

LEVEL roof integrated system

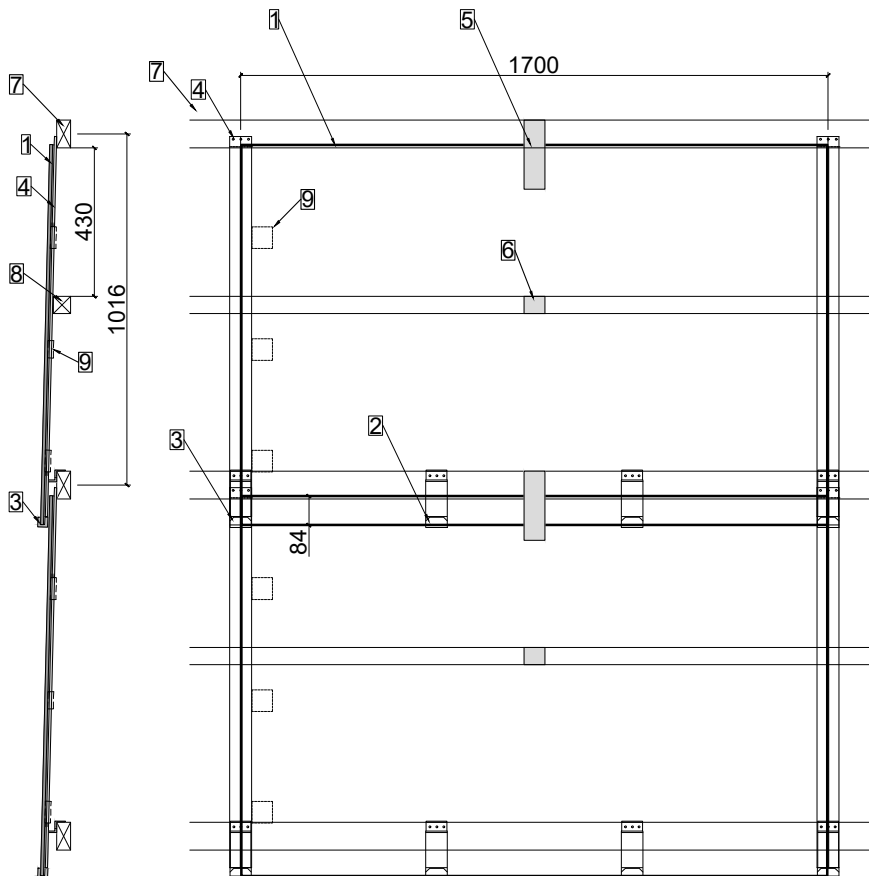
(High performance module)



Planning notes and grid dimensions (1)

| A4 | 1:20 | V23.04 |

- | | | | |
|---|--------------------------|---|---------------------------|
| 1 | LEVEL module | 6 | LEVEL Support plate short |
| 2 | LEVEL middle hook | 7 | Roof battens 80x40 |
| 3 | LEVEL rail hook | 8 | Roof battens 50x50 |
| 4 | LEVEL rail | 9 | junction box |
| 5 | LEVEL Support plate long | | |



Standard grid dimension horizontal

The horizontal grid dimension is fixed at 1700 mm. Module edge to module edge is therefore 5 mm, rubber lip in between is 3 mm, leaving a margin of 1 mm per module side. This grid dimension can be extended up to 1710 mm.

Standard grid dimension vertical

The vertical grid dimension is fixed at 1016 mm. This grid dimension can be reduced to 1000 mm or extended to 1050 mm depending on the project. In case of a reduction, please note that depending on the roof orientation, the shadow cast by the hooks may affect the cells. When extending, please note that the modules overlap less and that wider battens are required depending on the design.

LEVEL modules left & right

In the standard modules, the junction boxes are mounted on the left side when viewed from the front. This must be taken into account during planning if an overhanging verge is planned, as well as for ridges and valleys. The junction boxes **cannot** be mounted on the right side of the LEVEL High performance modules side.

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Planning notes and grid dimensions (2)

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Wind and snow loads

The layout shown (planning notes and grid dimensions (1)) meets the requirements of IEC 61215. To meet increased requirements, more middle hooks and support plates can be mounted. See also "LEVEL layout for increased requirements". Statics and professional execution are always the responsibility of the contractor.

Requirement for the subroof and recommendation of rear ventilation (counterbattens in mm)

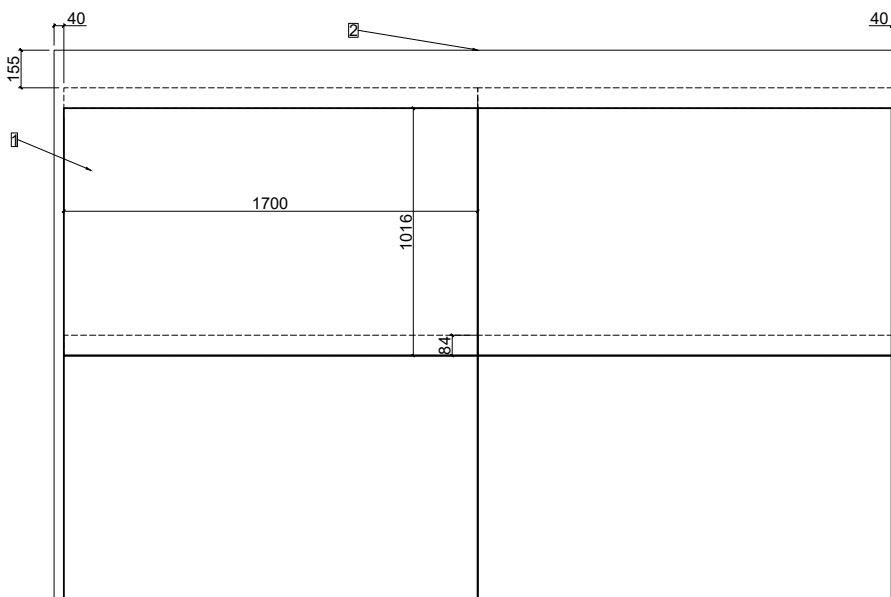
Roof pitch 3° to 5 < 800 m a.s.l. > 800 m a.s.l.		Roof pitch 6° to 13 < 800 m a.s.l. > 800 m a.s.l.		Roof pitch from 14° to 25 < 800 m a.s.l. > 800 m a.s.l.		Roof pitch from 25 < 800 m a.s.l. > 800 m a.s.l.		Rafter length
Subroof in Flat roof quality		Subroof for extraordinary exposure		Subroof for increased exposure		Subroof for normal exposure		
80	80	80	80	80	80	80	80	<5 m
80	100	80	100	80	100	80	80	5-8 m
100	120	100	120	100	120	80	100	8-15 m
120	140	120	140	120	140	80	120	>15 m

Aeration and ventilation opening

The free cross-section of the ventilation openings must correspond to half of the ventilation space (height of counterbattens). Reduction by perforated plate must be taken into account. In the case of roof penetrations, a constructive measure is required for detour.

Offer plan layout

The modules are laid out in grid dimensions in the quotation plans. The roof line refers to the outer edge of the counterbattens for the eaves and ridge, and to the outer edge of the roof battens for the verge.



- 1 LEVEL module 1695x1100, Grid dimension 1700x1016
- 2 Roof line

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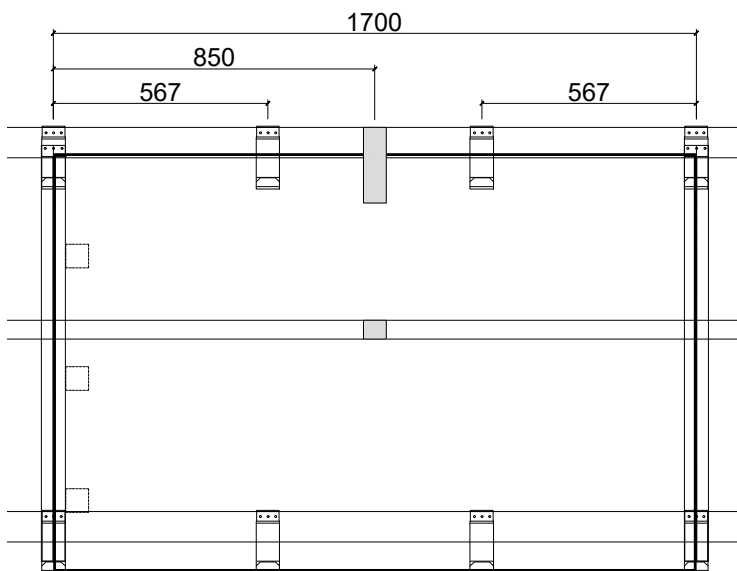
Item configuration for normal requirements

| A4 | 1:25 | V23.04 |

Application recommendation for wind suction forces $< 3.5 \text{ kN/m}^2$, Snow load $< 3.5 \text{ kN/m}^2$

Basic article with standard finish

Rail verge left & right



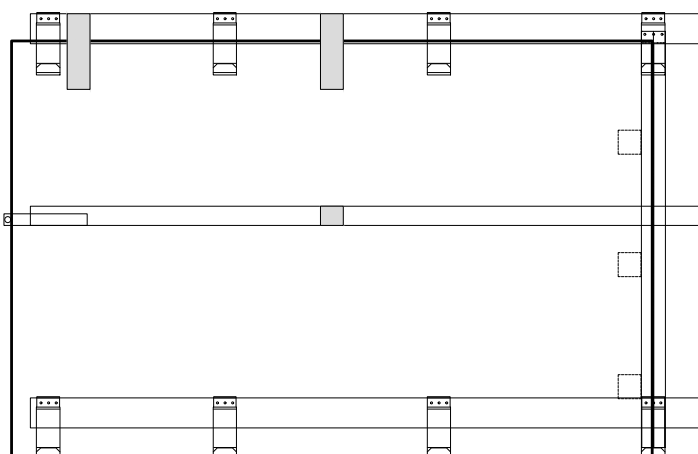
- 1 Rail/module plus
- 1 Rail/row end (Verge)
- 1 Rail hook/rail
- 2 Middle hooks/1695mm module
- 1 Support plate short and 1 support plate long/1695mm module

Ridge finish with middle hooks

- Additional 3 middle hooks/1695mm module in the top row plus 1 middle hook row end (verge)

Basic article with overhanging verge

No rail verge left & right



- 1 Rail/module minus
- 1 Rail/row end (verge)
- 1 Rail hook/rail
- 2 middle hook/1695mm module
- 1 Support plate short and 1 support plate long/1695mm module plus 1 support plate long/row end (verge)
- 1 Side support/row end (verge)
- 1 Middle hook/row end (verge)

Ridge finish with middle hooks

- Additional 3 middle hooks/1695mm module in the top row plus 1 middle hook/end of row (verge)

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(High performance module)

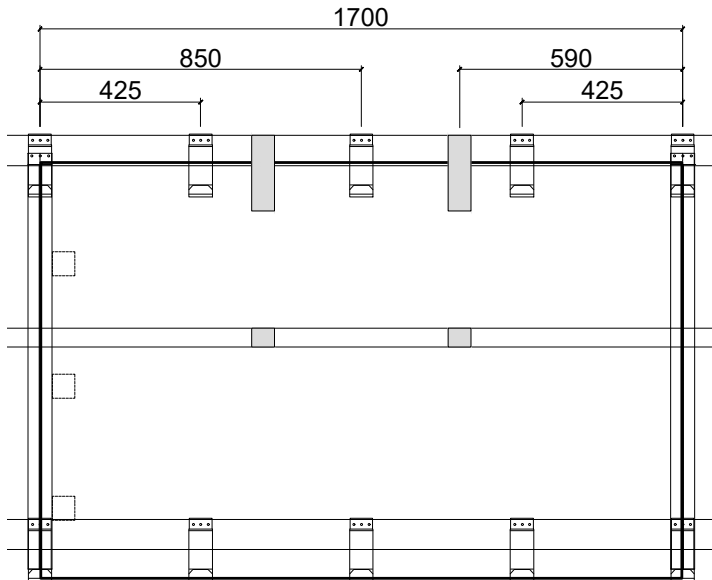


Layout for increased and extraordinary requirements

| A4 | 1:25 | V23.04 |

Increased claims

Wind suction 3.5 - 4.7 kN/m², Snow load 3.5 - 8 kN/m²



Rail & middle hooks

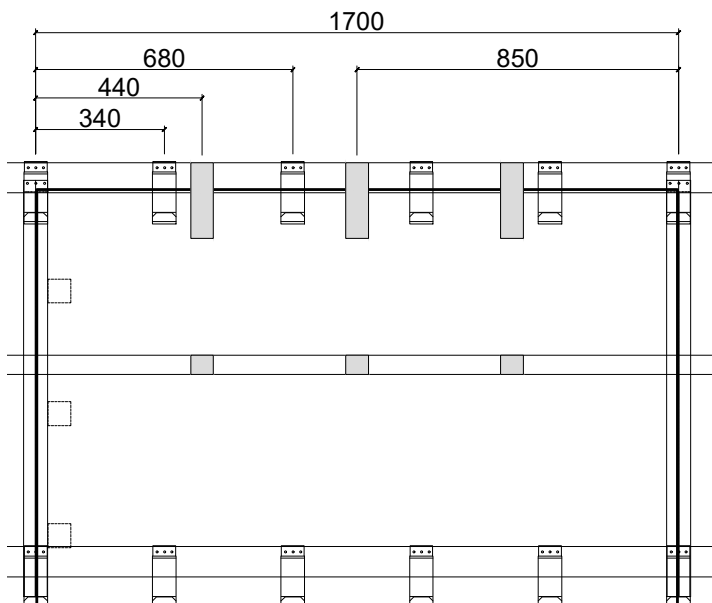
- 3 Middle hooks/1695x1100mm module

Support plates

- 2 Support plates short and 2 support plates long/1695x1100mm module

Extraordinary claims

Wind suction 4.7 - 5.9 kN/m², Snow load 8 - 13 kN/m²



Rail & middle hooks

- 4 Middle hooks/1695x1100mm module

Support plates

- 3 Support plates short and 3 support plates long/1695x1100mm module

All data (kN/m²) are load limits without safety factors. The static of the entire roof structure is the responsibility of the contractor.

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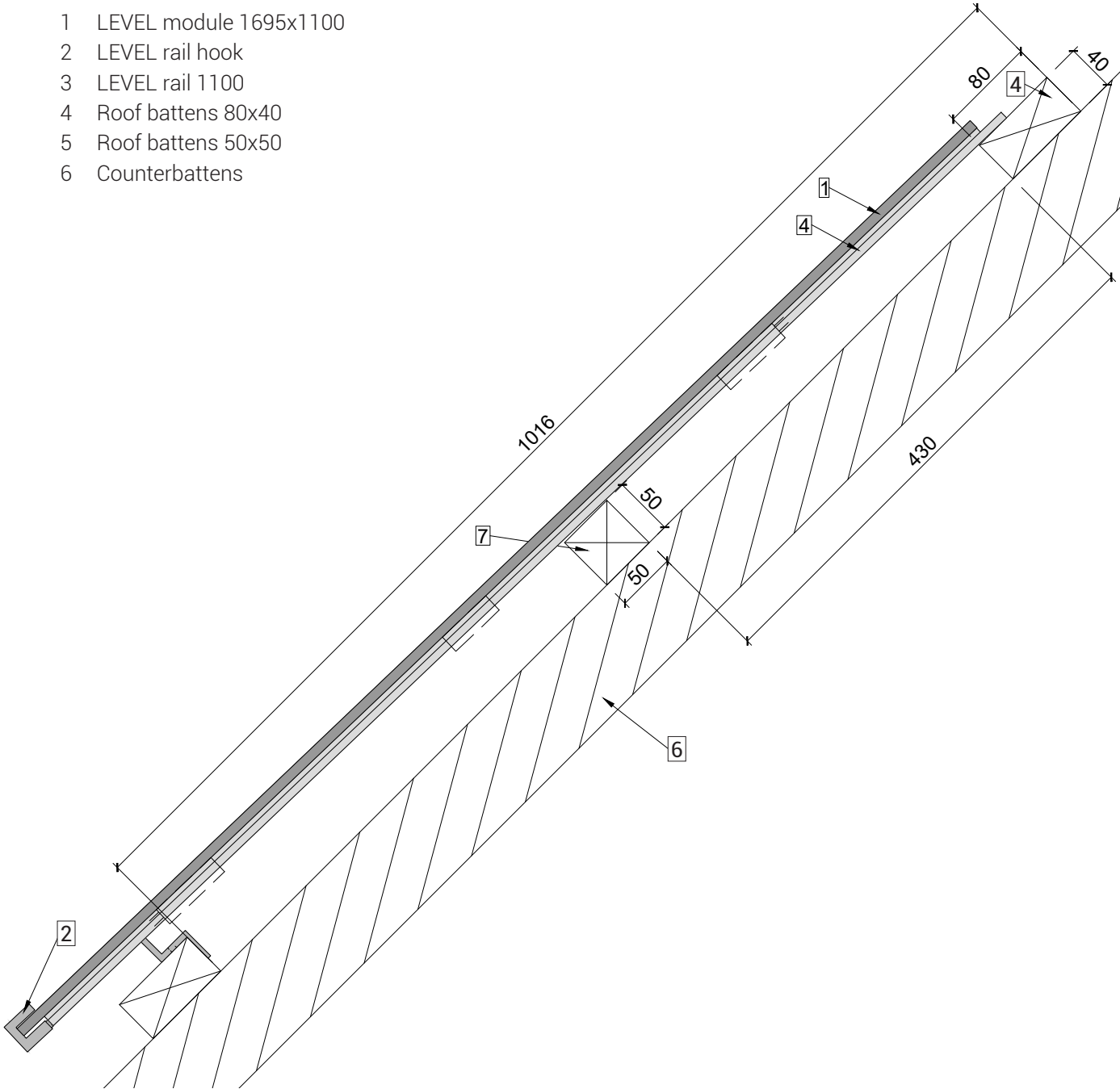
(High performance module)



Rails and roof battens

| A4 | 1:5 | V23.04 |

- 1 LEVEL module 1695x1100
- 2 LEVEL rail hook
- 3 LEVEL rail 1100
- 4 Roof battens 80x40
- 5 Roof battens 50x50
- 6 Counterbattens



LEVEL roof integrated system

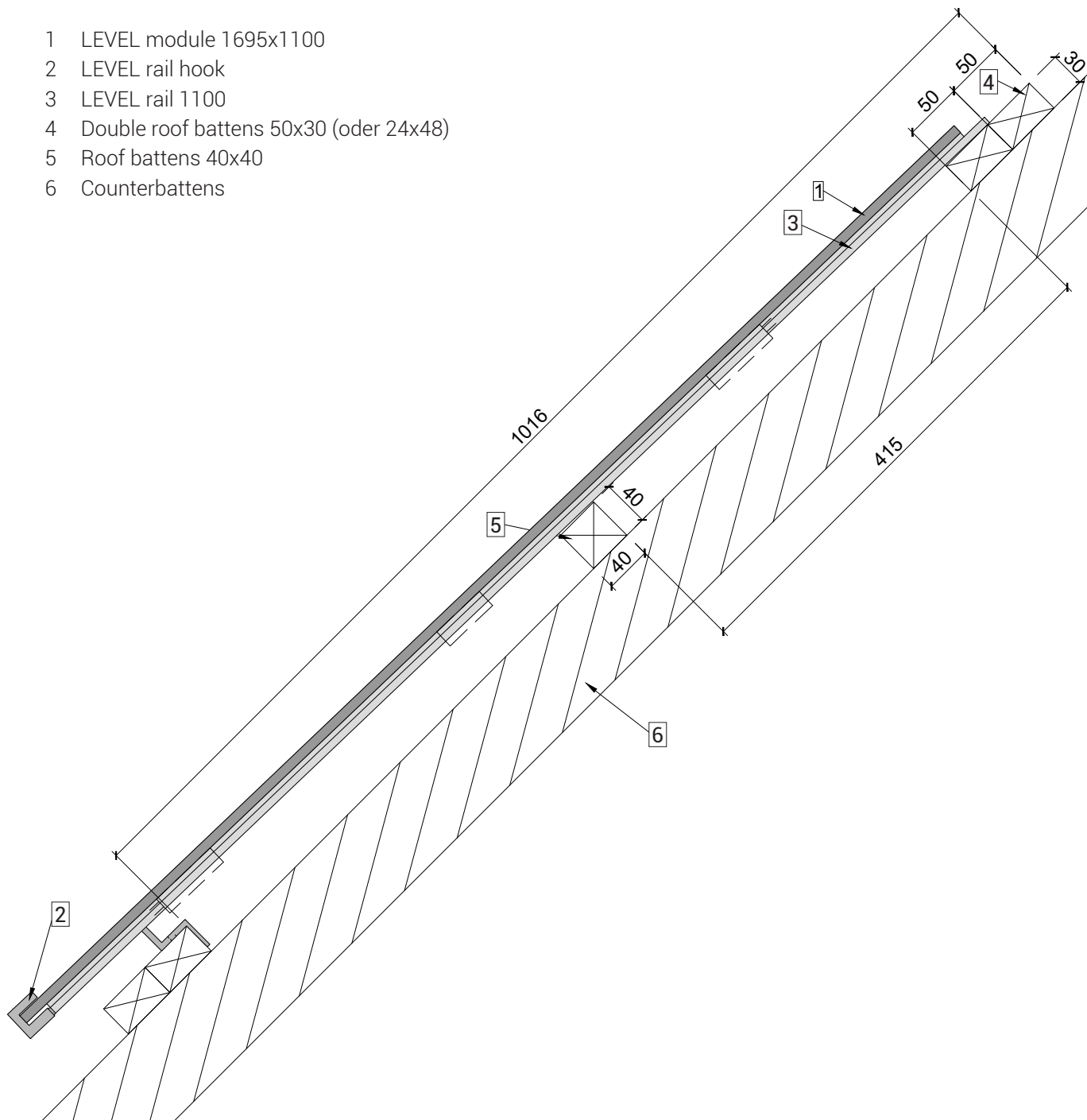
(High performance module)



Rails and roof battens (variant with DL 30x50)

| A4 | 1:5 | V23.04 |

- 1 LEVEL module 1695x1100
- 2 LEVEL rail hook
- 3 LEVEL rail 1100
- 4 Double roof battens 50x30 (oder 24x48)
- 5 Roof battens 40x40
- 6 Counterbattens



LEVEL roof integrated system

(High performance module)

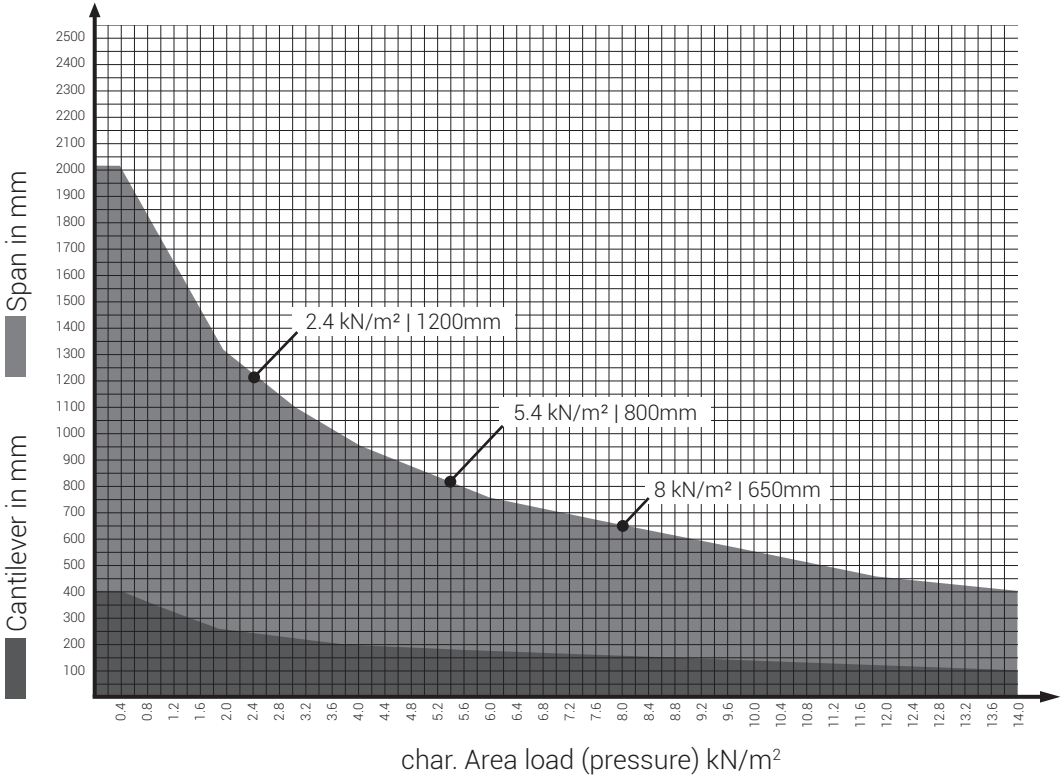


Roof battens Span

| | A4 | V23.04 |

Layout for grid dimension in height of 1016mm

- Spans / cantilever length in millimeters
- Area load (pressure) in kN/m^2 , char. Value without load coefficients
- The LEVEL system must be mounted on suitable substructures that are designed for the corresponding mechanical loads of wind, snow and dead weight of the solar modules..
- System weight: approx. 22kg/m^2 (LEVEL standard module & mounting material)



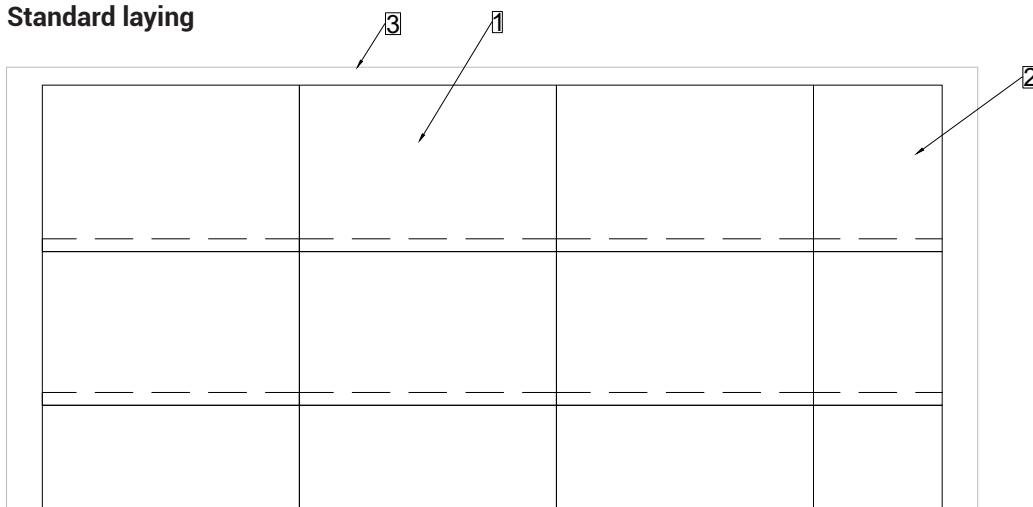
LEVEL roof integrated system

(High performance module)

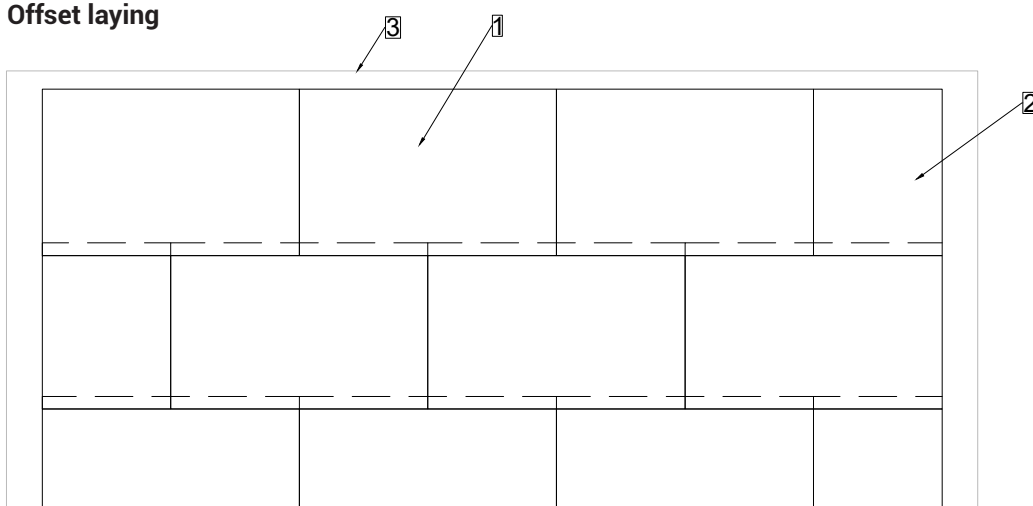
Laying with Aluminum composite module

- 1 LEVEL Standard module (Grid dimension)
- 2 Aluminum composite module
- 3 Roof edge

Standard laying



Offset laying



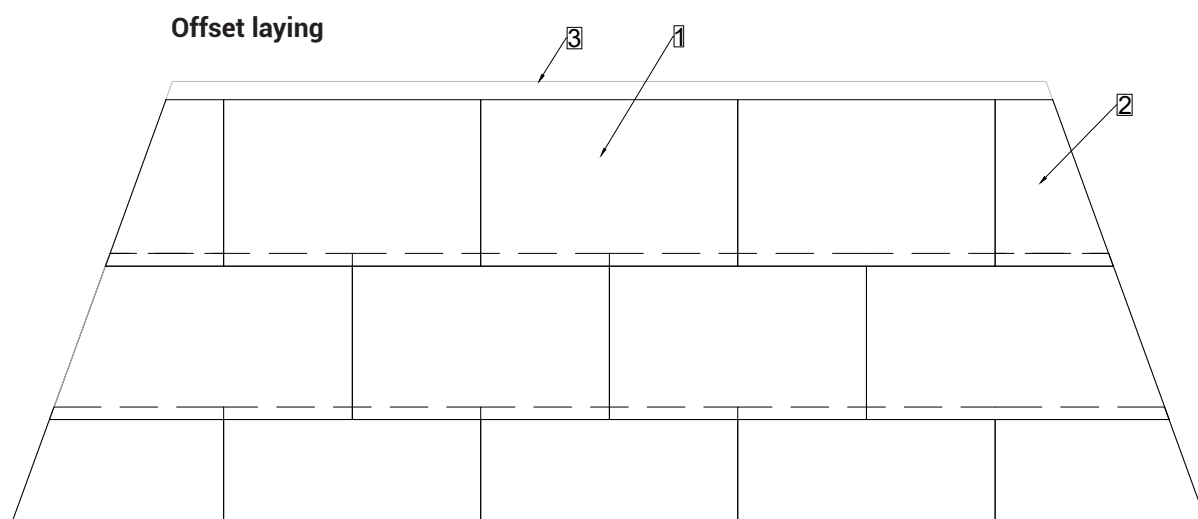
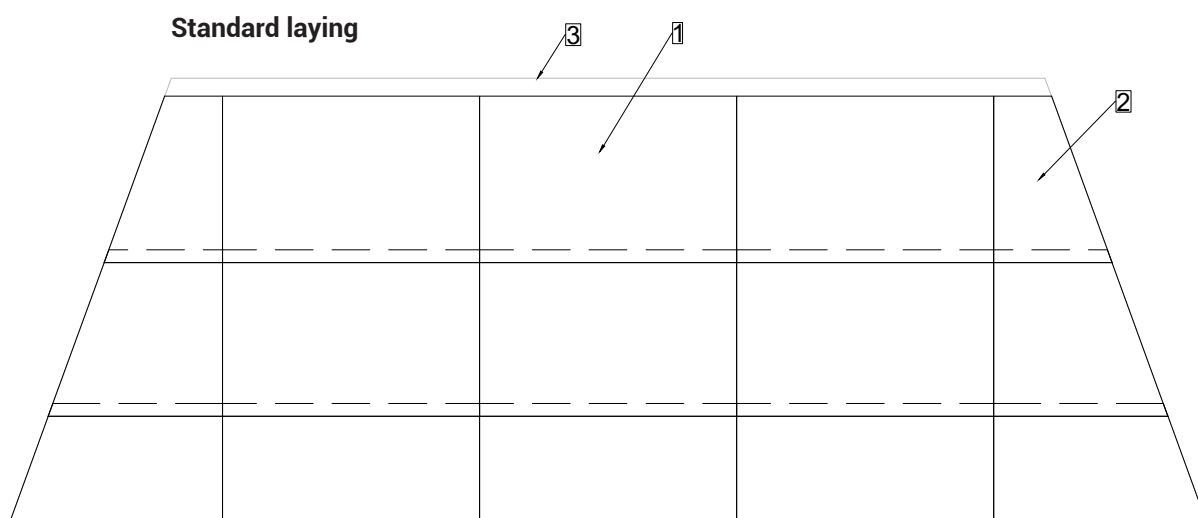
Distance to ridge, eaves and verge varies depending on the on-site finish variant.

LEVEL roof integrated system

(High performance module)

Laying with Aluminium composite module

- 1 LEVEL Standardmodule (Grid dimension)
- 2 Aluminium composite module
- 3 Roof edge



Distance to ridge, eaves and verge varies depending on the on-site finish variant.

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(High performance module)

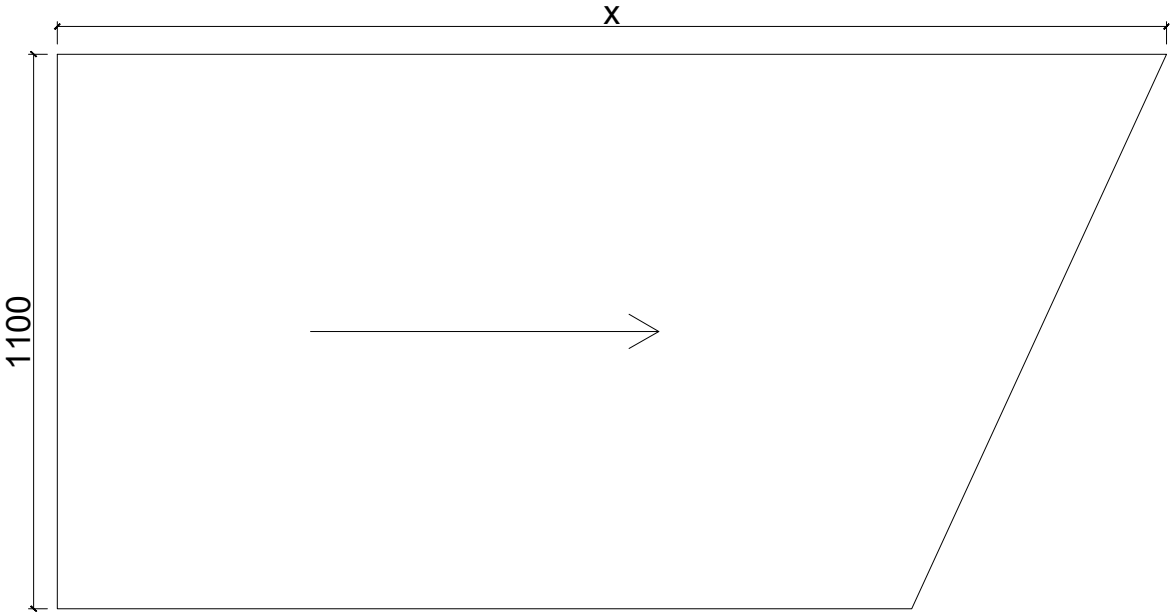
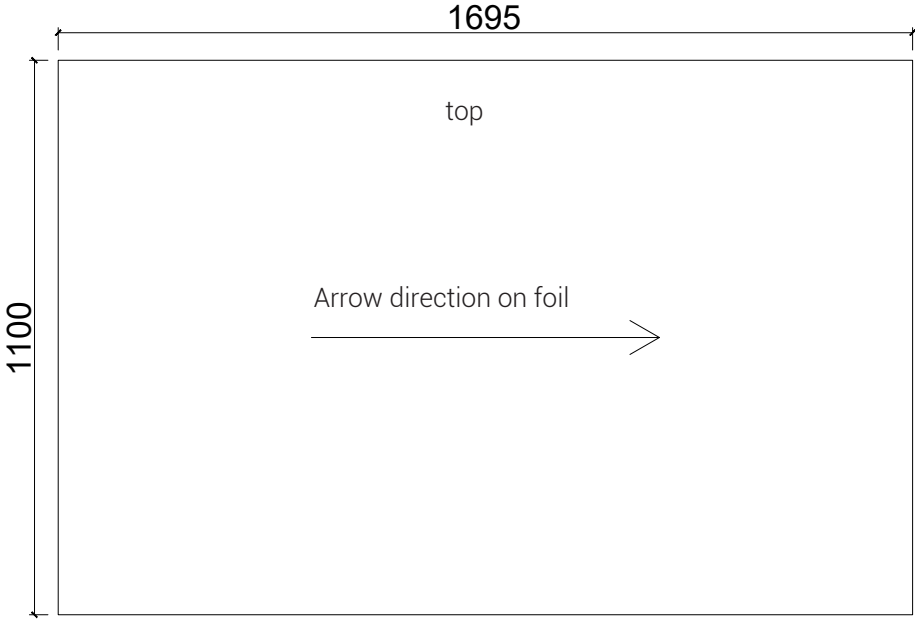


LEVEL Aluminium composite module

| A4 | 1:15 | V23.04 |

Standard dimension of "LEVEL Aluminium composite module" is 1695x1100 mm.
"LEVEL Aluminium composite module special" is cut to size.

LEVEL Aluminium composite modules can be easily reworked and therefore complicated situations (chimney, skylight, edge termination, etc.) can be solved on site with the same mounting components.



LEVEL Aluminium composite modules have a black matt coating. This coating is protected with a foil. Lay the modules so that the arrows on the foil point from left to right when looking at the roof from the front.

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(High performance module)



Details of the screws

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The "LEVEL Planning Information" (SwissPremium) contains further detailed drawings and info.