

SINGER CAILIN STONE COATED ROOF TILES

INSTALLATION MANUAL



ROMAN TILE



SHINGLE TILE



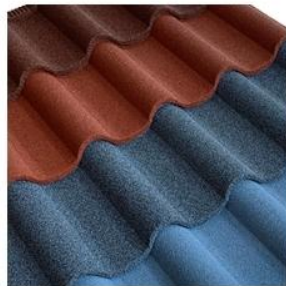
SHAKE TILE



MODERN CLASSICAL TILE



MILANO TILE



GOLAN TILE



BOND TILE



TUDOR TILE



LONG SPAN CORRUGATE TILE



HERITAGE TILE



INTERLOCKING SHINGLE TILE



INTERLOCKING SHAKE TILE

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Introduction

This installation manual is intended only as a guide for the proper installation of the CAILIN stone coated tile roofing systems profiles. The materials and methods described in this manual help preserve the overall integrity and longevity of the roofing system. In addition, these instructions should be followed as closely as possible and installed according to manufacturer specifications to maintain the coverage of the manufacturers limited warranty. This installation manual is not intended to address all aspects of a roofing installation; a quality installation is dependent upon the workmanship of the roofing contractor. Roof shapes can vary greatly and each installation is different but the general steps and installation process will be universal.

Safety

Please adhere to all recommended safe roofing practices. Wear appropriate clothing and use safety equipment such as harnesses, protective eyewear and soft-soled shoes. Use proper tools and keep the roof clear of debris. Keep a proper lookout for power cords and roof lines to avoid falling. It is recommended to use strong and stable scaffolding in lieu of ladders.

Care and Recommendations

Installation Recommendations:

Products shall be installed in accordance with these guidelines as established by CAILIN:

- Do not use accessories that contain copper or lead, with the steel roof system, as they are incompatible metals.
- 3/12 Slope minimum (14 degree minimum pitch) requires additional underlayment
- Recommended Slope 4/12 or greater.
- When handling the product, be careful not to deform.
- Always wear gloves to avoid cuts
- When installing CAILIN stone coated roof tiles care should be taken to avoid friction between panels, which could damage the coating affecting the durability and appearance.
- Immediately after and/or during installation, you should remove any steel particles that may remain on CAILIN due to drilling fasteners and cutting. The remaining particles on the panels will damage them in appearance and durability.
- It is recommended that those working on the roof use rubber soled shoes to avoid damaging the product.

Maintenance CAILIN:

- CAILIN is designed to withstand a most environment, but life can be extended with proper maintenance.
- Upon completion of the installation, check that the roof surface is clean and free of objects that could damage the coating (metal burrs, screws, wire, sheet metal clippings, etc...)
- Avoid foot traffic on the roof panels.
- It is recommended to clean the roof surface every six months (using water, detergent and a soft brush, or have a professional clean) when you are in a highly corrosive area.

- Carry out any work on the roof deck using all safety measures and wooden planks for weight distribution and protect the CAILIN.

Tips to Users

It is important to carefully read each of the recommendations in this installation manual, prior to installation of CAILIN roofing.

CAILIN is not responsible for improper installation or misinterpretation of this manual. General recommendations for transportation, handling, and storage. Storage Recommendations:

- Indoors
- In dry and ventilated
- Never on the floor.
- If stored outside: locate close to installation, on a firm surface and protect from damage. Allow for water to drain off of the material and protect from being blown by wind

INSTALLATION

- Packages can be stored on each other, to a height of one meter, or on metal racks designed for this purpose, making sure to leave space for air circulation.
- Use tarpaulins but never in direct contact with the material
- Leave space at the ends of the canvas tarps to allow for air circulation.
- Do not use polyethylene or plastic to cover the packages.
- Do not store detergents, solvents, liquids, acidic materials, or alkali such as concrete or plaster with CAILIN products.
- It is recommended to store products or near where they will be installed to avoid damage by from handling and checking them regularly to ensure they are not damaged.
- Handling material by hand requires special care to avoid damaging the CAILIN and/or hurting your hands.

Structure: The roof structure should be inspected and any structural problems found should be



CAILIN

corrected prior to the installation of the roofing panels.

Decking: Min. 15/32" in. thick, grade B-C APA rate plywood or equal.

Patterns: Wood Patterns are to be 2" x 2", standard grade Douglas fir or better, nominal thickness 1.5" x 1.5". Counter Patterns are 1" x 4", standard grade Douglas fir or better, nominal thickness .75" x 3.625"

Underlayment: A minimum underlayment of #30 felt or synthetic underlayment is required on all new construction and tear-offs. CAILIN stone coated roof tiles are considered to be non-combustible steel panels, but in certain conditions, special underlayments are required. Check with local Building Departments prior to installation.

Roof Saddles: Roof saddles are required behind any roof protrusion 48" in width and above. Panel diverters are easy to make and are a good way of diverting water from the back of the protrusion and should be used where necessary.

Sealants: A one-part polyurethane type sealant is recommended.

Installation Tools



Cutter



Bender



Measuring Tape



Crayon Marker



Snips



Roofing Grade Polyurethane Sealant



Hammer


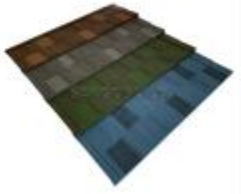





Screw Gun



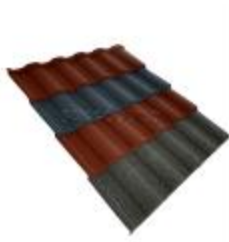





**#9 Hex 1/4" Diameter x 1-1/2" Long
Screws**

Main Roof Tile

<p>Bond Tile</p>		<p>Size:1340x420mm Effective Size:1290x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years</p>
<p>Shingle Tile</p>		<p>Size:1340x420mm Effective Size:1290x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years</p>
<p>Shake Tile</p>		<p>Size:1340x420mm Effective Size:1290x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years</p>
<p>Milano Tile</p>		<p>Size:1340x420mm Effective Size:1290x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years</p>
<p>Golan Tiles</p>		<p>Size:1340x420mm Effective Size:1250x340mm Thickness:0.35-0.55mm Coverage Area:0.46sq.m Tiles/Sq.m:2 pieces Warranty:50 years</p>



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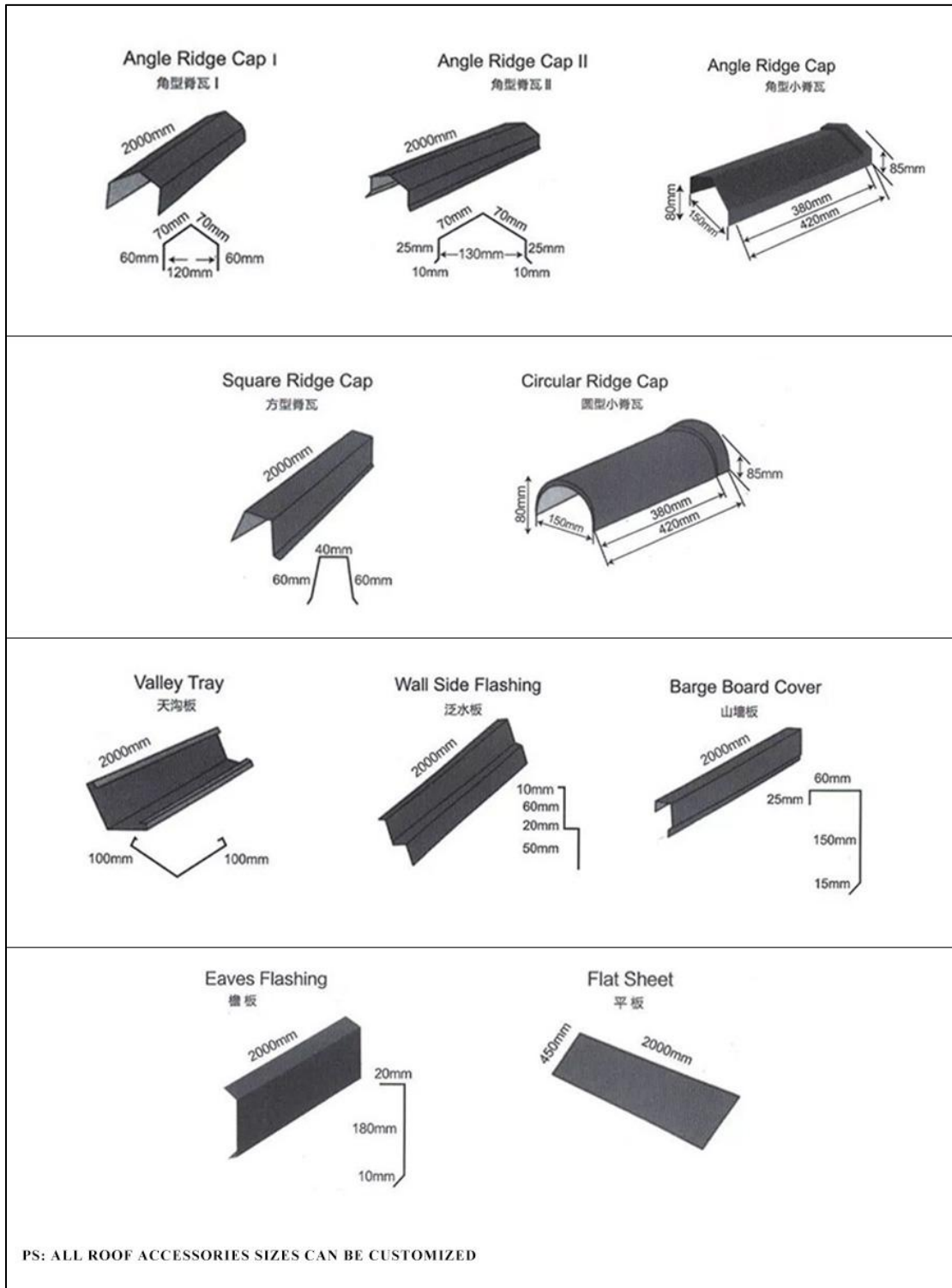
Rainbow Tile		Size:1300x420mm Effective Size:1250x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years
Classical Tile		Size:1340x420mm Effective Size:1290x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years
Tudor Tile		Size:1340x420mm Effective Size:1290x380mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years
Heritage Tile		Size:1340x420mm Effective Size:1290x370mm Thickness:0.35-0.55mm Coverage Area:0.5sq.m Tiles/Sq.m:2 pieces Warranty:50 years
Interlocking Shingle Tiles		Size:1348x365mm Effective Size:1290x315mm Thickness:0.35-0.55mm Coverage Area:0.49sq.m Tiles/Sq.m:2.03 pieces Warranty:50 years
Interlocking Shake Tiles		Size:1348x365mm Effective Size:1290x315mm Thickness:0.35-0.55mm Coverage Area:0.41sq.m Tiles/Sq.m:2.4 pieces Warranty:50 years



CAILIN

<p>Long Span Bond Tile</p>		<p>Size:920x2340mm Length:1215mm, 1590mm, 1965mm, 2340mm(Customizable) Effective Size:828x2250mm Thickness:0.35-0.55mm Weight: 10.5±0.5 kg/pc Coverage Area:1.87sq.m Warranty:50 years</p>
<p>Long Span Corrugate Tile</p>		<p>Size:920x2340mm Length:1215mm, 1590mm, 1965mm, 2340mm(Customizable) Effective Size:840x2250mm Thickness:0.35-0.55mm Weight:10.5±0.5 kg/pc Coverage Area:1.89sq.m Warranty:50 years</p>

Roof Tile Accessories



Roof Tile Accessories Application

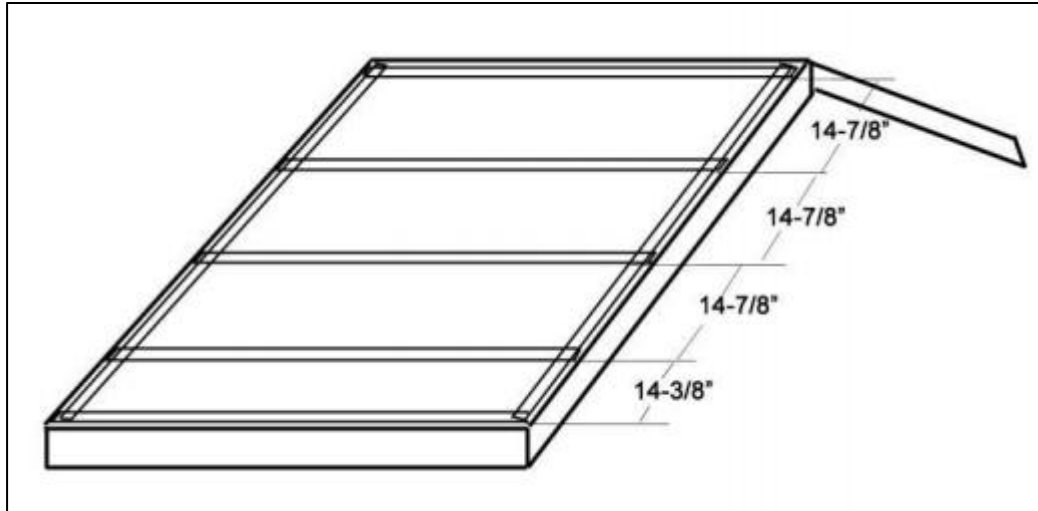
This picture above shows the correct position for each component and accessory



NOTE: All roofs vary in size and shape, proper installation is based on each individual scenario and proper installation processes is at the roofing contractor's discretion.

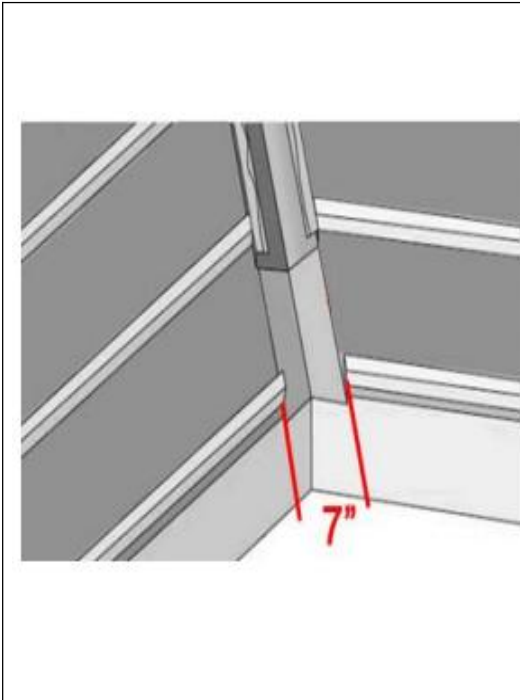
Batten System Installation

Batten system can be installed using wood or metal steel. For this installation manual, we recommend a wood batten system. Consult your roofing contractor for plastic or metal battens.



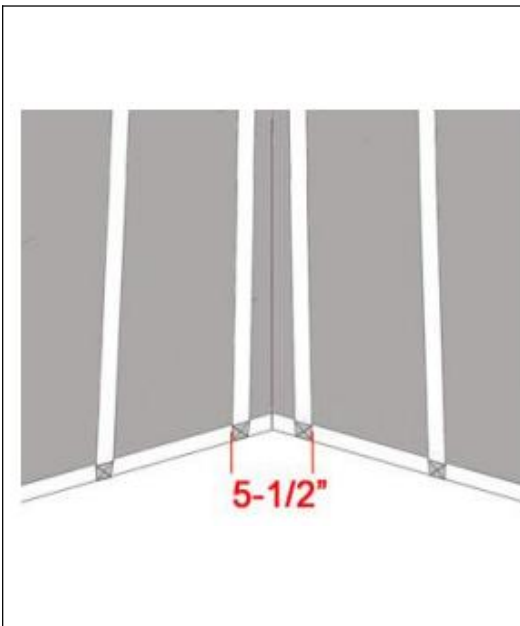
The batten system should be attached to the roof deck above the underlayment prior to installing CAILIN & SANGOSUNRAVEN Stone Coated Steel Tiles. The batten system should be well secured using 16d minimum common nail at 18" to 24" on center into rafters. Within the 30" of the outer edges of the perimeter and corner on the roofing frame, install each nail 10" on center into rafters. To ensure consistent distance between the battens make a 14-3/8" and 14-7/8" spacer. Place the first 2x2 batten parallel to the fascia from the lower bottom to the top and use the spacer to space out 14-3/8" from the fascia. Each batten after the first should be installed in a parallel manner and using the spacer be placed 14-7/8" apart. All battens should be equal in distance and parallel to each other.

Batten Installation for Valleys, Ridges & Hips



Installation for Valleys:

The batten for the valley should have a 7" gap between the two portrait direction battens. In new construction applications, it's required for the metal valley flashing to have one layer of Type 30 felt underlayment, 36" wide or ice and water shield underneath as required by local building codes.

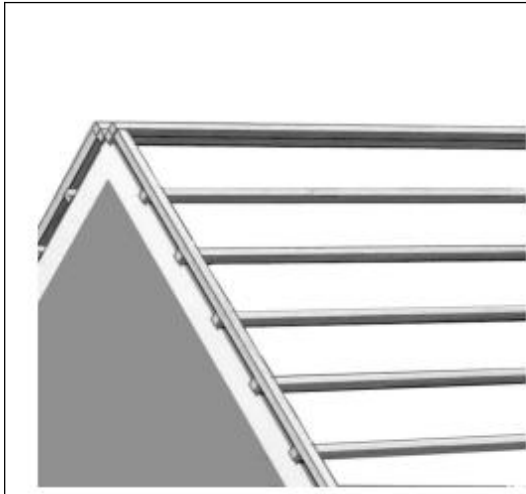


Installation for Ridges:

The batten for the ridge should have a 5-1/2" gap between the last two landscape battens on the ridge.

Tile and Shake panels require the same steps. Measure from the front of the back flange to the front of the 2 x 2 at the ridge. This will be the bend line. Bend the panel at the bend line. Add 2" to the bend line and cut the panel.

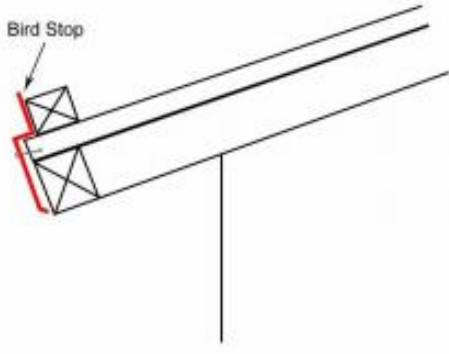
Batten Installation for Hips

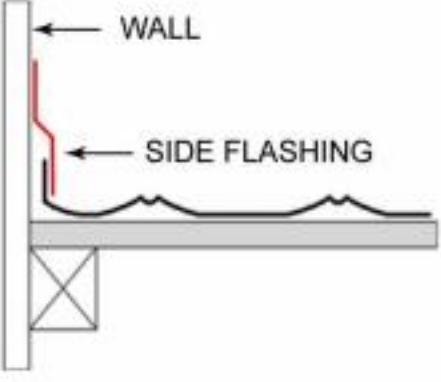


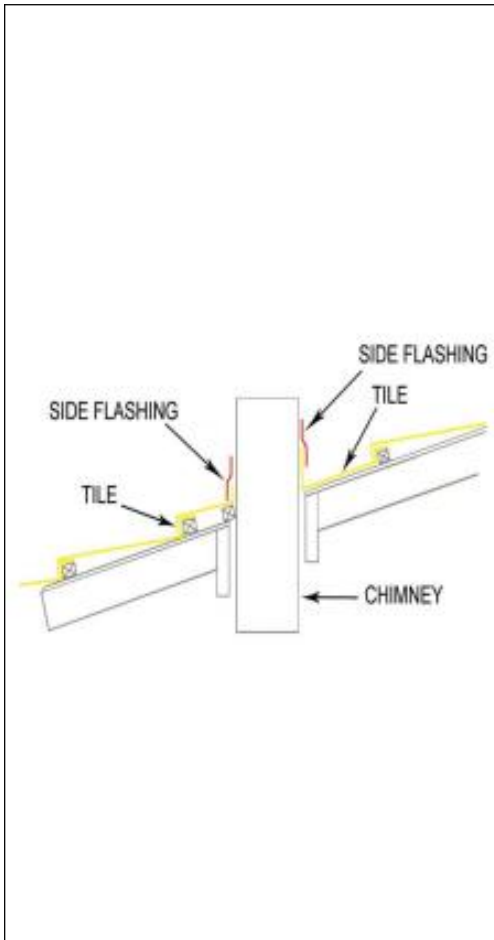
The batten for the Hips should be placed on the edge of the roof and fastened to the batten.

When installing Tile, run a 2" x 2" above the battens, next to the hip. Bring the panel to the 2" x 2" and turn the panel up 2". Measurements for hip cuts are made the same as valleys cuts. After cutting the panels, make a 2" bend that will run along the 2" x 2" located at the hip.

Flashing Installation

 <p>The diagram shows a cross-section of a roof batten. A red metal strip, labeled 'Bird Stop', is installed over the top edge of the batten. The batten is supported by a vertical post below it.</p>	<p>Bird Stop:</p> <p>The Bird Stop (pictured in red) should be placed on the batten facing the front edge of the house and should cover the batten and act as a metal drip edge at the front facing hip.</p>
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 <p>The diagram shows a cross-section of a roof tile panel meeting a vertical wall. A red metal strip, labeled 'SIDE FLASHING', is bent up and over the top edge of the tile panel. The wall is labeled 'WALL' and the tile panel is labeled 'TILE PANEL'. The side flashing is fastened to the wall.</p>	<p>Side Flashing:</p> <p>Use side flashing (pictured in red) to seal roof to wall junctions.</p> <p>Tile panels (pictured in black) connect to the wall and should be bent up 1-1/2" using a bender and the folded edge flattened, press tight to wall sealing top and bottom edges with polyurethane sealant. Cover the bent part of the tile panel with the side flashing as pictured. Use polyurethane sealant to seal the top and bottom edge of the side flashing and fasten it to the wall with fasteners every 12".</p>
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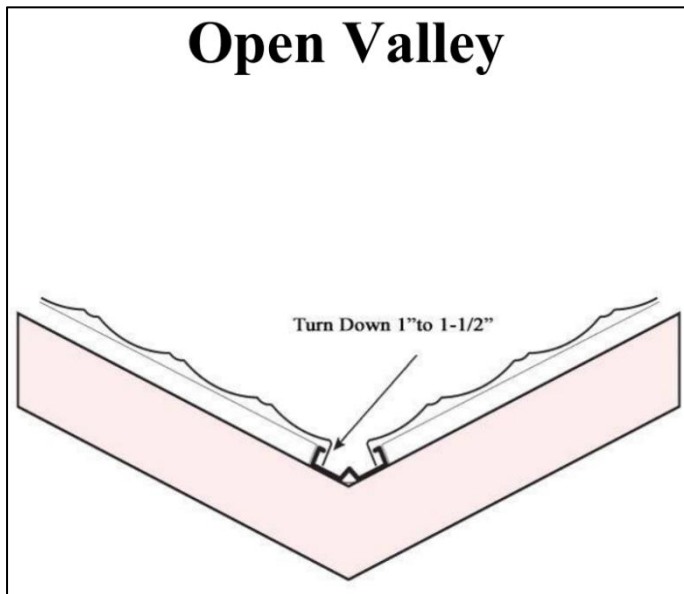
Chimney Flashing:

Use side flashing (pictured in red) to seal around chimney.

Each side of tile panels (pictured in yellow) connect to the chimney and should be bent up 1-1/2" using a bender and the folded edge flattened, press tight to chimney wall sealing top and bottom edges with polyurethane sealant.

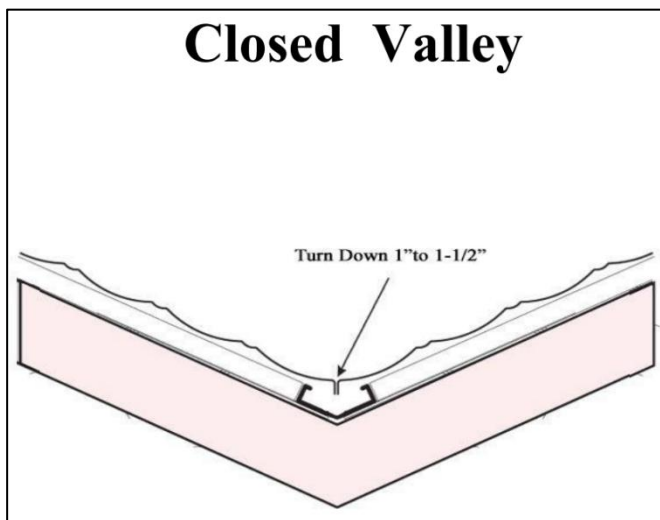
Place side flashing on front and back sides of chimney. Cover the bent part of the tile panel with the side flashing as pictured. Use polyurethane sealant to seal the top and bottom edge of the side flashing and fasten it to the chimney with fasteners every 12".

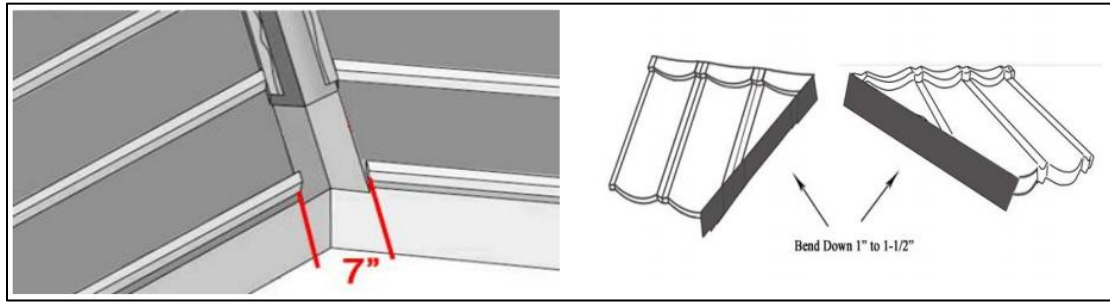
Valley Installation



Open Valley: To create an open valley, be sure to snap lines to the desired opening. Begin working on one side of the valley at a time, measure, cut and bend panels starting at the bottom of the valley and working up.

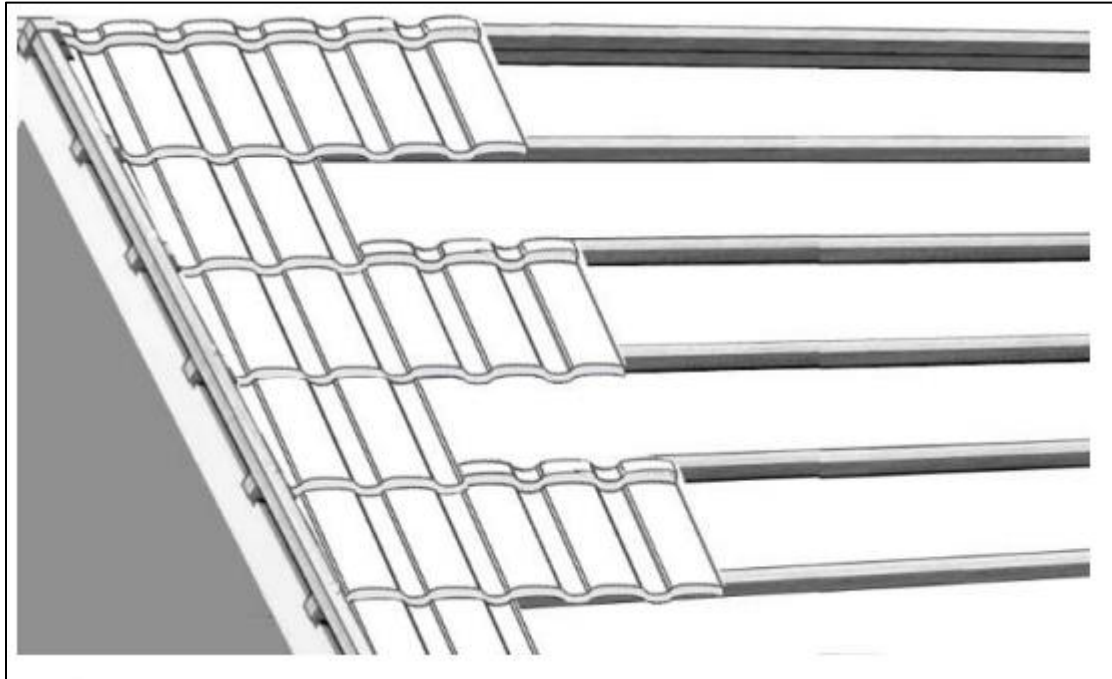
Closed Valley: Locate and establish the center of the valley by either snapping a line or following existing center rib. After valley flashing has been fit correctly and secured into the valley area, begin by starting on one side of the valley by measuring, cutting, bending and installing panels as precise as possible in order to create a straight line. Next step is to cut, measure and bend panels to fill in the other side of the valley. Make sure these panels meet the opposing side of the valley. The panels from the two sides of the valley should fit as close as possible from each other and the line separating them should run straight up the valley.





Measure and cut the tile panel to fit the 7" valley (pictured in red) and fold down 1" to 1-1/2". Place tile panel to cover the valley. After valley flashing has been fit as close as possible and secured into the valley area and full panels have been positioned up to the valley, measure for cut panels, each illustration below shows an open or completely covered (closed) valley.

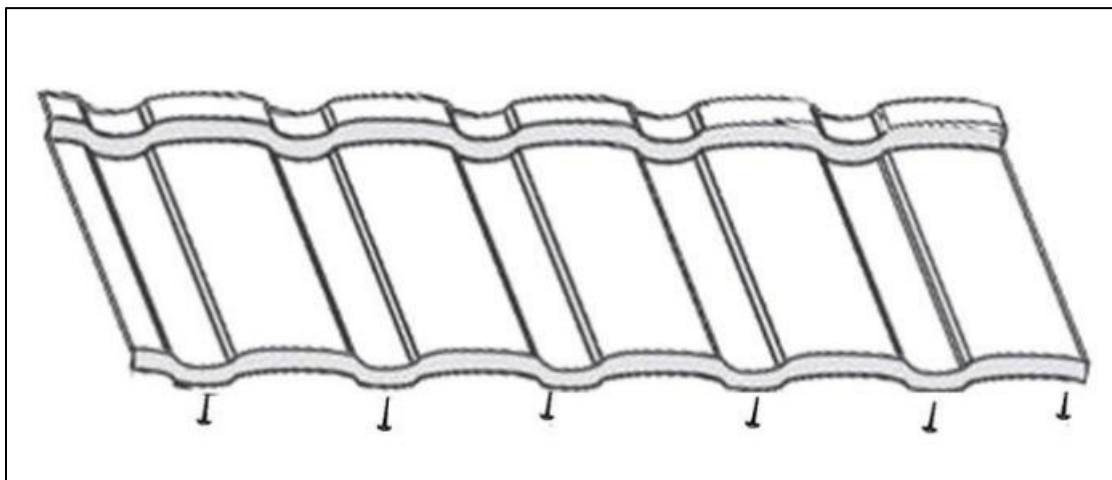
Installing Stone Coated Roof Tiles



Panel Layout:

Starting from the top, place a full panel tile as the starter panel, then cut a half tile panel for the next row as pictured. The last tile panel at the top and edges should be cut and bent.

Each tile panel has a side-lap at the edge, interlock the tile panel by the side-lap and cover 2" of the connection as pictured.

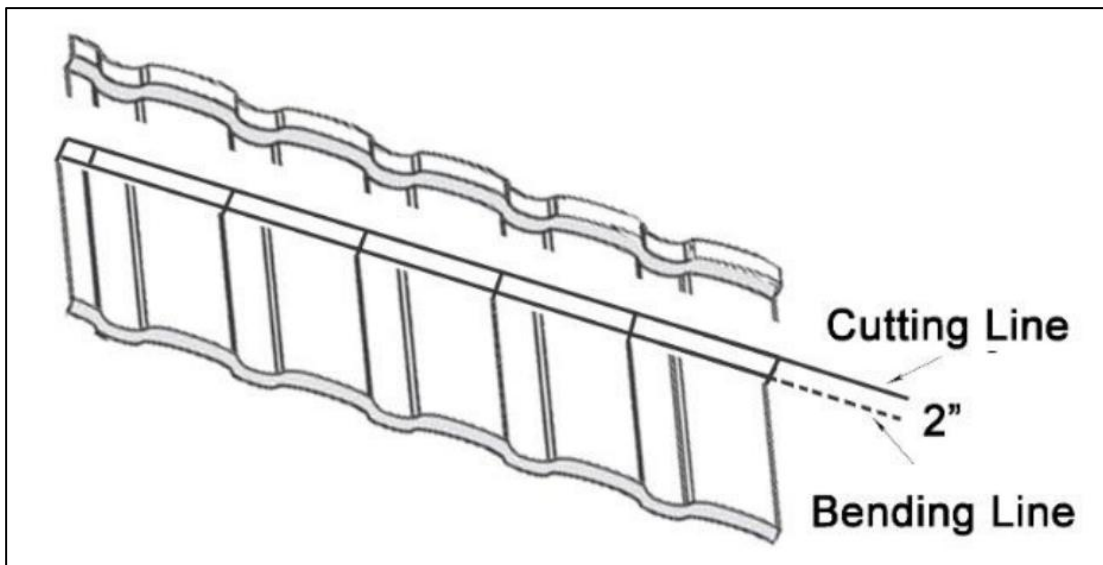


Field Condition: Fasten each panel with a minimum of 6, #8 x 1 1/2" screws at the front side, be sure to push the panels tight and fasten the panel. Panels are to be

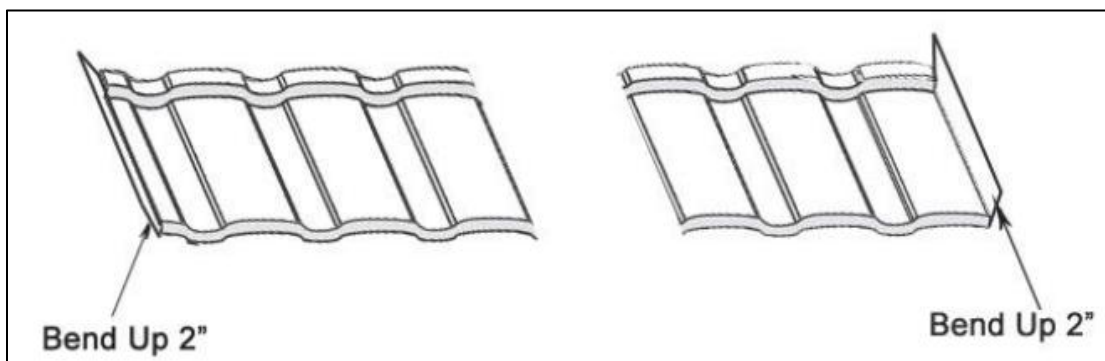
fastened to battens with approved # 8 x 1 ½” long screws and bonded washer driven into the (lower) butt edges course and upper edge of adjoining lower course spaced 12”o.c. 6 approved screws for each full panel.

Perimeter and Corner Condition: Panels fastened to battens with approved # 8 x 1 ½” long hex head screws # 8 x 1 ½” long screws and bonded washer driven into the (lower) butt edges course and upper edge of adjoining lower course spaced 7”o.c. 11 approved screws for each full panel. (Page.24 High Wind Area)

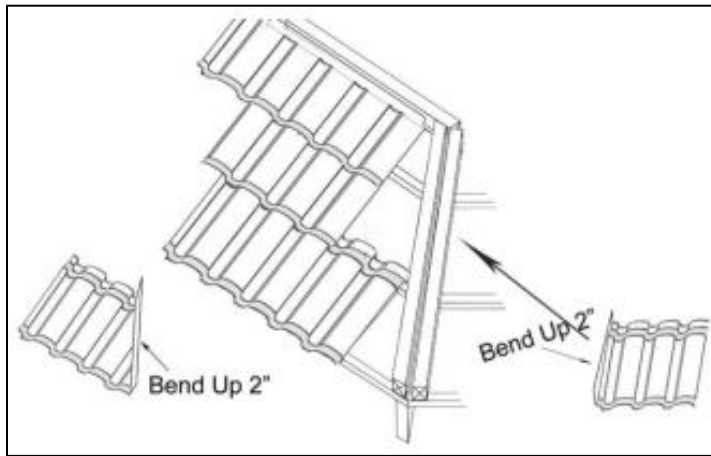
***Others:** For the last tile panel on the **top**, measure and cut it to size, then fold and bend up 2” and fasten to batten.



For the **first** and **last** tile panel on the **left** or **right** side, fold and bend ends up 2” and fasten to batten.



Installing Hips



Hips:

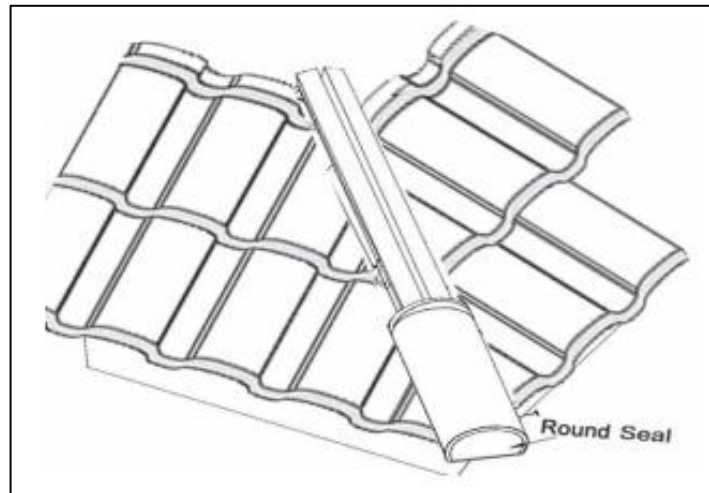
Bring the panels to the hip, measure and cut the panels to size with a 2" excess. Bend up 2" as pictured and fasten.

Installing Hips:

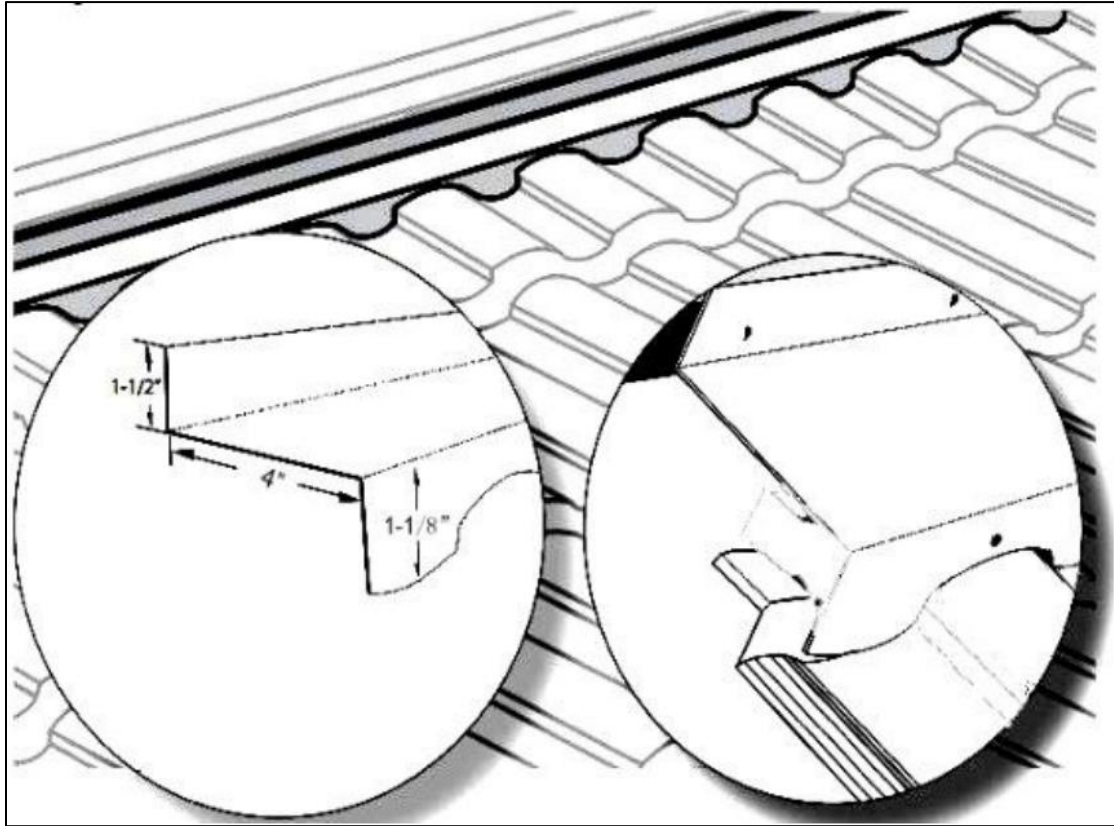
Hips should be installed starting from the bottom to the top with the upper section covering the lower section by 1" and fastened with four screws in each section as pictured.

Round Seal:

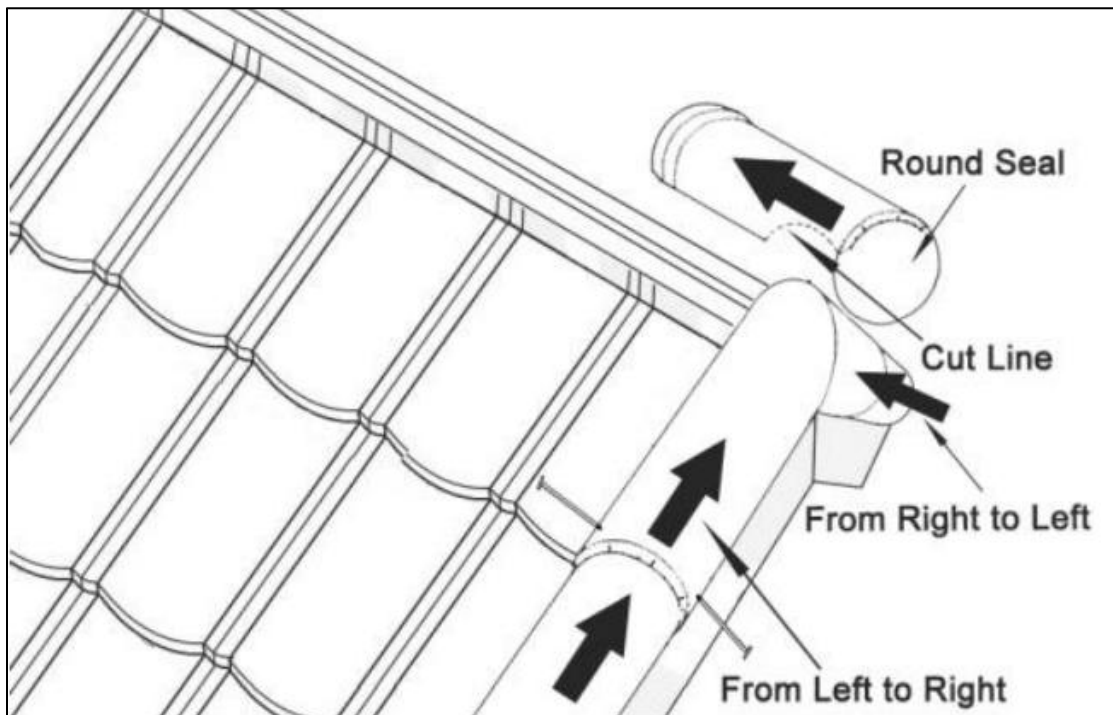
Use round seal to cover the open area at the bottom and fasten.



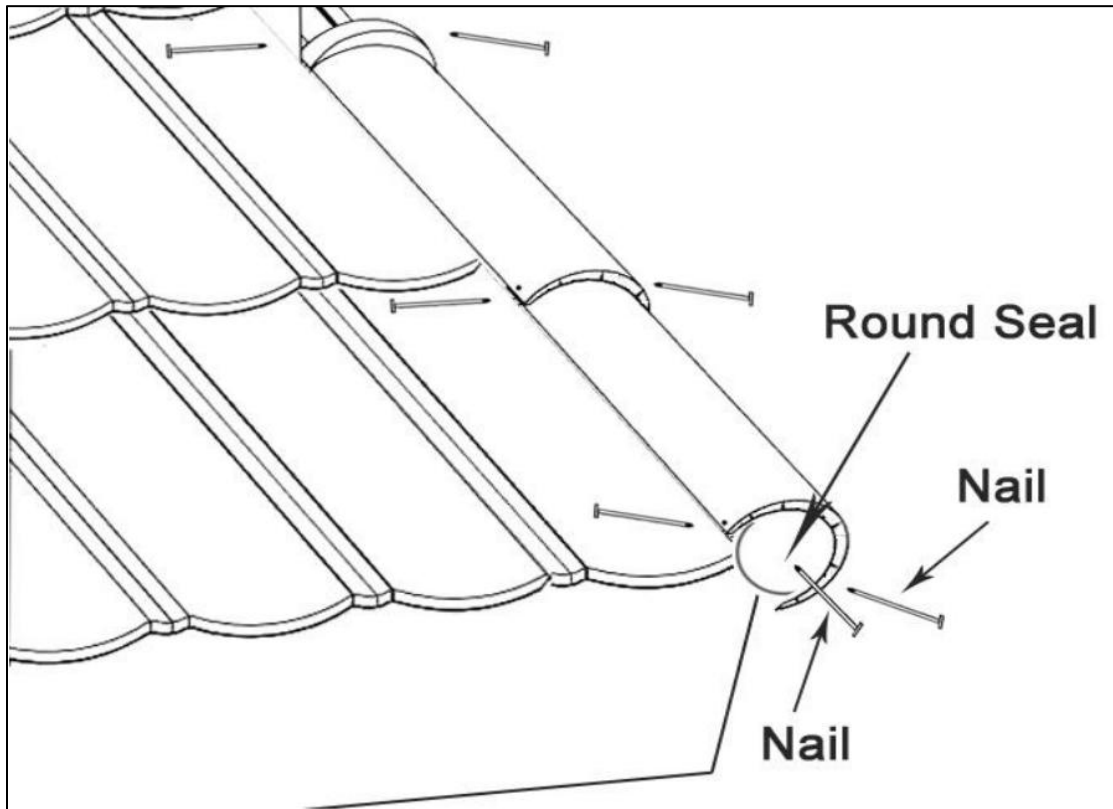
Installing Ridges



Bird Stop Top: Install the bird stop top before the ridge as pictured.



Ridges: Cut the intersecting ridge and hip along the cut line as pictured.

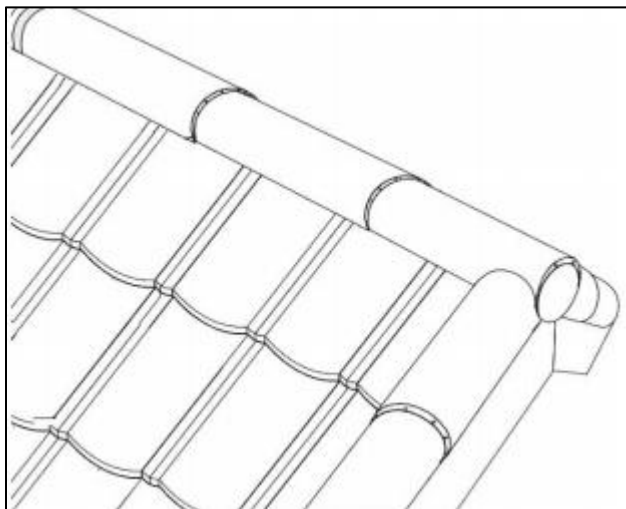


Installing Ridges:

Ridges should be installed starting from right to left with the left section covering the right section by 1" and fastened with four screws in each section as pictured. Measure and cut the last section to size and fasten.

Round Seal:

Use Round Seal to cover the open area at the ends and fasten.



Important

Proper installation of the hips, ridges and panels should look as pictured

High Wind Area

In areas prone to hurricanes and high velocity winds, installation must meet local standards and building codes. Full panels on the top three courses and bottom three courses should be fastened with seven fasteners at seven evenly spaced locations. Also, panels along the perimeter and directly along the hips and gables must be secured at seven evenly spaced locations on the tile.

Foot Traffic

Avoid walking on side laps. Walking on tiles should be kept on the high parts and directly on battens.

Sealants

Roofing grade polyurethane sealant is recommended. Where possible, sealant should be covered by the roofing system or with matching stone granules using the touchup kit. Sealant should not be used to refinish damaged panel surfaces.

Cleaning

After installation is finished, clean off debris off the roof and make sure any metal shavings are thoroughly removed from the roof.

Touch-up Kit

Apply the adhesive to the affected area. Sprinkle the adhesive with a generous amount of stone chips to embed them in the adhesive and allow one hour to dry. Once dry sweep any excess.