



**Fortiza**<sup>®</sup>  
ROOFING SYSTEMS

Installation  
Guide



Become an **Expert** with  
[Distributor Name Here]



## Health and Safety

1. Assess the job before any work at height is carried out.
2. Ensure all equipment is checked, is suitable and in good repair.
3. Ensure adequate fall restraints and protective equipment are used.
4. Always wear safety clothing.

## Tools Required

- Hammer
- Tape Measure
- Snips

## Check the Back of the Tile

Look on the back of the tile for the **production code** and the **Fortiza** brand mark.



## Which Tile are You Installing?

Fortiza Tile and Fortiza Shingle both have unique installation methods, therefore you must identify which tile you are installing. Please use the information provided to identify the tile specification.

## Fortiza Tile



Pitch (Min. / Max.)	15° / 90°
Overall Length	1335mm
Length of Cover	1250mm
Width of Cover	400mm
Tiles per m <sup>2</sup>	2
Upstand	20mm
Roof Cover / Tile	1m <sup>2</sup> / 0.5m <sup>2</sup>

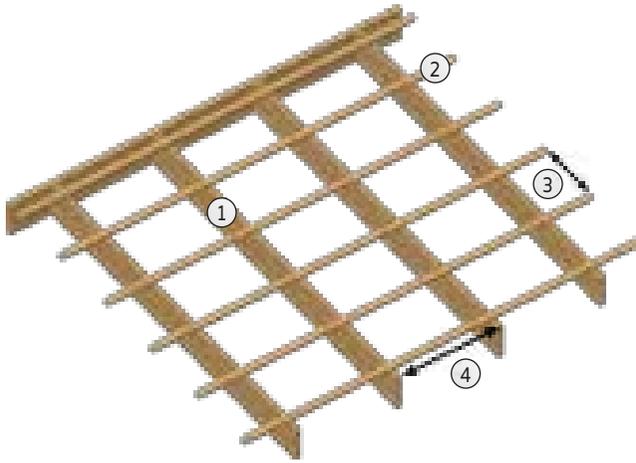
## Fortiza Shingle



Pitch (Min. / Max.)	15° / 90°
Overall Length	1330mm
Length of Cover	1245mm
Width of Cover	400mm
Tiles per m <sup>2</sup>	2
Upstand	20mm
Roof Cover / Tile	1m <sup>2</sup> / 0.5m <sup>2</sup>

## 1 Batten Sizing

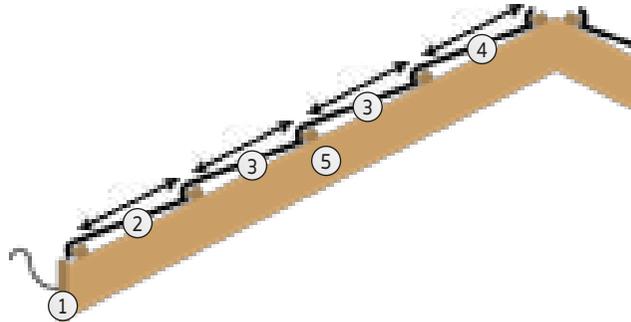
Rafters or roof trusses can be set at various centres depending on the type of construction.



1. Rafter
2. Batten
3. Batten Spacing (400mm)
4. Rafter Spacing

## 2 Batten Setting Out

The most critical factor in laying out 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 400mm (measured from the front face of the tile to the front face of the batten).

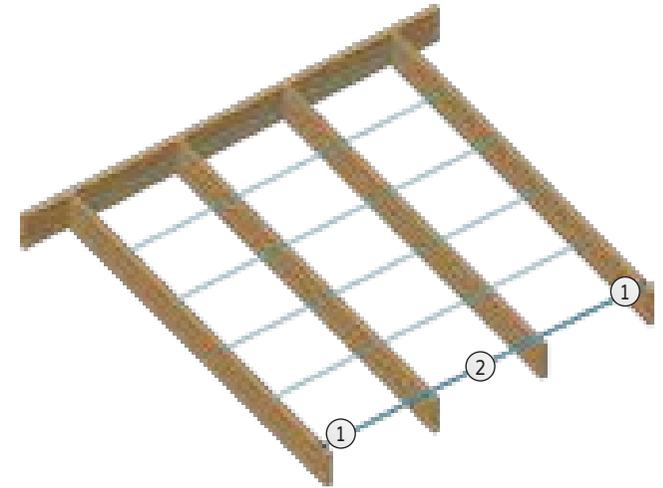


1. Fascia Board
2. 360mm Bottom Course
3. 400mm
4. 395 Top Course (395mm Maximum / 50mm Minimum)
5. Rafter

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

## 3 Pin Out

Measure up a rafter from the outside of the fascia board 360mm\* 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.



1. Pin Out Nails
2. String Line

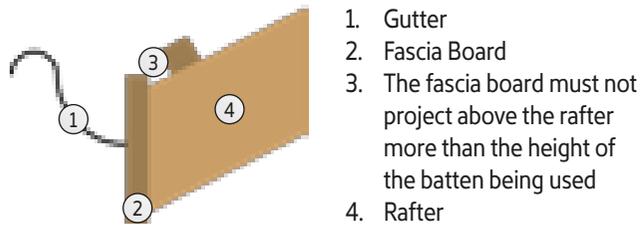
If an insulation foil or underlay is to be used, this is installed over the pin out nails before installing the tile battens.

*\* In the event that the top course tile is too short or the rainwater collection system conflicts with the tile nose, this dimension may be changed within -40mm to +15mm 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.*

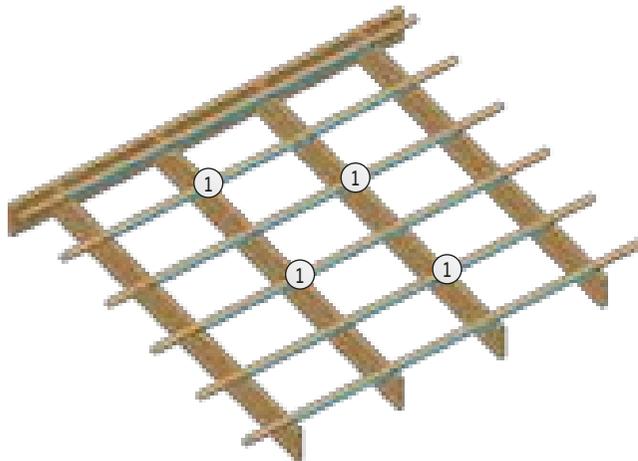


#### 4 Batten Location and Fastening

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.



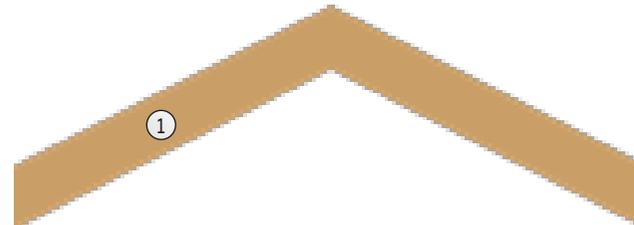
Batten joints are to be staggered and cut to length so that they butt together on top of a rafter. Battens must be fixed onto 3 rafters. Once the battens are fastened, remove the pin out nails.



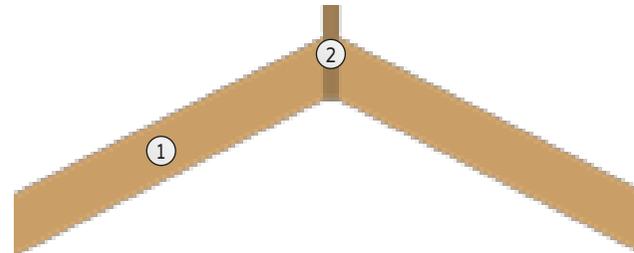
1. Staggered batten joints

#### 5 Accessory Batten Installation

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.



1. Truss

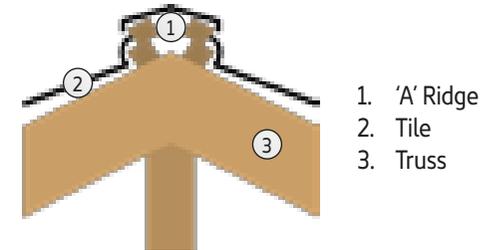


1. Rafter  
2. 25mm Ridge Board

There are 3 accessories that are commonly used on ridges and hips - 'A' Ridge, Ridge Hip and Gable Ends - may be finished with a Box Barge.

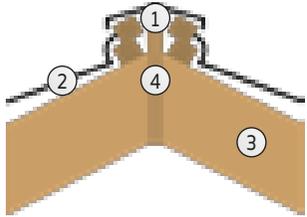
#### 5a 'A' Ridge

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 140mm.

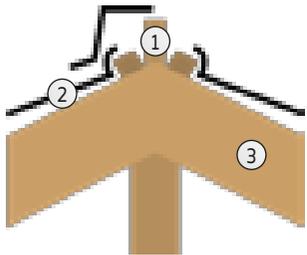


## 5b Ridge Hip

These require a 25mm wide board that stands 90mm - 100mm above the apex of the ridge.



1. 'A' Ridge
2. Tile
3. Rafter
4. Ridge Board



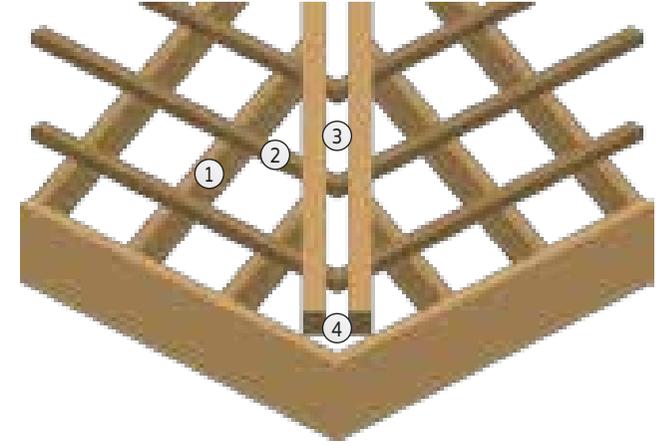
1. Ridge Hip
2. Tile
3. Truss

## 6 Hip Batten Installation

Please continue to 6a or 6b for different accessory methods.

## 6a '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 hip's apex. Hip battens for 'A' Ridge are installed on top of the tile battens at spacing of 140mm.

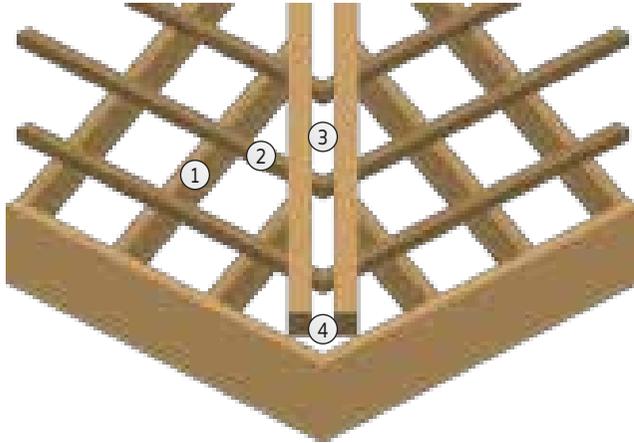


1. Rafter
2. Batten
3. Hip Rafter
4. Ridge Board (140mm - may vary depending on the pitch of the roof)



## 6b Ridge Hips

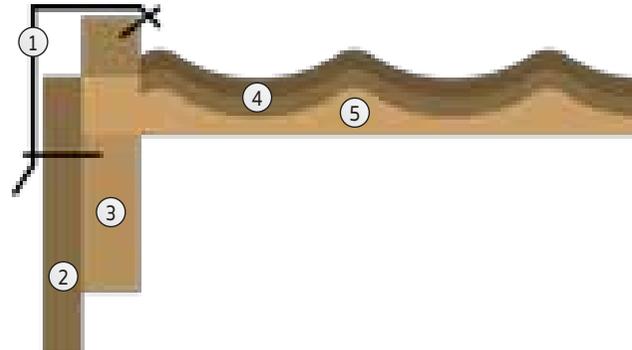
Ridge Hips require a 25mm wide board that stands 90mm - 100mm above the apex of the hip. This results in a 25mm board projecting 40mm - 50mm above the tile battens.



1. Rafter
2. Batten
3. Hip Rafter
4. Ridge Board (140mm - may vary depending on the pitch of the roof)

## 7 Gable End Installation

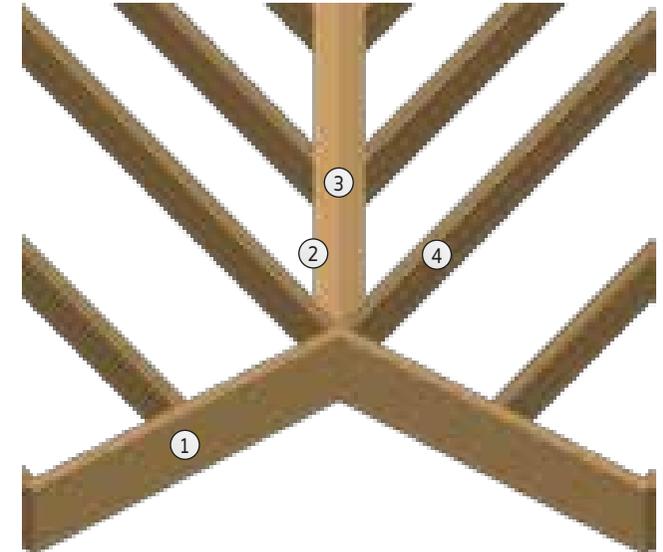
A barge board should be installed before commencing batten installation. The barge board should be installed 40mm above the rafter. Tolerances of a minimum of 25mm and a maximum of 60mm above the rafter are permitted. The measurement (65mm) to locate the accessory batten is taken from the outside of the barge board.



1. Box Barge
2. Barge Board
3. Rafter
4. Tile
5. Batten

## 8 Valley Installation

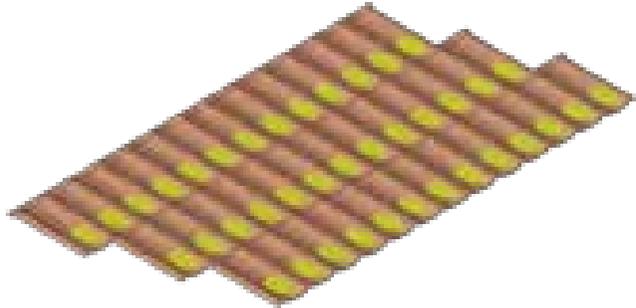
Valley boards should be installed by the builder prior to the roof fixer starting batten installation. Timber should be treated to H3. Valley boards 150mm x 25mm are cut and installed between the trusses so that they can be nailed flush with the top of the rafter.



1. Fascia Board
2. 150mm x 25mm (cut between rafters)
3. Valley Boards supported by noggings
4. Rafter

## 9 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 the tiles above the batten. Tile damage will occur if installer weight is applied to the tile ridges.

## 10 Laying the Tiles

Fortiza Tile and Fortiza Shingle are both laid in different ways. Please follow either 10a or 10b depending on which tile you are installing.

### 10a Fortiza Tile

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 pitched 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.



## 10b Fortiza Shingle

## 11 Tile Fastening

Tiles in the body of the roof are fastened using 4 tile nails per tile (spacing 360mm approximately) through the front downturn (tile nose) so that the nail penetrates the front face of the tile batten. Nails should be placed 60mm from the lowest section of a pan on tiles. Fasteners should be installed a minimum of 10mm 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.

## 12 Nail Fastening Technique

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

### 13 Gable Roof

Tiles are turned up against the gable end accessory batten a minimum of 40mm. 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 into suit.

Stagger the tile laps down the roof using part tiles at the gable ends.

### 14 Measuring, Cutting and Bending Gable Tiles

Measurements for cutting and bending tiles are taken on the roof. 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 centre of the water channel 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 40mm 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 downturn and into the accessory batten through the turn up.

### 15 Hip Roof

Tiles are turned up against the hip accessory batten a minimum of 40mm. Lay the first full tile at the second to top course so that the back of the tile is a minimum of 150mm 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 second 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 the hip tiles will need to be inserted.



## 16 Measuring, Cutting and Bending Hip Tiles

Measurements for cutting and bending tiles are taken on the roof. 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 centre of the water channel 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 40mm 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. Carefully cut tile selection and use of cut tiles for hips and valleys also reduce waste.

## 17 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 40mm for the turn up of the tile, this is the cut line. Measurements along the ridge are required to ensure that the cut lines are correct (do not assume that the ridge is exactly straight unless you have measured).

The measurements are transferred to the tiles on the ground. The tiles are bent, cut and stacked in order as they will be laid on the roof.

## 18 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 right batten in several places.

## 19 Valley Tiles

Measurements for cutting and bending tiles are taken on the roof. 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 centre of the water channel of the tile, along the front face of the tile batten on the roof to 30mm past the edge of the valley. The turn down is not parallel to the bend line, add 40mm at the front (nose) of the tile and 30mm 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 the tiles in a valley must be a minimum of 50mm. 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.

## 20 Laying Tiles Against a Wall

The tile turn up against a wall must be a minimum of 40mm. 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 centre of 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 downturn but do not nail the tile to the wall framing.

## 21 Nails and Snips

Standard AHI Roofing tile nails. These are hammer driven nails supplied in boxes of 5kg or 25kg. Snips can be used to cut the tiles and accessories, or you can use the guillotine.



## 22 Guillotine

The guillotine can be used to cut tiles or accessories as required.

## 23 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 guillotine's cutting power is greatest.

Hold the tile so that the largest size is held in the left hand. This gives you a greater control over the tile being cut.

## 24 Ridge Tiles

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

## 25 Short Tile Bender

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

## 26 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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