Stone coated metal roofing

Installation manual

This comprehensive installation manual has been designed to assist with all aspects of Quacent roofs. Following this step-by-step installation guide will result in a professional and aesthetically pleasing roof installation that will complement any home for many years to come

It should be emphasised, however, that this Installation Manual is for guidance only. It is the responsibility of the installer to ensure that all National Standards and Local Building Regulations are strictly adhered to and they must take precedence over the installation techniques recommended in this manual

We have covered most eventualities in this guide. Should you need to contact us for further assistance or for help in determining the minimum local building standards, please see our office details on the back cover of this manual.

Quacent stone coated metal roof tile

Roofs produced by Quacent have protected many thousands of homes and commercial buildings around the world for several decades. We provide innovative high quality roofing systems that everyone aspires to have on their home.

R2-Bond TILE

R3-Flat TILE

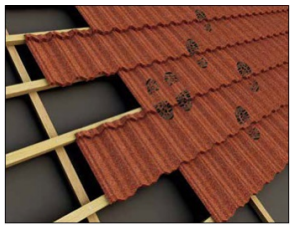
R6-Roman TILE

R4-Fuax Wood TILE

R5-Cedar TILE

Contents

CAUTIONS



Storage and handling

Ideally tiles and accessories are stored indoor in a warehouse. If stored outside, it should be kept in a sheltered place and a well-sealed waterproof cover must be placed over the roofing tiles and accessories to keep them dry and prevent damage to the substrate. Pallets should be stored on a 'sealed' floor - such as concrete, where the surface is sealed in some manner to prevent moisture rising up from the ground.

Pitch

Quacent stone coated metal roofing tiles are recommended for installation on roofs with a slope at least 15 degree.

Non-Standard Elements

When installing non-standard elements or gutters above the level of the roof, it is strongly recommended that materials that could cause corrosion (e.g. Cu, stainless steel…) are NOT used

Roof Traffic

Soft-soled shoes must be worn when walking on the roof.
When moving around the roof, avoid avoid buckling the tiles by placing weight on the balls of the feet, directly over the batten, in the pans of tiles.
Traffic on the roof should be kept to a minimum to avoid possible damage to the tiles. Panels should be installed by working progressively from the top of the roof to the bottom, so that completed sections are not crossed more than necessary to complete the installation

Imporper Tools

Only tools recommended by AHI Roofing should be used. Tools such as angle grinders must NOT be used as swarf (metal filings) will corrode and leave a red rust stain on the surface

INSTALLATION UNDER EXTREMELY COLD CONDITIONS

roofs can be installed in areas that are subject to lengthy periods of extreme cold. Special care is needed during installation in winter conditions to prevent damage to the surface coatings:

1. *Tiles and accessories should be warmed (stored in a warm place or lightly warmed – NOT OVERHEATED) before either cutting or bending.*
2. *The use of nailing guns is NOT recommended in very cold conditions.*
3. *The use of a nail punch to drive in the final 5 mm of the nail is recommended*

CAUTIONS

Safety

Please ensure that local safety regulations are followed and appropriate personal protective equipment is used at all times. Care should be taken to ensure that all live electrical cables are well clear of any nailing positions

Wet Surface

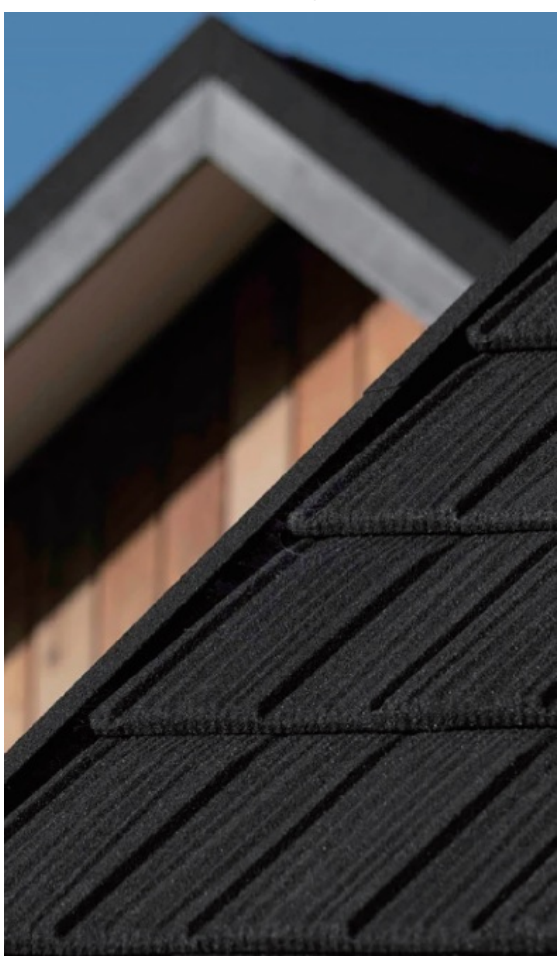
To prevent surface damage, it is important not to walk or work on the roof when it is wet

Packing

Tiles and accessories are stored on wooden pallets and protected by a plastic cover. A pallet consists of between 500 and 800 tiles.Tiles should be stacked on each pallet up to a maximum weight of 1150 kg

Handling

Care should be taken when handling the tiles to avoid damage to the surface. If minor damage does occur, the finishing kit should be used to repair it.



Tools

Combined bender

Guillotine

Colored string

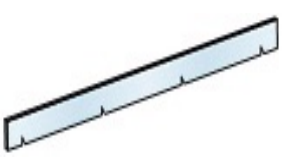
Metal roof attachments

Metal cutting saw

Metal cutting blade

Bevel

Hand pliers



Measuring rod

Tape measurer

Shears pelikan

Gas nailer

Pneumatic nailer

Soft-soled shoes

Hammer

Tiles

R4 FUAX WOOD

Overall length 1320mm		Active length 1270mm	
Overall width 420mm		Active width 380mm	
Overall area 0.55m²		Active area 0.48m²	
Weight/piece 2.6kg		Piece/m²	2.08/m²

R2 BOND TILE

Overall length 1340mm		Active length 1270mm	
Overall width 420mm		Active width 380mm	
Overall area 0.56m²		Active area 0.48m²	
Weight/piece 2.7kg		Piece/m²	2.08/m²

R5 CEDAR TILE

Overall length 1320mm		Active length 1250mm	
Overall width 420mm		Active width 380mm	
Overall area 0.55m²		Active area 0.475m²	
Weight/piece 2.6kg		Piece/m²	2.11/m²

R3 FLAT TILE

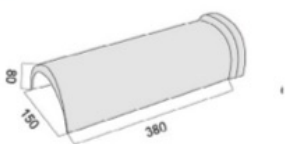
Overall length 1340mm		Active length 1270mm	
Overall width 420mm		Active width 380mm	
Overall area 0.56m²		Active area 0.48m²	
Weight/piece 2.7kg		Piece/m²	2.08/m²

R6 ROMAN TILE

Overall length 1320mm		Active length 1280mm	
Overall width 410mm		Active width 380mm	
Overall area 0.54m²		Active area 0.49m²	
Weight/piece 3.1kg		Piece/m²	3.04/m²

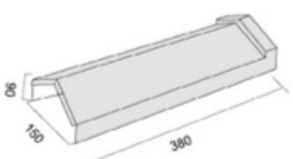
Accessories

A01 CIRCULAR HIP

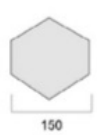


A02 ROUND COVER

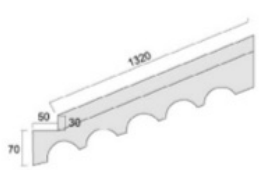
A03 ANGLE HIP



A04 ANGLE COVER

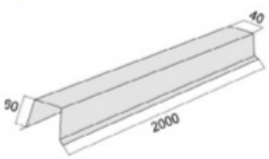


A17 RIDGE SEAL BOARD

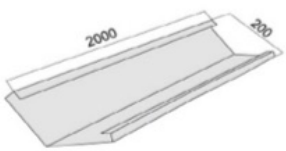


A16 RESTORATIVE

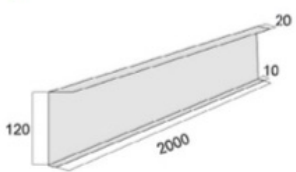
A05 SIDE RIDGE TILE



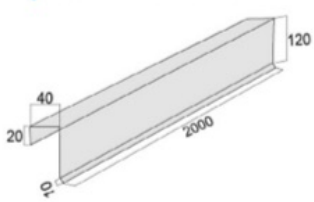
A06 CULLIS BOARD



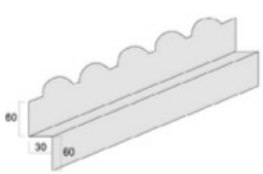
A07 EAVES FLASHING



A08 BOX BARGE BOARD

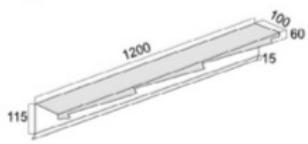


A18 VERGE SEAL BOARD

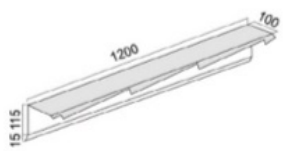


A15 SCREWS

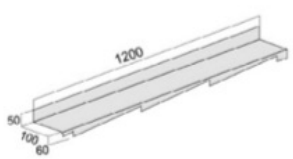
A09 BOX BARGE BOARD L



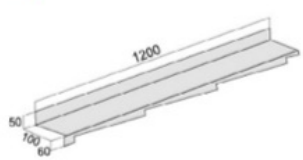
A10 BOX BARGE BOARD R



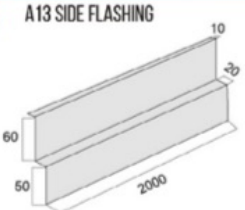
A11 SIDE FLASHING L



A12 SIDE FLASHING R



A13 SIDE FLASHING

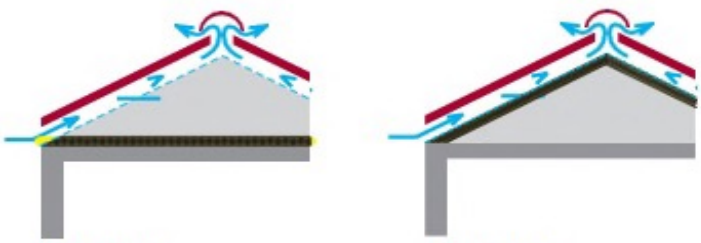


A14 NAILS

Roof structure

The conventional design of pitched roofs requires two ventilation zones to control condensation.

Modern roof construction prescribes one ventilation zone and the installation of vapour permeable underlay, which can be used in both cold and warm roofs.



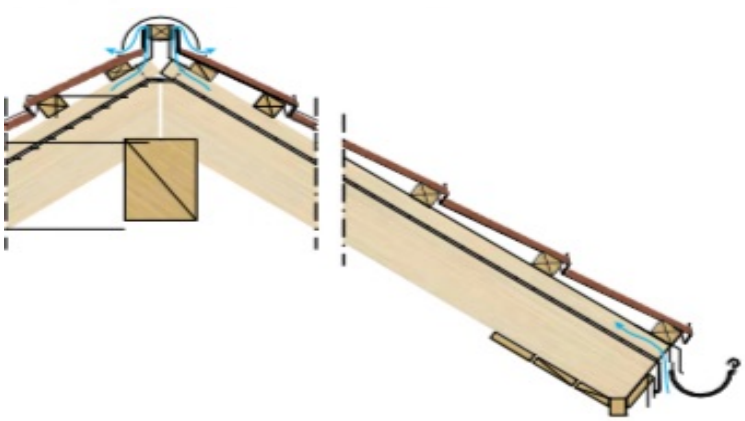
COLD ROOFS
With large voids above horizontal insulation.

WARM ROOFS
With small or no voids above slopinginsulation.

The harmful effects of condensation and ice damming can be avoided by ensuring that all the components of the roof are correctly installed. The tiles should be installed on a traditional batten structure. The roof should be designed as a ventilated system with an open-ended ventilation space, breathable underlay, thermal insulation and vapour membrane. It is recommended that a heat loss calculation is carried out according to local regulations.

Underlay

Breathable underlays allow water vapour to escape through the material by diffusion. They have a sufficiently fine structure to prevent liquid water penetration under service conditions. They fulfil all the other demands made on a roof underlay: the outflow of eventual condensation moisture or rain and snow water, caused by improper design of the roof or poor workmanship.



Ventilation Space

A ventilation space should be provided above the underlay, by means of eaves and ridge ventilation. This is achieved by the installation of counter battens nailed to the rafters. The height of the counter battens can be from 25 to 50mm. Thicker counter battens enlarge the ventilation space, thus enabling humidity to exit more efficiently. To achieve good air circulation, an air inlet in the eaves and an air outlet in the ridge should be ensured.

The eaves inlet opening should measure:

- Min. 2‰ (equivalent to 0.2%) of the corresponding area of roof OR
- Min. 200 cm2 per m of eaves length (equivalent to a continuous, unobstructed gap 2 cm wide).

An air outlet at ridge level or on top of the roof should measure:

- Min. 0,5 ‰ (equivalent to 0.05%) of the corresponding area of roof OR
- Min. 50 cm2 (equivalent to a continuous, unobstructed gap 0.5 cm wide) per m of ridge length.

Depending on the rafter length (a), the diffusion-equivalent air layer thickness (s_d) of the layers installed underneath the ventilated space should not be less than:

- a < 10 m : s_d > 2 m
- a < 15 m : s_d > 5 m
- a > 15 m : s_d > 10 m

Thermal insulation

Adequately sized thermal insulation will reduce energy costs, prevent the possibility of condensation and the formation of ice dams in regions that experience severe winters. The minimum thickness of the insulation should be calculated in accordance with the local building legislation.

Vapour Barrier

The vapour barrier ensures that only a limited amount of humidity is transported through the roofing structure. This is always laid on the warmer side of the thermal insulation. It is important that a special adhesive tape is used to securely seal any overlaps in the vapour barrier, the junctions with walls and around any pipes, chimneys, antennas, window openings and such like that may penetrate the roof surface. There should not be any leaking joins in the vapour barrier.

Battens

Counter Battens

Counter battens (Ventilation Space Battens) provide a ventilation space between the underlay and the roof covering Rafters should be lined up before the roofer begins work (this is the builder's responsibility). When re-roofing, counter battens should be lined up. The counter batten dimension is 40 x 60 mm.

Tile Battens

Rafters can be set at various centres depending on the type of construction and the local regulations, our general supply tile battens dimension is 30 x 50 mm.

Batten Fixing

Wind pressure applies wind uplift load to the fasteners. When fixing counter battens to rafters and tile battens to counter battens, it is recommended to use screws or twist shank nails or annular grooved nails for additional holding power. In regions subject to strong winds, special attention should be paid to the method of fixing the counter battens and tile battens

Ridge Batten

Install the top ridge batten onto the ridge bracket (Option 1) or along the batten under-structure (Option 2). The height of the top ridge battens can vary depending on the slope of the roof. This setup must be accurate as the barrel will be installed onto the ridge batten. To provide an air outlet a gap must be ensured between the ridge batten and the upstand of the top tile. Spacers (pieces of wood) can be installed on both sides of the ridge batten (Option 2) to provide this opening

Option 1

Installation with bracket

Option 2

Installation with batten understructure

Battens

Gable

Install a 40 x 50 mm batten across the tile batten. Fix the barge board into the counter batten and gable batten. The underlay should be turned up at the gable end of the roof. Note that the edge of the tile is bent up under the barge cover when finishing the installation of tiles. This will ensure complete weather security

Hip Batten

Install the top hip batten onto the ridge-hip bracket (Option 1) or along the batten under-structure (Option 2). The height of the hip batten can vary depending on the slope of the roof. This setup must be accurate as the barrel will be installed onto the hip batten.
To provide an air outlet,a gap must be ensured between the hip batten and the upstand of the tile. Spacers (pieces of wood) can be installed on both sides of the hip batten to provide this opening.

Option 1

Option 2

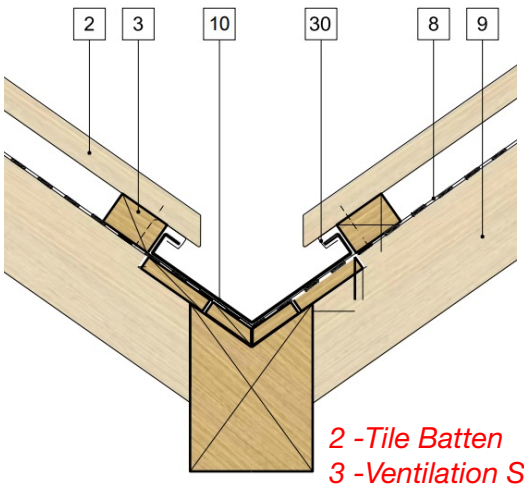
Eaves

Install eaves protection flashing underneath the underlay. It can go behind the gutter into the open (Option 1), or over and into the back of the gutter (Option 2). The use of self-adhesive tape is recommended to bond the underlay and the eaves protection flashing where they overlap.
The air inlet should be protected by a metal or plastic mesh to prevent insects, birds or small animals entering the ventilation space.

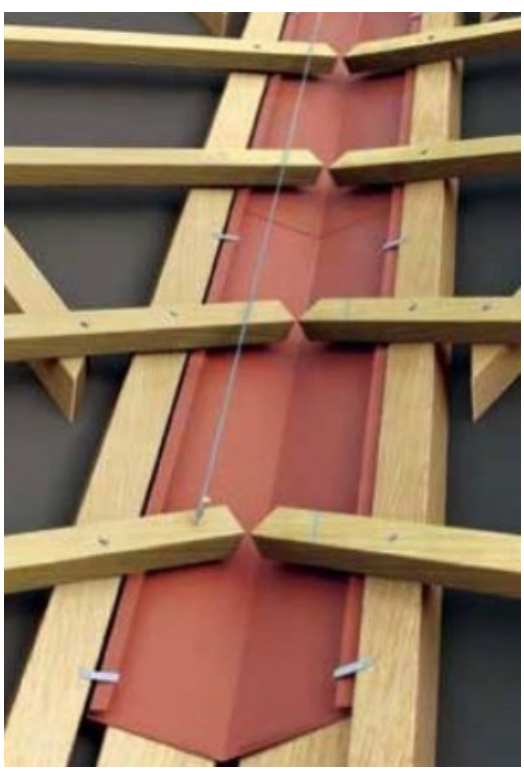
Battens

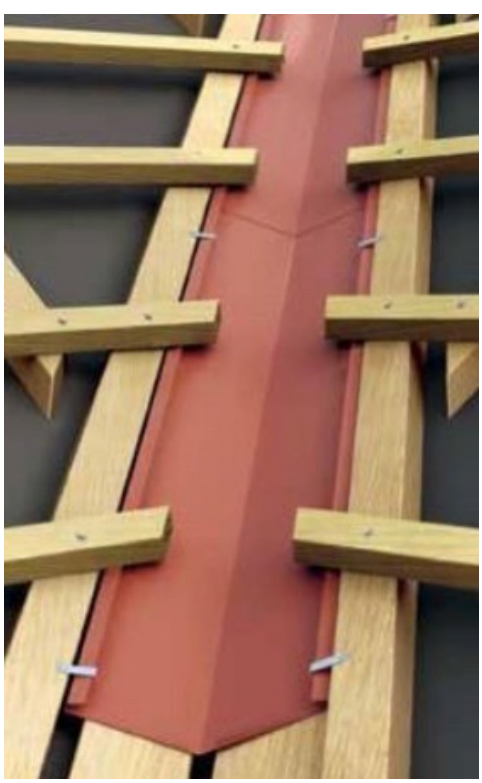
Valley

Measure and construct the valley very carefully as it is an important part of the roof. The following details suggest two ways that the valley lining may be fitted. Local practice, building regulations and site conditions will dictate the final method used. If not regulated by local legislation, it is recommended to use a valley made from approx. 50 cm wide, painted aluminium-zinc alloy coated steel or aluminium sheet. This is of particular importance in areas prone to harsh winters. Secure the valley with a clip. Never nail inside the valley.



2 -Tile Batten
3 -Ventilation Space Batten
8 -Underlay
9 -Rafter
10-Valley
30-Clip

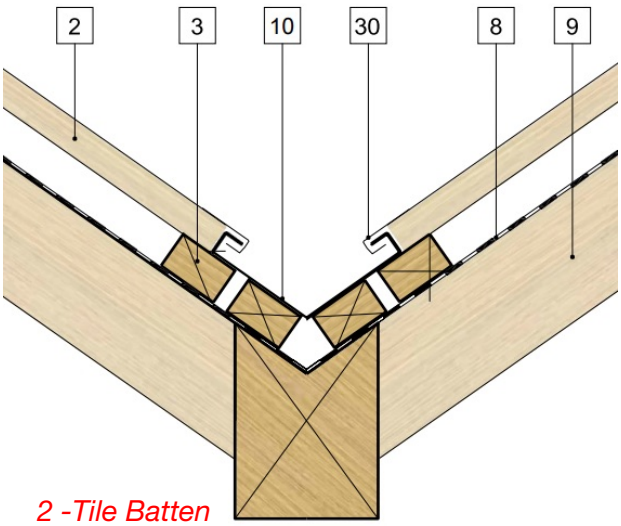




Battens

Installation of the valley on the level of the tile batten space

Ensure that the tile battens end at the vertical edge of the valleys. The advantage of this method is the easier installation of the valley around dormers where the valley ends on top of the tiles



2 -Tile Batten
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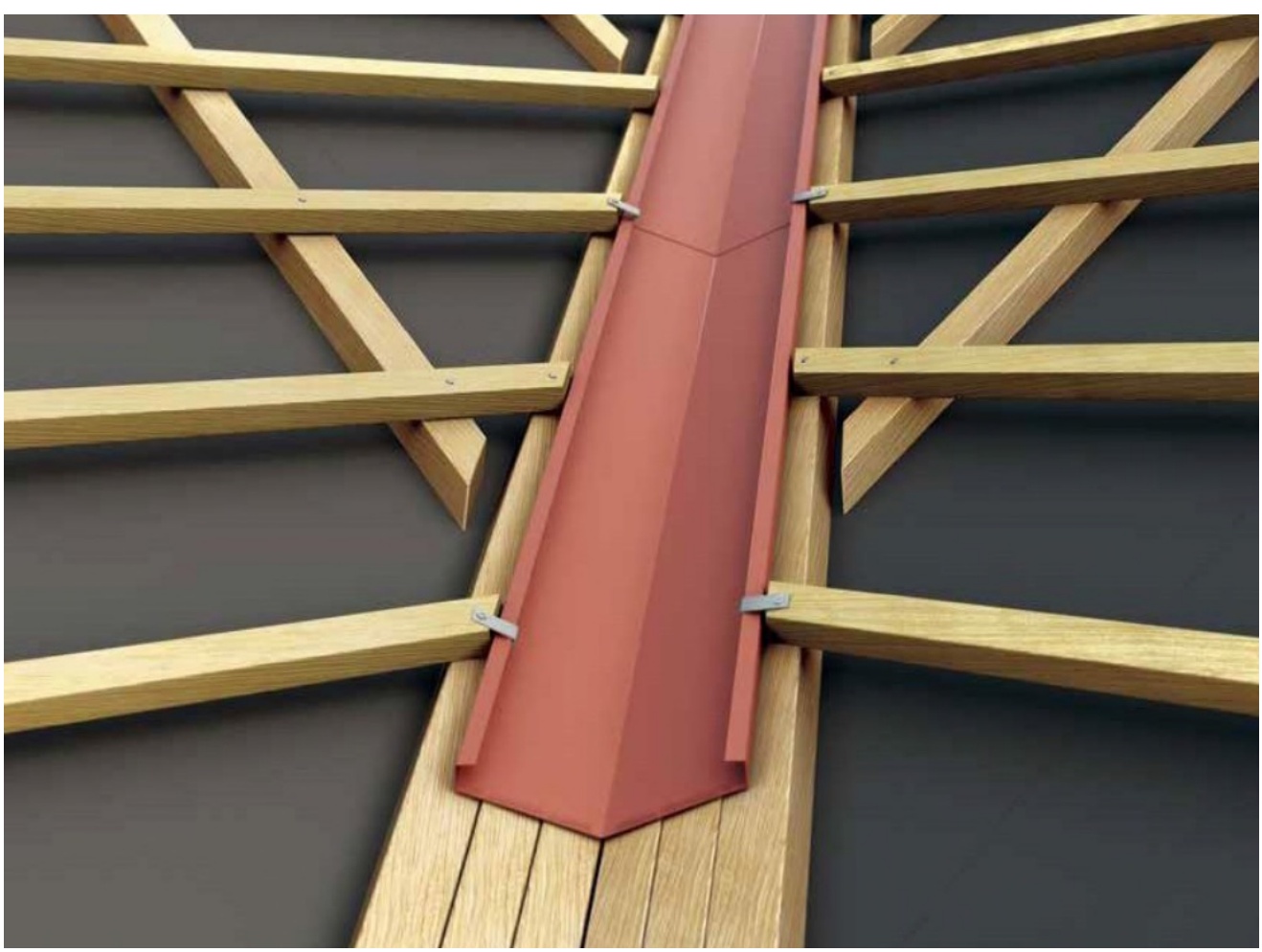
8 -Underlay
9 -Rafter
10-Valley
30-Clip



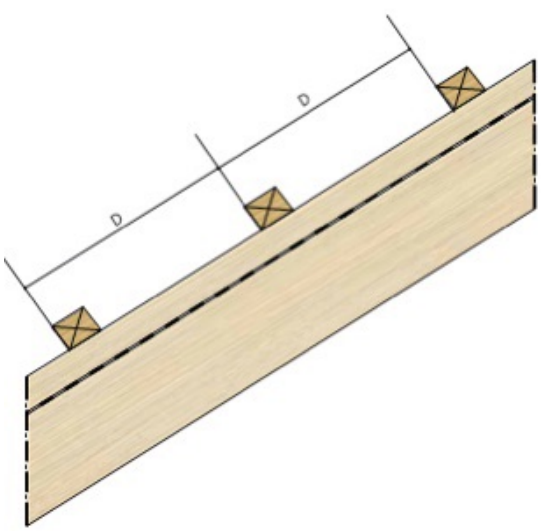
Battens

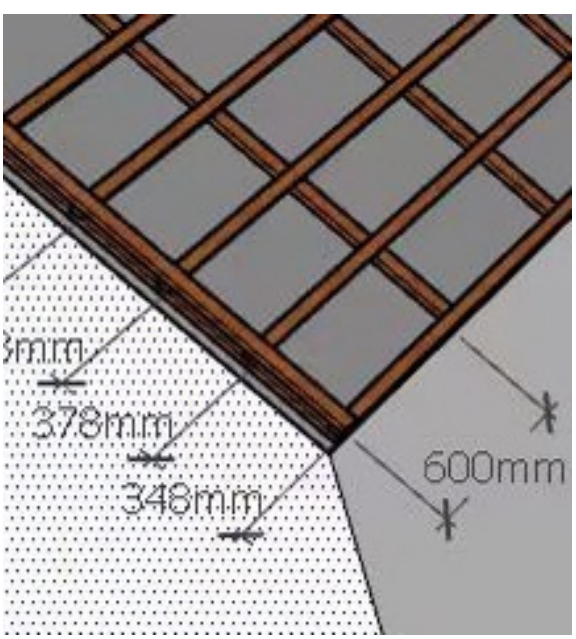
Batten spacing

The most critical factor in laying the tiles is accurately setting out the tile battens. If this is not done accurately then the tiles will not fit together correctly.

All measurements should be made from the front of the battens. This is the surface where tiles will be fixed to the battens. The batten spacings for all profiles are 348mm for the first row and 378mm for the rest row, and make sure the last row of the batten space less than 378mm.

The distance between two counter battens should less than 600mm



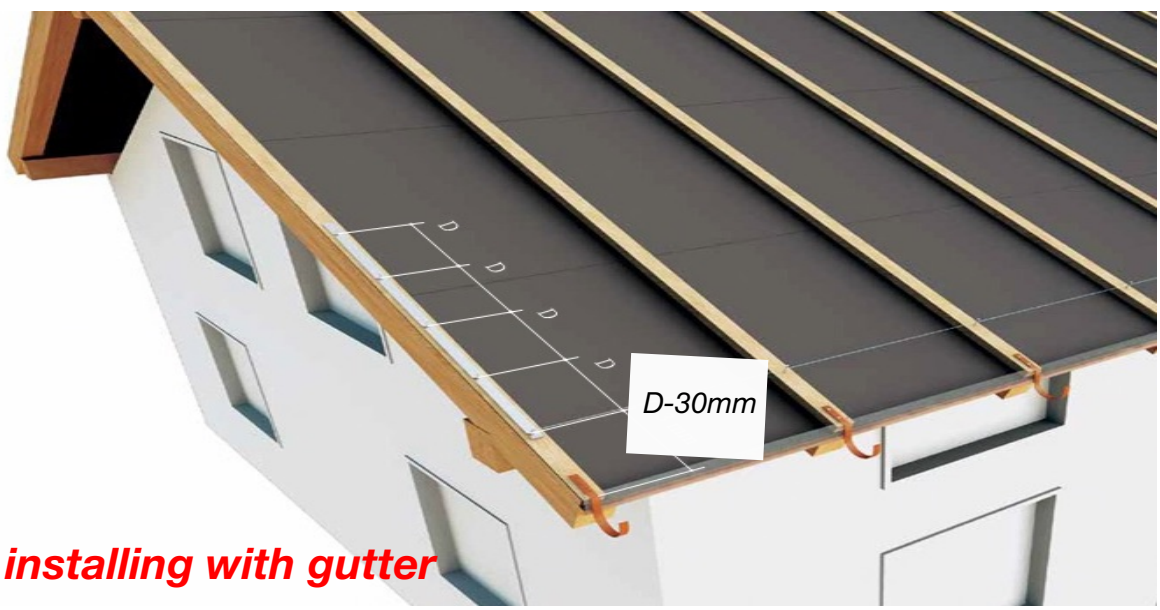


348mm for the first row
378mm for the rest

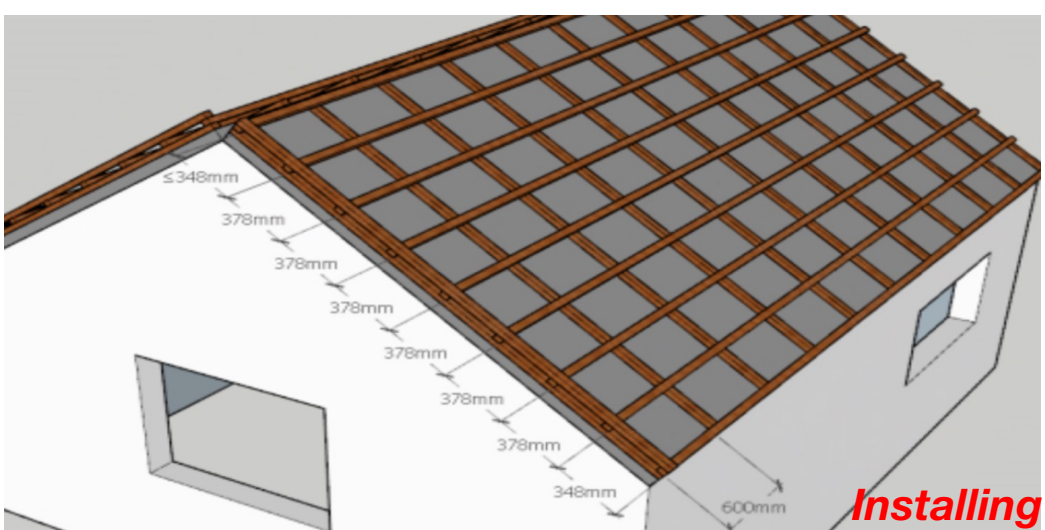
Battens

Installation procedure

Measure up from the eaves edge (D-30mm) to establish the position of the second batten. Use the measuring rod to measure the subsequent battens in direction from the eaves to the ridge.
Use colored string to mark the position of the marking nails. If the rafter length does not accurately suit a full course of tiles, the top course will have to be cut and bent to fit, requiring the space between the top batten to the ridge to be less than usual.
Lay the battens in rows across the rafters against the marking nails, which will be removed after fixing the battens



installing with gutter

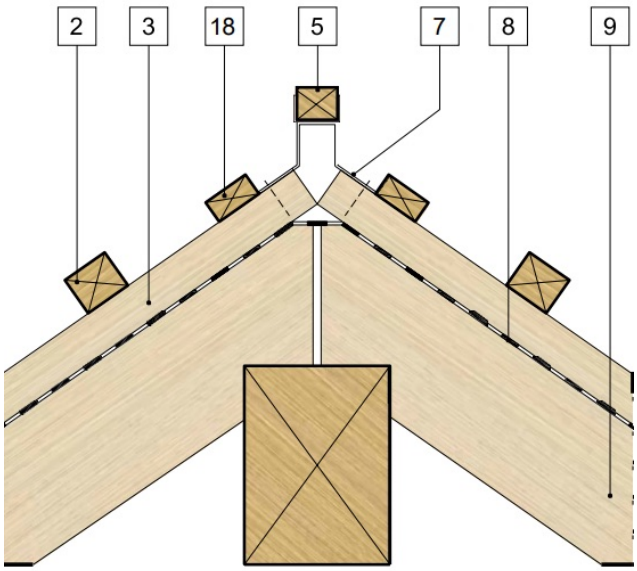


Installing without gutter

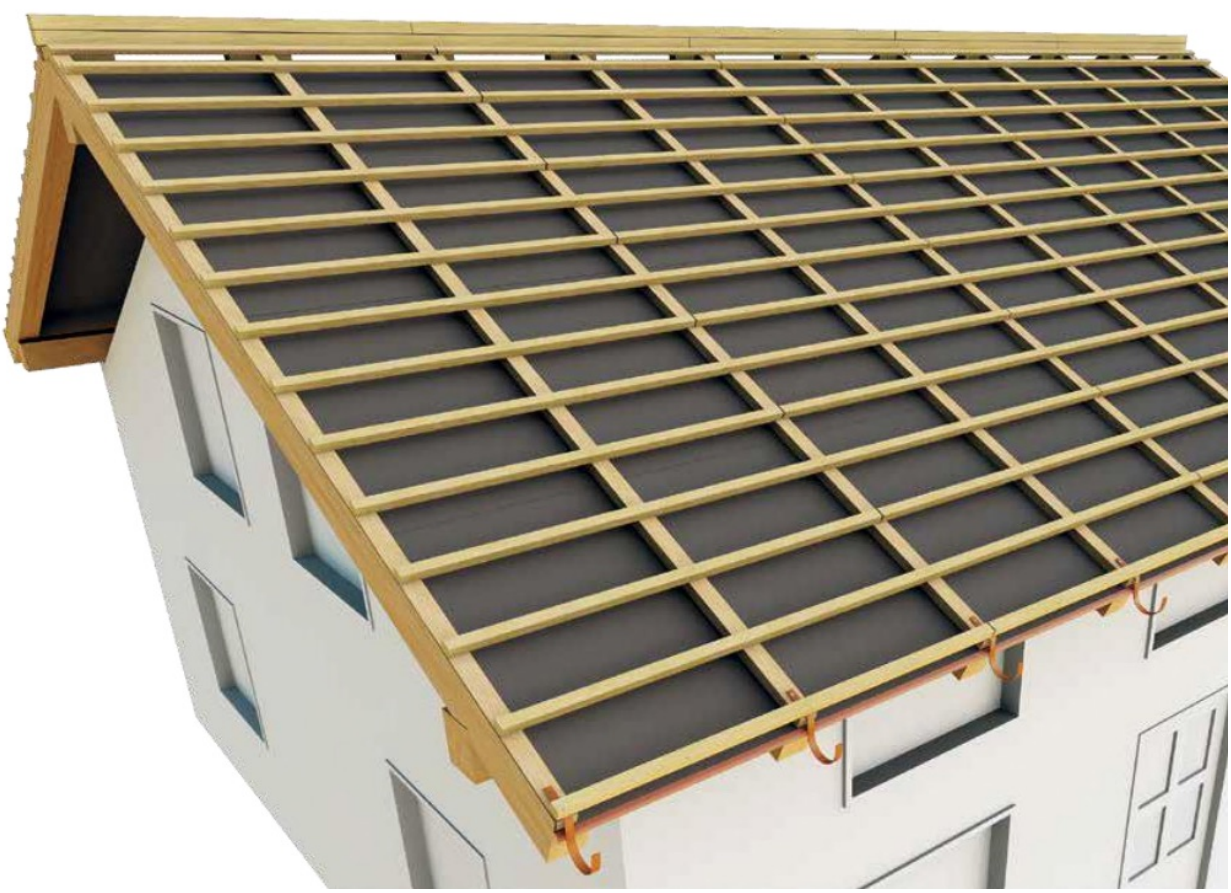
D-30mm

Battens

Thinner support battens are recommended for the top row at the ridge. This ensures that the top course of tiles follows the same pitch as the other courses. Ensure that the batten joints are staggered



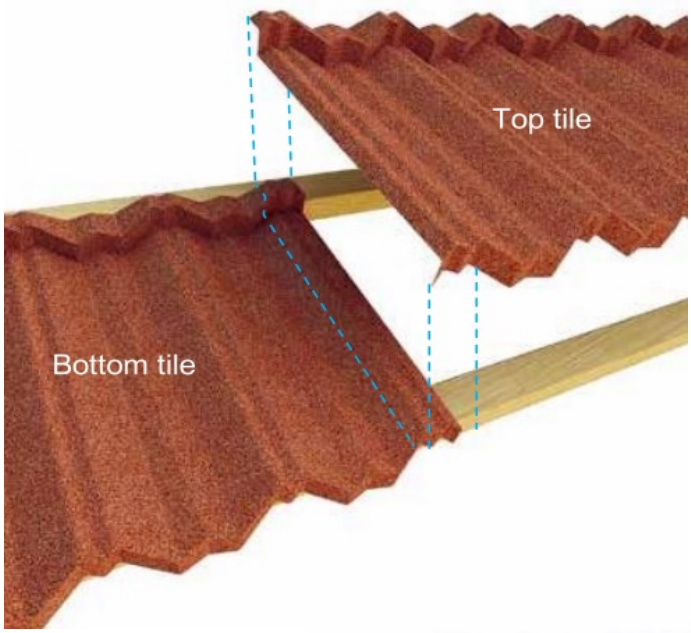
2 - Tile Batten
3 - Ventilation Space Batten
5 - Ridge Batten
7 - Ridge Bracket
8 - Underlay
9 - Rafter
18- Thinner Support Batten

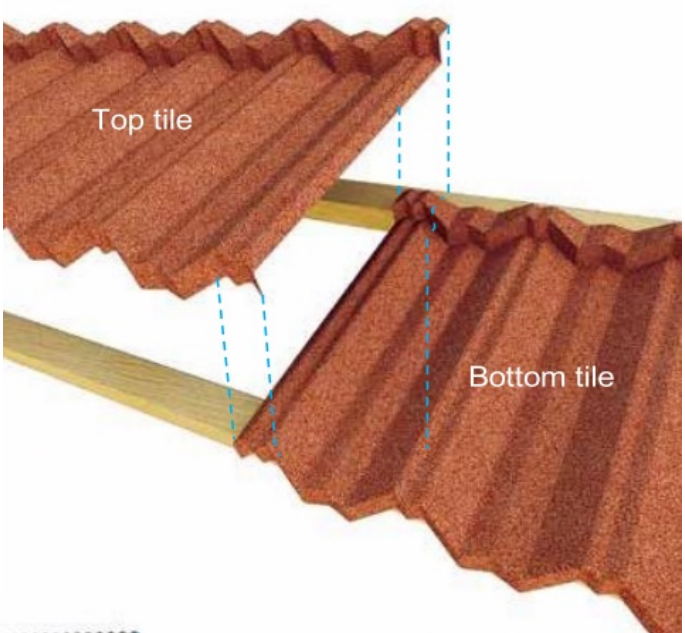


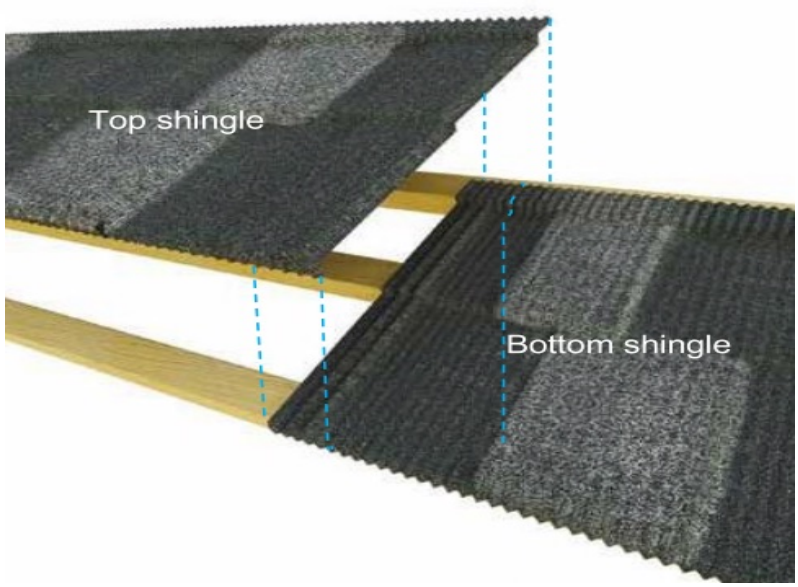
Tile installation

Interlocking of the tiles

Quacent R serials Tile/Shingle can be interlocked either right over left or left over right but should be laid with the laps facing away from the prevailing winds or from discharging rain-water pipes or valleys. Where possible, the tiles should also be laid with the laps facing away from the normal line of sigh.







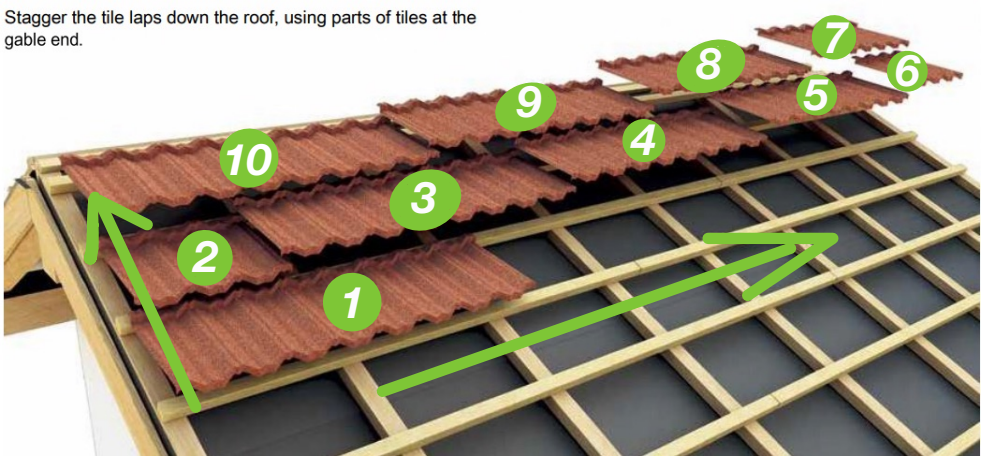
Tile installation

Tile laying

Start installation from ridge towards the eaves. Lay the second course of tiles from the top from gable end to gable end, turning the edge of the end tiles up against the barge battens. Nail these tiles in position through the flat of the back edge sitting on the batten.

When laying Quacent's tiles, when performing the main tile overlay, the direction from left to right or from right to left should be determined based on the roof structure. During installation, tiles should be laid from bottom to top using staggered joints. In principle, this minimizes the waste of excess tiles, enhances efficiency, and ensures aesthetics and neatness. After the installation is complete, an inspection should be carried out to ensure the tiles are firmly installed and tightly sealed.

Stagger the tile laps down the roof, using parts of tiles at the gable end.



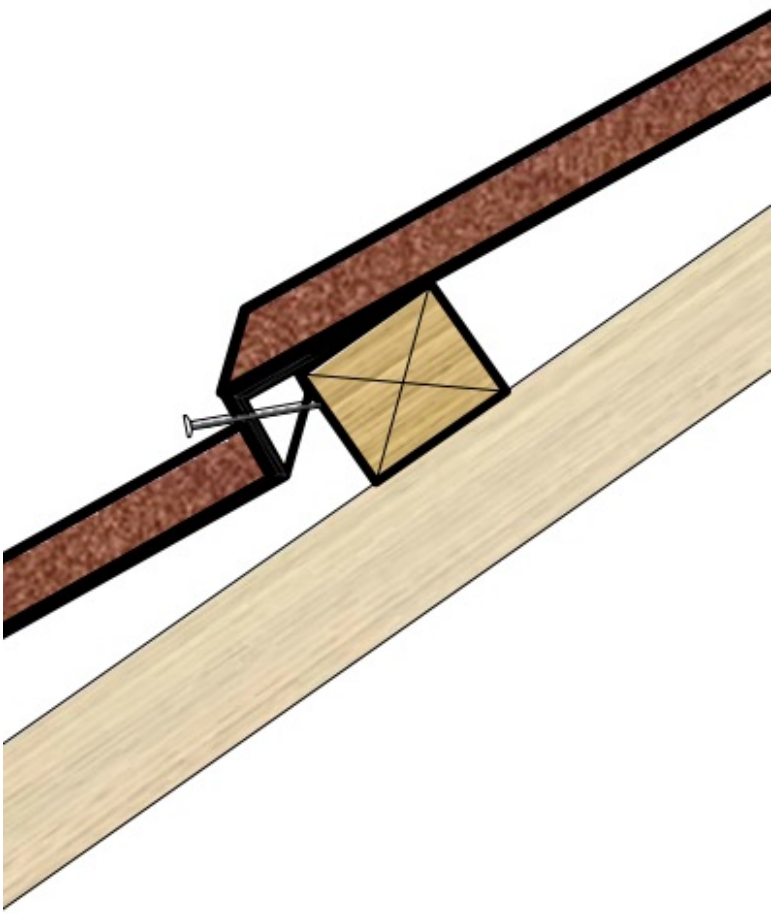
Tile installation

Tile Laying at the hip

On the second course from the top, lay the top corner of the first tile approximately 150 mm from the hip batten. Continue to lay tiles towards the other hip until the last full tile will fit and secure them through the flat on the back of the tiles. Lay subsequent courses two at a time, both starting about the same distance from the hip batten.
To fill the gap between the last full tile and hip batten use parts of tiles. The amount of tile wastage can be reduced if each end of a full tile is cut and bent to fill the gaps.
If a small part of the tile (less than a module width) is required to fill the gap, it will be necessary to remove the adjacent full tile and insert a part tile. This will allow a full width tile to be cut to fit

Nailing technique

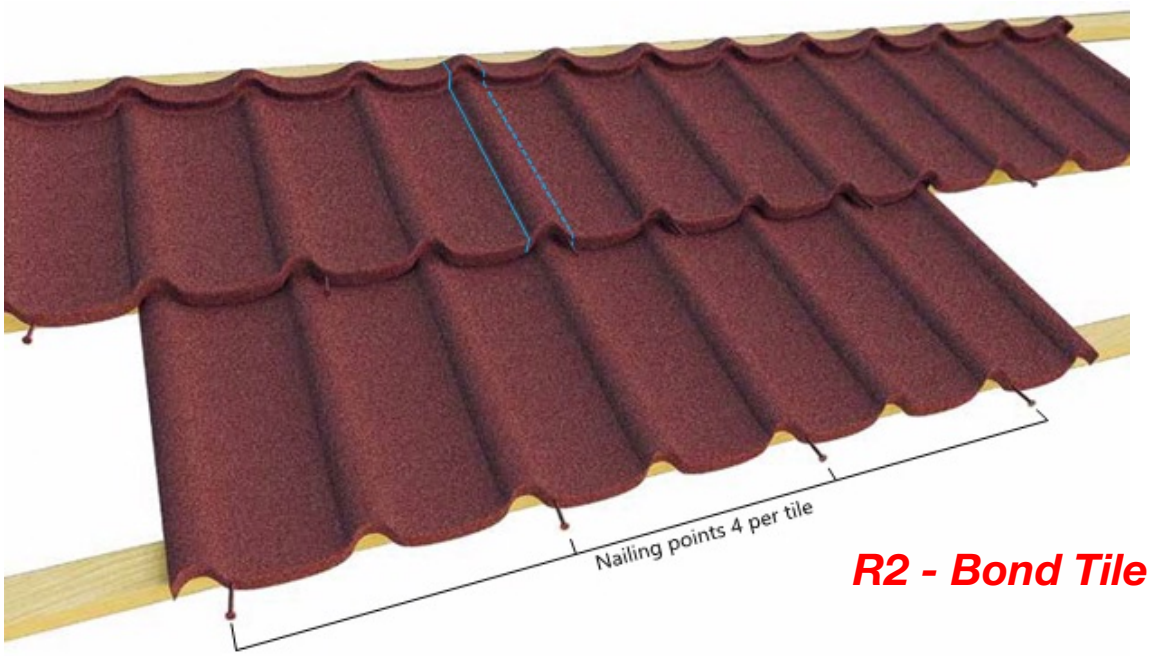
Tiles are secured to the battens by nailing through the nose of the upper tiles and through the back up stand of the lower tile into the side of the battens. The positioning of the nails and the number of nails per tile are determined by the type and length of the tile. The tiles should be fastened two courses above the tiles that are being laid.
Apply weight when nailing. The person nailing should stand on tile being installed facing the eaves.
Gun nailers can also be used to securely fasten the tiles



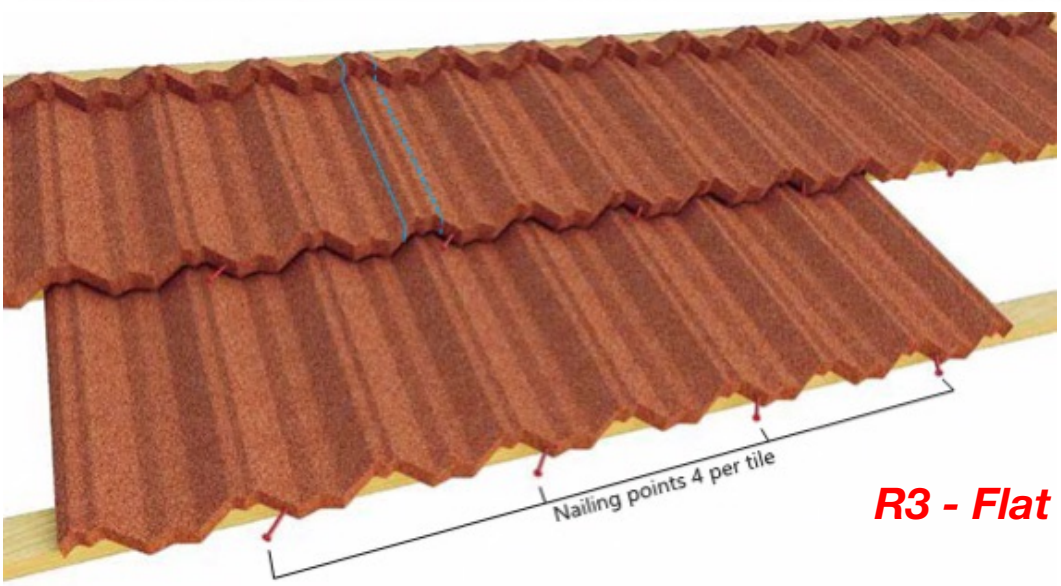
Nail position

Correct nailing ensures good holding of the tile and ample penetration of the nail, at the same time restricting nail penetration to a maximum of two thicknesses.

NOTE: In areas prone to extremely strong winds, installation must meet the local standards and by-laws and nailing should be at 8 points per tile

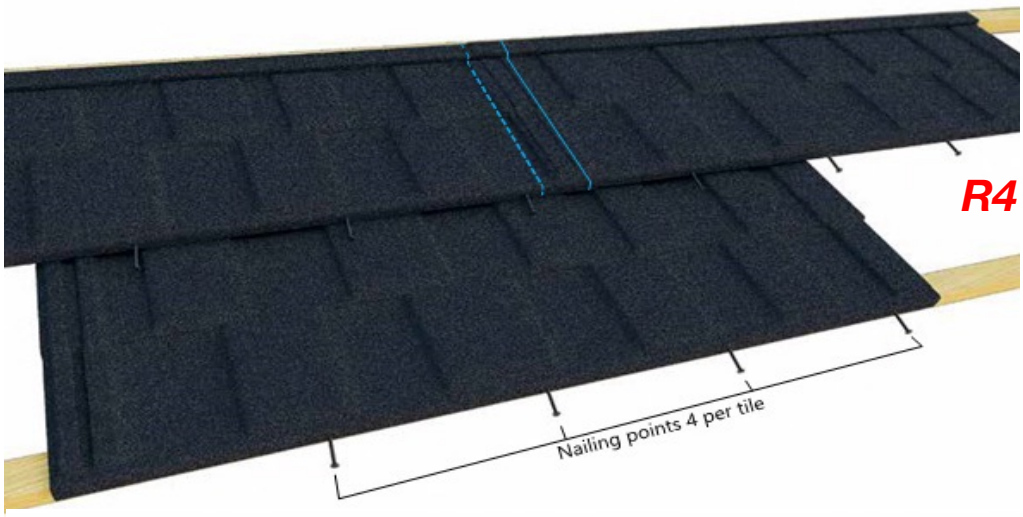


R2 - Bond Tile

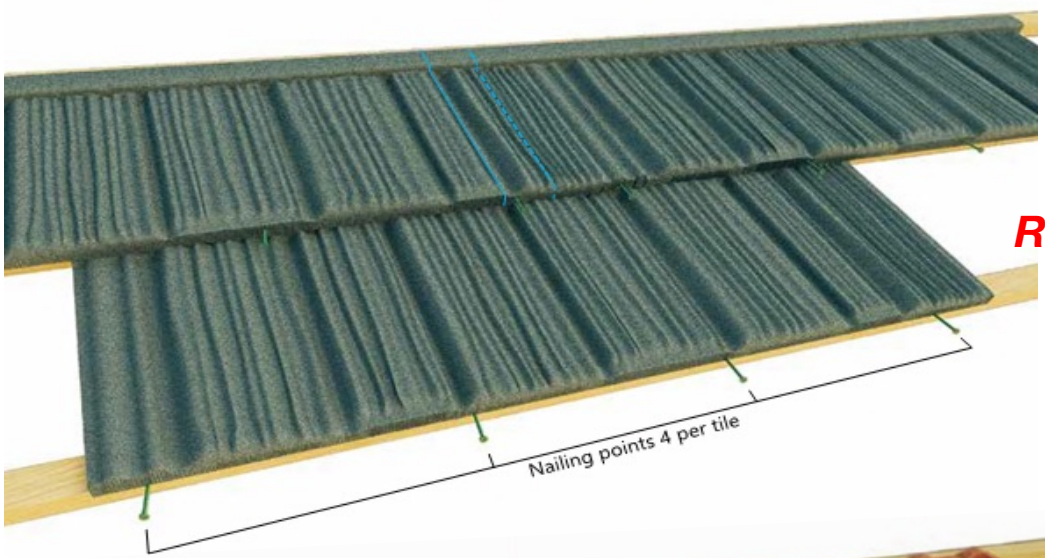


R3 - Flat Tile

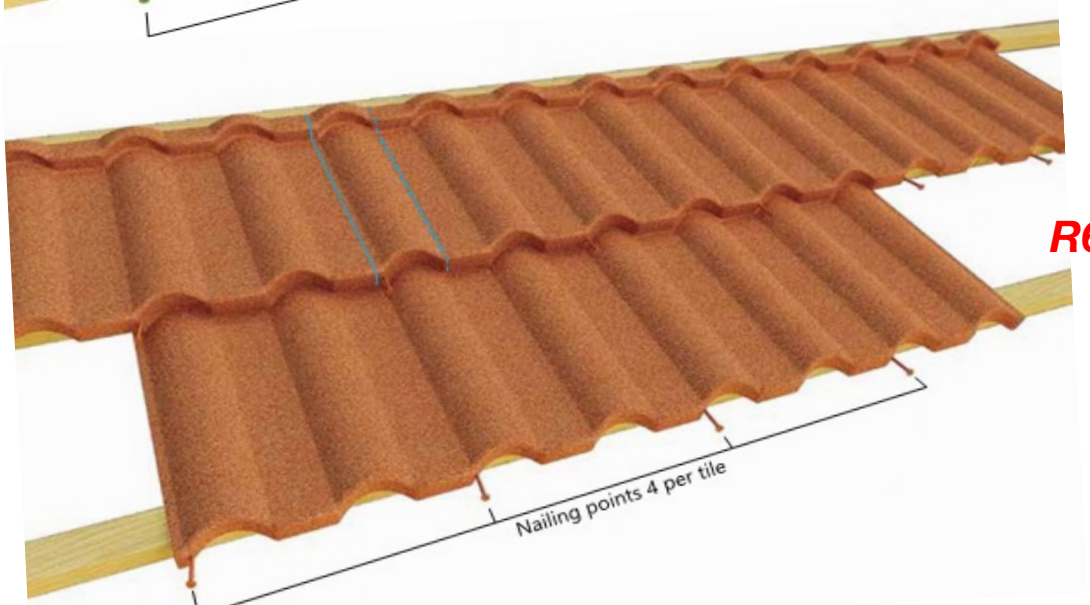
Nail position



R4 - Faux Wood Tile



R5 - Cedar Tile

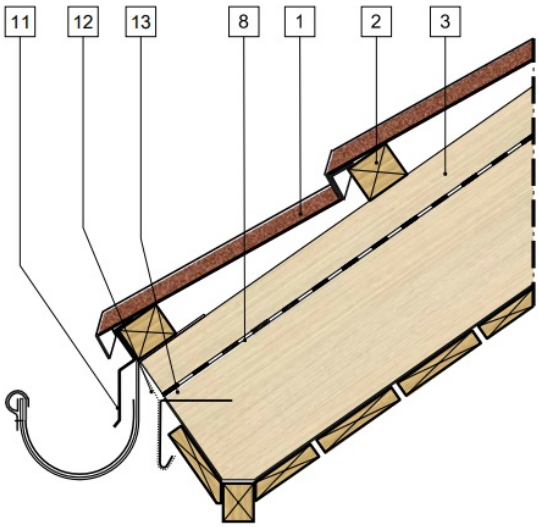


R6 - Roman Tile

Eaves Flashing

Construct the eave very carefully as it is an important part of the roof ventilation. An air intake opening should be provided, protected by a metal or plastic mesh

Nail the eaves flashing from the top into the first batten. Lay the first row of tiles (the last to be installed) and nail them at the nose of the tile and through the eaves flashing into the side of the first tile batten.

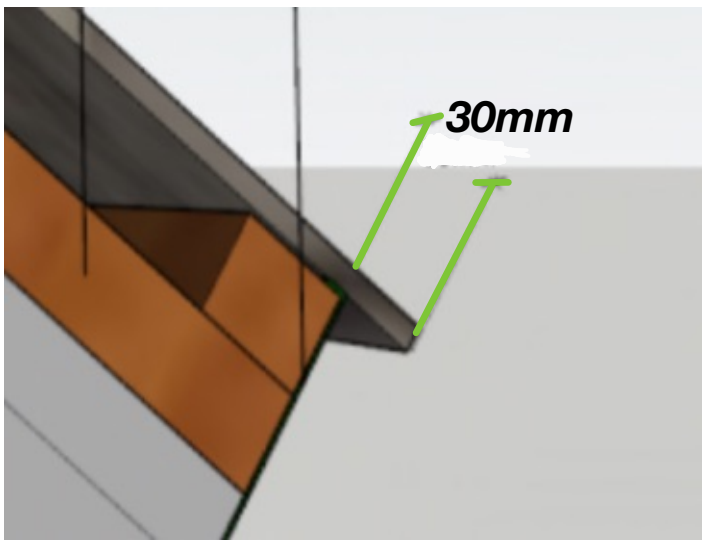


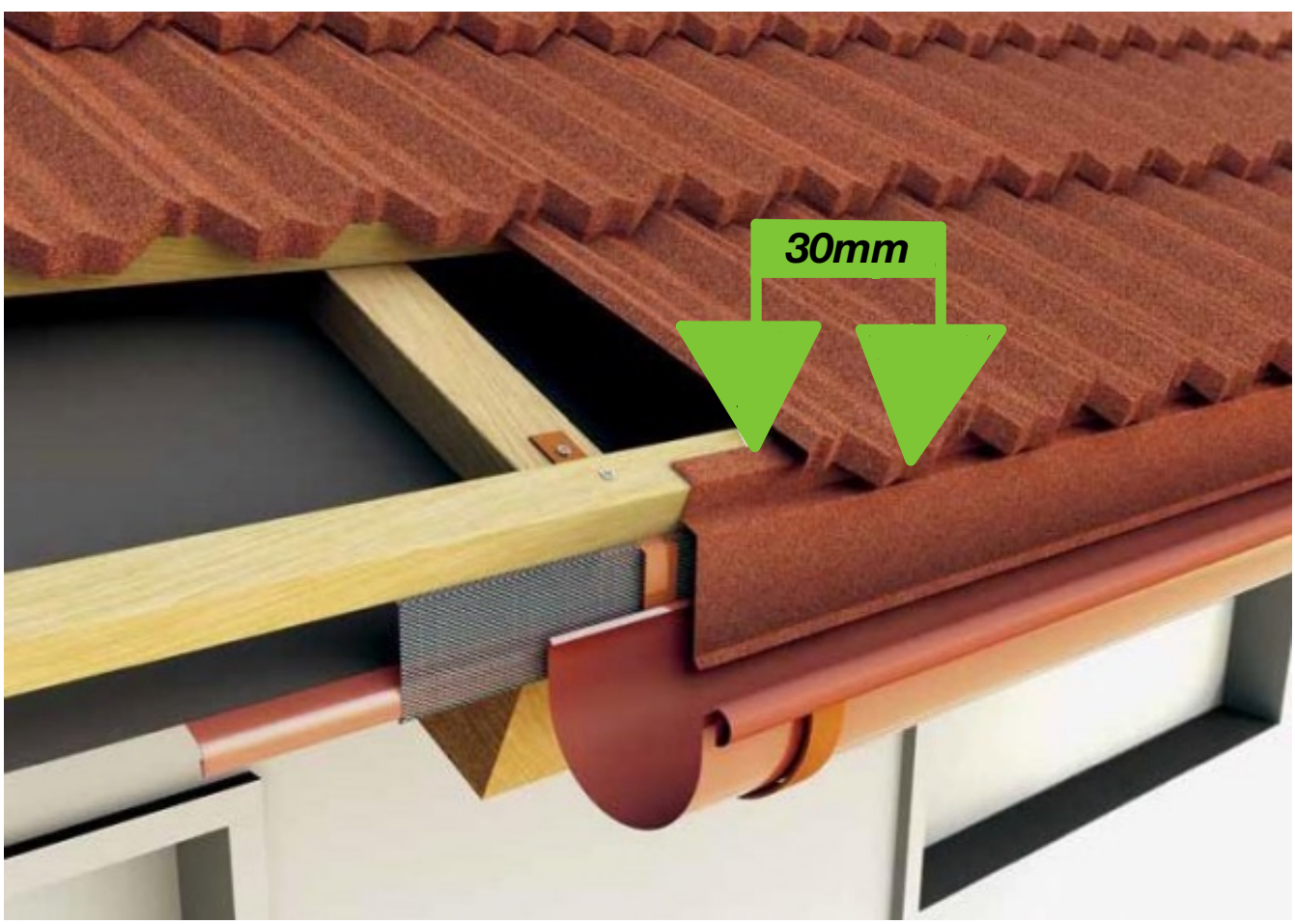
1 - Tile
2 - Tile Batten
3 - Ventilation Space Batten
8 - Underlay
11- Eaves Flashing
12- Mesh
13- Eaves Guard Flashing

Eaves Flashing

Laying the eave

When laying the eaves, the main tiles extend beyond the eaves flashing by a length of 30mm.
When installing the eaves, if the eaves form a gutter, the eave tiles extend out to be laid along the eave, and they extend beyond the eave by 30mm.



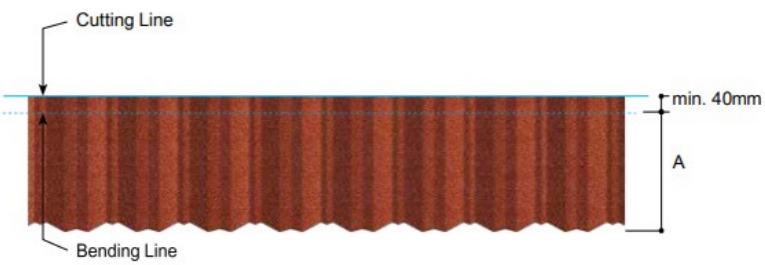


Ridge

Cutting and Bending Tiles

Measure the distance (A) from the last tile to the spacers on the ridge batten. When installing the ridge without the use of spacers, the width of the air outlet must be deducted from the measurement. Add 40 mm to the measurement for a standard up-stand and mark the tile to be cut.
The height of the upstand can vary depending on the pitch of the roof

1. Place the full tile in the long tile bending attachment, which can be bolted to the bender. Line up the marks showing the bend line and bend the tile upwards. It is important to bend the tile first to avoid distortion when cutting.
2. Cut the tile along the marked cutting line using the guillotine, hand shears or metal cutting saw.
3. When making the gap for the air outlet without use of spacers, the upstand of the tile needs to be bent so that it makes a step

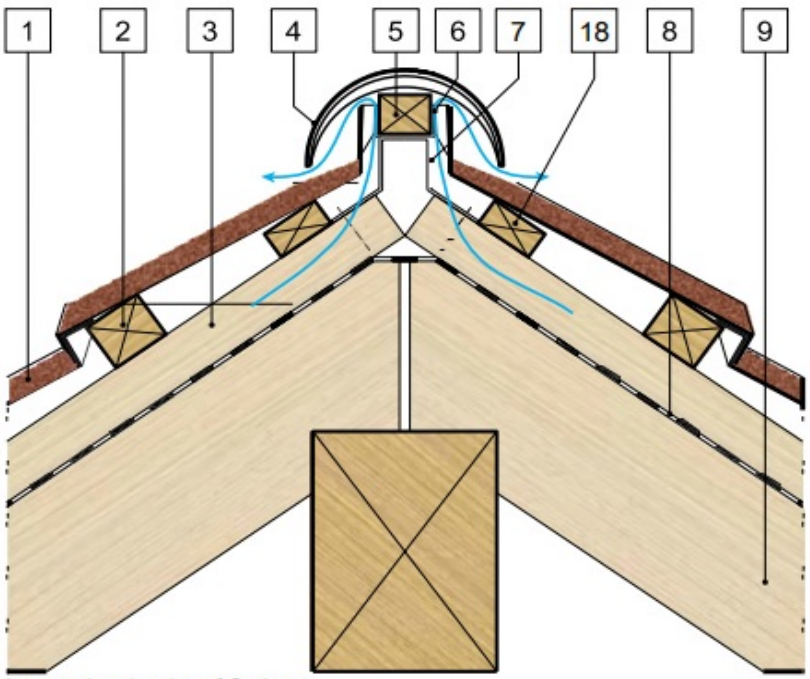


Ridge

Installation

Install a thinner support batten at the ridge when the top course is less than the full width. This keeps the slope of the top tile course the same as the other tiles on the roof. The thickness of the support batten depends on the width of the top row tile. Fix all the cut tiles by nailing into the ridge batten in 4 places through the small bend on the turn up. This will leave space for ventilation. An air outlet can also be ensured by installing spacers. When installing the ridge using spacers, nail through the turn up and through the spacer.

The barrels are fixed from the top using screws or nails. The position of the fasteners should be at the ends of the barrels (at the overlap).



Intersection drawing of Option 1

1 Tile
2 Tile Batten
3 Ventilation Space Batten
4 Barrel
5 Ridge Batten
6 Air Outlet
7 Ridge Bracket
8 Underlay
9 Rafter
18 Thinner Support Batten

Option 2: Ridge batten with spacers

Hip

Cutting and Bending Tiles

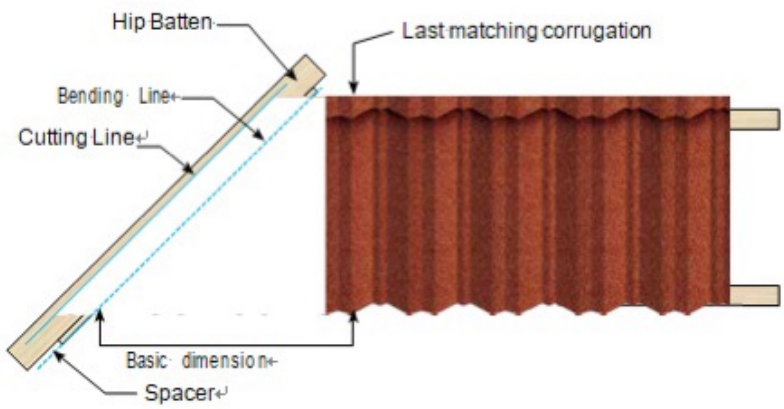
The basic measurement is taken from the last corrugation of the bottom corner of the last tile, to the spacers on the hip tile batten.When installing the hip without the use of spacers, the width of the air outlet has to be deducted from the measurement.

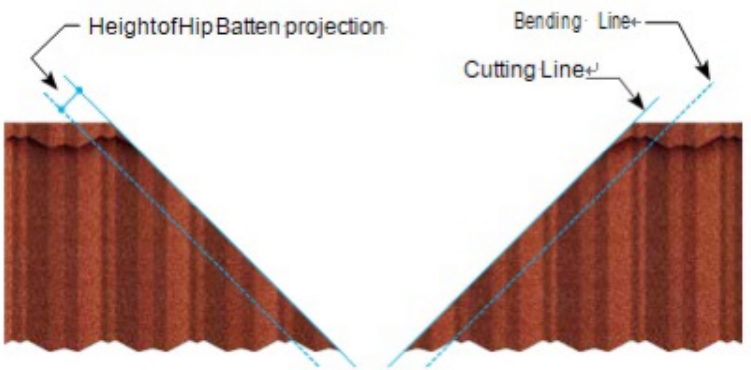
Measure and mark the required measurements taken from the roof on the tiles with chalk or similar, ensuring that the matching corrugation of the overlapping tile to be cut is taken as the measurement starting point. This forms the Bending Line.

Add the height of the hip batten projection above the tile line to the bending line measurement to obtain the Cutting Line.

Each tile should supply two cut pieces, leaving minimal wastage.

Cut and bend the tiles according to the measurements determined above:
1. Flatten both up-stands of the tile where it is to be cut. This will make cutting easier.
2. Cut the tile along the marked Cutting Line using the guillotine, hand shears or metal cutting saw.
3. Bend the tile using a short tile bender.
4. When making a gap for the airoutlet without the use of spacers, the upstanding of the tile must be bent so that it makes a step.

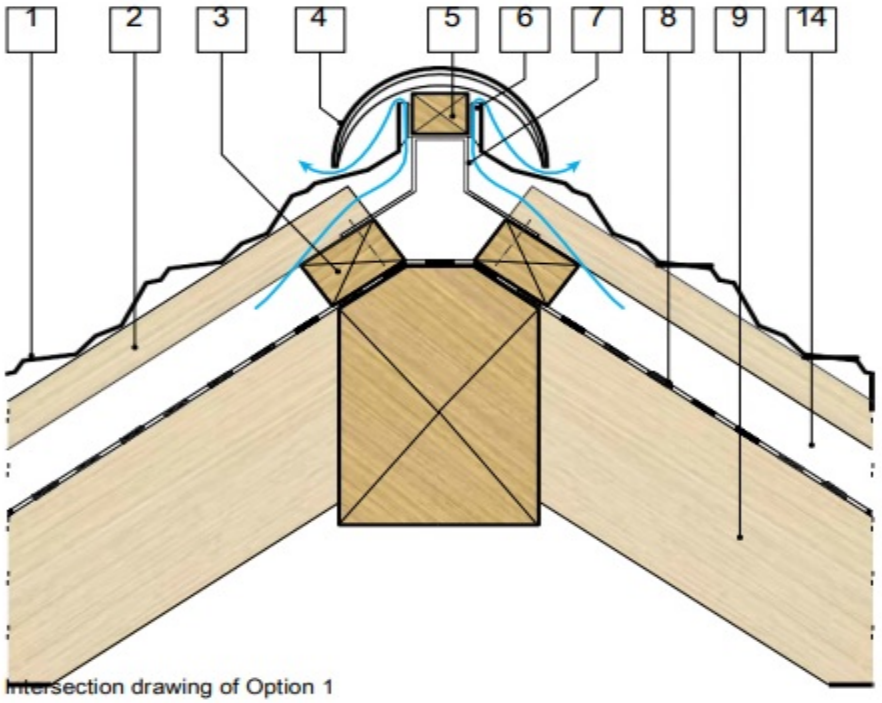




Hip

Installation

Fix all the cut tiles by nailing through the small bend on the turn up into the hip batten. This will leave a space for ventilation. An air outlet can also be ensured by installing spacers. When installing the hip using spacers, nail through the turn up and through the spacer. Add one or more nails through the front edge into the tile batten, starting from the bottom course.
The barrels are fixed from the top using screws or nails into the hip batten. The position of the fasteners should be at the end of the barrel (at the overlap)



Intersection drawing of Option 1

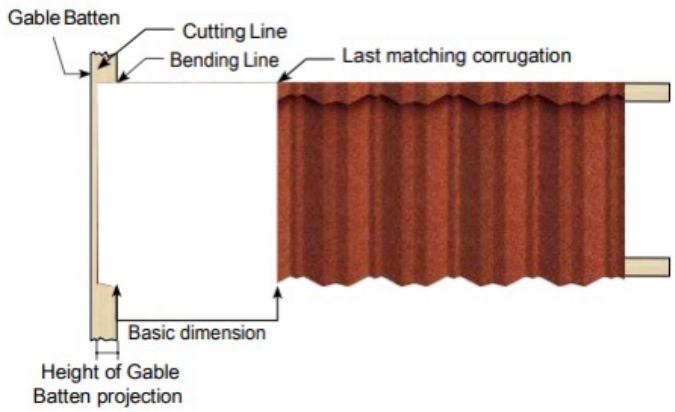
1	Tile	6	Air Outlet
2	Tile Batten	7	Hip Bracket
3	Ventilation Space Batten	8	Underlay
4	Barrel	9	Rafter
5	Hip Batten	14	Ventilation space

Option 1: Hip batten with air outlet

BOXBARGE

Cutting and Bending Tiles

Before the installation of the Box Barge, it is essential that the edge of the end tile is turned up against the barge batten. For measuring, cutting and bending the tiles, follow the same procedure as at the hips.

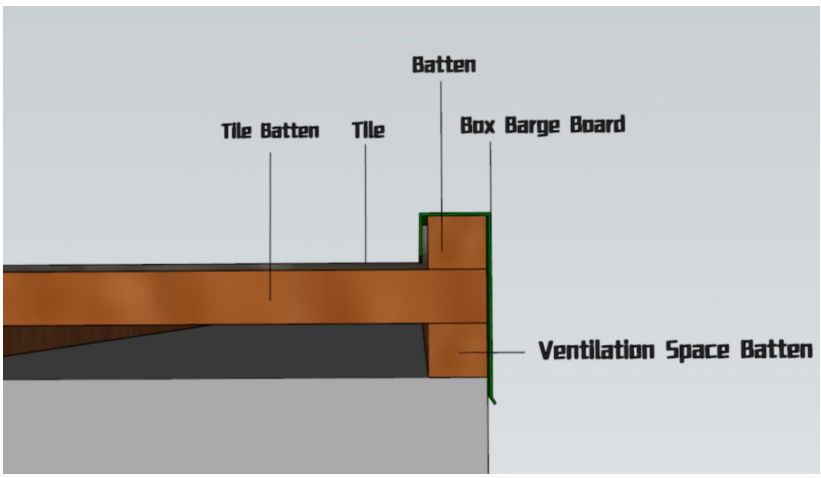


Cut and bend the tiles according to the measurements:
1. Flatten both up stands of the tile where it is to be cut. This will make cutting easier
2. Cut the tile along the marked cutting line using the guillotine, hand shears or metal cutting saw
3. Bend the tile using a short tile bender.

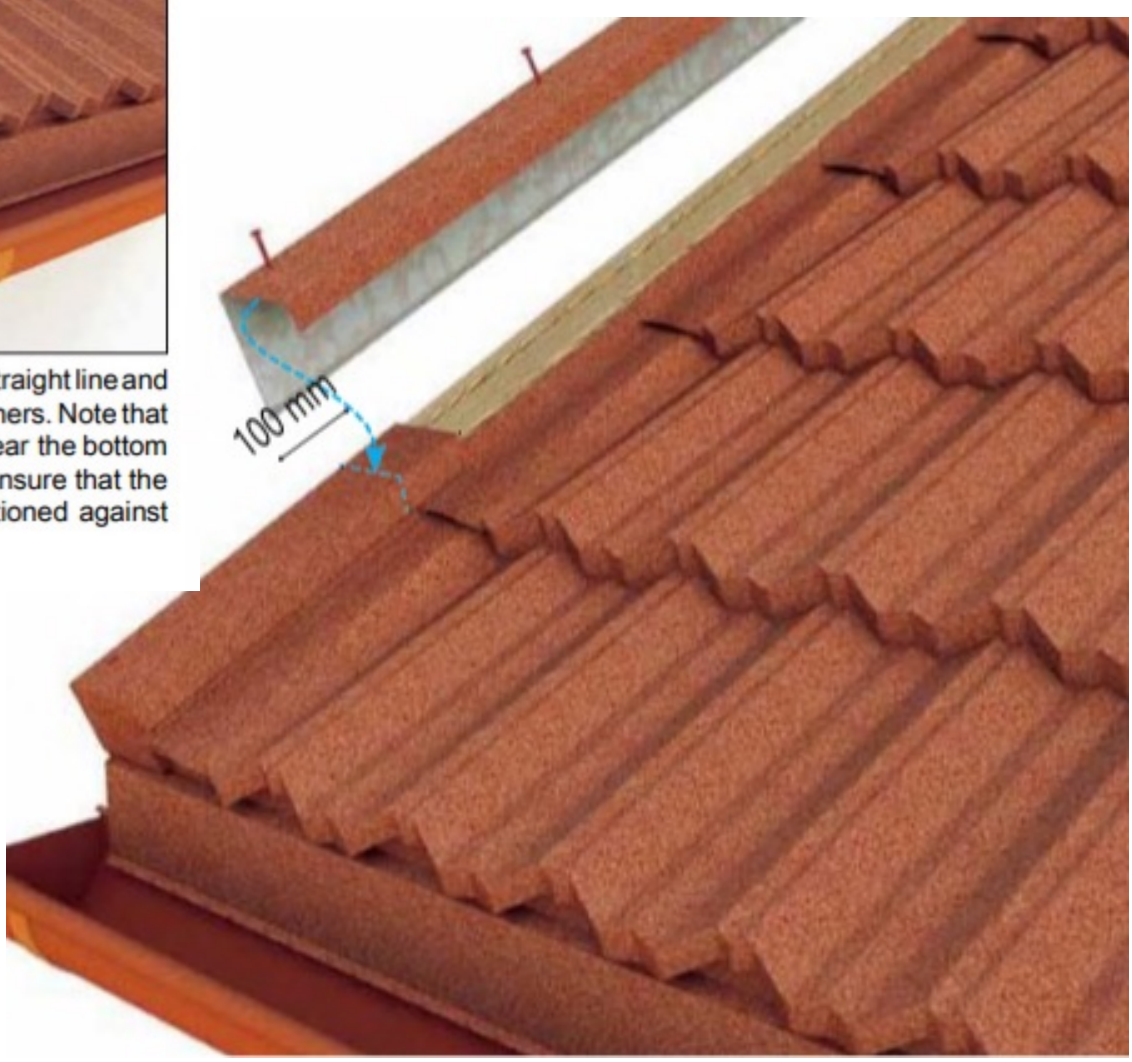
BOXBARGE

Installation

Tiles are cut, bent and fastened in place, nailing the turn up to the batten.
Begin by laying the Box Barge Boards at the eave and temporarily tack the barge covers in place, working up the batten board. The overlap should be 100 mm



Adjust the Box Barges in a straight line and fix them using nails or fasteners. Note that the fasteners need to be near the bottom edge of the Box Barge to ensure that the bottom edge is firmly positioned against the barge board.



BOXBARGE

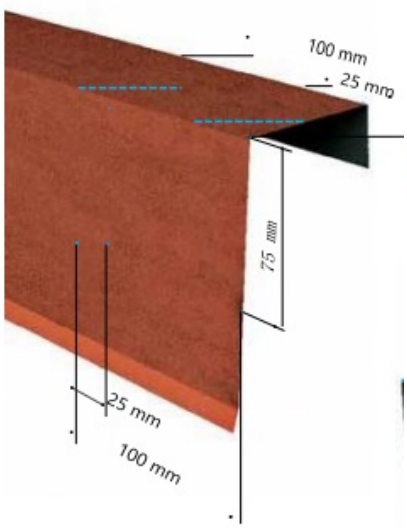
Box Barge end

1. Mark the required measurements (indicated by the blue lines)on the Box Barge (Step 1). These measurements are universal to all roof pitches.

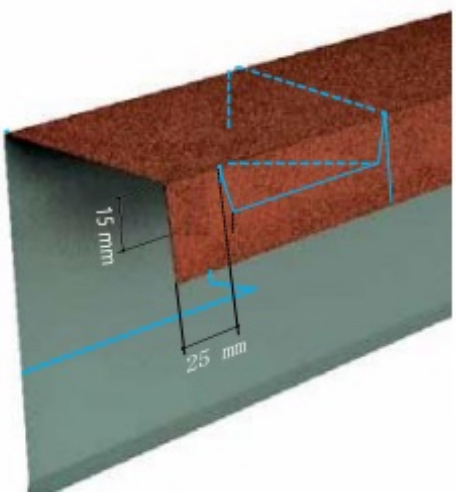
2. Cut the Box Barge： along the Cutting line(solidblueline)usinghandshears. Using right and left handed shears can make cutting easier(Step2).

3. Bend the Box Barge along the Bending line (dotted blue line) (Step 3 to Step 5)

Step 1: Left view

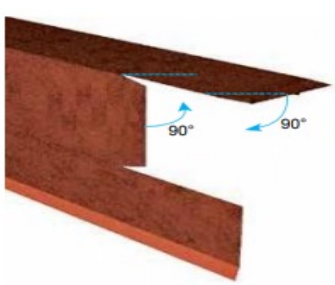


Step 1: Rightview



Step4

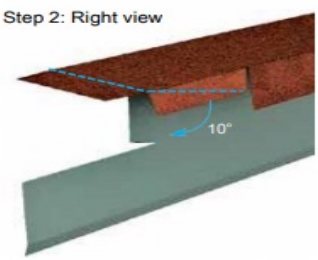
Step 2: Left view



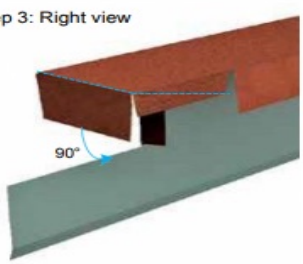
Step 3: Left view

Step 5

Step 2: Right view



Step 3: Right view

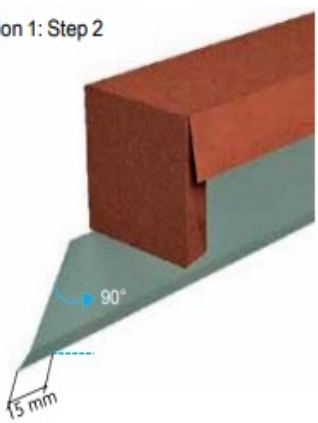


BOXBARGE

OPTION 1:
The nose of the tile at the junction with the barge batten is close to the eaves batten (first batten).
1. Place the Box Barge End in its final position and mark the bending line against the Eaves Flashing (Step 1).
2. Add 15 mm to the bending line and draw the cutting line (Step 1).
3. Cut and bend the Box Barge End into its final shape (Step 2, Step 3).
4. Place the Box Barge End in its final position (Step 4).

Option 1: Step 1

Option 1: Step 2



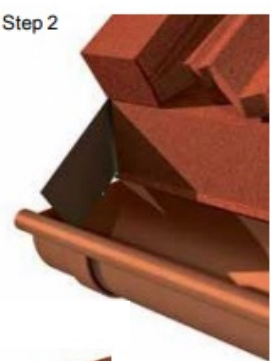
Option 1: Step 3

Option 1: Step 4

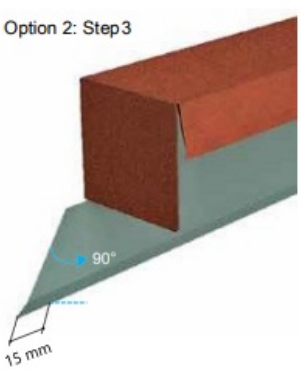
OPTION 2:
The nose of the tile at the junction with the barge batten is not close to the eaves batten.
1. Place the Box Barge End on top ofthe tile,mark the cutting line from the nose of the tile and cut the Box Barge End along the cutting line(Step1).
2. Place the Box Barge End in its final position and mark the bending line against the Eaves Flashing(Step2).
3. Add15mm to the bending line and draw the cutting line(Step2).
4. Cut and bend the Box Barge End into its final shape(Step3,Step4).
5. Place the Box Barge End in its final position (Step5).

Option 2: Step 1

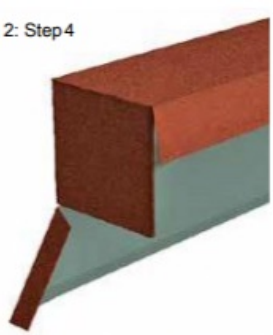
Option 2: Step 2



Option 2: Step 3



Option 2: Step 4



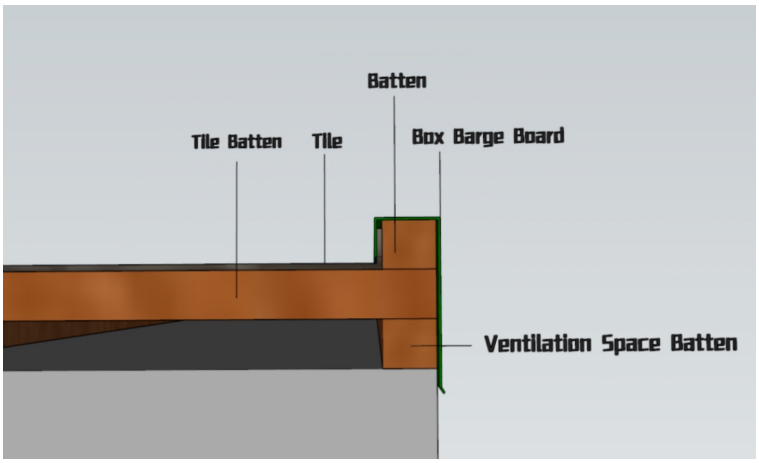
Option 2: Step 5

BOX BARGE

Installation

Tiles are cut, bent and fastened in place, with the turn up nailed to the gable batten.

Begin laying the scribed box barges at the eaves, adjusting the first (lowest) notch to the bottom tile at the batten. Temporarily tack the barge covers in place, working up the batten board. The overlap is provided by the notched shape of the box barge board. Adjust the box barge board in a straight line and secure them using screws



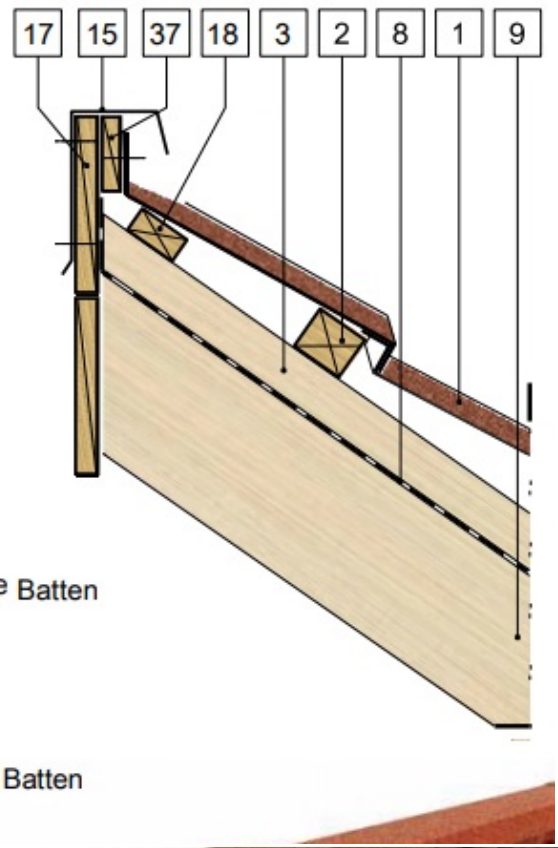
RIDGE-SINGLE SLOPED ROOF

Installation

Install the top barge board. Fix it onto the counter batten and rafter. Install a thinner support batten at the ridge when the top course is less than the full width. For measuring, cutting and bending tiles, follow the same procedure as the ridge.

To provide an air outlet ensure there is a gap between the barge board and the upstand of the top tile. Spacers (pieces of wood) can be installed.

Barge flashing made from Flat Sheet can be used instead of Box Barge. Adjust the Box Barges in a straight line and fix them onto the barge board using nails or fasteners



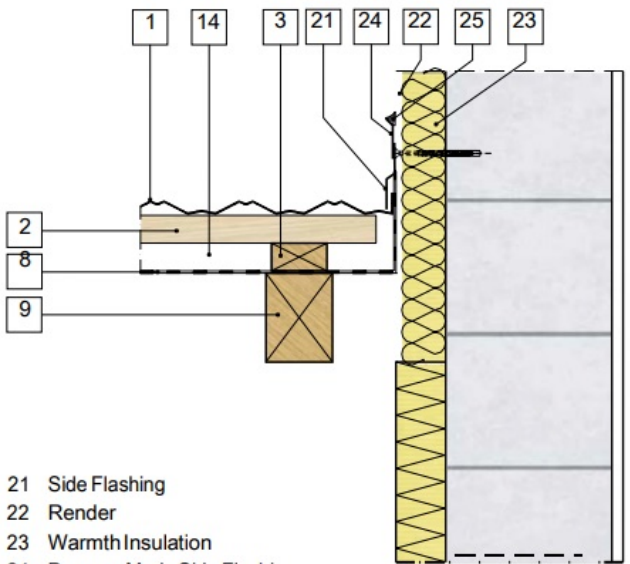
1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
15 Box Barge
17 Barge Board
18 Thinner Support Batten
37 Spacer

WALL FLASHING

Great care is needed where the roof surface joins a vertical wall. It is essential to bend the ends of the tiles under the flashing. For measuring, cutting and bending, the tiles follow the same procedure as the Box Barges

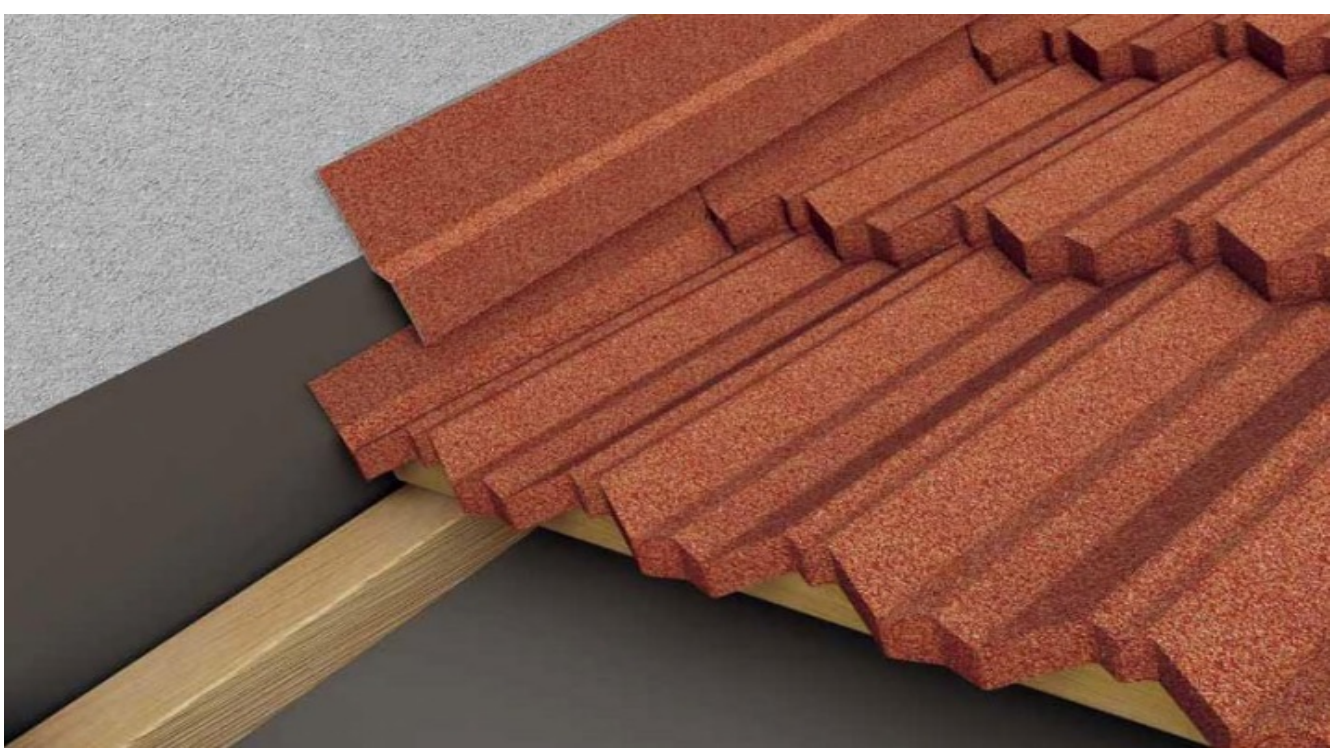
1.wall flashing at a junction with finished facade

Where the roof surface joins a finished facade, use a custom made flashing that will allow the junction of the flashing and the render to be sealed with a sealant. It is also possible to bend the top edge of the side flashing. In this case, there is no need to use additional custom made flashing



1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
14 Ventilation Space

21 Side Flashing
22 Render
23 Warmth Insulation
24 Purpose Made Side Flashing
25 Sealant



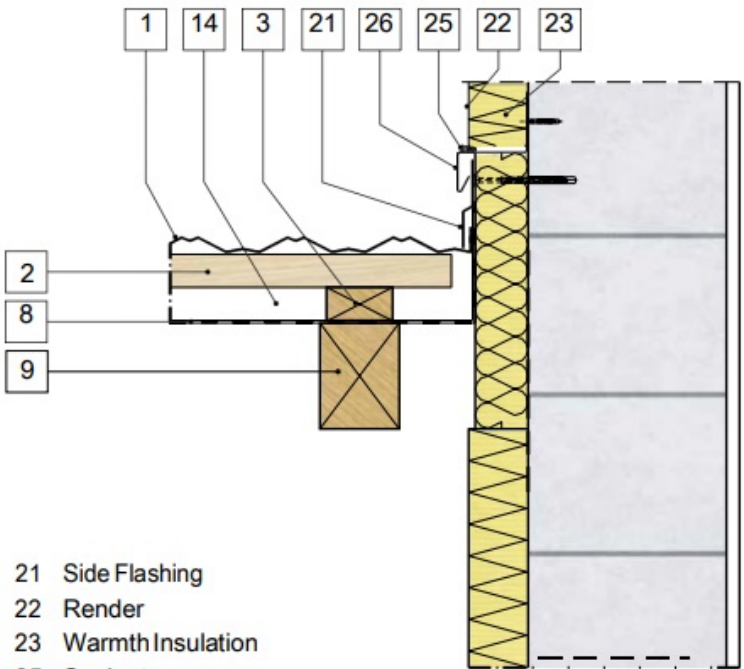
WALL FLASHING

2.wall flashing at a junction with an un finished facade

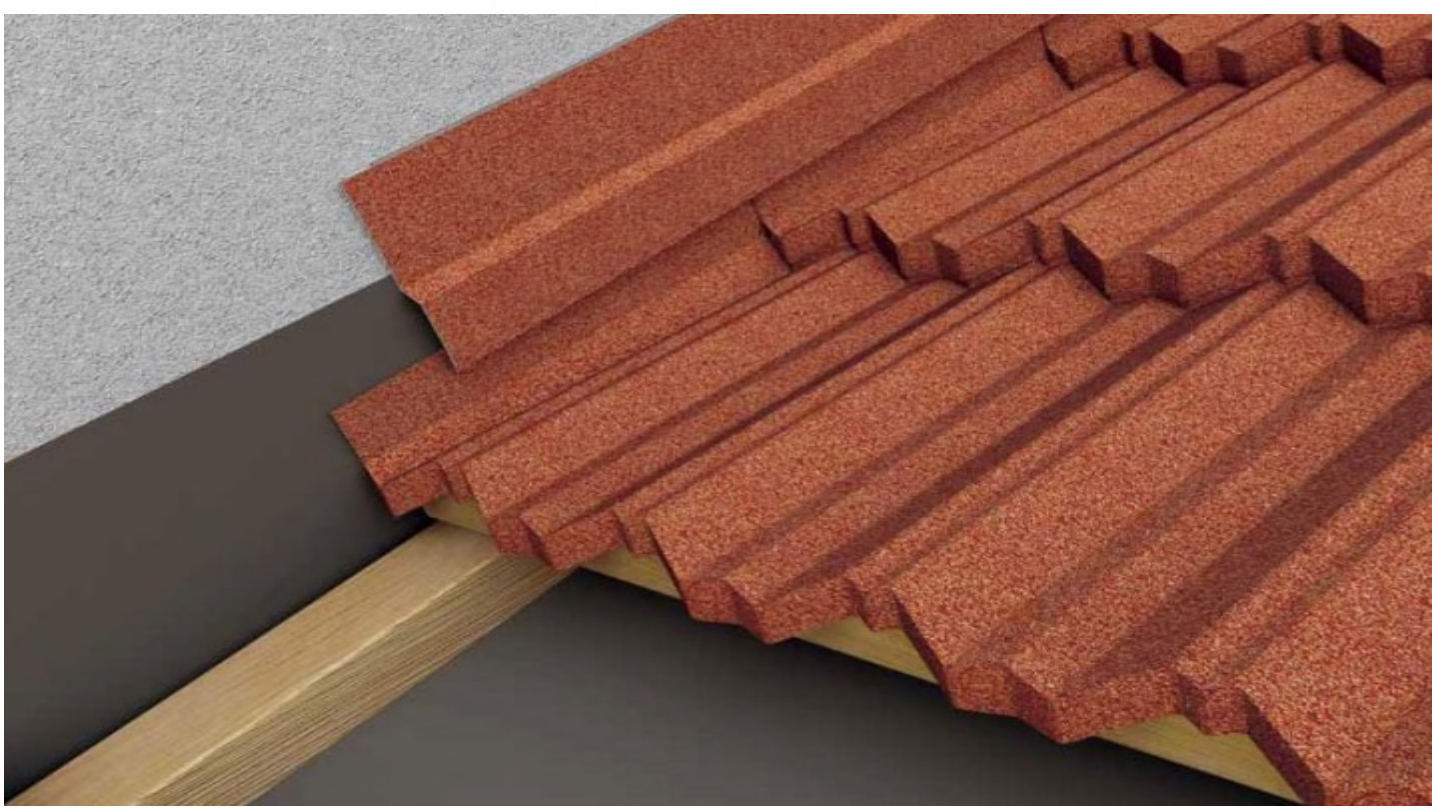
If the facade is not finished,
leave a part of the roof near to the facade uncovered. Install a purpose made flashing on the bottom end of the facade and make the facade before finalising the roof covering.

Use sealant on the junction of the render and the Side Wall Starter Flashing.

Do not nail the tile to the wall.
Fix the side flashing to the wall ensuring that it is firmly in place and straight.

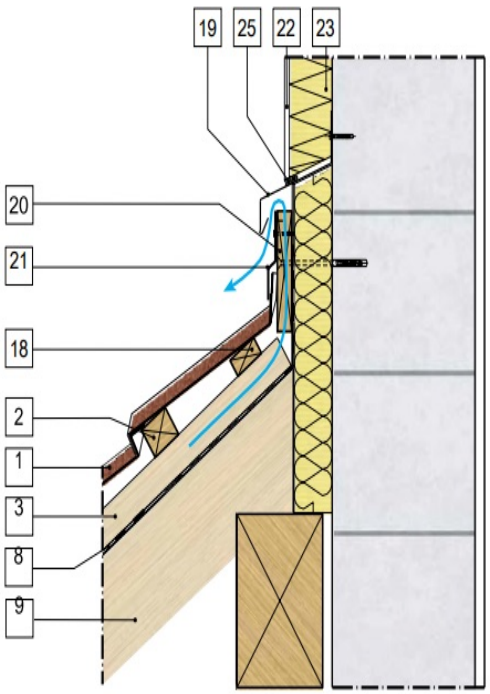


1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
14 Ventilation Space
21 Side Flashing
22 Render
23 Warmth Insulation
25 Sealant
26 Side Wall Starter Flashing



TOP WALL FLASHING

Where the roof/wall junction runs horizontally, the principles of ventilation are the same as at a ridge. It is essential to bend the ends of tiles under the flashing.
Install a thinner support batten at the ridge when the top course is less than the full width.
For measuring, cutting and bending tiles, follow the same procedure as the ridges.
If the facade is not finished, leave a part of the roof near the facade uncovered. Install a purpose made flashing on the bottom end of the facade and make the facade before finalising the roof coverage. Use sealant on the junction of the render and the Top Wall Starter Flashing.
Where the roof surface joins finished facade, use a custom made flashing that will allow the junction between the flashing and the render to be sealed with a sealant



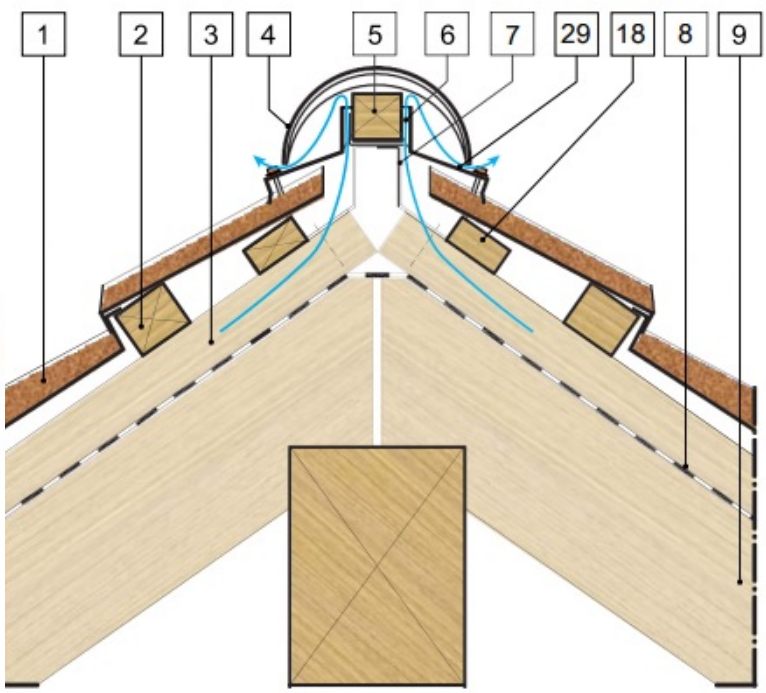
1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
18 Support Batten
19 Top Wall Starter Flashing
20 Top Wall Spacer
21 Side Flashing
22 Render
23 Warmth Insulation
25 Sealant

ROMAN RIDGE WALL FLASHING

Installation

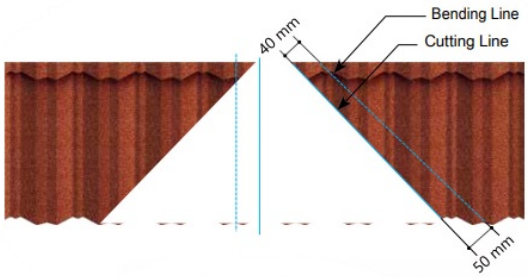
Install a thinner support batten at the ridge when the top course is less than the full width. Cut tile from the ridge batten. The flat on the back of the tile then needs to be turned up approximately 40 mm. This brings the tile shape back to its shaped profile and provides a barrier against any wind-driven rain. Install Roman Ridge Wall Flashing. The flashing is fixed from the top into the top course tile using screws and by nailing through the small bend on the turn up into the ridge batten. When installing the ridge using spacers, nail through the turn up and through the spacer. The barrels are fixed from the top using screws or nails. When installing ridge tiles, secure each side of the ridge tile with no fewer than 2 nails.

1 Tile
2 Tile Batten
3 Ventilation Space Batten
4 Barrel
5 Ridge Batten
6 Air Outlet Opening
7 Ridge Bracket
8 Underlay
9 Rafter
18 Thinner Support Batten
29 Milano Ridge Wall Flashing



VALLEY

Cutting and bending tiles



The basic measurement is taken from the last corrugation of the bottom corner of the last tile, to the end of the tile battens along the front edge of the batten. Allow for tolerance in fit when measuring.

Measure and mark the tile with the measurements taken from the roof ensuring the matching corrugation of the overlapping tile to be cut is taken as the measure starting point. This forms the Bending Line.

Add 40 mm to the Bending Line on the back edge of the tile and 50 mm to the Bending Line on the nose of the tile to obtain the Cutting Line.

Each tile should supply two cut pieces leaving minimal wastage.

Cut and bend the tiles according to the measurements determined above.

1. Flattening both up-stands of the tile where the tile is to be cut will make cutting easier.

2. Cut the tile along the marked cutting line using the guillotine, hand shears or metal cutting saw .

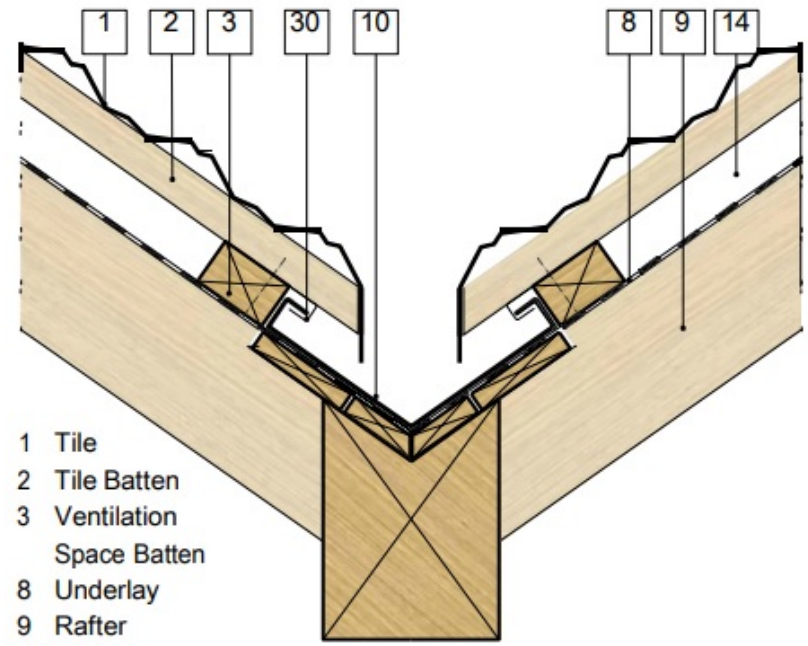
3. Bend the tile using a short tile bender

VALLEY

Installation

Cut and bend the tiles at the Valley as straight as possible to obtain a straight line. The last tile should be nailed into the tile batten as close to the batten end as practicable.

Never nail into the Valley gutter.

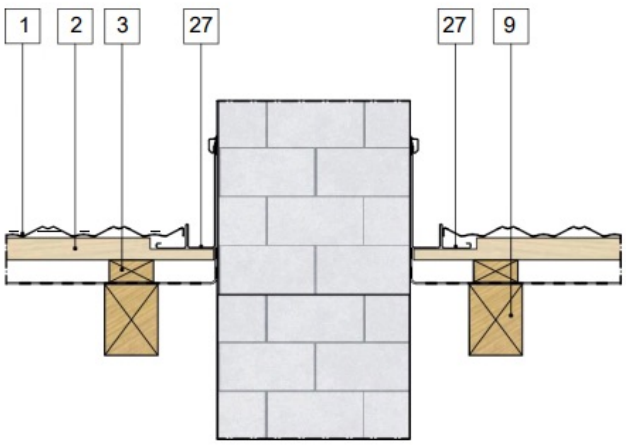


1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
10 Valley
14 Ventilation Space
30 Clip

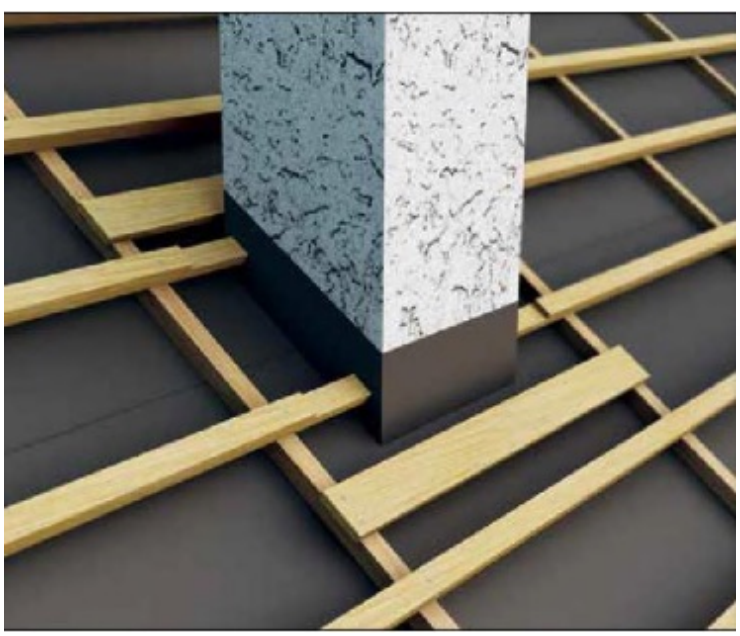
CHIMNEY FLASHING

Option 1

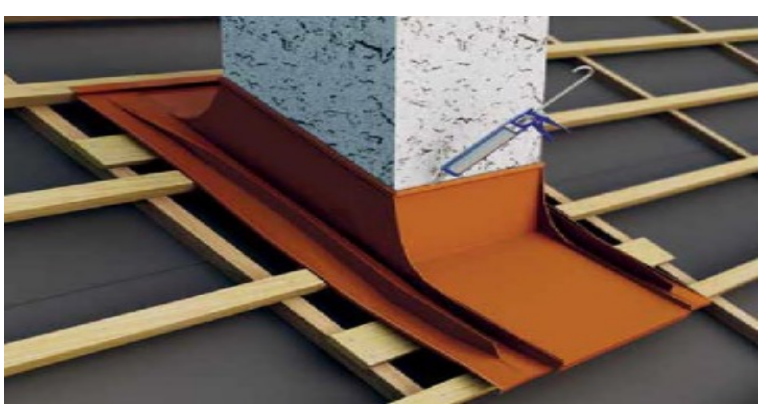
The Chimney Flashing may be installed as per traditional roofing practice, using aluminium or zinc coated flashings.
It is made in 4 parts: front, back and left and right sides.
It is essential to adequately prepare the supports for all parts of the chimney.
The back should rest on a board of approx 2 cm thickness.
The ends of the tile battens on both sides of the chimney should be notched approx 2 cm so that the left and the right sides of the flashing form a good fit

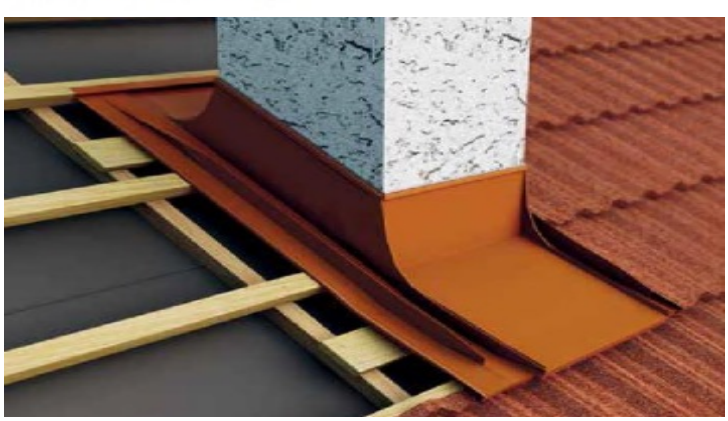


1 Tile
2 Tile Batten
3 Ventilation Space Batten
9 Rafter
27 Chimney Flashing

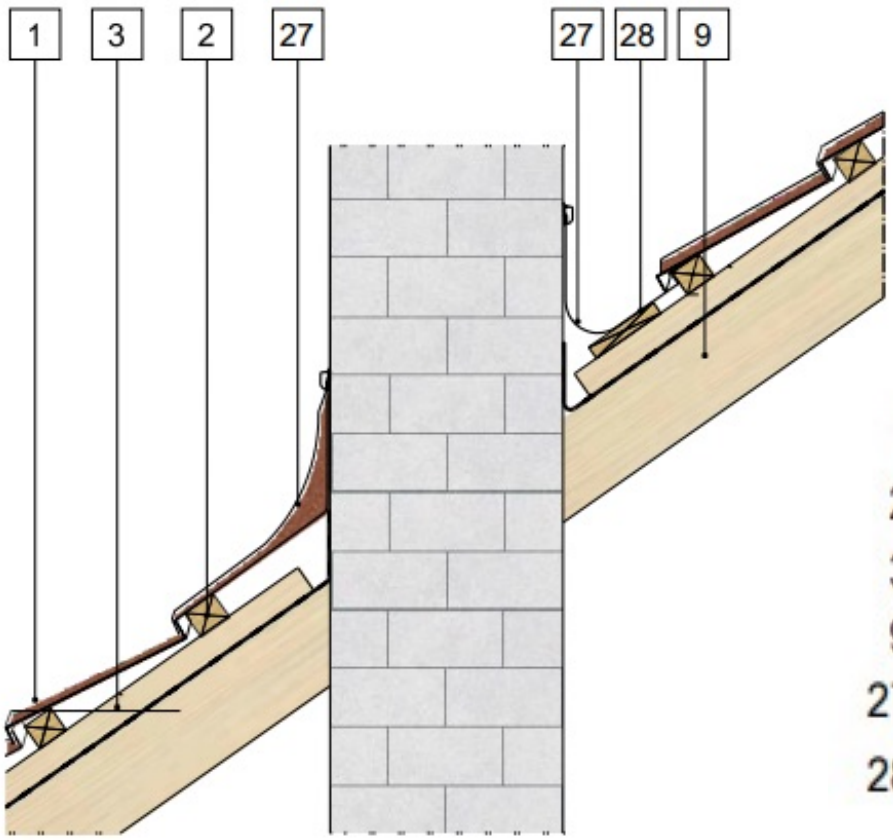


The front of the chimney flashing should rest on the first row of tiles under the chimney. Bend the tiles down along the upper stand of the side flashings.

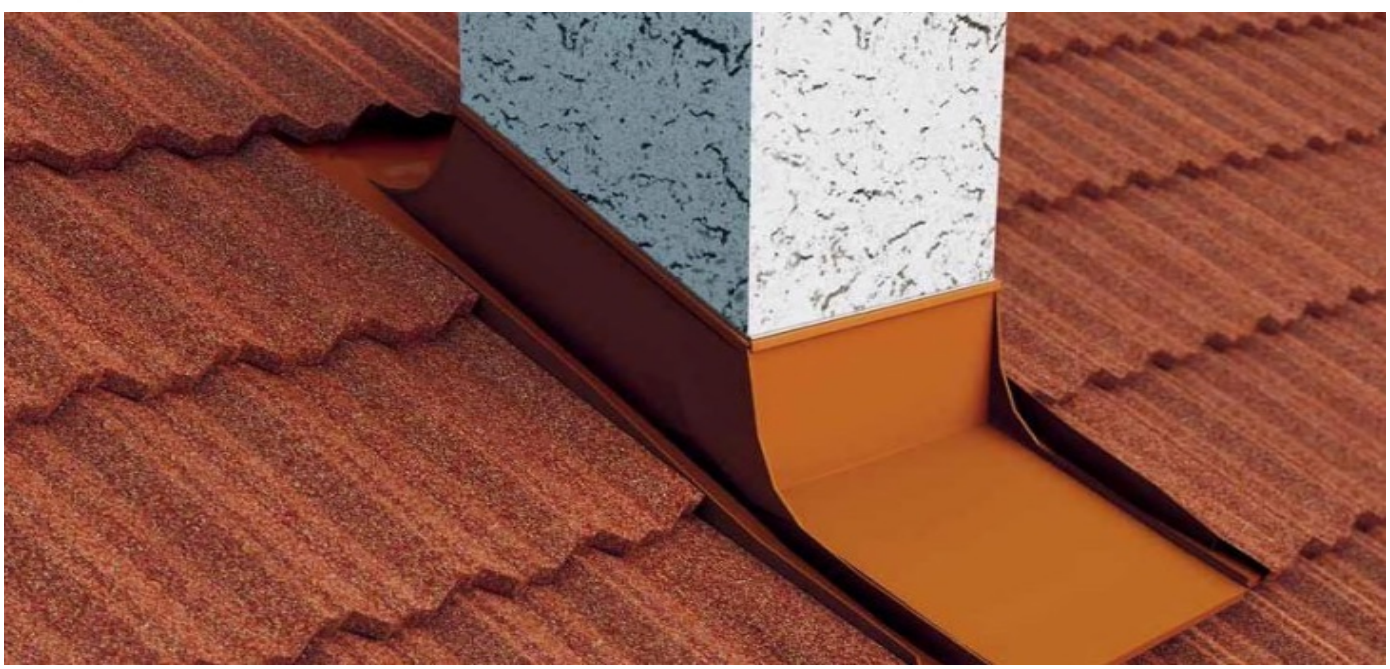




CHIMNEY FLASHING



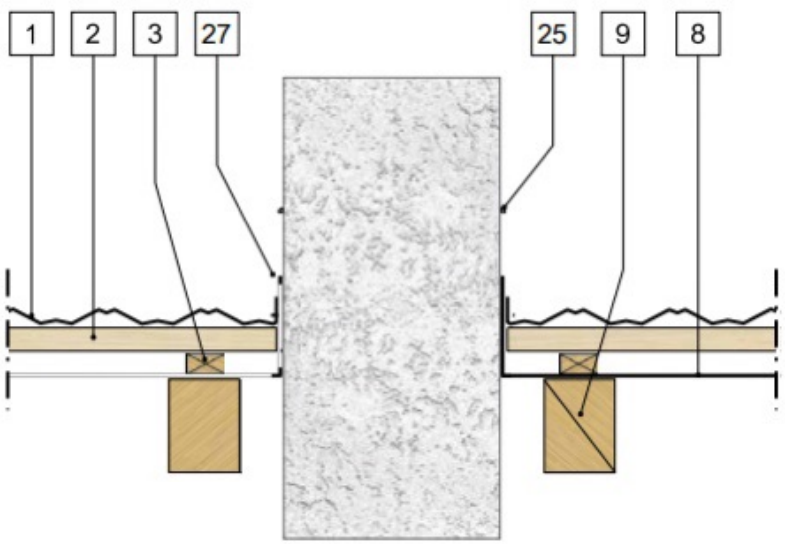
1 Tile
2 Tile Batten
3 Ventilation Space Batten
9 Rafter
27 Chimney Flashing
28 Board



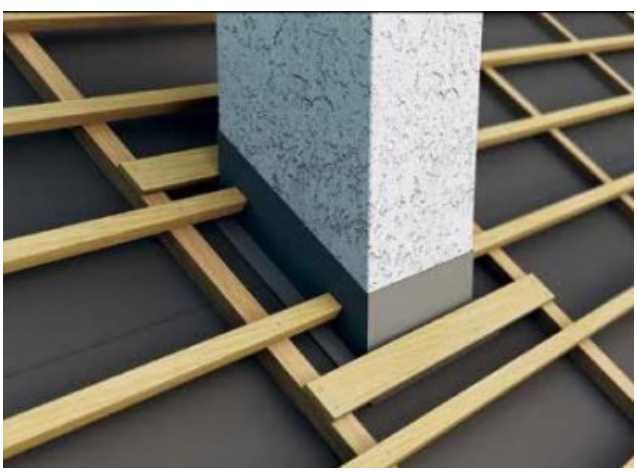
CHIMNEY FLASHING

Option 2

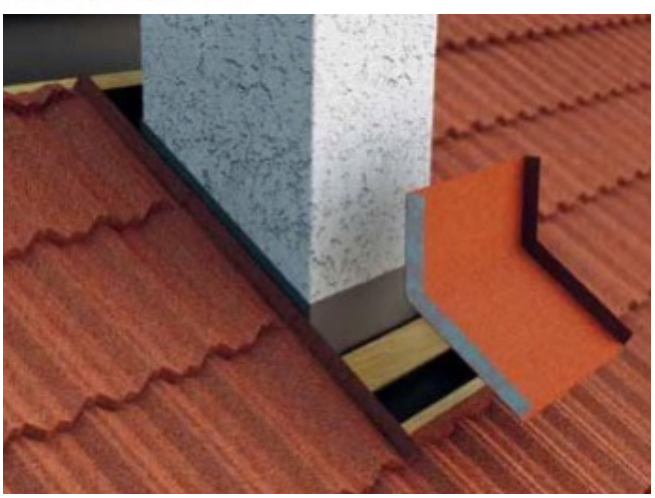
Chimney flashings are produced from flat sheets coated with stone chips. Consisting of 4 parts – front, back and two sides – they are individually manufactured, taking into account the dimensions of the chimney and the distance from the nearest full tile row. Tiles are turned upwards 5cm against the chimney and a 2cm wide wooden board is used as a support at the front and the back of the chimney.
The front of the chimney flashing is placed on the nearest full tile row below the chimney.
The sides of the chimney flashing are joined to the front and back parts by a single standing and flat lock seam.



1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
25 Sealant
27 Chimney Flashing

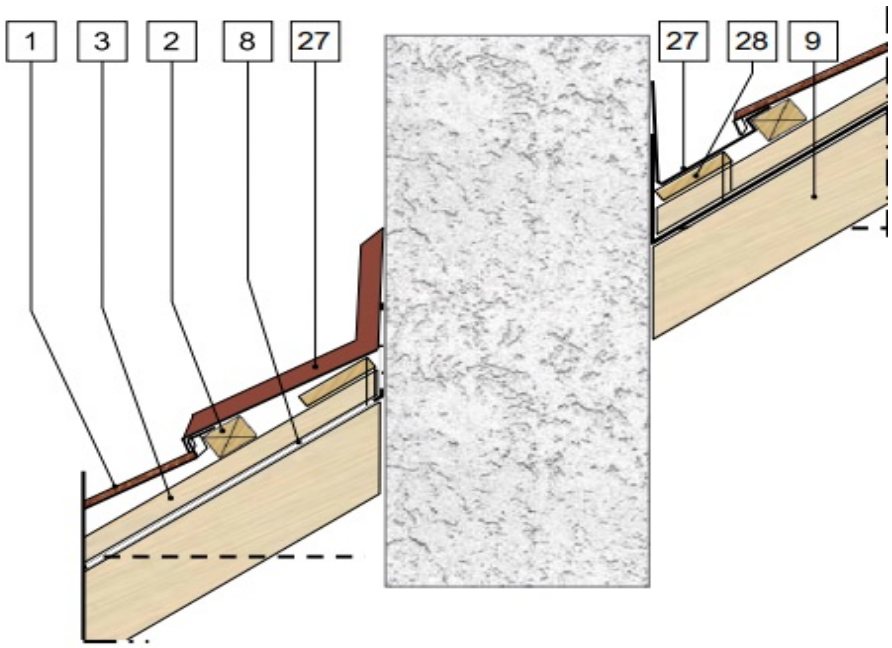


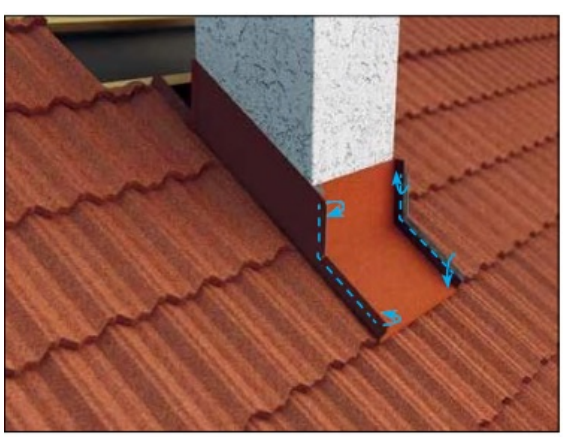
For maximum waterproofing we recommend using an appropriate roofing sealant where the sides of the chimney flashing meet the tiles and also where the chimney flashing connects to the chimney wall.

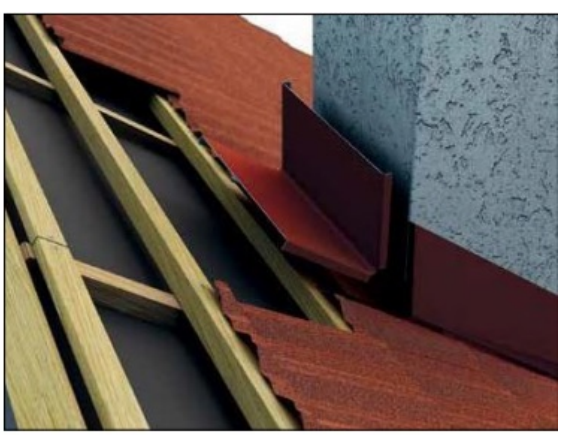


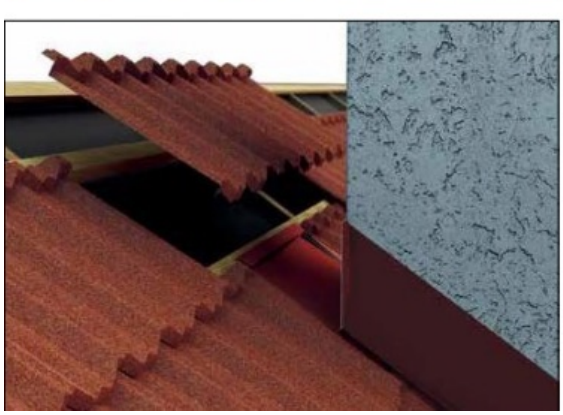
CHIMNEY FLASHING

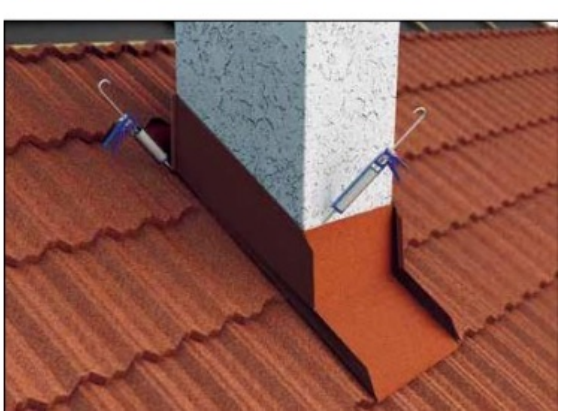
1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
27 Chimney Flashing
28 Support Board



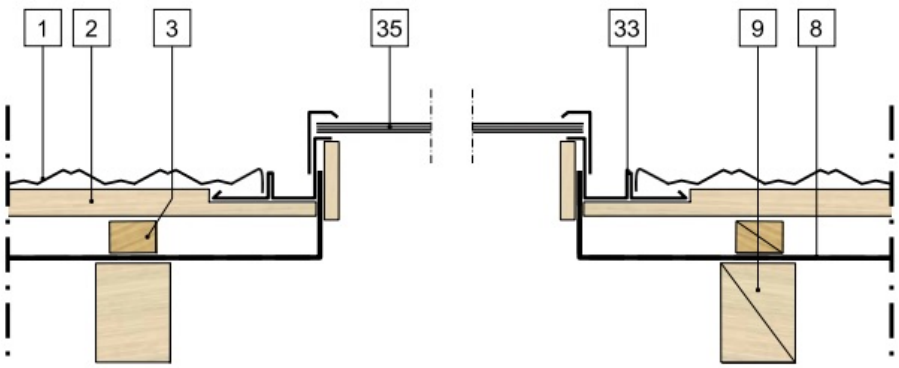




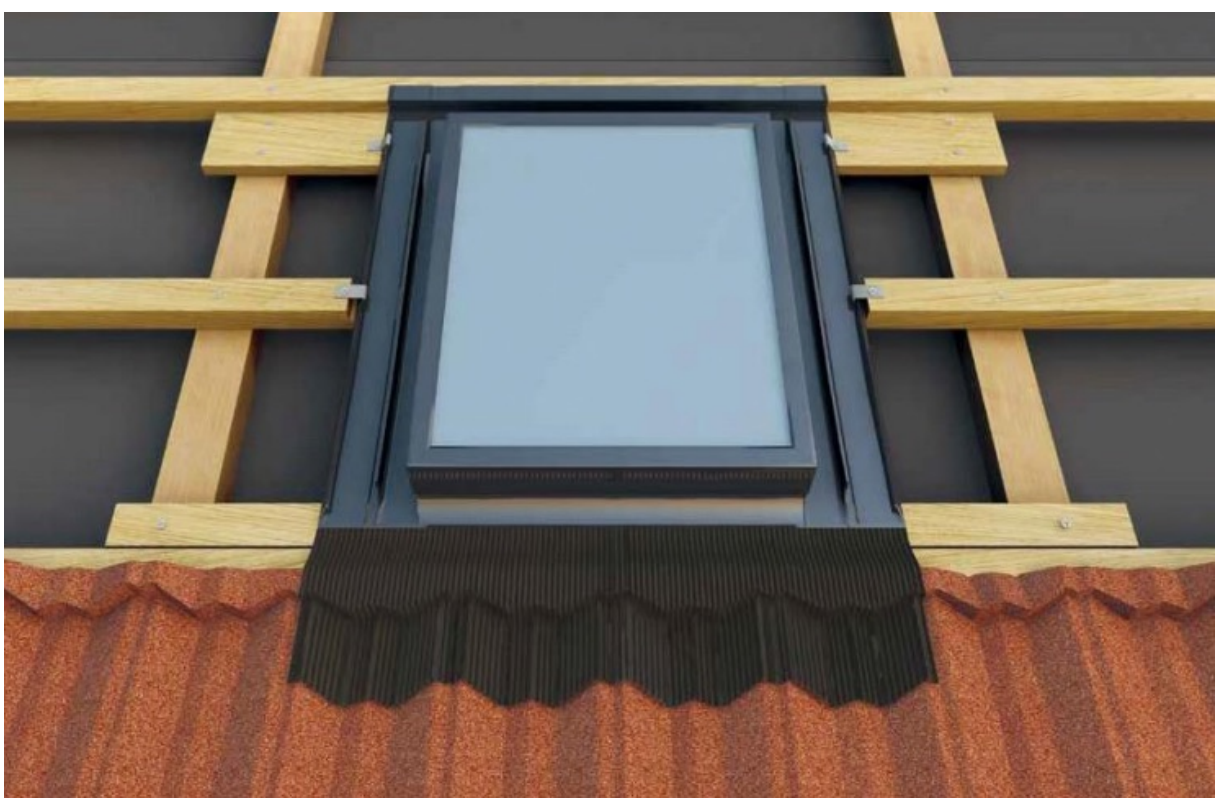




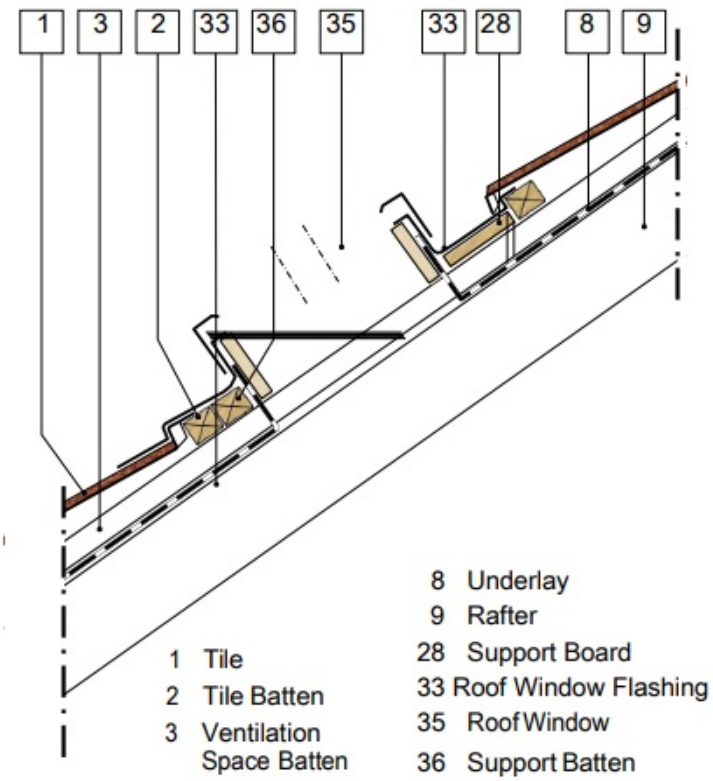
ROOF WINDOW



1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
33 Roof Window Flashing
35 Roof Window



ROOF WINDOW

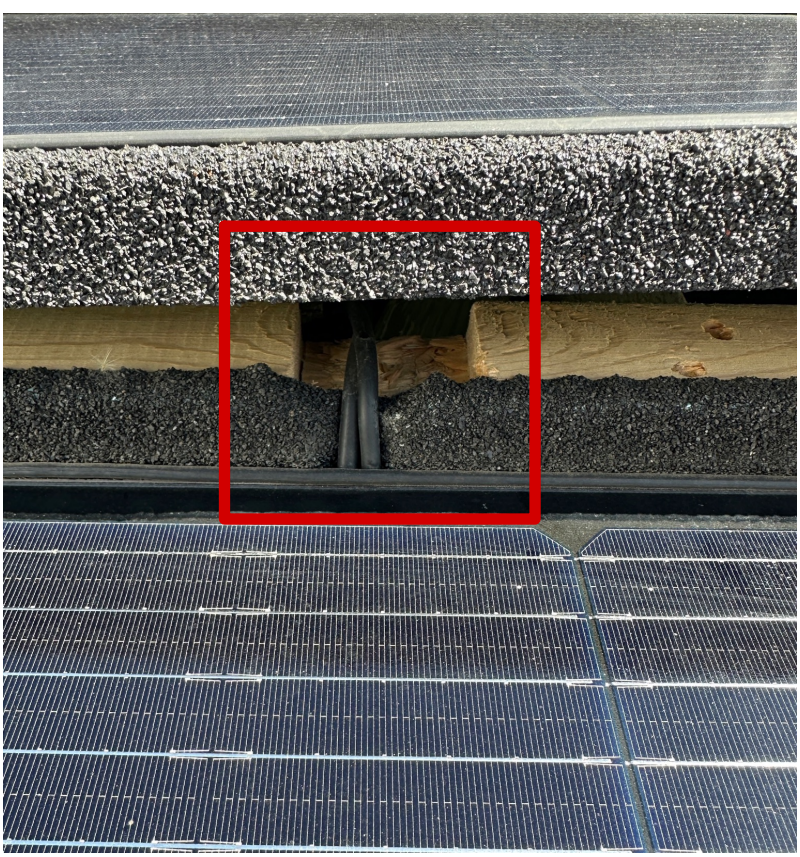

1
3
2
33
36
35
33
28
8
9
1 Tile
2 Tile Batten
3 Ventilation Space Batten
8 Underlay
9 Rafter
28 Support Board
33 Roof Window Flashing
35 Roof Window
36 Support Batten


Nail
Nail

Top Energy A serial solar tiles

Quacent Top Energy A serial solar tile have a same size as the Quacent stone coated metal tiles

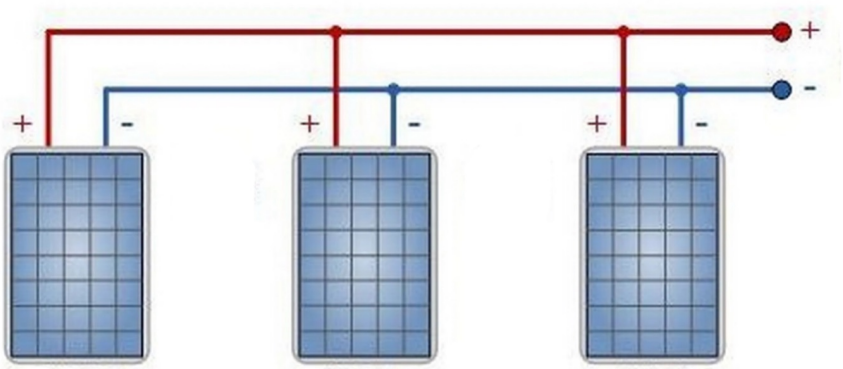
The spacing between the counter battens and the tiles battens is the same as that of the other normal Quacent stone coated metal tiles.



It is important to note that at locations where the photovoltaic tile wires protrude, a notch should be cut in the batten to allow proper alignment between the batten and the photovoltaic tile.

The installation method for the TopEnergy A serial solar tile is the same as for regular Quacent stone coated metal tiles.

After securing the tiles interconnect the photovoltaic tiles one by one. Leave a wire exposed on both the first and last photovoltaic tiles (if the first tile exposes the positive wire, then the last tile should expose the negative wire). Drill holes through these exposed wires to connect them internally, ensuring that the drilled holes are sealed with adhesive and properly waterproofed after drilling.



Important Notes:

Avoid stepping on the areas with photovoltaic cells during construction to prevent potential damage to the solar cells.