ARMOURED SLATE

The innovative ‘Slate Tile’ roofing system

INSTALLATION GUIDE

MAYAN
ROOFING SYSTEMS

ADVANTAGES

Quick and easy to install
As low as 10° pitch
50% less slate required
Lightweight below 20kg / m^2 (depending on slate)
Fire Rated
High performance
At least 20% less batten

ACCREDITIATION

Building Research Establishment (BRE)
Weather resistance tested:
Wind driven rain test to PD CEN/TR 15601:2012 18th May 2021
Fire rated:
B_{ROOF}(t4) classification to BS EN 13501-5

Availability

Graphite / Grey Green:

ArmouredSlate Tile	350 x 300
ArmouredSlate Tile and a Half	350 x 450

Graphite:

ArmouredSlate Tile	300 x 250
ArmouredSlate Tile and a Half	300 x 375

Quantities

Tiles per m^2 :	@ 80mm headlap = 12.33
(Below 17.5 degrees)	@ 100mm headlap = 12.33

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(Below 17.5 degrees)	@ 100mm headlap = 12.33

Alternative slate colours and sizes available on request.

Useful Information (based on 350 x 300 stock size)

Overall length	375mm
Hanging length from batten	350mm
Headlap	80mm -120mm
Minimum below 17.5 degrees	100mm
Minimum above 17.5 degrees	80mm
OA width	345mm
Slate width	300mm
Maximum open shunt	5mm
Coverage @ 80mm headlap	12.33 per m^2
Coverage @ 100mm headlap	13.32 per m^2

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Site Safety

In all cases ensure a safe working environment. Site health and safety measures must be properly adhered to.

- Ensure a safe working at height platform is established prior to commencing work.
- Personal protective equipment must always be worn.

Storage

The Mayan ArmouredSlate should be stacked on the slate edge and stored out of direct sunlight and weather.
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Natural slates are very heavy when palletised and must be stored on a flat, even surface to avoid toppling over.

Requirements

The Mayan ArmouredSlate roofing system must be installed in accordance with this installation guide using only high quality Mayan products, including all fixtures and fittings provided.

Single lap slate system designed for installation on standard 50mm x 25mm roofing battens in the open rafter method.

Mayan ArmouredSlate 'P' type is a single lap slate system for installation in the fully boarded application such as warm roofs or Scottish practice. Please get in touch or refer to alternative instructions.

Slates are a natural product and subject to variation in colour, thickness and finish - no two slates are the same. When loading out, slates should be removed from a variety of crates to ensure a random mixture.

The Mayan ArmouredSlate roofing system allows natural slates to be installed in the single lap format (in a similar way tiles are installed) therefore eaves or ridge cut slates are not required. However, because the slates should be installed in the broken bond format (staggered vertical joints) the wider slate and halves must be used at the verge and in the valley and hips to avoid the use of slates smaller than 150mm in width.

- The Mayan ArmouredSlate should not be used if there is any damage to the side or top flange of the GRP prior to installation.
- Install in line with current Brittish standards:

  BS 5534

  BS 5250

Eaves

- When installing roofing products at a roof pitch below 17.5° degrees the eaves tray cannot be allowed to rise upwards as it sits over the fascia which can create 'ponding'.

Fixing

- The AmouredSlate system should be fixed twice fixed in the pre-drilled holes using the specially selected, flat head Slatefix stainless steel screws.

Roof Ventilation

ArmouredSlate is a restricted air roof covering with minimal fortuitous ventilation, in convetional open rafter application we reccomend the use of non-breathable membranes with eaves and ridge ventilation. If breatheable membranes are used, we reccomend the use of over fascia ventilators in conjunction with a counter batten and a high level free air ridge vent system, such as our Mayan RealRidge.

Guidance on roof ventilation should always be sought from the appropriate roof designer/architect.

Batten Gauge

Position the top of the first batten 280mm up from the outside edge of the fascia board (70mm gutter overhang). With consideration to the dry ridge system, the top batten should be positioned a minimum of 45mm down from the very apex of the rafters/truss.

Minimum headlap below 17.5 degrees: 100mm

Minimum headlap above 17.5 degrees: 80mm

Batten Gauge = slate length (eg 350) minus headlap

For example, for ArmouredSlate 350 x 300, the batten gauge ranges between 230 and 270mm, depending on roof pitch and rafter length.

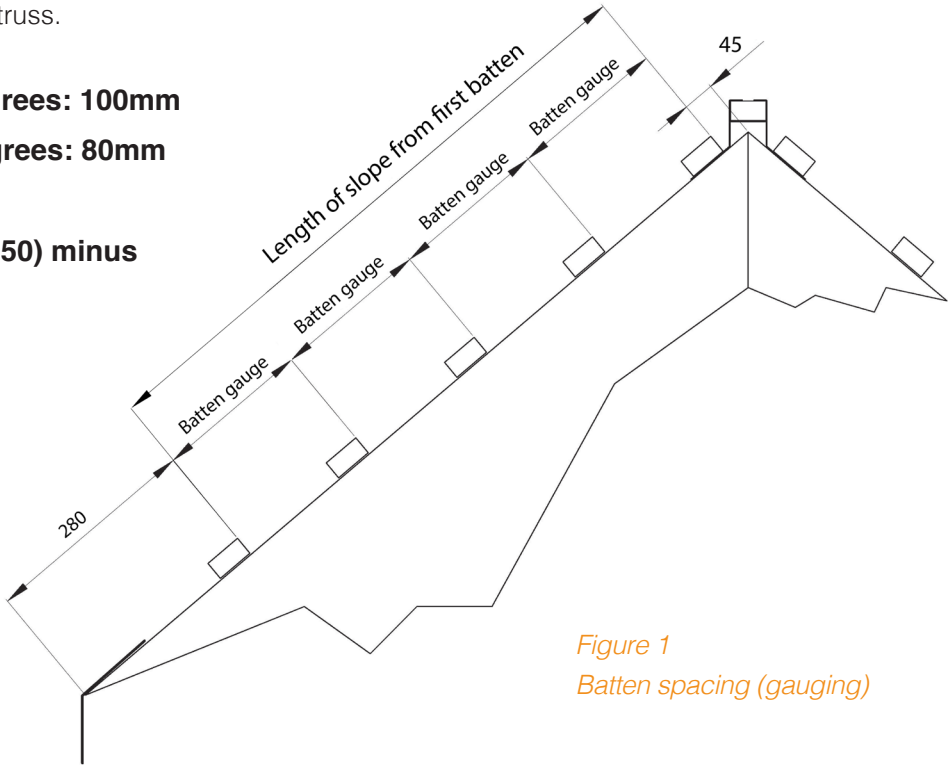


Figure 1
Batten spacing (gauging)

Length of slope from first batten / batten gauge (eg. 250) = number of courses (rounded to the nearest whole number)

Length of slope from first batten / number of courses = batten gauge

Batten Gauge Formula example

*Example based on ArmouredSlate 350 x 300

For example,

4896 / 250 = 19.58 - round off to the nearest whole number = 20 courses

4896 / 20 courses = 245 batten gauge

Membrane

Mayan ArmouredSlate can be used with a non-breathable membrane. Breathable membranes require ventilation at the eaves and ridge.

Unroll the roofing membrane over the rafters for the width of the roof. The membrane should be pulled into position and released prior to fixing so that the membrane is sufficiently draped across the rafters, allowing for a 10mm gap beneath the batten to ensure adequate water run off.

Position the lower edge along the line of the fascia and on top of the double- sided tape on the EPS, remove the tape backing.

When installing the valley, a runner strip of membrane should be first dressed up the line of the valley and lateral rolls of membrane dressed into the valley.

Eaves Above 17.5°

Because the first course of slates does not rest on a lower course of slates, the highest point of the fascia board or vent should be 7mm higher than the top of the battens so that the toe of the slates do not 'tip forward.' An even line of the slates should be maintained over the whole roof; the toe of the slates should not point downwards.

When installing a roof above 17.5 degrees the eaves protection system (EPS) or eaves tray should be installed in the usual manner, on top of the fascia or over fascia vent (OFV).

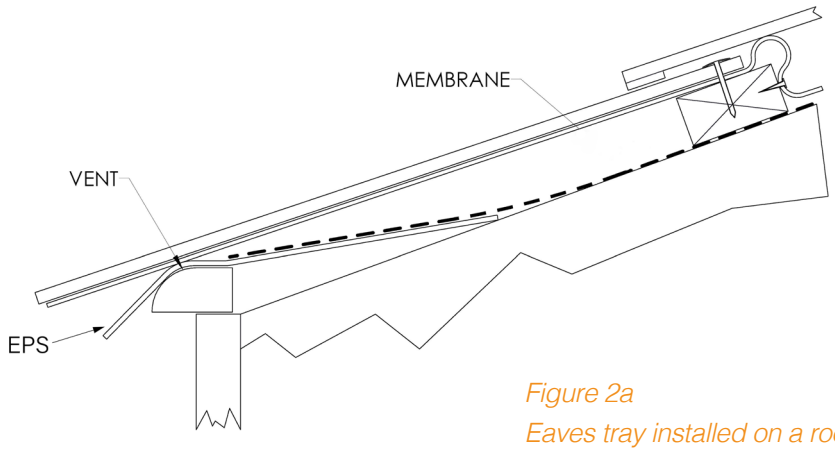
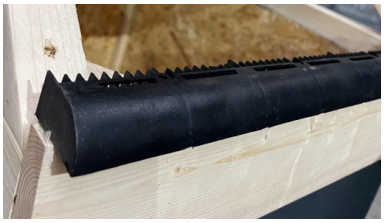
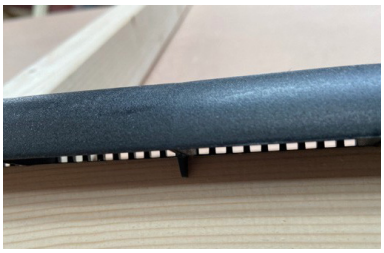


Figure 2a
Eaves tray installed on a roof above 17.5 °



Vent



Vent

EPS over vent

Eaves Below 17.5°

When installing a roof below 17.5° the inside edge of the fascia or vent should be level with the top of the batten. An eaves tray (EPS) should be installed directly onto the rafter. An over fascia vent is then fitted directly on top of the front edge of the EPS and secured into position by screwing through the vent and EPS into the fascia board.

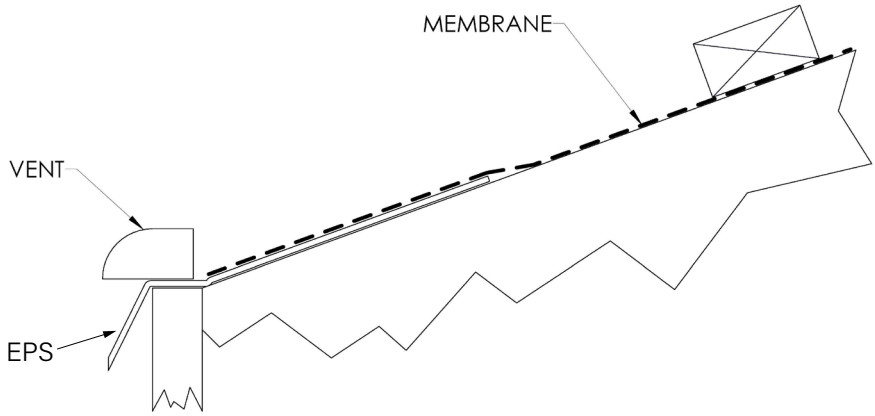


Figure 2b
Eaves tray installed on a roof below 17.5°

Eaves Protection System

Securely fix through the top section of the EPS into position on the rafters. Lengths of the EPS/starter trim should be lap joined on top of a supporting rafter.

Apply the double-sided tape along the lower edge of the EPS.

Ridge Batten

If a vented ridge is required, the membrane should be cut along the centre line of the ridge to make an air gap of at least 10mm.

Fix the ridge runner brackets over the rafters or truss. Fit the timber runner batten into the brackets.

Hip installation

Depending upon the roof pitch, the installer can use hip runner battens either side of the central batten to ensure that mitred battens and cut slates are securely double fixed.

Installation of Mayan ArmouredSlate Tiles

Consideration should always be given to setting out. When working between two verges, the overhang of the brickwork (undercloak) should be adjusted in or out so that ArmouredSlate neatly corresponds with a full or slate and a half tile.

Slates that are cut to less than 150mm wide should not be used on the roof. When cut slates are required the smaller slates should be replaced by using the ArmouredSlate tile and half (or double slates). By this method the small cuts are incorporated into the larger slate.

Slate and halves should always be used at the verge edges, hip cuts and into the valley to avoid the use of small cut slates.

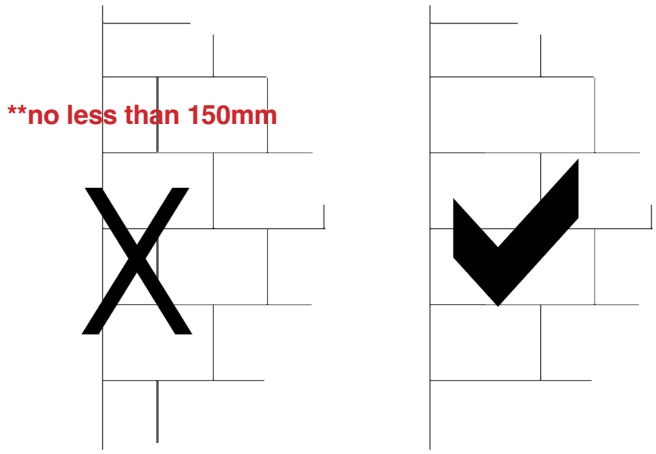


Figure 4
Verge detail
ArmouredSlate tile and halves should be used to avoid using small cut slates on the edge of the roof.

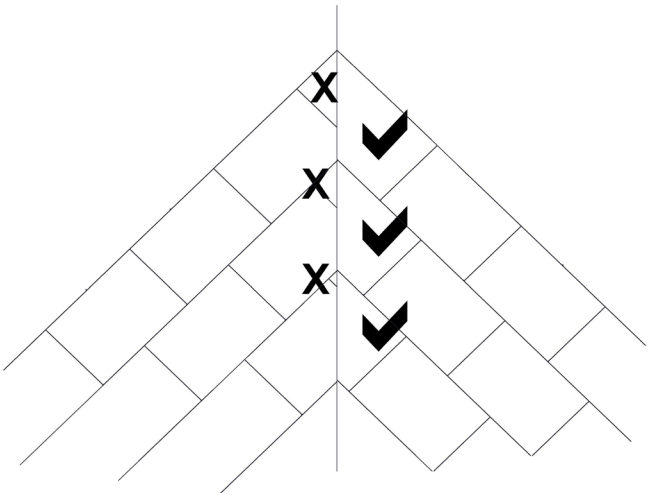


Figure 5
Valley cuts
ArmouredSlate tile and halves should be used to avoid using small cut slates in the valley.

Installation should commence from the right.

Install the first Mayan ArmouredSlate tile by hooking over the top edge of the first batten.

All slates should be twice fixed using SlateFix screws.

Screw the ArmouredSlate tile into position through the pre-drilled holes in the slate, using 2 x SlateFix screws.

SlateFix screw

If the pre-drilled hole is removed for cut slates / hips etc, ArmouredSlate should be drilled using a 4mm masonry/ arrowhead drill without hammer action, so that each slate has a double fixing.

Place the next ArmouredSlate tile onto the batten so that the slate overlaps the GRP on the previously installed tile.

Shunt

ArmouredSlate Tiles have a set sidelap of 45mm that permits the perp-joint to be shunted between 0 - 5mm to align the slates. The perp joint should **not** be opened by more than 5mm.

An open perp of approx 1-2mm is preferable

It is optional to align a group of slates before fixing into place.

Continue installing each course up the roof.

Consideration should always be given to the alignment of the slates. Any slates running out of line should be adjusted by opening / closing the perp joint (to a maximum of 5mm).

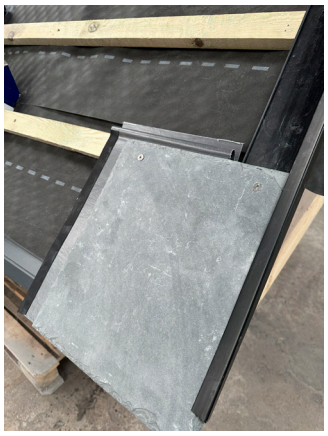
The roof should be fully covered with slates.

Cutting

it is preferable to cut ArmouredSlate using a hand held disc cutter (grinder). Care and consideration must be given to safety measures.

Verge Detail

ArmouredSlate is combatible with most slate dry verge systems.



Verge Detail - Mayan RealVerge

ArmouredSlate can be used with our RealVerge for a traditional, natural slate verge appearance. The unique preformed design is installed below the edge of Mayan ArmouredSlate and fixes directly onto the batten. By removing the protective tape covering, ArmouredSlate RealVerge will bond to the underside of Mayan ArmouredSlate providing a permanent weatherproof seal.

ArmouredSlate RealVerge are handed left and right and can be easily cut to a mitre at the ridge.

When installing at the verge, the curved section of Mayan ArmouredSlate that hooks over the batten should be removed to accomodate a continual dry slate verge system.

Please refer to full installation instructions for ArmouredSlate verge.

Cutaway section of Mayan ArmouredSlate to illustrate the installation of ArmouredSlate RealVerge.

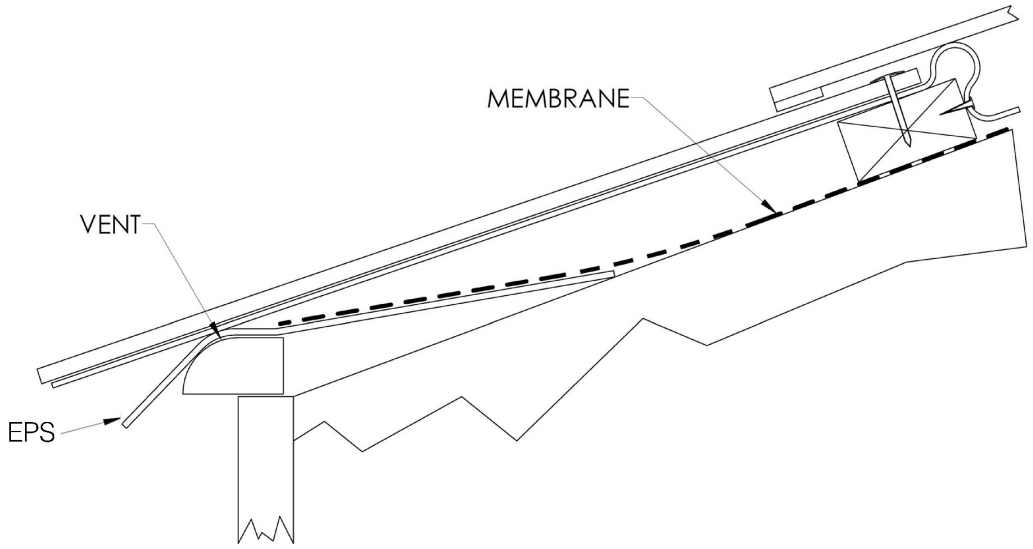


Figure 6
Installation at the eaves

Apron Flashing Below 17.5°

At a roof pitch above 17.5°, a standard 150mm lead cover flashing can be used. At roof pitches below 17.5° the lead Flashing should be used under or in place of the apron flashing in the 'lean to' application or chimneys etc to prevent rain being driven under the front of the apron.

A 5mm full ventilated apron ridge is available on request.

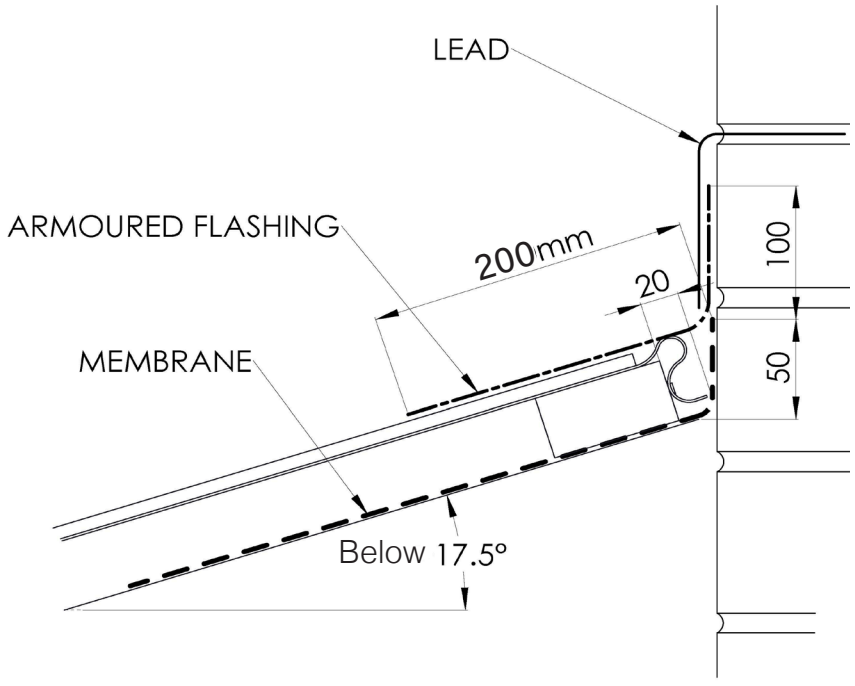
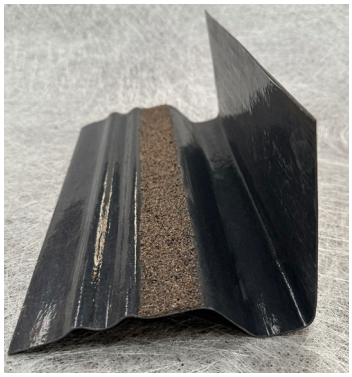


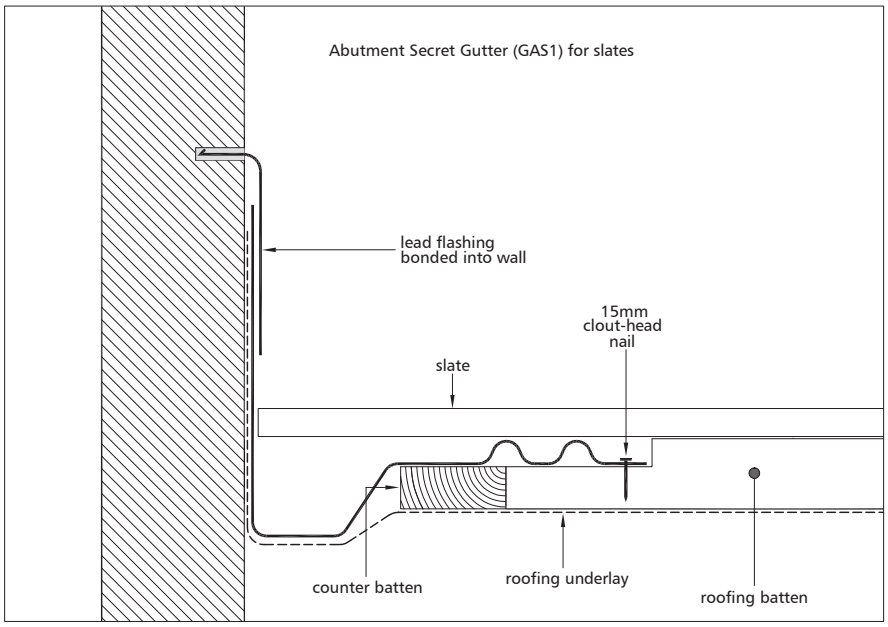
Figure 7
Apron flashing detail

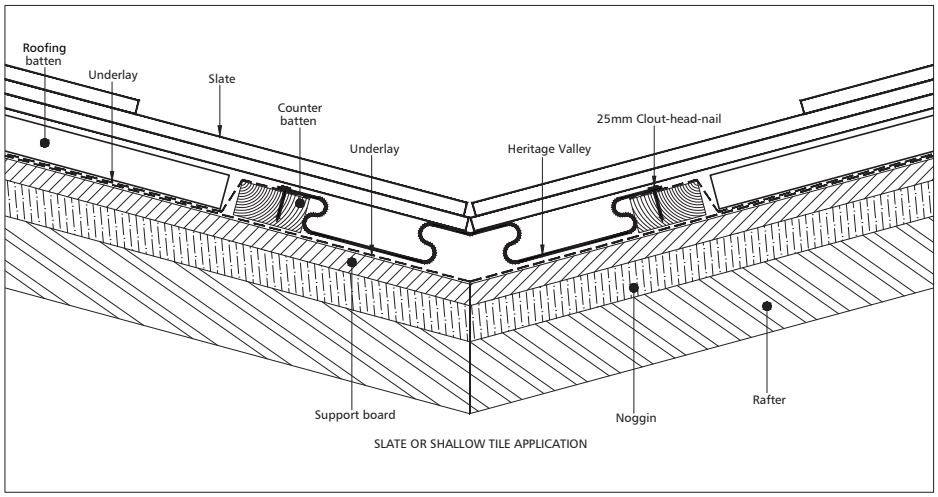
Abutment

When installing ArmouredSate tiles against a wall or upstand we recomend the use of a GRP Abutment soaker to be installed in accordance with manufacturers specification.

The top of the ArmouredSlate GRP tile should be trimmed so that the tile fits over the drainage channel of the abutment soaker.







Valley

Valley runner battens should be installed equidistant on either side of the valley trough so that the valley outer flanges sit neatly on and between them. Remove the section of the fascia between the runner battens so that the valley can pass through the fascia and discharge into the guttering. Cut a ‘V’ into the end of the valley that follows the internal roof corner.

Insert the valley trough between the runner battens and pin into position by fixing through the outer flange only and into the runner batten, use no more than 25mm long valley flange fixings, as the fixings should not go through the membrane. Fixing should be spaced at approximately 500mm centres.

Mayan ArmouredSlate installed using the Heritage Valley trough and OverLap RealRidge.

Installation of Hip Detail

Mitre the Mayan ArmouredSlate tiles along the hip.

The ArmouredSlate curve should be cut back at a mtire to fit neaty meet inline with the hip batten.

Cut slates can be re-drilled to ensure a double fixing into the hip batten.

Fix using SlateFix screws into the hip batten for a double fixing.

Repeat each course up the hip.

Finally, install RealRidge at the hip.

Installation of Slate Dry RealRidge

Please see the full installation guide for detailed instructions on installing the OverLap ridge and hip system, the perfect finish to your slate roof.

The Slate Dry RealRidge is a natural slate dry-fix ridge system that uses our patented RidgeFix connector for a sleek and high performance finish. The Slate Dry RealRidge system does not require an additional roll-out ridge fixing kit, offering a considerable saving in materials and labour.

- A permanent ventilation spacer to provide a 5mm continuous free vent area. This cannot be compressed.
- Built-in underlapping connector with discrete top screw fixing.
- Natural riven chipped surface and edges.
- Dry-fix, no need for roll out ridge kit. Fixing screw included.

Product Specification

Ready to install slate tile unit.

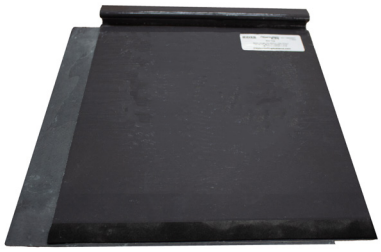
Natural slate chemically bonded to our patented GRP fixing and waterproofing system. Fixing holes pre-drilled with pre-applied lap-tape.

Mayan ArmouredSlate Tile

350mm x 300mm

Mayan ArmouredSlate Tile and a Half

450mm x 300mm



Components

ArmouredSlate GRP

UV stable GRP
preformed sheeting

Colour:	Blue grey RAL 7015
Length:	300mm
Thickness:	1mm
Weight:	1.6 - 1.8kg each
Finish:	Matt finish
Resistance:	Resistant to infestation and degradation
Fire rating:	SAB, Class 3 to BS476 parts 3 & 7 B_{ROOF}(t4) classification to BS EN 13501-5

Side Lap Tape

EDPM foam tape

Size:	1mm x 20mm

Lower Weather Tape

EDPM foam tape

Size:	2mm x 20mm

Fixing

SlateFix Screws

Stainless steel screw

Size:	4.9 x 32mm CSK cleat screw
Type:	Locking serration, short drill tip, CE, stainless steel, A4/316, driver bit

Reccomended ancillaries

Lead Flashing

Aluminium sheet on self-adhesive butyl

Roll size:	250mm wide 6m long rolls
Thickness:	1.77mm
Colour	RAL 7024 - grey