

Barilla F22 In-Roof Mounting System

for Pantile Roofing (version 2010)

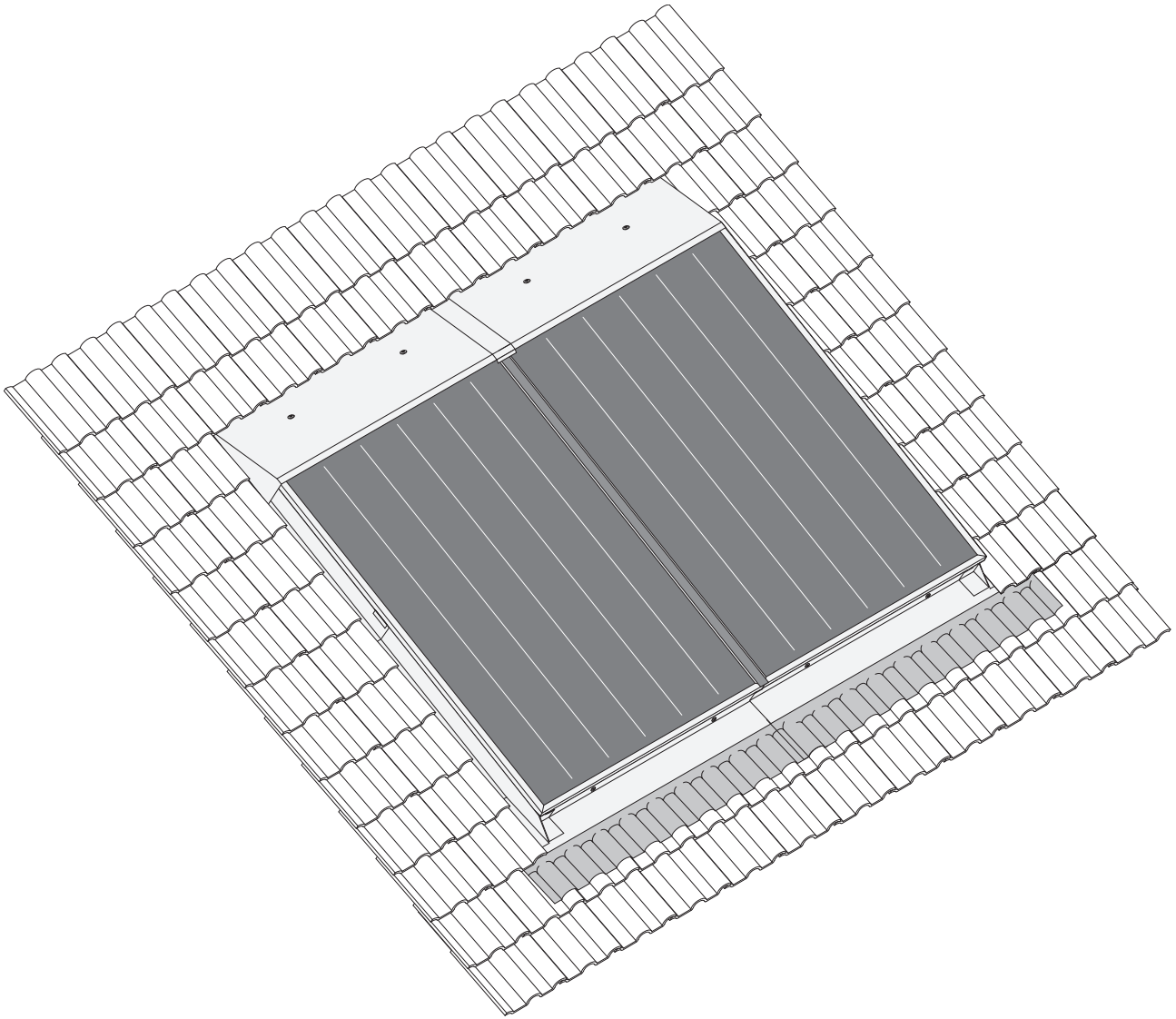


Figure. 1 In-roof installation on pantile roof

- For roof pitch > 20°
- Weather proof integration thanks to aluminium cladding panels and aluminium skirting
- Pipe connections protected under upper cladding sheets

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1 General Safety Notes

1.1 Symbols

The following symbols are used throughout these instructions and must be adhered to:



DANGER of possibly serious personal injury



WARNING against material damage.



NOTE as additional information

1.2 Norms and Regulations

The standards and regulations applicable at the installation location must be adhered to. In absence of other regulations we recommend to follow the following norms:

Thermal Solar Systems and Components

- EN 12976 and EN V 12977

Electrical Work, Potential Equalization, Lightning Protection

- DIN EN 62305
- VDE 0185 part 305
- DIN VDE 0100 part 540
- VDE 190
- DIN 18382

(Other regulations may apply, depending on your region, country or territory.)

Especially the pipes in the lower parts of the building must be connected electrically conductive, conforming to standards. The collector installation must be professionally integrated with an existing or new lightning protection system.

Snow and Wind Loads

Comply with local regulations and norms related to snow and wind loads, within the EU to EN 1991-1-4 (Wind Actions) and EN 1991-1-3 (Snow Loads). If you have questions related to structural conditions and planning, please contact our technical department for information. We offer comprehensive planning support on a project base.

Work on Roofs

Make sure to observe country and territory regulations related to roof works and roof sealing standards as well as professional codes for plumbing work.

The installation process must reflect the on-site conditions as well as applicable rules, regulations and accident prevention procedures. Installers must be qualified and - where applicable - licensed to work on roofs.

1.3 Qualification of the Installer

Setup, installation and proper commissioning of the solar installation must be carried out by authorized professionals. Non-compliance renders the warranty void.

1.4 Intended Use and Application

Proper Outdoor Storage of Collectors

Remove protective film, and lay down collectors with glass pane up. Avoid direct ground contact (e.g. underlay square timber). Avoid scratches on glass panes by using spacers between collectors (e.g. wooden laths). When leaning collectors against walls or similar, use a minimum inclination of 15° and apply spacers. Do not use cardboard as underliner. If incorrectly stored, humidity can enter the collectors through the air vents. Storing collectors in plastic film package can damage the glass surface (see figure 2).



Scope and Limitations of Application

The collector is intended for the application in solar thermal installations for hot water preparation and space heating support. As operating mediums water (attention - risk of freezing!) or an appropriate water-glycol mixture can be used in a closed circuit. Operational conditions under-running the dew point within the collector for prolonged periods are not permitted! This can occur for example, when collectors are integrated in the brine circuit of a heat pump.



Assure Proper Roofing structure

For in-roof installations the section behind the collectors has to be protected against rising moisture and trapped air. In the area of the collector field sufficient back-side ventilation of the roof must be assured (see „3. Installation Field.“)

Overheat Protection

For roof heating centrals and when 4 or more EURO collectors with anti reflective glass are installed vertically, the "Technical Information Solar Thermal Systems - Setup, Commissioning and Maintenance" must be followed to avoid damage to the solar circuit.



Preventing frost Damage

After pressure testing and flushing, collectors cannot be completely emptied. Make sure that no pure water remains in collector during risk of frost!



Empty Collector on Roof

After being installed on the roof, unfilled collectors should not be exposed to the sun for more than a few days. Otherwise thermal stress on gaskets can result in damage. Alternatively postpone the installation of gaskets to just before filling the solar circuit.



Maintenance

For maintenance notes and additional information about setup and operation of the collector field, please refer to the technical information "Solar Thermal Systems".

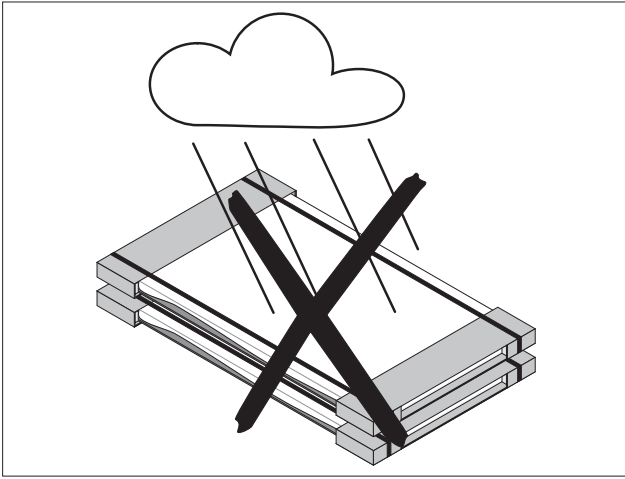


Figure 2 Do not expose collector covered with protective film to rain.

1.5 Pre Installation Notes

- Risk of burns at collector connections as soon as uncovered collector is exposed to the sun (figure 3).
- Danger of open injuries when working with sharp edged metal sheets and components!
- Remove protective plastic caps from connections before collector is exposed to the sun. Risk of melting and damage to absorber!
- Remove glass protection PE-LD film before commencing installation work! (figure 4).



1.6 Recycling Note

At the end of the long operational lifetime, the valuable materials of the installation should be recycled in an environmentally sound manner. If recycling is not possible, Barilla will take the scrap material back.

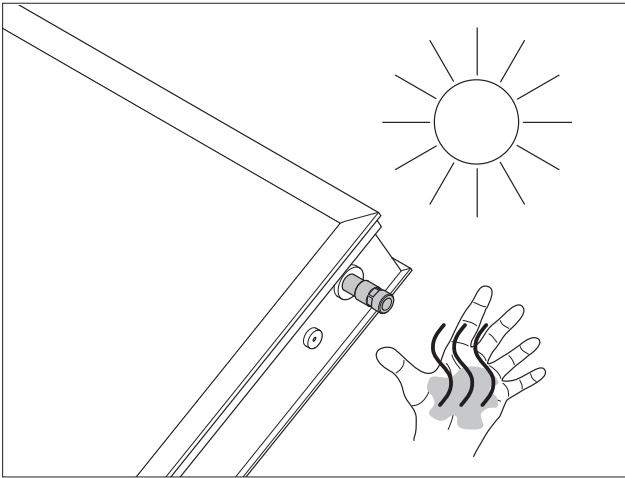


Figure 3 Collector connections heat up during solar irradiation.

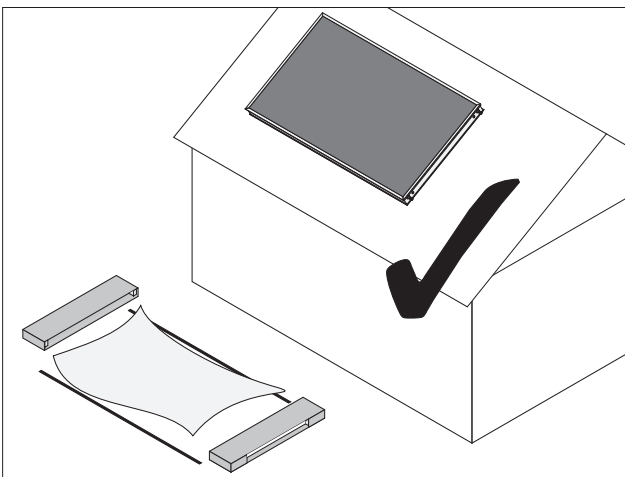


Figure 4 Remove glass protection film before installing collector!

2 Setup and Scope of Supply

2.1 Basic Kit

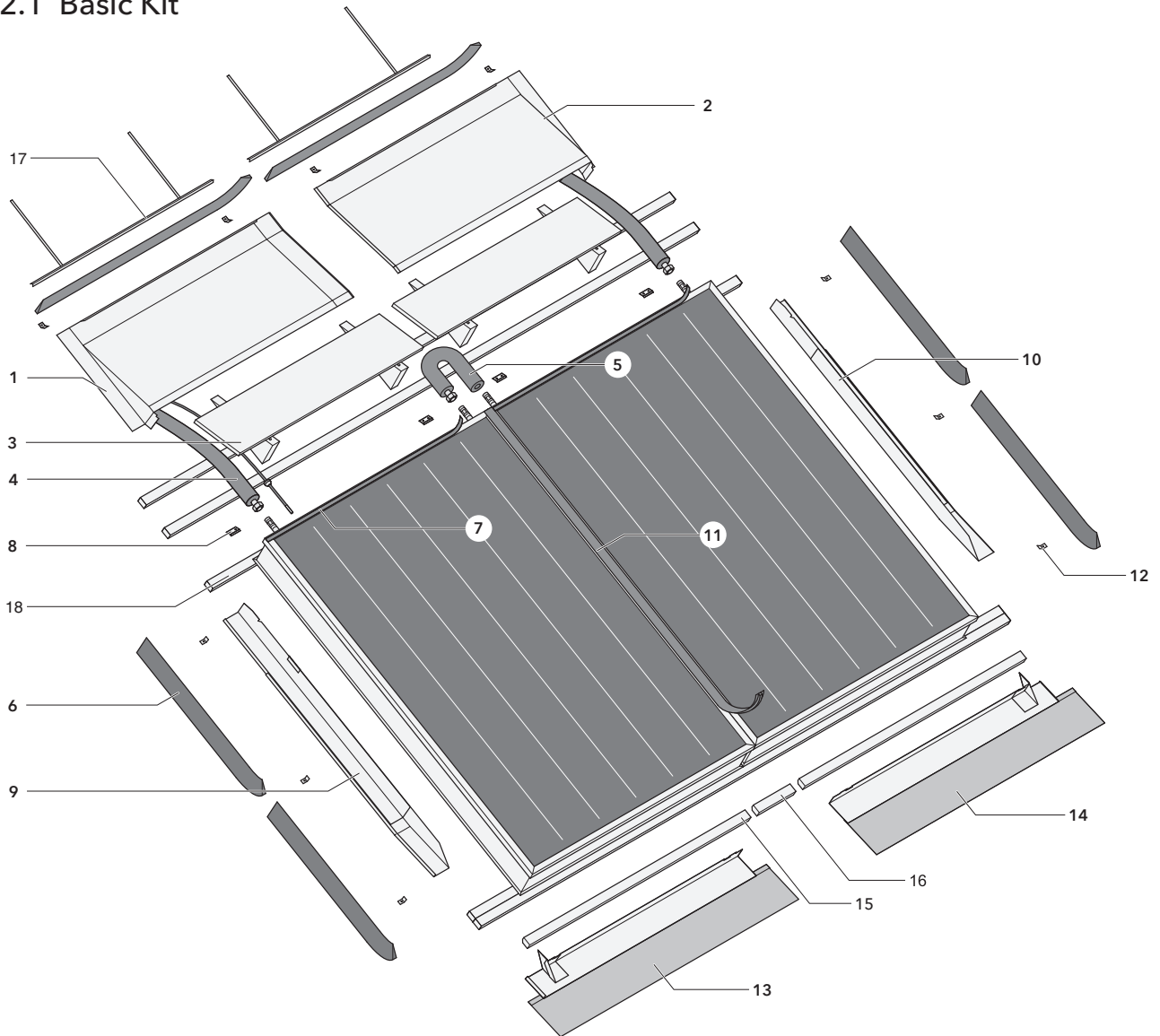


Figure. 5 Components of basic set

Table 1 Scope of Supply, Basic Set			192 010 64
No.	Component	Qty.	Part. no.
1	Flashing sheet, top left	1	819 721 46
2	Flashing sheet, top right	1	819 721 48
3	Wooden support	2	819 920 53
4	Collector connection hose	2	130 26
5	Collector connection hose	1	130 000 10
6	Foam rubber tape	7	819 450 20
7	Cellular rubber tape	2	110 101 23
8	Collector fixing clip	4	190 102 15
9	Side panel left	1	819 721 49
10	Side panel right	1	819 721 50
11	Silicone T-Profile	1	819 450 10
12	Sheet fixing clip	10	181 060 00
13	Flashing sheet, bottom left	1	819 721 54
14	Flashing sheet, bottom right	1	819 721 56

Table 1 cont.			
15	Supporting laths 1158 mm	2	819 920 54
16	Supporting laths 200 mm	1	190 102 19
17	Supporting laths for roof tile	2	819 721 57
	Gasket 1/2" (for no. 4 and 5)	6	190 201 52
	1/2" to DN16 Adapter (for no. 4)	2	801 90
	Roof felt nails (for no. 12)	12	188 53
	Self tapping screws 4 x 35 (for no. 3 u. 8)	12	819 501 86
	Self tapping screws 4 x 70 (for no. 15 u. 16)	10	819 500 55
	Self tapping screws 5 x 120 (for no. 3)	4	819 501 88
	Sheet metal screw with gasket 4,5 x 25 (for no. 1 and 2)	4	819 501 87
	Drilling screws 4.2 x 13 with washer gasket (for no. 13 and 14)	4	819 501 85
	Silicone gasket material	1	120 100 20

2.2 Extension Kit

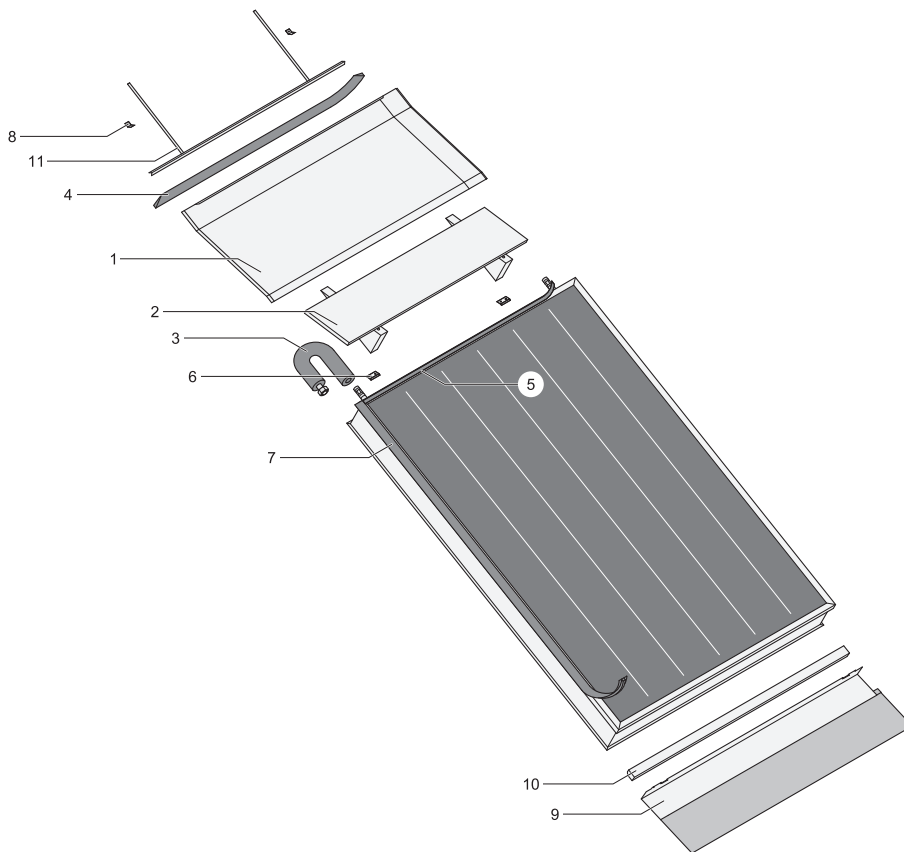


Figure. 6 Components of extension set

Table 2 Scope of Supply, Extension Set			192 010 61
Pos.	Component	Qty.	Part no.
1	Flashing sheet, top	1	819 721 47
2	Wooden support	1	819 920 53
3	Collector connection hose	1	130 000 10
4	Foam rubber tape	2	819 450 20
5	Cellular rubber tape	1	110 101 23
6	Collector fixing clip top	2	190 102 15
7	Silicone T-Profile	1	819 450 10
8	Sheet fixing clips	2	181 060 00
9	Flashing sheet, bottom	1	819 721 55
10	Supporting lath 1158 mm	1	819 920 54
11	Supporting laths for roof tile	1	819 721 57
	Solder nipple ½"-18 mm (for no. 3)	2	190 201 50
	Roof felt nails (for no. 8)	2	188 53
	Self tapping screws 4 x 35 (für Pos. 2 u. 6)	8	819 501 86
	Self tapping screws 4 x 70 (for no. 10)	5	819 500 55
	Self tapping screws 5 x 120 (for no. 2)	2	819 501 88
	Sheet metal screw with gasket 4.5 x 25 (für Pos. 1)	2	819 501 87
	Drilling screws 4,2 x 13 with washer gasket (for no. 9)	2	819 501 85

3 Installation Field

To warrant permanence of the installation, various prerequisites have to be fulfilled:

- A waterproof and diffusion reducing foil with at least 24 mm counter-lathing must be present to assure proper ventilation. If proper backside ventilation cannot be provided via ridge and eaves, a venting tile must be installed, approx. 90 cm above and below the collector field (see also figure 8, lower part).
- Keep a distance of at least 1m between collectors and roof components or extensions like vents, turrets, chimneys or roof windows that emit humid air. Otherwise additional humidity might enter the collector vents at the collector frame.
- There should be at least 2 rows of roof tiles above and below the collector field.
- The roof tile row above the collector should extend for at least 100 mm over the upper flashing sheets. If required, the roof tiles have to be shortened.
- For best results properly utilize the flexible space below the collector (distance to lower tile row between 60 and 130 mm).

Leave the existing roof battens in place as supporting construction, and affix the additional laths required for the installation according to the dimensions given in figure 7 and 8.

Ideally determine the width of the collector field in such a way that on one side the spacing between collectors and roofing is approx 15 mm. On the other side cut tiles to fit.

No. of collectors	Collector field width	Installation field width A
1 collector	1160	1190
2 collectors	2325	2355
3 collectors	3490	3520
4 collectors	4655	4685

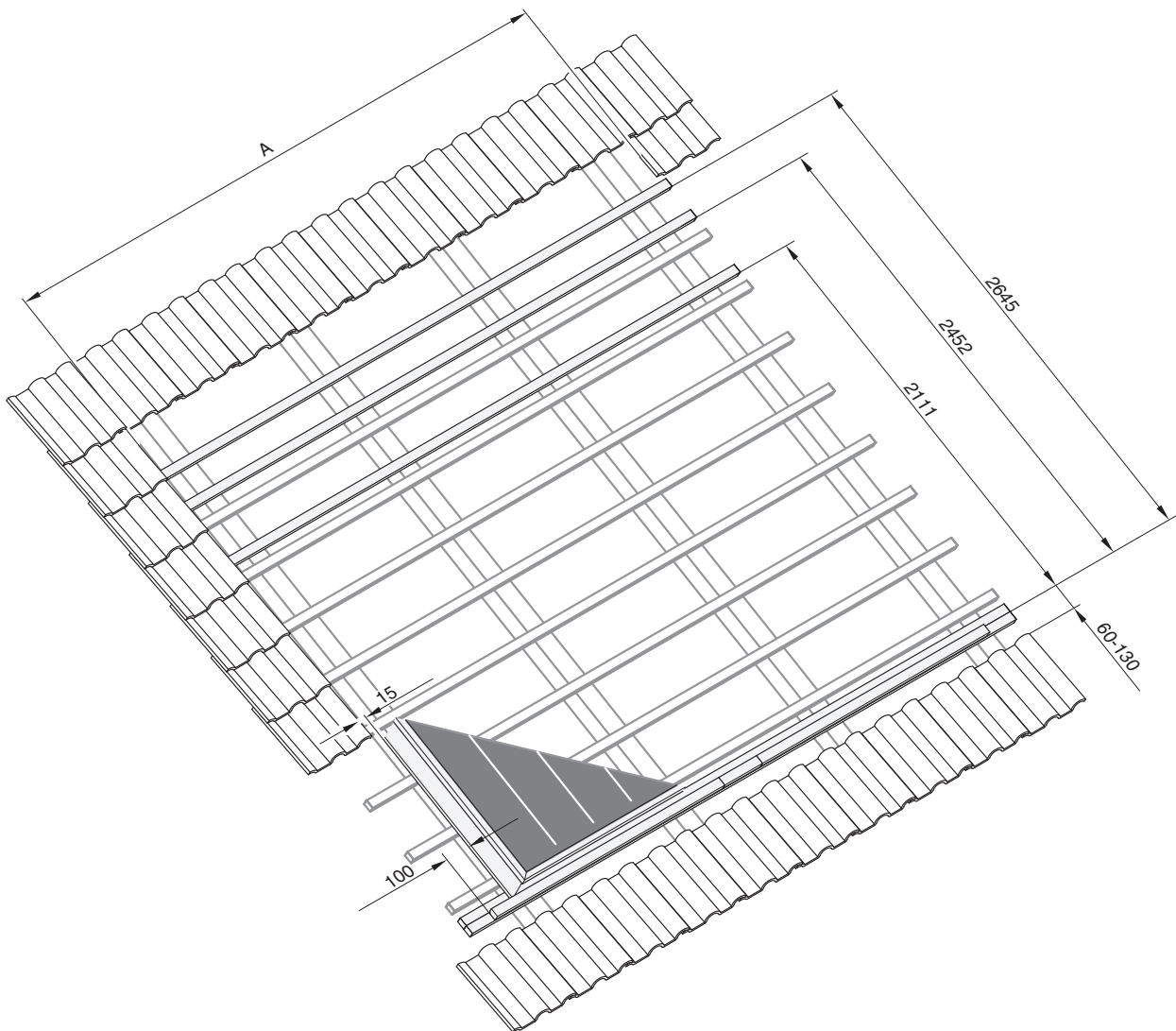


Figure. 7 Dimensions of installation field and positions of installation laths in mm. Choose lath thickness based upon existing laths. Additionally required laths are coloured grey (5 pieces); lath length = A (width of installation field).
 Installation field width = $n \times \text{collector width} + n \times 5 \text{ mm (distance betw. collectors)} + 2 \times 15 \text{ mm (distance from edge)}$

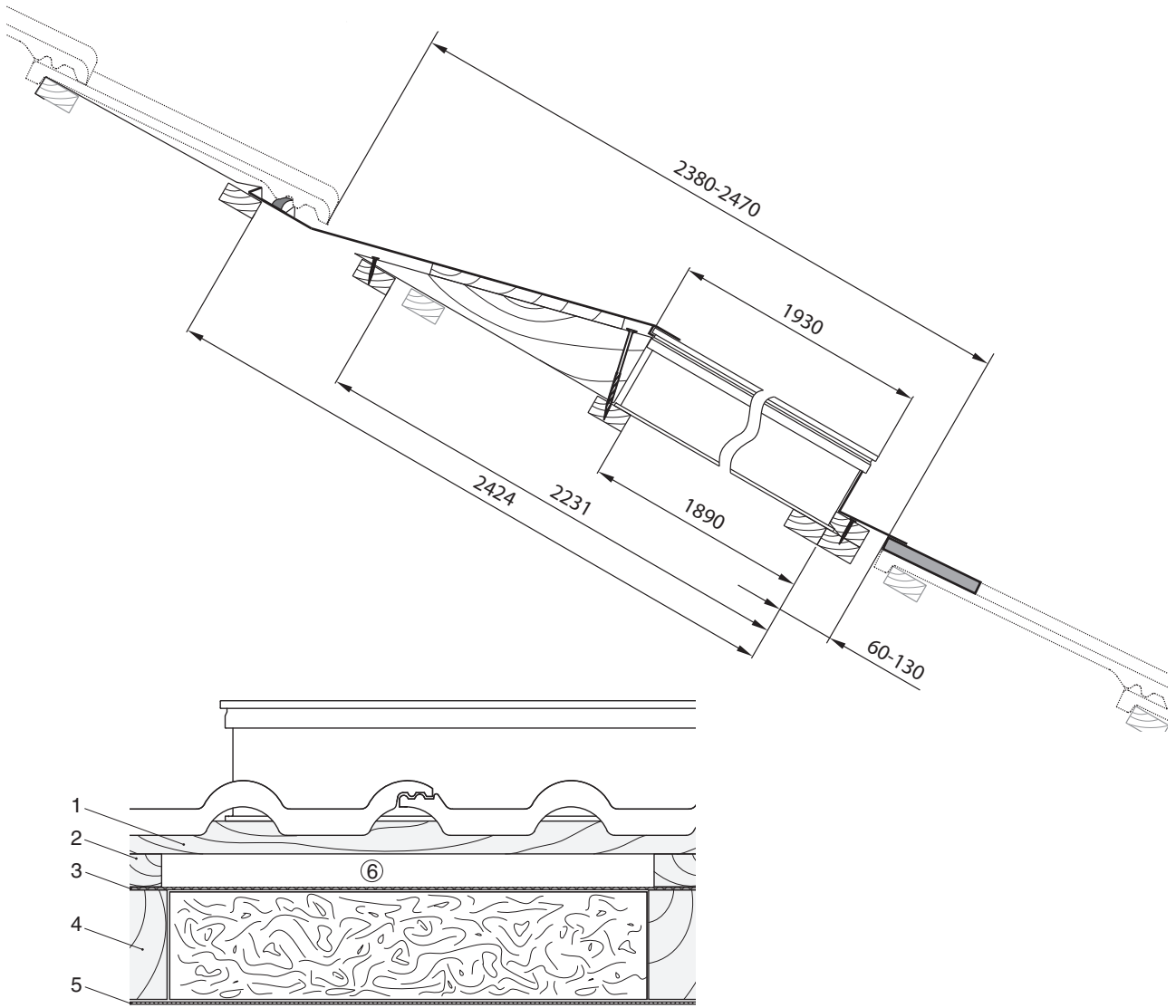


Figure 8 In roof installation longitudinal section (upper drawing) and cross section (lower drawing).
 1 Roof batten, 2 Counter lathing, 3 Sarking, 4 Rafters, 5 Low diffusion foil, 6 ventilation space

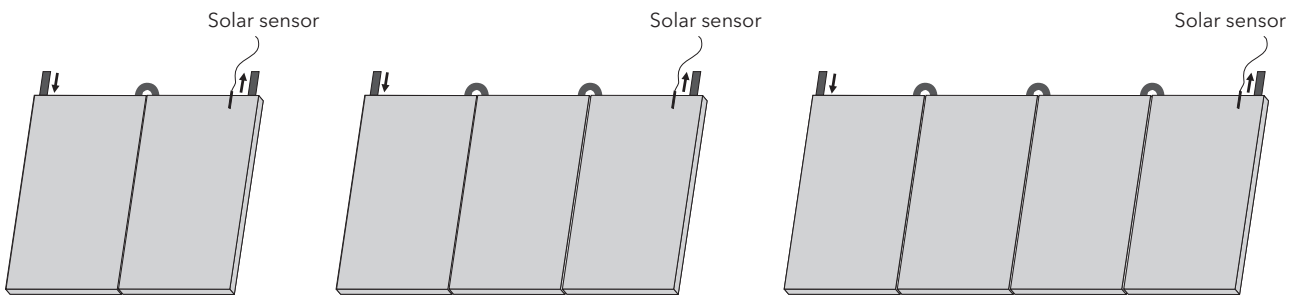
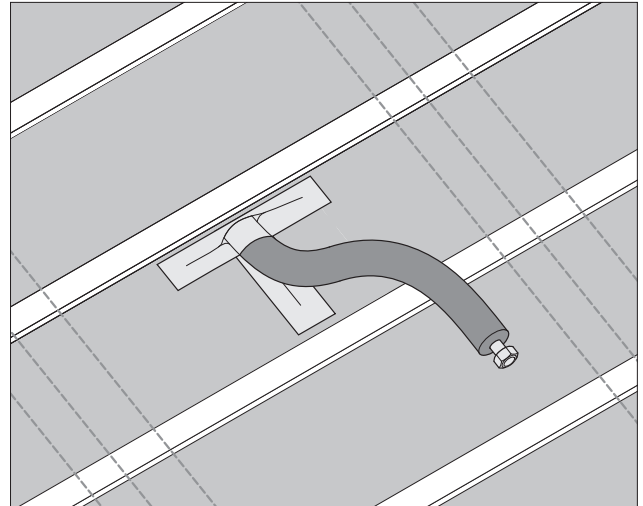
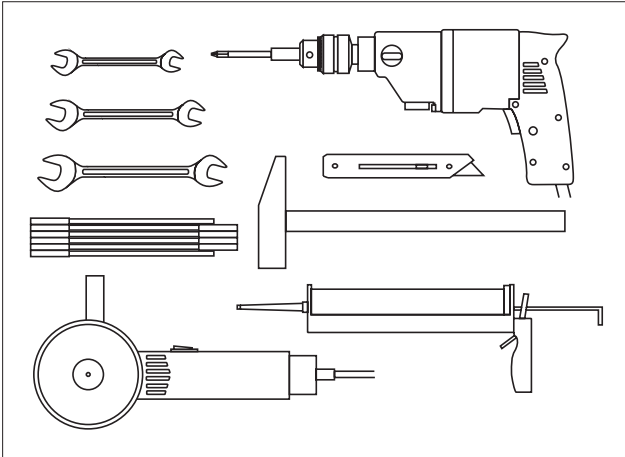


Figure 9 Vertical collector arrangement for two, three and at max. four collectors in serial connection.
 Connection of more than four units by combining parallel and serial connection.

4 Installation



i Figure. 10 Installation tools: folding rule, drilling machine, Phillips-Bit PZ 2 and 3, open spanner sizes 16, 19, 24, hammer, cutter knife, silicone gun (where required angle grinder with stone cutter)

Figure. 11 Pipe lead with sarking membrane: make a T-shape cut into the sarking, lead through the connection hose and close cuts with appropriate tape.

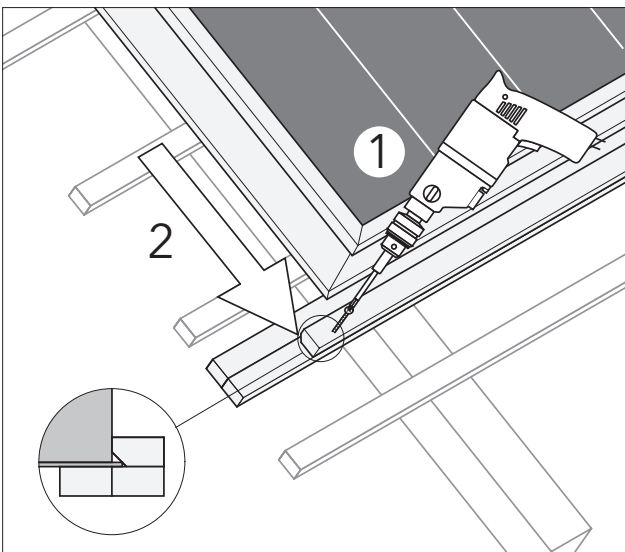


Figure. 12 1. Afix supporting laths with self tapping screws 4x70, ends projecting approx. 100 mm. 2. Insert Collectors (approx. 8 mm distance between collectors).

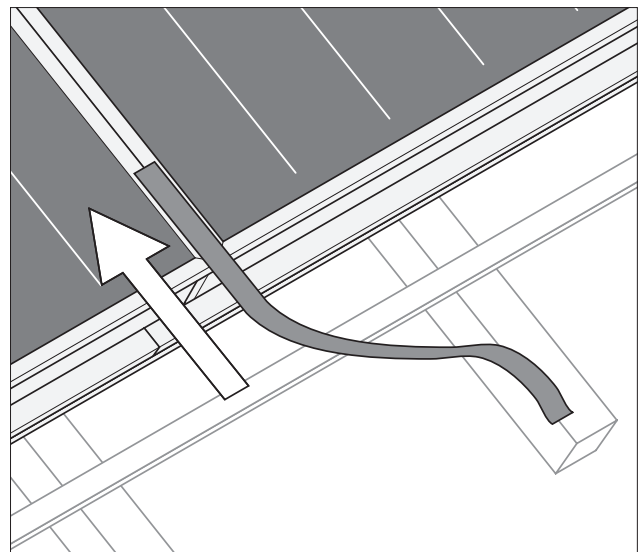


Figure. 13 Insert silicone T-profile between collectors. Then push collectors together until flush (approx. 5 mm distance between collectors).

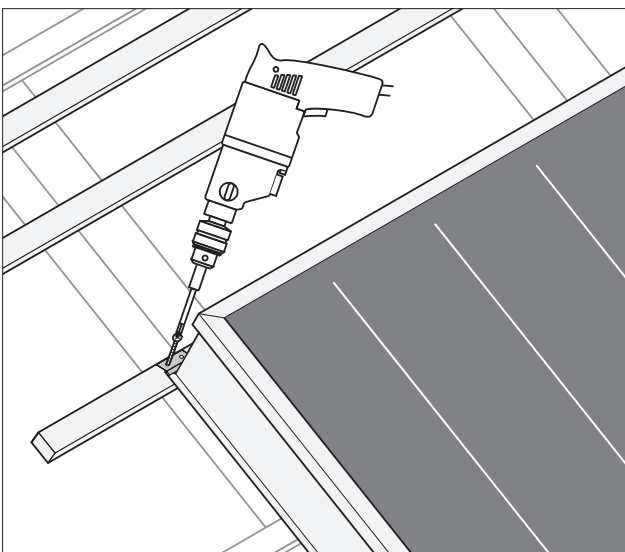


Figure. 14 Screw on upper collector fixing clip on both collector edges with 2 self tapping screws 4 x 35 each.

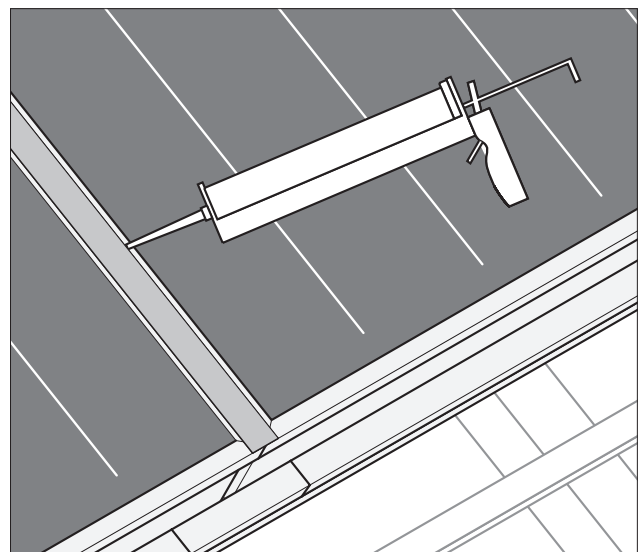


Figure. 15 Apply thin layer of silicone seal between wings of T-profile and collector frame. Shorten projections of T-Profile to approx 2 cm on each side.

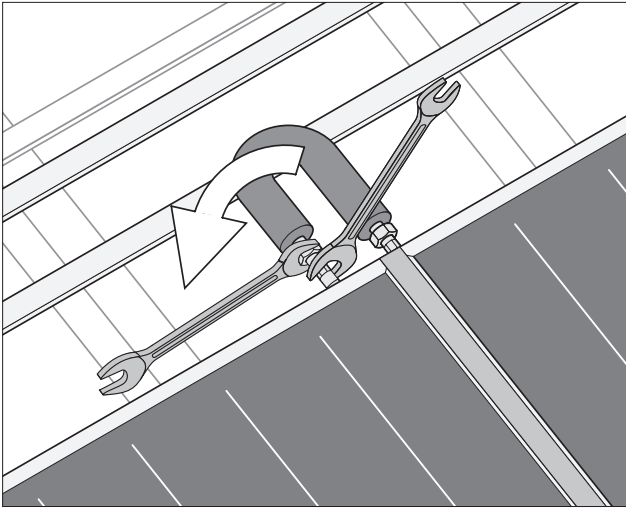


Figure 16 Connect collectors. Use 2nd wrench to secure connection and avoid damage. **ATTENTION:** Danger of burns at connections during solar irradiation!

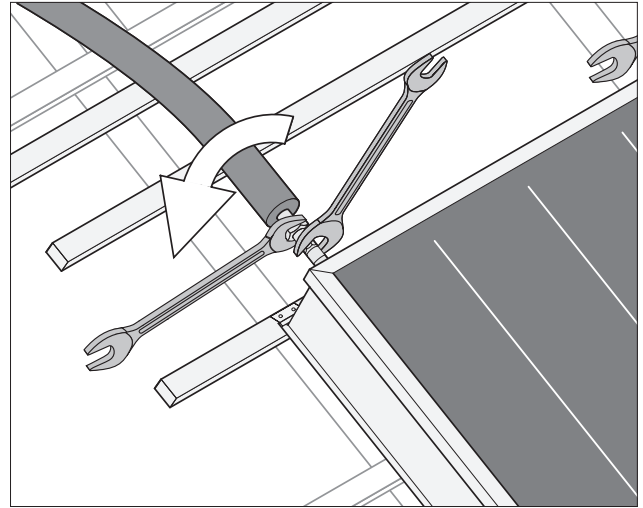


Figure 17 Connect collectors to solar circuit. Later check for leak tightness!

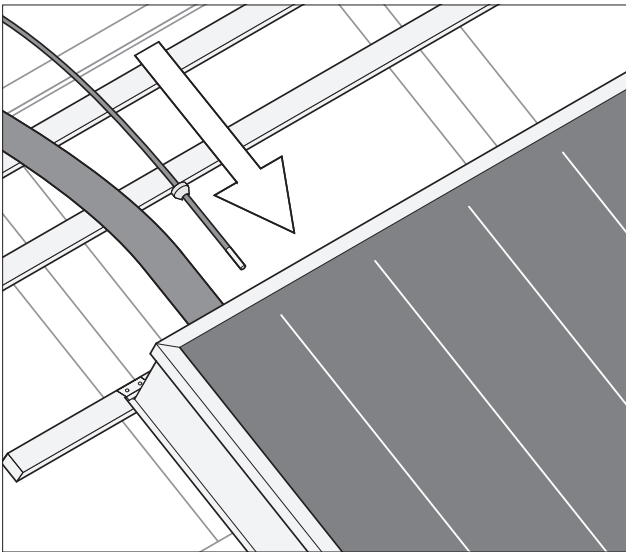


Figure 18 Slip rubber seal over cable, insert solar sensor into sensor sleeve; close opening with rubber seal and lead cable through roof.

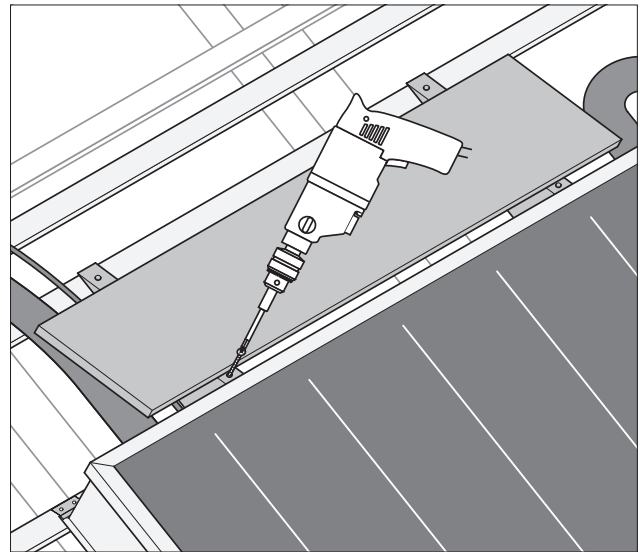


Figure 19 Position wooden support along collector and fasten with 4 x 35 and 5 x 120 self tapping screws.

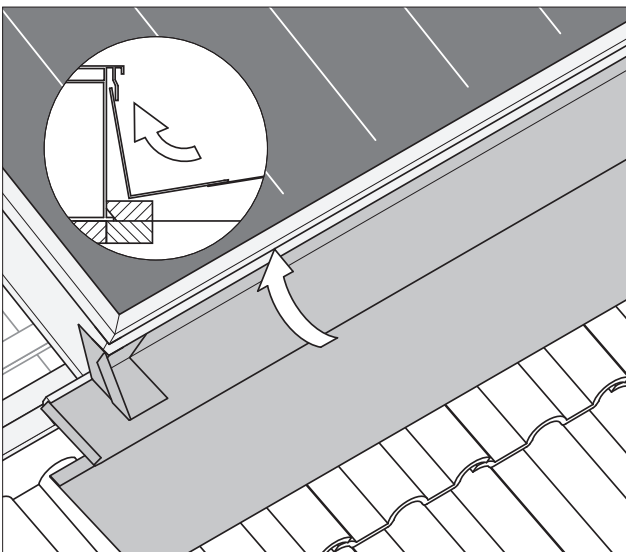


Figure 20 Insert lower aluminum panels into the deeper rear groove of the collector frame (see highlighted details). Proceed the same way with the corner edges.

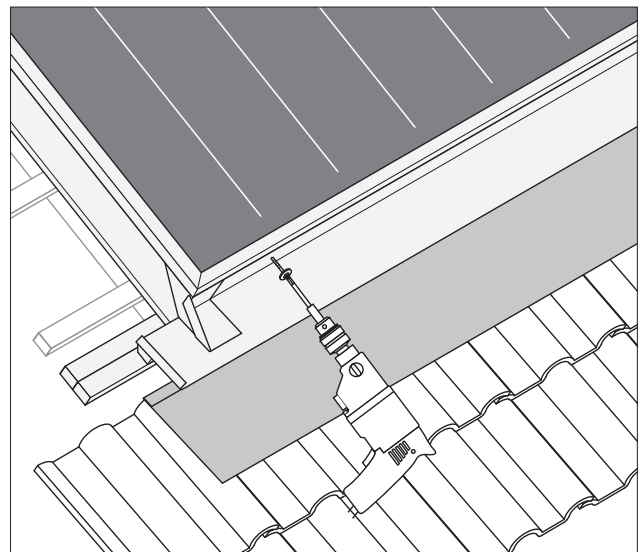


Figure 21 Affix the lower cladding panels with 2 drilling screws 4.2 x 13 each (with washer gasket) at the positions marked at the collector frame.

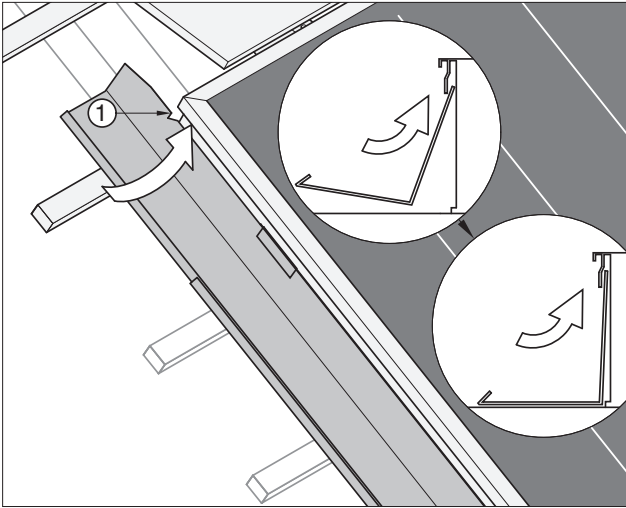


Figure. 22 Insert the pushed together side panels into the rear groove of the frame in such a way that the upper notch (1) snaps into the collector frame. The panel sheet must lay evenly on the battens.

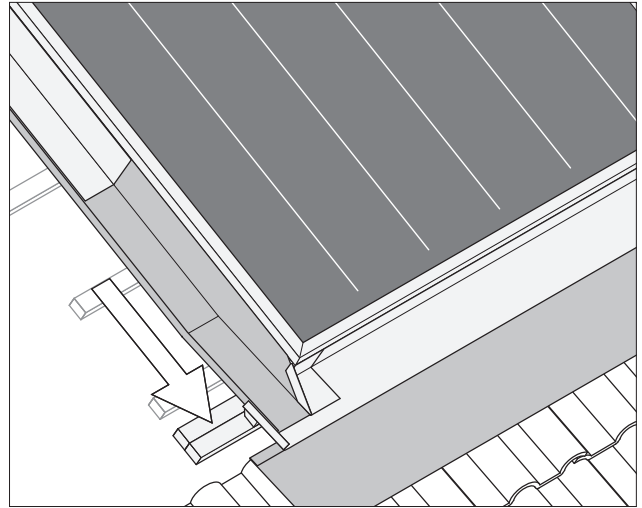


Figure. 23 Push lower panel section downwards, until it snaps into the latch of the lower corner.

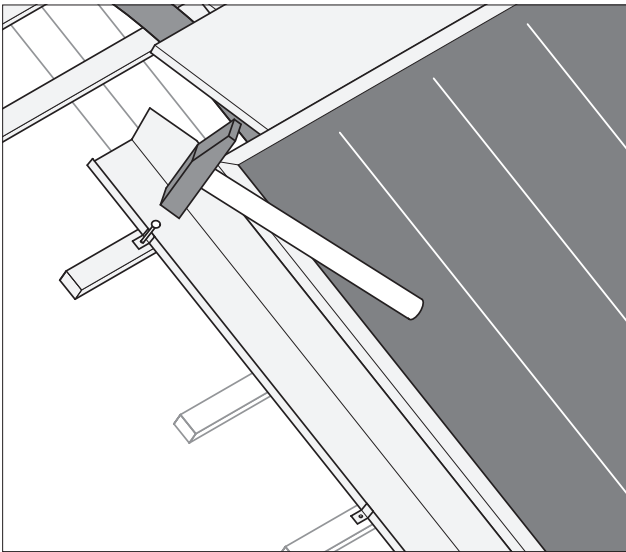


Figure. 24 Nail on side panels with 4 fixing clips.

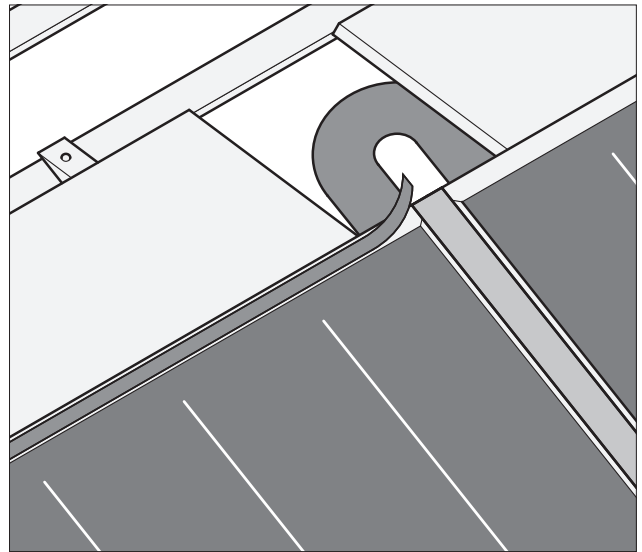


Figure. 25 Affix cellular rubber tape to the upper collector edge

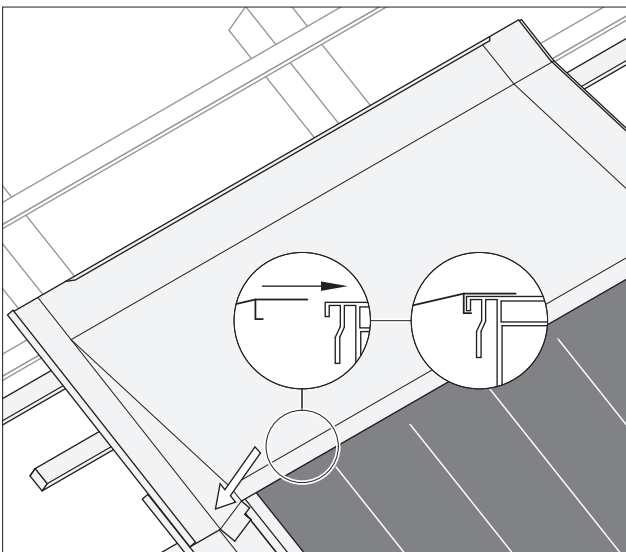


Figure. 26 Push upper left flashing sheet into left side panel. The upper locking bar of the flashing sheet must latch into the outer groove of the collector frame (see highlighted details).

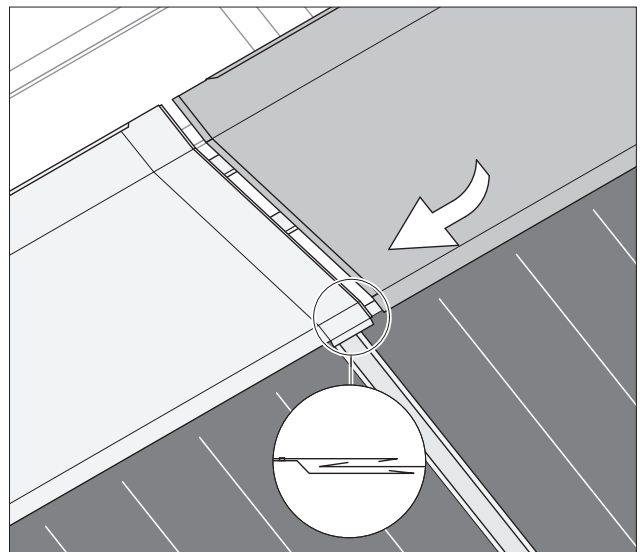


Figure. 27 Stick additional flashing sheets together to connect them

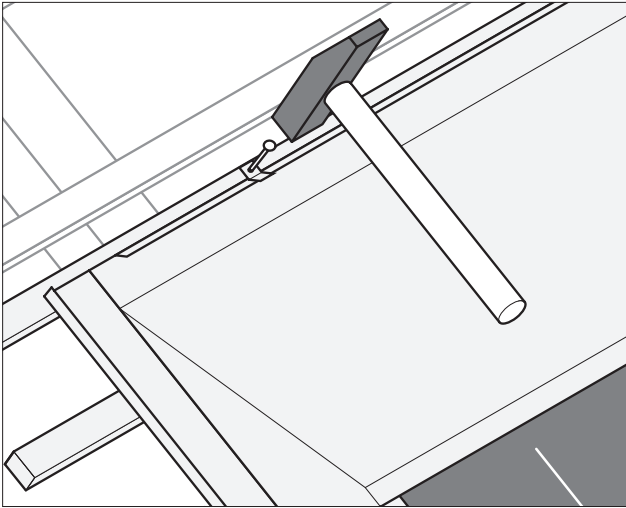


Figure 28 Fix upper flashing sheets on the batten using 2 fixing clips.

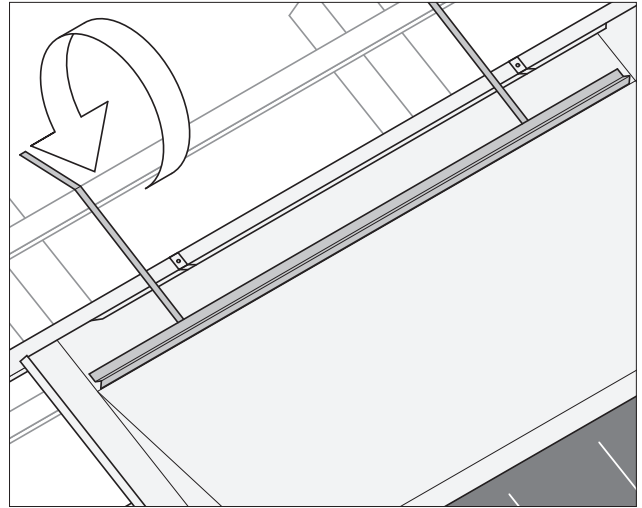


Figure 29 Position the roof-tile supporting bar by vertically shifting it, so that later the tile row will be aligned with the tiles on the sides. Then affix with metal strips to roof battens.

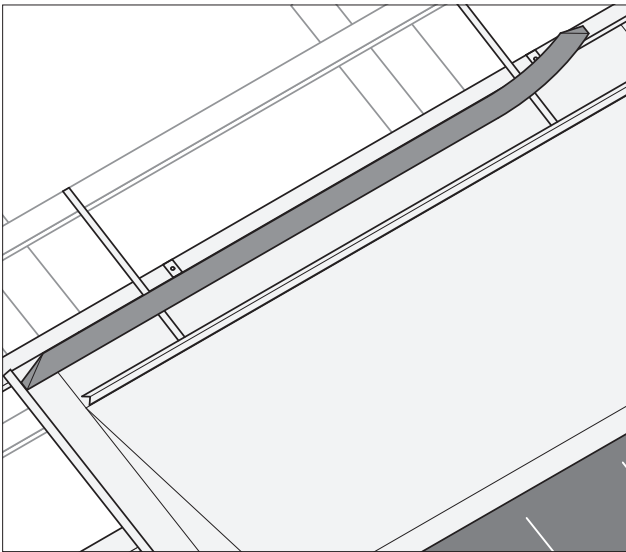


Figure 30 Affix black foam rubber tape along the fold to the upper flashing sheet.

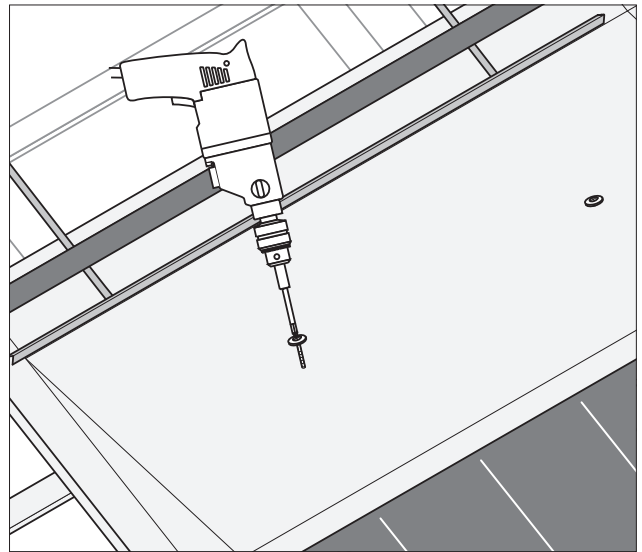


Figure 31 Secure every flashing sheet with 2 additional sheet metal screws each.

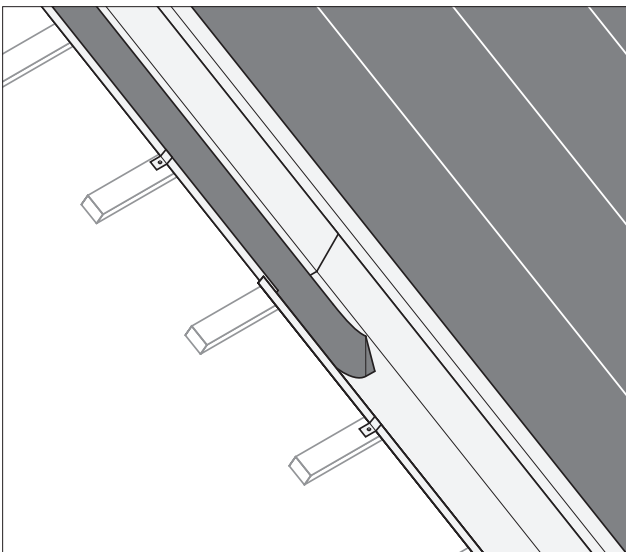


Figure 32 Affix foam rubber tape along the folds of the side panels as well.

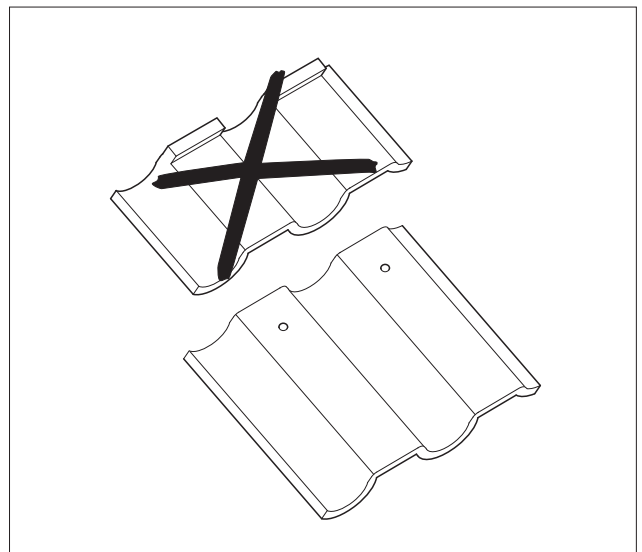


Figure 33 Roof tiles above the collectors may have to be cut to size. Drill holes into the pieces that have to be attached, and screw to battens.

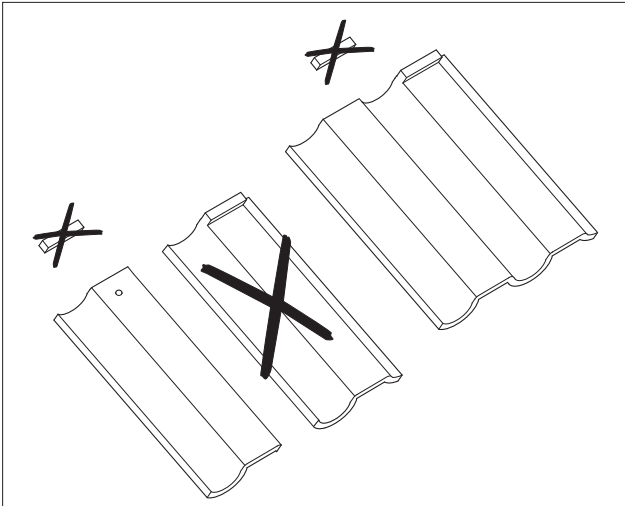


Figure. 34 Along the side panels, the retaining edge of the roofing tiles may have to be removed; lateral size reduction may be required.

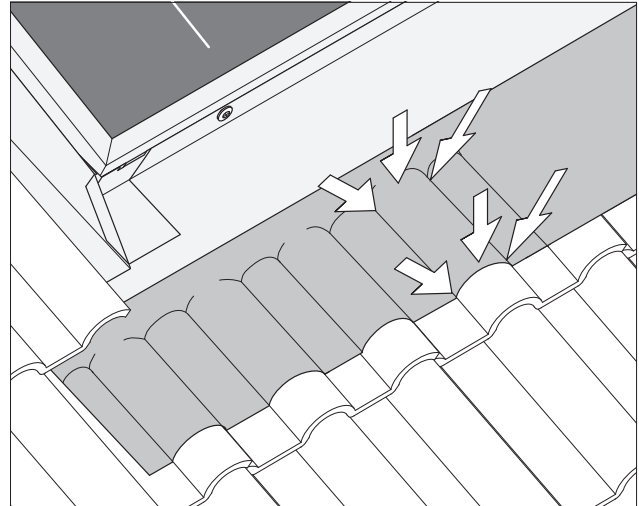


Figure. 35 Remove adhesive protection foil from lower aluminum skirting and press to surface of tiles.

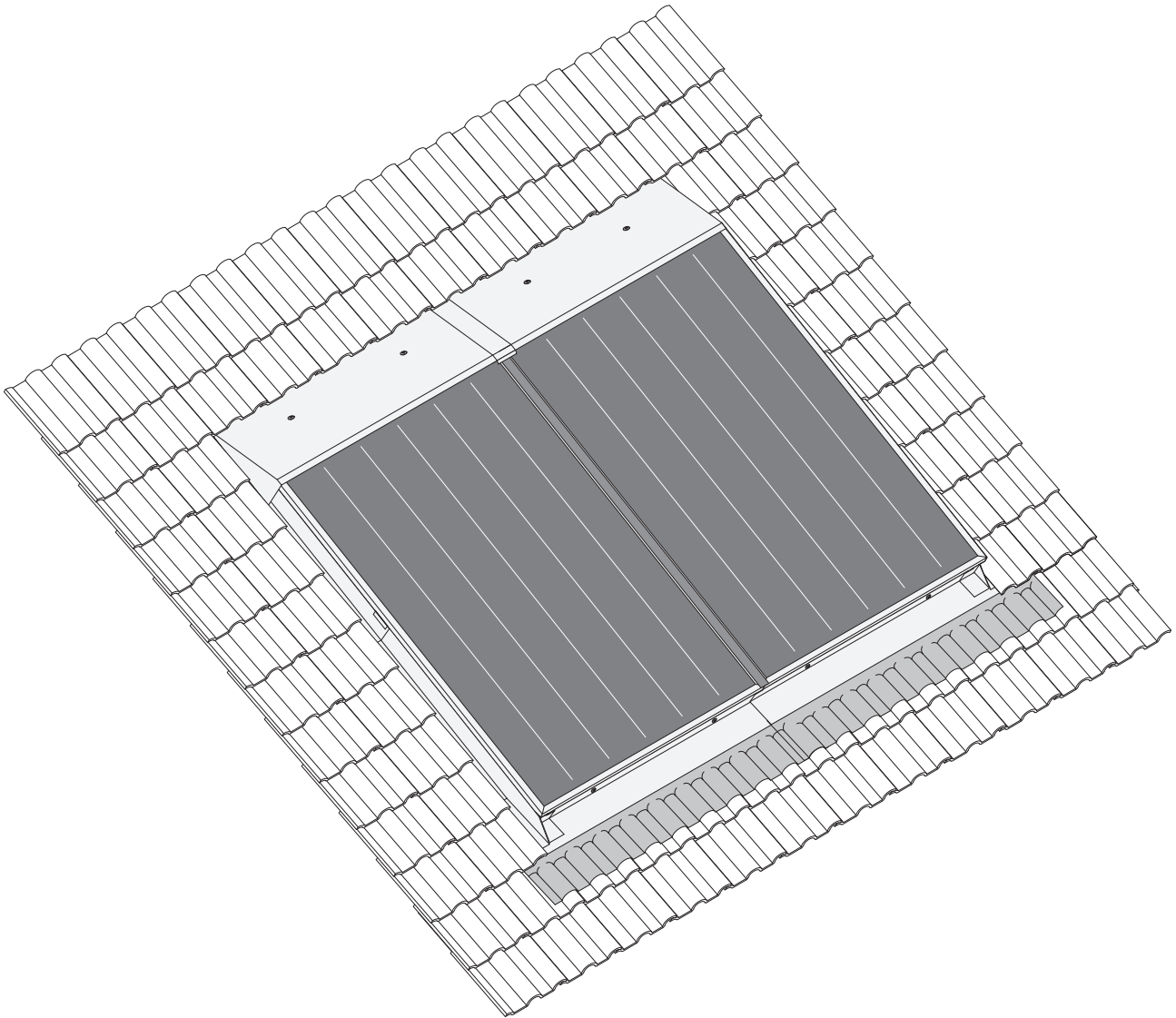


Figure. 36 Completed in roof installation on pantile roof.