

# Installation Guide

## Guardian Slate Roof System

England, Scotland & Wales

February 2017

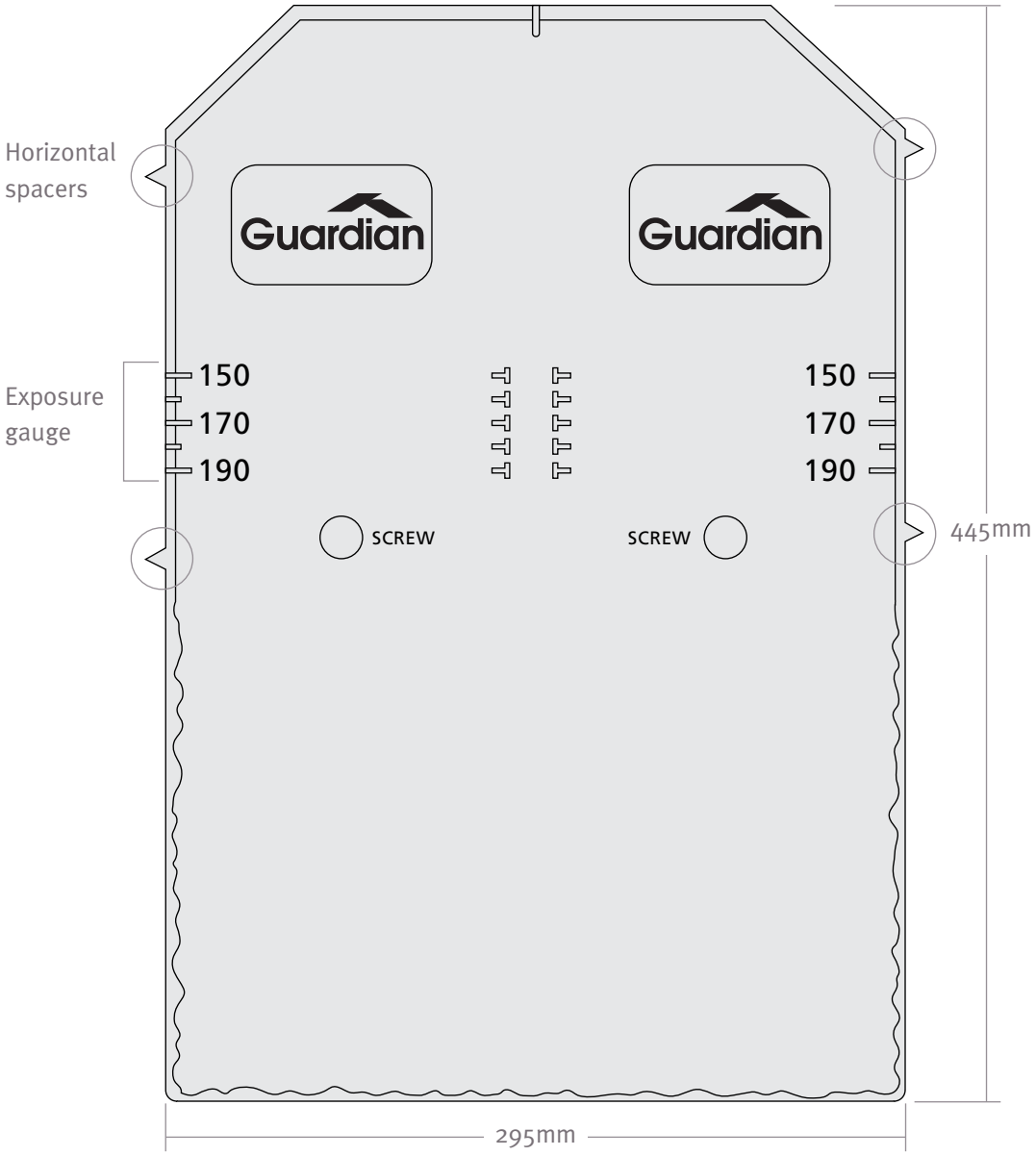
# Product Information

| | | |
|---|---|---|
| **Construction:** | | Manufactured from resin bonded crushed limestone |
| **Size** | **(slate):** | 445 x 294mm |
| | **(ridgecap):** | 150 x 445mm |
| **Weight** | **(slate):** | 0.675 kgs (nominal) |
| | **(ridge cap):** | 0.620 kgs (nominal) |
| **Ridge:** | | 5.5 per linear metre |
| **Hip:** | | 5.5 to 6.5 per linear metre<br>(depending on gauge) |
| **Packaging:** | | 22 slates per bundle (14.85 kg) / 1584 slates per pallet (1.04 tonne) |
| **Roofing board:** | | 12mm or standard roofing batten |
| **Fixing:** | | Two 30mm x 4mm head stainless steel screws |
| **Cutting:** | | Fine-toothed handsaw, jigsaw, circular saw, or sharp utility blade |
| **Maximum pitch:** | | 90° |
| **Minimum pitch:** | | 14° |
| **Storage:** | | Must be stored above 7°C for 24 hours before use<br>Can be installed at 0°C but must be hand fastened |

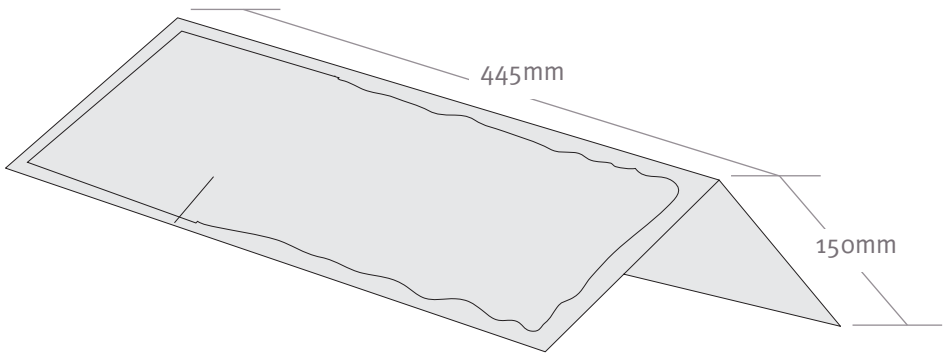
| Roof Pitch | Gauge | Slates per m² |
|---|---|---|
| 14* to 22.5 degrees (boarded only) | 152mm | 22 |
| 22.5 to 25 degrees (boarded or battens) | 152mm | 22 |
| 25 to 27.5 degrees (boarded or battens) | 165mm | 20 |
| 27.5 to 30 degrees (boarded or battens) | 178mm | 19 |
| Above 30 degrees (boarded or battens) | 191mm | 18 |

* The minimum recommended pitch and lap may be influenced by special circumstances, please contact us for more information.

## GUARDIAN SLATE DIMENSIONS




## GUARDIAN HIP AND RIDGE DIMENSIONS



# Product Information

## PRODUCT RATINGS AND CERTIFICATION

| | |
|---|---|
| **Hail rating:** | Class IV |
| **Fire rating:** | A Rated to British Building Standards |
| **Freeze-thaw cycle:** | No signs of damage or cracking after 300 cycles |
| **Water absorption:** | No appreciable weight gain |
| **Water permeation:** | Slate shown to be impermeable |
| **Temperature cycling:** | No signs of cracking, curling, deformation, or visible expansion |
| **BBA product certification:** | Pending |

## RECYCLING

Guardian Slate is 100% recyclable, contact a local recycler to make the necessary arrangements, stating that the product is 'mineral-filled Polypropylene' plastic.

## FASTENER RECOMMENDATIONS

The Guardian Slate should be fastenened with two 30mm x 4mm head stainless steel screws.

## ROOF DECKING MATERIALS

Minimum of 12mm wpb plywood board, solid wood decking, or oriented strand board (OSB).

## ROOF VENTING

Roof ventilation is necessary for the longevity of the roof system. Having a cool attic in the summer and a dry attic in the winter helps prevent damage to building materials and reduces energy consumption.

With a ventilation system split between the ridge and soffit, 0.09m² of net free area is required for every 27.9m² of attic floors space.

It is required to have 0.09m² of ventilation for every 13.9m² of attic floor space if this balance cannot be achieved.

# Installation

## TOOLS REQUIRED

- Cordless drill or screwdriver
- Sharp utility blade or standard circular saw
- Tape measure
- Pry bar
- Tin snips
- Blue chalk (do not use red chalk)

**Note of caution: if installing on high buildings or in coastal / windy areas, please contact our technical team for advice**

## SPACING BETWEEN THE SLATES

To aid consistent spacing, 6mm spacer tabs are provided on each side of every slate.

The spacers allow for any movement of the roof deck and expansion / contraction of the slate (although thermal expansion is highly unlikely in European climates).

## LAYING OUT CUT SLATES

When beginning or finishing with a cut piece of slate, the cut edge should be installed inward.

The manufactured edge should be installed to the outside edge of the roof to maintain an acceptable roof appearance along the gable edge of the roof.

The centre mark of the slate can be used as a guide to cut ½ slates. This can also be used as a guide to keep courses straight and to assist in maintaining the 6mm spacing when aligning with intermittent vertical chalk lines.

**DO NOT install slates smaller than 76mm**

## PREPARATION

Inspect all areas of the roof surface to be covered.

1. Ensure the surface area is uniformly flat, smooth, sound, clean and free of irregularities.
2. Examine roof sheathing to verify that sheathing joints are supported by framing and blocking and / or metal clips.
3. Verify that substrate is sloped for drainage and completely anchored to sound framing. Any foreign particles shall be cleaned from interlocking areas to ensure proper seating and to prevent moisture intrusion. Proper provisions must be made for flashings and roof penetrations.
4. Metal flashing and other specialty flashings must be in place prior to the roof slate installation.

   Work by other trades which penetrate the roof plane must also be completed.
5. Product handling and storage on a flat surface is very important. Do not double stack pallets.



Guardian

# Installation

## ROOF LAYOUT

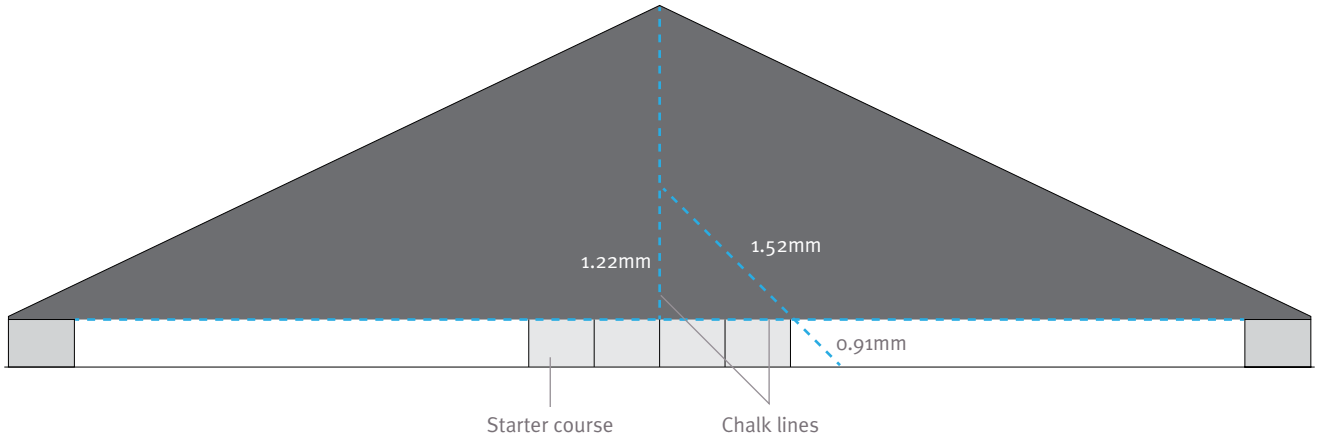
1. The starting point may be from the left side, right side or centre of the area to be installed. 6mm spacer tabs are provided on every roof slate.

2. To create an eaves or starter slate, cut a full slate into 3/4 size.

3. Locate the centre of the roof area to be covered.

   From either end, position starter pieces and draw a horizontal line from the top of the starters between these two points. Next draw a vertical perpendicular line. This can be done easily by marking 0.91m along the eave, then where 1.22m and 1.52m intersect will form a perpendicular line.

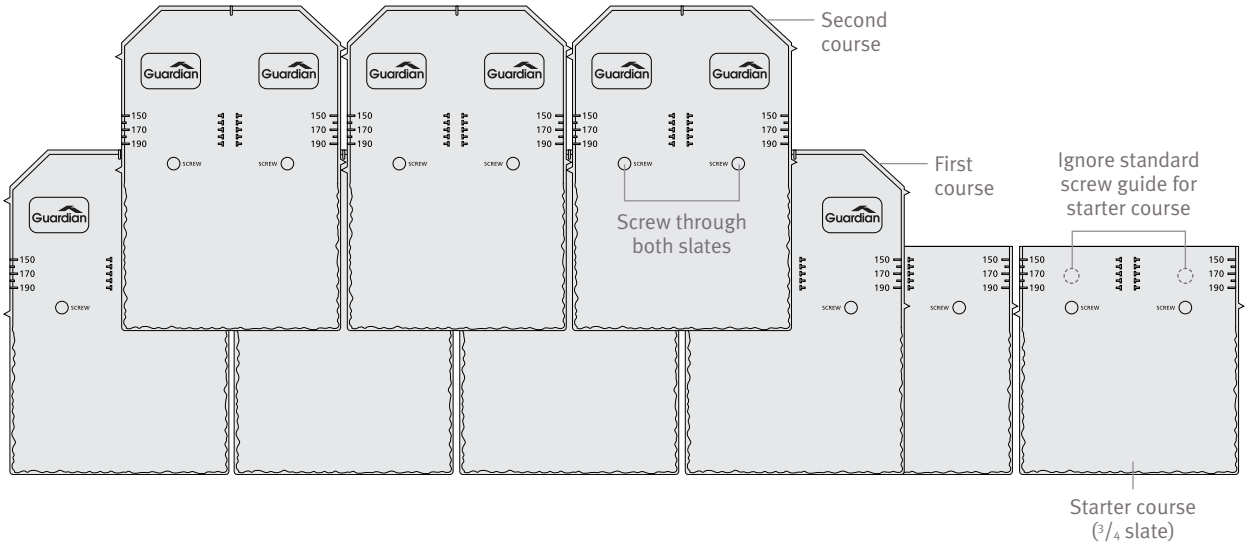
   As long as the ratio 3:4:5 stays the same this will hold true, for example, 21:28:35.




4. Begin by placing an eaves slate on the right and left side of the vertical line maintaining a 6mm spacing and continue to both ends overhang the eaves by a maximum of 50mm.

5. Using a full slate, begin the first course, align centre locator line of the slate directly over the vertical blue chalk line. Adjust the roof slate up or down to align the exposure lines with the top edge of the lower course.

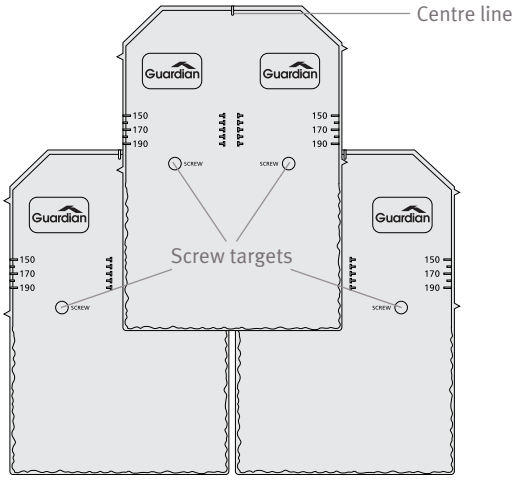
   Continue to both ends, maintaining the 6mm spacing between slates.



6. Fasten each Guardian Slate with two 30mm x 4mm head stainless steel screws.

   The fasteners should be placed within the two screw targets on each slate and must penetrate the boarding by at least 12mm.

7. Continue subsequent courses with a full standard slate, the finished edge facing the gable edge.




**Note of caution: the slates can be slippery under certain conditions and job site safety procedures should be enforced.**

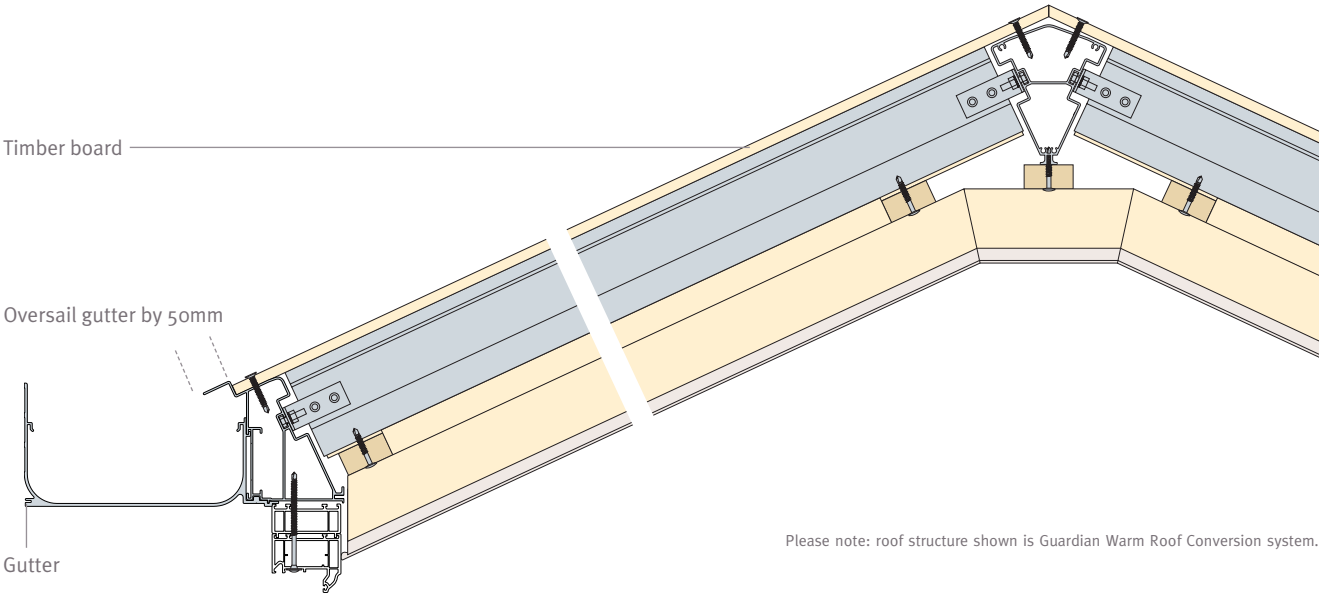
# Installation

## FELT AND BOARD ROOF

The following instructions are just a guide, and standard roofing procedures should be applied. Apart from the lightness and ease-of-use that Guardian Slate, there is very little difference between it and standard slate roof application.

For felt and board roofs, start by fixing timber sheets to the rafters – over vapour permeable underlay.

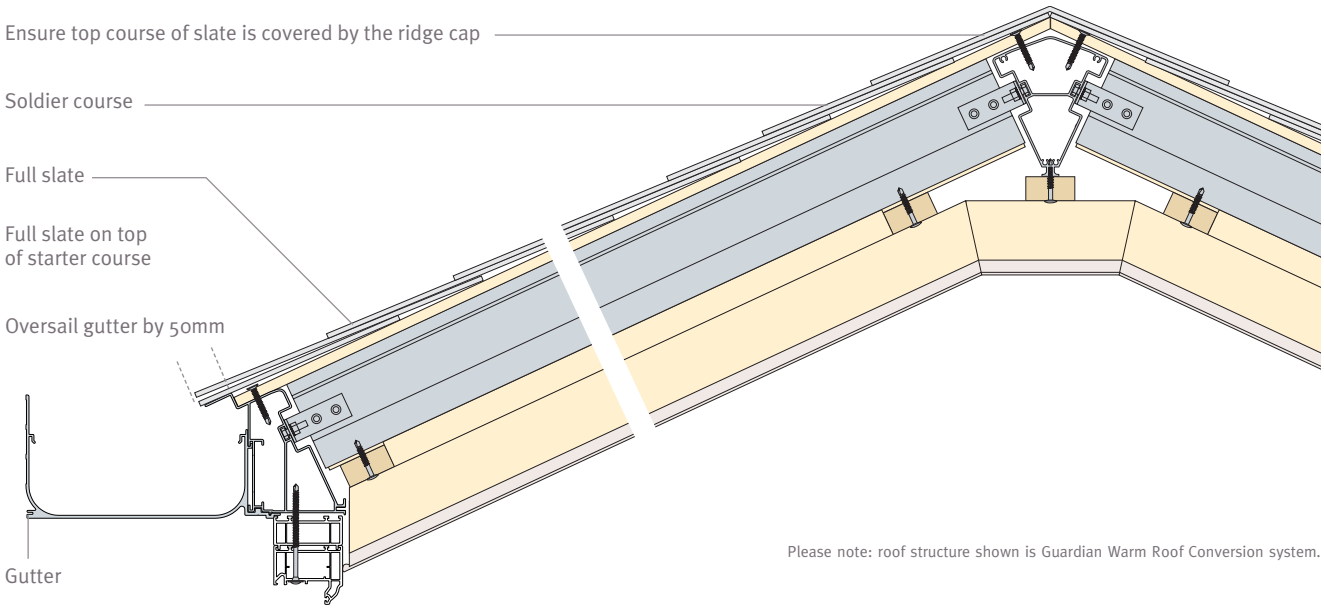
The first course and starter course should oversail the fascia by at least 50mm.




Please note: roof structure shown is Guardian Warm Roof Conversion system.

Fix starter course using a ¾ cut slate which can be easily cut to size from a full slate using a fine-toothed hand / circular saw or a sharp utility blade.

As stated earlier, the first course and eaves (starter) course should oversail the fascia by at least 50mm. This ensures water disperses into the centre of the gutter.

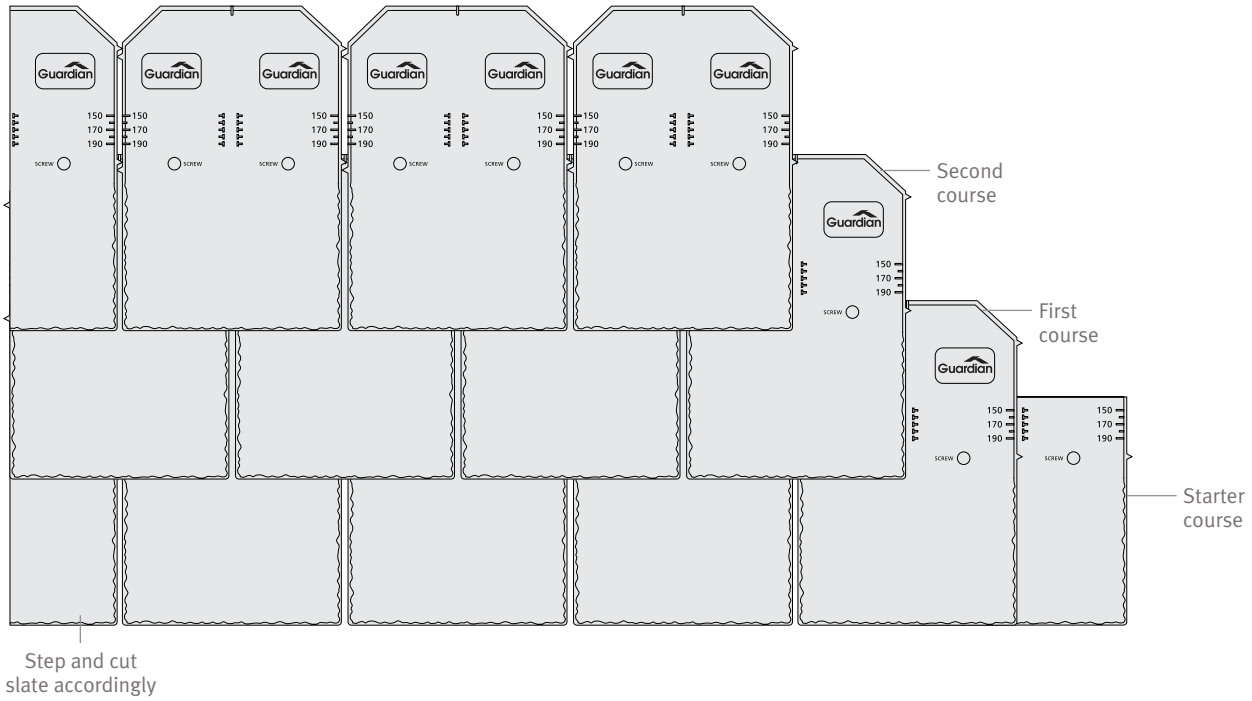



Please note: roof structure shown is Guardian Warm Roof Conversion system.

The required gauge and number of courses can then be calculated.
The first course should sit on top of an eaves course.

Lay the first course of full slates over the eaves course and fix to the sheet board. Ensure that the first course and eaves course are laid ‘broken bond’ so that the joints do not line up and the weatherproofing integrity is maintained.

Lay subsequent courses ‘broken bond’ as illustrated. It will be necessary to cut to start and finish every other course.



# Installation

## RIDGE CAP FINISHING

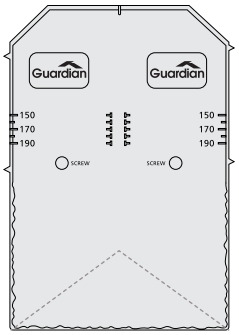
Guardian ridge caps should be finished by cutting a standard slate at the end of the ridge into a triangle or diamond shape of the right size to cover the end gap.

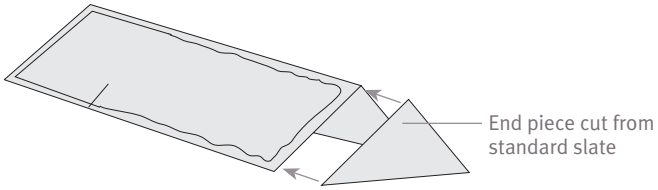
The resulting material should then be screwed in place into the truss. Alternatively, the material can be joined to the ridge cap by using a strong epoxy glue (adhering to the manufacturers instructions).

The end piece can be sealed by using a good quality silicon sealant.

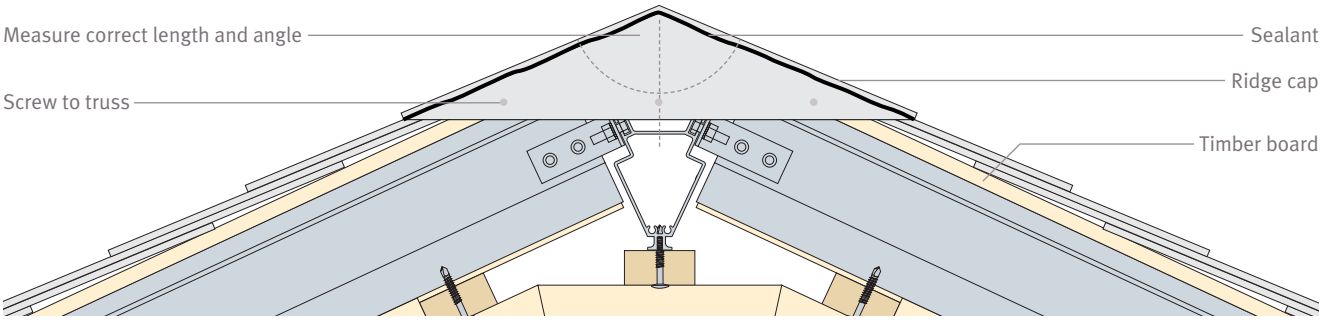
Screw heads should be disguised with coloured sealant / paint.

### Standard Ridge Cap End Piece

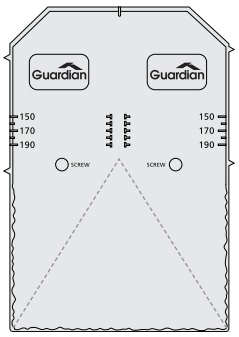


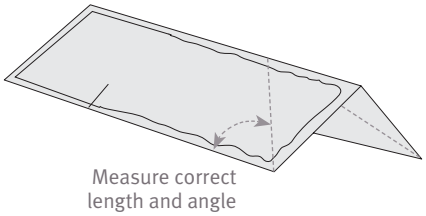



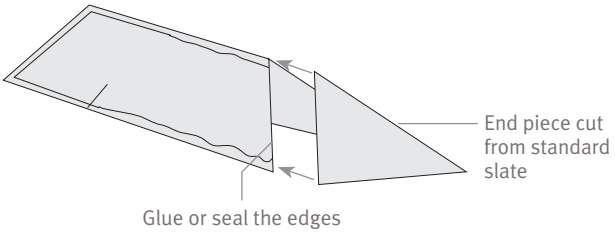

Cut a standard slate to correct length and angle




### Angled Ridge Cap End Piece




Cut a standard slate to correct length and angle

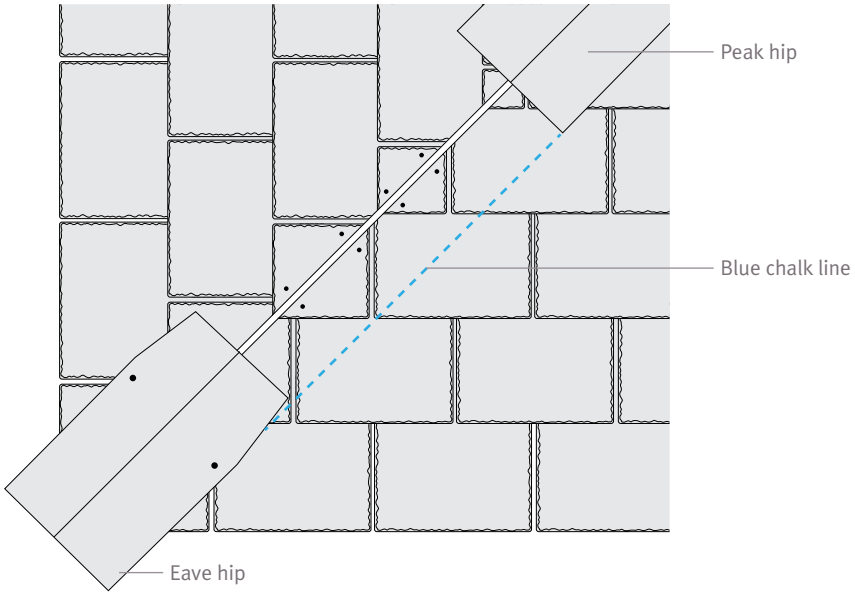
## HIP AND RIDGE DETAIL

When using pre-formed hip and ridge slates, place screw at fastener guide targets.

Fasten hip slates with 2 screws (one on each side).

Maintain a 152mm exposure.

1. Hip and ridge slate installation requires the slate to be screwed in place.
   a) Draw a straight line in blue chalk by placing one piece of hip at the eave and one near the peak, draw the chalk line at the edge of the slate on the top and bottom pieces. This will help keep the hip straight in the event of a crooked hip.
   b) If any screw heads are visible, cover with a coloured sealant or paint compatible with the roof slate.
   c) Preformed ridge slates require 152mm exposure. Use 51mm length fasteners for the slate.
   d) Fastener deck penetration must be a minimum of 19mm.
   e) Ridge end closure can be made by cutting a triangular section from a slate and screwing to the timber fillet.

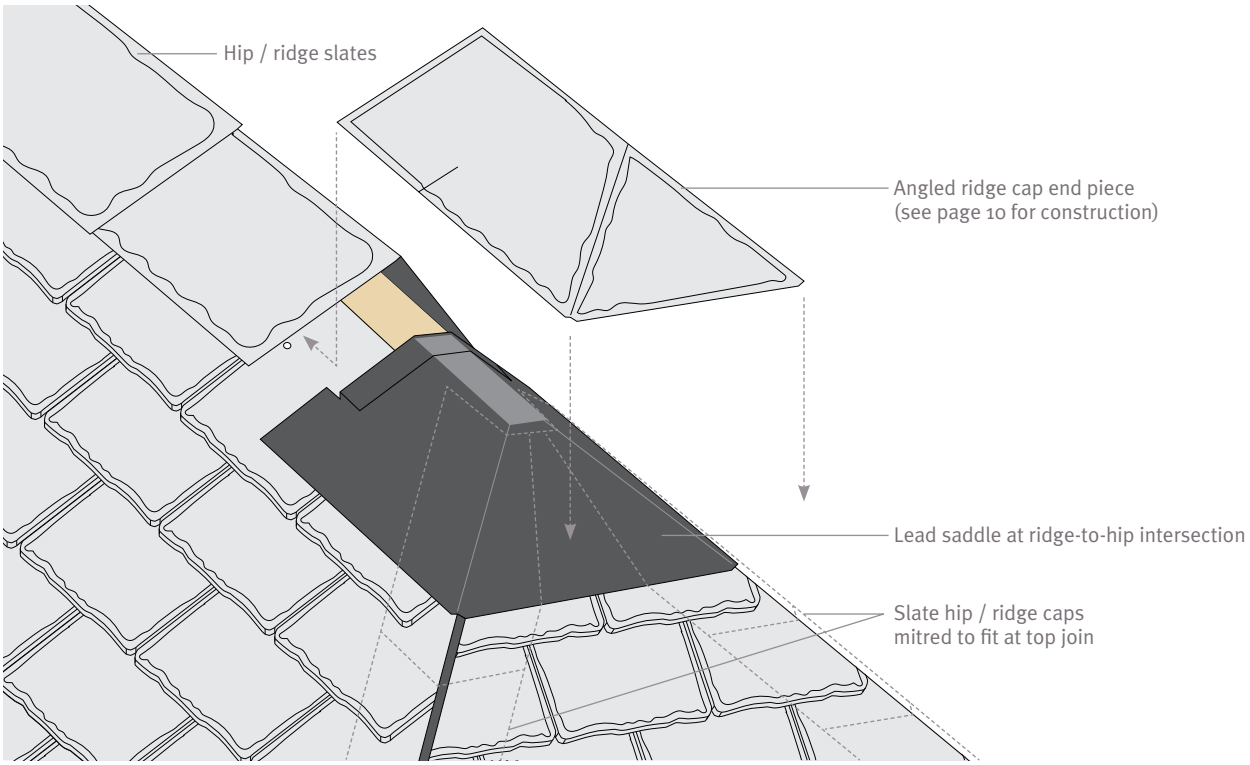


# Installation

## RIDGE-TO-HIP INTERSECTION

When a ridge tile meets hip tiles, it is necessary to weatherproof this intersection.

A lead saddle should be fitted to cover the intersection between the ridge tile and the mitred hip tiles. Guardian slate hip tiles cut easily without splintering or cracking to create a tidy mitred joint.



# Notes




**Guardian Roofs**
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**www.guardianroof.co.uk**