt must be fitted on and along the sub-construction bottom and sides. The roofing felt is not part of the VELUX delivery.

The roofing felt is fastened after having installed the skylight modules.









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# Sub-construction dimensioning requirements

The roof construction is exposed to deformations after installation of the skylight modules. These deformations include 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 deformations must be limited to  $1/400 \times$  the full length of the sub-construction perpendicular to the skylight modules and  $1/700 \times$  the full length of the sub-construction parallel to the skylight modules.

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

For load capacities of the skylight modules, please refer to http://modularskylights.velux.co.uk/.





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