الواجهة البيئية للمقاولات
ECO FAÇADE CONTRACTING

Double / Single Lock Traditional Standing Seam System Solution

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Advance Roofing System

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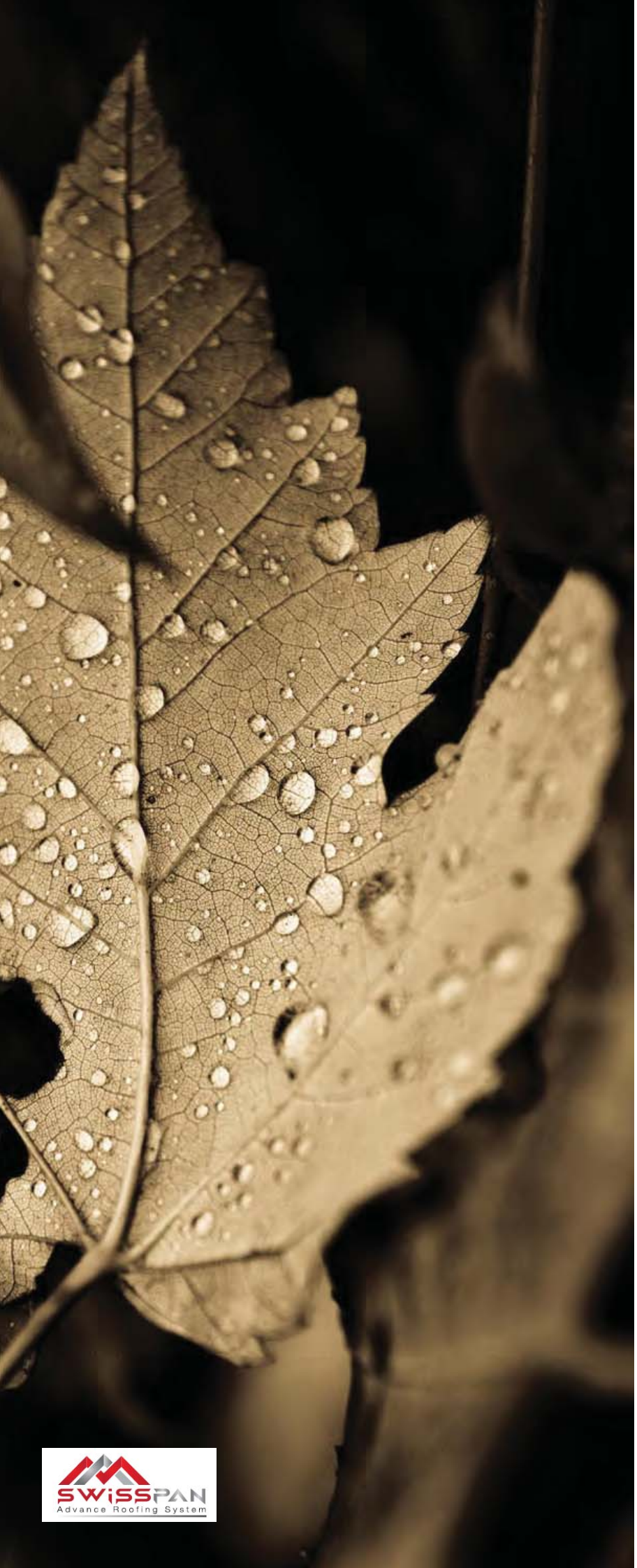

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If the best material curtails creativity, what good is it? If the best idea cannot be realized, what good is it? Materials that foster creativity and lend form to ideas are required for individual solutions, as are consulting services that take technical perfection, structural physics and aesthetics into consideration.

ECO FAÇADE offers all of the above. Not only does the name stand for unique creative material to clad roofs and façades, but also for exemplary service to implement your ideas – regardless of the size of your project – big or small. We offer solutions that are as unique as your project. A comprehensive range of ECO FACADE roofing and façade system products, along with diverse installation techniques, make it easy to find a perfect solution for every design.

ECO FAÇADE roof & facade products is extremely malleable; it is compatible with every architectural environment and its aesthetic is timeless. Furthermore requirements for sustainable building using natural material are met without difficulty.

DOUBLE LOCK STANDING SEAM - Roofing solutions

Contents

Double / Single Lock Standing Seam

The double lock standing seam is a further development of the original hollow folded joint or single lock standing seam. This reliable system has been referenced in technical literature since 1899 and is the top choice for roof pitches from 3° to 25°. Here, the name "double standing seam" characterises one of the conventional types of longitudinal joints above the water level.
A fine-lined seam height of 25 mm is rainproof without any additional measures. The double / single lock standingseam, manufactured with pre-profiled panels, has gained international recognition. Seams are folded and closed manually or with a seaming machine. Custom shapes such as convex and concave curves and conical panels are produced without difficulty. Thanks to a multitude of detail variations, the double / single lock standing seam emphasizes both traditional and modern architectural design.

Double / single lock system is a high quality, fully supported, metal roofing and cladding system available in a variety of quality metal finishes including pre-painted and mill finish aluminim, copper, zinc and stainless steel.

The Double / single lock system provides traditional standing seams or batten rolls on pitched roofs or walls.

The system is based on metal trays which can be formed in the factory or on site, and which are fully supported by the deck to which they are attached, providing a 'traditional' and aesthetically pleasing roof construction that is also extremely cost effective.

- Individual shapes are possible
- High degree of design freedom
- Roof-integrated solar solutions
- Environmentally declared product

Standard Metals

Double / Single lock standing seam is available in a variety of metals and finishes:

Metal	Thickness (mm)	Max length of tray (m)	Approx weight (kg/m2)
Aluminium	0.7	50.0	2.60
Stainless steel	0.4	55.0	3.90
Copper	0.6	50.0	5.70
Zinc	0.8	50.0	6.50

*Reverse coating of zinc
It is traditional to use underlay to separate zinc from the supporting layer unless the system is fully insulated.

Thermal Movements

For long strip roofing, it is important to take into account the movements of the strip occurring as a result of temperature changes. The sheet may sustain damage if insufficient expansion allowance is provided at verges or eaves, at roof upstands or at walls.

All materials expand or contract when the temperature changes.

The change in length of aluminium sheet and zinc sheet is about twice that of steel sheet. The sheet length increases in the summer and decreases in winter. The temperature of the roof material in the summer may be up to 75 C, while in winter, it could be conceivably be as low as -35 C. The length of the roof covering also changes, and the calculations below are therefore done to be on the safe side.

The temperature of the sheet at the time of the installation determines how the length will change from its original length in the summer and in the winter.

The table opposite gives particulars of the change in length in steel sheet that can be expected for different installation temperatures. L is the distance in metres from the point where the movement is zero (fixed point) to the end of the sheet.

Temperature at installing	Thermal movement in mm	
°C	Summer (+75°C)	Winter (-35°C)
-10°	+1,0 x L	-0,3 x L
0°	+0,9 x L	-0,4 x L
+10°	+0,8 x L	-0,5 x L
+20°	+0,7 x L	-0,7 x L
+30°	+0,5 x L	-0,8 x L

Change in length mm
Example:
Temperature during laying: +10°C
Distance L from fixed point to eaves: 7m
Change in length at eaves
Expansion in the summer +0.8 x 7 = approx +6mm
Contraction in the winter -0.5 x 7 = approx -4mm

It is important to allow for thermal movements so that the sheet or its mountings will be not be damaged. Longer strips should be secured by means of both fixed and sliding clips. Space for expansion and contraction must be allowed at joints and connections.

Product Availability

DOUBLE / SINGLE LOCK STANDING SEAM IS AVAILABLE IN A VARIETY OF FORMATS FROM THE PLAIN COILS TO THE FULLY INSTALLED SYSTEM.

Double / Single lock standing seam System

ECO FAÇADE can provide a complete system to roofing contractors including the trays (site or factory rolled), clips and other accessories, and sale or rent of specialist tools including seam formers.

Supply & Install

Where required, ECO FAÇADE can provide the complete supply and installation services using our own team of skilled installer in conjunction with the roofing contractor.

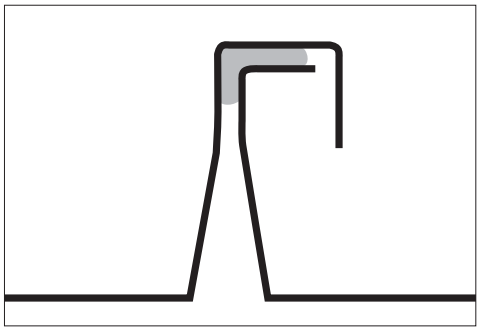
Fixing Details

Although there is no technically correct or incorrect end as a start point for a roof, the direction of the prevailing wind should be considered.

In general, each sheet is fixed to the substrate by two fixed clips towards the ridge of the roof, with sliding clips along the length of the slope. The upstand of the next sheet is then laid over and interlocks with the upstand of the tray already in position.

The first fold of the upstand is then formed manually as shown on page 8/9, before mechanical crimping of the upstands using the power seamer.

The sliding clips allow the metal to expand and contract freely along its length. Across the width, the profile of the sheet allows expansion and contraction through a gap at the foot of each standing seam.

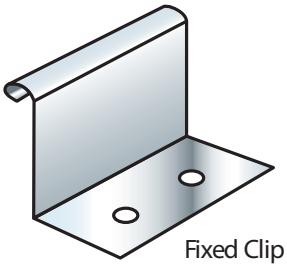


Expansion and Contraction gap

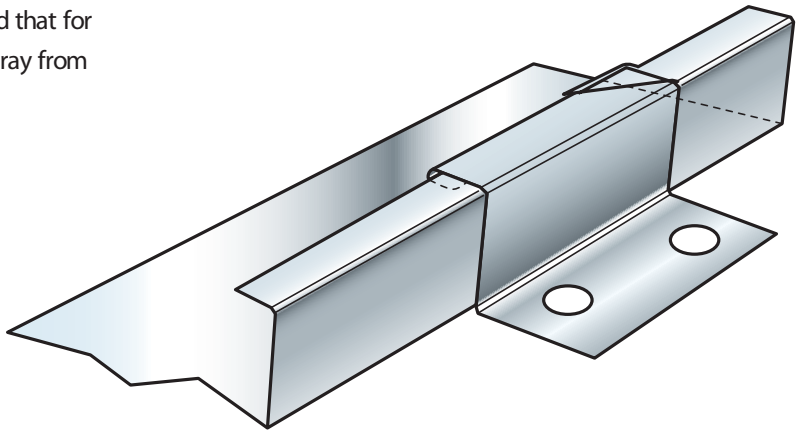
Fixed Clips

In general, the fixed clips serve to restrain the roofing trays along their upper edge and so direct any expansion movement of the tray towards its lower edge.

Along each upstand, at the highest part of the tray, two fixed clips are required. Each clip is held in position using two cadmium plated screws. It is recommended that for the first clip the upstand is cut to prevent the tray from slipping down the roof during installation.



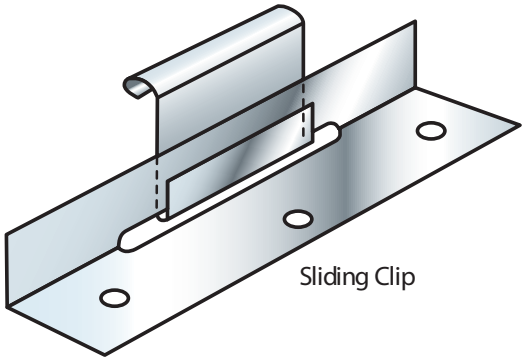
Fixed Clip



Sliding Clips

The fixed component is secured to the roof decking using three nails or cadmium plated screws

The sliding component laps over the preformed upstand and is located onto a slot in the fixed component. The slot iin the fixed component must be 70mm in length for all types of metal and in all cases the sliding component must be centred within the slot at installation in order to allow for expansion and contraction of the tray.

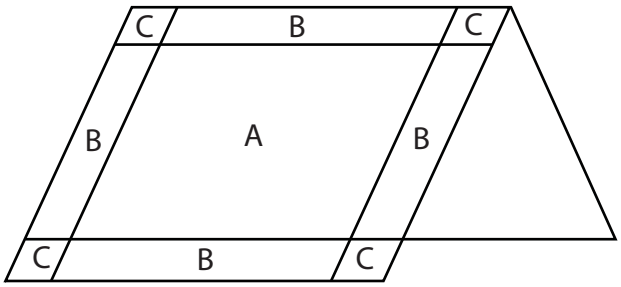


Sliding Clip

Number of fixing clips

The wind loads anticipated will determine the number of fixing clips required. Towards the edges or corners of the roof, where the wind loading can be expected to be greater, it is necessary to have a greater concentration of clips.

The distance between the fixing clips is determined by the area of the roof as shown in the diagram below.



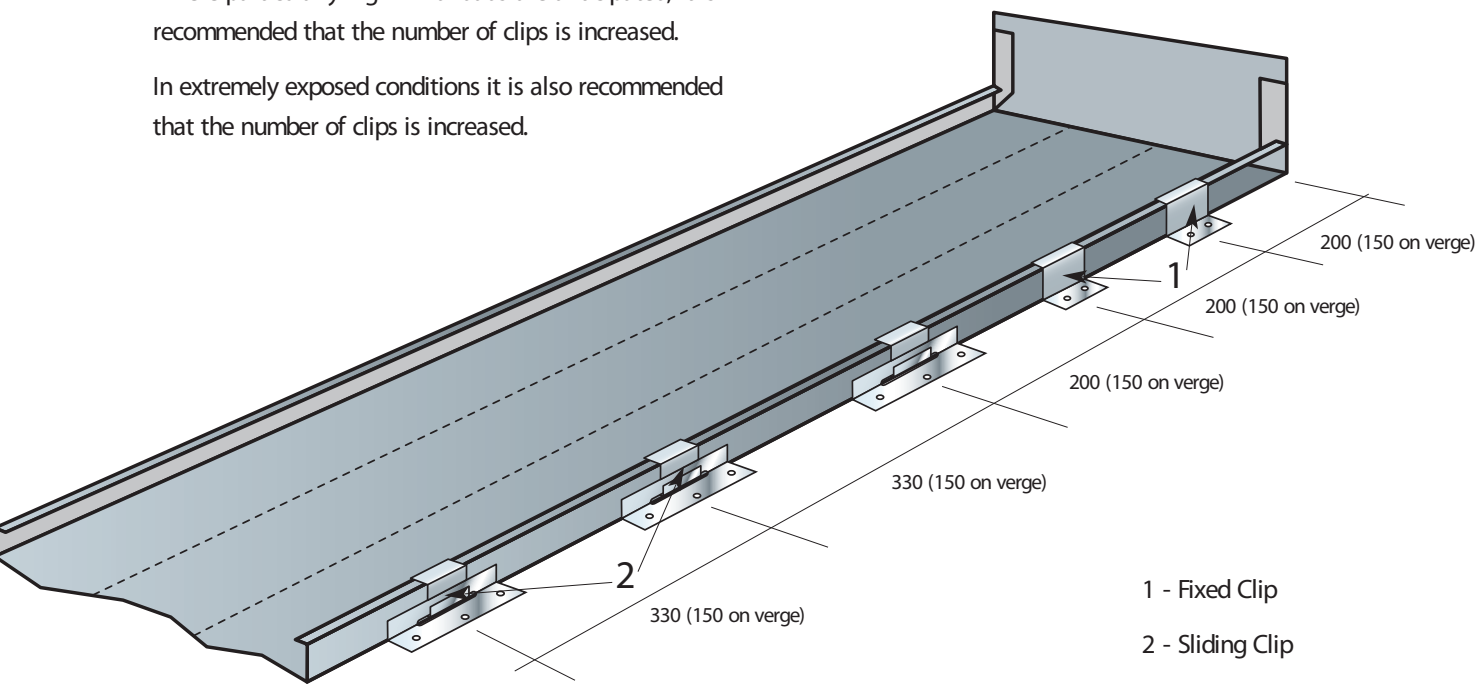
Area A (Middle) One clip every 330mm

Area B (Edge) One clip every 200mm

Area C (Corners) One clip every 150mm

Where particularly high wind loads are anticipated, it is recommended that the number of clips is increased.

In extremely exposed conditions it is also recommended that the number of clips is increased.



1 - Fixed Clip

2 - Sliding Clip

Closing the seams

In normal circumstances, zipping of the seams is carried out using the zipping tool provided. However in situations where the zipping tool cannot be operated (at the end of sheets for example) the seam must be formed manually.

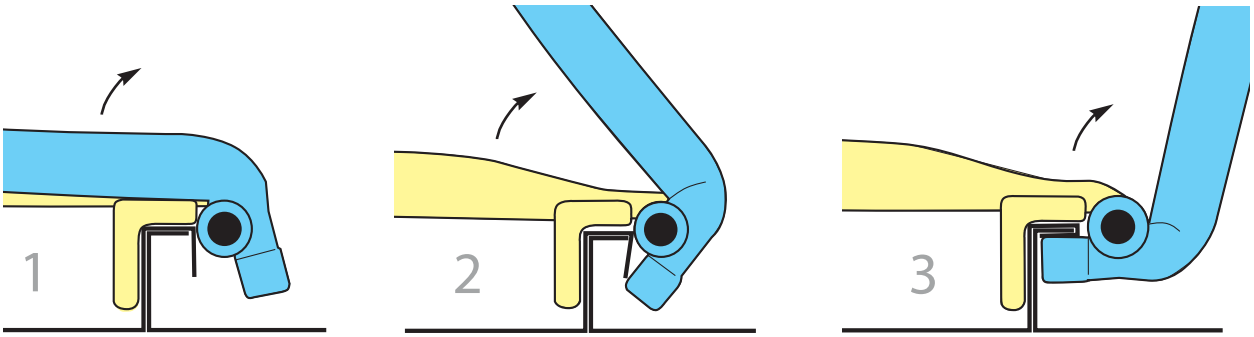
This is carried out in two stages using the two tools provided.

Tool 1 (locking tool) is used to lock the seam

The yellow angle guidance rail is placed against the covering lip (1). By pressing the blue handle open, the seam is locked (2-3). As a result of the rounded endpoints, there are no pressure marks when locking. The locking must always be performed by a single person.

Start Position

Closed Position

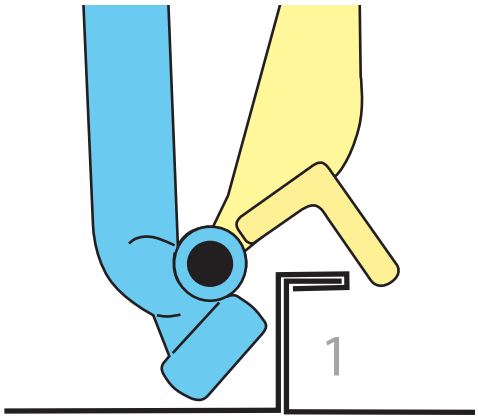


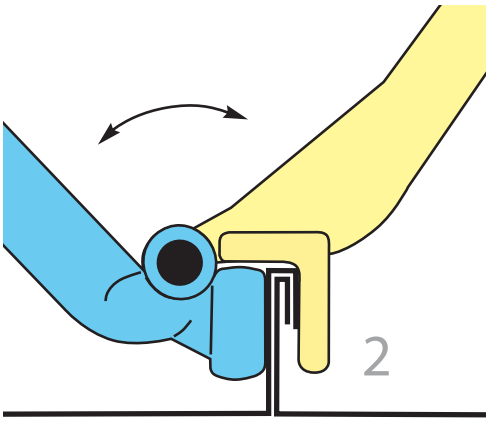
Tool 2 (closing tool) is used for the closing of locked seams to create the double standing seams

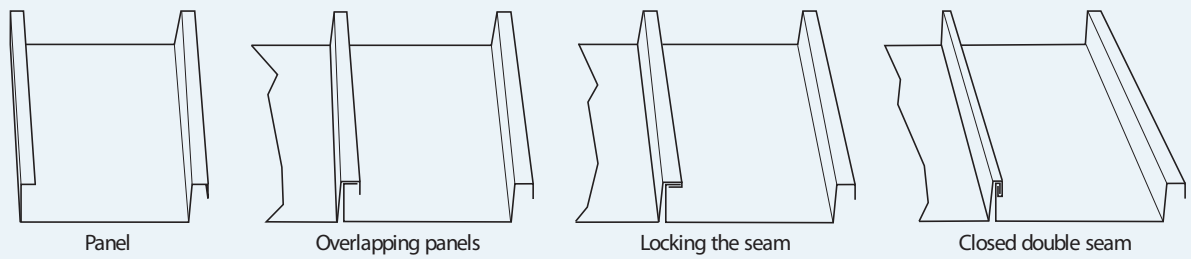
With the handles of the tool held together, the yellow right-angle guiding jaw should be placed centrally on the closed seam, while the blue anvil plate is pushed into the angle of the seam at 45° (1). By pressing the handles open, the seam is closed to make the double seam (2). The closure should always be performed by a single person.

Start Position

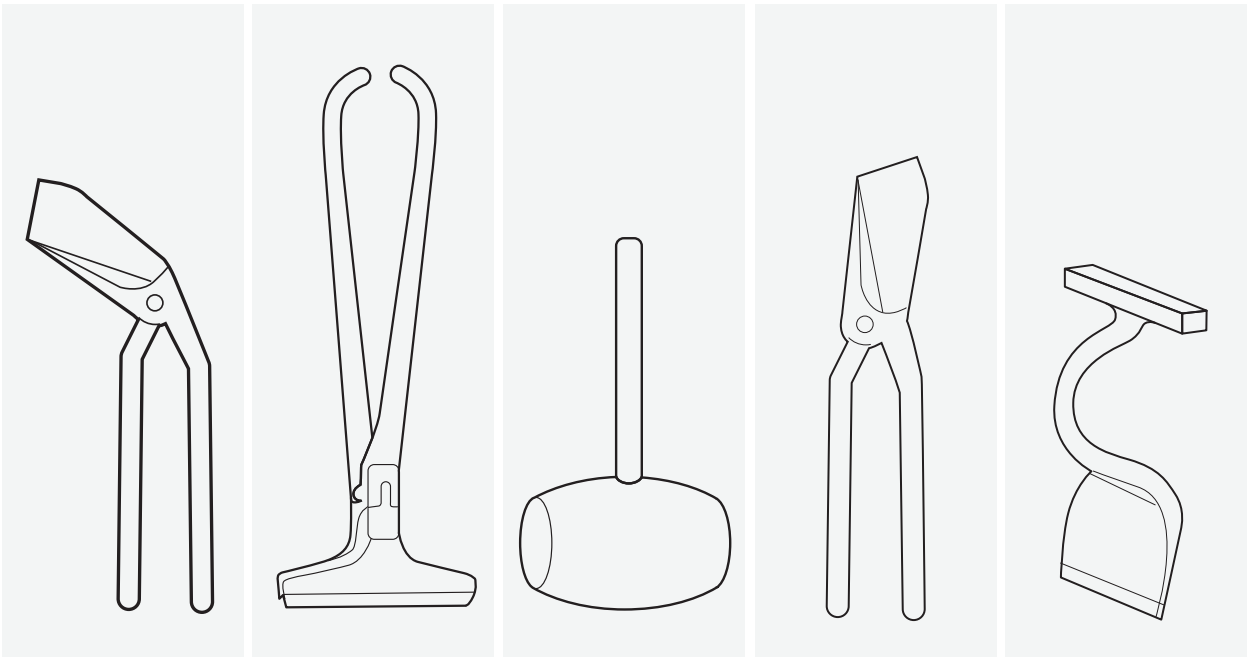
Closed Position



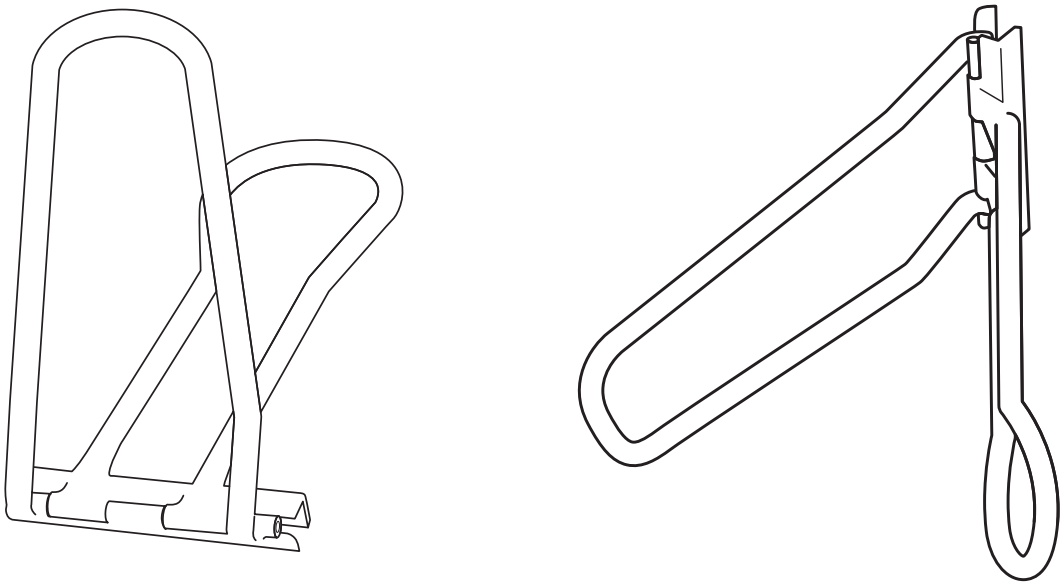




Tools required for manual seaming



Angled pliers | Long handled pliers | Mallet | Small bending pliers | Roofing seamer



Seam locking tool 1 | Seam Closing tool 2

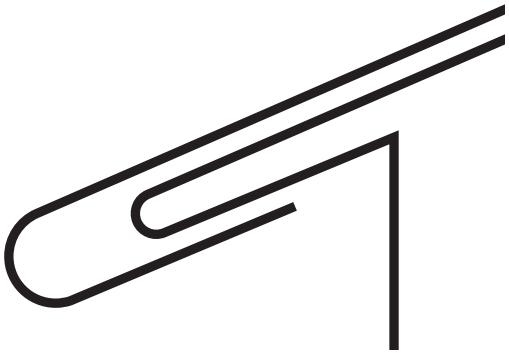
Examples of details

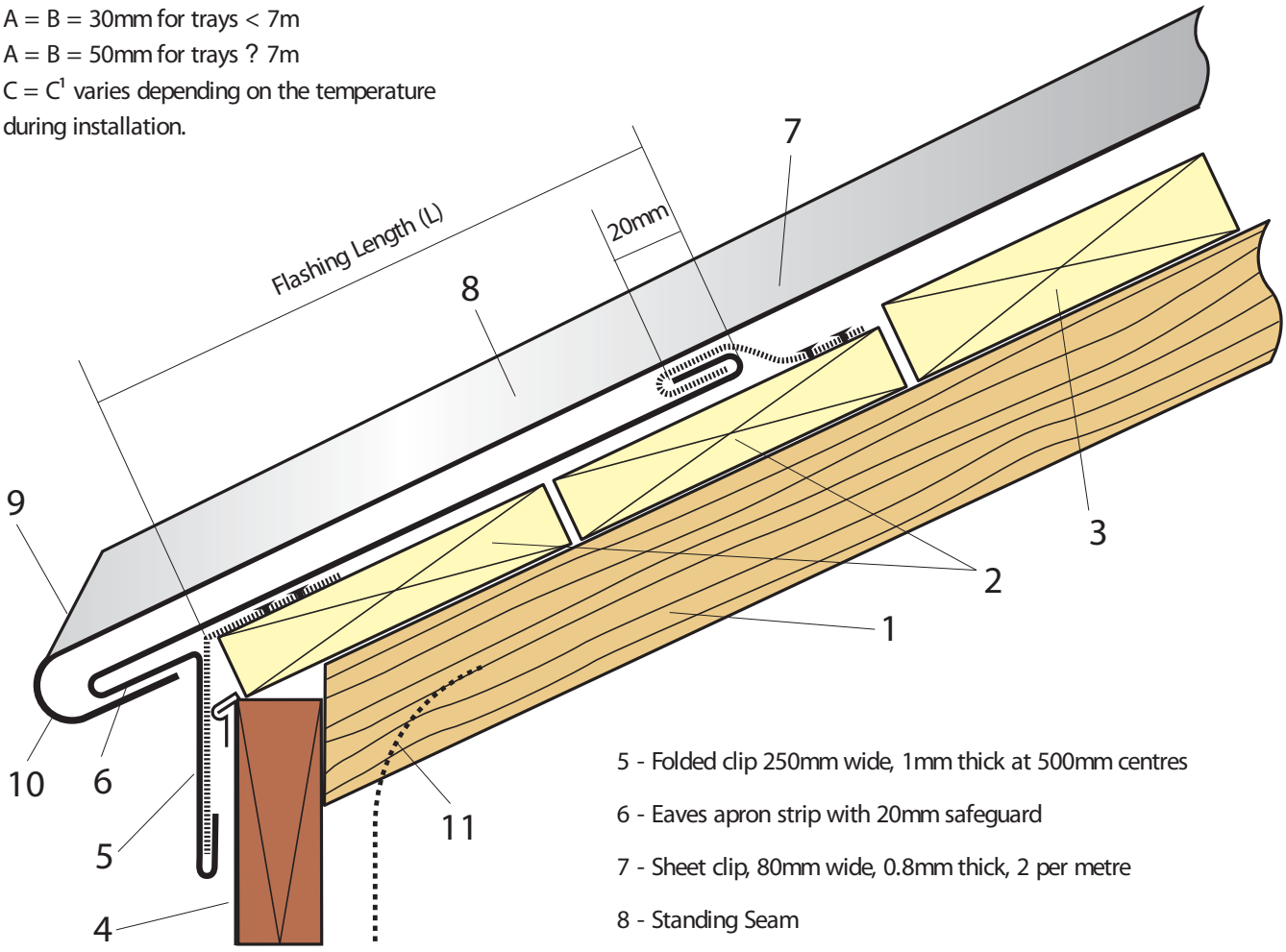
The following pages contain examples of basic details required for LokFold construction. They do not cover every eventuality, however, and if further information is required, please consult our Technical Department.

The Eaves T-Plate

Junction using eaves apron strip
Widely used with conventional gutters

For the correct formation of the junction, the following data should be considered in relation to the length of trays used.
A = B = 30mm for trays < 7m
A = B = 50mm for trays ? 7m
C = C[1] varies depending on the temperature during installation.





1 - Rafter

2 - Eaves boards to be 5mm thinner than adjacent boards

3 - 3 to 5mm gaps between boards

4 - Gutter up-stand

5 - Folded clip 250mm wide, 1mm thick at 500mm centres

6 - Eaves apron strip with 20mm safeguard

7 - Sheet clip, 80mm wide, 0.8mm thick, 2 per metre

8 - Standing Seam

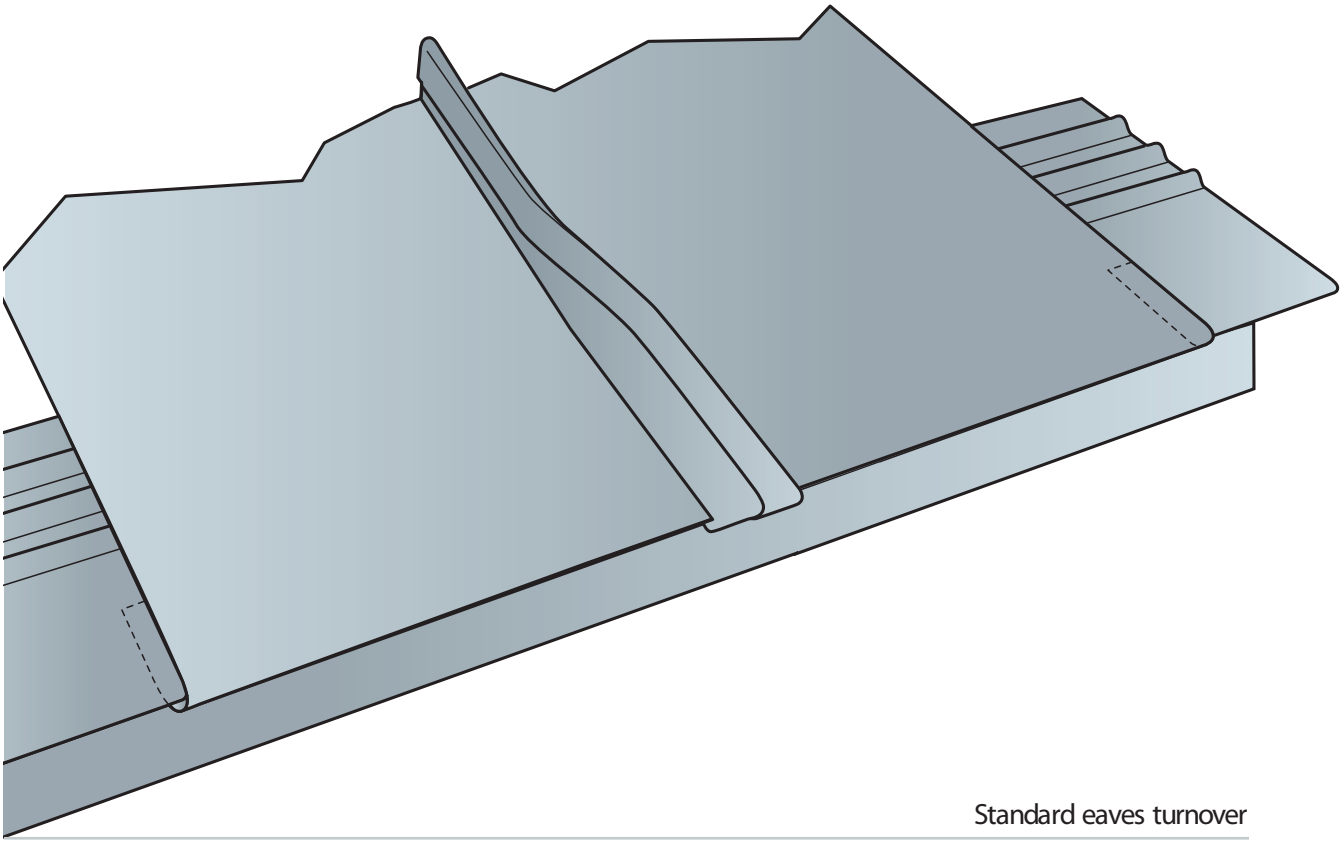
9 - Edge of clip tray

10 - Welted end tray

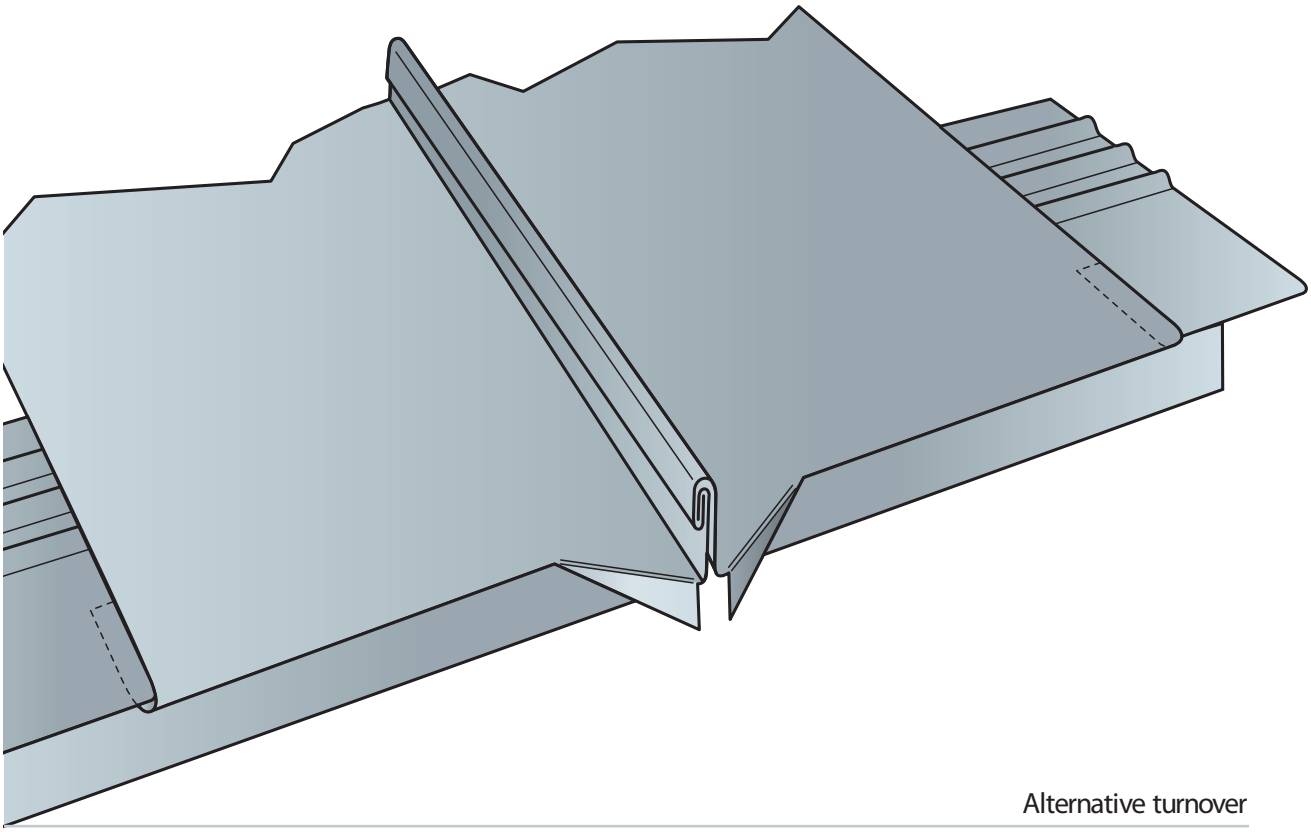
11 - Ventilation

Note: the eaves apron strip should not project on the gutter by more than $^{1}/_{3}$ of the gutters width.

Eaves Turnover



Standard eaves turnover



Alternative turnover

Mono Ridge Detail

Mono Ridge Welted Detail

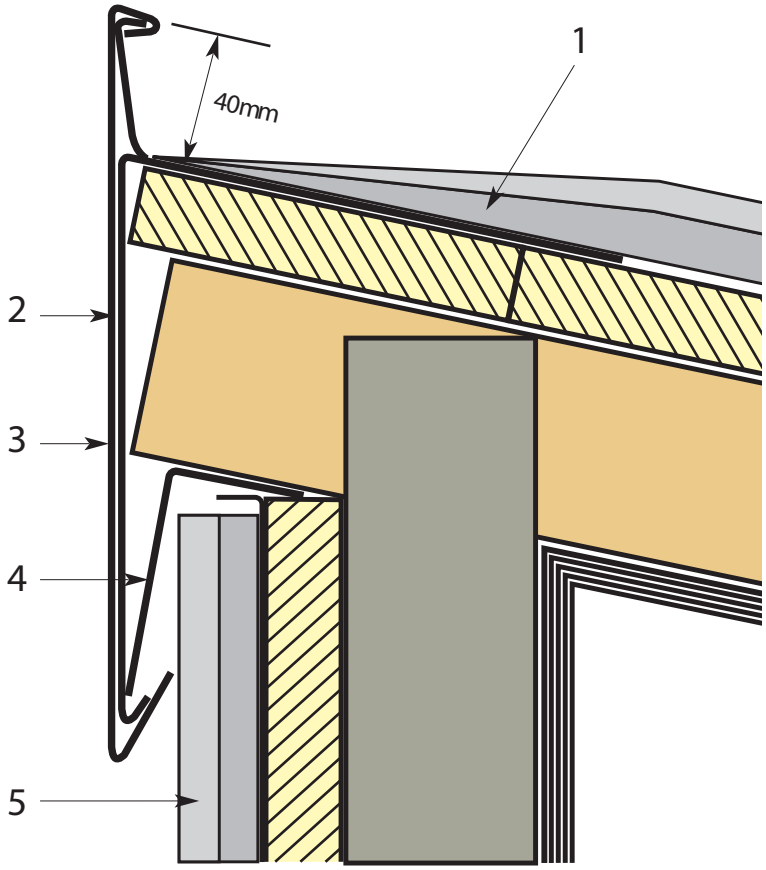
1 - Standing Seam

2 - Galvanised support angle

3 - Zinc Fascia

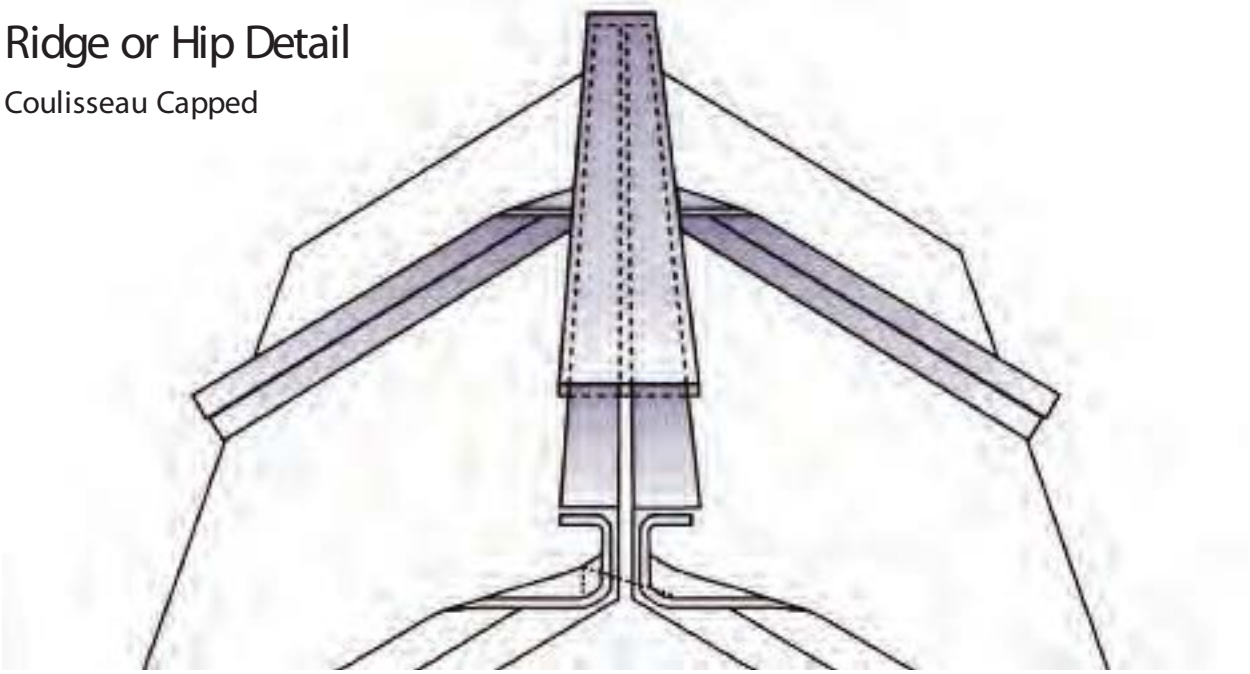
4 - Insect mesh

5 - Standing Seam

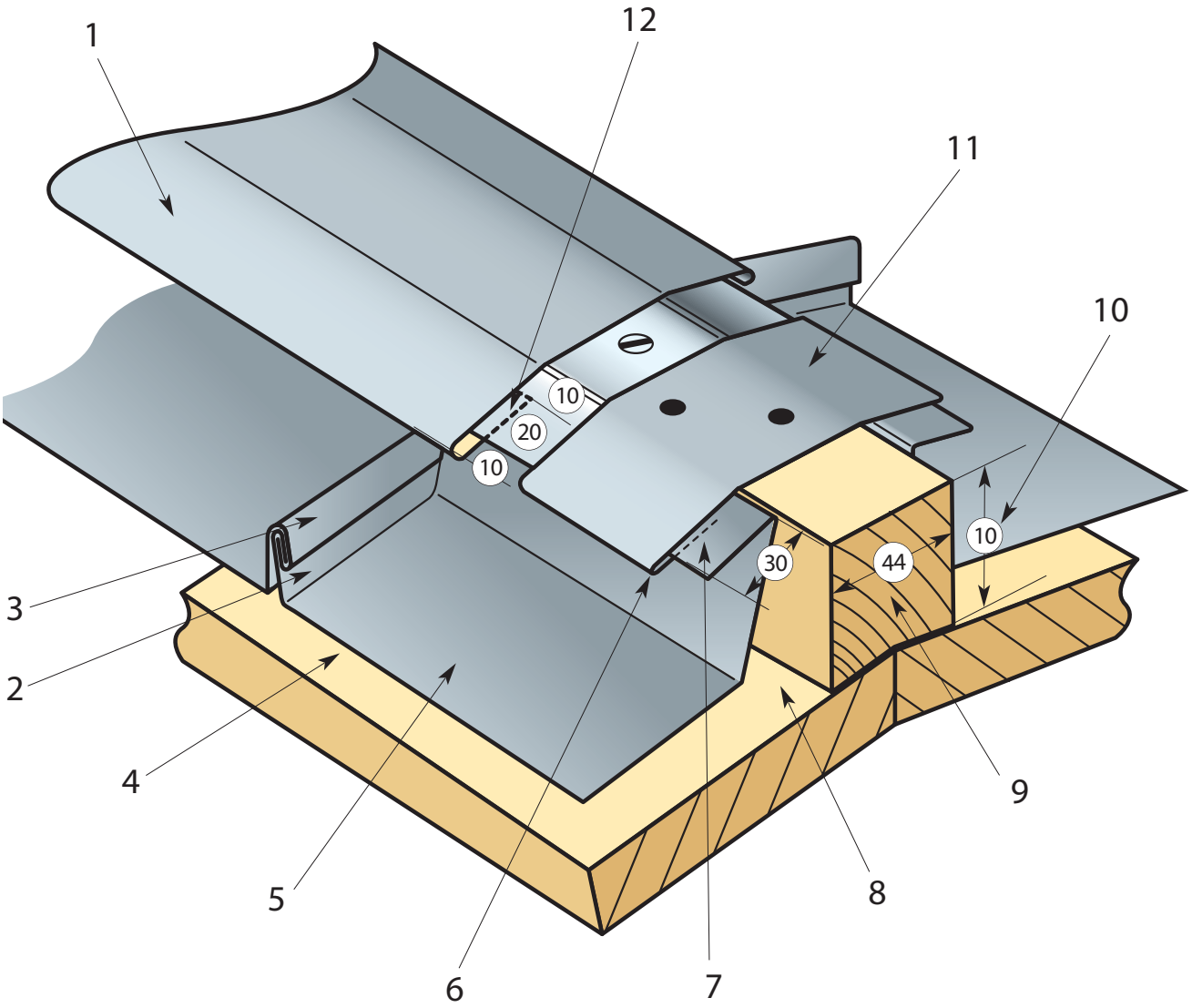


Ridge or Hip Detail

Coulisseau Capped



Timber Batten Ridge



Timber Batten Ridge

1 - Pre-formed ridge or hip capping

2 - Standard or pre-formed straight dog-eared upstand

3 - Overcloak

4 - Underlay omitted for clarity

5 - Roofing Bay

6 - 10mm movement gap in long strip

7 - 15mm turn-out in traditional

8 - 10mm movement gap in long strip

9 - Ridge or hip batten

10 - Height of batten will increase at steeper pitches

11 - Clip usually 1 at the centre of each bay

12 - Turn under

Ventilated Ridge Detail

Ventilated Ridge

1 - Capping

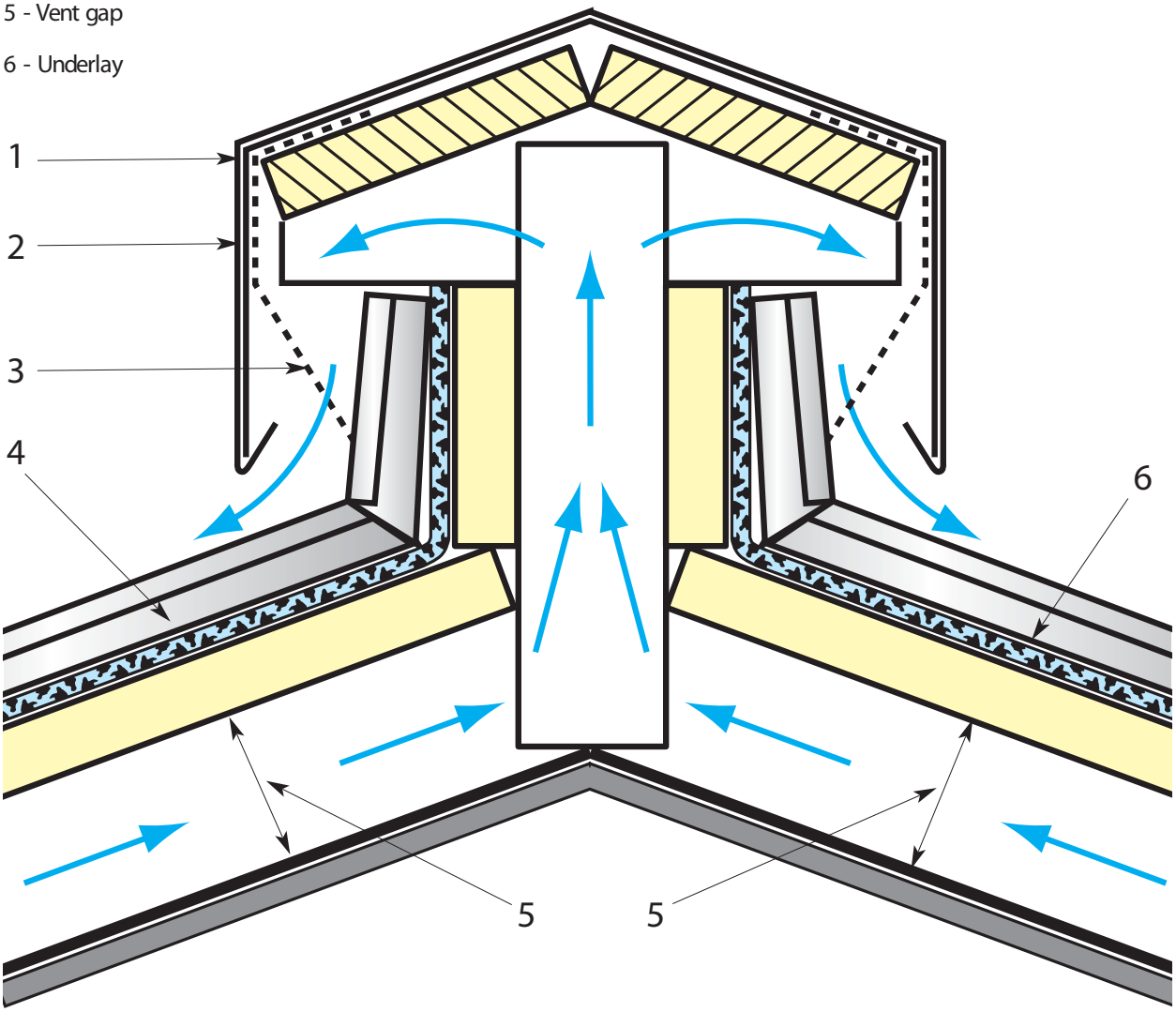
2 - Galvanized angle

3 - Insect mesh

4 - Standing Seam

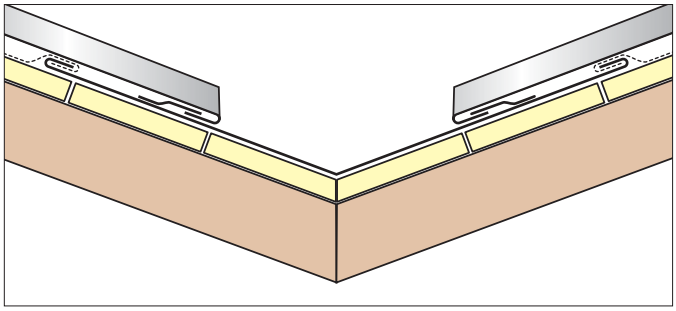
5 - Vent gap

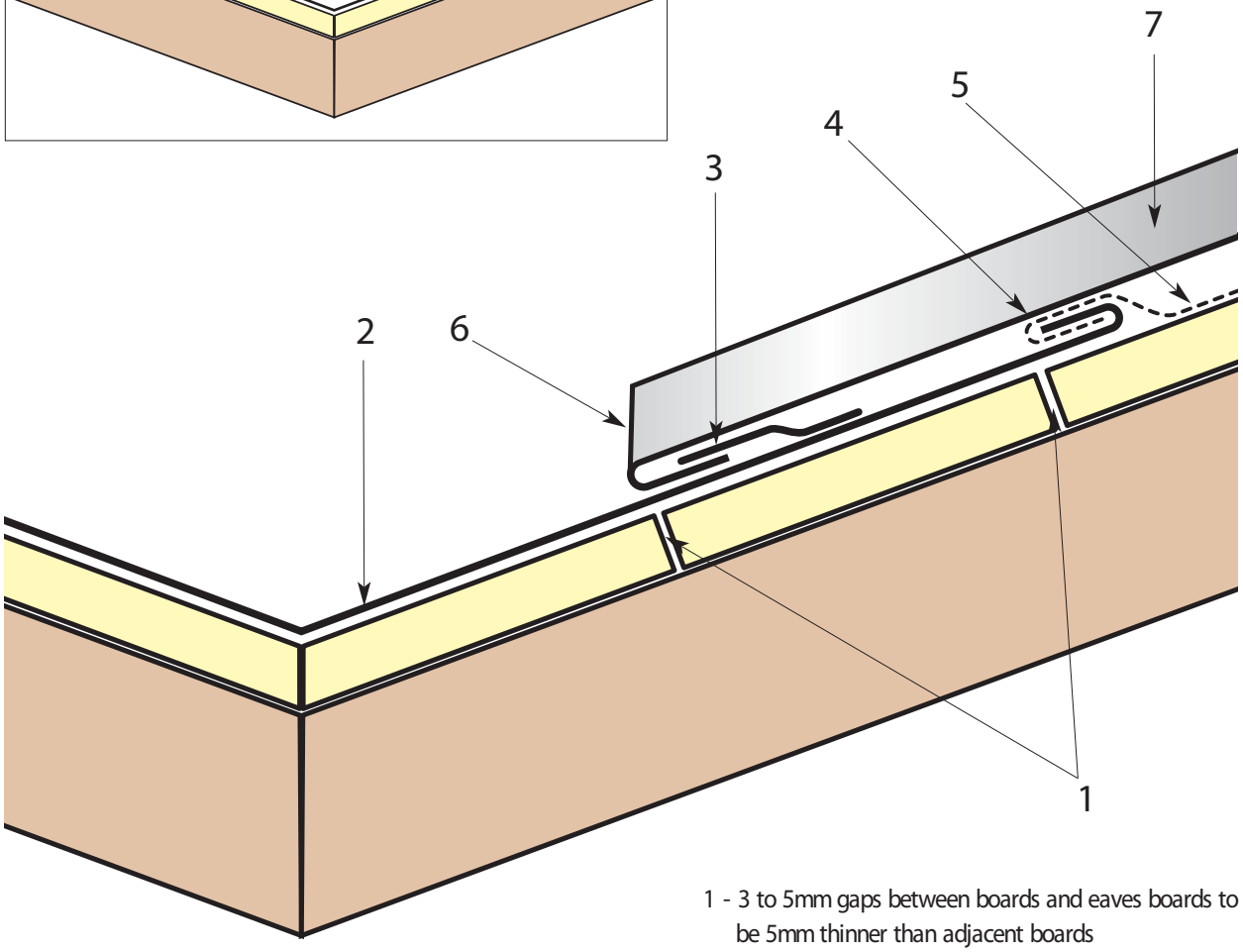
6 - Underlay



Valley Detail

The roof sheets are joined at each side of the valley using continuous soldered double welts. The continuous welting strips are soldered to the valley tray, which is lapped by the roof trays.





1 - 3 to 5mm gaps between boards and eaves boards to be 5mm thinner than adjacent boards

2 - Valley tray

3 - Continuous soldered welting strip with safeguard

4 - 20mm welt

5 - Sheet clip at 500mm centres, thickness 0.8mm, length 80mm

6 - Edge of clipped tray

7 - Standing Seam

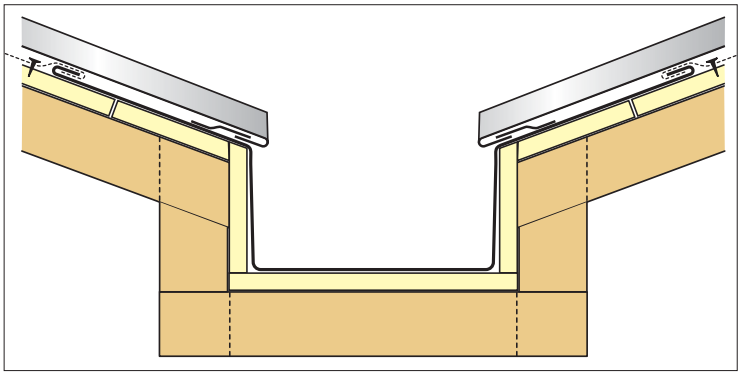
Valley Box Gutters

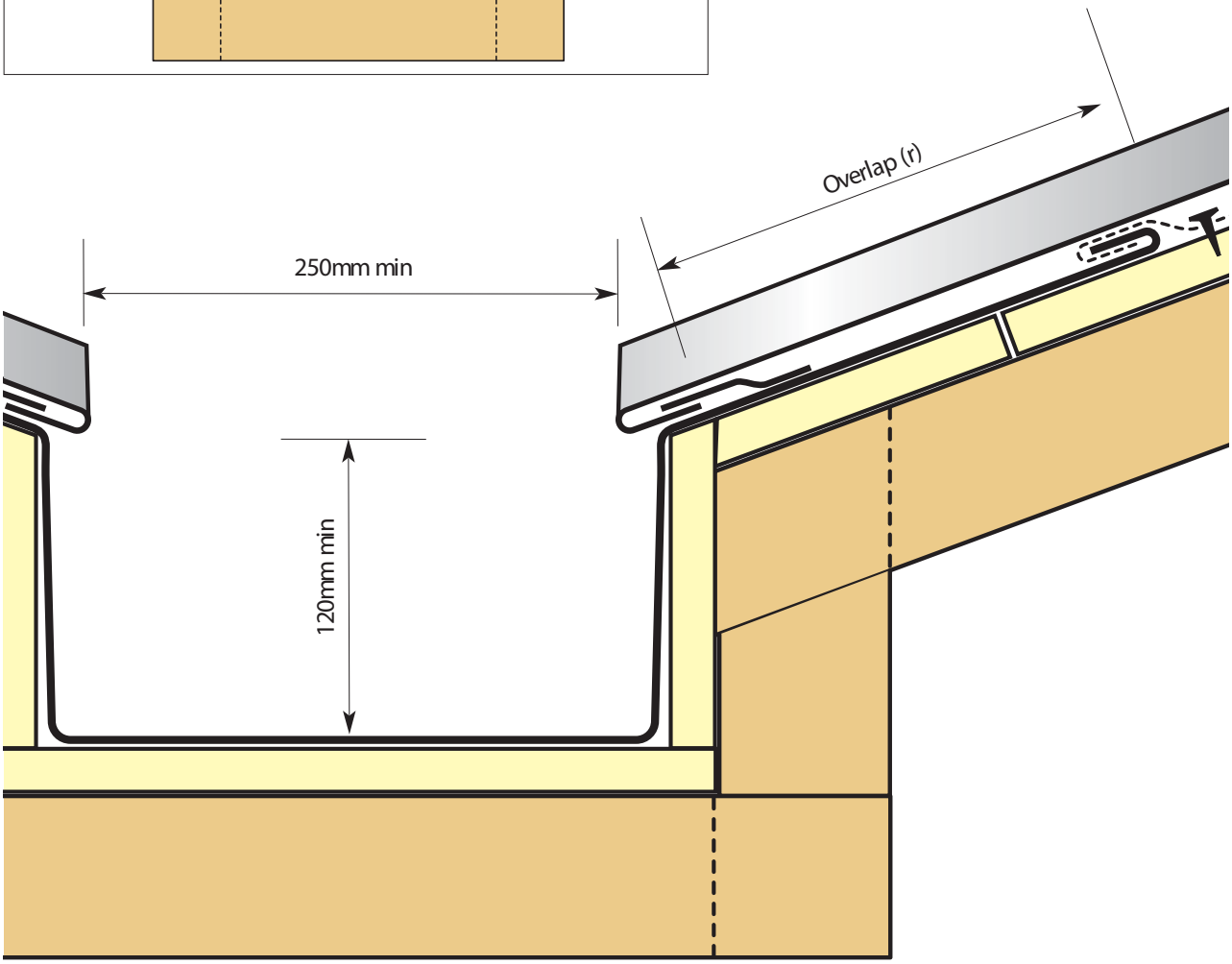
For slopes less than 14˚ it is essential that a gutter is introduced between slopes to prevent rising water passing up underneath the lap during heavy rain or snow.

The following values should be considered in determining lengths of laps;

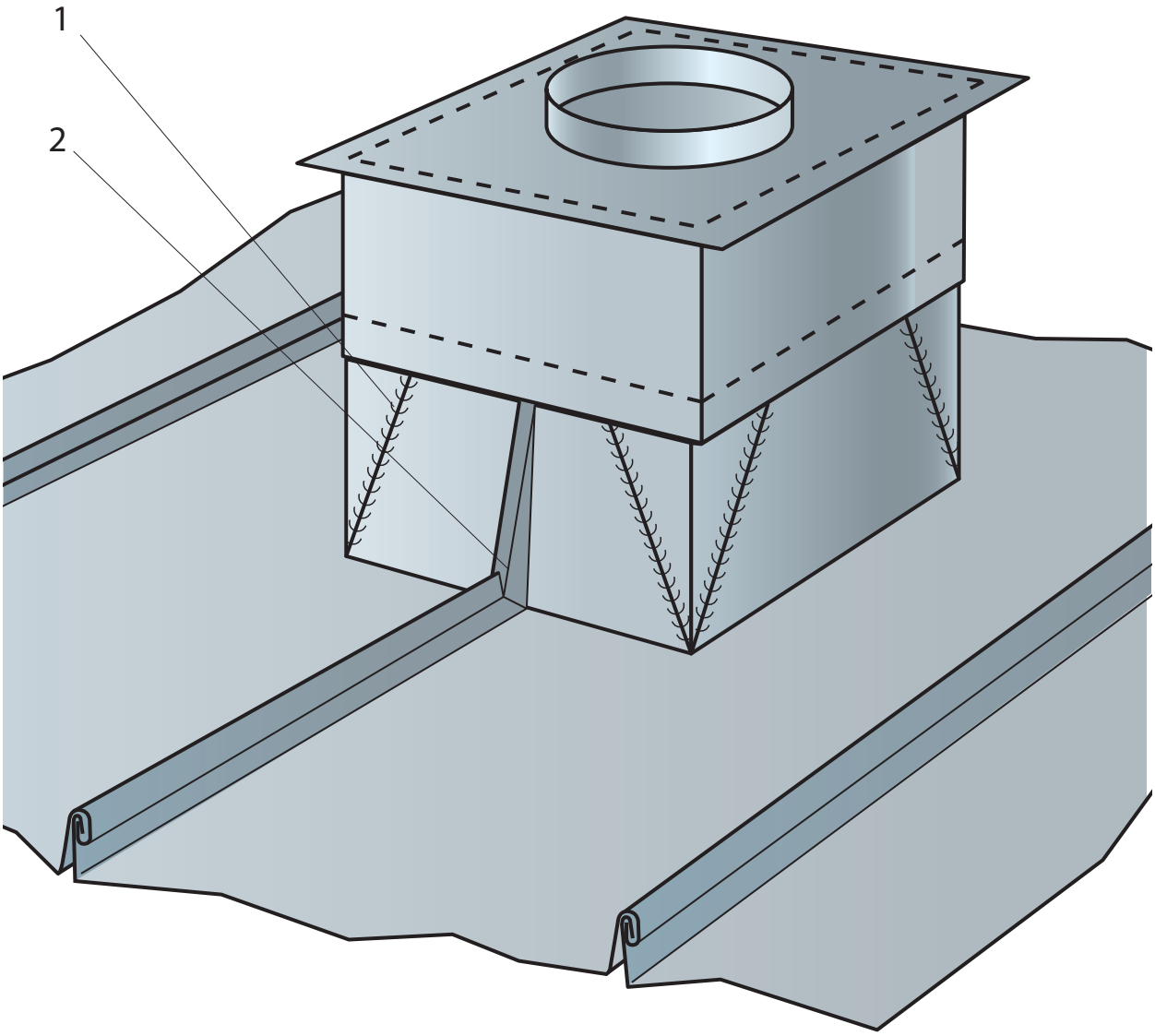
Slopes between 9˚ (15%) and 14˚ (25%) : 150mm

Slopes between 3˚ (5%) and 9˚ (15%) : 300mm





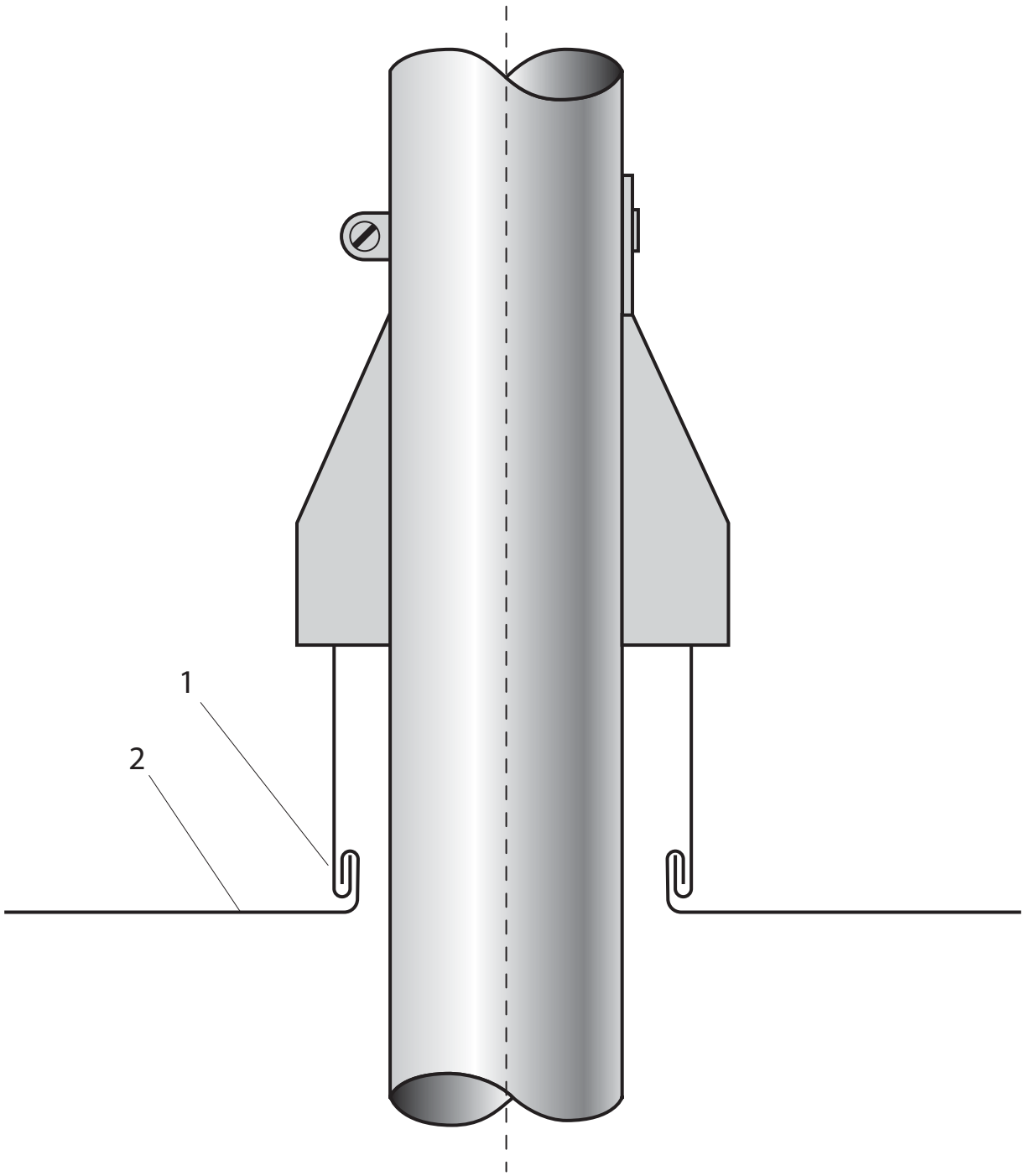
Penetrations - Rooflights, Chimney and Ducting



1 - Soldered seam

2 - Standing Seam Sweep abutments

Pipe or other Circular Penetrations



1 - Soldered or Sika adhesive joint depending on metal

2 - Roof metal covering

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الواجهة البيئية للمقاولات

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