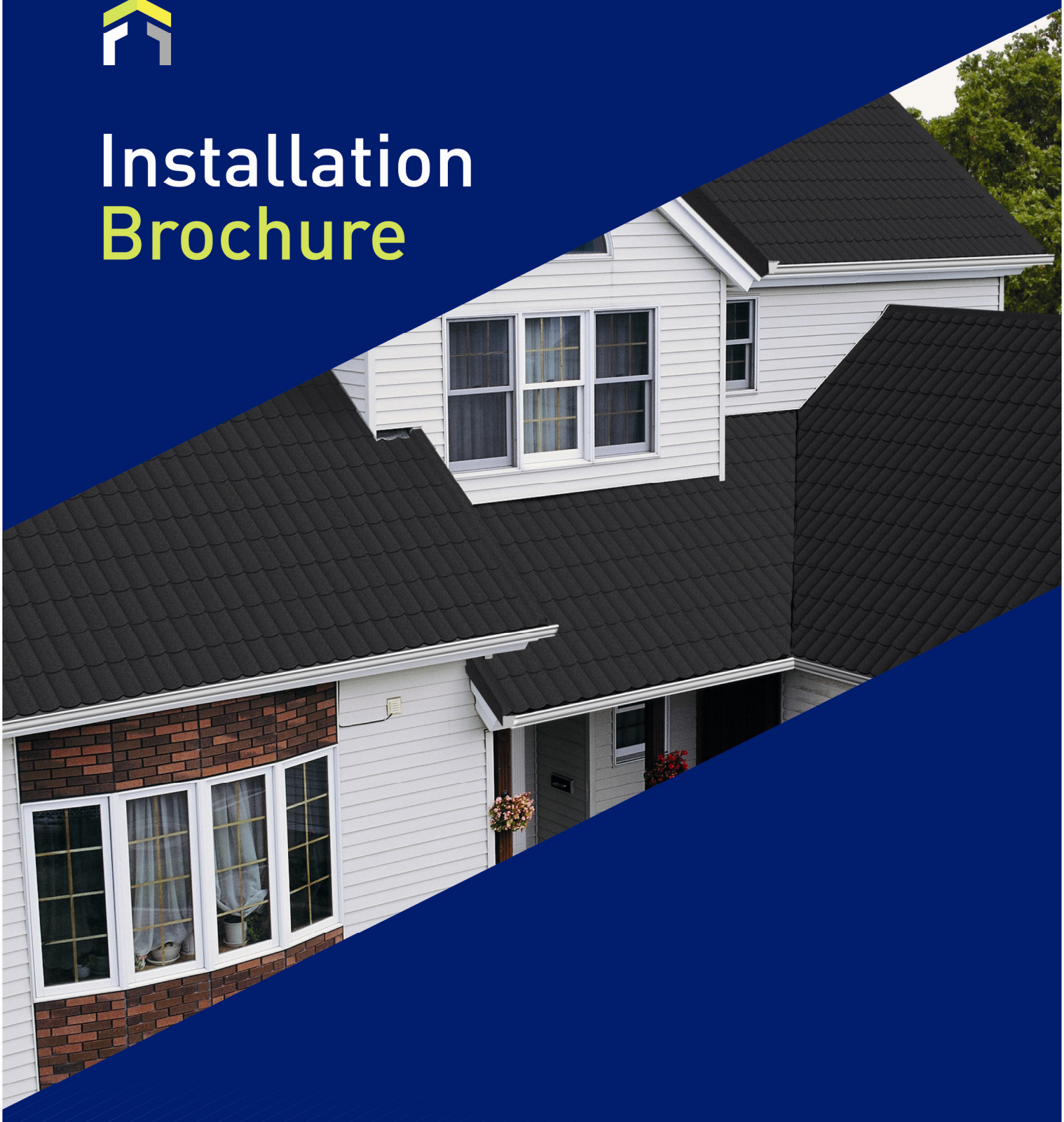
Installation Brochure



fortiza
ROOFING SYSTEMS

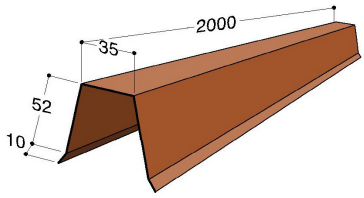
PRODUCTS

Tiles

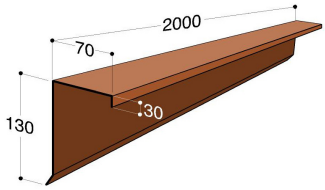
FORTIZA TILE	
Pitch – min./max.	12-90º
Overall length	1330 mm
Length of cover	1270 mm
Width of cover	400 mm
Upstand	25 mm
Roof cover/tile	0.508 m^2
Tiles/ m^2	1.97
Weight/tile Texture	2.5 kg
Weight/m^2 Texture	5 kg

Accessories

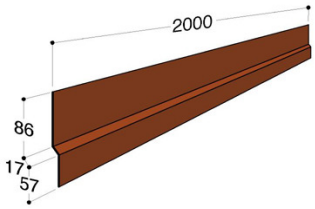
RIDGE HIP	
Overall length	2000 mm
Length of cover	1900 mm
Downturn	62 mm
Width	35 mm
Weight/unit Texture	1.5 kg



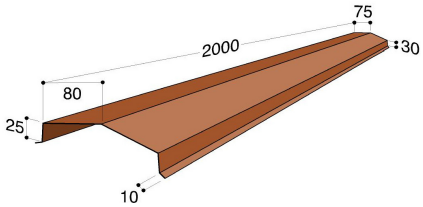
BOX BARGE	
Overall length	2000 mm
Length of cover	1900 mm
Downturn	130 mm
Width	70 mm
Weight/unit Texture	2.3 kg



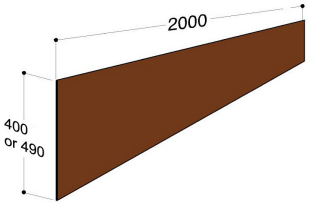
SIDE FLASHING	
Overall length	2000 mm
Length of cover	1900 mm
Upturn	86 mm
Width	17 mm
Downturn	57 mm
Weight/unit Texture	1.5 kg



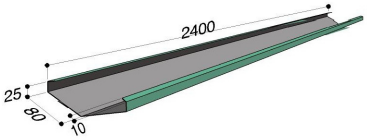
A RIDGE	
Overall length	2000 mm
Length of cover	1900 mm
Upturn	25 mm
Width	160 mm
Weight/unit Texture	2.2 kg



FLAT SHEET 400	
Overall length	2000 mm
Width	400/490 mm
Weight/unit Texture	3.9/4.2 kg



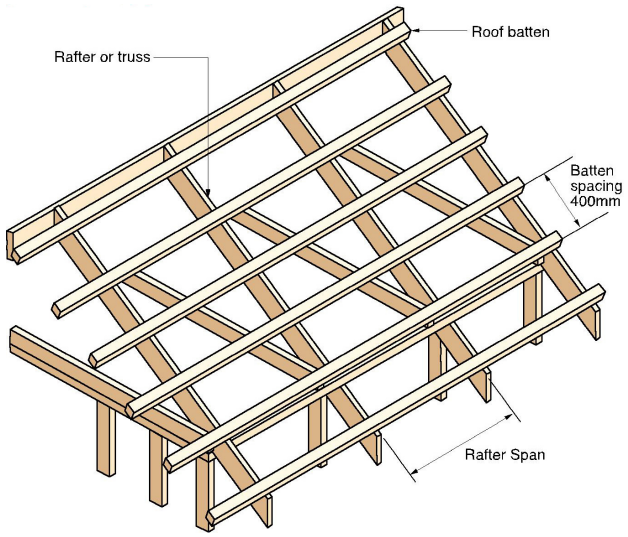
COMBINATION VALLEY	
Overall length	2400 mm
Lap	150 mm
Width	160 mm
Weight/unit	2.1 kg



TILE BATTEN INFORMATION

Batten Sizing

Rafters or roof trusses can be set at various centres depending on the type of construction.

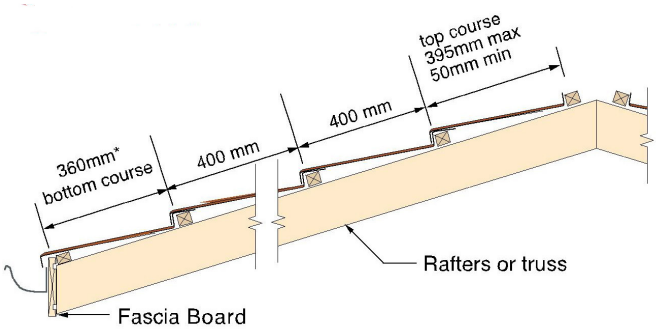


Batten Installation Procedure

Batten setting out.

The most critical factor in the laying out of the tiles is accurate setting out of the battens. If this is not adhered to, the tiles will not fit correctly.

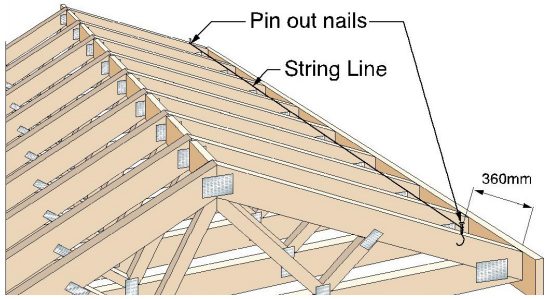
Fortiza tiles are installed on battens spaced at 400 mm (measured from the front face to front face of the battens)



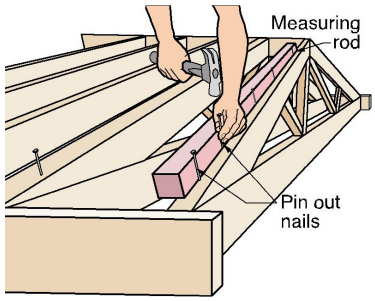
* Variable depending on the type of rainwater collection system used

If possible install full tiles from eave to ridge. The distance from eave to ridge being 360 mm + multiples of 400 + 395 mm. Adjustment of the first batten spacing (360 mm) by a small amount may allow you to install full tiles.

Pin out.
Measure up a rafter from the outside of the fascia board 360 mm* to establish the position of the second batten, tack in a nail at this position. Repeat at the other end of the section of roof, then run a string line between the points. On each remaining rafter tack a nail at the string line.



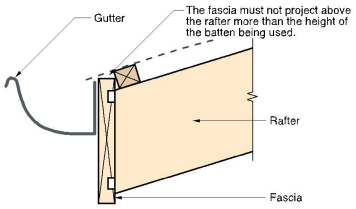
* In the event that the top course tile is too short or the rain water collection system conflicts with the tile nose, this dimension may be changed within -40 mm to +15 mm tolerance.
Using a measuring rod (pre-notched at the specific tile batten spacing) hook it over the nail so that it lays up the rafter. Tack a nail in each slot as markers for the battens.



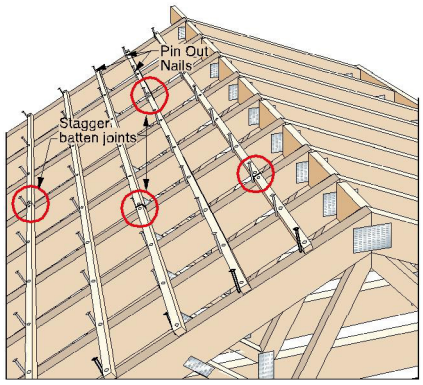
If an insulation foil or underlay is to be used, this is installed over the pin out nails before installing the tile battens.

Batten Location and Fastening

Position the eave batten just behind the fascia board. The eave batten must close the gap between the fascia and the rafter to prevent vermin and bird access.



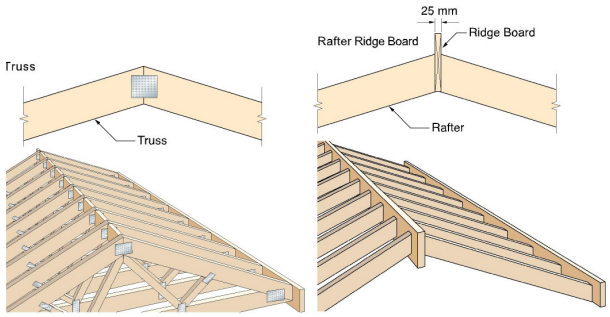
Batten joints are to be staggered and cut to length so that they butt together on top of a rafter. Battens must be fixed onto 3 rafters. Once the battens are fastened remove the pin out nails.



Accessory Batten Installation

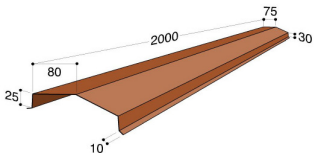
- Ridges
- Hips
- Gables
- Valleys

Battens need to be installed to accommodate the different accessories.
Accessory Battens are fastened using the same size and number of fasteners as used for the tile battens

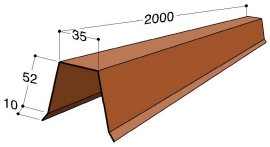


There are three accessories that are commonly used on **ridges and hips**: A Ridge and Ridge Hip; **gable ends** may be finished with: a Box Barge.

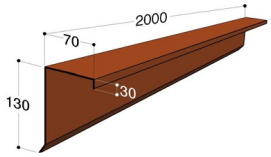
A Ridge



Ridge Hip



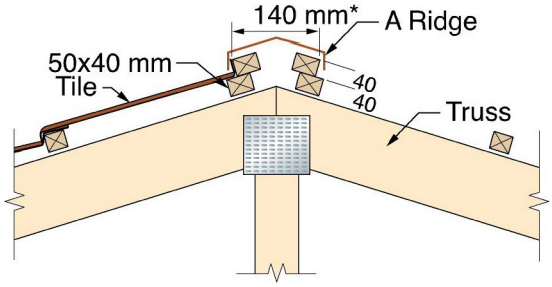
Box Barge



A Ridge

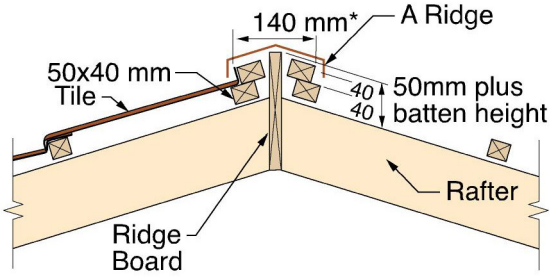
Set out of the battens is dependent on the pitch of the roof. Battens are usually positioned so that they are spaced apart evenly either side of the ridge's apex.

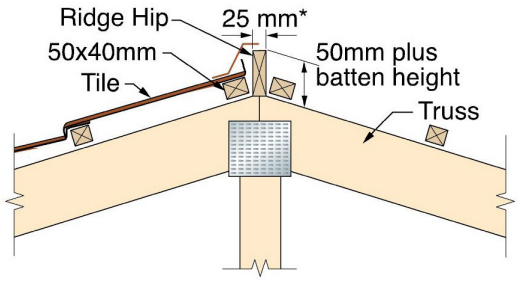
Two battens each side provide a base support for the back of the tile and for fastening the A Ridge. Ridge battens for A Ridge are spaced at 140 mm.



Ridge Hips

Ridge Hips require a 25 mm wide board that stands 90 – 100 mm above the apex of the ridge.



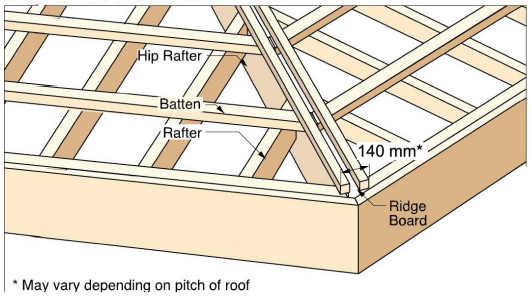


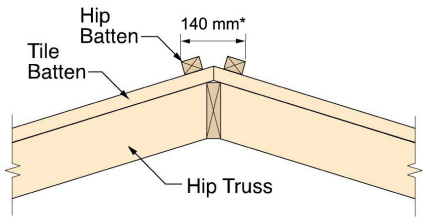
Hip Batten Installation

A Ridge

Set out of the battens is dependent on the pitch of the roof. Hip battens are usually positioned so that they are spaced apart evenly either side of the hips apex.

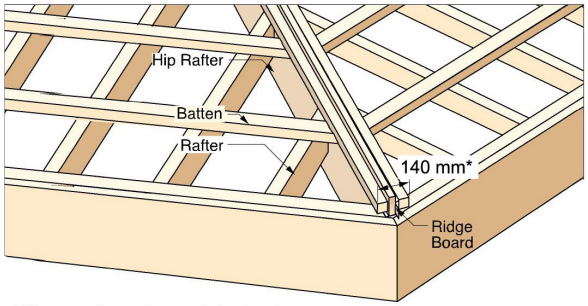
Hip battens for A Ridge are installed on top of the tile battens at spacing of 140 mm.



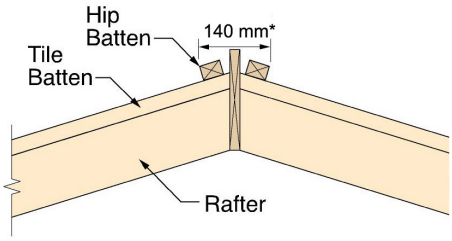


Ridge Hips

Ridge Hips require a 25 mm wide board that stands 90 – 100 mm above the apex of the hip. This results in a 25 mm board projecting 40 – 50 mm above the tile battens.



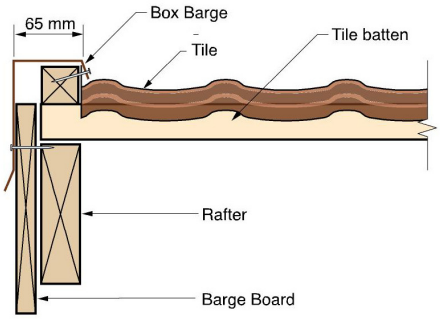
* May vary depending on pitch of roof



Gable End Batten Installation

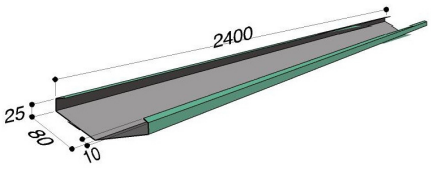
A barge board should be installed before commencing batten installation.
The barge board should be installed 40 mm above the rafter. Tolerances of a minimum of 25 mm and a maximum of 60 mm above the rafter are permitted.

The measurement (65 mm) to locate the accessory batten is taken from the outside of the barge board.

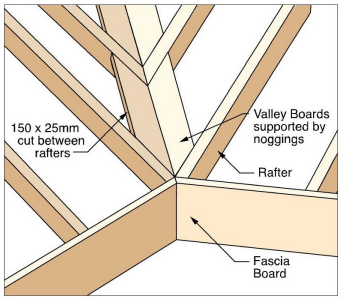


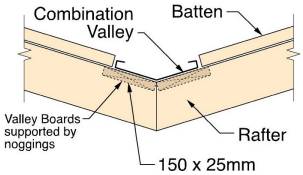
Valley Installation

Valley boards should be installed by the builder prior to the roof fixer starting batten installation. Timber should be treated to H3.
Valley boards 150 x 25 mm are cut and installed between the trusses so that they can be nailed flush with the top of the rafter.



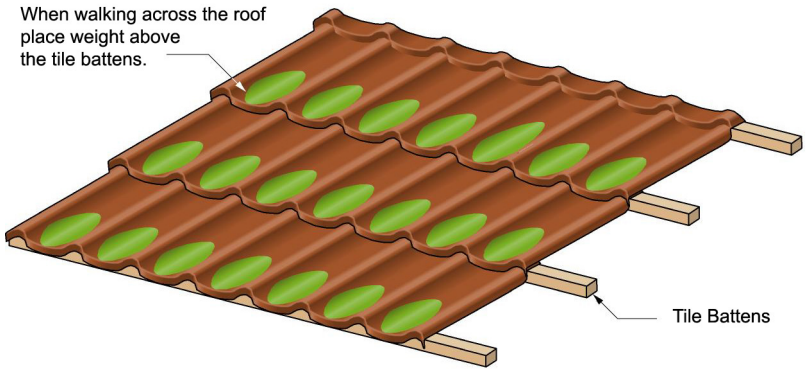
Combination Valley





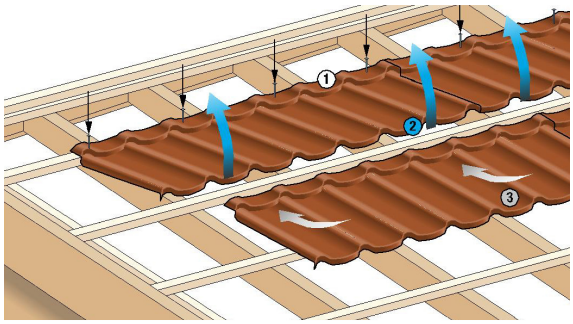
TILE INSTALLATION

Walking on Tiles.
Soft soled shoes capable of providing secure footing should be worn.
Extreme care is required when walking on wet tiles and this should be avoided if possible.
The surface coating of the textured finish tiles may be damaged when they are wet, and damage increases as the pitch increases.
When walking on the tiles weight must be concentrated directly above the batten in the pan (lower section) of tiles above the batten.
Tile damage will occur if installer weight is applied to the tile ridges.



Tile Laying
Lay tile laps facing away from prevailing winds. Where possible the tiles should be laid with the laps facing away from the line of normal sight.

Tiles should be staggered so that side laps do not line-up down the roof.

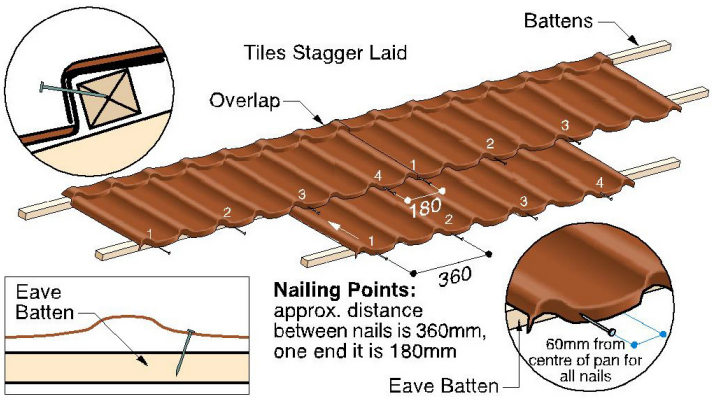


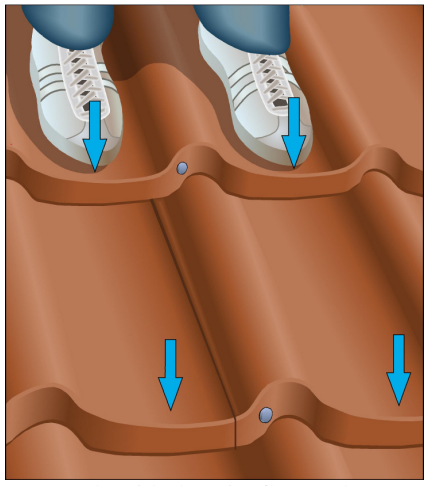
On lower pitched roofs all full tiles can be laid to cover the entire area without fastening. On higher pitch roofs, over 30°, tiles should be fastened two courses above the tiles being laid.
All tiles should be fastened in place before leaving the job site for any reason.

Tile Fastening
Tiles in the body of the roof are fastened using 4 tile nails per tile (spacing 360 mm approx.) through the front downturn (tile nose) so that the nail penetrates the front face of the tile batten. Nails should be placed 60 mm from the lowest section of a pan on tiles. Fasteners should be installed a minimum of 10 mm from the edge of the nose or half the width of the nose.
Fasten the lap at the front and back of the tile, press down on the tiles as you nail to ensure the side-lap sits flat on the surface of the tile below.

Eave tiles are fastened through the tops of the tiles using 4 fasteners, not in the pans or water channels.

Nailing positions





Ensure the side-lap sits flat on the surface of the tile below

Nailing Fastening Technique

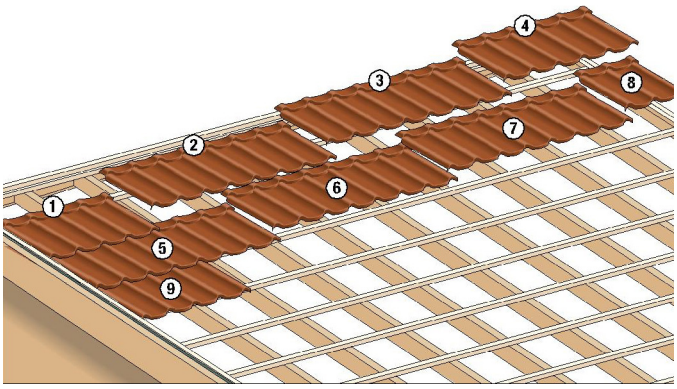
The person nailing the tiles should stand on the tile being fastened facing the eave and nailing as shown.

Gable Roof

Tiles are turned up against the gable end accessory batten a minimum of 40 mm. These are held in place by tacking in place on the flat at the back of the tile.

The staggered laying will result in gaps at either end of the gable. Tiles need to be measured, cut and bent to suit.

Stagger the tile laps down the roof, using part tiles at the gable end

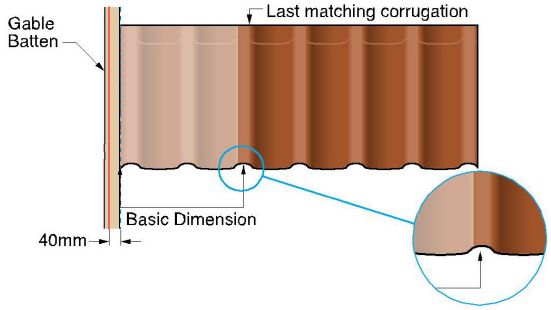


Measuring, Cutting and Bending Gable End Tiles

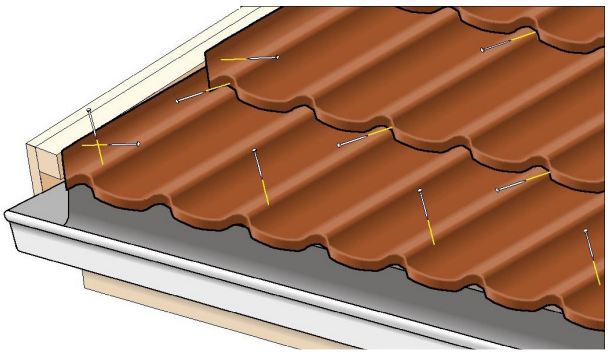
Measurements for cutting and bending tiles are taken on the roof. The measurements are then transferred on to tiles on the ground where they are **CUT, BENT** and **STACKED** in order.

The measurement is taken from the centre of the water channel (or edge of the side lap on a shake or shingle) of the tile, along the front face of the tile batten on the roof

to the inside of the gable end accessory batten, this is the bend line. Add 40 mm for the turn up of the tile, this is the cut line.



Gable end tiles are installed from the eave up ensuring lapping is correct. Tiles are nailed in place through the front down turn and into the accessory batten through the turn up.

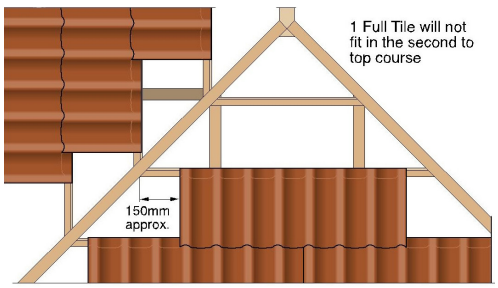


Hip Roof
Tiles are turned up against the hip accessory batten a minimum of 40 mm.

Lay the first full tile at the second to top course so that the back of the tile is a minimum of 150 mm from the inside edge of the hip accessory batten.

Stagger and lay full tiles across the length of the roof until the last full tile. If the hip tile for the end section cannot be cut and bent out of a full tile it will be necessary to insert a part tile before the end of the hip. Tiles can be cut in modular length.

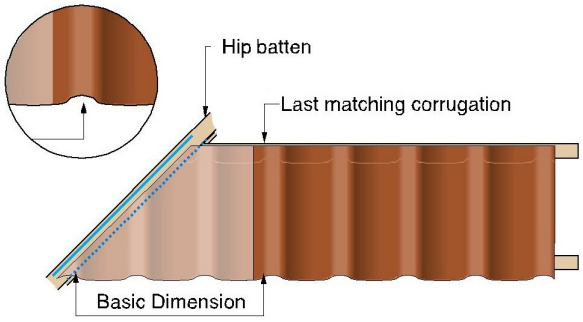
Lay the remaining full tiles down the roof leaving gaps at each end where hip tiles will need to be inserted.



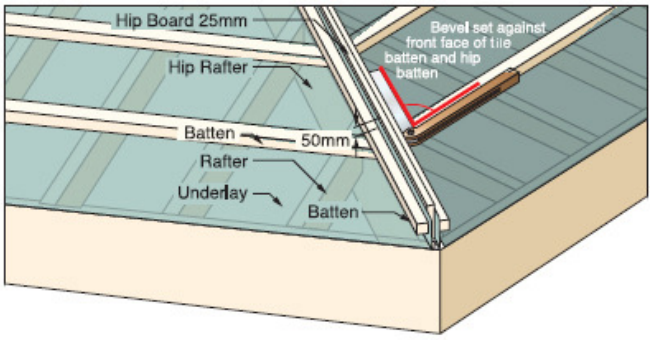
Measuring, Cutting and Bending Hip Tiles
Measurements for cutting and bending tiles are taken on the roof.

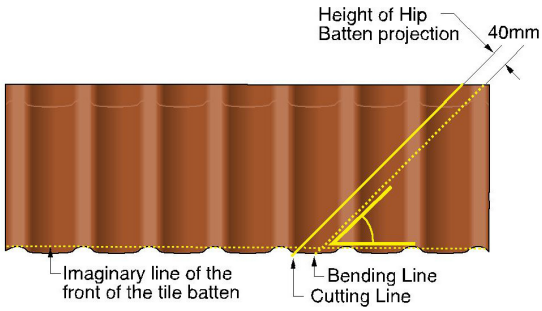
The measurements are then transferred on to tiles on the ground where they are **CUT, BENT** and **STACKED** in order.

The measurement is taken from the centre of the water channel (or edge of the side lap on a shake or shingle) of the tile, along the front face of the tile batten on the roof to the inside of the hip accessory batten, this is the bend line. Add 40 mm for the turn up of the tile, this is the cut line.

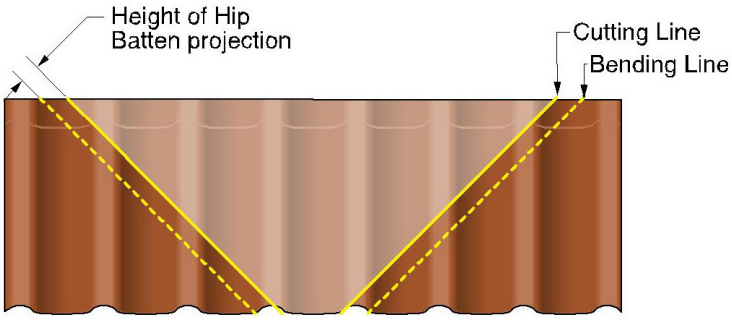


A bevel set to the angle of the hip may then be used to mark the required angle for the hip tile. Alternatively measurements of the front and back of the tile along the front face of the tile batten may be used to provide the angle.





The angle of the hip tile is taken from the roof using a bevel; this is then transferred onto the tile on the ground.
Each tile should supply two cut sections leaving a minimum wastage.
Careful cut tile selection and use of cut tiles for hips and valleys also reduces waste.

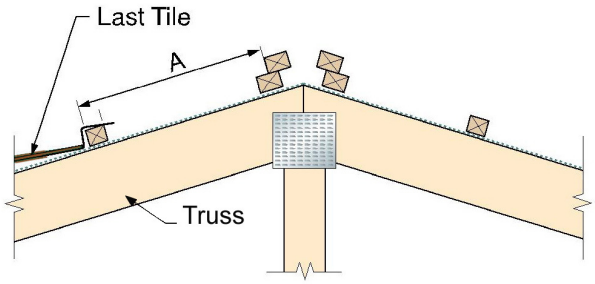


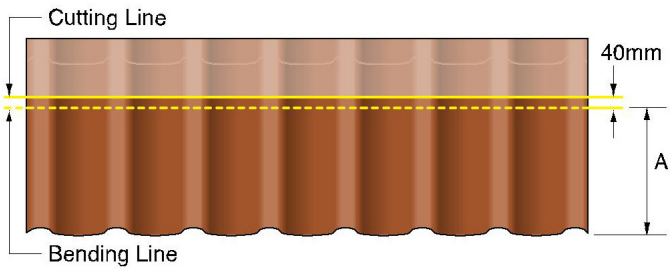
Ridge Tiles

Measurements for bending and cutting tiles are taken on the roof. Ridge tiles are **BENT** before **CUTTING**.

The measurement is taken from the front of the headlap of the tile to the front of the ridge tile batten (A), this is the bend line. Add 40 mm for the turn up of the tile, this is the cut line. Measurements along the ridge are required to ensure that the cut tiles are correct (do **NOT** assume that the ridge is exactly straight unless you have measured).
The measurements are transferred to tiles on the ground. The tiles are **BENT, CUT** and **STACKED** in order as they will be laid on the roof.

Standard ridge or hip setup

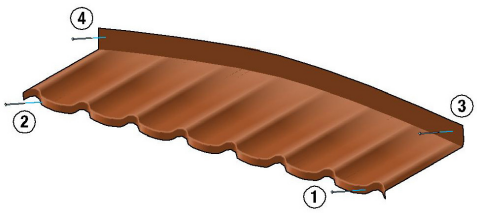


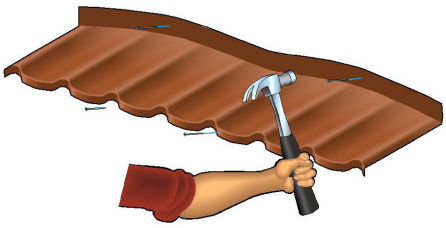


Ridge tile being bent then cut

Installing Ridge Tiles

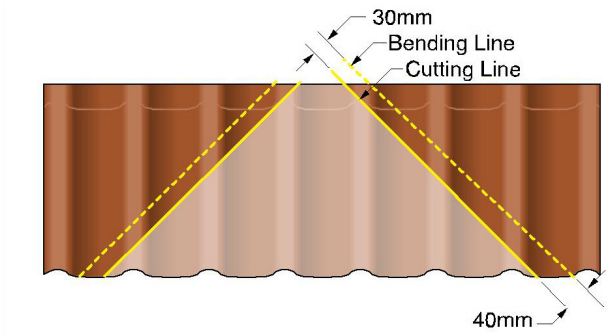
Fasten the ends of the front of the tile first (Steps 1 and 2), then fasten the outside ends of the back of the tile so that the modules line up with other tiles on the roof, also nail the back so that the pitch of the top course tile is the same as the roof (Steps 3 and 4). By nailing each end the back of the tile will bow up (due to the distortion created when bending) push the centre of the tile down and nail the upturn to the ridge batten in several places.



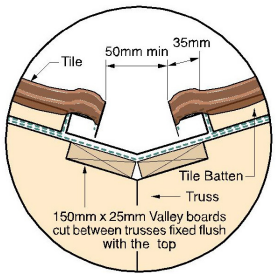


Valley Tiles
Measurements for cutting and bending tiles are taken on the roof.
The measurements are then transferred on to tiles on the ground where they are **CUT, BENT** and **STACKED** in order.

The measurement is taken from the centre of the water channel of the tile, along the front face of the tile batten on the roof to 30 mm past the edge of the valley. The turn down is not parallel to the bend line, add 40 mm at the front (nose) of the tile and 30 mm to the back of the tile, this is the cut line. The slope on the cut made on valley tiles is required to make sure that the bottom edge of the valley tile appears straight in the valley.
The gap between tiles in a valley must be a minimum of 50 mm.



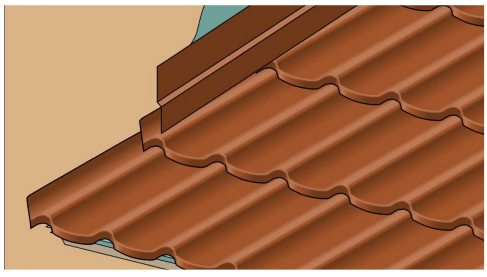
Valley tile being cut then bent



Cut and bend the tiles at the valley as straight as possible to obtain a straight line. Lay the valley tiles from the eave up fastening them through the front downturn. Never nail into a valley.

Laying Tiles next to a wall
The tile turn up against a wall must be a minimum of 40 mm.
The measurements are then transferred onto tiles on the ground where they are **CUT, BENT** and **STACKED** in order.

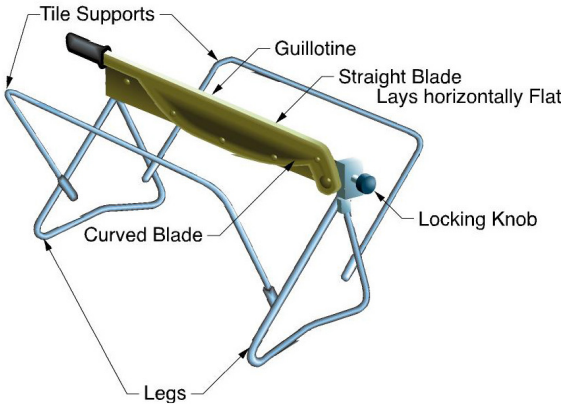
The measurement is taken from the water channel of the tile, along the front face of the tile batten on the roof to the surface of the wall framing. Note that the bent up tile should install neatly behind the wall flashing accessory (usually a side flashing).
Lay the wall tiles from the eave up fastening them through the front down turn but do not nail the tile to the wall framing.



Nails

Standard AHI Roofing tile nails
These are hammer driven nails supplied in boxes of 5 or 25 kg.

Use of Fixing Tools
Guillotine
The guillotine can be used to cut tiles or accessories as required.



Snips can also be used to cut the Tiles and accessories

Gable, Hip and Valley Tiles
Flattening the nose and headlap before cutting the tile will make cutting easier.

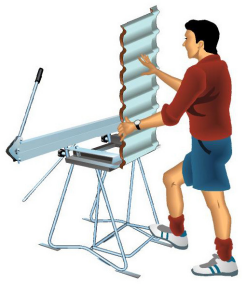
Cut along the marked line, a quick single motion down while pulling the guillotine blade towards yourself (to the left) will keep the blades together and usually ensure that a cut is made in one operation. If more than one cut is required move the tile closer to where the blades intersect as this is where the guillotines cutting power is greatest.

Hold the tile so that the largest side is held in the left hand, this gives you greater control over the tile being cut.

Cutting a Tile

Cut the tile with snips

Bending a Tile



Bending with a hand bender

Ridge Tiles

These are bent in the long tile bender before cutting to help reduce tile distortion (splay).

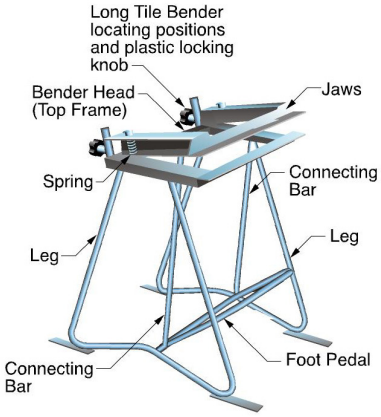
Hand snip and then bend tiles

These tiles are cut along the length of the tile, so it will take several cuts to complete a ridge tile.

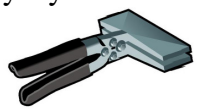
Start with the tile headlap to the right of the guillotine blade, make short cuts along the cut line pushing the tile into the first 1/3 of the cutting area of the guillotine. Continue the sequence until the tile is cut.

Short Tile Bender

The short tile bender is used for folding the turn-ups required for gable and hip and wall tiles and for the turndown into valleys. It clamps and flattens the tile turn-ups so that the tiles can be installed under accessories.

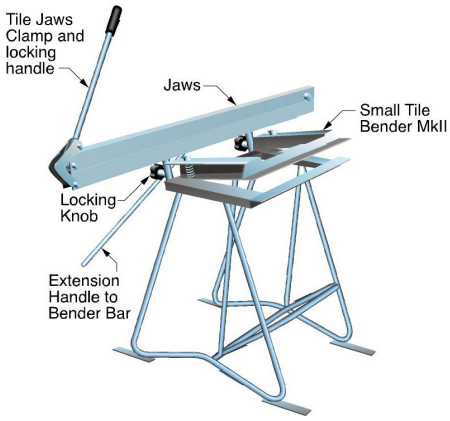


Hand benders, there are many styles



Long Tile Bender

This folder attaches to the back of the short tile bender. It can be used for folding ridge tiles and if necessary gable, hip or valley tiles.



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