ISOTECNICA

ISOTECNICA S.r.l.

SUPERCOPPO

TECHNICAL MANUAL

ISOTECNICA srl
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TECHNICAL SHEET

SUPERCOPPO

REA n. TO - 1192073 - C. F. e P.I. 11157790012 - Cap. Soc. € 100.000,00

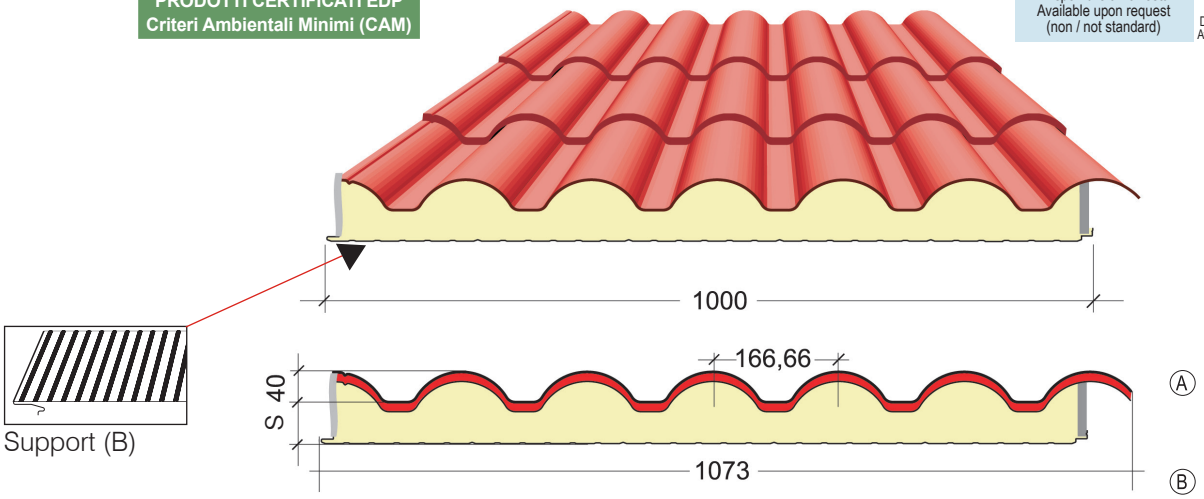
Codice Prodotto / *Product Code:* **A4**

EPD®
THE INTERNATIONAL EPD® SYSTEM
PRODOTTI CERTIFICATI EDP
Criteri Ambientali Minimi (CAM)

PUR PIR PIR B-s2,d0 B ROOF OZONE FRIENDLY NO CFC's

Disponibile a richiesta
Available upon request
(non / not standard)

B_{roof} T3
Disponibile a richiesta
Available upon request
(non / not standard)



Nei disegni A o B indicano il lato preverniciato desiderato.
In the drawings A or B show the wished prepainted side.

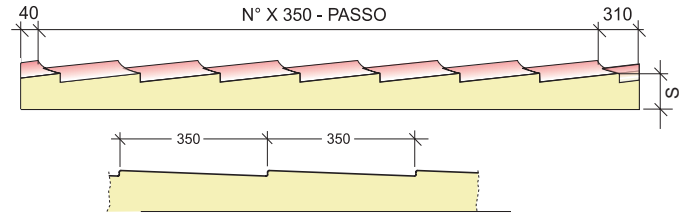
Caratteristiche tecniche - *Datasheet*

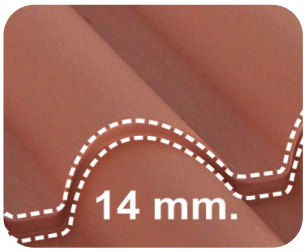
Dimensioni:
Larghezza 1000 (mm).
Lunghezza:
Lunghezza a richiesta da produzione in continuo.
Spessore di poliuretano fuori greca (S):
40 - 60 - 80 - 100 (mm)
Altezza coppo: 40 (mm)
Supporto esterno: Acciaio o alluminio preverniciato.
Supporto interno: Acciaio preverniciato, cartonfeltro bitumato; alluminio centesimale goffrato, vetroresina.
Isolamento con schiumatura in continuo:
Resine poliuretaniche (PUR) e PIR (non standard su richiesta), densità 39 ±2 Kg/m³. Valore dichiarato di trasmittanza termica per un pannello dopo 25 anni dalla sua messa in opera (Appendice C - EN 13165).
Valore di conducibilità termica iniziale: λ = 0,020 W/(μK).
Trattamenti protettivi disponibili dei supporti:
Preverniciatura con poliestere, superpoliestere (HD), PVDF, poliuretanici PUR/PA, con spessori compresi tra 15 μm a 55 μm. Disponibilità su richiesta di altri film e rivestimenti atossici per contatto occasionale con alimenti (vedi pag. 98).

Dimensions:
Width 1000 (mm).
Length:
Length upon request from continuous production process.
Thicknesses: (S)
40 - 60 - 80 - 100 (mm)
Height roof tile: *40 (mm)*
External support: *Pre-painted steel or aluminum.*
Internal support: *Pre-painted steel, bitumen felt membrane; embossed centesimal aluminum; fiberglass.*
Insulation through continuous foaming process of:
Polyurethane resins (PUR) and polyisocianurate foams PIR, density 39 ±2 Kg/m³. Declared value of thermal transmittance for a panel after 25 years of its installation (Appendix C - EN 13165). Initial value of thermal conductivity: λ = 0.020 W/(mK).
Available protective treatments for supports:
Pre-painting with polyester, superpolyester (HD), PVDF, polyurethane PUR/PA, with thicknesses ranging from 15 μm to 55 μm. Availability on request of other films and non-toxic coatings for occasional contact with food (see page 98).

Coefficiente di dispersione termica ***Coefficient of heat loss***		
Spessore *Thickness*	Trasmittanza *Trasmittance* **EN UNI 14509**	Trasmittanza *Trasmittance* (8 gg / 8 days)*
(mm)	U = W/m²K	U = W/m²K
40	0,37	0,33
60	0,30	0,29
80	0,23	0,21
100	0,20	0,18

Calcoli effettuati su pannello con paramenti di acciaio 0,5 + 0,4 mm
* (a 8 giorni da produzione / 8 days from production)





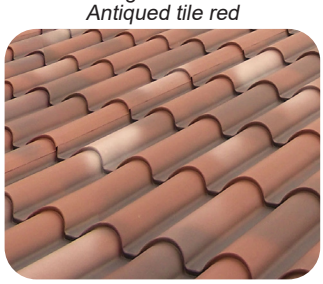
SUPERCOPPO inoltre è caratterizzato da una stampata di 14 mm. e da un'inclinazione del singolo modulo che lo rende il prodotto con l'effetto più realistico del mercato ed il più apprezzato da enti, progettisti e costruttori.

L'elevata resa cromatica del **SUPERCOPPO ANTICHIZZATO** è ottenuta tramite un avanzato processo di verniciatura sfumato, controllato da un software che permette di ottenere la colorazione ideale sul pannello.
Non viene impiegata la verniciatura a rullo, ma un trattamento studiato in esclusiva in un avanzato centro europeo di verniciatura per ottenere la colorazione più naturale possibile.
La vernice sfumata subisce un trattamento di cottura a forno in corso di lavorazione che garantisce un'ottima adesione al pigmento del supporto base. La seconda cottura a forno, fa del **SUPERCOPPO ANTICHIZZATO** l'unico supporto in grado di garantire una formidabile resistenza agli agenti atmosferici.

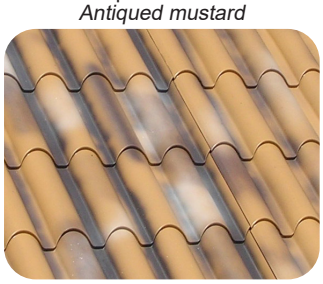
*The high color rendering of **ANTIQUED SUPERCOPPO** is obtained through an advanced shaded painting process, controlled by software that allows the ideal color to be obtained on the panel.*
Roller painting is not used, but a treatment studied exclusively in an advanced European painting center to obtain the most natural color possible.
*The shaded paint undergoes a baking treatment during processing which guarantees excellent adhesion to the pigment of the base support. The second oven firing makes the **ANTIQUED SUPERCOPPO** the only support capable of guaranteeing formidable resistance to atmospheric agents.*

Rosso tegola
Tile red

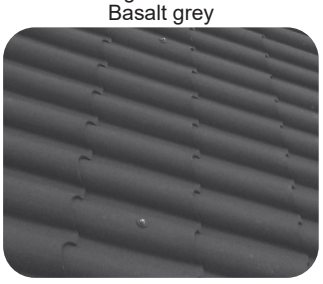
Rosso tegola antichizzato
Antiqued tile red



Senape antichizzato
Antiqued mustard



Grigio basalto
Basalt grey



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The published colors are indicative and limited by the catalog printing technique. For further information, request photographs or samples from our sales office.

Approfondimenti sul rapporto di prova:
Il rapporto di prova viene fornito a titolo puramente indicativo. Valori e formule non debbono essere utilizzati per stabilire o calcolare la portata del pannello. Sarà onere e cura del cliente e/o del progettista la redazione di calcoli appropriati con specifico riferimento al singolo impiego. Gli spessori e la qualità di acciaio indicati sul rapporto di prova non rappresentano uno standard di prodotto poichè la combinazione di spessori e materiali viene determinata dal cliente in base alle proprie esigenze di carattere tecnico pertanto il cliente e/o il progettista sono tenuti a specificare spessore, qualità e tipo di materiali che il produttore dovrà impiegare nella costruzione dei pannelli. I valori di portata possono cambiare in maniera significativa al variare delle condizioni iniziali di progetto (luce di campata, durata di applicazione del carico: breve, lungo termine o permanente; spessori della lamiera esterna ed interna, temperature interne ed esterne, larghezza di appoggio, condizione di stato limite del pannello e tipo materiale). In questo caso i valori generati considerano lo spessore 4/10 interno ed 5/10 esterno dei supporti metallici.

CARICO MASSIMO UNIFORMEMENTE DISTRIBUITO (daN/m²) - FRECCIA ≤1/200 L
MAXIMUM UNIFORMLY DISTRIBUTED LOAD (daN/m²) - DEFLECTION ≤1/200 L

Spessore *Thickness* (mm)	Distanza tra gli appoggi "L" in metri / *Pitch "L" in metres between the supports*						
	1.00	**1.20**	**1.50**	**1.80**	**2.00**	**2.50**	**3.00**
40	341	253	154	137	126	51	27
60	408	312	182	161	148	60	31
80	485	371	216	192	176	71	37
100	577	441	257	228	209	84	44
Spessore Thickness (mm)	Distanza tra gli appoggi "L" in metri / *Pitch "L" in metres between the supports*						
	1.00	**1.20**	**1.50**	**1.80**	**2.00**	**2.50**	**3.00**
40	352	265	168	145	135	60	35
60	420	321	193	170	158	71	36
80	498	385	231	201	185	79	43
100	590	455	268	237	218	95	50

Test report analisys:
The report test given above is provided for information purposes only. Values and formulas should not be used to determine or calculate the flow rate of the panel. It is the responsibility and care of the customer and/or designer to draft appropriate calculations with specific reference for individual uses. The thicknesses and quality of steel defined in the report test above, does not represent a standard of product as the combination of thicknesses and materials is determined by the customer according to their technical requirements, therefore the customer and/or the designer are required to specify thickness, quality and type of materials that the producer will use in the construction of the panels. In this case, the values generated consider the thickness of 4/10 interior and 5/10 exterior of the metallic supports.

SUPERCOPPO

The SUPERCOPPO pre-insulated panel consists of two metal supports, between which closed-cell expanded polyurethane foam, greater than 90%, is injected, with a density of 39 ± 2 kg/m³.

The external metal support is protected with a pre-painted coating cycle and a special surface finish with roughness identical to that of clay roof tiles. The internal metal support is protected with a silicon polyester or similar pre-painted coating cycle, following treatment with a primer or back-coat protective base. The internal support can also be supplied in an embossed version.

The side containment system consists of two gaskets with differentiated elasticity: one open-cell gasket on the overlapped side and one closed-cell gasket on the overlapping side.

TECHNICAL CHARACTERISTICS

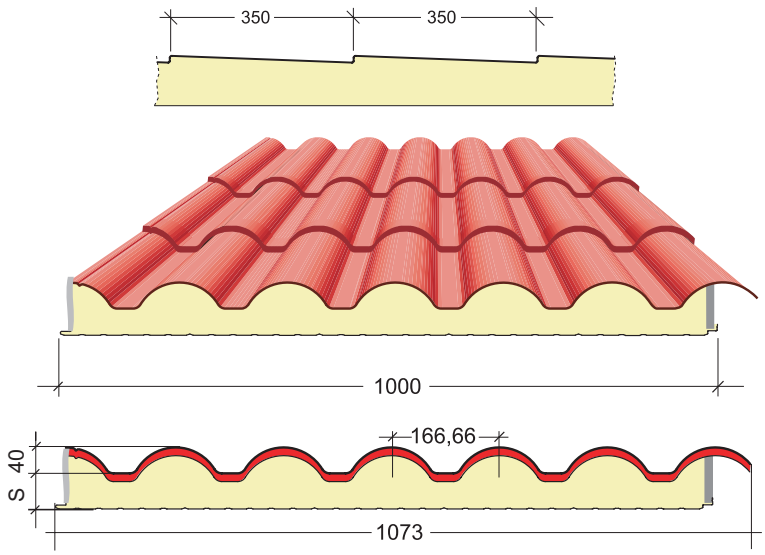
40 / 60 / 80 / 100 mm
INSULATION THICKNESS

166,66 mm
TILE PITCH

40 mm
TILE HEIGHT

1.000 mm
USABLE WIDTH

350 mm
TILE LENGTH



2.800 mm
MINIMUM LENGTH

13.300 mm
MAXIMUM LENGTH

The panel length may vary from a minimum of 2.800 mm to a maximum of 13.300 mm, as shown in the following table.

Tile Rows	Panel Length (mm)	Ridge Tile Length (mm)	Eaves Tile Length (mm)
7	2.800	40	310
8	3.150	40	310
9	3.500	40	310
10	3.850	40	310
11	4.200	40	310
12	4.550	40	310
13	4.900	40	310
14	5.250	40	310
15	5.600	40	310
16	5.950	40	310
17	6.300	40	310
18	6.650	40	310
19	7.000	40	310
20	7.350	40	310
21	7.700	40	310
22	8.050	40	310
23	8.400	40	310
24	8.750	40	310
25	9.100	40	310
26	9.450	40	310
27	9.800	40	310
28	10.150	40	310
29	10.500	40	310
30	10.850	40	310
31	11.200	40	310
32	11.550	40	310
33	11.900	40	310
34	12.250	40	310
35	12.600	40	310
36	12.950	40	310
37	13.300	40	310

To handle and unload the panels, suitable handling equipment must be available, such as side-loading forklifts or cranes with a lifting beam having a length of no less than 0.7·L, where L is the length of the package. It is recommended to place protective boards between the slings and the panel, in order to prevent the tension of the slings from damaging the panel edge. Each individual panel must always be handled on its edge.

METHOD OF USE

The panel has been specifically designed for the construction of roofs for residential buildings. Its use can increase the value of the building by creating an effect that reproduces the appearance of clay tile roofing.

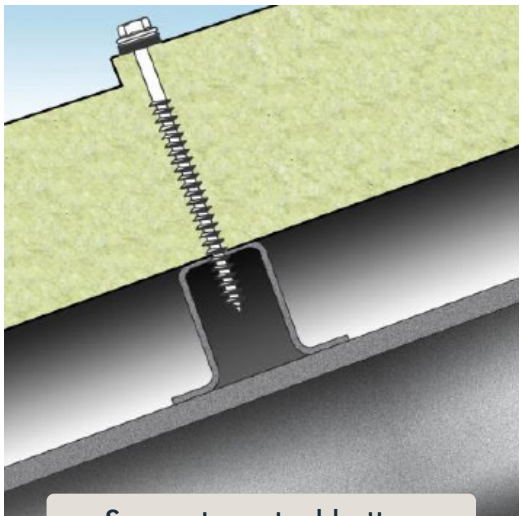
The panel can be installed on pitched roofs with a minimum slope of 12% and is suitable for most roof structures: wood, metal or concrete-clay block systems.

Among the features that distinguish SUPERCOPPO are:

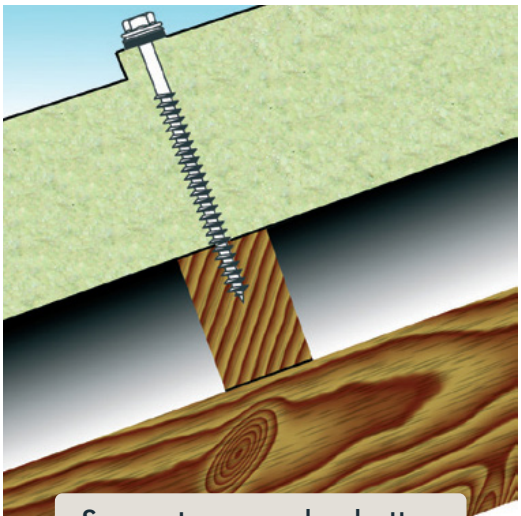
- Roof weight reduced by 80%.
- Reduced installation times.
- Ordinary maintenance reduced to a minimum.
- Fewer wooden battens required compared with traditional tiles.
- No membranes or insulation mats required on the roof slope.

Panel installation and cutting

If the roof support structure is a slab, wooden battens measuring 40 x 40 mm or 50 x 50 mm must be fixed to it, on which the SUPERCOPPO panel will rest. The batten spacing must be a multiple of 350 mm so that the fixing point is positioned at the top of the tile, as shown in the following figure.



Support on steel batten



Support on wooden batten

In summary, the positioning of the purlins depends on:

- the load-bearing capacity of the panel.
- the geometry of the panel, namely its length.
- the position of the fixings.

The first purlin must be positioned close to the eaves in order to secure them.

To cut SUPERCOPPO, circular saws, jigsaws and reciprocating saws, as shown below, must be used. Once cutting is complete, any debris deposited on the panel must be removed.

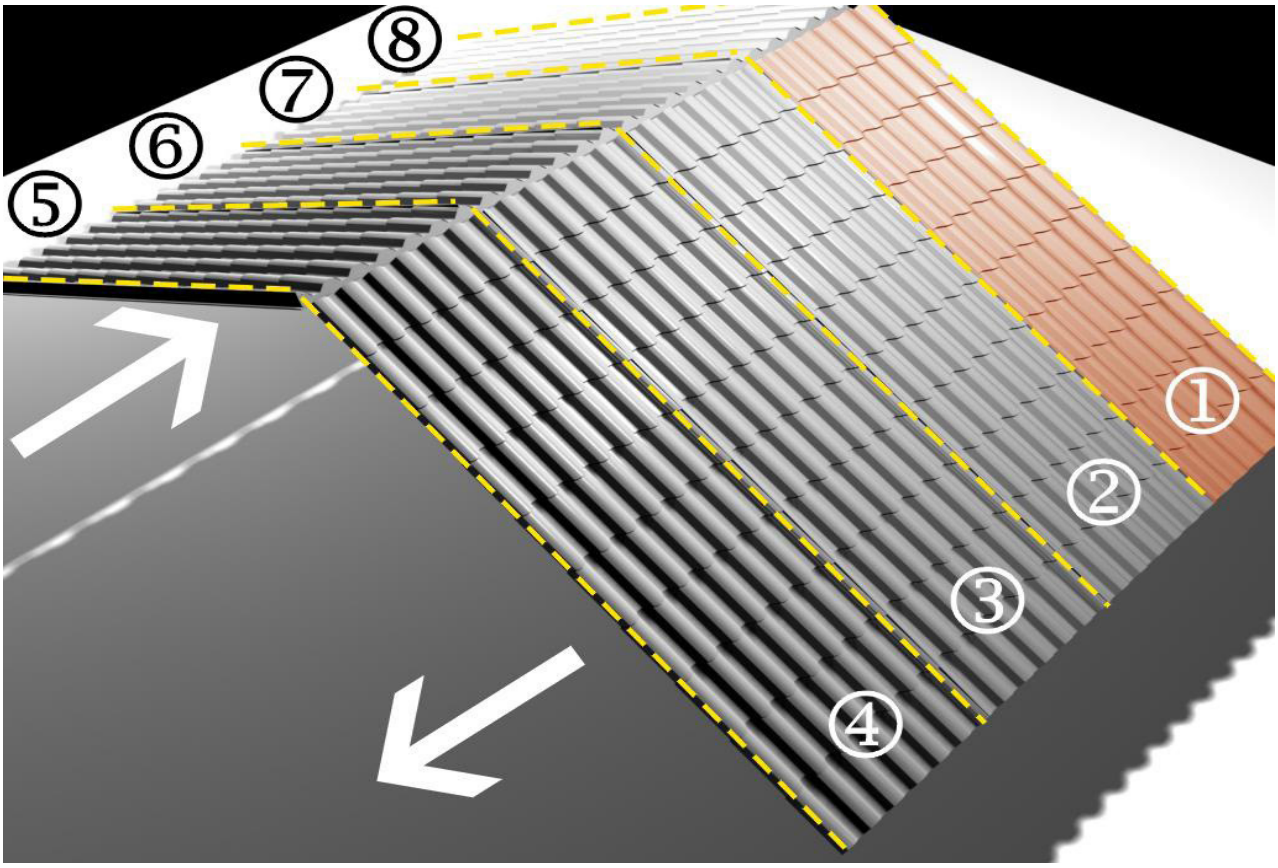
Jigsaw

Reciprocating saw

The use of a conventional angle grinder produces sparks, which are in fact iron residues. When these come into contact with water, they create rust spots on the metal support of the panel.

Once the battens, the eaves and any sheet-metal flashings at the valleys, meaning the intersection of two roof slopes, have been positioned, the panels can be installed as shown in the following image. Care must be taken to keep the panel perpendicular to the eaves. The end of the panel with the 125 mm tile must be oriented towards the eaves.

Installation diagram

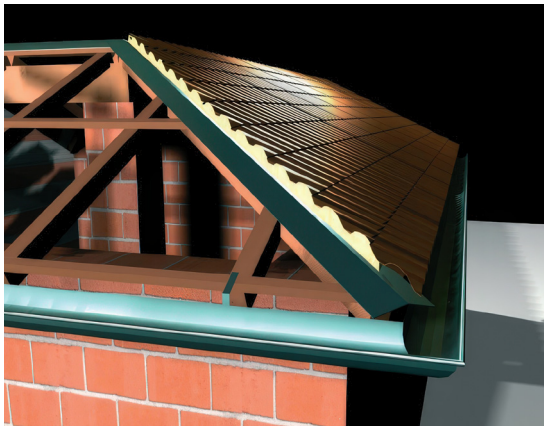


Correct orientation

The empty edge of the panel marked with number 1 must be on the right. The opposite arrangement would not allow water to drain properly, because the tiles would be positioned against the direction of water flow.

Fixing

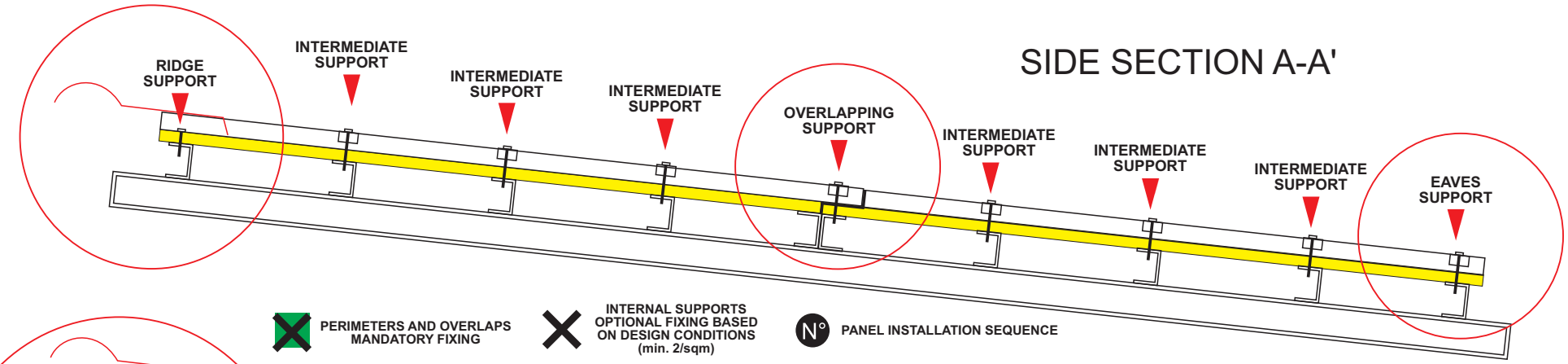
The panels are fixed using screws with pre-painted Tile Red metal washers and integrated EPDM gaskets, in order to ensure a watertight fixing.

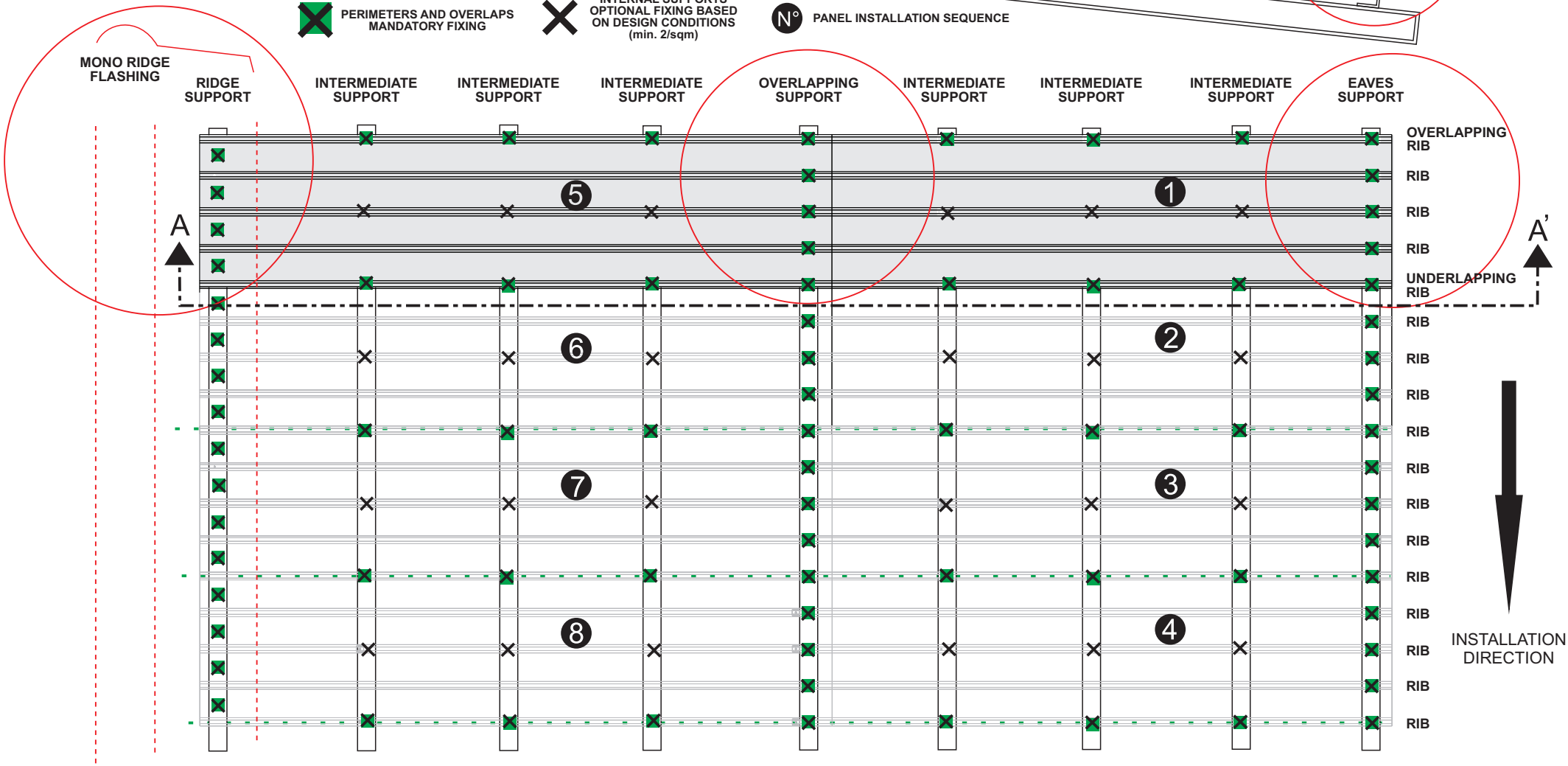


Hip roof case

Mark the cutting line at the valley or hip, then cut using circular saws, jigsaws or reciprocating saws. Do not use grinding wheels. Remove any metal chips deposited on the panel and connect the two roof slopes with a flat ridge element.

SIDE SECTION A-A'



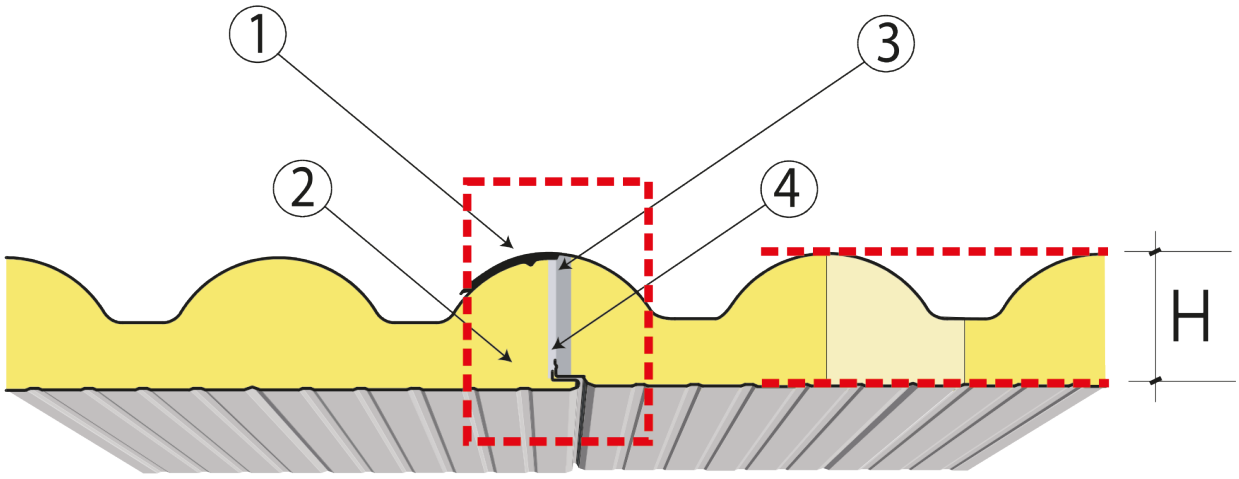


PLAN VIEW

LONGITUDINAL AND TRANSVERSE OVERLAP

The longitudinal overlap of the panels is carried out as shown in the following figure.

13,30 m	100 mm	360 mm
ROOF SLOPE LENGTH	MINIMUM SUPPORT	CUTTING DISTANCE



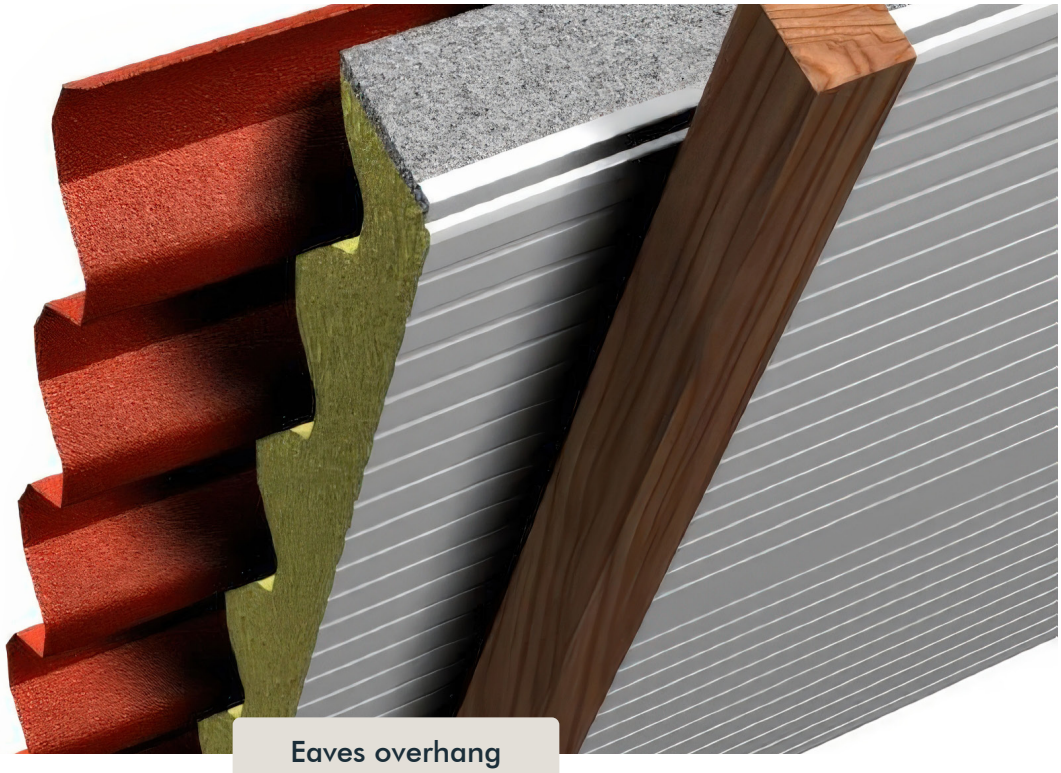
1 Overlap edge 2 Polyurethane insulation 3 Gasket 4 Side stopper

A side overlap has been designed to ensure protection against water infiltration even in severe weather conditions. Thermal insulation is achieved through the perfect coupling of the side gaskets with differentiated elasticity.

If the roof slope is longer than 13,30 m, or if expansion joints are required by dividing the length of the roof slope, two panels must be used to cover the slope from ridge to eaves, and a transverse overlap between the panels must be created. At this overlap, there must be a 100 mm support, obtained by pairing two purlins.

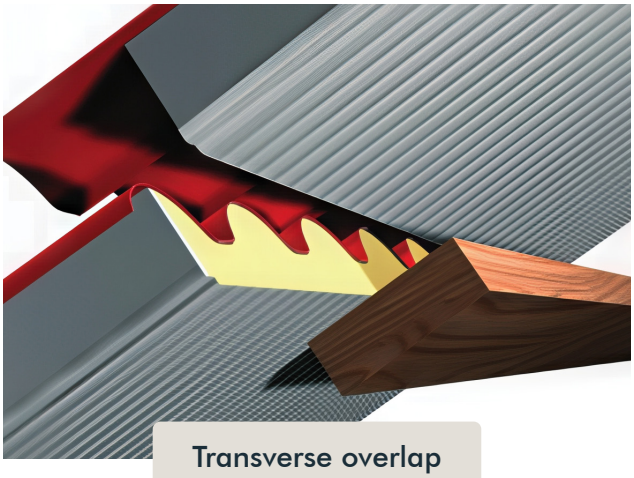
To create this overlap on the ridge-side panel, the lower support of the panel must be cut and the polyurethane foam removed, leaving only the external support, as shown in the following two figures. From the lower edge of the panel, with the 125 mm tile on the eaves side, a cut must be made at a distance of 360 mm and the polyurethane must be removed along the entire length. This allows the tiles of the ridge panel and the eaves panel to match perfectly. Once this operation has been completed, the two panels will overlap and must be fixed at each tile.

Eaves and overlap details

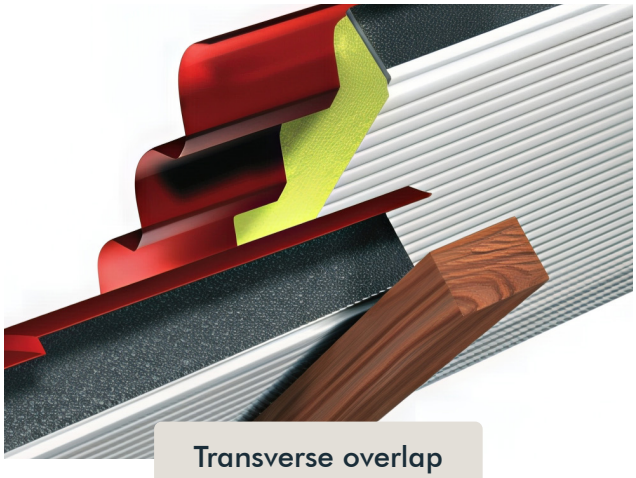


Eaves overhang

Provide an overhang at the eaves of 80-100 mm, in order to prevent water from infiltrating underneath the panel.



Transverse overlap



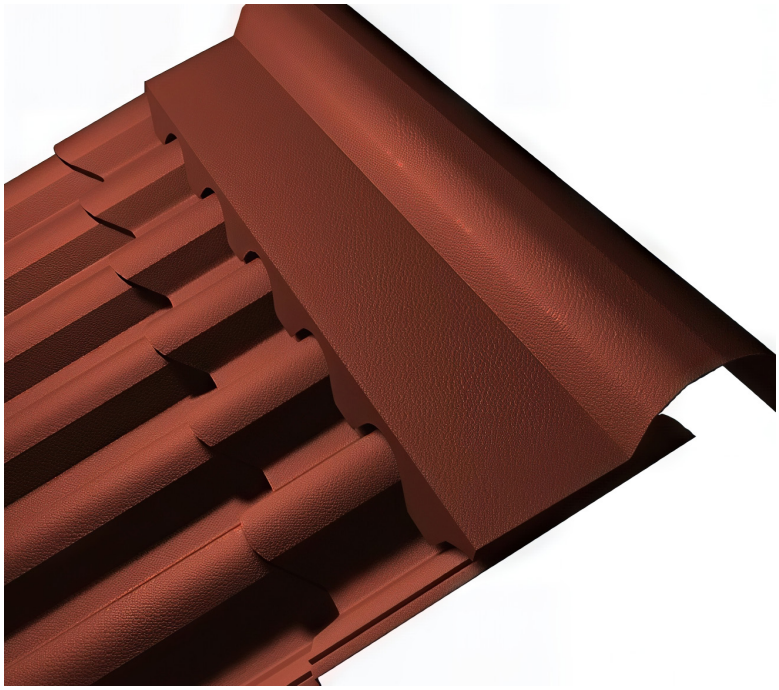
Transverse overlap

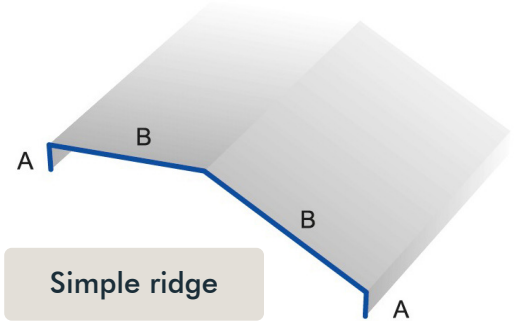
If the roof slope is longer than 13,30 m, two panels must be used to cover the slope from ridge to eaves, and a transverse overlap between the panels must be created. At this overlap, there must be a 100 mm support.

CONSTRUCTION DETAILS

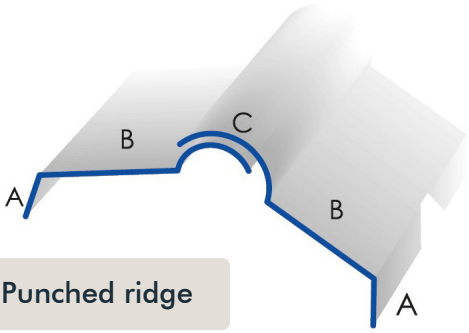
a) Ridge

At the intersection of the two roof slopes, at the ridge, a sheet-metal element known as a "hinged ridge" will be installed. This element is obtained by joining two half-ridge elements. Its two main characteristics are the punched profile, which allows a perfect fit into the tiles, and the hinge mechanism, which allows installation on any roof pitch. The sheet-metal elements must be riveted to the external support of the panel and overlapped with each other by 100 mm. The standard length of the half-ridge elements is 3.100 mm.





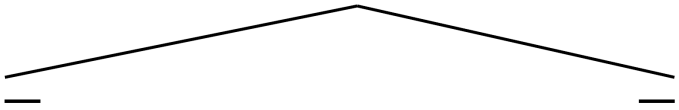
Simple ridge



Punched ridge

b) Hips

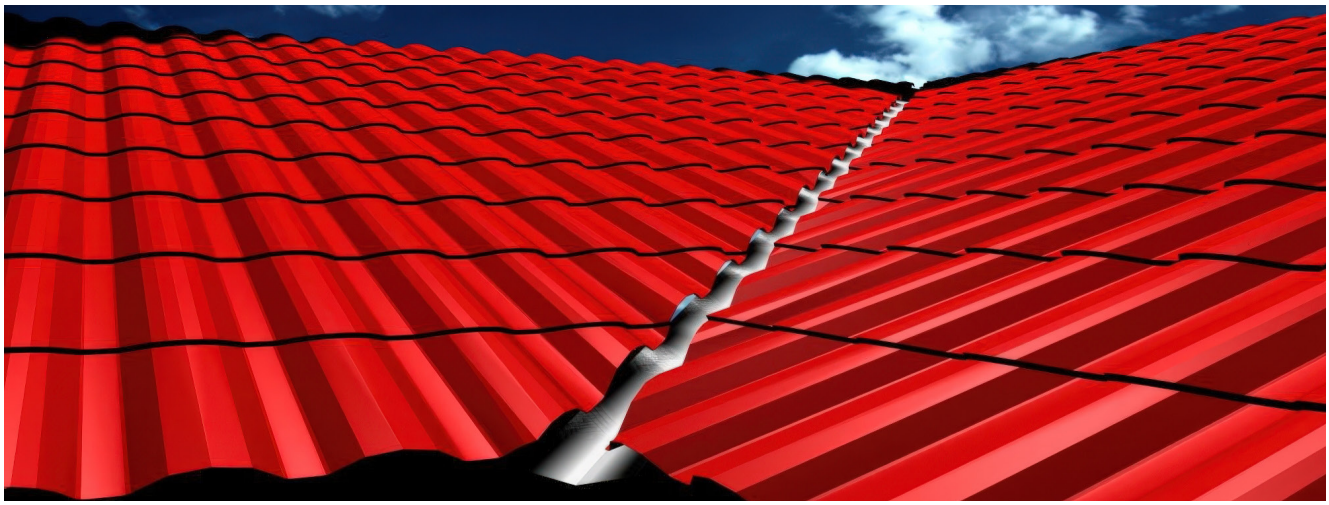
When a hip occurs at the diagonal intersection of two roof slopes, the SUPERCOPPO panels must be cut diagonally, and their connection will be made using triangular sheet-metal flashing, as shown in the figure.



A gasket must be placed between the sheet-metal flashing and the tiles to prevent water from being driven upwards by the wind.

c) Valleys

When a valley occurs at the diagonal intersection of two roof slopes, the SUPERCOPPO panels must be cut diagonally. Before the panels are installed, sheet-metal flashing must be fitted to channel the water and discharge it into the eaves. On the panel, where the diagonal cuts have been made, sheet-metal flashing must be installed to conceal the polyurethane.



d) Eaves

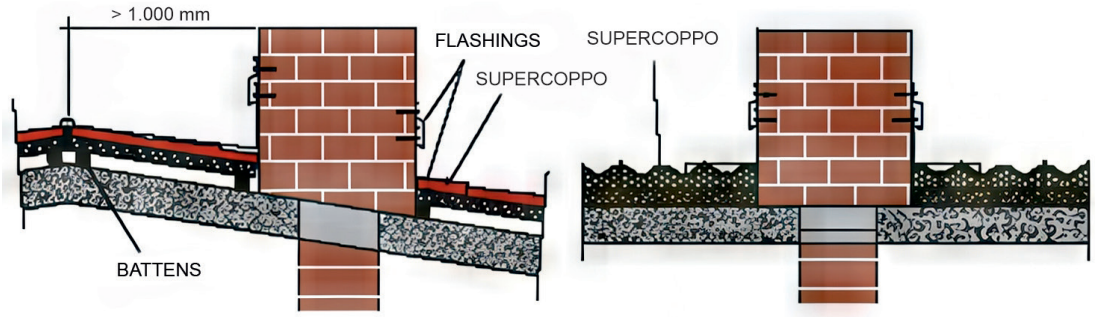
As already stated, the panel must have an overhang of 80-100 mm. If, for aesthetic reasons, the polyurethane at the eaves is to be concealed, there are two alternatives:

1. Build the external side of the eaves to the same height as the tile.
2. Remove the polyurethane underneath the overhang and leave only the external metal support.

e) Chimneys

To connect the panel to the chimney, a sheet-metal flashing system must be used. It must be fixed and sealed with silicone around the entire perimeter of the chimney structure and fixed to the external support of the panel.

RIDGE/ROOF CONNECTION FOR MASONRY CHIMNEY



It is possible to supply a tile-shaped pressed metal sheet to be installed between the ridge and the chimney, above the panel. This sheet will connect to the flashing fixed to the chimney.

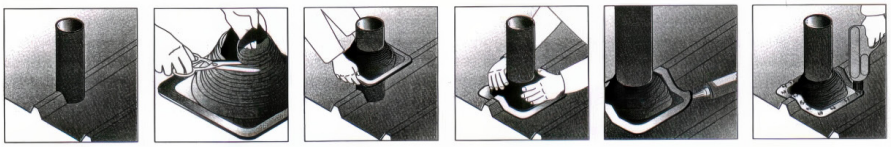
f) Windows and roof access hatches

Windows and roof access hatches can be inserted into SUPERCOPPO panels by installing support frames before fitting the panels, and completing the installation with a sheet-metal flashing system that prevents water infiltration. For further details, please refer to the technical details.

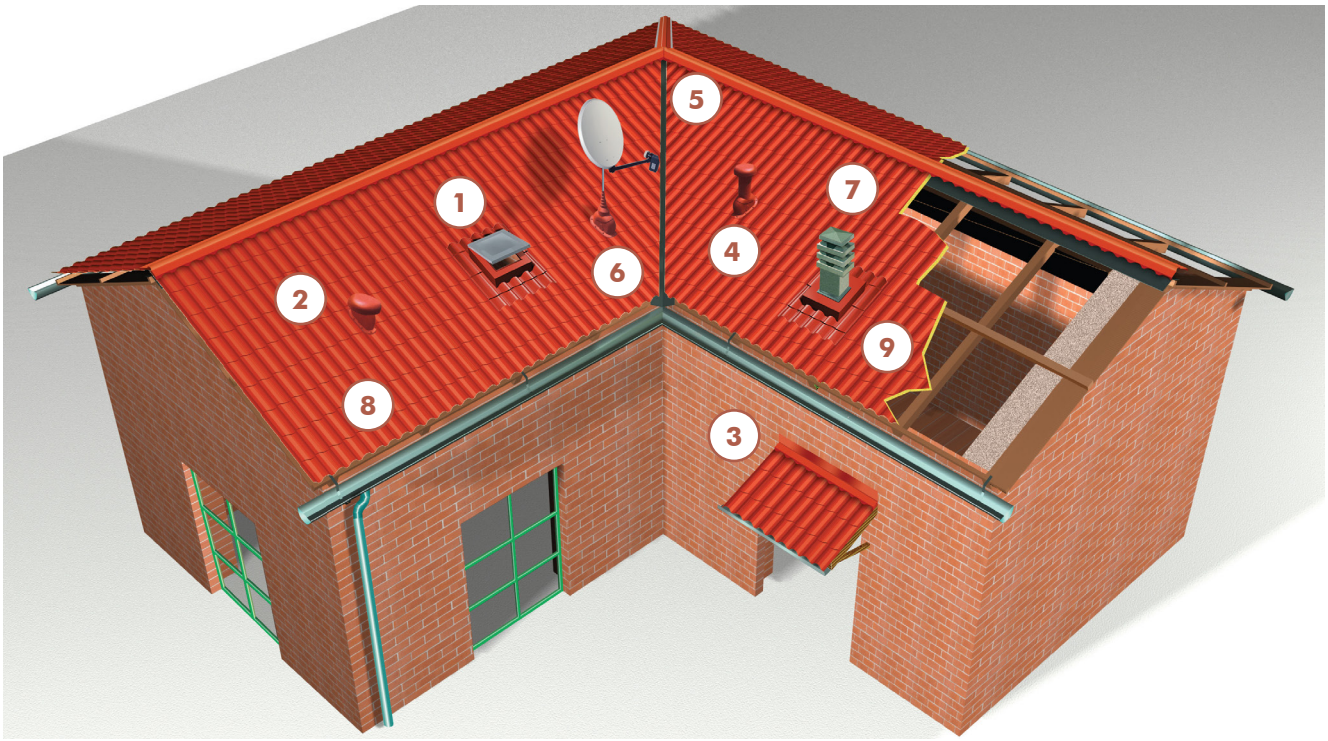
g) Flues and TV antennas

For antennas, flues and pipes, watertight gasket fittings must be used. They must be adapted on site to the diameter of the pipe and fixed to the roof using rivets and silicone.

RG	Universal airtight gasket



ACCESSORIES



1. Base and dome for skylight with external edging.
2. Vent base. PVC element complete with EPDM gasket.
3. Punched wall flashing for connecting a vertical wall and the roof slope.
4. Venduct vent, PVC element to be inserted onto the base.
5. Patented universal diagonal ridge. Simple version and hinged version for roof slopes with different inclinations.
6. Antenna cap, PVC element for antenna passage.
7. Punched ridge for joining two opposite roof slopes, including non-symmetrical slopes.
8. Fixing assembly.
9. Chimney flashing base with external edging.

The roof warranty is valid only when approved SUPERCOPPO® accessories are used.

FIXINGS

Types, sizing, quantity and position

The installation of pre-insulated panels is completed with a range of accessories such as fixings, gaskets and sealants. These elements work together to prevent possible water infiltration.

The pre-insulated panel can be mounted on steel, wood and reinforced concrete elements. The support, which may have any shape, must have a minimum flat width of 50 mm in the area in contact with the panel.

Fixings for SUPERCOPPO panels: the panels are fixed using screws complete with Tile Red pre-painted metal washers and integrated EPDM gaskets, in order to ensure a watertight fixing.

The purpose of the washer is to prevent deformation of the tile and therefore to distribute the action of the screw.

The gasket placed under the washer prevents water infiltration at the screw hole.

Fixing point

The fixing must always be positioned on top of the tile because this is the point where the least amount of water is present.

Most exposed areas

At the eaves, at the longitudinal and transverse overlaps and at the ridge, the panel must be fixed on every tile in particularly windy areas. In other cases, it is sufficient to fix every other tile.

Indicative consumption

To calculate the number of fixings required for a roof, 2,0-2,5 fixings/m^2 should be considered.

The choice of screws to be used varies according to the type of support on which the panel is fixed:

a) Self-drilling screws

These are used where steel supports have a thickness between 2 mm and 5 mm. In this case, no pre-drilling is required.

b) Self-tapping screws

These are used for steel supports with a thickness greater than 5 mm. In this case, the steel purlin must be pre-drilled.

c) Wood lag screws

If the panel is installed on wooden battens, specific wood lag screws must be used. In this case, the screw must penetrate the batten by at least 40 mm.

Method for calculating the fixing length

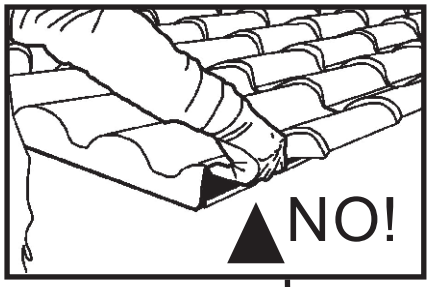
The screw must have a length of 130 mm, calculated as follows: 90 mm panel thickness + 30 mm thickness of the batten/purlin, meaning the section crossed by the screw, + 10 mm for the space occupied by the washer and gasket.

At the ridge, where half-ridge sheet-metal flashing is present, the panel must be fixed on the flat part of the external support because the screw head placed on the ridge would prevent the correct installation of the flashing. In this case, a screw with a length of 100 mm must be used. The screw diameter is 6,3 mm.

MANUAL HANDLING INSTRUCTIONS FOR THE SUPERCOPPO PANEL

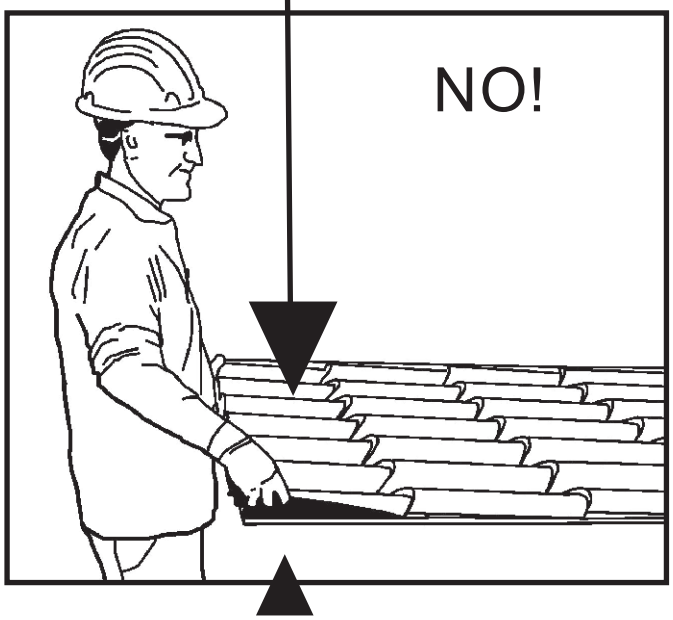
THE SUPERCOPPO PANEL MUST BE LIFTED FROM THE PACKAGE CORRECTLY.
INCORRECT HANDLING CAN SERIOUSLY COMPROMISE ITS FUNCTIONALITY AND AESTHETIC APPEARANCE.
READ THESE INSTRUCTIONS CAREFULLY.

INCORRECT



INCORRECT LIFTING: DO NOT DO THIS!

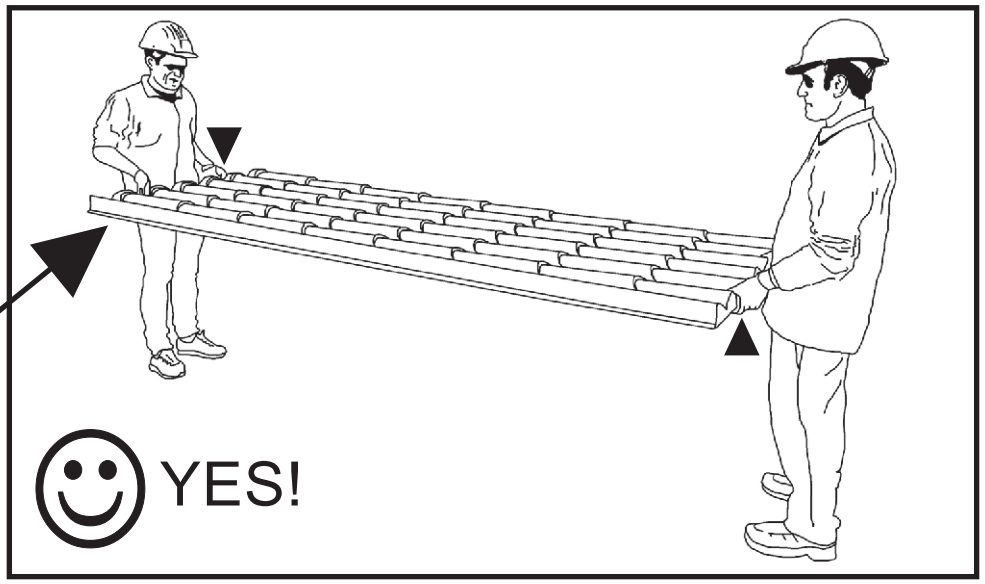
WARNING: DO NOT LIFT THE PANEL BY HOLDING IT LATERALLY AT THE EMPTY RIB. THE IMAGES SHOW HOW THIS PART CAN SUFFER IRREVERSIBLE DEFORMATION.



CORRECT

CORRECT LIFTING: CORRECT USE

THE ILLUSTRATIONS BELOW SHOW HOW THE TWO OPERATORS HOLD THE SUPERCOPPO PANEL FROM THE CENTRAL PART. IN THIS WAY, THE EMPTY EXTERNAL RIB REMAINS INTACT AND PROBLEMS DURING INSTALLATION ARE AVOIDED.



NO LIABILITY IS ACCEPTED FOR DAMAGE AND/OR DEFECTS RESULTING FROM INCORRECT HANDLING.