

SPECIFICATIONS AND INSTALLATION GUIDE

Solaris™ SUPERHC7 Solar Tiles

TABLE OF CONTENT

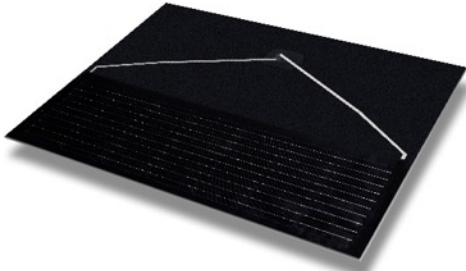
| | |
|--|----|
| SOLARIS™ SUPERHC7 SOLAR TILES RANGE | 5 |
| CATALOGUE OF TILES | 6 |
| PHYSICAL SPECIFICATIONS | 7 |
| OUR PHOTOVOLTAIC SOLUTIONS | 8 |
| PHOTOVOLTAIC SYSTEM ARCHITECTURE | 9 |
| ROOF STRUCTURE SPECIFICATIONS | 10 |
| 1. GUTTERS | 11 |
| 1.1 DETAIL OF GUTTER WITH TINSMITHING | 12 |
| 1.2 DETAIL OF GUTTER WITH CONCEALED VENTILATION | 13 |
| 1.3 DETAIL OF GUTTER WITH DOUBLE FASCIA | 14 |
| 1.4 DETAIL OF HIGH GUTTER WITH DOUBLE FASCIA PLATE | 15 |
| 2. EDGE | 16 |
| 2.1 EDGE DETAIL WITH RECESSED RUNNER | 17 |
| 2.2 EDGE DETAIL WITH PASSAGEWAY | 18 |
| | 18 |
| freesuns.ch | 2 |

| | | |
|-----|---|----|
| 2.3 | OVERHANGING EAVE EDGE DETAIL | 19 |
| 3. | ROOF VALLEY | 20 |
| 3.1 | DETAIL OF VALLEY WITH TINSMITH'S TRADE | 21 |
| 3.2 | DETAIL OF VENTILATED VALLEY WITH TINSMITH'S TRADE | 22 |
| 3.3 | DETAIL OF RECESSED AND VENTILATED VALLEY | 23 |
| 4. | REVEILLON | 24 |
| 4.1 | TINSMITHING DETAIL ON REVEILLON | 25 |
| 4.2 | WOOD DETAIL ON REVEILLON | 26 |
| 5. | HIP / RIDGE | 27 |
| 5.1 | DETAIL OF WOODEN OR REINFORCED SHEET METAL SUPPORT FOR HIP OR RIDGE | 28 |
| 5.2 | RIDGE DETAIL WITH TINSMITHING | 29 |
| 6. | LAYOUT | 30 |
| 6.1 | LAYOUT OF THE SUBFLOOR | 31 |
| 6.2 | DETAIL OF LAYOUT WITH CORRIDOR | 32 |
| 6.3 | DETAIL OF LAYOUT WITH OVERHANGING EDGE | 33 |
| 7. | VARIA | 34 |
| 7.1 | DETAIL OF HOOK FASTENING, DOUBLE INSTALLATION | 35 |

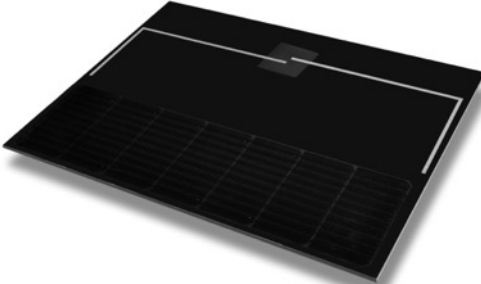
| | | |
|------------|---|-----------|
| 7.2 | DETAIL OF UPPER JOINT WITH TINSMITHING | 36 |
| | ELECTRICAL DATA | 37 |
| | WIRING DIAGRAM - TWO ROWS PER OPTIMISER | 38 |
| | WIRING DIAGRAM - THREE ROWS PER OPTIMISER WITH EXTENSION CABLE | 39 |
| | WIRING DIAGRAM - FOUR ROWS PER OPTIMISER | 40 |
| | WIRING DIAGRAM - VERTICAL ACROSS THE WIDTH OF A TILE | 41 |
| | LOGISTICS | 42 |
| | LOGISTICS | 43 |
| | CONTACT | 44 |

SOLARIS™ SUPERHC7 SOLAR TILES RANGE

SOLARIS™ CLASSIC SUPERHC7



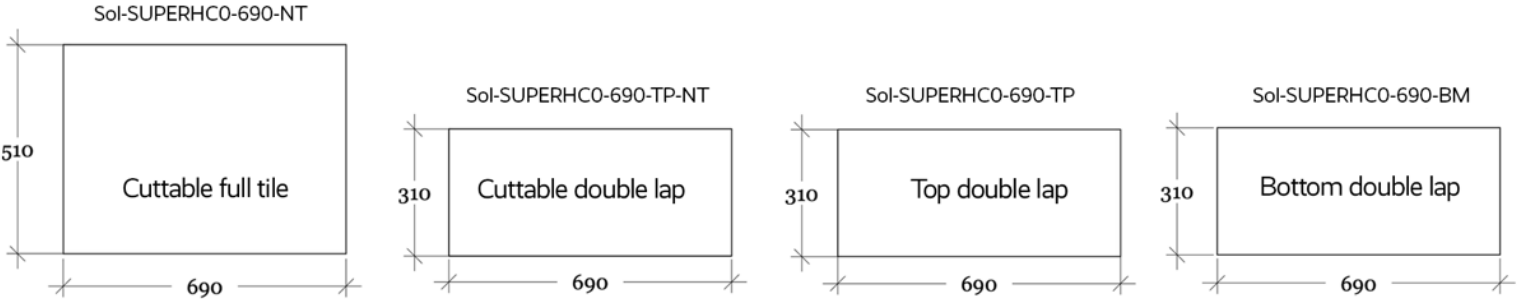
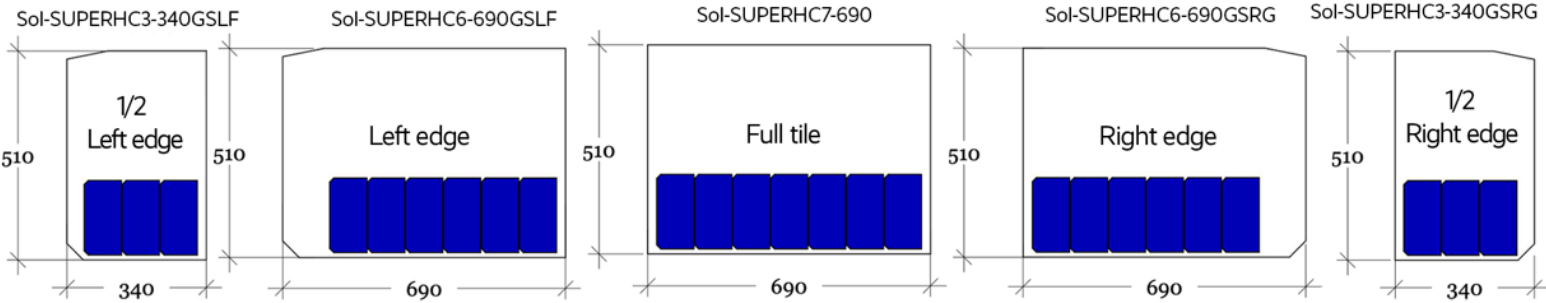
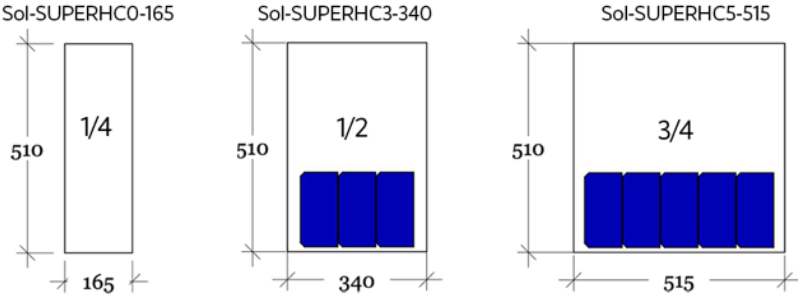
SOLARIS™ PREMIUM BLACK SUPERHC7



SOLARIS™ HERITAGE SUPERHC7



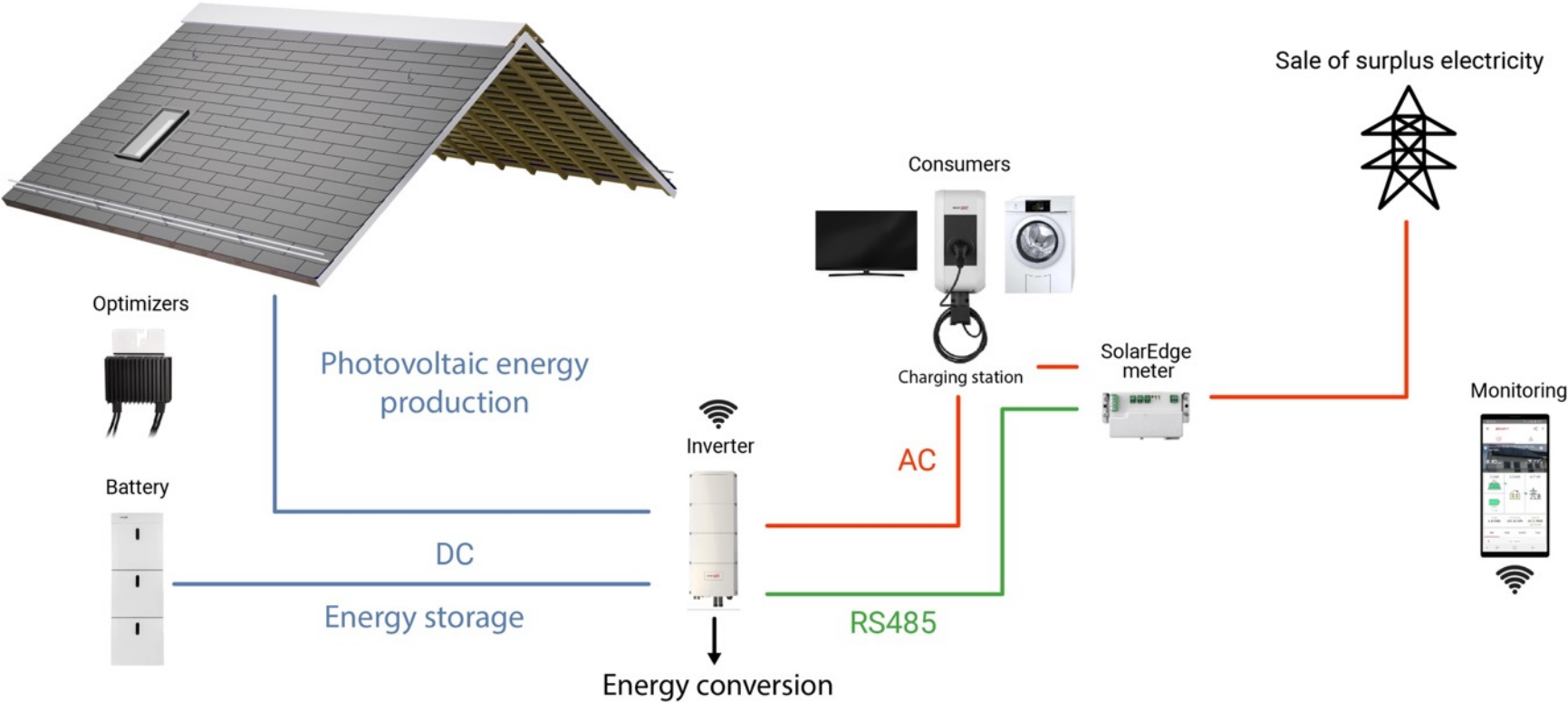
CATALOGUE OF TILES



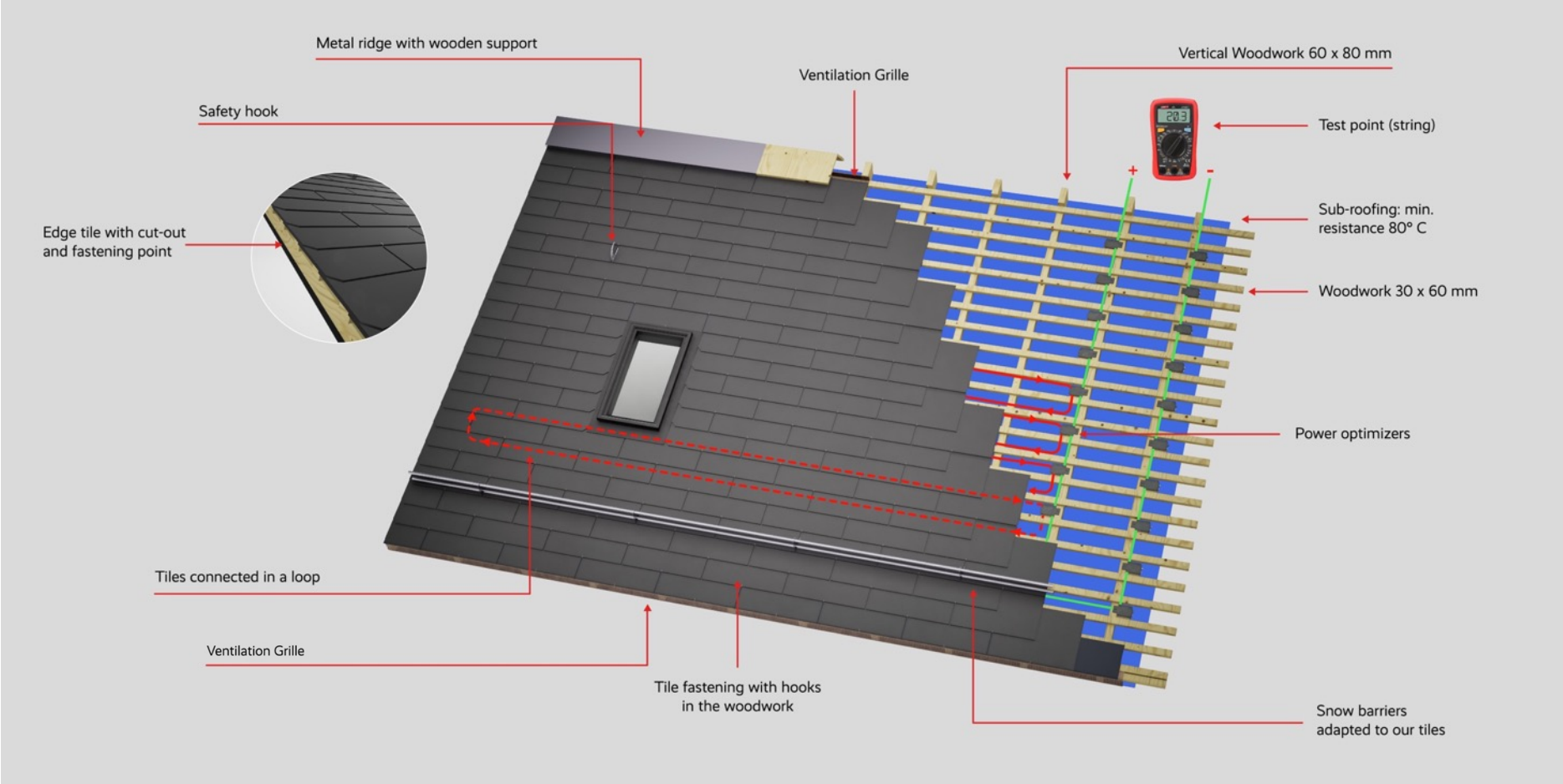
PHYSICAL SPECIFICATIONS

| | Solaris™ Classic SUPERHC7 | Solaris™ Premium Black SUPERHC7 | Solaris™ Heritage SUPERHC7 |
|---------------------------------|---|---|---|
| Appearance | Black, visible silver lines | Black, invisible lines | Matt grey, invisible lines |
| Tile size (W x H mm) | 690 x 510 mm | 690 x 510 mm | 690 x 510 mm |
| Visible surface area (W x H mm) | 690 x 200 mm | 690 x 200 mm | 690 x 200 mm |
| Thickness | 9 mm | 9 mm | 9 mm |
| Number of cells per tile | 7 | 7 | 7 |
| Number of tiles per m2 | 7.14 | 7.14 | 7.14 |
| Weight per unit | 7.3 kg | 7.3 kg | 7.3 kg |
| Weight per m2 | 52.20 kg | 52.20 kg | 52.20 kg |
| Type of solar cell | Half-cell M10 PERC | Half-cell M10 PERC | Half-cell M10 PERC |
| Type of connector | MC4-Evo 2 (IP68) | MC4-Evo 2 (IP68) | MC4-Evo 2 (IP68) |
| Hail resistance | RG4 | RG4 | RG4 |
| Max. test load | 13 333 Pa | 13 333 Pa | 13 333 Pa |
| Type of glass | Tempered glass with anti-reflective treatment | Tempered glass with anti-reflective treatment | Tempered glass with anti-reflective treatment |

OUR PHOTOVOLTAIC SOLUTIONS



PHOTOVOLTAIC SYSTEM ARCHITECTURE



ROOF STRUCTURE SPECIFICATIONS

The integrated solar roof solution requires a framework identical to that used for fibre cement tiles. The solar tiles are installed directly on the wooden horizontal battens, which are themselves fixed to the vertical battens as standard. See details below:

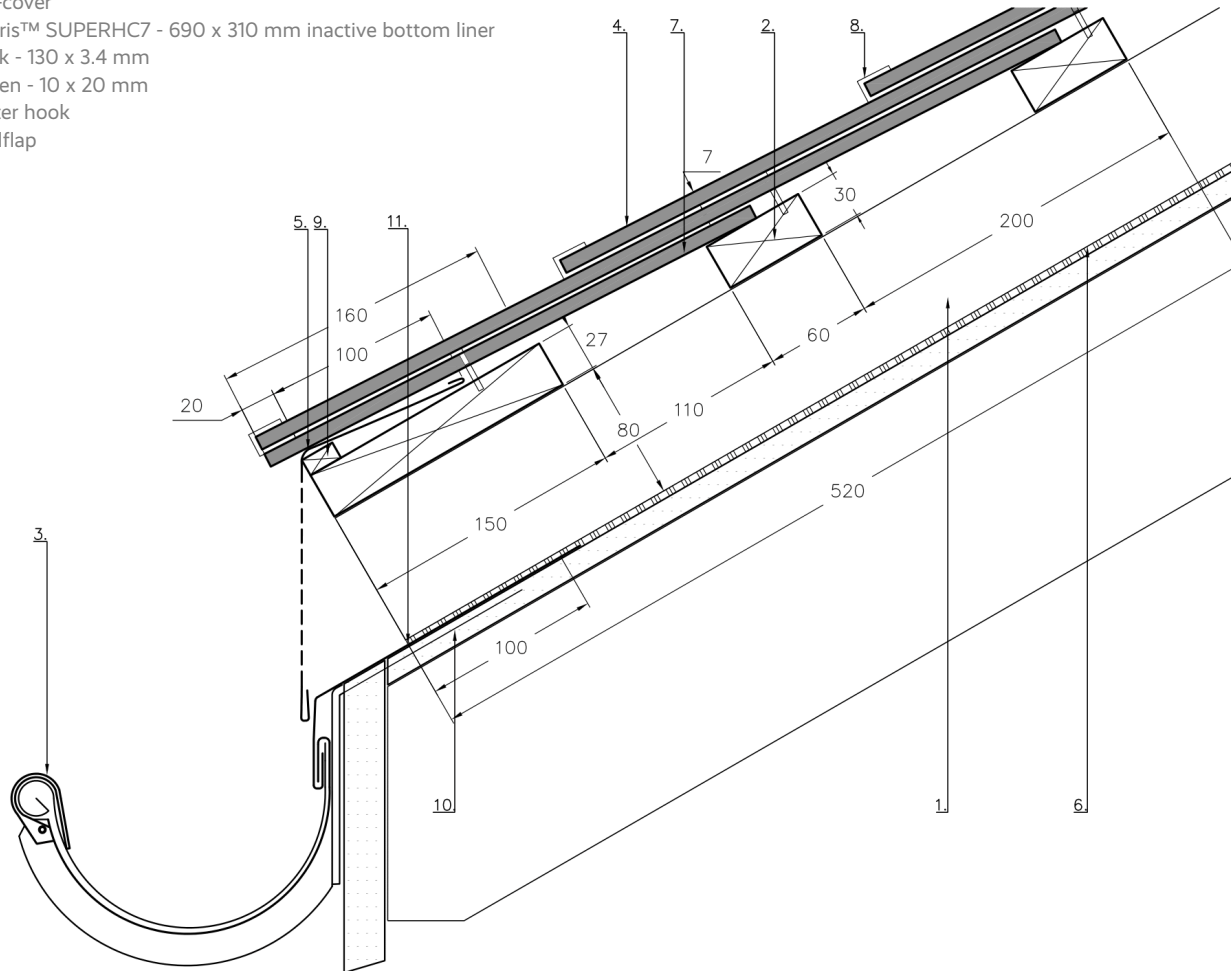
| | |
|--|---|
| Slope | Minimum 20° and maximum 90°. If the slope is less than 20°, a special waterproof sub-roof must be installed (extraordinary requirement). |
| Horizontal Roofing Battens | 30 mm x 60 mm (27 mm x 60 mm also accepted) |
| Tile exposure (distance between the battens) | Minimum 200 mm |
| Vertical Counter-Battens | 80 mm height x 60 mm width |
| Sub-roofing | The type of sub-covering chosen must comply with standard SIA 232/1 and the guidelines of the Swiss Building Envelope Association. With tiles from the Solaris™ range, you will need at least one underlay designed for heavy-duty use, capable of withstanding temperatures of 80 degrees. |
| Woodwork Flatness Tolerance | Any horizontal or vertical unevenness in the surface to be covered – that is, the battens – must not exceed 4 mm per metre. |
| Ventilation | Air inlet and outlet openings: the air gaps must be fitted with air inlet and outlet openings, the clear passage of which must be at least 50% of the required cross-sectional height of the counter-battens. It is essential to ventilate the entire surface area covered by Freesuns modules, including the valley and ridge areas. An insect screen reduces the air intake by a further 50%; a ventilation section of 80 mm is strongly recommended. |
| Tinsmithing material | Standard – no special requests |
| Ridge Capping | See drawings included below |
| Ridge | See the proposed technical solutions (minimum 40 mm gap for ventilation). |
| Snow bars and hooks | Glaromat FS24 'Solaire' snow guard |
| Safety hooks | Glaromat models SIHA MAX BS and Glaro SL BS, in accordance with EN 795 |

*Freesuns accepts no liability in the event of non-compliance with SIA standards for pitched roofs and the technical specifications specific to our products mentioned here.

1. GUTTERS

1.1 DETAIL OF GUTTER WITH TINSMITHING

1. Counter-battens - 60 x 80 mm
2. Battens - 30 x 60 mm
3. Gutter
4. Solaris™ SUPERHC7 - 690 x 510 mm
5. Perforated grille
6. Sub-cover
7. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
8. Hook - 130 x 3.4 mm
9. Batten - 10 x 20 mm
10. Gutter hook
11. Mudflap



FREESUNS
SOLAR ROOFS

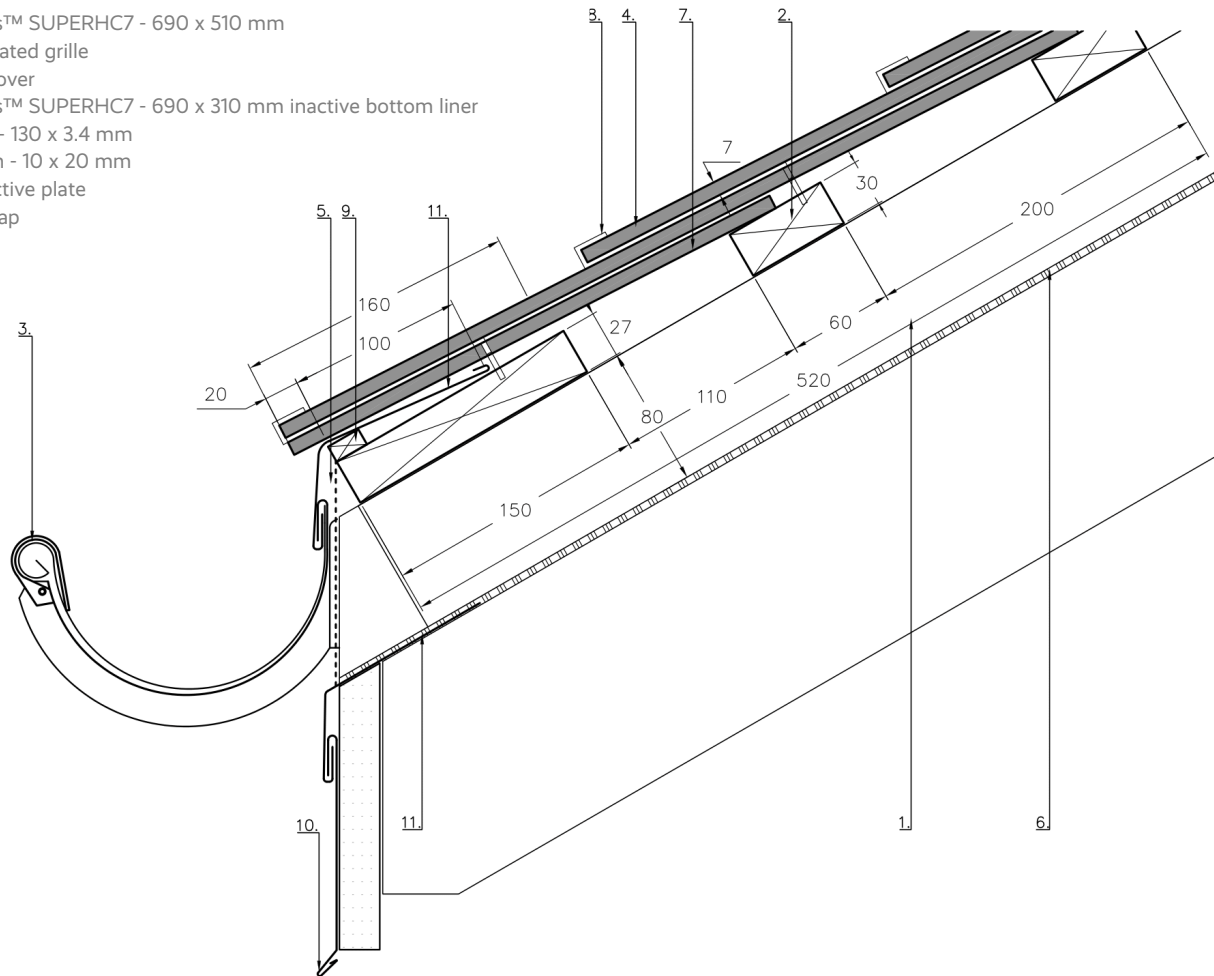
FREESUNS
info@freesuns.com

DESCRIPTION
Detail of gutter
with tinsmithing
SUPERHC7 CL, PB, HR

DATE
15.05.2024

1.2 DETAIL OF GUTTER WITH CONCEALED VENTILATION

1. Counter-battens - 60 x 80 mm
2. Battens - 30 x 60 mm
3. Gutter
4. Solaris™ SUPERHC7 - 690 x 510 mm
5. Perforated grille
6. Sub-cover
7. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
8. Hook - 130 x 3.4 mm
9. Batten - 10 x 20 mm
10. Protective plate
11. Mudflap



FREESUNS
SOLAR ROOFS

FREESUNS
info@freesuns.com

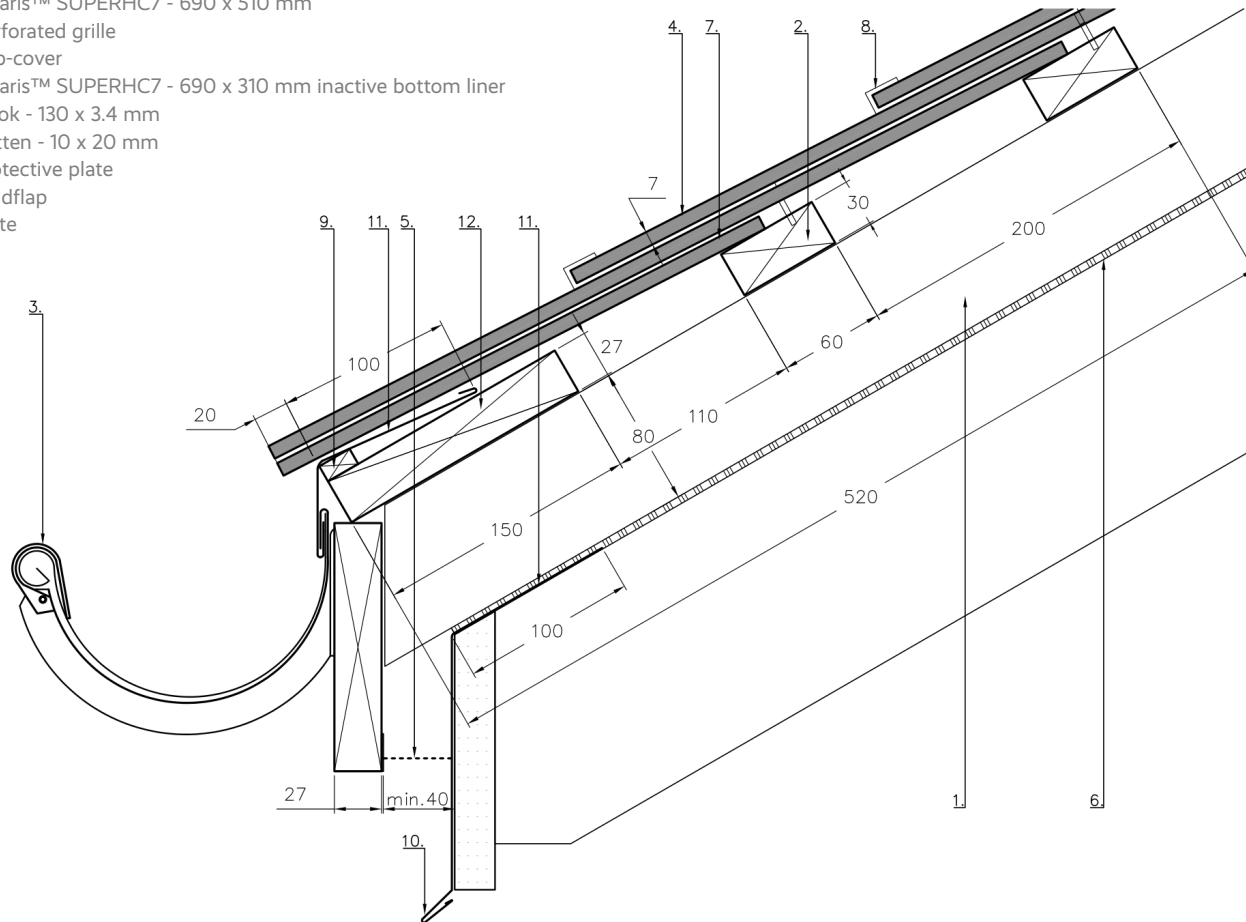
DESCRIPTION

Detail of gutter with
concealed ventilation
SUPERHC7 CL, PB, HR

DATE
15.05.2024

1.3 DETAIL OF GUTTER WITH DOUBLE FASCIA

1. Counter-battens - 60 x 80 mm
2. Battens - 30 x 60 mm
3. Gutter
4. Solaris™ SUPERHC7 - 690 x 510 mm
5. Perforated grille
6. Sub-cover
7. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
8. Hook - 130 x 3.4 mm
9. Batten - 10 x 20 mm
10. Protective plate
11. Mudflap
12. Plate



FREESUNS
SOLAR ROOFS

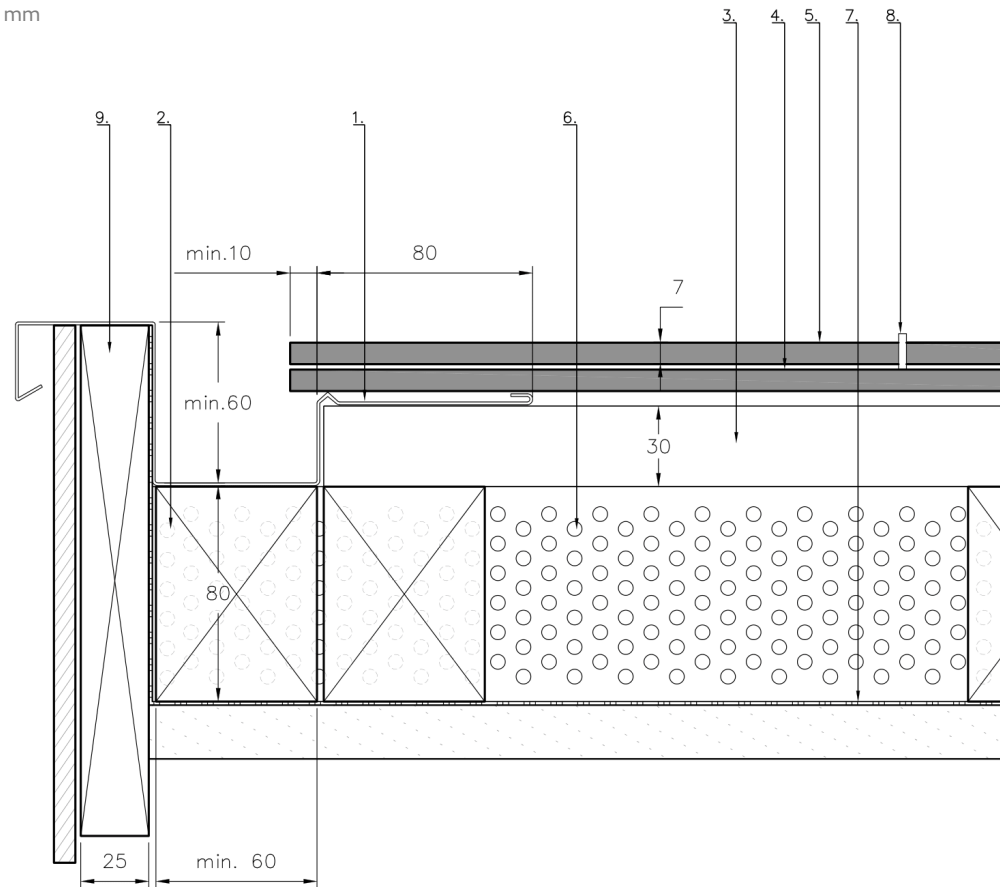
FREESUNS
info@freesuns.com

DESCRIPTION
Detail of gutter with
double fascia
SUPERHC7 CL, PB, HR
DATE
15.05.2024

2. EDGE

2.1 EDGE DETAIL WITH RECESSED RUNNER

1. Recessed corridor
2. Counter-battens - 60 x 80 mm
3. Battens - 30 x 60 mm
4. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
5. Solaris™ SUPERHC7 - 690 x 510 mm
6. Perforated grille
7. Sub-cover
8. Hook - 130 x 3.4 mm
9. Wind vane board



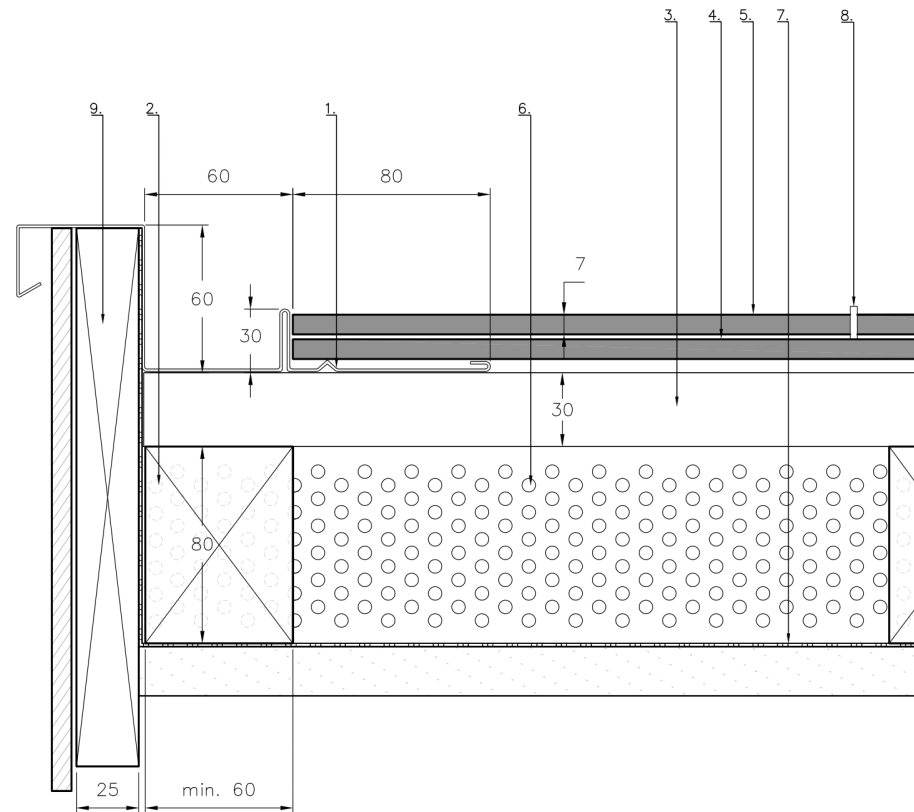
FREESUNS
SOLAR ROOFS

FREESUNS
info@freesuns.com

DESCRIPTION
Edge detail with
recessed runner
SUPERHC7 CL, PB, HR
DATE
15.05.2024

2.2 EDGE DETAIL WITH PASSAGEWAY

1. Recessed corridor
2. Counter-battens - 60 x 80 mm
3. Battens - 30 x 60 mm
4. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
5. Solaris™ SUPERHC7 - 690 x 510 mm
6. Perforated grille
7. Sub-cover
8. Hook - 130 x 3.4 mm
9. Wind vane board



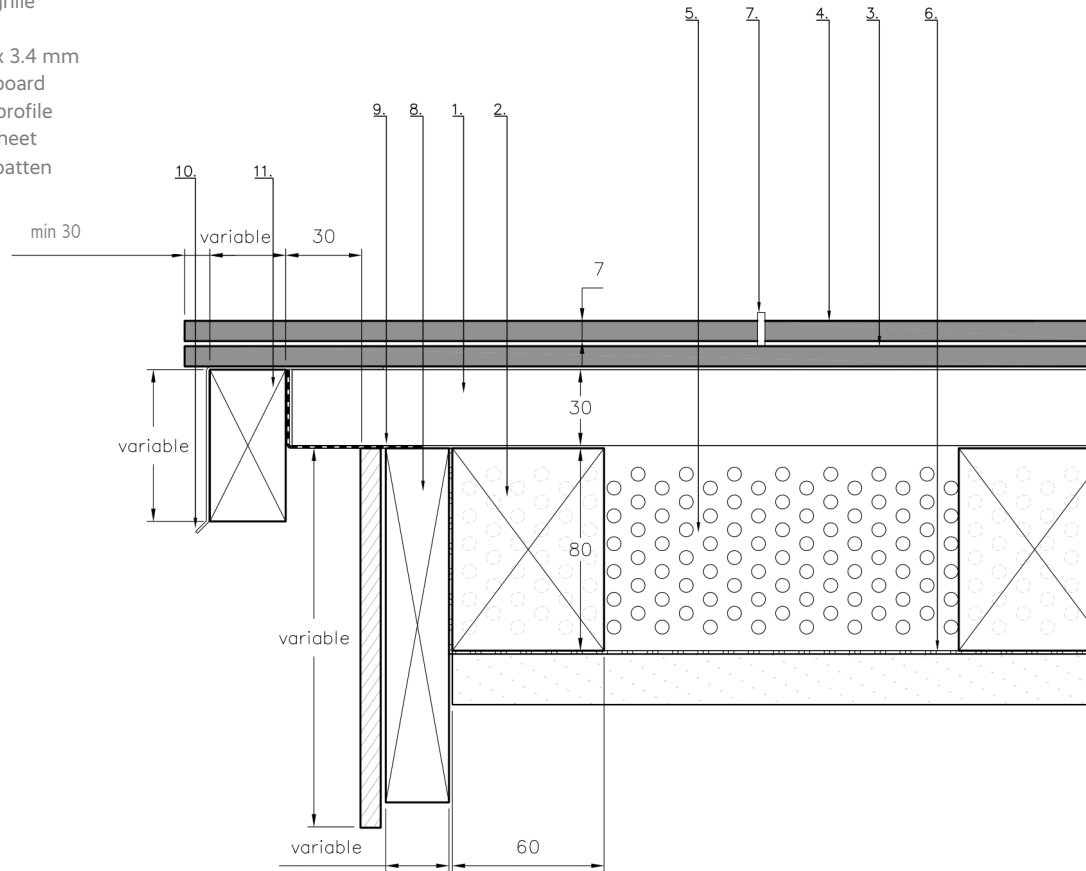
Freesuns
SOLAR ROOFS

Freesuns
info@freesuns.com

DESCRIPTION
Edge detail with
passageway
SUPERHC7 CL, PB, HR
DATE
15.06.2025

2.3 OVERHANGING EAVE EDGE DETAIL

1. Battens - 30 x 60 mm
2. Counter-battens - 60 x 80 mm
3. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
4. Solaris™ SUPERHC7 - 690 x 510 mm
5. Perforated grille
6. Sub-cover
7. Hook - 130 x 3.4 mm
8. Wind vane board
9. Ventilation profile
10. Protective sheet
11. Wind vane batten



Freesuns
SOLAR ROOFS

Freesuns
info@freesuns.com

DESCRIPTION
Overhanging eave
edge detail
SUPERHC7 CL, PB, HR
DATE
15.05.2024

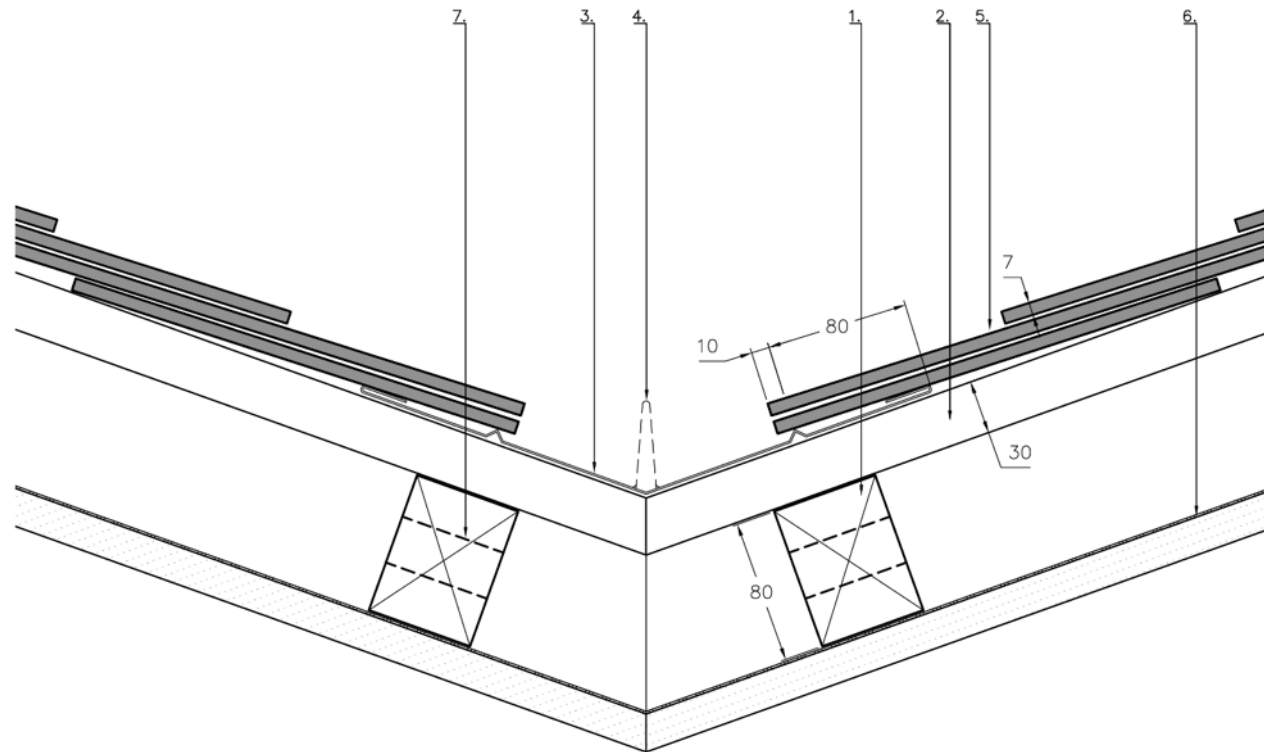
3. ROOF VALLEY

3.1 DETAIL OF VALLEY WITH TINSMITH'S TRADE

1. Counter-battens - 60 x 80 mm
2. Battens - 30 x 60 mm
3. Tinsmith's trade
4. Vertical fold
5. Solaris™ solar roof tile
6. Sub-cover
7. Ventilation duct diameter 40 mm (optional)



FREESUNS
info@freesuns.com



DESCRIPTION
Detail of valley with
tinsmith's trade
Solaris CL, PB, HR
VDiamond

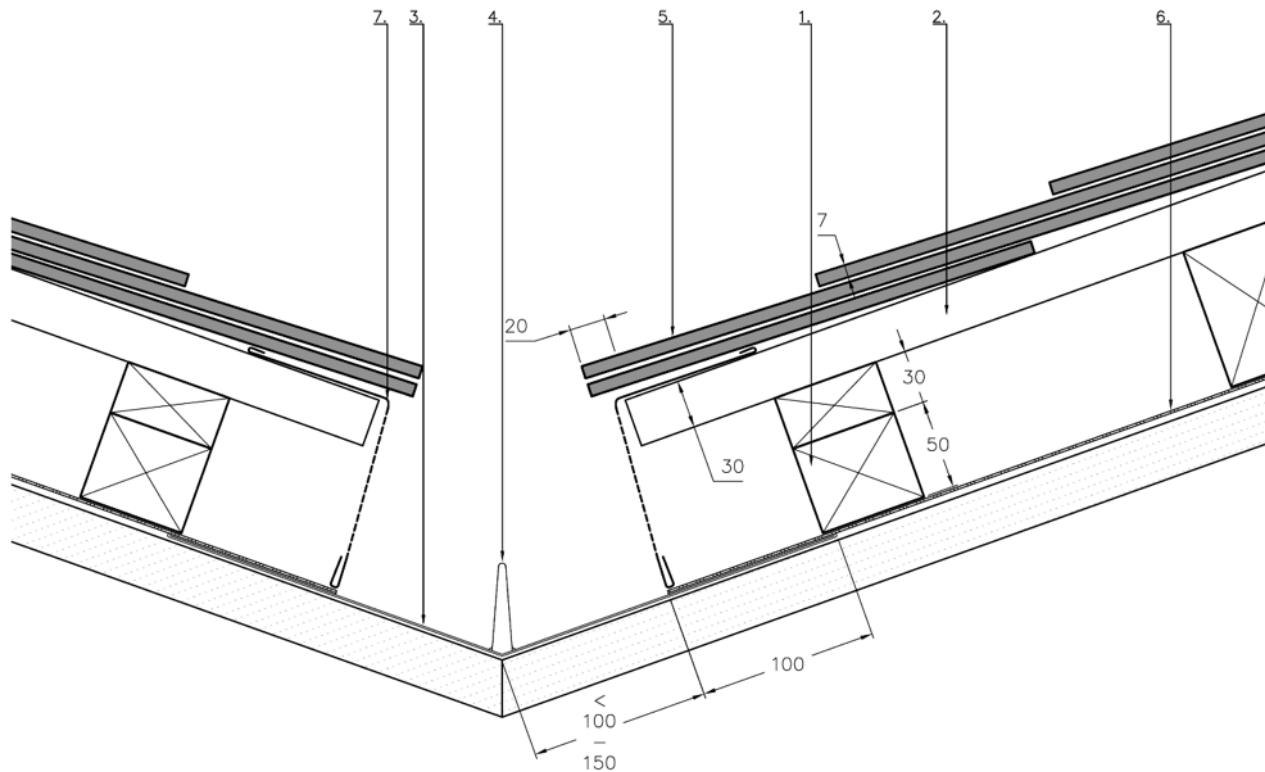
DATE
15.02.2024

3.2 DETAIL OF VENTILATED VALLEY WITH TINSMITH'S TRADE

- 1. Counter-battens - 60 x 80 mm
- 2. Battens - 30 x 60 mm
- 3. Tinsmith's trade
- 4. Vertical fold (optional)
- 5. Solaris™ solar roof tile
- 6. Sub-cover
- 7. Perforated grille



FREESUNS
info@freesuns.com



DESCRIPTION
Detail of ventilated valley
with Tinsmith's trade
Solaris CL, PB, HR
VDiamond

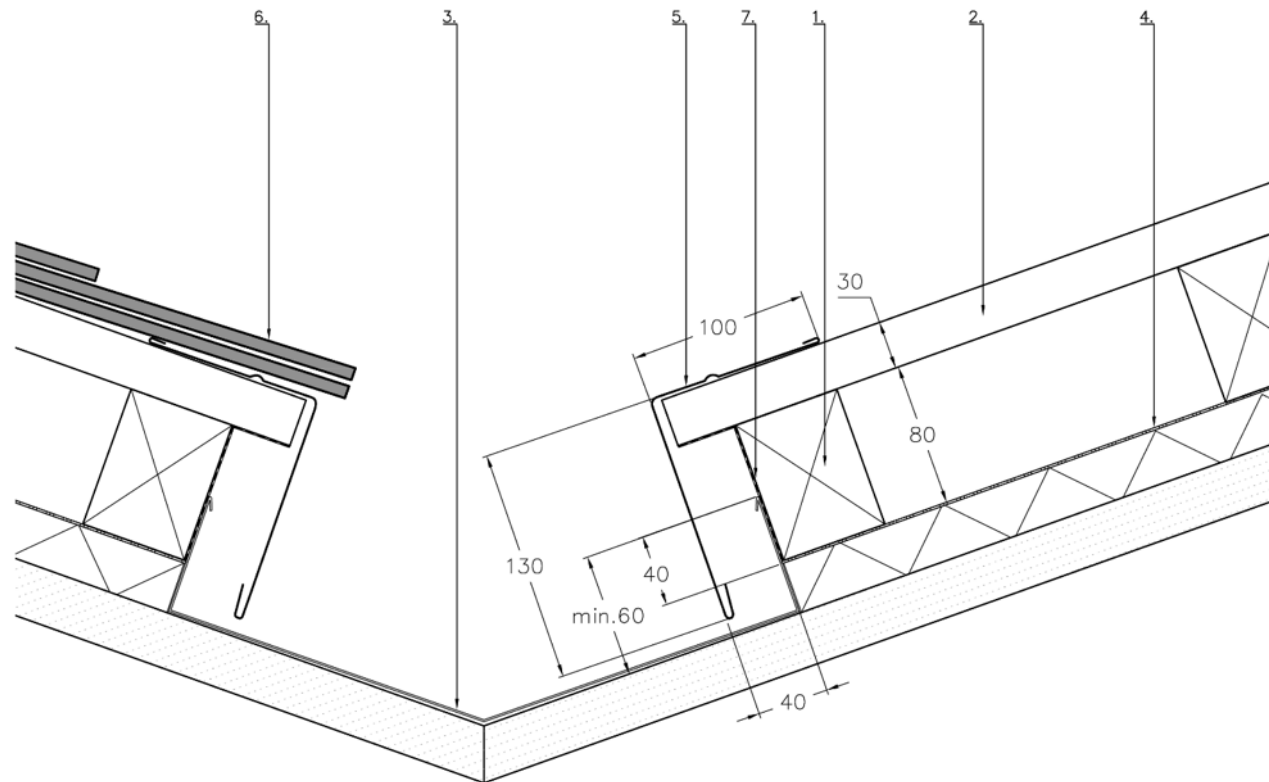
DATE
15.02.2024

3.3 DETAIL OF RECESSED AND VENTILATED VALLEY

1. Counter-battens - 60 x 80 mm
2. Battens - 30 x 60 mm
3. Tinsmith's trade
4. Vertical fold (optional)
5. Solaris™ solar roof tile
6. Sub-cover
7. Perforated grille



FREESUNS
info@freesuns.com



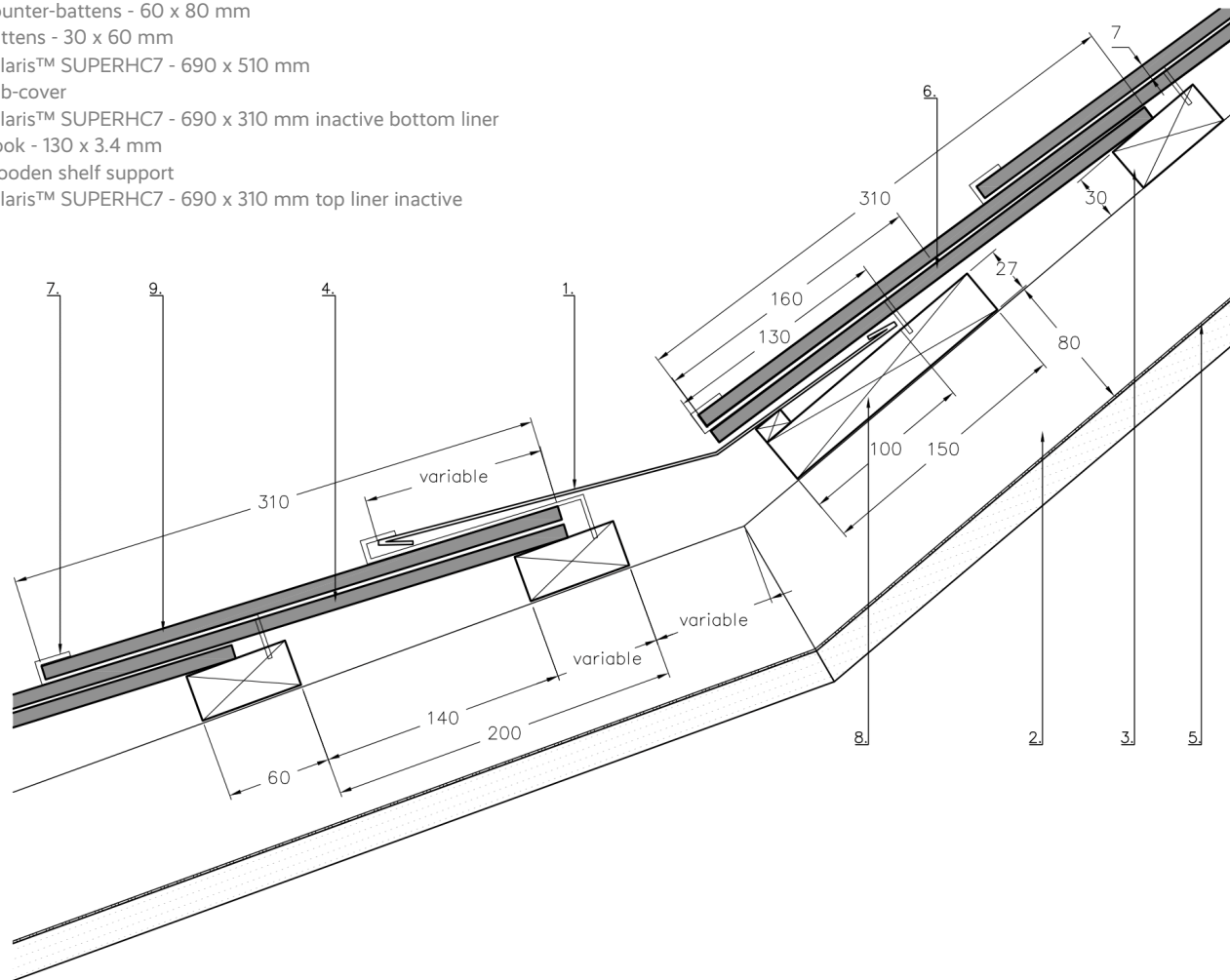
DESCRIPTION
Detail of recessed and ventilated valley Tinsmith's Solaris CL, PB, HR VDiamond

DATE
15.02.2024

4. REVEILLON

4.1 TINSMITHING DETAIL ON REVEILLON

1. Reveillon tray
2. Counter-battens - 60 x 80 mm
3. Battens - 30 x 60 mm
4. Solaris™ SUPERHC7 - 690 x 510 mm
5. Sub-cover
6. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
7. Hook - 130 x 3.4 mm
8. Wooden shelf support
9. Solaris™ SUPERHC7 - 690 x 310 mm top liner inactive



Freesuns
SOLAR ROOFS

Freesuns
info@freesuns.com

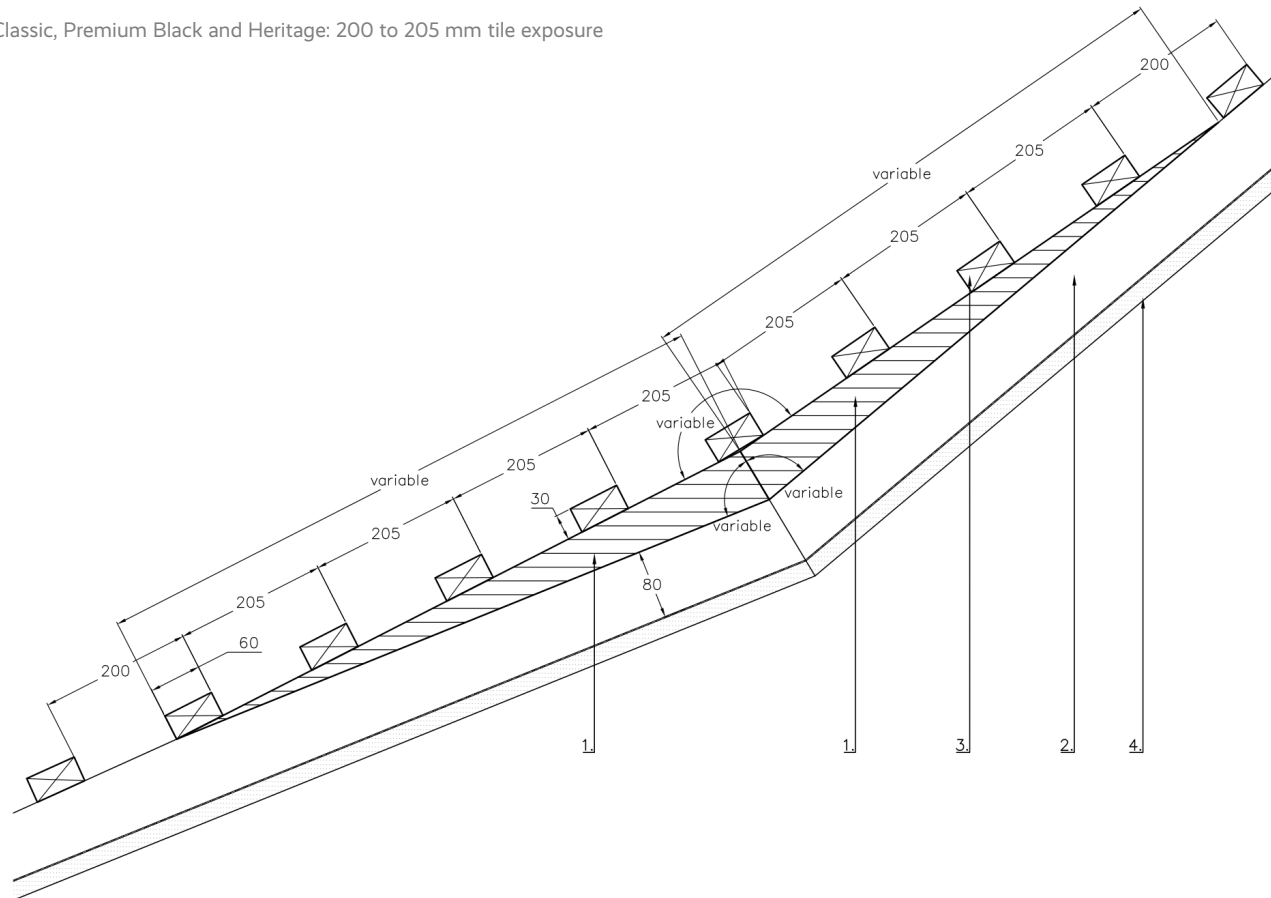
DESCRIPTION
Tinsmith detail on
reveillon
SUPERHC7 CL, PB, HR

DATE
15.05.2024

4.2 WOOD DETAIL ON REVEILLON

1. Compensation wedge
2. Counter-battens - 60 x 80 mm
3. Battens - 30 x 60 mm
4. Sub-cover

SuperHC7 Classic, Premium Black and Heritage: 200 to 205 mm tile exposure



FRESUNS
SOLAR ROOFS

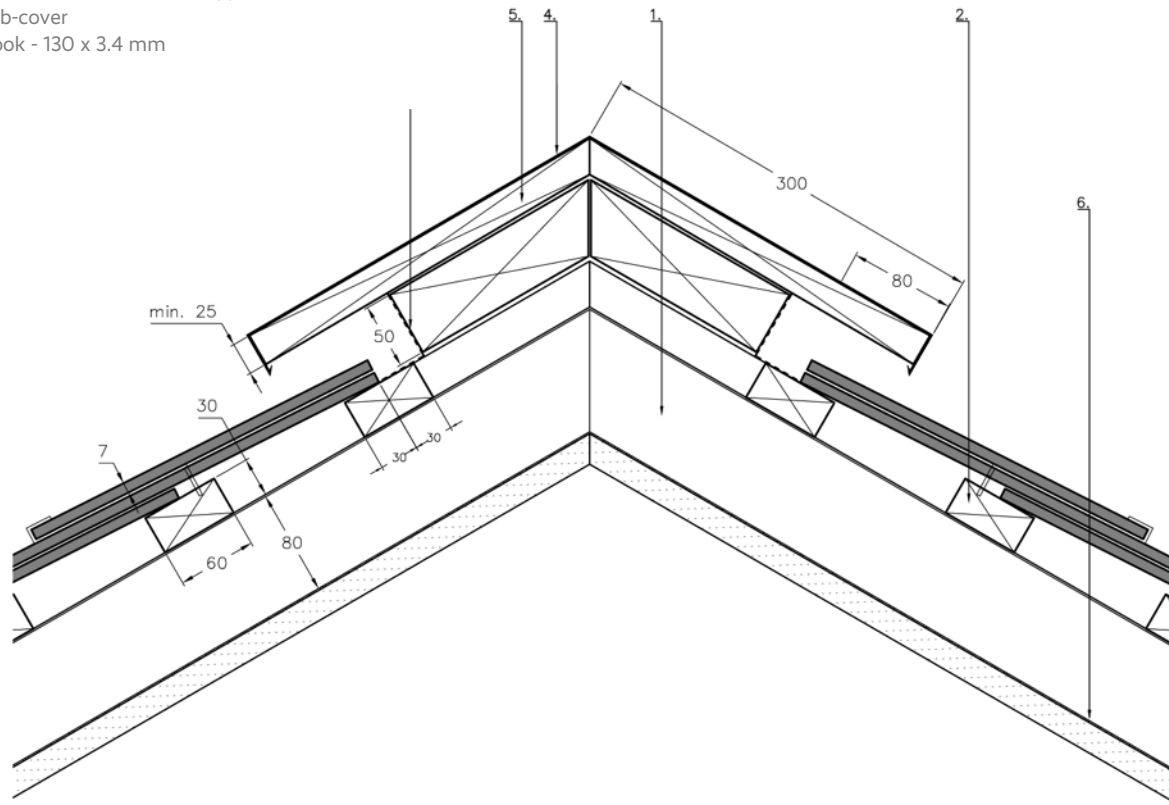
FRESUNS
info@freesuns.com

DESCRIPTION
Wood detail, on
reveillon
SUPERHC7 CL, PB, HR
DATE
15.05.2024

5. HIP / RIDGE

5.1 DETAIL OF WOODEN OR REINFORCED SHEET METAL SUPPORT FOR HIP OR RIDGE

1. Counter-battens - 60 x 80 mm
2. Batten - 30 x 60 mm
3. Perforated grille
4. Tinsmithing on hip / ridge
5. Wooden or sheet metal support
6. Sub-cover
7. Hook - 130 x 3.4 mm



Freesuns
SOLAR ROOFS

Freesuns
info@freesuns.com

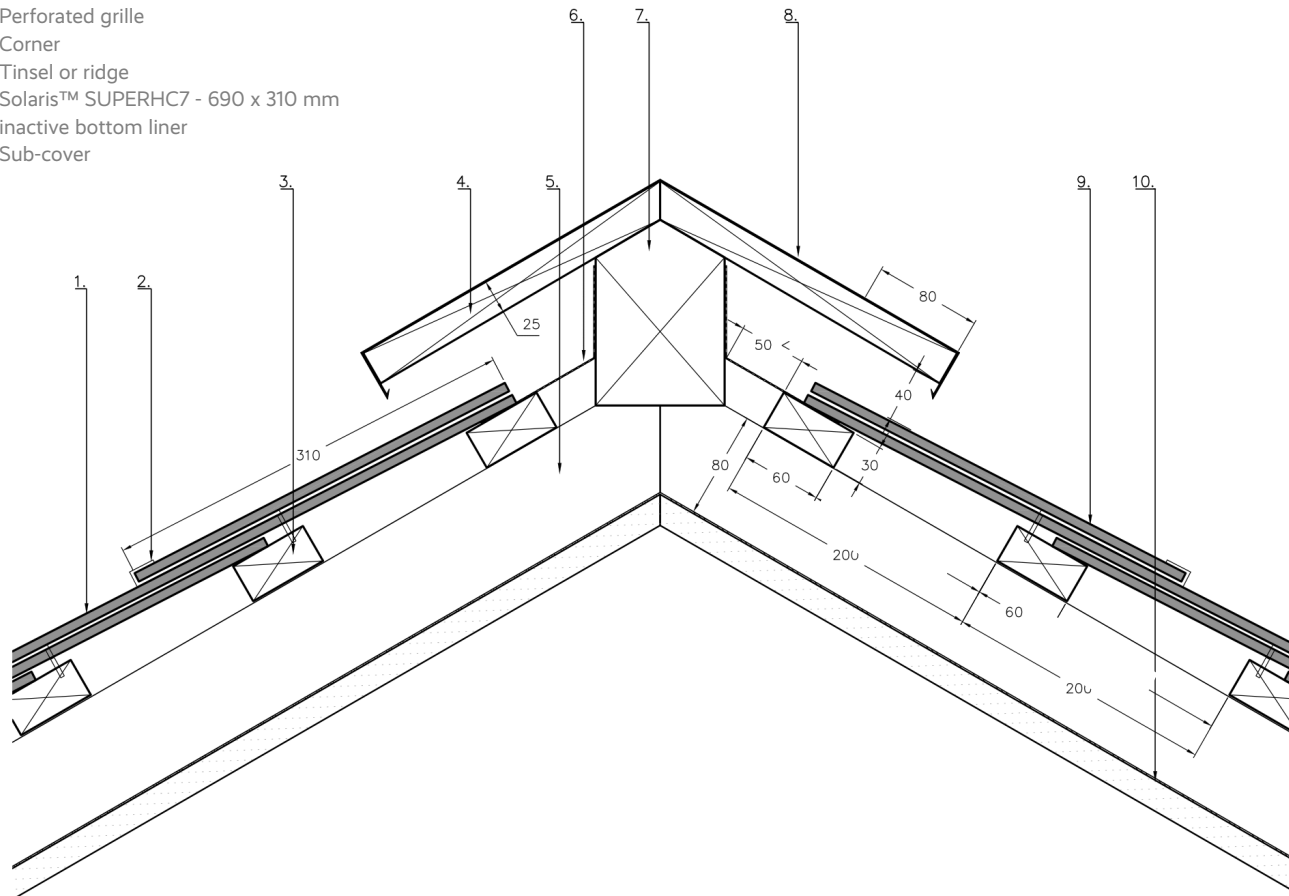
DESCRIPTION

Detail of wooden or
reinforced sheet metal
support for hip or ridge
Solaris CL, PB, HR

DATE
15.02.2024

5.2 RIDGE DETAIL WITH TINSMITHING

1. Solaris™ SUPERHC7 - 690 x 510 mm
2. Hook - 130 x 3.4 mm
3. Batten - 30 x 60 mm
4. Wooden support for hips
5. Counter-battens - 60 x 80 mm
6. Perforated grille
7. Corner
8. Tinsel or ridge
9. Solaris™ SUPERHC7 - 690 x 310 mm inactive bottom liner
10. Sub-cover



Freesuns
SOLAR ROOFS

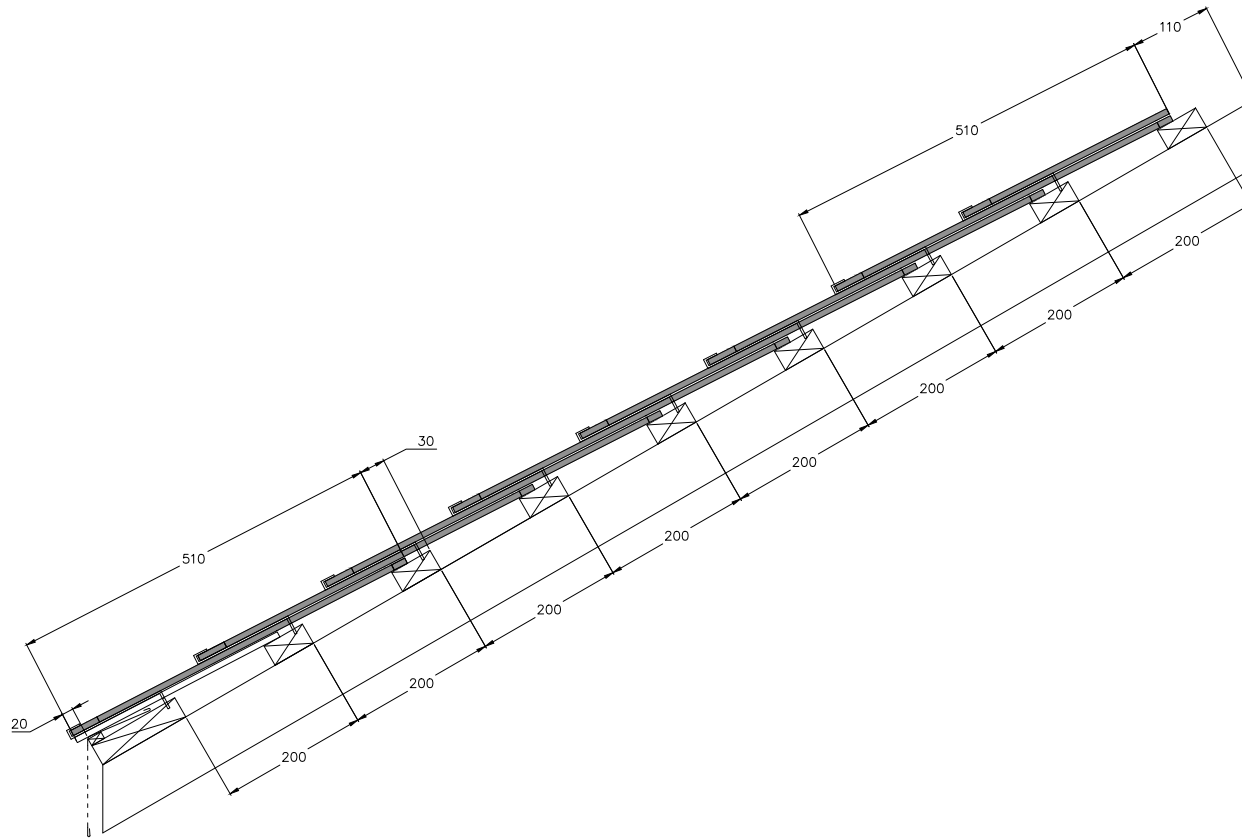
Freesuns
info@freesuns.com

DESCRIPTION
Ridge detail with
tinsmithing
SUPERHC7 CL, PB, HR

DATE
15.05.2024

6. LAYOUT

6.1 LAYOUT OF THE SUBFLOOR



Freesuns
SOLAR ROOFS

Freesuns
info@freesuns.com

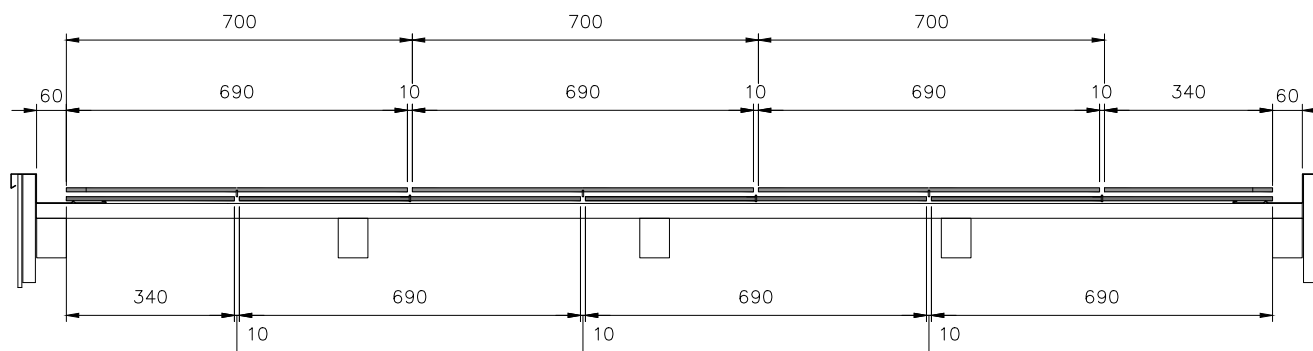
DESCRIPTION
Layout of the subfloor
SUPERHC7 CL, PB, HR

DATE
15.10.2025

6.2 DETAIL OF LAYOUT WTH CORRIDOR



FREESUNS
info@freesuns.com



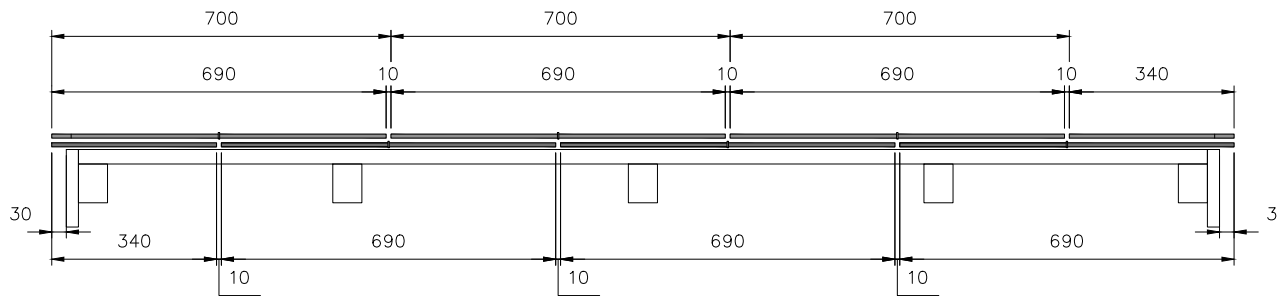
DESCRIPTION
Detail of layout with corridor
Super HC7

DATE
01.10.2025

6.3 DETAIL OF LAYOUT WITH OVERHANGING EDGE



FREESUNS
info@freesuns.com



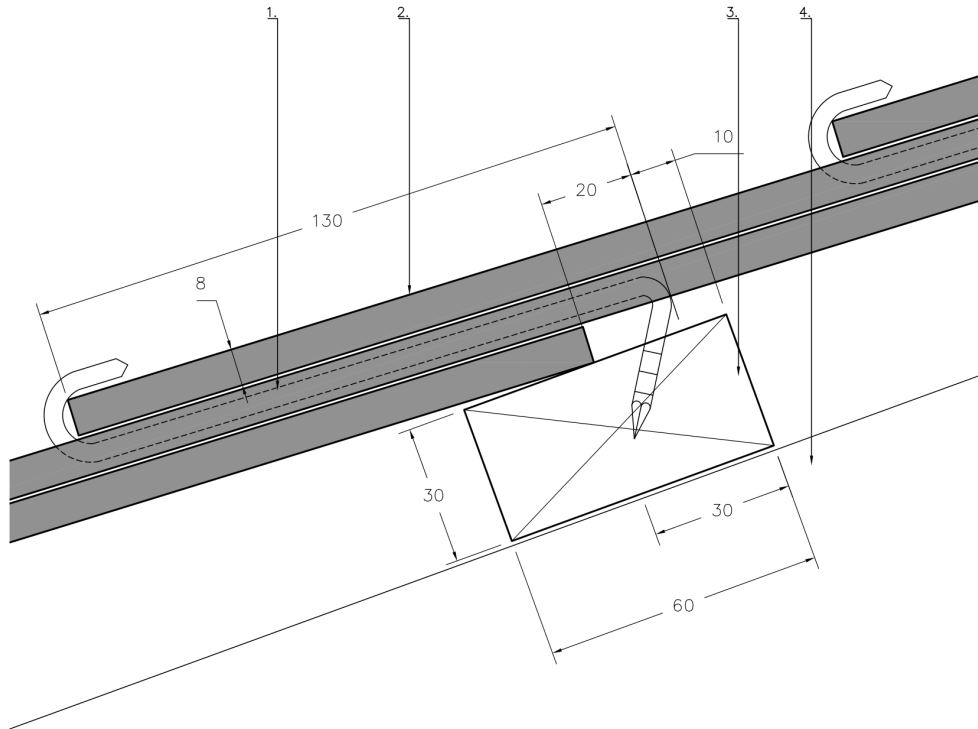
DESCRIPTION
Detail of layout with overhanging edge
Super HC7

DATE
01.10.2025

7. VARIA

7.1 DETAIL OF HOOK FASTENING, DOUBLE INSTALLATION

1. Hook – 130 mm × 3.4 mm
2. Solaris™ SUPERHC7 – 690 × 510 mm
3. Batten – 30 × 60 mm
4. Counter-batten – 60 × 80 mm



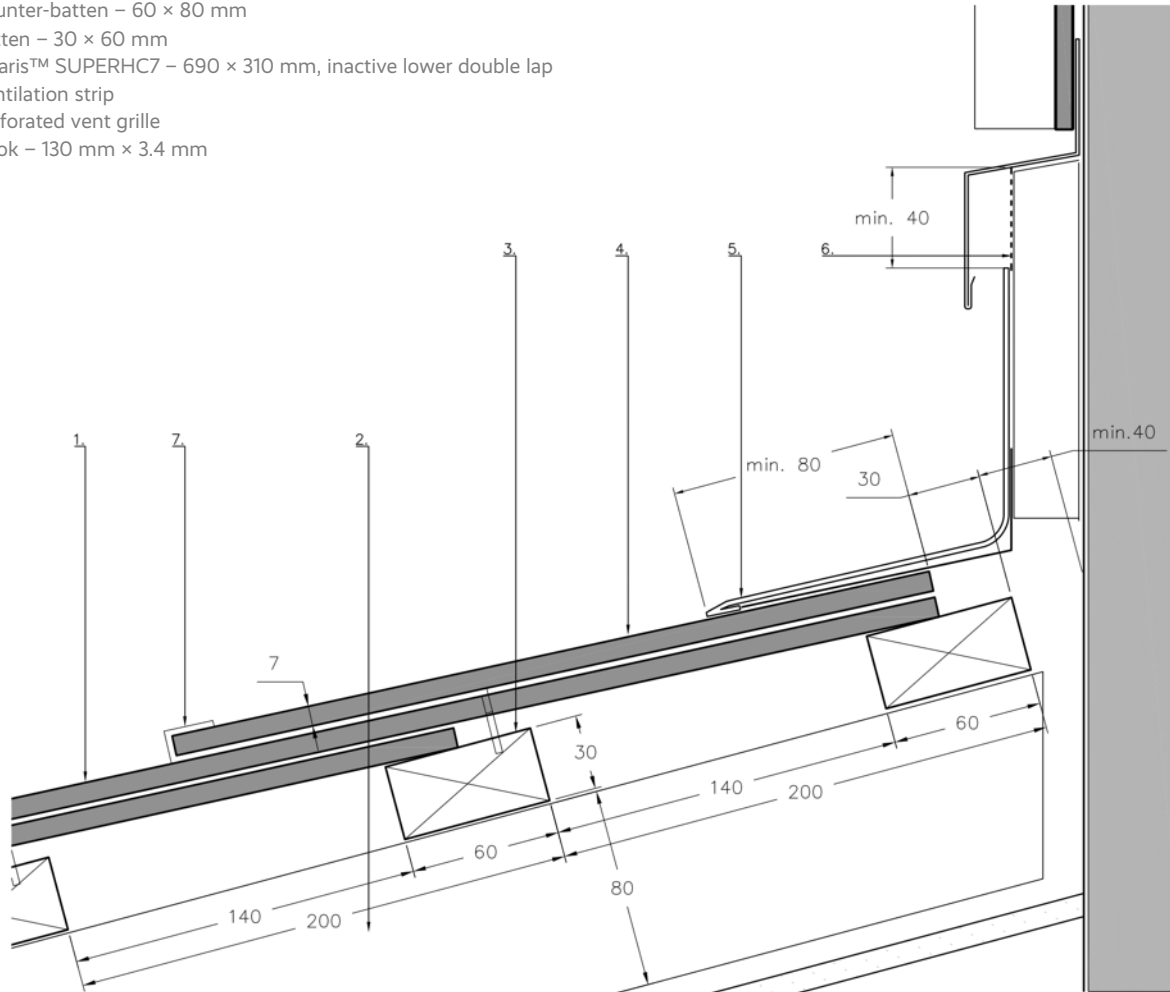
FRESUNS
SOLAR ROOFS

FRESUNS
info@freesuns.com

DESCRIPTION
Detail of hook fastening,
double installation
SUPERHC7 CL, PB, HR
DATE
15.05.2024

7.2 DETAIL OF UPPER JOINT WITH TINSMITHING

1. Solaris™ SUPERHC7 – 690 × 510 mm
2. Counter-batten – 60 × 80 mm
3. Batten – 30 × 60 mm
4. Solaris™ SUPERHC7 – 690 × 310 mm, inactive lower double lap
5. Ventilation strip
6. Perforated vent grille
7. Hook – 130 mm × 3.4 mm



Freesuns
SOLAR ROOFS

Freesuns
info@freesuns.com

DESCRIPTION

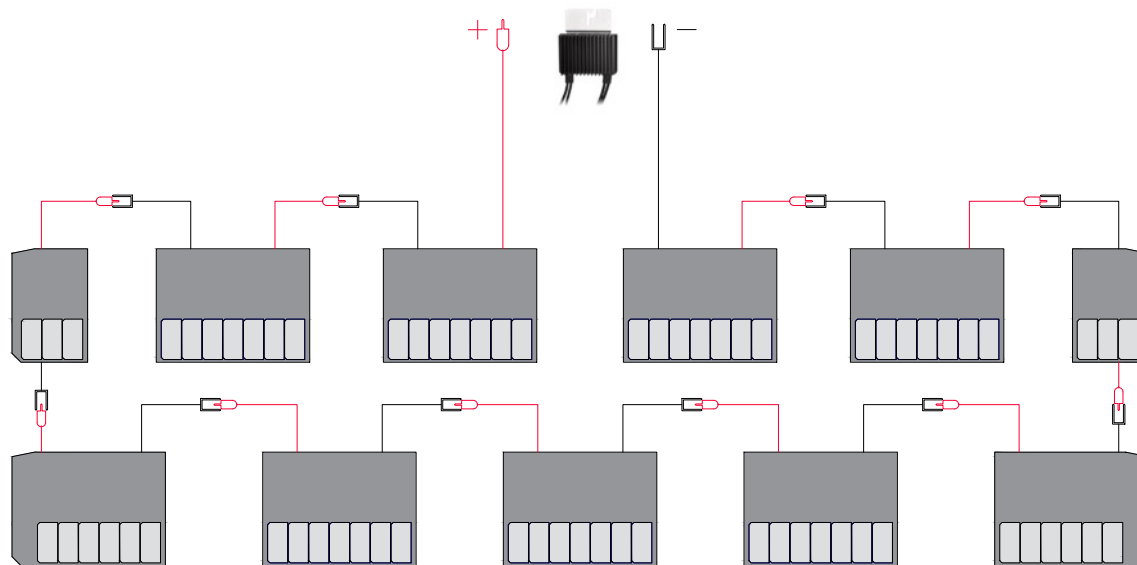
Detail of upper joint
with tinsmithing

SUPERHC7 CL, PB, HR

DATE
15.05.2024

ELECTRICAL DATA

WIRING DIAGRAM - TWO ROWS PER OPTIMISER



TWO ROWS PER OPTIMIZERS

Measurement instructions

1 loop contains:

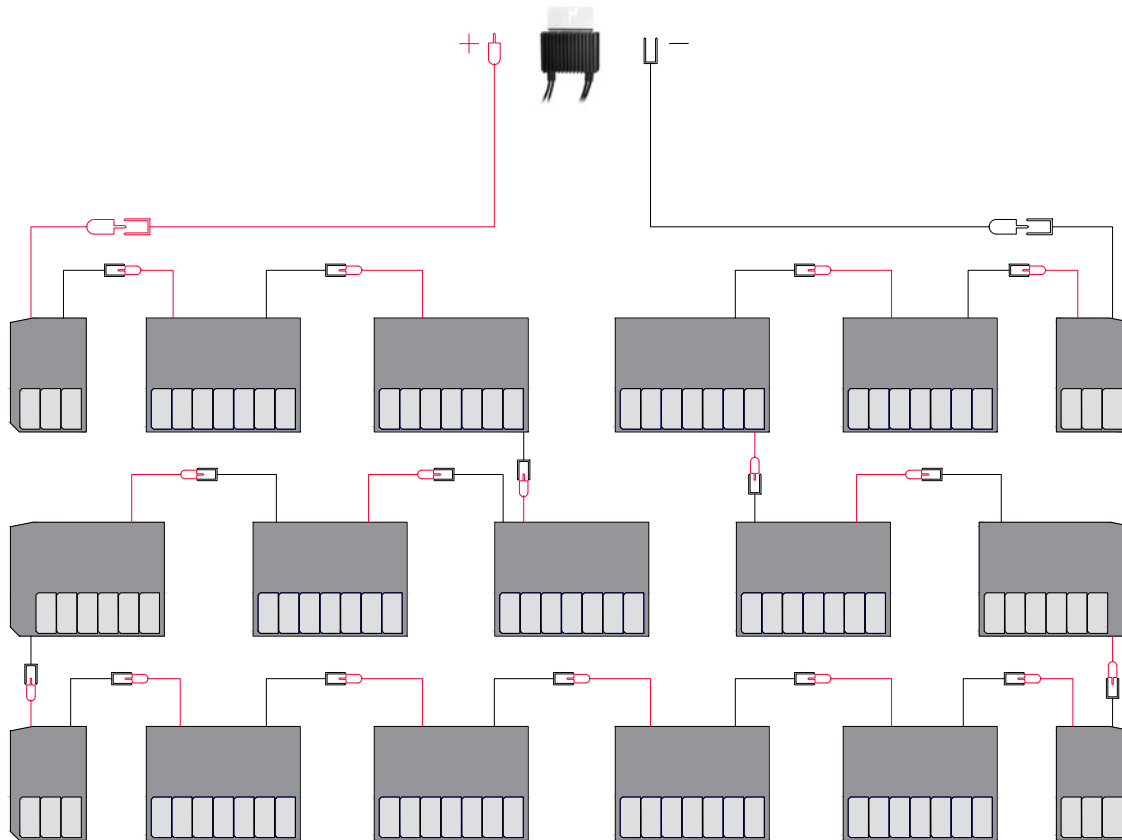
- approximately 15 to 20 tiles
- minimum 5-6 tiles

Voltage per loop:

- at least 0.6 V
- maximum 1.1V

Before and after closing a loop, the voltage must be measured and must increase as indicated.

WIRING DIAGRAM - THREE ROWS PER OPTIMISER WITH EXTENSION CABLE



THREE ROWS PER OPTIMIZERS WITH
EXTENSION CABLE

Measurement instructions

1 loop contains:

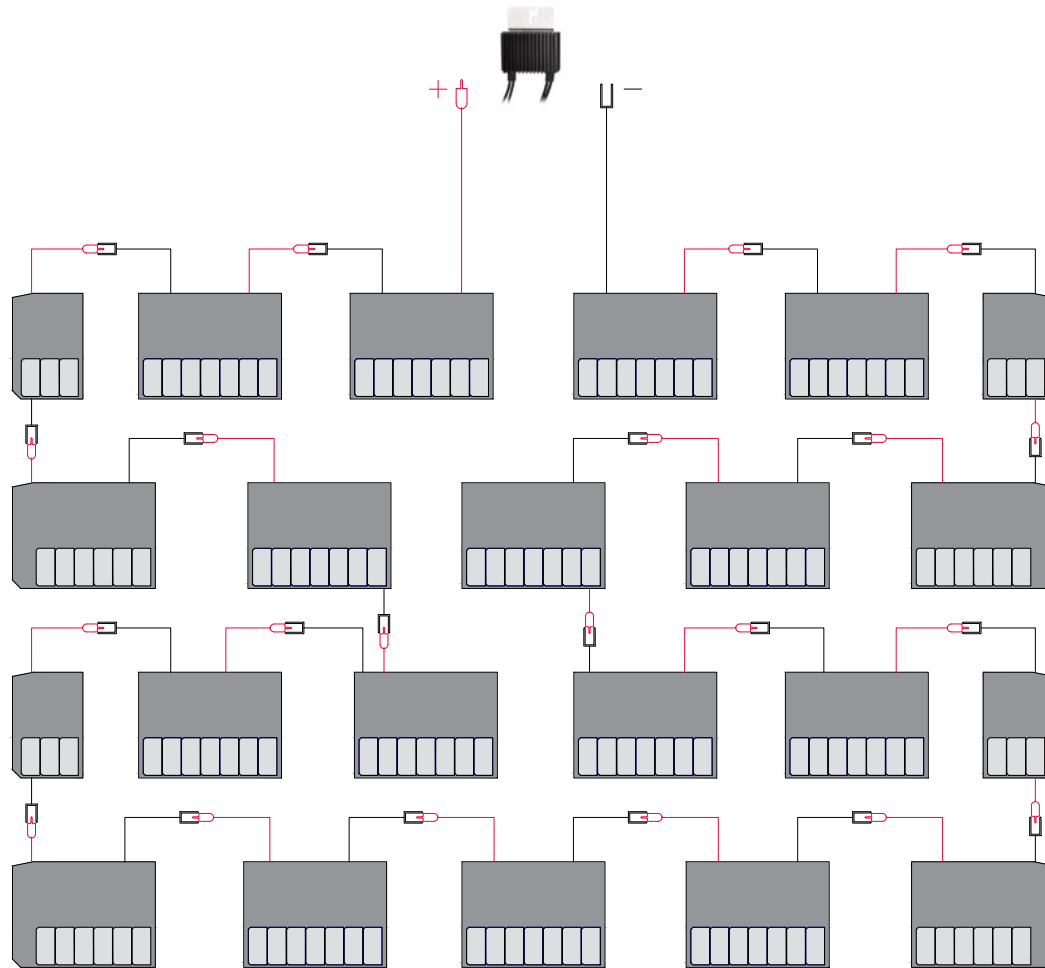
- approximately 15 to 20 tiles
- minimum 5-6 tiles

Voltage per loop:

- at least 0.6 V
- maximum 1.1V

Before and after closing a loop, the voltage must be measured and must increase as indicated.

WIRING DIAGRAM - FOUR ROWS PER OPTIMISER



FOUR ROWS PER OPTIMIZERS

Measurement instructions

1 loop contains:

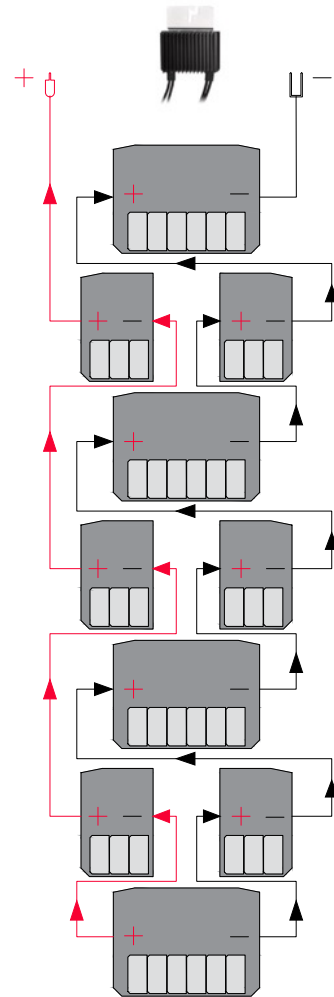
- approximately 15 to 20 tiles
- minimum 5-6 tiles

Voltage per loop:

- at least 0.6 V
- maximum 1.1V

Before and after closing a loop, the voltage must be measured and must increase as indicated.

WIRING DIAGRAM - VERTICAL ACROSS THE WIDTH OF A TILE



WIRING DIAGRAM – ONE TILE WIDE

Measurement instructions

1 loop contains:

- approximately 15 to 20 tiles
- minimum 5-6 tiles

Voltage per loop:

- at least 0.6 V
- maximum 1.1V

Before and after closing a loop, the voltage must be measured and must increase as indicated.

LOGISTICS

LOGISTICS

Pallet/box dimensions: 1.10 x 0.80 m

Variable height: max. 1.00 m

Max. weight per pallet/box: 750 kg



CONTACT

For more information, please contact us

info@freesuns.com +41 79 693 66 20

www.freesuns.com

FREESUNS
SOLAR  ROOFS