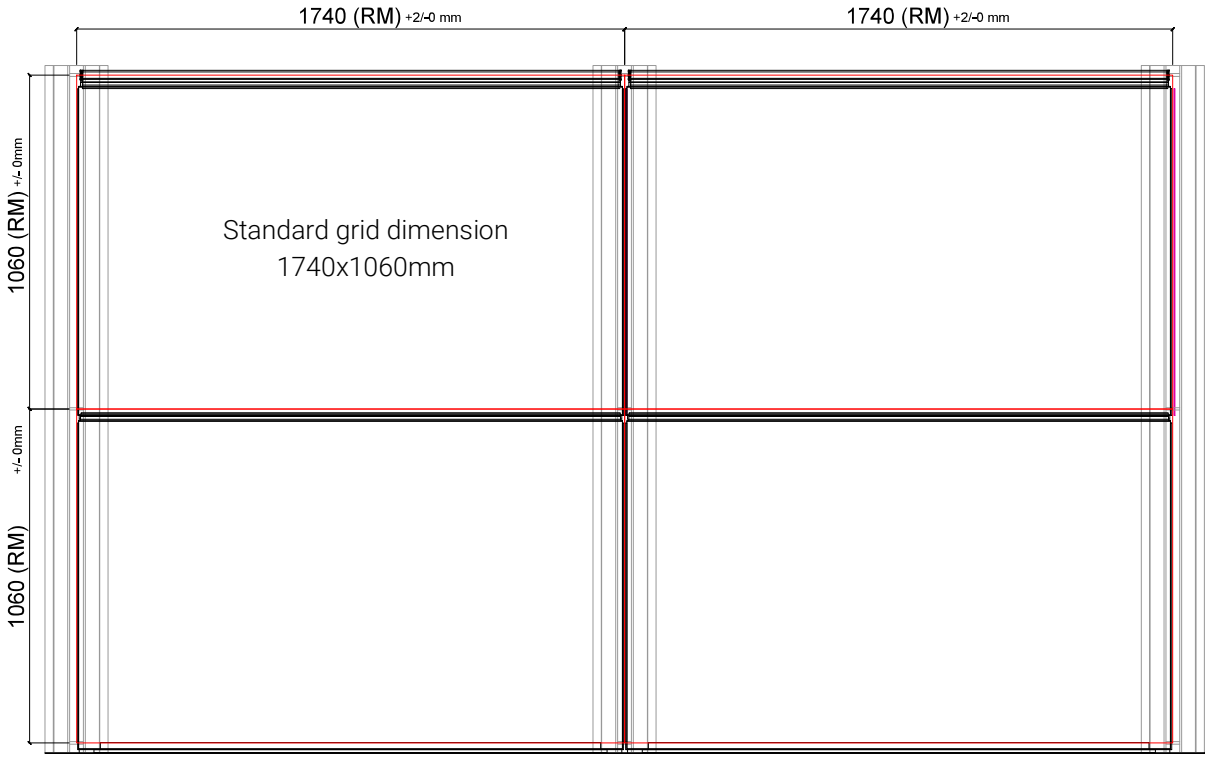
NICER X roof-integrated system

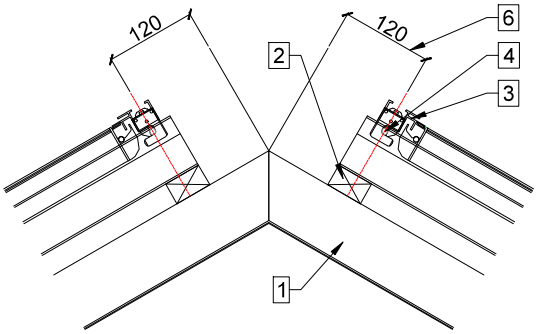
Grid dimensions NICER X

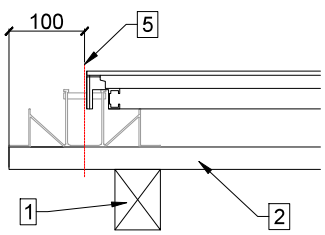
| A4 | V22.12 |



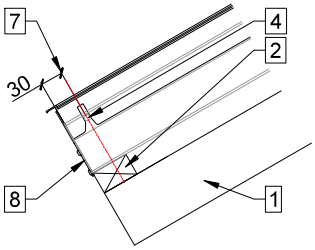
1 Counterbattens
2 Roof battens
3 NICER X ridge profile
4 Bolt in rail
5 NICER X rail axis
6 Bolt distance to the ridge
7 Bolt distance to rail end
8 NICER X eaves end plate

ridge





verge



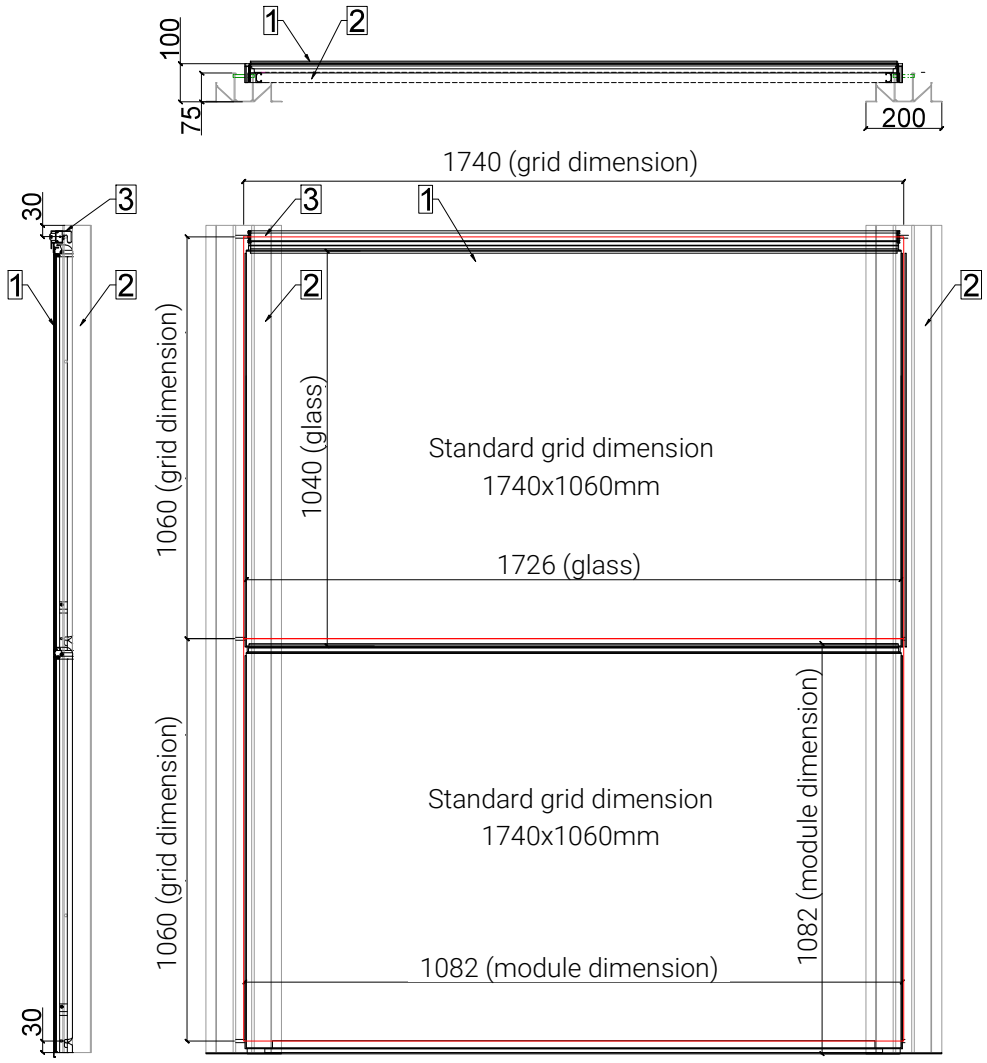
eave

Note:
The grid dimension can be extended in width by up to 2mm. A reduction of the grid dimension is not recommended!

Planning measurements NICER X

1 NICER X module
2 NICER X rail
3 NICER X click ridge profile

MOUNTING INSTRUCTIONS
Always align NICER X rail with the bolts!



Note:
< 2.5 kN/m2 wind suction (IEC 61215), higher loads possible with additional measures.
< 2.5 kN/m2 snow load (IEC 61215), higher loads see page 9

NICER X Safety mechanism module/ridge profile

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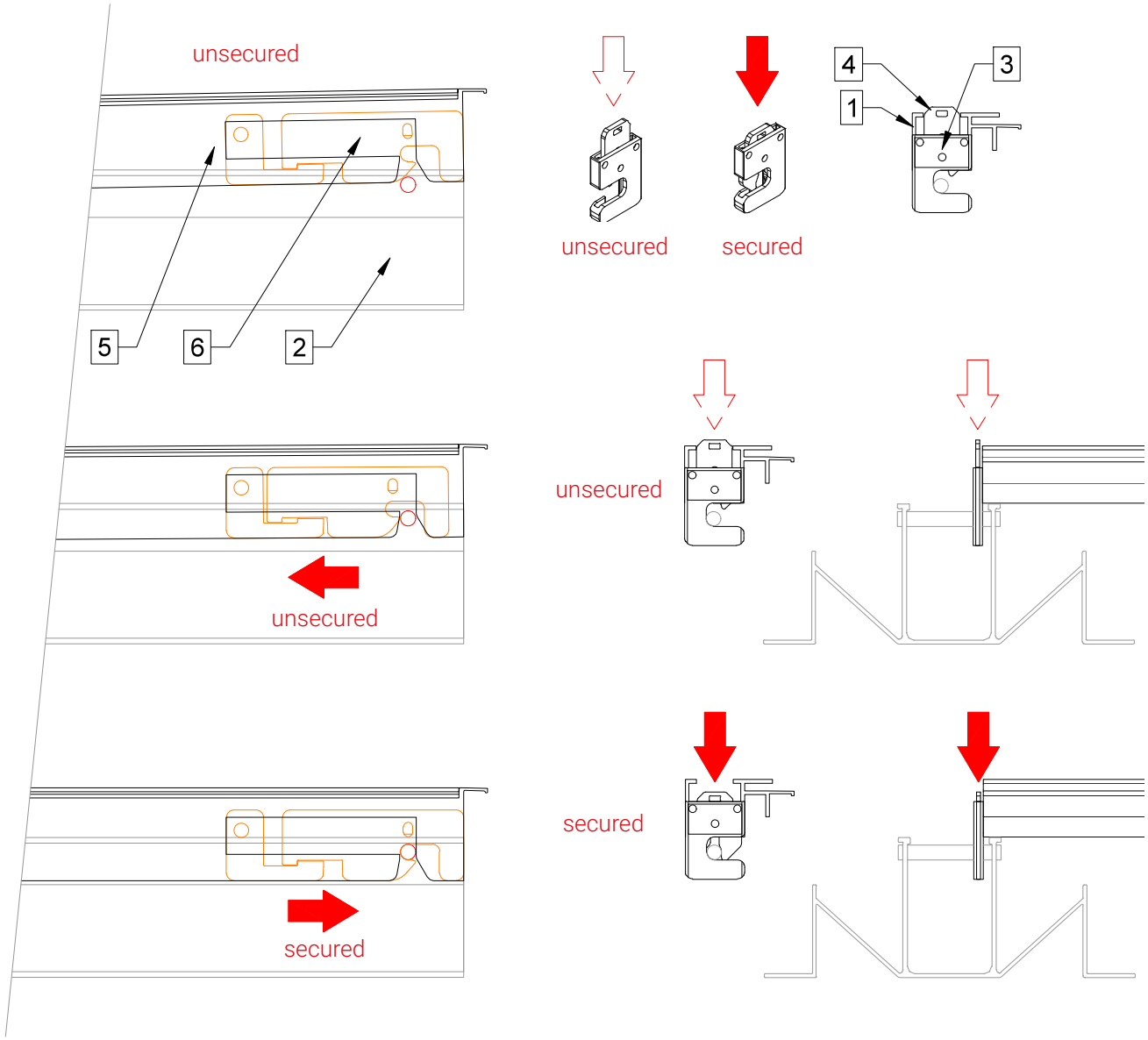
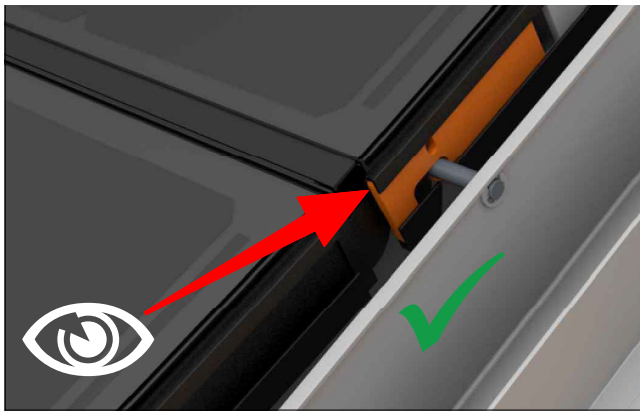
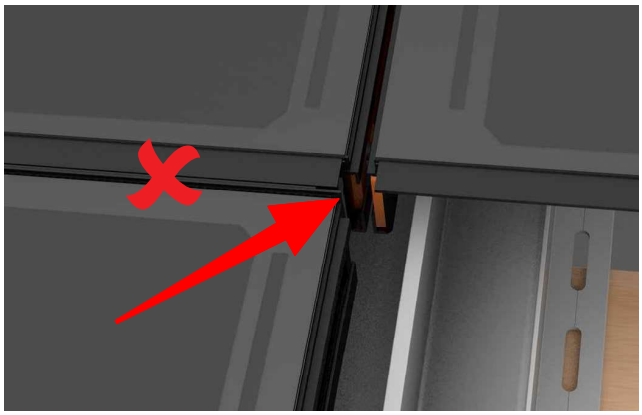
1 NICER X ridge profile
2 NICER X rail
3 NICER X Ridge hook sleeve
4 NICER X Ridge hook safety device
5 NICER X Frame
6 NICER X Click system

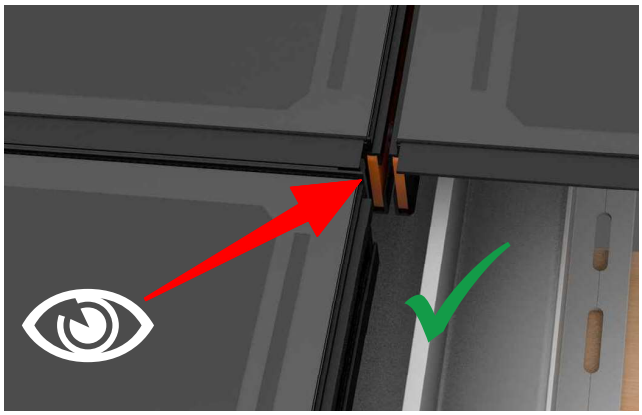


NICER X Module click safety mechanism

Control view:







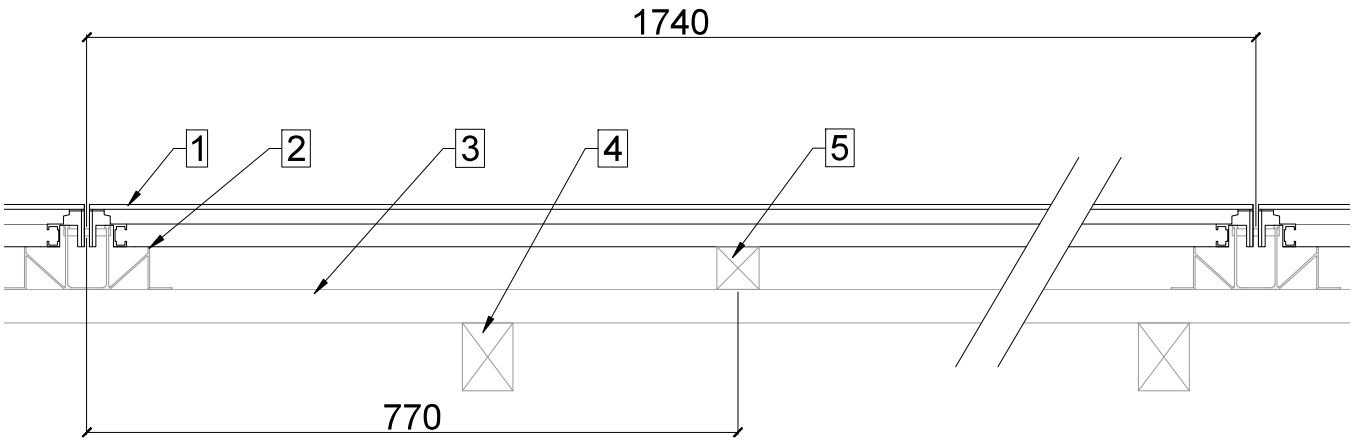
After insertion and clicking in, the slider of the click safety mechanism must be checked! If it has not moved all the way to the front by itself, it must be corrected manually, e.g. with the NICER X tool. The module is not correctly secured until the slider is in the very foremost position and engaged.

NICER X Tool:

The NICER X tool can be used to easily release the click safety mechanism. Because of this it is possible to unlock and replace individual modules without any problems, regardless of their position in the module field.
The NICER X tool is also suitable for pushing the slider of the click safety mechanism all the way forward if it does not move completely forward by itself.

NICER X vertical battens for increased demands

1 NICER X module
2 NICER X rail
3 Roof battens
4 Counterbattens
5 Additional battens 50 x 50

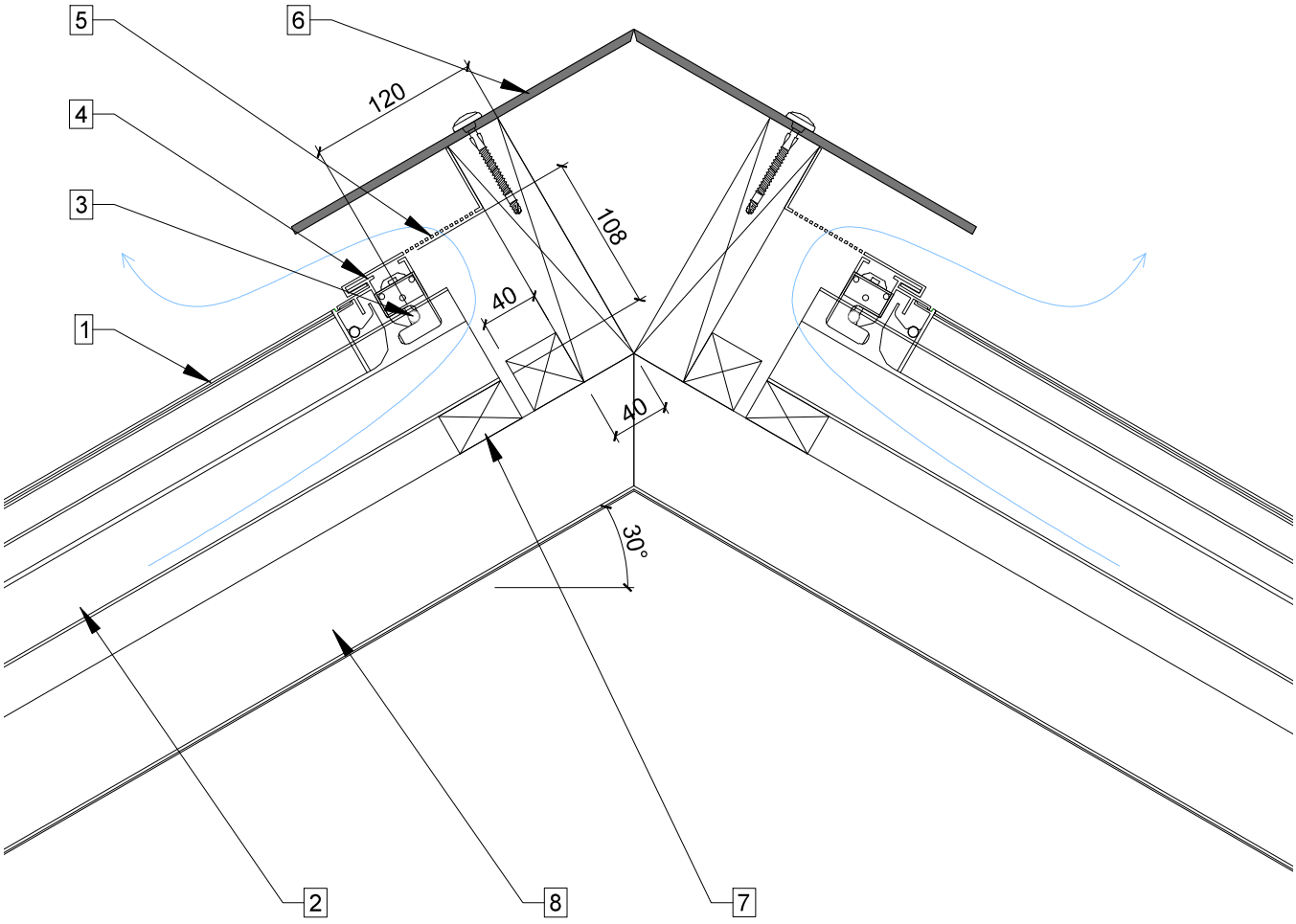


The additional vertical battens (5) are recommended from an altitude of around 800 m above sea level or special exposures. With the additional battens, snow loads of up to 6 kN/m2 can be absorbed. The snow loads acting in the area of the module frame must be able to be transferred by means of center battens to the on-site substructure, which is designed for the corresponding mechanical loads of wind, snow and the dead weight of the solar modules.

Even higher loads can also be realized on a project-specific basis.

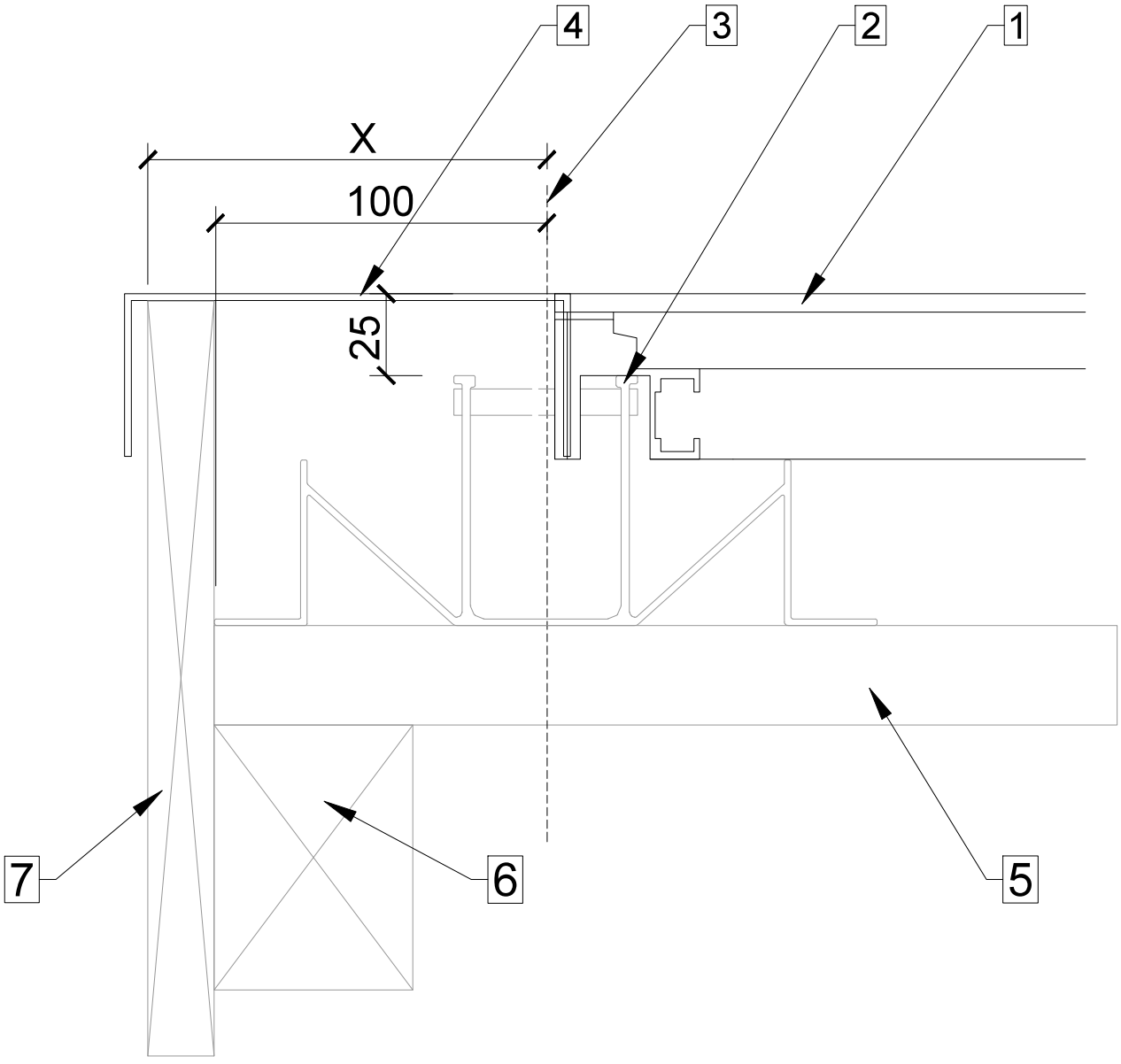
Ridge finish

1 NICER X module
2 NICER X rail
3 Bolt in rail (grid dimension on bolt)
4 NICER X ridge profile
5 Perforated plate
6 Aluminum composite panel
7 Roof battens
8 Counterbattens



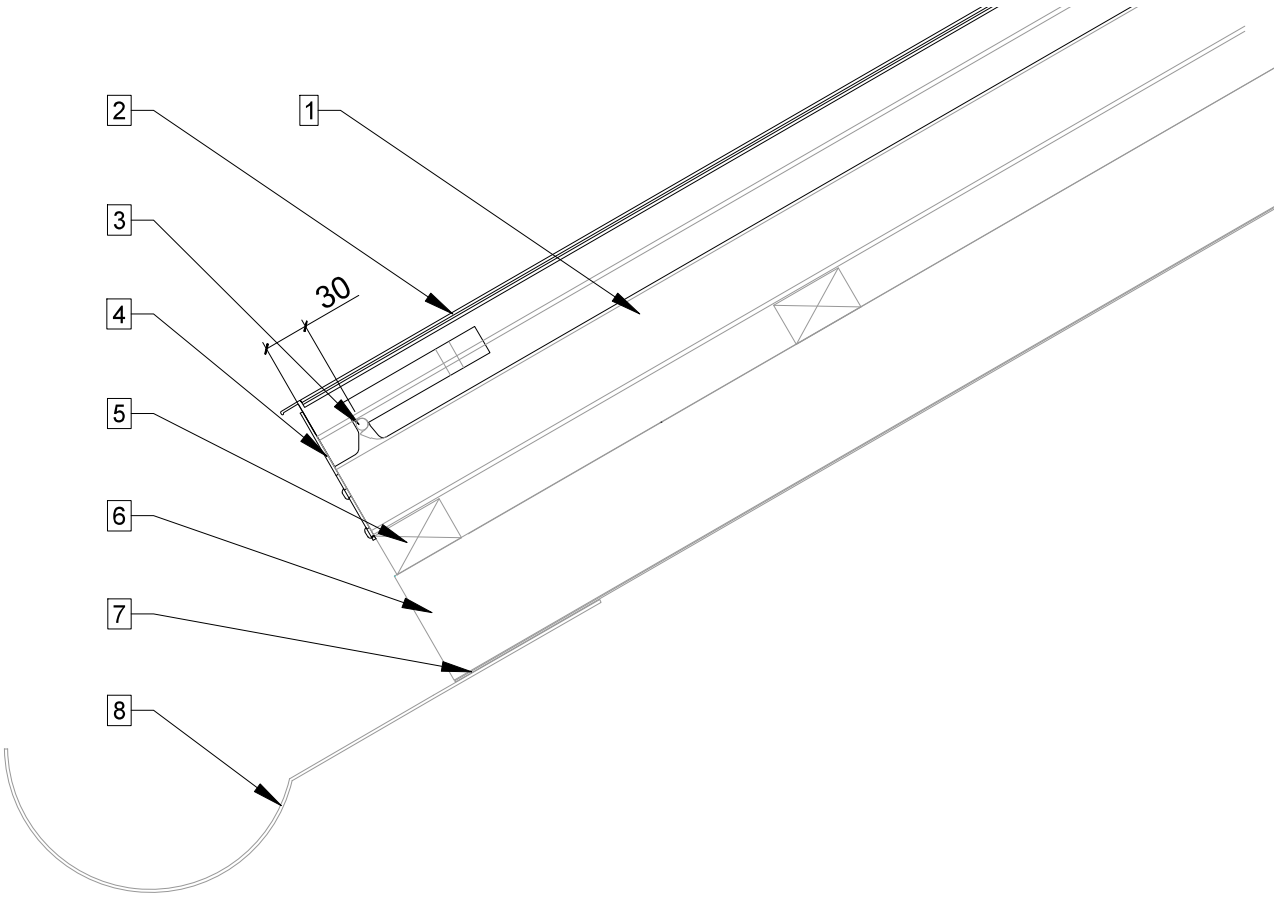
Verge finish

1 NICER X module
2 NICER X rail
3 Rail center axis (grid dimension)
4 Sheet metal finish
5 Roof battens
6 Counterbattens
7 Verge plate



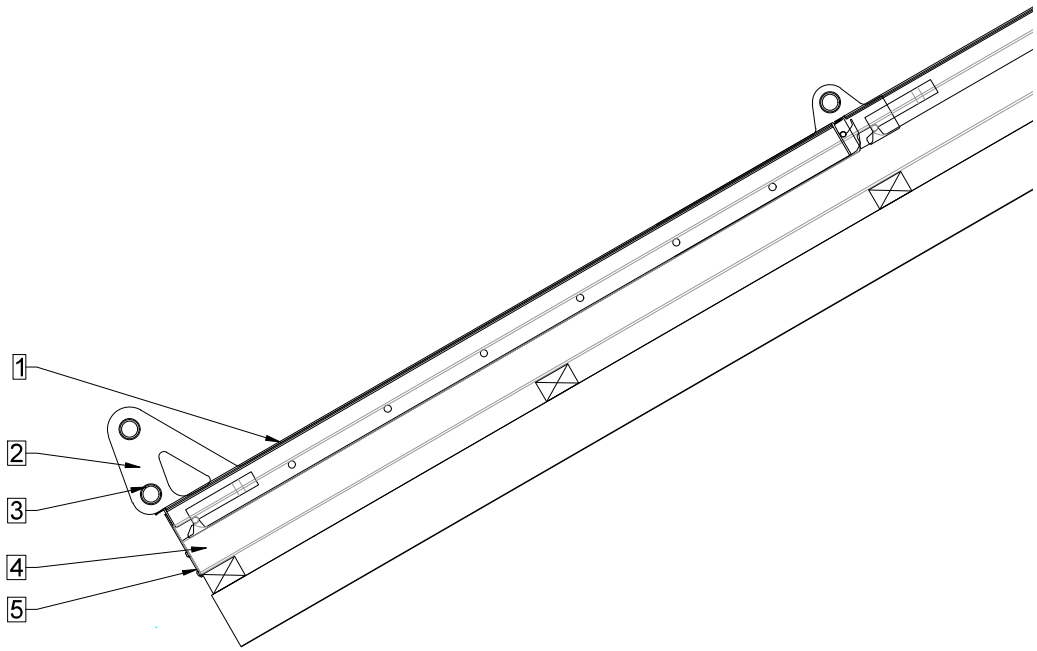
Eaves finish

1 NICER X rail
2 NICER X module
3 Distance from rail end to bolt (grid dimension on bolt)
4 NICER X covering plate
5 Roof battens
6 Counterbattens
7 Subroof
8 Gutter



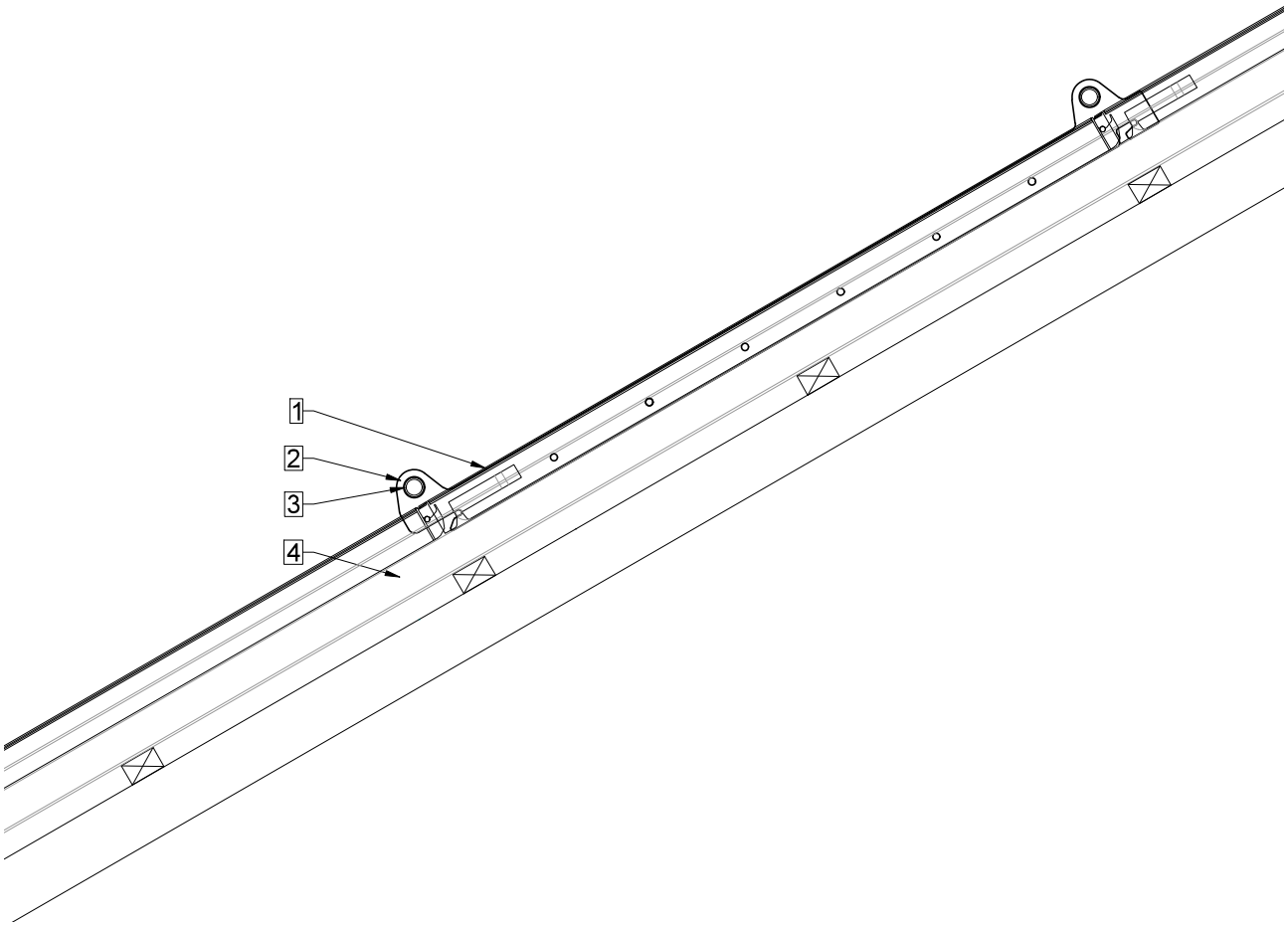
NICER X snow guard for normal requirements

1 NICER X module
2 NICER X snow hook
3 Snow guard pipe
4 NICER X rail
5 NICER X covering plate



NICER X snow guard for normal requirements

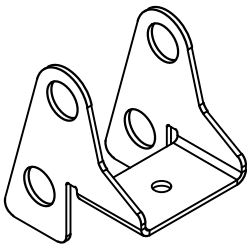
1 NICER X module
2 NICER X snow hook
3 Snow guard pipe
4 NICER X rail



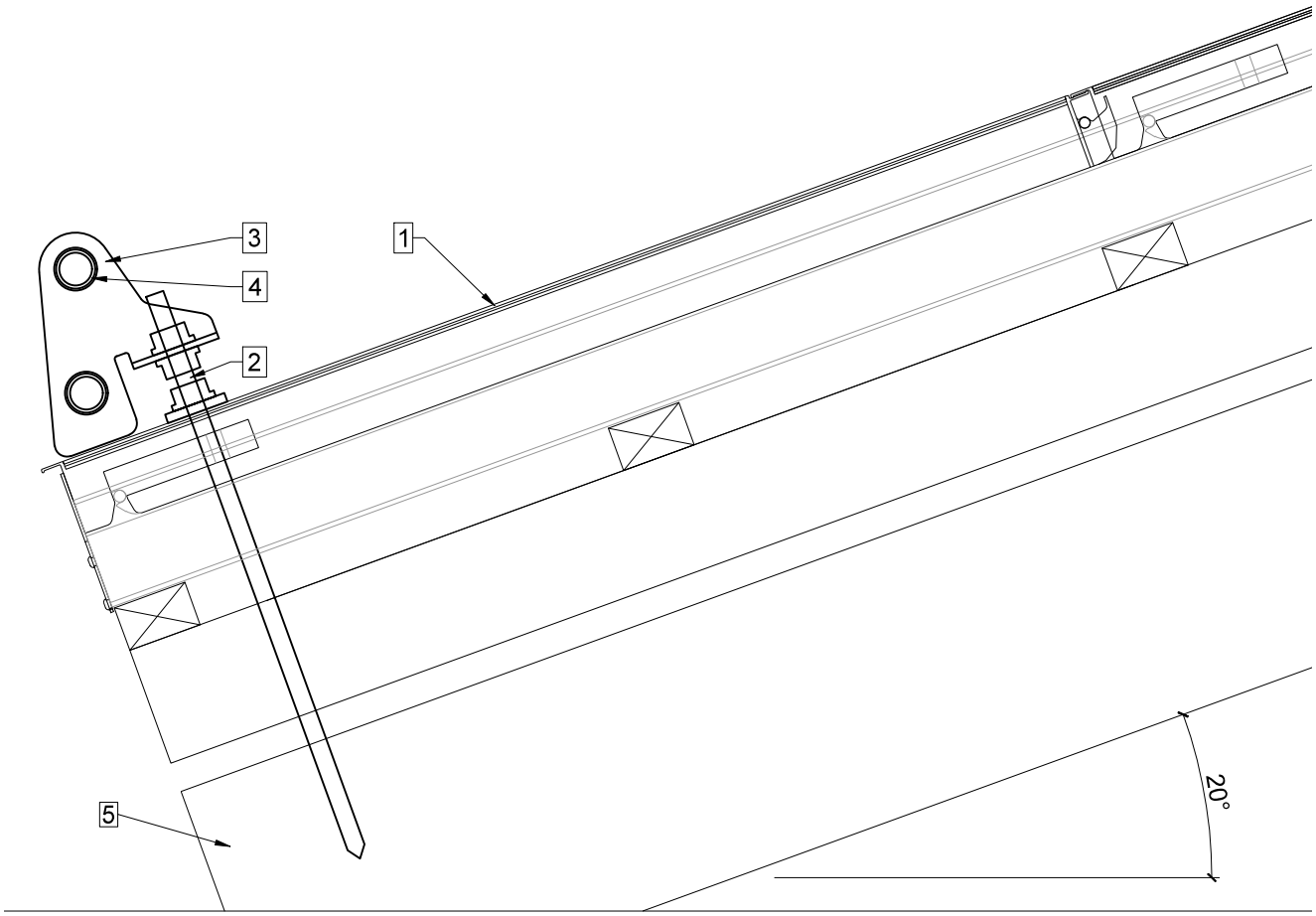
NICER X Snow guard for increased demands

| A4 | V22.12 |

1 NICER X aluminum composite module
2 Hanger bolt 400mm with sealing function
3 NICER X snow hook over aluminum composite
4 Snow guard pipe
5 Rafter



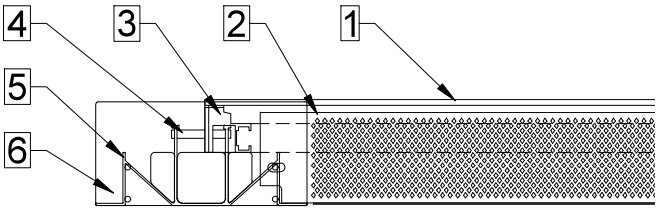
NICER X snow guard over aluminum composite

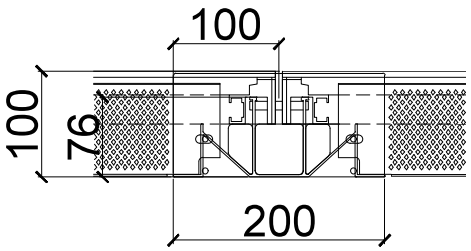


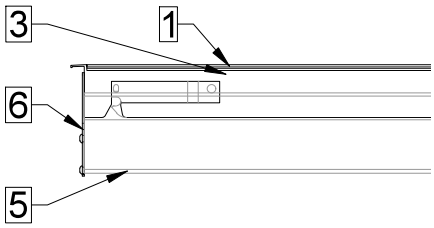
The "NICER X snow guard over aluminum composite" is installed over each rafter, or at least 3 per module.
The "NICER X snow guard over aluminum composite" is recommended from an altitude of 800 m above sea level.

NICER X eaves finishing elements

1 NICER X module
2 NICER X Ventilation grid
3 NICER X frame
4 NICER X bolt
5 NICER X rail
6 NICER X covering plate





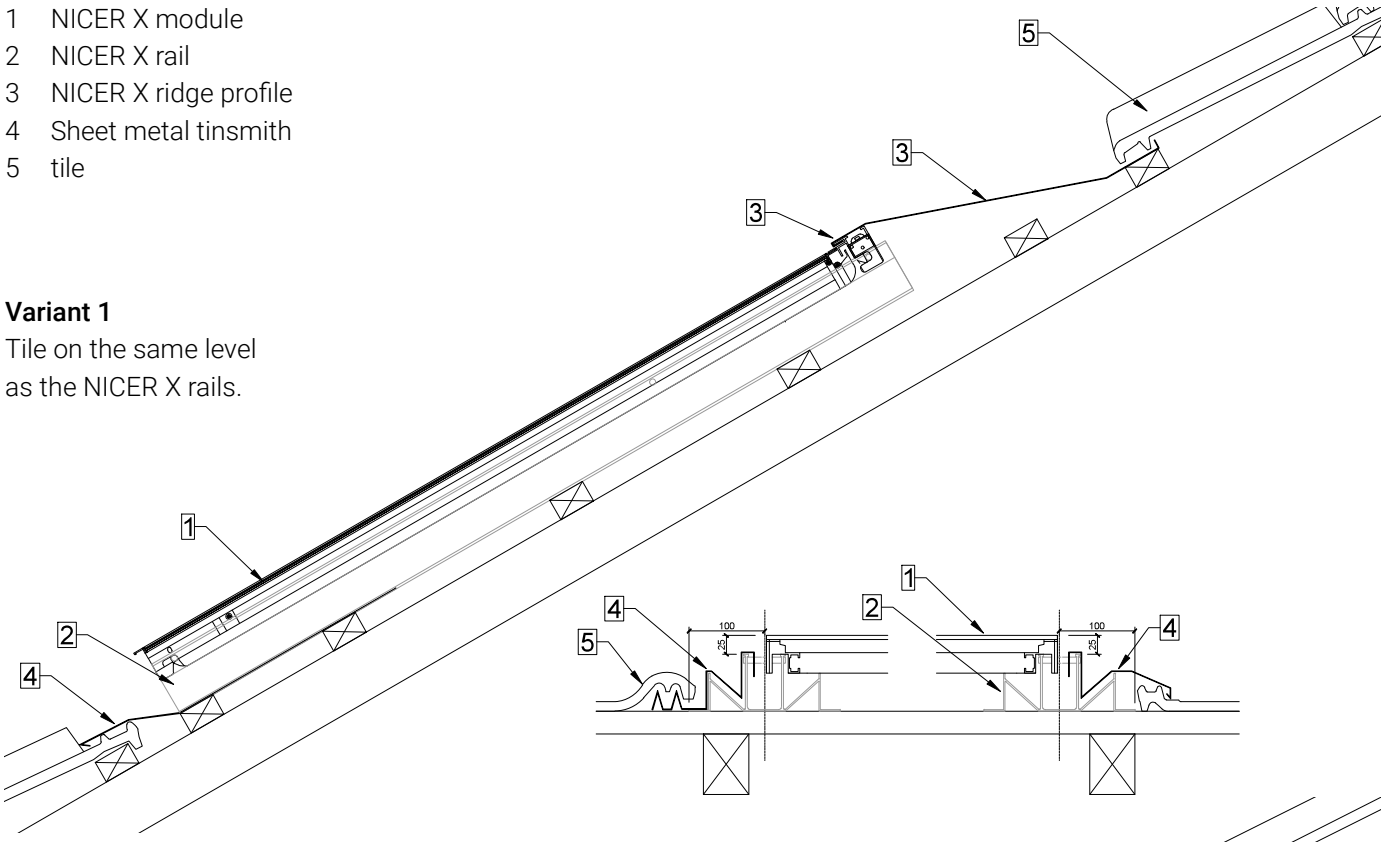


NICER X Connection to tile

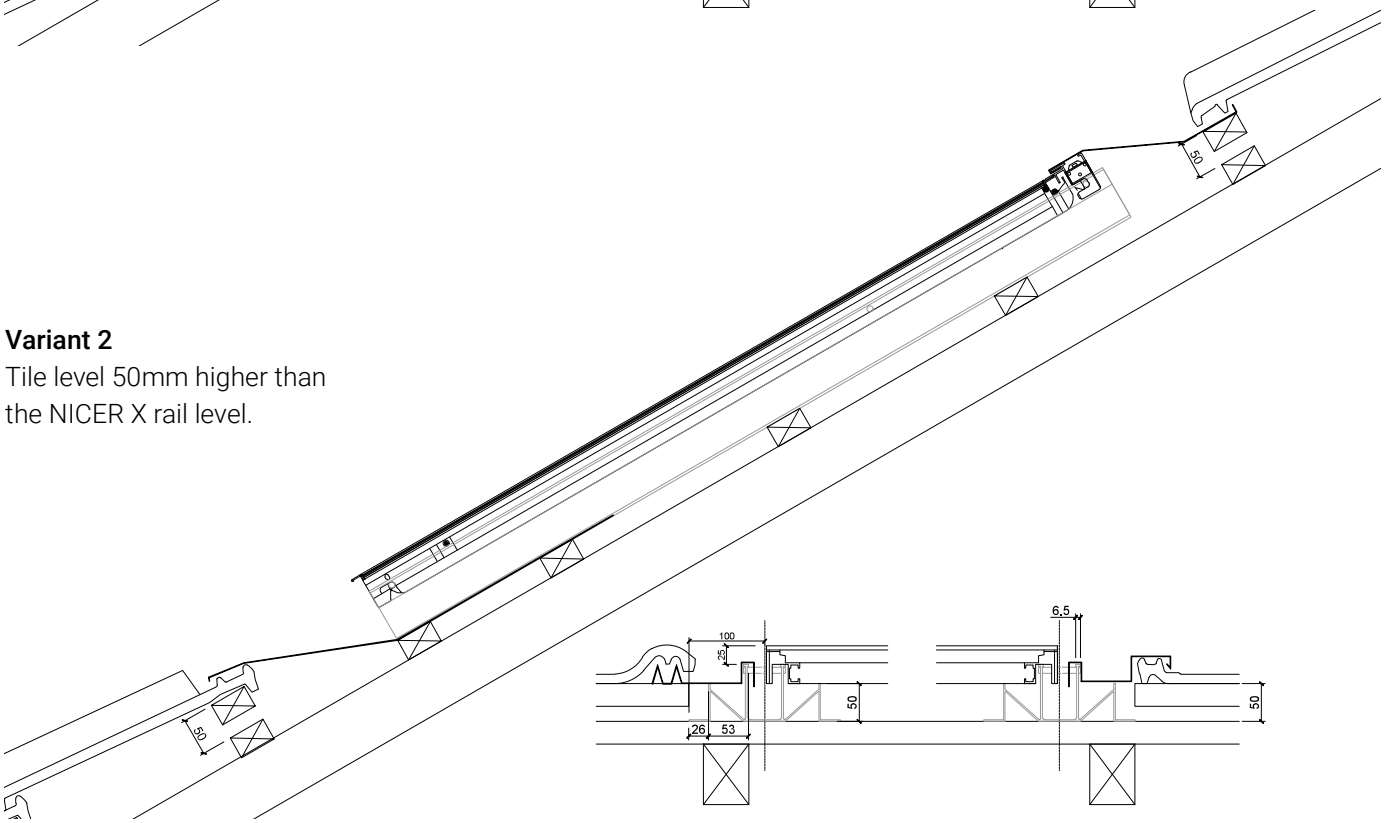
| A4 | V22.12 |

1 NICER X module
2 NICER X rail
3 NICER X ridge profile
4 Sheet metal tinsmith
5 tile

Variant 1
Tile on the same level
as the NICER X rails.



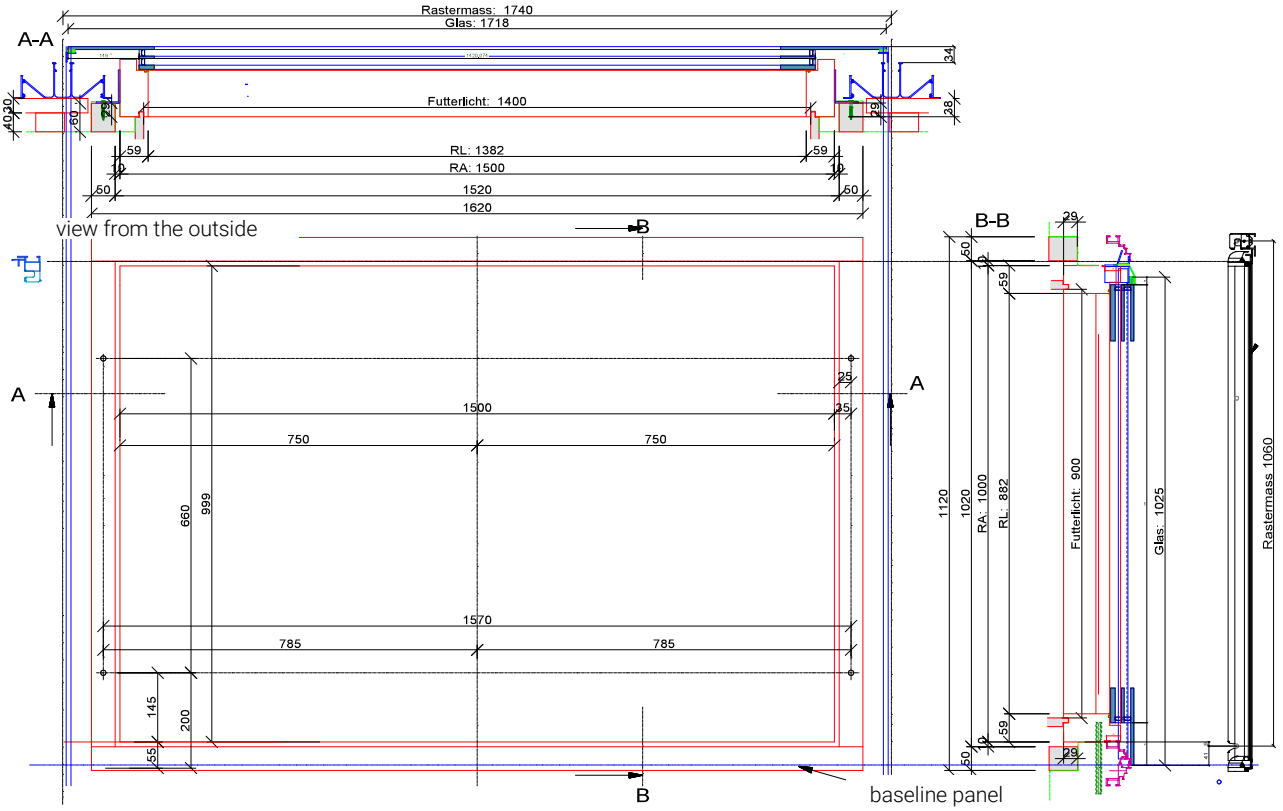
Variant 2
Tile level 50mm higher than
the NICER X rail level.



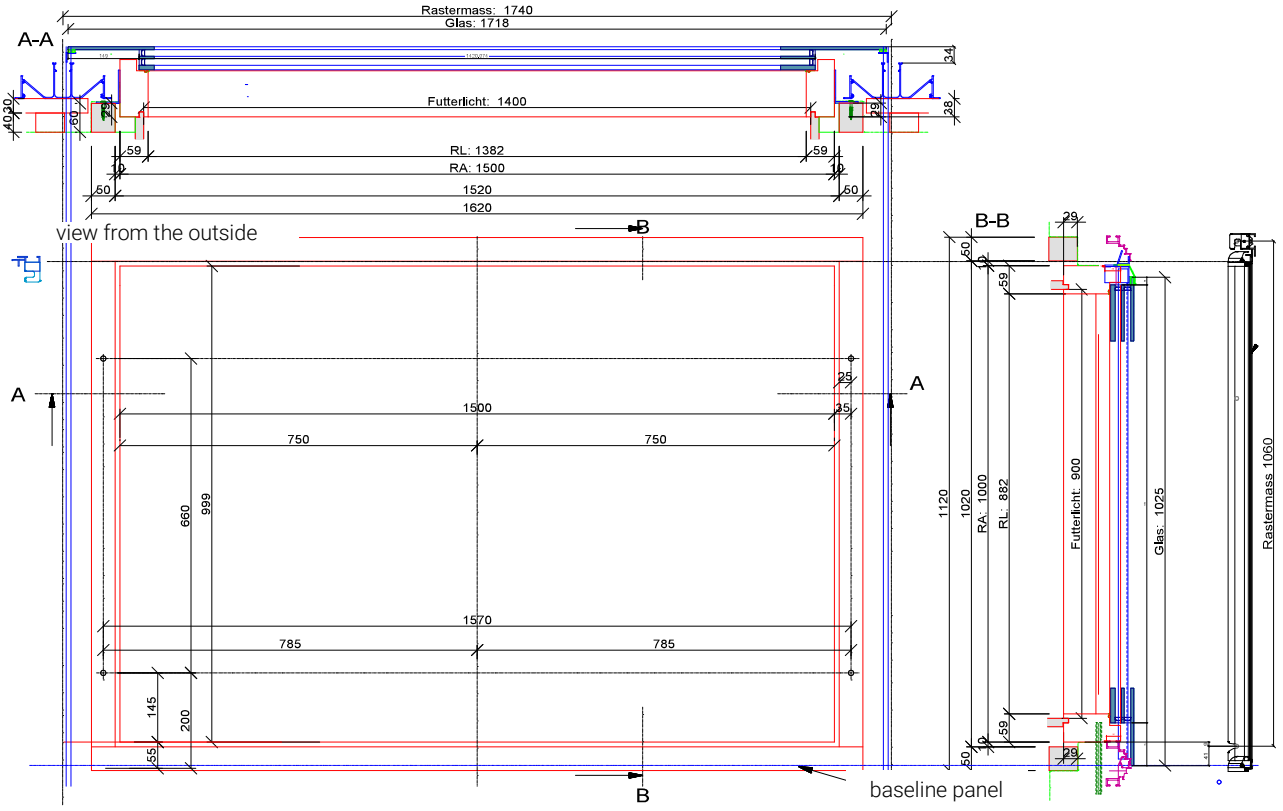
The NICER X system can be integrated into tiles using tinsmith plates provided by the customer. The tinsmith plates must be professionally executed according to the situation.

NICER X Wenger integrated skylight | A4 | V22.12 |

Variante 1 - Fixed



Variante 2 - Wing



Requirements for the subroof and rear ventilation | A4 | V22.12 |

Requirement for the sub-roof and recommendation for rear ventilation (counter batten in mm)

Roof pitch 0° to 3° < 800 m a.s.l. ¦ > 800 m a.s.l.		Roof pitch 3° bis 6° < 800 m a.s.l. ¦ > 800 m a.s.l.		Roof pitch 7° bis 13° < 800 m a.s.l. ¦ > 800 m a.s.l.		Roof pitch ab 13° < 800 m a.s.l. ¦ > 800 m a.s.l.		
Sub-roof in Flat roof quality		Sub-roof for extraordinary stress		Sub-roof for increased stress		Sub-roof for normal use		Rafter length
30 (+50)	30 (+50)	30 (+50)	30 (+50)	30 (+50)	30 (+50)	30 (+50)	30 (+50)	<5m
30 (+50)	100	30 (+50)	50 (+50)	30 (+50)	50 (+50)	30 (+50)	30 (+50)	5-8m
50 (+50)	50 (+50)	50 (+50)	70 (+50)	50 (+50)	70 (+50)	30 (+50)	50 (+50)	8-15m
70 (+50)	90 (+50)	70 (+50)	90 (+50)	70 (+50)	90 (+50)	30 (+50)	70 (+50)	>15m

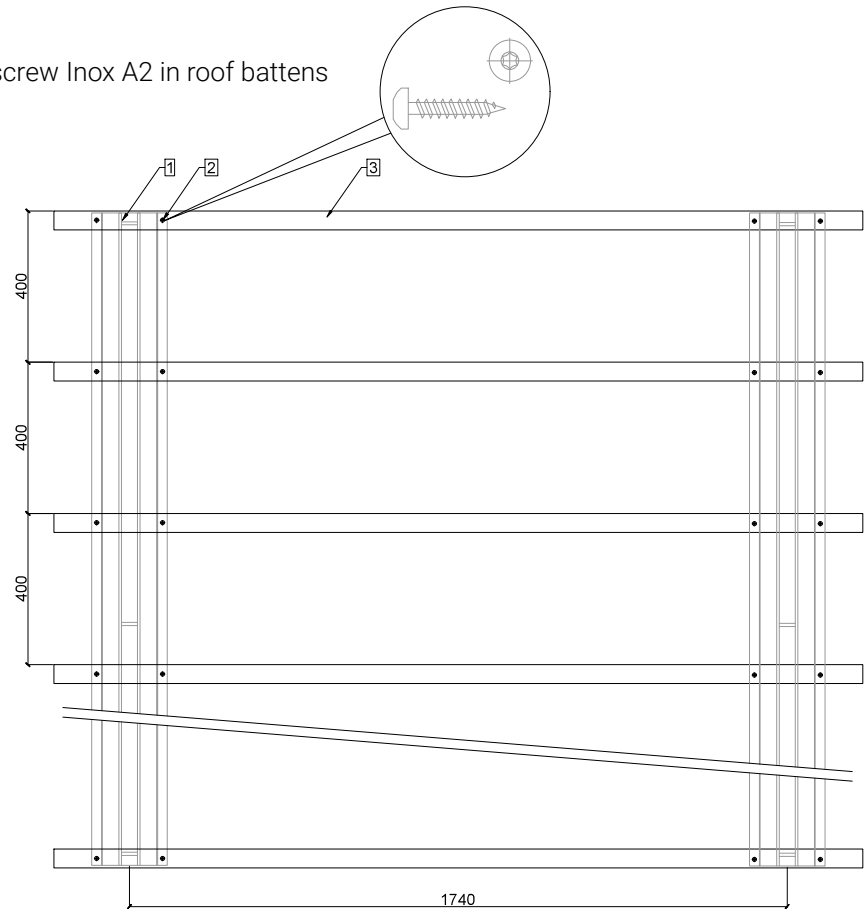
(+50) = rear ventilation through NICER X rail.

Drainage into gutter recommended.

Screw recommendation:

As an example a 6x30 mm wood screw can be used for normal requirements to fasten the NICER X rail. The grid dimension for the fastening points on the roof battens is around 400 mm. In case of increased requirements or other distances of the fastening points, the design must be adapted on site.

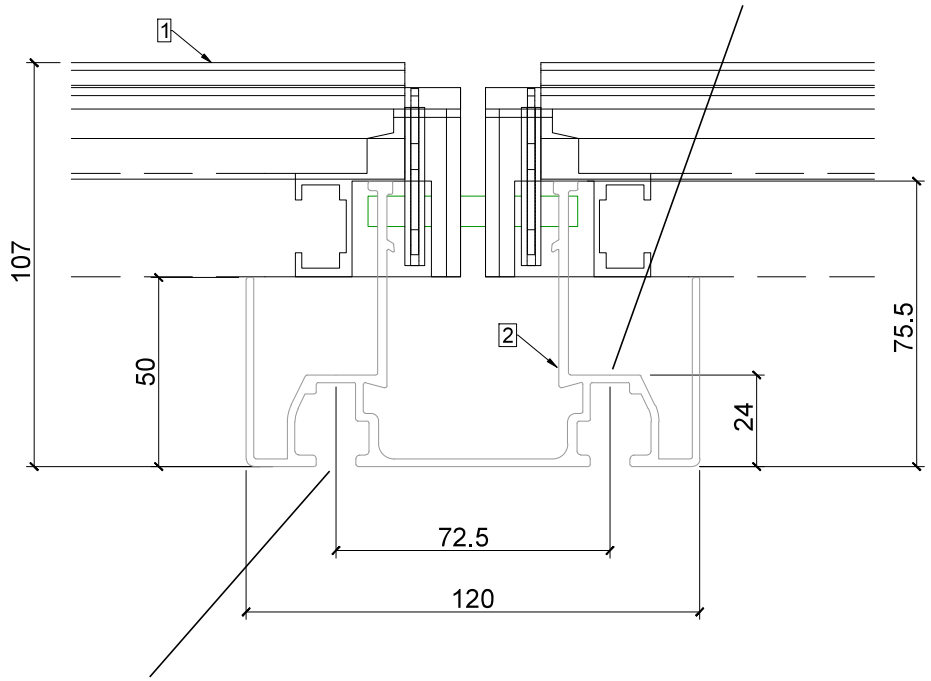
1 NICER X rail
2 6x30 mm wood screw Inox A2 in roof battens
3 Roof battens



NICER X rail B120 (WingPort / Steel construction)

1 NICER X module
2 NICER X rail B120

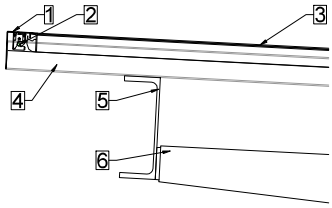
Connection from above:
Drilling groove for on-site drilling
(e.g. for wood screws with sealing ring)

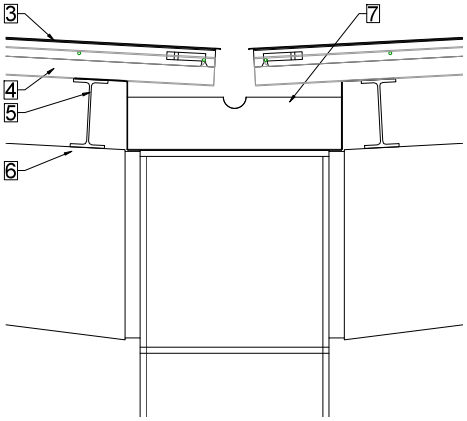


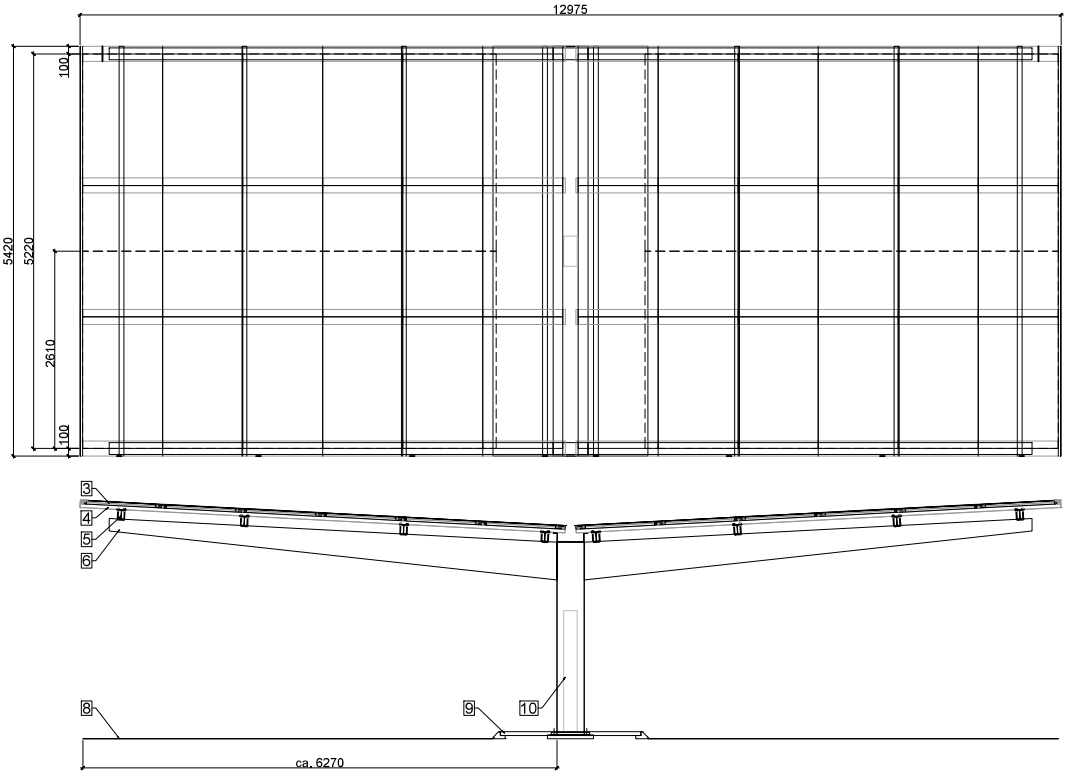
Connection from below:
Groove for M10 bolt head
(e.g. DIN933 / DIN931 or ISO4017 / ISO4014 with S17)
or Square nut M10 (e.g. DIN 557 with S17) screwable

NICER X WingPort

1 NICER X ridge profile
2 NICER X bolt
3 NICER X module
4 NICER X rail
5 IPE-cross rail
6 Steel beam
7 Gutter
8 Parking lot
9 Carstop
10 Charging station



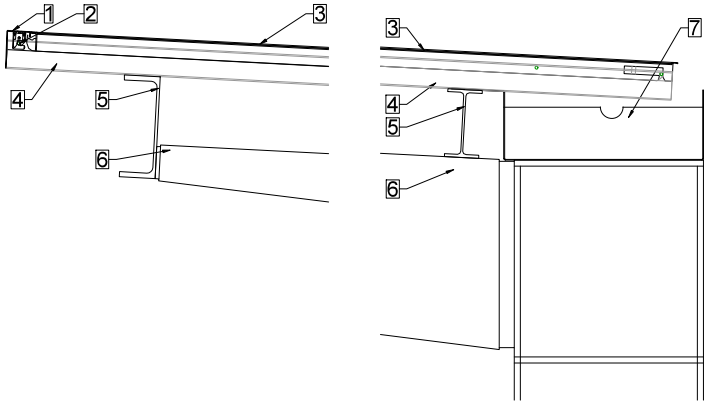


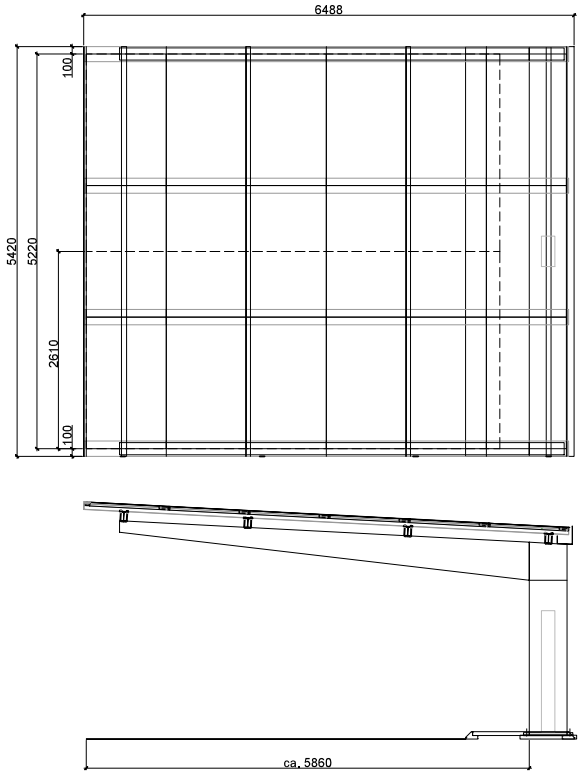


The WingPort can be scaled according to requirements, as the concept is modular. The basic unit SingleWing consists of two parking spaces, the basic unit DoubleWing of four parking spaces. The recommended parking space size is around 6 x 2.5 m. Of course, individual dimensions are possible.
Statics must be checked on site and project-specific.

NICER X WingPort

1 NICER X ridge profile
2 NICER X bolt
3 NICER X module
4 NICER X rail
5 IPE-cross rail
6 Steel beam
7 Gutter
8 Parking lot
9 Carstop
10 Charging station

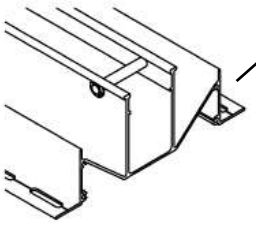


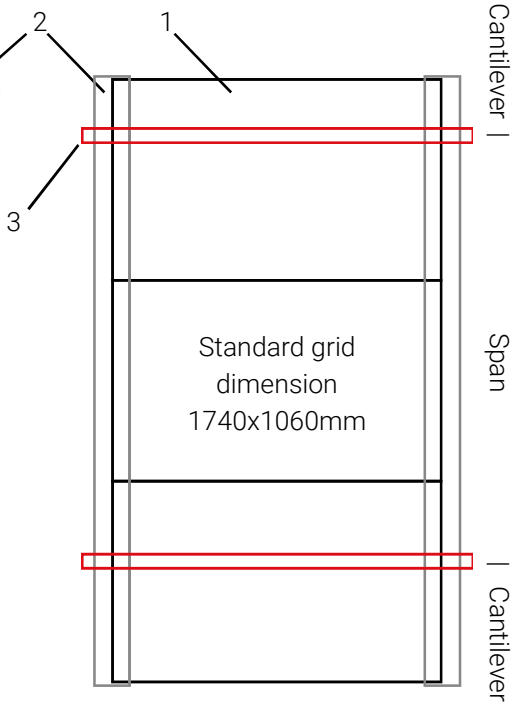


The WingPort can be scaled according to requirements, as the concept is modular. The basic unit SingleWing consists of two parking spaces, the basic unit DoubleWing of four parking spaces. The recommended parking space size is around 6 x 2.5 m. Of course, individual dimensions are possible.
Statics must be checked on site and project-specific.

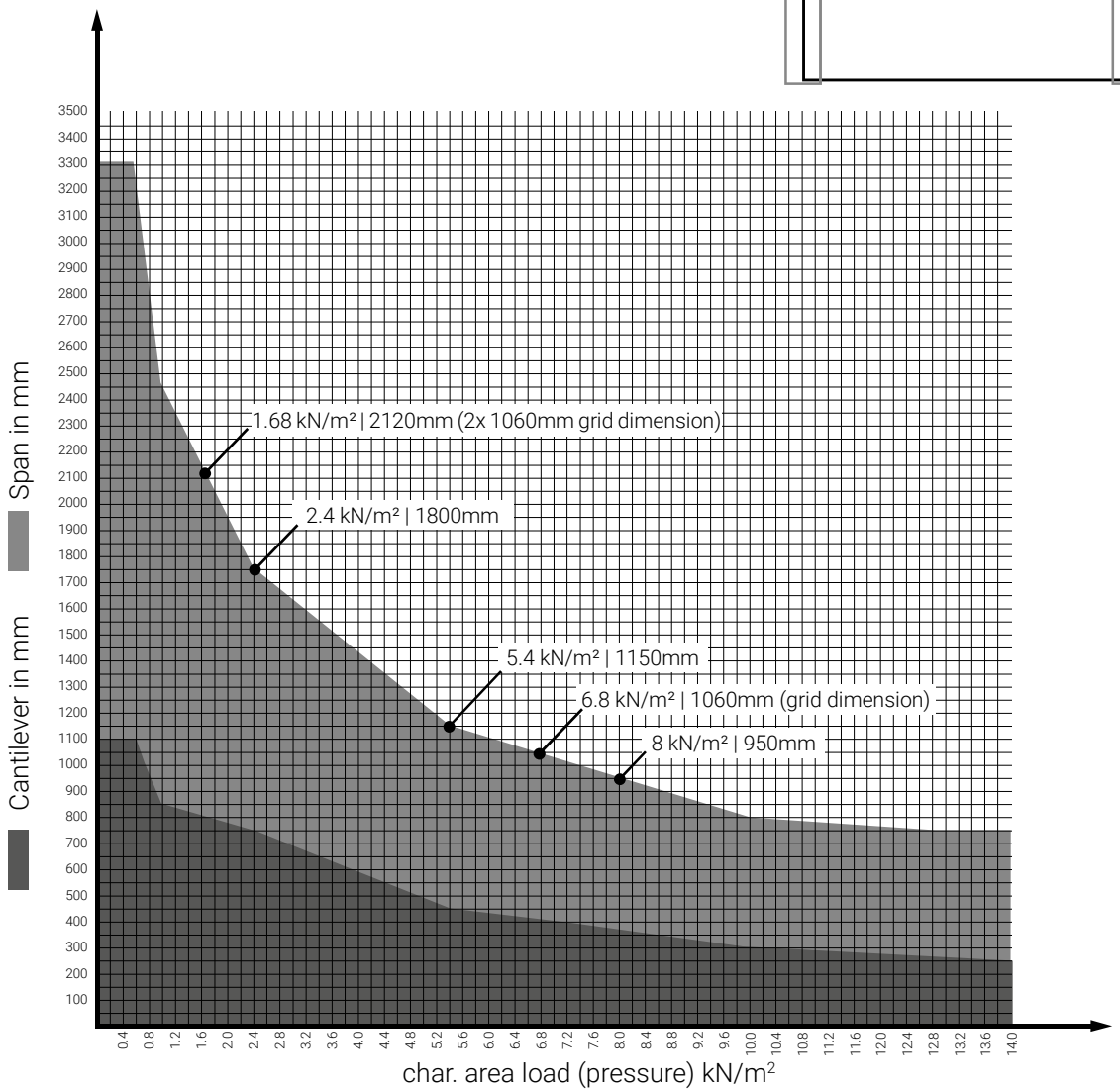
NICER X rail - Span & cantilever

1 NICER X standard module
2 NICER X rail
3 Support



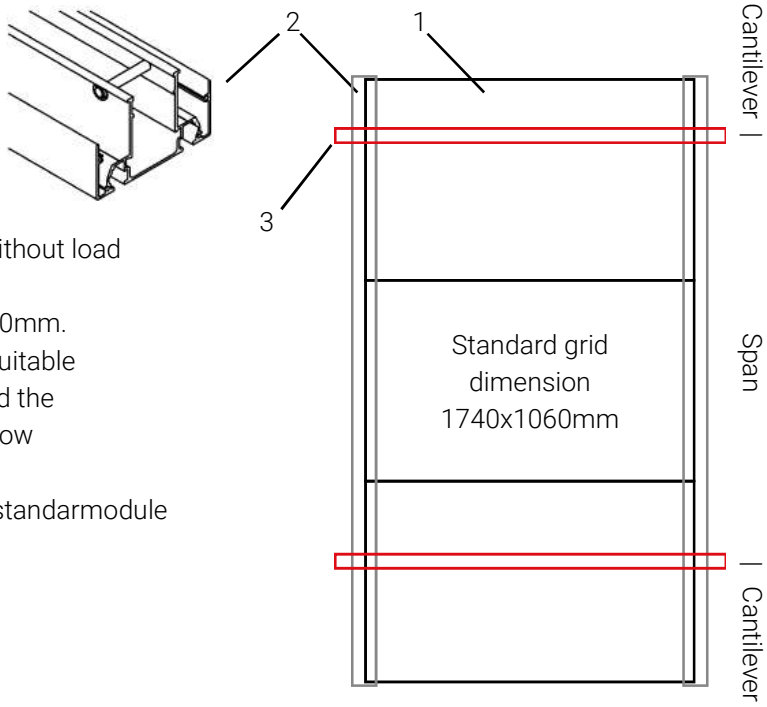


- Span/cantilever length in millimeters
- Area load (pressure) in kN/m², char. Value without load coefficients
- Distance between NICER X rails is 1740mm.
- The NICER X system must be mounted on suitable substructures that are suitable for the appropriate mechanical loads from wind, snow and dead weight of the solar modules.
- System weight: approx. 16kg/m2 (NICER X standard module with 2x 2mm glass + NICER X rail)



NICER X rail B120 - Span & cantilever

1 NICER X standard module
2 NICER X rail B120
3 Support



- Span/cantilever length in millimeters
- Area load (pressure) in kN/m², char. Value without load coefficients
- Distance between NICER X rails B120 is 1740mm.
- The NICER X system must be mounted on suitable substructures that are designed to withstand the appropriate mechanical loads from wind, snow and dead weight of the solar modules.
- System weight: approx. 16kg/m2 (NICER X standarmodule with 2 x 2mm glass + NICER X rail)