



# Roofing sitework guide

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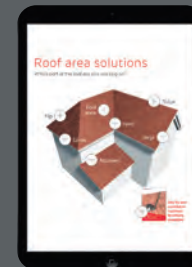
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## Sitework Guide App

Make roofing on site even easier by using our app to get instant advice, illustrations and step-by-step fixing procedures on your tablet or mobile. Download for free from the App Store or from Google Play.



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# About this guide

Good pitched roofing practice is the result of many years experience in the practical application of products on all types of roof designs.





This 'Sitework Guide' is based on Marley Eternit's long history in the manufacture and specification of clay and concrete tiles, fibre cement slates, dry fix and roof ventilation systems, and incorporates the recommendations of BS 5534 BS 8000-6 and BS 5250 in the application of these products.

The Guide contains advice on good sitework practice for both traditional installation details as well as the installation of Marley Eternit's extensive range of dry fix and ventilation systems.

Full details of these products, including performance and properties, design guidance, special applications and fixing requirements, can be found on line, in the relevant product literature, design guides and technical bulletins or by contacting the Technical Advisory Service.

## For advice

Tel: 01283 722588

Email: [info@marleyeternit.co.uk](mailto:info@marleyeternit.co.uk)

web: [www.marleyeternit.co.uk](http://www.marleyeternit.co.uk)

Notes: This Sitework Guide should be read in conjunction with all relevant Building Regulations, British Standards, Codes of practice and Health & Safety legislation as well as Marley Eternit's current product data and Third Party Certificate conditions of use (where applicable).

- 1 BS 5534 – 'Code of practice for slating and tiling (including shingles)'.
- 2 BS 8000-6 – 'Workmanship on building sites – Part 6. Code of practice for slating and tiling of roofs and claddings'.
- 3 BS 5250 – 'Code of practice for the control of condensation in buildings'

# General advice

**Dry fix and ventilation systems**  
For more details, see pages 108-195

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# Storage and handling

Provision should be made for proper storage and handling of materials to avoid deterioration in quality and appearance, to avoid breakage or distortion, and to minimise wastage.

## General

- 1 Store roof underlays on end on a firm, clean base protected from direct sunlight and in accordance with manufacturers' instructions
- 2 Store battens and counterbattens on sufficient bearers to prevent sagging or twisting.
- 3 Protect battens and counterbattens from water saturation when stored in bales or bundles horizontally.
- 4 Store roof accessories in a safe, weatherproof store/location.

Pallets and crates should be transported using appropriate lifting machinery, i.e. fork lift or mechanical grab. Unload and handle tiles, slates and fittings with care to avoid damage, soiling and breakage. Avoid loading pallets onto scaffolding unless a safe access platform has been provided.

Most Marley Eternit products are provided palletised, banded and shrink wrapped, and can be delivered direct to site by a fleet of modern transport with mechanical off-loading facilities.

The products are delivered as follows:

- Clay plain tiles – packed on pallets or in crates and shrink wrapped
- Concrete plain tiles – palletised, banded and shrink wrapped
- Concrete interlocking tiles and slates – palletised, banded and shrink wrapped
- Fibre cement slates – banded, packed on pallets under a cardboard hood and shrink wrapped
- Clay interlocking tiles – palletised and banded on pallets.

## Storage of clay and concrete tiles

Tiles should be stored in a safe location and should be kept protected from damage on site. Pallets should be stored on a smooth, level base capable of supporting their weight.

Do not stack tiles more than 3 pallets high in stockyards or 2 pallets high on site.

## Storage of fibre cement slates

Slates should not be allowed to become wet when in packs or banded together, as efflorescence and staining can occur.

Storage inside a building or similar shelter: the polythene hoods covering the slates should remain as a temporary protection to the slates, provided no water vapour can enter from below the packs.

Storage outside: remove the polythene hoods and stack the slates in bundles off the ground and cover with a good tarpaulin allowing clearance between the tarpaulin and the slates. This will allow free air movement and help prevent condensation forming within the pack (which could cause efflorescence).

If the slates are to be stored outside for a very short period of time, then the sides of the hood should be split open before covering with a tarpaulin to reduce the risk of condensation in the packs.

On larger contracts, it is better to avoid storing too many packs on site and to schedule deliveries of slates as they are required.

Do not stack slates more than 2 pallets high in stockyards or on site.

# Safety and access

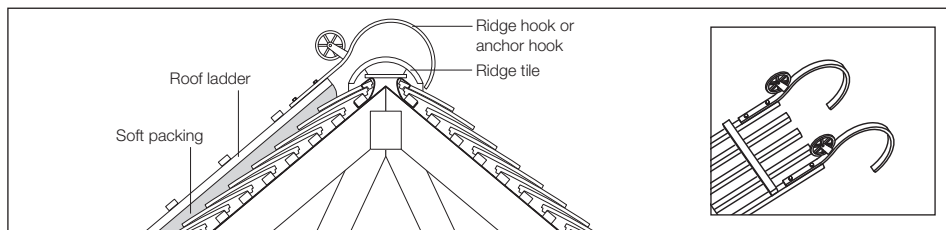


Fig. 1 – Use of crawling boards

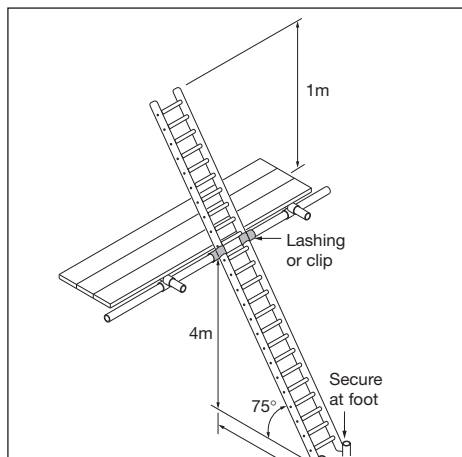


Fig. 2 – Use of ladders

## Safety regulations

The Construction Regulations made under the Factories Act 1961 comprise:

- The Health and Safety at Work Act 1974
- The Construction (Design and Management) (Amendment) Regulations 2015
- The Management of Health and Safety at Work Regulations 1999
- Work at Height Regulations 2005
- Control of lead at work – Control of Lead at Work Regulations 2002

## Health and Safety Executive

Advice and guidance on site health and safety can be found at the HSE website: [www.hse.gov.uk](http://www.hse.gov.uk)

## Access

Any roof or vertical work in slating or tiling should be treated as fragile. An adequate number of crawling boards and ladders should be used for gaining access over completed areas of roof tiling, and should be designed for the purpose, be of good construction and strong enough to enable planned work to be carried out. The boards or ladders should also be properly supported on the sloping part of the roof by means of a ridge hook placed over the ridge (not bearing on the ridge tiles), and supported by soft packing material (Fig. 1).

The Regulations also require precautions to be taken when access ladders are used (see Fig. 2). Full requirements are given in 'HSG33', Health and Safety in roof work 2012.

Ladders used to gain access to working platforms or to the eaves of the roof should be in good sound condition, fully secured with the feet resting on a solid flat surface. The length should extend above the level of the landing by 1m with an angle of slope of 1:4 (1m out for every 4m height).

The requirements to secure ladders should be particularly noted.





# Safety and access

## Precautions

- 1 Do not rest ladders used for access at eaves level against gutter.
- 2 Block ladders out to clear gutter and make secure.
- 3 Access ladders should extend to project not less than 1.07m above landing position.
- 4 Take care when working near metal or open valleys so as not to damage side coverings.
- 5 Take great care when fixing eaves gutters, immediately below valleys. Valley troughs are vulnerable to breakage, and should not be eased or levered.
- 6 Provide some form of packing between roof ladders, crawling boards and covering materials – e.g. straw-stuffed sacks, thick sheet, rubber etc. – to prevent damage of tiles and slates. This is important where lightweight tiles or slates are used.
- 7 Materials and tools should not be drawn or dragged over the roof covering.

## Safety and general precautions check points

- Ensure that all legal safety requirements are met by reference to the following:

The Health and Safety at Work Act 1974

The Construction (Design and Management) (Amendment) Regulations 2015

The Management of Health and Safety at Work Regulations 1999

Health and Safety in Roofwork HSG33 2012

The Work at Height Regulations 2005

- Ensure all scaffolds and ladders are properly secured and where necessary, scaffold should be checked for safety certificates before using.
- Provide guardrails and toe-boards on scaffolds.

- Avoid trafficking over completed tiled and slated roof areas.
- Use a roof ladder for access, maintenance and repair, suitably packed to avoid damage to the roof covering.
- Cured tiles are inert but edges and surfaces can be sharp and abrasive, wear suitable gloves for protection.
- Machine cutting of cured tiles can create dust which may contain quartz. If inhaled, in excessive quantities over long periods, respirable dust containing quartz can constitute a health hazard. Exposure should not exceed published health standards. (For current standards, see Guidance Note EH40 issued by the Health and Safety Executive).

# Roof structure

Before commencing work check:

- 1 Roof trusses are to a true line and adequately braced as specified.
- 2 Roof structure is to an acceptable squareness, tolerance and to specified pitch (Fig. 5).
- 3 Flashings and secret gutters, covered by the slating or tiling, are positioned and secured to specification.
- 4 Fascia boards and gutters are positioned and secured to specification.
- 5 Gable brickwork has been levelled to be below rafter truss.
- 6 Fascia boards or tilting fillets are positioned to allow eaves course of tiles or slates to be in same plane as main roof, i.e. not drooped or elevated.
- 7 Report any discrepancies to site management before work progresses.

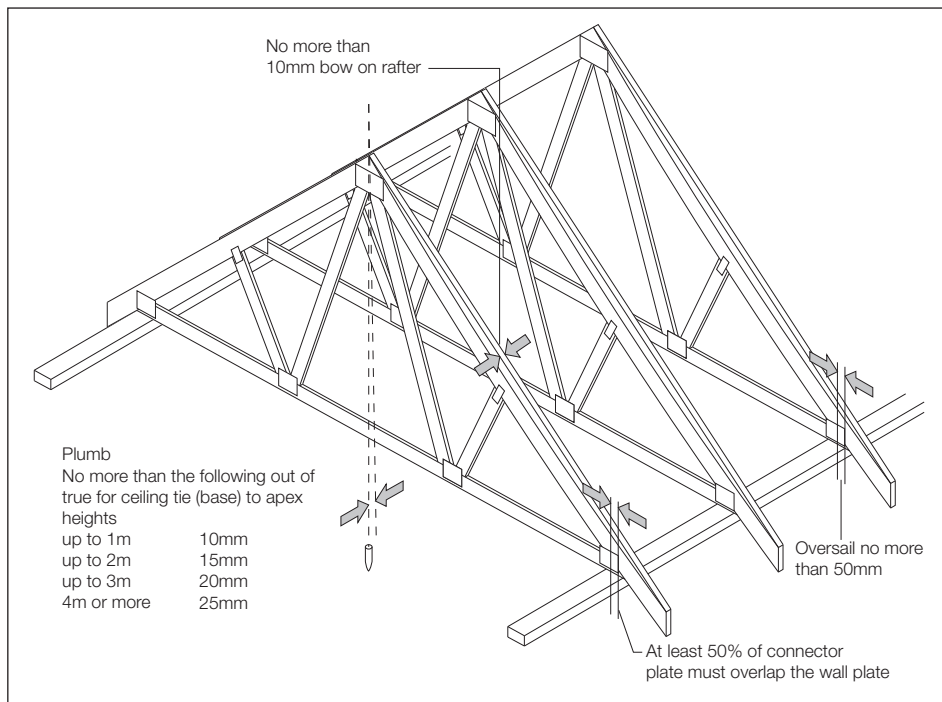


Fig. 5 – Typical trussed rafter roof showing tolerances

# Loading out

## General

- 1 Before slating or tiling commences, check delivered products against initial order and report any discrepancies or defective materials to the site agent or manufacturer.
- 2 Pallet loads should be checked for batch codes to ensure consistency on large roof areas.
- 3 Special fittings should be checked against matching tiles to ensure suitability before tiling commences.

## Loading the roof with tiles or slates

- Load slates, tiles and fittings out on roof safely, support by battens to avoid slippage and distribute evenly to prevent overloading of roof structure (Figs. 6-9).
- All slates and tiles, especially variegated and granular faced tiles, should be mixed from different pallet loads whilst the roof is being loaded to enhance the appearance when laid.

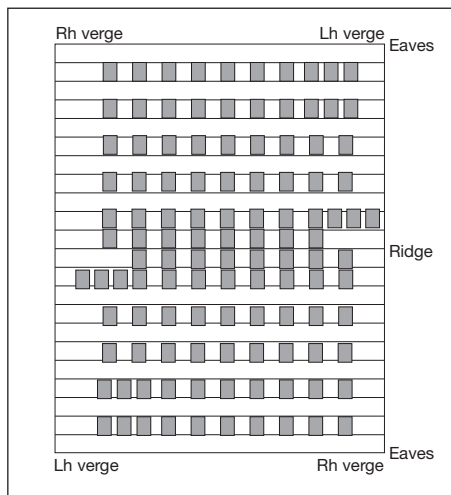


Fig. 6 – Loading roof evenly with tile/slate stacks

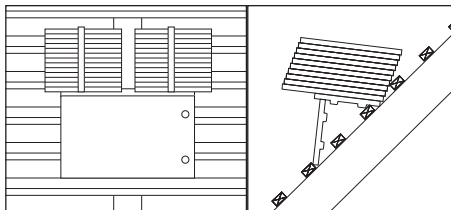


Fig. 7 – Stacks of plain tiles

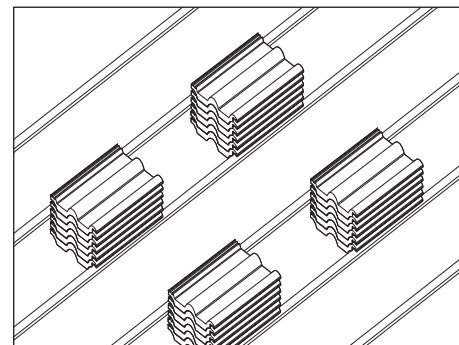


Fig. 8 – Stacks of interlocking tiles (6 No. max.)

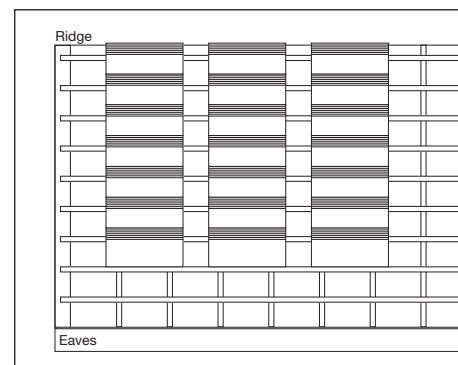


Fig. 9 – Stacks of fibre cement slates stacked for right hand laying



# Underlays

## General

Underlays for use beneath tiles and slates are either fully supported over boarding, sheathing or sarking, or unsupported draped over rafters/counterbattens and should meet the following:

## Fully supported underlays

- 1 HR\* underlay to BS EN 13859-1 Class W1 water penetration classification with third party certification for the use intended.
- 2 LR† underlay to BS EN 13859-1 Class W1 water penetration classification with third party certification for the use intended.

## Unsupported underlays

- 1 BS 8747 Class 1F Reinforced Bitumen or Class 5U polyester reinforced bitumen.
- 2 HR\* underlay to BS EN 13859-1 Class W1 water penetration classification with third party certification for the use intended.
- 3 LR† underlay to BS EN 13859-1 Class W1 water penetration classification with third party certification for the use intended.

\* HR (high water vapour resistance) underlay -  $> 0.25\text{MN.s/g}$

† LR (low water vapour resistance) underlay -  $< 0.25\text{MN.s/g}$   
LR underlays are sometimes referred to as 'vapour permeable' or 'vapour open'.

## General laying recommendations

- 1 Lay specified roofing underlay parallel to eaves or ridge with horizontal overlaps as specified in the table below. Vertical side laps should be 100mm (min).
- 2 Minimise gap at laps resulting from different tautness between underlay courses. Drape in underlay between supports to be no less than 10mm and no greater than 15mm.
- 3 Fix underlay with fixings specified, keeping number of perforations to a minimum.
- 4 Handle and fix underlay with care to ensure no tears or punctures. Repair any tears or punctures prior to tiling.
- 5 Ensure that underlay does not obstruct flow of air through ventilators located at eaves, ridge or in main roof.
- 6 Weather appropriately all holes formed in underlays for soil vent pipes etc.
- 7 A nominal 10mm drape should be provided between supports to allow a drainage path for moisture and to prevent excessive deflection under wind load.

- 8 Underlay laps should be covered by a batten and where necessary, the lap of the underlay adjusted to coincide with the nearest slating or tiling batten. Laps may also be sealed using proprietary means in accordance with manufacturers' instructions. Where a proprietary sealant is used, its durability should meet the same recommendations as the underlay. Refer to geographical wind zones for wind pressure resistance figures.
- 9 Contact should be avoided between the underlay and the underside of the slates or tile to prevent the wind uplift load being transmitted to the slates or tiles.

### Minimum horizontal lap for underlays

Rafter pitch	Not fully supported	Fully supported
12.5° to 14°	225mm	150mm
15° to 34°	150mm	100mm
35° and above	100mm	75mm

BS 5250 and BS 5534 give advice on the installation of underlays and roof ventilation requirements.

# Underlays

## Eaves

- 1 Lay a suitable UV resistant underlay (or BS 8747 Type 5U strip) at the eaves. If using an eaves vent system, lay the underlay over the support tray stopped approx. 25mm from the top of the curved front edge.

Note: At pitches below 20°, consideration should be given to provide a protection strip wide enough to fit under the eaves course batten.

- 2 Underlay should allow drainage of water and should extend over tilting piece or fascia board.
- 3 Avoid water-traps behind the fascia board (Fig. 10).

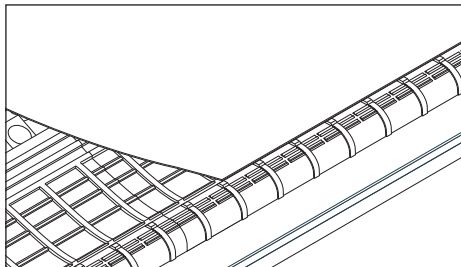


Fig. 10 – Ensure water drainage at eaves

## Duo ridge

- 1 Lay top courses of underlay over apex and fix to overlaps not less than the minimum in table on page 13.

## Mono ridge

- 1 Lay or cut top course of underlay (not less than 100mm) over top of fascia board and fix to same.

## Hips

- 1 Continue underlay over hip and fix in an overlapping manner.
- 2 Ensure that a minimum lap of 150mm is maintained (Fig. 12).

Note: An additional strip minimum 500mm wide may be laid over the main roof underlay taking care to avoid excessive thickness.

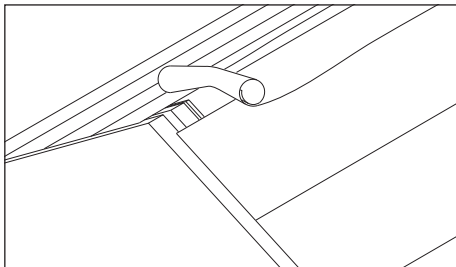


Fig. 11 – Underlay at duo ridge

## Valleys

- 1 Lay underlay parallel to eaves and extend beyond centre-line of valley by not less than 300mm from each direction to give a double thickness of underlay in valley of not less than 600mm wide.
- 2 Fix underlay not less than 100mm from centre-line of valley.
- 3 Where underlay is cut to centre-line of valley, lay a continuous strip of underlay not less than 600mm wide for the full length of valley beneath main courses of underlay (Fig. 13).

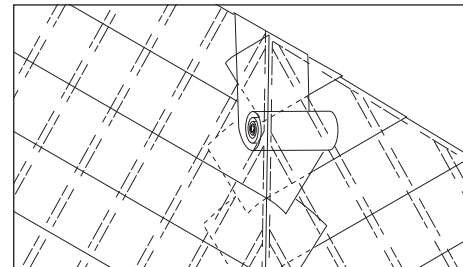


Fig. 12 – Underlay at hip

# Underlays

- 4 Where layboards are provided for continuously supported metal valleys, underlay should be cut back to rake so as to lap over metal valley tilting fillets.
- 5 Do not lay metal and plastic valley materials and units directly onto an underlay where there is any risk of adhesion.

## Verges

- 1 At verges, underlay should be carried across wall cavity to suit the verge detail being used by 25-50mm.

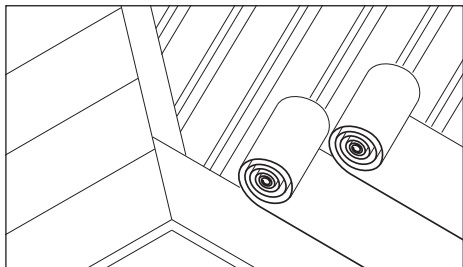


Fig. 13 – Underlay at valley

## Side/front abutments

- 1 Turn and neatly cut underlay to not less than 50mm up abutment which will be covered by flashings.

## Back abutment

- 1 Dress or cut underlay neatly to provide not less than a 100mm to 150mm overhang into back gutter.

## Underlay penetrations (soil pipes)

- 1 Accurately locate and mark position for opening using pipe etc. as a template.
- 2 Neatly cut an 'X' shaped hole and turn up flaps around sides of pipe to minimise risk of any water leakage.

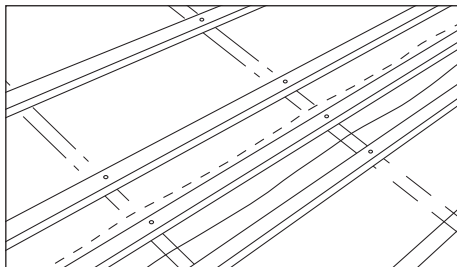


Fig. 14 – Horizontal lap in underlay (showing 'fly battens')

## Vertical laps

- 1 Vertical laps should be not less than 100mm. Fix each end securely over rafters. Edge distance of fixings should be not less than 50mm.

## Horizontal laps

- 1 Horizontal lap should be not less than that given in table on page 13.
- 2 For underlays not fully supported, horizontal laps should be under a batten with at least 25mm of underlay projecting beyond each edge of a batten.
- 3 Where a lap occurs between battens, hold it down with an extra batten in order to prevent lap from opening under wind uplift.
- 4 Alternatively, fasten thin timber or plywood strips ('fly battens') (not less than half thickness of a batten) directly over rafters between battens at which a lap occurs, ensuring strips are clear of any nibs on underside of tiles (Fig. 14).

# Battens

- 1 Battens and counter battens should be pre-graded to meet requirements as recommended in BS 5534 in respect to timber species, permissible characteristics and defects and preservative treatment.  
  
Battens should be indelibly marked with the following information:
  - a) Supplier
  - b) Origin
  - c) Graded in accordance with BS 5534
  - d) Size
- 2 Minimum batten length: where there are at least three supports, batten lengths should be sufficient to span over not less than three supports.
- 3 Splay nail each batten end and nail battens to each rafter.
- 4 On trussed rafter roofs for interlocking tiles, allow not more than one joint in any four consecutive battens on same support.
- 5 On trussed rafter roofs for Plain tiles, allow not more than three joints together in any twelve consecutive battens on same support.

- 6 Batten sizes given in table below should be taken as minimum dimensional requirements.
- 7 Take care that nails used to secure tiles do not penetrate underside of battens or underlay.

### Recommended batten sizes (BS 5534)

Tile type	Basic minimum sizes			
	450mm span		600mm span	
Rafters/supports	width	depth	width	depth
Plain pitched/vertical	38	25	38	25
Single lap interlocking tiles/slates	38	25	50	25
Fibre cement slates	38	25	50	25

All dimensions subject to re-sawing allowance: width + 3mm depth 0 or + 3mm based on measurement at a reference moisture content of 20%.

### Roof battens

- 1 Fix specified battens up roof slope on top of rafters ensuring minimum 40mm nail penetration into rafters (smooth shank).
- 2 Nail counter battens at maximum 300mm centres vertically up roof slope where boarding is used to coincide with line of rafters.

### Wall

- 1 Fix specified battens to boarding/sheathing/sarking in line with vertical supports, or to masonry wall as specified.
- 2 Secure counter battens to masonry walls with improved nails or with plugs and screws.

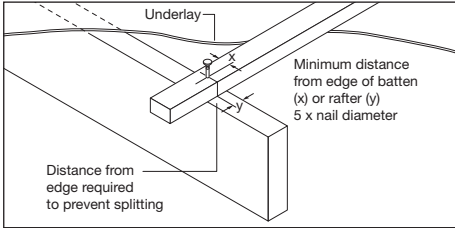


Fig. 15 – Batten nailing position

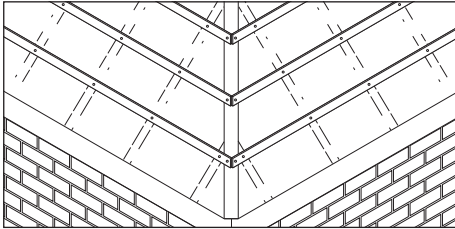


Fig. 16 – Fixing battens at hip



# Cutting tiles and slates

All cutting and drilling of tiles and slates should be carried out in well ventilated areas to prevent the inhalation of dust, in accordance with Health and Safety recommendations.

1 Wherever possible, avoid dust inhalation by using cutting equipment fitted with dust extraction or dust suppression.

2 Always wear appropriate personal protective equipment (goggles/protective clothing/ear defenders/and approved respirator) when mechanically cutting tiles.

See HSE guidance on Respiratory Protective Equipment (RPE) at [www.hse.gov.uk](http://www.hse.gov.uk)

3 After cutting or drilling tiles and slates, brush off all dust from the surface to avoid staining.

Product Data Sheets which comply with the Control of Substance Hazardous to Health (COSHH) regulations are available for all Marley Eternit roofing products.

4 Avoid cutting tiles that are laid in situ, particularly open valleys, as this may cause damage to the valley lining, and is also a health and safety hazard.

## All interlocking tiles and slates (clay and concrete)

- 1 Traditionally, tiles for hips and flashings are cut using a hammer or pincers.
- 2 Tiles cut to rake or mitre in open details, e.g. valleys, external angles, should be trimmed with a disc cutter (Fig. 17) to ensure a neat finish.

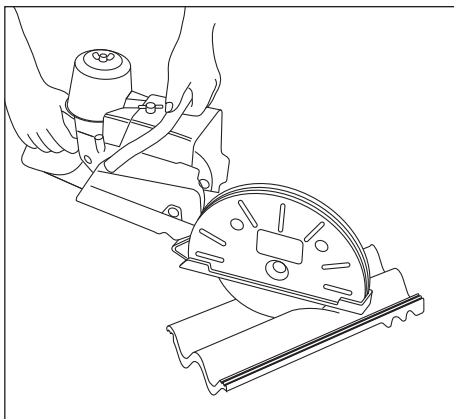


Fig. 17 – Use a disc cutter for mitring or cutting tiles to rake

## More

COSHH product data sheets

Tel: 01283 722588

web: [www.marleyeternit.co.uk/downloads](http://www.marleyeternit.co.uk/downloads)

# Cutting tiles and slates

## Clay and concrete plain tiles

- 1 Traditionally, tiles for hips and flashings are cut using a hammer or pincers (Fig. 18) and tile cropper (Fig. 19).
- 2 Tiles cut to rake or mitre in open details, e.g. valleys, external angles, should be trimmed with a disc cutter.

## Fibre cement slates

- 1 Slates should be scored using a scribing tool and snapped over a straight edge, or scribed and cut with a guillotine (Fig. 20).
- 2 Slates can be cut using a normal handsaw/ hacksaw with teeth of 3mm - 3.5mm pitch, preferably wide set. Saws should always be used to start off when cutting acute angles.
- 3 Slates may also be cut with a reciprocating saw. The use of angle grinders is not recommended for cutting as these tools can raise nuisance dust levels. Slates should not be cut with a slater's axe.
- 4 Additional fixing holes should be drilled using a standard 4.5mm dia. drill bit. Fixing holes must not be punched.

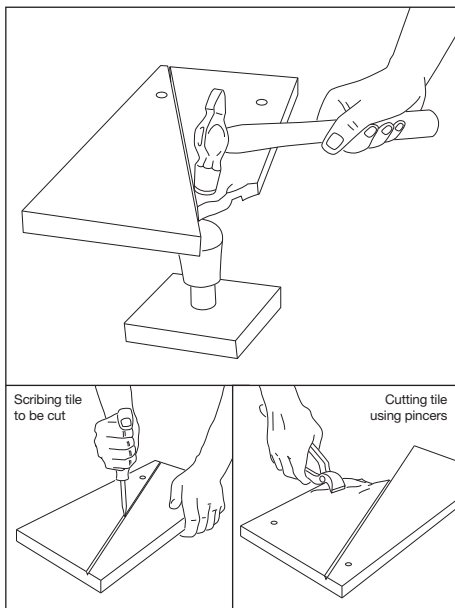


Fig. 18 – Cutting methods for plain tiles

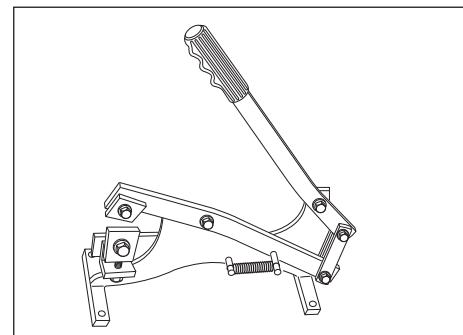


Fig. 19 – A typical tile cropper

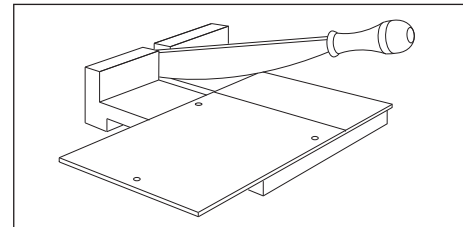


Fig. 20 – Cutting fibre cement slate using a guillotine

# Flashings and weatherings

## Introduction

Lead sheet is the most common material for flashings and weatherings for tiled and slated roofs. It is malleable and can be easily dressed to fit the multi-curved contours of profiled interlocking tiles or flat slates and tiles.

BS EN 12588\* gives the specification for lead for use in roof flashings and weatherings as summarised in the table.

The following rules apply when using lead as a flashing and weathering :

- 1 Single pieces should be limited in size (the thinner the piece, the smaller the size) so that natural expansion and contraction is kept to a minimum and the risk of severe distortion (with associated risks of fatigue cracking) is avoided.
- 2 Fixings (while not restricting thermal movement) must be adequate to support the lead and (dependent on exposure) retain it in position.
- 3 Joints must allow for thermal movement, yet remain weathertight for the location in which they are used.

## Lead sheet for building purposes to BS EN 12588

Code No.	Colour code	Thickness (mm)	Weight (kg/m <sup>2</sup> )	Max. length (mm)	Uses
3	Green	1.32	14.97	1.0	Soakers
4	Blue	1.80	20.41	1.5	Flashings / inclined valley gutters / saddles
5	Red	2.24	25.40	1.5	Horizontal valley gutters

Flashings at the head of slated or tiled roofs should lap the top course slates or tiles by a distance which will vary according to the pitch of the roof (see Fig. 21).

- 4 All lead flashings and soakers should be treated on both sides with patination oil to prevent water run-off and moisture-containing lead oxide from staining the roof covering.

Flashings and weatherings may also be formed from copper, aluminium or zinc as prescribed in BS 5534.

Proprietary materials formed using grp, pvc or colour coated aluminium with a bituminous adhesive backing should be fixed in accordance with the manufacturers recommendations.

\* BS EN 12588 – 'Lead and lead alloys. Rolled lead sheet for building purposes'. For further information and guidance on leadwork detailing, please see The Lead Sheet Association website: [www.leadsheet.co.uk](http://www.leadsheet.co.uk)

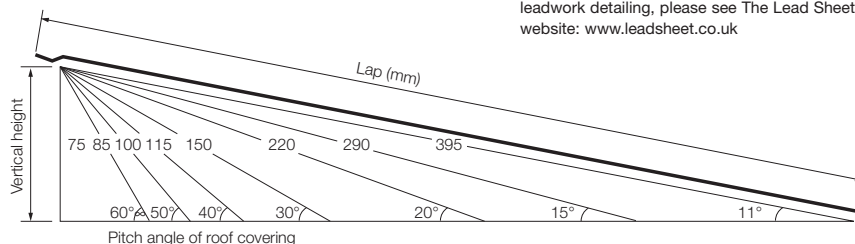


Fig. 21 – Laps for lead flashings

# Flashings and weatherings

## Interlocking and plain tile details

At all abutments where the tiling meets walls or chimneys use an adequate flashing material to weather the junction.

The most common materials for flashings are lead, copper and zinc. Alternative flashing products can be used subject to manufacturers' recommendations.

## Top edge abutment

- 1 Turn roofing underlay 50mm (min.) up abutment.
- 2 Fix top tiling batten as close as possible to abutment.
- 3 Complete tiling in the usual way.
- 4 Chase abutment and insert lengths of Code 4 lead, not more than 1.5m long and wedge in with small pieces of lead not less than 450mm apart.
- 5 Lead should be wide enough to give at least 150mm cover to top course of tiles (e.g. below 30° this increases to 290mm at 15° rafter pitch).
- 6 Vertical upstand should be 75-100mm.
- 7 Lap each length of lead by not less than 100mm.
- 8 Dress lead to profile of tiles (Fig. 22).
- 9 Secure lead flashings with copper or stainless steel clips with frequency dependent on exposure (see Lead Sheet Association recommendations).

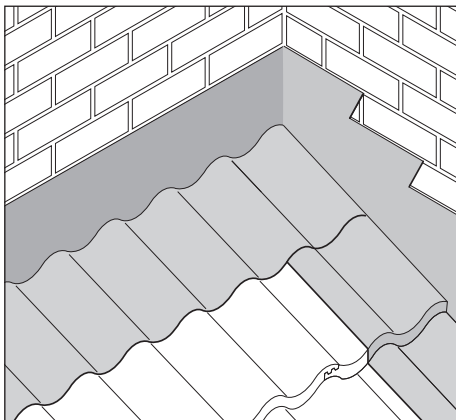


Fig. 22 – Top edge abutment

## Side abutments

There are three common ways of weathering a side abutment with interlocking tiles:

- 1 Stepped cover flashings.
- 2 Secret gutters.
- 3 Combination of stepped cover flashing above secret gutter.

## Stepped cover flashing

- 1 Turn roofing underlay 50mm (min.) up abutment.
- 2 Finish tiling battens as close to abutment as possible.
- 3 Lay tiles to butt as close as possible to wall.
- 4 Cut a piece of Code 4 lead to form a combined step and cover flashing.
- 5 Flashing should not exceed 1.5m in length and should be 150 - 200mm width or wide enough to cover the first roll, whichever gives the greater cover.
- 6 Chase out brickwork mortar joints and push folds of flashing into chases and wedge in with small pieces of lead.



# Flashings and weatherings

- 7 Dress cover flashing as tightly as possible to tile profile (Fig. 23).
- 8 Repoint brickwork.
- 9 In areas of high exposure or when dressing lead over flat tiles, use clips to hold cover flashing in place. When using this type of flashing with flat tiles below 25°, increase cover of flashing over tile to 200mm.

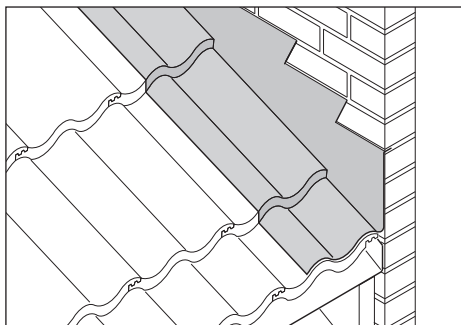


Fig. 23 – Stepped flashing with profiled interlocking tiles

## Abutment with soakers and step flashings

Soakers are used where double-lap Plain tiles abut a wall.

- 1 Turn underlay 50mm up abutment and cut tiling battens 10mm - 25mm short of the wall and fix securely.
- 2 Lay tiles close to abutment with a soaker fitted between each tile.

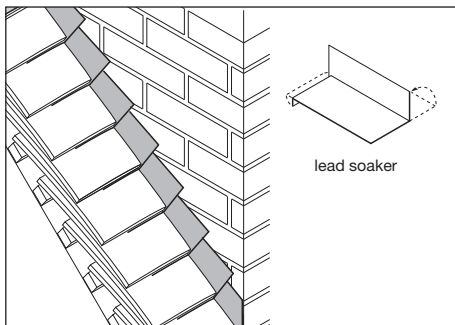


Fig. 24 – Lead soakers

- 3 Form Code 3 lead soakers with an upstand of 75mm to place against abutment. They should be 175mm wide and 190mm long allowing a 25mm downturn over back of tile (Fig. 24).

After all tiles and soakers have been fixed, insert a stepped flashing into abutment wall and dress down over upturned edges of soakers (Fig. 25).

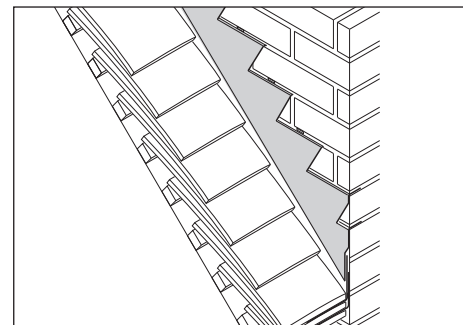


Fig. 25 – Stepped flashing

# Flashings and weatherings

## Secret gutter with cover flashing

A secret gutter must be formed when using single lap flat interlocking tiles and slates. Maximum security can be achieved by a combination of both secret gutter and cover flashing.

- 1 Form secret gutters before starting tiling.
- 2 Fix a support between last rafter and abutment. This should be a minimum of 75mm wide and run full length of abutment.
- 3 Fix a splayed timber fillet at discharge point to raise lead lining to the right height. Avoid backward falls (Fig. 26).

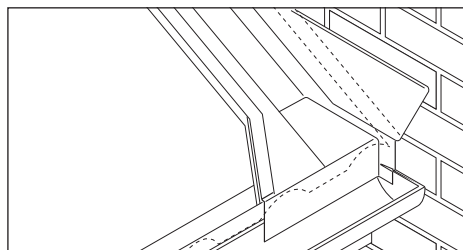


Fig. 26 – Secret gutter

- 4 Fix counterbatten along outer edge of rafter.
- 5 Line gutter with Code 4 or 5 lead, in lengths of not more than 1.5m.
- 6 Lap each strip offered over the lower one by a minimum 150mm and fix with copper nails at head.
- 7 Turn up lead welts to provide a weather check and exclude birds and vermin from entering tile batten space.
- 8 Gutter should be a minimum of 25mm deep and have a vertical upstand of no less than 65mm above top surface of the tiles or slates.

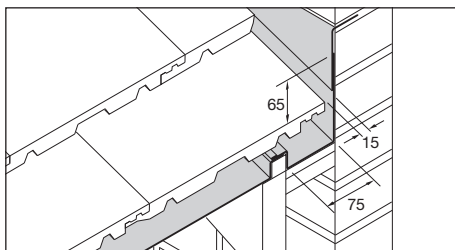


Fig. 27 – Secret gutter

- 9 Fit a stepped flashing, chased into brickwork as before and dressed over vertical upstand.
- 10 Turn roofing underlay up side of counter battens and butt tiling battens up to counter batten.
- 11 Lay tiles to leave a gap of 15mm by the side of abutment (Figs. 27 and 28).

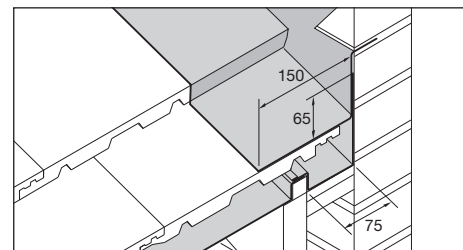


Fig. 28 – Completed secret gutter with cover flashing

# Flashings and weatherings

## Dormers

Treat tiled dormer roofs in a similar way to the main roof work. However, single lap tiling is less suitable for small covered areas and for a dormer, it is generally preferable to adopt an alternative form of covering.

- 1 When dormer cheeks are tile hung, close cut vertical tiles to rake of roof over a flashing fixed to side of dormer and dress well into the adjacent tiles. Formation of a secret gutter is not recommended.

## Back gutters

Back gutters may be lead welded off site and positioned when tiling is undertaken. A gutter should be formed where the bottom edge of tiling meets an abutment. Form the gutter before tiling, but after felting and battening is complete.

- 2 Fix a layboard to support lead lining, with a tilting fillet, close to abutment to flatten pitch of lead.
- 3 Dress a sheet of Code 5 lead (width of abutment plus 450mm) into position with a vertical upstand of at least 100mm up abutment.

- 4 Dress extra width of lead around corner of abutment after any side abutment weathering has been fitted.
- 5 Dress upper edge of lead over tilting fillet and turn it back to form a welt (Fig. 29).
- 6 Chase abutment, insert a cover flashing of Code 4 lead and dress it over vertical upstand of gutter.

## Roof protrusions

The treatment of tiling against chimney stacks, skylights and other similar projections through the roof surface should be similar to that described for abutments where appropriate (Fig. 30).

- 1 Make perforations for pipes, chimney stays, supports for ladders etc. weathertight by dressing over and under tiling, with a lead or copper slate to which a sleeve is burned or soldered.
- 2 Boss sleeve around pipe or stay, and seal at top by a collar.

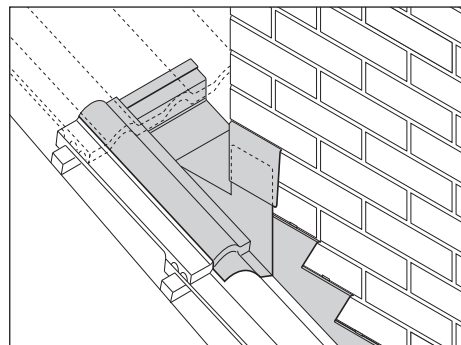


Fig. 29 – Back gutter

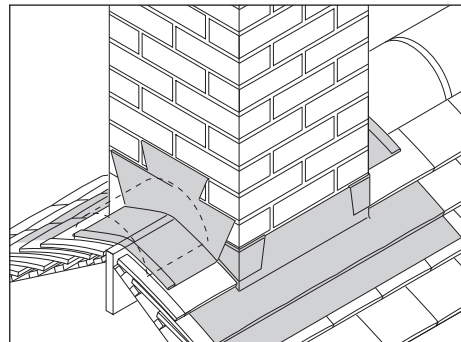


Fig. 30 – Roof chimney at ridge line

# Flashings and weatherings

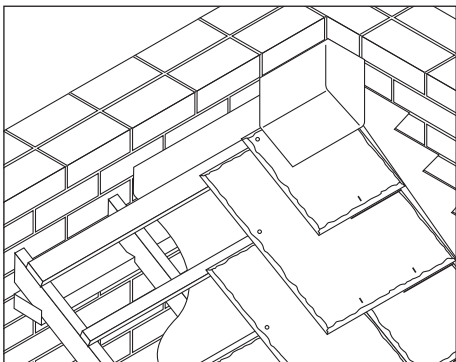


Fig. 31 – Side abutment

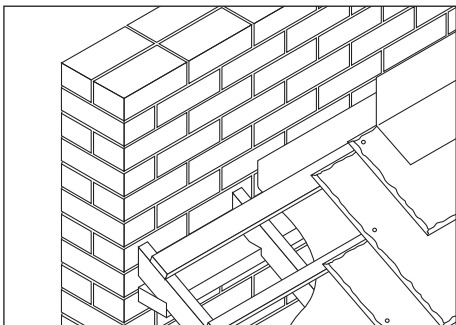


Fig. 32 – Top abutment

## Step and cover flashing with soakers using fibre cement slates

Side abutment flashings:

- 1 Continue the underlay across the roof and turn up the wall by 50mm (min.) Cut the battens 10mm to 25mm short of the wall and fix securely.
- 2 Finish the slating with alternate courses of slates and slate-and-a-half slates, cut as necessary to maintain the bond.
- 3 Code 3 lead soakers, minimum width 175mm and length equal to gauge + lap + 20mm, are to be interleaved with the slates and turned 75mm up the wall.
- 4 The Code 4 stepped lead flashing should be secured in the brickwork bed joints with lead wedges and dressed neatly over the soakers.

Top edge abutment flashings:

- 1 Continue underlay 50mm (min.) up the wall.
- 2 Position two battens downslope from the abutment, the upper to receive the top edge of the top course slate and the lower, the top of the full length slate.

- 3 Head nail the top course slate and use a disc rivet to secure the tail in the usual manner. Centre nail and rivet the full length slate below in the normal way.
- 4 Dress Code 4 lead cover flashing over the top course slates and turn up the wall face 100mm (min.), with the top edge turned into the brickwork bed joint and secured with wedges.
- 5 Extend lead down over the slate to lap the surface a minimum of 150mm (see Fig. 21, page 19 for correct lap for the roof pitch) and secure the bottom edge with a clip to resist wind uplift.

## Saddles

The following details can apply to any type of valley or hip/ridge intersection.

- 1 Use Code 4 lead not less than 450mm square and large enough to give a lap of at least 150mm over gutter lining on each side.
- 2 Saddles should be capable of being readily dressed down when in position (Figs. 33 and 34, page 25).

# Flashings and weatherings

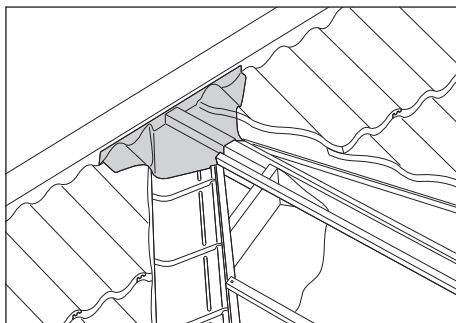


Fig. 33 – Saddle at ridge/roof/valley intersection (interlocking tiles)

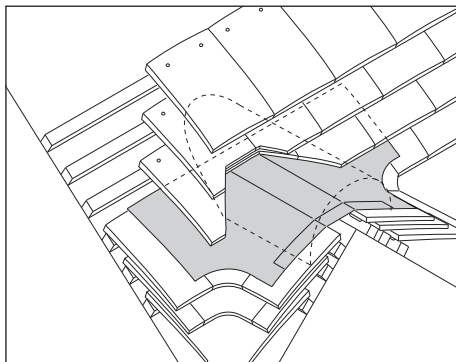


Fig. 34 – Saddle at ridge/roof/valley intersection with Plain tiles valley

## Fixings

**Clips** – clips for flashings are important in all roofing applications and where used should be fixed at 300mm – 500mm centres, depending on the exposure of the building.

Clips may be formed from the following materials:

**Lead** – only suitable for sheltered locations with a thickness the same as that of the flashing it is fixing.

**Copper** – should be 0.6mm thickness (min.) and may be thicker for very exposed locations.

**Stainless steel** – should be 22swg or 28swg thickness and is used for very exposed locations or where the fixing point is more than 75mm from the free edge of the flashing.

## Nails and screws

**Copper wire nails** (with jagged shanks) should be a minimum 25mm long x 10 gauge.

**Stainless steel annular ring shank wire nails** should be a minimum 25mm x 12 gauge.

**Screws** should be brass or stainless steel, minimum 25mm long x 10 gauge.

## Flashing and weathering check points\*

- Lead can be difficult to work, particularly heavier codes. In cold weather take care not to split or puncture it whilst working.
- Always use proper lead working tools. Hammers are not recommended for dressing lead.
- Nail and/or clip all tiles and slates next to an abutment.
- Fillets of mortar are not recommended at abutments because cracking of mortar brings high risk of failure.
- Galvanized, aluminium, zinc and cut copper nails or tacks should not be used for fixing leadwork.
- Temporarily place a length of cloth beneath lead before dressing down onto lightweight tiles and slates to avoid breakage.
- Avoid contact with aluminium in a marine environment.
- Use patination oil to avoid lead staining.



# Fire stopping

The spread of fire within a building or from one property to another can be restricted by providing compartments from one another by a fire resisting construction, one of the most common examples are separating walls between dwellings.

Shown below is general guidance for domestic situations only.

For further information on detailing separating walls between dwelling and other buildings that require a fire resistance please refer to the Building Regulations Approved Document B and/or consult with your local authority Building Control Department.

## Separating wall junction with roof

The use of a mortar bedding trowelled onto the wall under and between the battens is not recommended, as gaps are often left under the tiles. Additionally, if differential settlement occurs, this will lead to hogging or humping of the roof tiling above the separating wall.

It is recommended that a glass fibre or similar compressible material is selected to limit the spread of smoke and flame.

The following points should be adopted to ensure a satisfactory detail:

- 1 When trimmed to roof slope, ensure that party wall is 25mm below top edge of adjacent rafters. Mortar if necessary to achieve a fair line.
- 2 Select fire-stopping material of rock wool, slag wool or glass fibre quilt, resilient enough to fill irregular spaces but not so resilient to lift or dislodge tiles.
- 3 Before felting and battening, ensure quilt **(A)** is laid on top of wall with edges tucked between faces of wall and adjoining rafters.
- 4 After felting and battening, ensure lengths of quilt **(B)** are laid between battens as tiling proceeds or fixed by spot sticking in place before tiling.
- 5 Check eaves void is filled with fire stopping material **(C)** to achieve a tight fit.
- 6 Fire resistant material must be securely fixed without support from the soffit board (Fig. 35). The following materials can be useful for this purpose:

- i) Wire reinforced mineral wool 50mm thick.
- ii) Mineral wool, wired to expanded metal lath.
- iii) Semi-rigid mineral wool batt, spiked or wedged in place.
- iv) Compressed mineral board cut to close fit.
- v) Plywood min. 19mm thick treated with flame retardant.
- vi) Sand-cement (pre-mixed vermiculite cement) render on expanded metal lath.

Note: Prior to starting work, it is recommended that the Local Authority Building Control Officer is contacted to confirm approval of the proposed work.

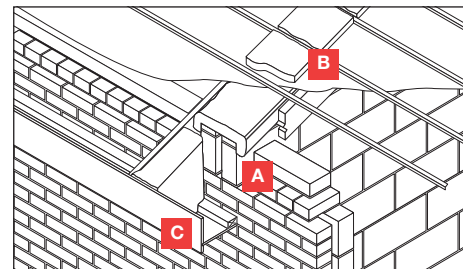


Fig. 35 – Separating wall with fire stop

# Rigid boarding or sarking

In Scotland and some parts of Northern England, it is traditional to fix rigid or semi-rigid boarding or sarking directly above the rafters.

Boarding or sarking may consist of tongue and grooved or square edged timber boards, plywood, wood wool slabs, fibreboard, particle board, orientated strand board (OSB) or cement particle board as specified in BS 5534.

When using boarding or sarking, it is necessary to fit counter battens above\* to provide a drainage path to the eaves gutter beneath the battens for any moisture that may have accumulated beneath the roof covering. The fixings for boards, battens and counterbattens should be of sufficient length to resist the design wind loadings, but should provide at least 40mm penetration into the rafter or support and be of at least 3.35mm dia.

\* Minimum 19mm depth (to prevent the batten splitting upon nailing)

The following is a summary of general requirements to be considered when using rigid sarking or boarding:

- When completing groundwork on roof, first lay underlay onto the sarking boards lapped horizontally and vertically in accordance with guidance shown on pages 13-15.
- Fix counter battens through sarking into rafters by at least 40mm.
- Nail battens above counter battens at required tiling gauge (Figs. 36 and 37).
- Allow for extra thickness of counter battens and sarking at eaves when fixing fascia or tilting fillet, and at verge, by building up outer layer of brickwork.
- Cut the rigid sarking back at inner leaf of brickwork.
- Lap underlay at ridge over apex and finish sarking and counter battens 15mm short of this apex.
- Where ventilated dry fix ridge systems are used, cut sarking and underlay back to provide ventilation.
- The fixing of all tiles should comply with BS 5534 and a site specific fixing specification.

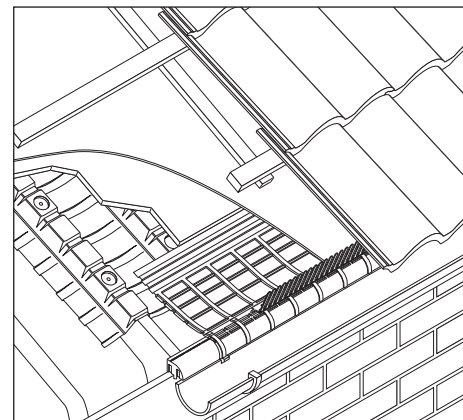


Fig. 36 – Battens and counter battens at eaves above rigid boarding and underlay

# Rigid boarding or sarking

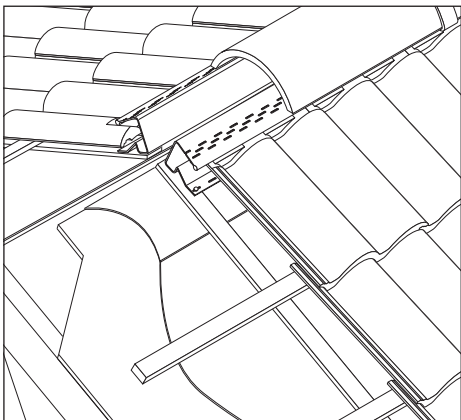


Fig. 37 – Battens and counter battens at ridge above rigid boarding and underlay (cut back at apex), (with Marley Eternit ventilated dry ridge system)

The increased use of the roof void as habitable space has meant that rigid polystyrene insulation boards are now laid above and between the rafters to provide the required thermal insulation. Such designs will require specific detailing with regards to roof ventilation and structural stability. Advice should be obtained from both the insulation and roof membrane manufacturers. Such products require the use of counter battens with specialist fixings to ensure sufficient nail penetration into the rafters and advice should be obtained from the insulation manufacturer.

Other proprietary tile support systems may be used and should be fixed in accordance with the manufacturer's recommendations.

# Fixing materials

## Slate and tile fixings

To guard against 'nail sickness', BS 5534 recommends the use of aluminium or stainless steel nails under normal conditions of exposure. Plain or galvanised nails may be used for fixing battens to rafters, but care must be exercised when there is high humidity, or where it is known that certain timber preservative treatments may corrode steel, zinc or aluminium. In such cases, stainless steel nails should be used.

All Marley Eternit tile and slate fixings have been tested to the requirements of BS 5534 which includes a test method to establish the resistance of clips, nails and hooks to wind uplift.

## Tile nails

Nails for use with tiles should be of copper, aluminium, stainless steel, phosphor or silicon bronze. Aluminium nails intended for use with tiles should conform to BS 1202-3 and should be clout head nails of 3.35mm or 2.65mm diameter. The length of nail will be determined by the required wind uplift and the design of the tile.

Stainless steel nails for use with tiles should conform to BS EN 10088-3, grade 302, 304, 315, 316, 321 or 347, and are recommended for coastal areas, areas of high exposure, or where there is a risk from chemical reaction.

## SoloFix tile clips

Recent changes to the British Standard BS 5534 have resulted in a greater requirement for clipping single lap roof tiles.

Clipping, in its traditional sense, has involved the use of two-piece clips which, whilst effective, can be very time consuming to install.

Marley Eternit now offers, as standard, SoloFix tile clips as an improved means of meeting this greater requirement for clipping. Made from a unique material called ZIAL, these one-piece clips are 30% quicker to install than their traditional equivalent and can be used in all areas of exposure in the UK.

All Marley Eternit proprietary fixings are fully tested and exceed the requirements of BS 5534 in terms of material specification and strength.

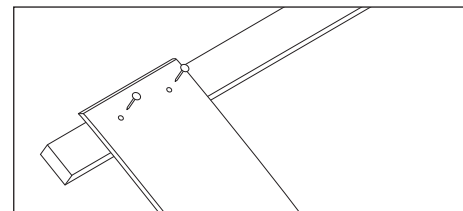


Fig. 38 – Nailing plain tiles

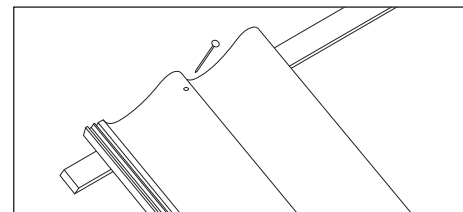


Fig. 39 – Nailing interlocking tiles

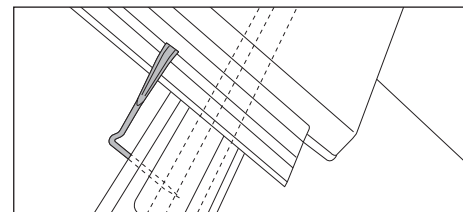


Fig. 40 – SoloFix interlocking tile clip

# Fixing materials

## Slate nails and rivets

Nails intended for use with fibre cement slates should be of copper, conforming to the requirements for clout nails specified in BS1202-2.

The shank diameter and length should be determined by the exposure of the site and the withdrawal resistance of the nail to wind uplift.

Normally, 30mm x 2.65mm copper nails are adequate for most applications. For exposed sites or where aggressive environments are encountered, contact the Technical Advisory Service.

Copper disc 'tail' rivets are also used to further secure the tail of fibre cement slates.

## Slate hooks

Hook fixing of slates has been widely used on the mainland of Europe for half a century, and can be carried out in the UK (subject to windloading calculation) to secure fibre cement slates. Hooks are formed from stainless steel wire conforming to BS EN 10088-3. For further advice on the use of slate hooks, contact the Technical Advisory Service or refer to BS 5534 Section 4.12.3 'Hooks and rivets for slates'.

## Batten nails

Nails for use with battens, counter battens and boarding (board sarking) should conform to BS EN 10230-1. They may be uncoated or, for extra protection and in coastal regions, coated by zinc or zinc alloy coating methods specified in BS EN 10230-1.

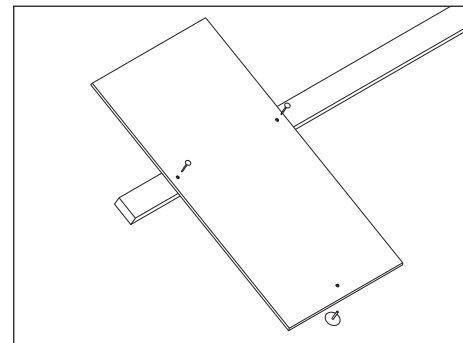


Fig. 41 – Fibre cement slates are twice nailed and have a tail rivet

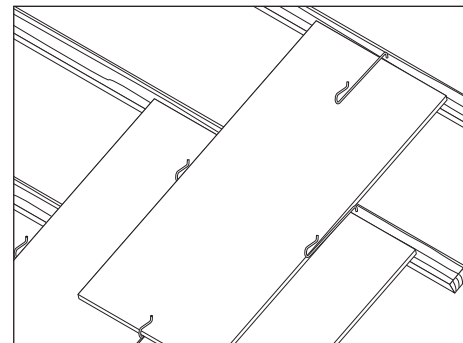


Fig. 42 – Hook fixed fibre cement slates secured in four positions

# Fixing materials

## Undercloak

Where an undercloak is used as a support for mortar bedding it may take the form of a fibre cement sheet strip 1200mm long x 150mm wide with a roughened surface to assist the mortar bond (Fig. 43).

## Underlay nails

Nails for use with roofing underlays should be clout head nails of not less than 3.0mm shank diameter and 20mm length made of copper; aluminium alloy or steel coated by any of the zinc or zinc alloy coating methods specified in BS EN 10230-1.

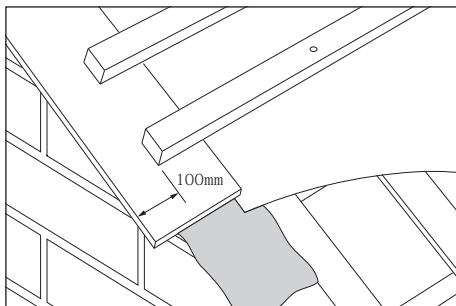


Fig. 43 – Undercloak using fibre cement strip

## Mortar

The mortar used in roof construction should conform to the recommendations given in BS 5534 (Table 6). Mortar should typically consist of the following mixes:

- 1 3:1 with blended sand  
Soft sand and sharp sand mix, with the sharp sand making up no less than one third of the sand content, to one part Portland cement and plasticizer in accordance with manufacturers' instructions.
- 2 3:1 with coarse building sand  
Some building sands are coarse in nature and have been found to have a size particle distribution in line with a blended mix of fine building sand and sharp sand. Where 70% to 90% of the sand is able to pass through an 0.5 mm sieve, this may be used as part of a 3:1 sand cement mix with plasticizer, in accordance with manufacturers' instructions.
- 3 Proprietary roofing mortar  
Proprietary mortars should be mixed and applied in accordance with manufacturers' instructions.

Notes:

If the use of other mixes is being considered, attention needs to be given to workability of the mix and possible application problems, e.g. the need to avoid unsatisfactory bedding on steep pitches.

Guidance on the use of mortar is given in NFRC Technical Bulletin 27 [12].

## Mortar bedded applications

- Check correct mortar mix for bedding tiles and fittings.

The following is good practice:

- Wet all products prior to bedding.
- Ensure all bedding surfaces are clean and free from harmful matter.
- Apply a bonding agent to the surface of smooth faced tiles or slates to improve mortar bond.

**IMPORTANT: The use of mortar for bedding tiles and slates may be affected by differential movement of the roof structure causing the bond between roof element and tile or slate to be compromised.**

**BS 5534: 2014 states that all mortar bedding must now be accompanied by a mechanical fix.**

# Fixing materials

## Fixing check points

When fitting the appropriate nails, clips or hooks, the following applies:

- Nails used to fix tiles or slates should be driven home and/or firmly secured into the centre of the batten or timber to which they are fixed in order to maximise their effect in use.
- Clips used to fix tiles or slates should be located and aligned so as to fit correctly onto the appropriate interlock/headlock in order to maximise their effect in use.
- Clips used to secure verge and valley tiles or slates should be twice nailed to the top of the batten or timber to which they are fixed, with the top of the clip firmly securing the edge of the tiles or slates.
- Rivets used to secure the tails of fibre cement slates should be fitted with the disc located centrally between and under the perpend of adjacent slates, with the pin pushed through the hole in the overlapping slate and bent downwards towards the lower edge of the roof.
- Hooks used to secure the tails of slates, should be of size and length appropriate for the lap of the slates, and should fully engage over the tail of the slate, with the spikes driven home firmly into the batten.
- Always check the fixing specification before starting to lay tiles or slates. If in doubt nail and clip each tile or slate to ensure maximum security.



# Repair and replacement

## Roof renewal detail

Renewal of roof covering on semi-detached or terraced properties may lead to different tiles or slates being installed than those on a neighbouring property. An effective method of weathering this junction is to form a secret gutter detail as shown below.

This method is a good alternative to a bedded hip detail which is commonly used.

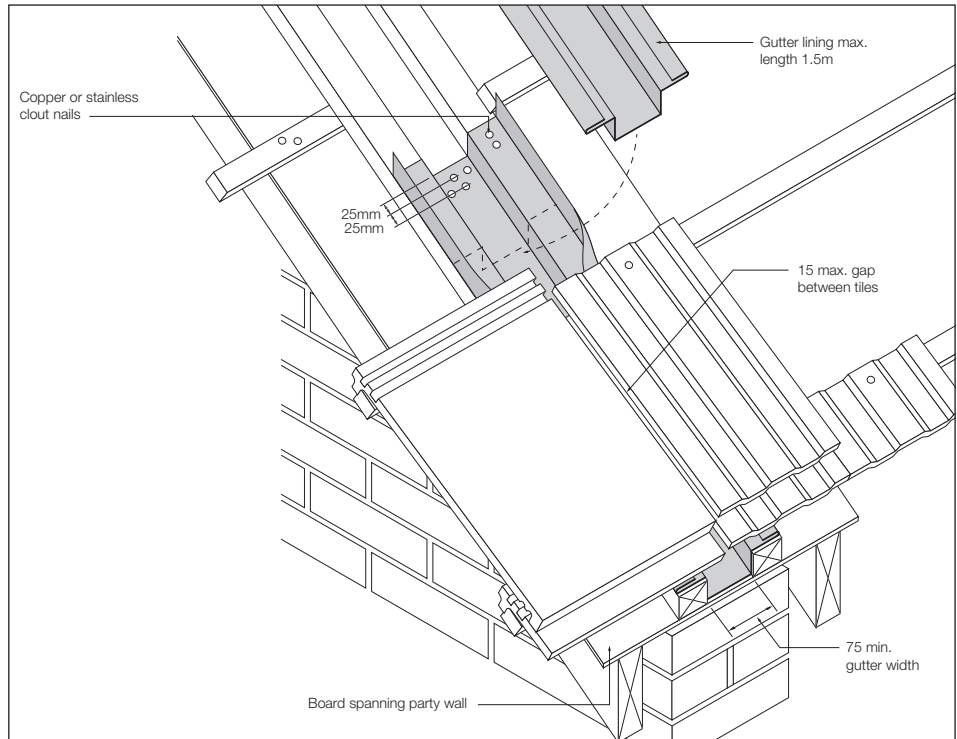


Fig. 44 – Secret gutter over party wall

# Repair and replacement

## Plain tiles

Plain tiles are not normally nailed in every course, and in such circumstances the following procedure applies:

- 1 Remove damaged tile by raising up the neighbouring tiles with a timber wedge and sliding the tile out with the nibs clearing the top of the batten. Any nails should be removed and disposed of safely (Fig. 45).
- 2 Insert replacement tile back into position using the same technique in reverse. If required, re-nail the replacement tile using 2 No. 38mm x 2.65mm aluminium nails.

A dab of mastic can be placed on the underside to prevent movement.

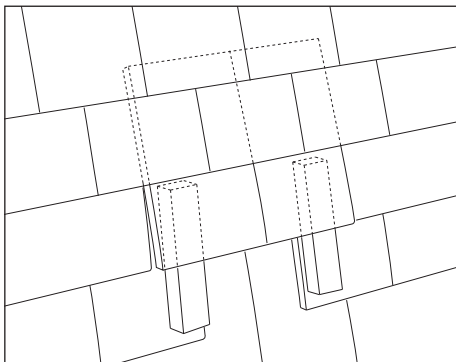


Fig. 45 – Block tiles with battens

# Repair and replacement

## Interlocking tiles

Individual tiles or slates that are damaged during or after installation should be replaced as soon as possible using a sound matching unit fixed in accordance with the nailing and/or clipping specification. In some cases, this may not be possible without stripping back a large area of tiling/slating.

Superficial coatings or repairs to damaged units using adhesives or other mechanical devices should not be used as their long term performance may be limited.

If extensive repairs to the roof are required, sectional or complete re-tiling/slating should be considered, as this may be the most practical and economic solution.

Roofs and walls clad with tiles and slates should be treated as fragile, and adequate precautions should be taken, including the use of crawling boards and roof ladders (suitably packed to prevent damage to the roof covering) or access platforms when accessing the roof for the purposes of maintenance or repair. Failure to use adequate access equipment can damage the tiles and fixings and may be in contravention of Health and Safety Regulations.

- For a tile that is nailed, the neighbouring tiles should be lifted to expose the nail(s), which should be extracted carefully using a slate ripper or hacksaw blade and disposed of safely. The replacement tile can be inserted using the same procedure and re-fixed to the adjacent fixed tiles by using an epoxy resin adhesive applied to the interlock/overlock and head lap area. Care must be taken not to bridge anti-capillary bars or interlocking water channels so that water can drain freely.
- For a tile that is clipped, the clip can be prised off the interlock and the nail extracted, with the damaged tile removed as described above. The new clip and nail can then be fitted as normal (avoiding the previous nail hole), allowing the clip to rest in the clip recess of the adjacent tile. Hold up the clip, and slide the replacement tile into position, allowing the clip to be released onto the sidelock of the tile.
- For a tile that is both nailed and clipped, it is necessary to establish the position of the tile nail holes of the course directly below the replacement tile. Mark out the

corresponding hole positions on the top surface near the tail of the tile. Fit the replacement using the above procedure. Drill a 4mm dia. hole through the top of the replacement tile, directly above the nail hole of the tile below. Secure both courses using a stainless steel screw with cap and washer (40-120mm long dependent on tile depth) to provide a minimum 15mm penetration into the batten.

- The above procedure can also be used to secure the tail of the course above the replacement tile.
- If there are a number of damaged tiles that are clipped, it may be necessary to strip back the roof to the nearest verge or valley/hip in order to re-clip the replacement tiles.

Note: It is important that both washer and cap form a waterproof seal around the hole. If necessary, a mastic sealant should be applied around the screw where it passes through the lower tile nail holes.

For individual tiles, some adhesives can be used. Install in accordance with manufacturer's guidelines.

# Repair and replacement

## Fibre cement slates

Individual slates that are damaged during or after installation should be replaced as soon as possible using a sound matching unit fixed in accordance with the nailing specification. In some cases, this may not be possible without stripping back a large area of slating.

Superficial coatings or repairs to damaged units using adhesives or other mechanical devices should not be used as their long term performance may be limited.

If extensive repairs to the roof are required, sectional or complete re-slating should be considered, as this may be the most practical and economic solution.

Roofs and walls clad with slates should be treated as fragile, and adequate precautions should be taken, including the use of crawling boards, roof ladders or access platforms (with appropriate packing to prevent damage to the slates) when accessing the roof for the purposes of maintenance or repair. Failure to use adequate access equipment can damage the tiles and fixings and may be in contravention of Health and Safety Regulations.

Fix any damaged slating in the same manner as they were originally installed.

- When using a replacement slate, ensure that it is of the same type and size as those already installed.
- The slate or slates due for repair should be removed using appropriate tools (e.g. slate ripper and hammer), usually in a triangular fashion, with the single slate at the apex up the roof slope.
- To re-fix an appropriate slate in place of a damaged slate (where the two nail holes are clearly visible) use copper nails with a shank diameter of not less than 2.65mm, of a length to give a minimum 15mm penetration into the battens (excluding the point of the nail), and secure as normal.
- Where only one nail hole is visible, place a stainless steel slate hook (as specified in BS 5534) to act instead of the inaccessible fixing, and nail as normal through the visible hole. Copper disc rivets should be inserted at every rivet hole position at the tail of the slate as standard practice.

- The last slate in the triangle will not have nail holes accessible to fix with. In this case take a slate hook as above, and using a 'mole grip' and 'pliers', bend the 'hook' portion from its normal vertical position through 90°. This will allow the spike of the hook to be nailed to the batten and the replacement slate to be slipped into place without interference from the 'hook' end.
- Once the replacement slate is in position, use 'mole grips' to bend the 'hook' portion back to its original shape, so that it grips the tail of the slate firmly in position.

Note: Slate hooks are an alternative fixing for slates, as defined by BS 5534, and have known test and performance in use data. Where one or more nails cannot be used as a fixing, a hook should be substituted. The action of bending the hook for the limited distance involved does not significantly affect its durability or performance.

# Concrete and clay plain tiles

**Dry fix and ventilation systems**  
For more details, see pages 108-195

38 Setting out the roof

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# Setting out the roof

It is important that the tiler should set out the roof prior to fixing. This will help to save time and avoid unequal overhangs at verges and expensive labour costs in cutting tiles at abutments (Fig. 1).

## Position of top and bottom battens

- 1 Batten gauge required must be worked out on site. Fix eaves course batten first and position using one of the following methods:

The eaves batten should be set to ensure that the tail of the tile extends over the fascia board by no less than 50mm on the rake (Fig. 2).

Or

Position first full course tile batten at eaves and measure distance from top edge to outside edge of fascia. This distance should approximately equal length of tile less nib depth and gutter overhang.

- 2 Position an additional eaves tile batten below the first full plain tile batten.
- 3 Fix the first full plain tile top course batten so that the ridge tile provides a minimum 65mm cover (Fig. 3).

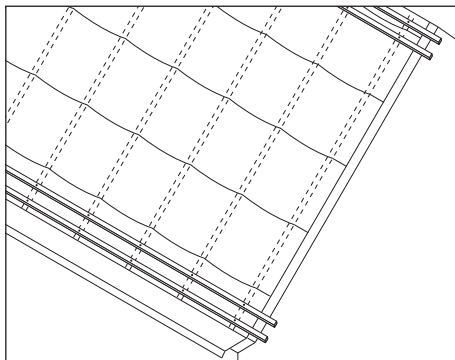


Fig. 1 – Setting out eaves/top course battens

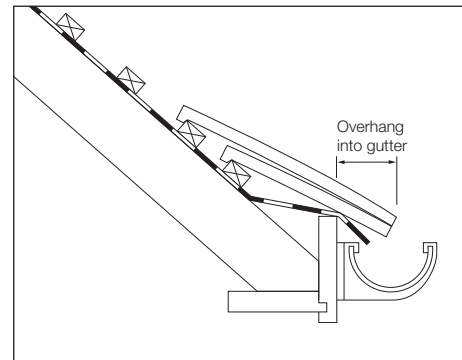


Fig. 2 – Measuring gutter overhang

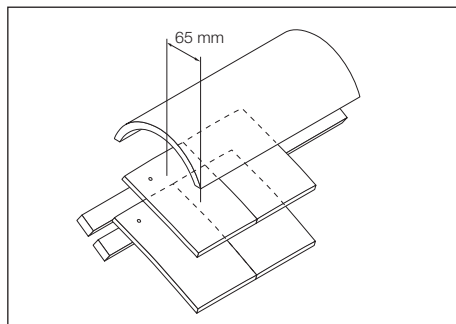


Fig. 3 – Setting out top (ridge) course

# Setting out the roof

## Calculating the batten gauge

- 1 Measure distance between top of full tile batten at eaves and top of full tile batten at ridge/apex.
- 2 Divide distance by maximum gauge of tile being used. Gauge is determined by length of tile less required headlap divided by two, i.e.  $\frac{265 - 65}{2} = 100\text{mm}$  (for clay plain tiles)
- 3 Round figure up to give number of courses up slope as a whole number.
- 4 Divide measured distance by number of courses to give batten gauge.
- 5 The practice of adjusting gauge over last few courses at eaves or ridge is technically acceptable, provided maximum gauge for tile is not exceeded.
- 6 If necessary, tiles should only be cut in ridge course, drilled and nailed.
- 7 Re-check the accuracy of the lap by measuring the exposed margin, which is equal to the gauge required (see above).

## Horizontal alignment

There are several ways of achieving true horizontal alignment:

- 1 Strike a chalk/ochre line at 90° to perpendicular line (Fig. 4).
- 2 Measure two pieces of timber, each the length of the batten gauge minus width of one batten (advantageous for vertical tile hanging).
- 3 Drive nails through a length of timber the distance of batten gauge apart and protruding approximately 5mm. Scribe required gauge onto underlay.

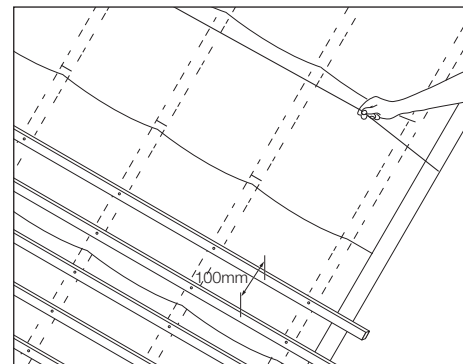


Fig. 4 – Striking chalk lines



# Setting out the roof

## Perpendicular alignment

- 1 Set out roof along eaves starting with correct overhang at right-hand verge.
- 2 Allow a 3mm gap between adjacent Plain tiles.
- 3 Overhang at verges should not be more than 50mm.
- 4 On short eaves, tiles may require cutting where possible. Cut tiles at verges should be avoided but if used should be at least half the width of a full tile.
- 5 Strike perpendicular chalk or ochre lines over eaves to ridge at three tile intervals to coincide with edges of tiles.
- 6 A gauge rod the width of three tiles can be used as an alternative to actual tiles.

## Completion of tiling

- 1 Load out all tiles on the roof evenly before commencing tiling (see page 12).
- 2 Work from right to left (Fig. 5). Depending on fixing specifications, you may leave out third and fourth tiles from left-hand verge and make use of tile battens as a ladder enabling upper part of roof to be reached for fixing ridges.
- 3 On a hipped roof, cut tile and half tiles so that end tiles of each course align with rake of hip.

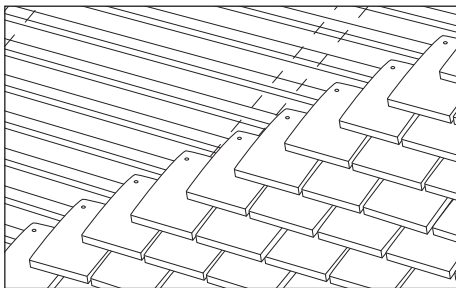


Fig. 5 – Completion of tiling

## Setting out check points

- Never exceed maximum gauge for tile used at recommended pitch.
- Avoid cutting tiles wherever possible.
- Never cut bottom edge of a tile.
- Vertical cuts should never be less than half a tile width.
- On adjacent roof slopes of varying pitch, set batten gauge to the lower roof pitch to ensure alignment at intersections.
- Ensure ridge tiles provide a minimum 65mm cover to top course of full length tiles.
- Eaves tiles should lie over the fascia board 50mm on the rake.

# Eaves

Eaves have a double course throughout their length using purpose-made eaves tiles for the undercourse.

- 1 Twice nail both courses.
- 2 Eaves course to overhang fascia board so that water discharges into centre of the gutter.
- 3 If gutter is not fixed, an overhang of 50mm should be allowed (Fig. 6).
- 4 A sprocketed eaves detail may be used, provided it is not below 35° pitch.

**See page 197 for Eaves fascia heights without ventilation.**

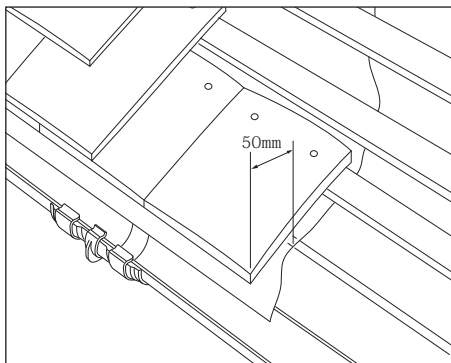


Fig. 6 – Ensure sufficient overhang into gutter

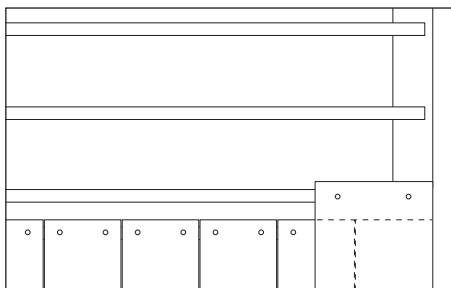


Fig. 7 – Setting out eaves with eaves course

## Eaves check points

- Twice nail all eaves tiles.
- Supply support for under-eaves course and eaves course tiles using tilting fillet or fascia board.
- Make allowance for strip ventilators fitted to the top of the fascia when calculating the pitch of the eaves course (see page 112).
- Ensure bottom courses overhang into gutter 50mm.

# Verges

- 1 A plain tile undercloak can be used in place of a fibre cement strip.
- 2 Lay face down with tail edge facing outwards (Fig. 8).

Note: Do not use Plain tiles as an undercloak below 30° pitch.

- 3 Lay verges broken-bond with full tiles and tile-and-a-half in alternate courses.
- 4 Bed tiles projecting maximum 50mm over the gable walls or bargeboard.
- 5 Strike off bedding mortar and neatly point in one operation (see Fig. 9).
- 6 Alternatively, bed tiles in mortar onto a fibre cement undercloak.
- 7 When laid on brickwork or masonry, bed undercloak in mortar and strike off flush with external face of wall, leaving top surface finished smooth and straight; bed tiles forming verge on this undercloak.
- 8 When laid on boarding, nail each undercloak with at least two nails at centres of not more than 300mm.

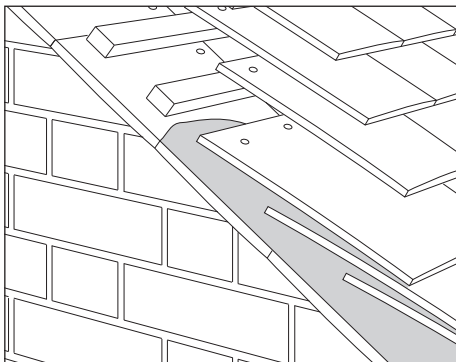


Fig. 8 – Undercloak using Plain tiles

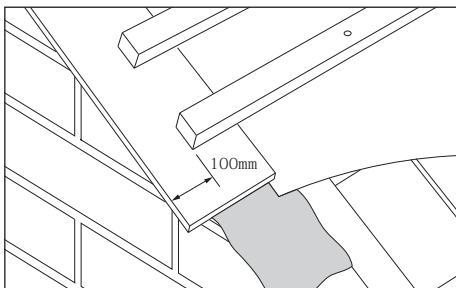


Fig. 9 – Undercloak using fibre cement strip

## Verge check points

- Nail all verge tiles.
- All verge tiles must be twice mechanically fixed.
- Always continue underlay across wall cavity and below undercloak (where appropriate).
- Mortared verges should have an overhang of 38 to 50mm.
- Undercloak should have an outward tilt on mortared verges.
- Avoid pointing with a separate mix of mortar.

# Hips

## Third Round Hip tiles

- 1 Edge-bed third round hip tiles onto close mitred tiles with a solid bedding at butt joints.
- 2 Fix a galvanised hip iron at foot of hip as support (Fig. 10).
- 3 Mechanically fix all hip tiles, see page 106.

## Bonnet Hip tiles

- 1 Fix supplementary batten to hip tree where required to ensure alignment of bonnet hip tiles and avoid excessive mortar depth.
- 2 Bed in mortar during fixing. Strike bedding off smoothly at lower edges of hip tiles or keep slightly back and point.

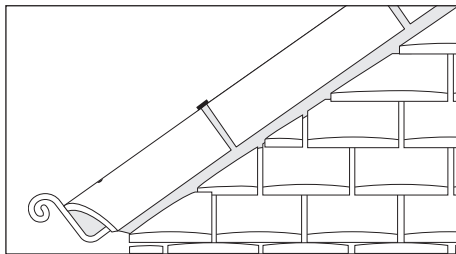


Fig. 10 – Bedded and mechanically fixed third round third hip ridge tiles used as hip capping with hip iron

- 3 At eaves, solidly bed bonnet hip and fill with dentil or tile slips where possible.
- 4 Straight cut tiles adjacent to each side of bonnet hip to maintain bond and fix with 70mm x 3.35mm aluminium nails (Fig. 11).
- 5 Use tile-and-a-half tiles where necessary, to facilitate cutting adjacent to bonnet hip tiles

## Close-fitting Arris Hip and purpose-made hip tiles

- 1 Fix close-fitting hip tiles with 65mm x 3.35mm aluminium nails penetrating at least 25mm into hip rafter or supplementary batten.
- 2 Bed top of hip tiles to provide seating in mortar.

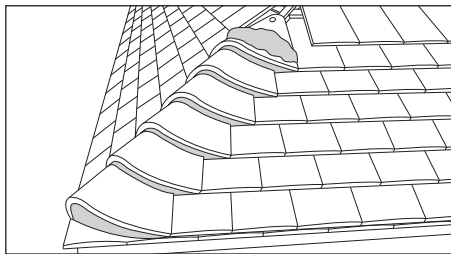


Fig. 11 – Bedded and mechanically fixed bonnet hip tiles

- 3 Lay and fix bottom hip tile in line with under eaves course.

## Mitred hips

- 1 Where tiling does not meet at right angles on plan, cut tile-and-a-half tiles to a close rake to hip line.
- 2 Cut Code 3 lead soakers to extend a min. 100mm either side of hip and fix as required.

## Hip check points

- Fix a suitable hip iron to the base of rafter.
- Close mitre roof tiles where they meet hip and ensure each tile is twice nailed.
- Replace small cuts with tile and a half tiles.
- Mitre hip tiles at ridge junctions ensuring that the end tile does not ride up.
- Cut bottom hip tile to align with eaves.

# Valleys

## Valley tiles

Valleys with plain tiles may be formed with purpose-made valley tiles or open construction, using metal lined valleys.

**Valley tiles cannot be used where two roof slopes intersect with different pitches.**

- 1 For trussed rafter roofs, support tiling battens at valley where roof slopes intersect.
- 2 Fix timber valley boards between rafters to provide support for tiling battens and valley tiles.
- 3 Lay a strip of underlay at least 600mm wide up length of valley. Overlap on each side with main roofing underlay.

**See page 199 for valley widths.**

Lay valley tiles without nailing or bedding to main roof tiling (Fig. 12).

- 1 Lay bottom valley tile first and butt adjacent eaves tile to it.
- 2 Keep a true line between valley tiles and main roof tiles.
- 3 Avoid small cut pieces of tile adjacent to valley tile by using tile-and-a-half tiles.

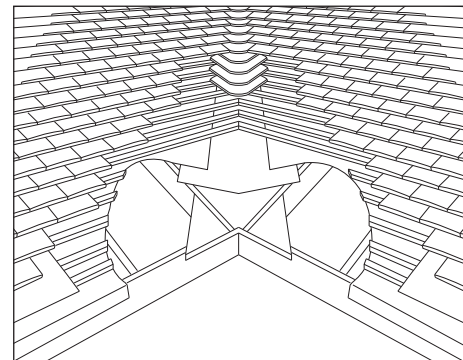


Fig. 12 – Laying valley tiles

# Valleys

## Metal valleys

Metal valleys may also be used with plain tiles. Exposed raking cut tile and a half tiles should not be bedded in mortar. If concealed mortar is used within the tiling, it should not block the laps.

- 1 Use tile-and-a-half tiles to minimise use of small tile sections at valley.
- 2 Nail all tiles and cut pieces adjacent to valley (Fig. 13).

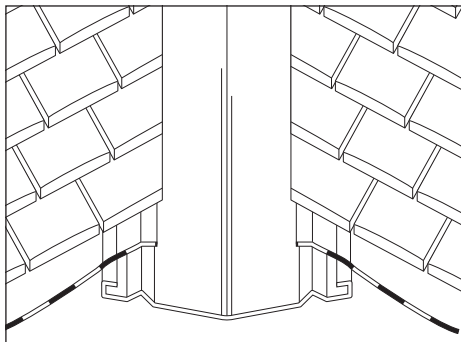


Fig. 13 – Metal valley construction for plain tiles

## Valley weatherings

- 1 At head of valley, fix a saddle of minimum Code 4 lead. Length of lap of saddle over valley should be at least 200mm.
- 2 Where ridge intersects a roof slope, step the ridge back where it meets head of intersecting valley; dress a saddle of minimum Code 4 lead under adjacent tiling, and over both valley linings.
- 3 When a valley discharges onto a roof slope (e.g. at dormers), a lead saddle will be required at base of the valley to dress onto adjacent tiling, (see flashings and weatherings pages 19-25).

## Valley check points

- Keep an open channel between cut edges of roof tiles (125mm minimum).
- Don't block laps of tiles with mortar since this may cause damming.
- Don't lay bituminous underlay directly beneath a lead valley; heat causes underlay to expand. This may split lead.
- Don't apply mortar direct to lead.
- Nail all tiles either side of valley.
- Valley tiles cannot be used where two roof slopes of different angles intersect.

# Ridges

## Duo-pitch ridges

Ridges should be covered using ridge tiles of complementary colour, or contrasting, and texture to that of main roof tiles. Always check that the ridge tile design suits the pitch and type of roof tile being used.

- 1 Edge-bed ridge tiles onto the top course tiles with solid bedding at butt joints (Fig. 14).
- 2 A minimum of 65mm cover should be provided over the last full course tiles.
- 3 Exposed mortar should be neatly pointed.
- 4 Ensure ridges are mechanically fixed using security ridge tiles or the mortar bedded security ridge kit.

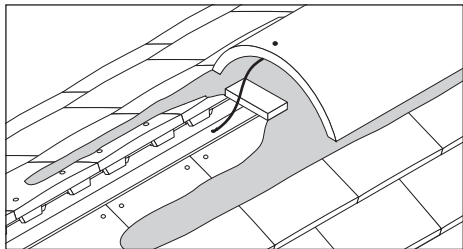


Fig. 14 – Typical bedded ridge with traditional galvanised security wire

## Ridges at gable ends

- 1 Allow for mechanically fixing all ridge tiles.
- 2 It is recommended to secure a length of batten along the ridge apex to provide a means of mechanical fix.
- 3 Either drive a nail into the batten to secure a galvanised security ridge wire, or drill a hole – 100mm from the open end – and secure the ridge using a 75mm stainless steel screw (Fig. 15).
- 4 Fill fair ends of ridges with mortar inset with pieces of Plain tile and neatly point.

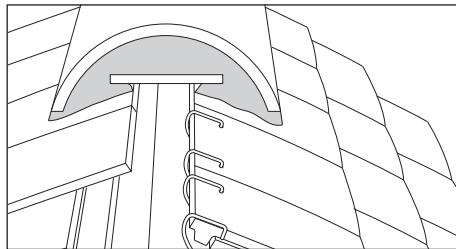


Fig. 15 – Mechanical fixing of top course concrete plain tiles using spring clips

## Mechanically fixing mortar bedded ridges

Marley Eternit offer a Mortar bedded security ridge fixing kit to ensure that all mortared ridges are mechanically fixed and meet the requirements of BS 5534.

For full installation details of these kits, see pages 103-105.

## Mono-ridge (concrete)

- 1 Carry roofing underlay over ridge and cut below vertical leg of mono-ridge tile.
- 2 Lay mono-ridge tiles for Plain and Interlocking profiles as standard ridge tiles and mechanically fix each by using 2 No. 50mm x 10g stainless steel screws (supplied) to timber fascia behind vertical leg (Fig. 16, page 47).

## Top courses when using concrete plain tiles

- 1 Use a single course with 200mm long eaves/top tile mechanically fixed with special stainless steel spring clip (Fig. 15) (Code 30332).



# Ridges

## Clay Plain tile ridge

- 1 Suitable for clay plain tiles.
- 2 Security ridge straps are available to attach to clay fittings.
- 3 Maximum rafter pitch 60°. Suitability can vary.
- 4 Fix metal strap to ridge board or supplementary batten
- 5 Provides mechanically fixed ridge tile in line with BS 5534 fixing guidelines (Fig. 17)

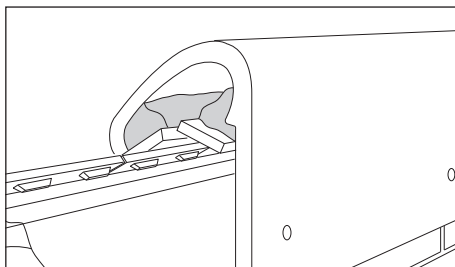


Fig. 16 – Bedded mono-ridge with 2 mechanical fixings

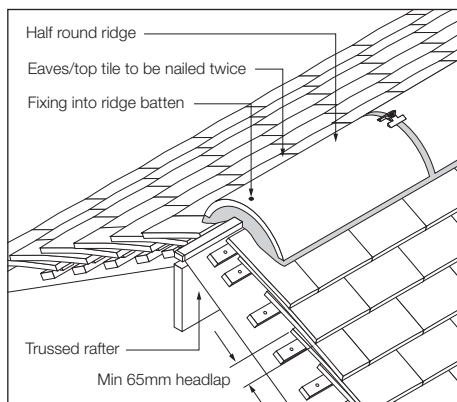


Fig. 17 – Clay bedded ridge using the mortar bedded security ridge kit

## Ridge check points

- Nail/clip all top course tiles either side of ridge (clay or concrete).
- Overlap ridge underlay by minimum 150mm.
- Ensure minimum 65mm cover by ridge tile over top course of full length tiles.
- Keep ridge tiles set in a true line.
- Do not over-tighten screws of mono-ridge fixings.
- Mechanically fix all ridges.
- Consideration should be given to tile slips if mortar is greater than 25mm depth.

# Vertical tiling

The use of plain tiles for the vertical cladding of buildings is traditional in the south east of England where timber framed construction is common.

Elsewhere, plain tiling is often fixed to the external surface of a single leaf masonry wall and comprises decorative pattern tiles which provide both an aesthetic and weatherproof cladding.

## Underlay

A moisture barrier should be provided for all vertical tiling applications, and with brick and blockwork construction, an HR (high water vapour resistance) underlay is adequate. For timber framed wall application, an LR (low water vapour resistance) breather membrane with third party certification is recommended.

Underlay should be lapped 75mm horizontally and 150mm vertically and secured with clout nails. Ensure that the distance of the fixing at the edge is not less than 50mm from the edge of the tiles.

## Battens

There should be battens and counter battens fixed to the wall structure and consideration should be given to the use of proprietary fixings such as 'Rawlplug' or 'Hilti' type bolts/fixings for dense concrete and stone masonry walls.

- 1 Provide a moisture barrier for vertical applications. With brick and blockwork, roofing underlay is generally used.
- 2 Lap underlay 75mm horizontally and 150mm vertically and secure with clout nails.
- 3 On timber frame constructions, fix battens to a maximum gauge of 115mm and secure with wire nails to timber studding. Battens to be at least 1.2m in length, sufficient to be supported at each end and intermediately by at least three studs or walls.
- 4 Stagger butt joints over intermediate supports so that not more than three battens are joined in any twelve consecutive supports. Batten ends must be sawn.

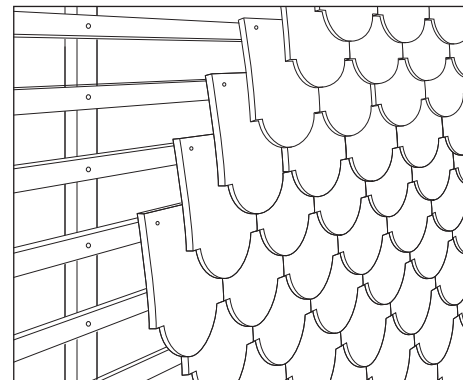


Fig. 18 – Feature tiles laid over battens and counter-battens

# Vertical tiling

## Fixing

- 1 Lay vertical plain and feature tiles to a minimum lap of 35mm, maximum gauge 115mm.
- 2 Fix each tile with 2 No. 38mm x 2.65mm aluminium nails.

## Eaves

- 1 Lay a double course of tiles at eaves. Form by laying a first course of eaves tiles with a course of full tiles laid broken bond on top.
- 2 Tilt eaves tile a minimum of 65mm from face of groundwork by using a timber fillet.
- 3 Twice nail both eaves courses using 38mm x 2.65mm aluminium nails.

## Top courses

- 1 For top tiles, use a course of eaves/tops tiles, twice nail each tile as before.
- 2 Where a top course is formed under a window sill, dress a lead flashing down over top course tiles for at least 100mm, cut level or to an approved finish.

## Angles

- 1 Use purpose-made internal or external angle tiles at all corners. Where necessary, clay angle tiles may require packing to maintain a 'true' line with adjacent plain tiles.
- 2 Left and right hand angles of 90° (or other angle to suit) are available to provide a broken bond with main tiling, to be twice nailed (Figs. 19 and 20).
- 3 For impractical situations i.e. sprocketed tiling, close mitre tiles at corner(s) and weather with lead soakers.
- 4 Corner tiles are nailed through and not hung off lug on rear.

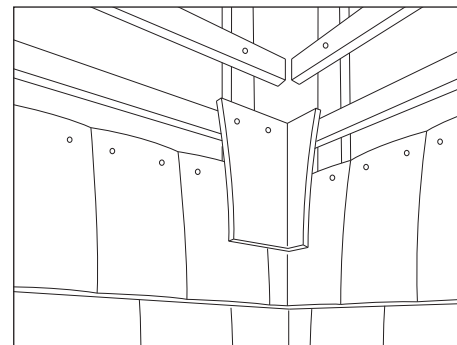


Fig. 19 – Internal angle with Internal Angle tiles

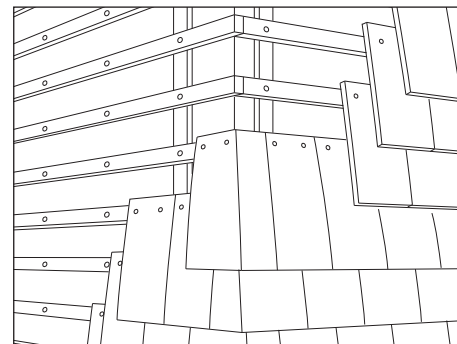


Fig. 20 – External angle with External Angle tiles

# Vertical tiling

## Gables: 'Winchester' cut

This technique avoids the use of small triangular pieces of tile and ensures the secure fixing of the last tile against the main roof verge, by the use of a tile-and-a-half at the end of each course.

'Winchester' cutting is best suited for gable ends where the roof pitch is 40° or more. For lower pitches, the tiling gauge may need to be reduced to 100mm or 90mm in order to avoid too great a splayed cut.

It is likely that two tile-and-a-half tiles adjacent to one another will be needed to overcome this.

- 1 Leave battening short of rake of verge. This allows fixing of a batten parallel to, but below rake line. The top face of this batten must be flush with the tiling battens so that tiles do not tilt up (Fig. 21).
- 2 Cut tile-and-a-half tiles to angle of rake for each vertical course, keeping cut edge parallel to and below rake (Fig. 22).
- 3 Once tile-and-a-half tiles are positioned, cut adjacent tile to fit. All tile-and-a-half tiles should be twice nailed. This may mean drilling an extra hole after cutting to shape.

- 4 At apex of gable, use a tile-and-a-half tile turned through 45° and cut to shape to finish (Fig. 23).



Fig. 21 – Fix battens parallel



Fig. 22 – Cut tile-and-a-half tile

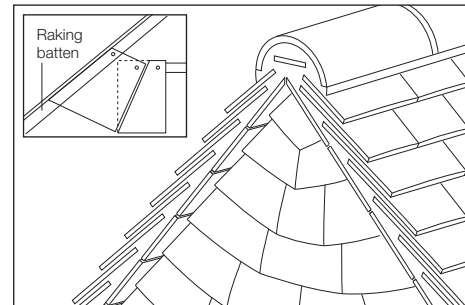


Fig. 23 – Apex of gable

# Vertical tiling

## Gables: Soldier course

This method is used for low pitch roofs below 35° where 'Winchester' cutting is impractical.

- 1 After felting, fix a raking batten close to undercloak/soffit positioned to allowed the tiles to hang on their nibs.
- 2 Cut vertical tiles to meet raking batten using tile-and-a-half tiles at end of each course (Fig. 24).
- 3 Fix courses of eaves/tops tiles to raking batten (Fig. 25).

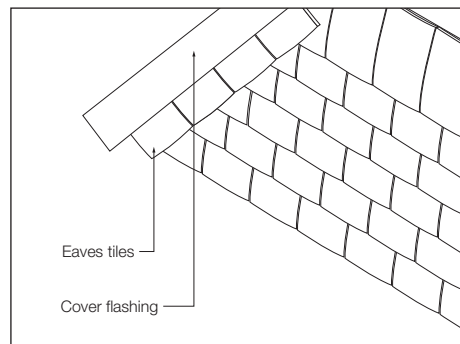


Fig. 24 – Cut tile to meet rake of verge

- 4 A cover flashing can be used to cover the soldier course tile nail holes and to the apex.

## Gables: Double soldier course

An alternative to the single soldier course, where additional protection is required.

- 1 After felting, fix two raking battens close to undercloak/soffit positioned so as to allow the tiles to hang by their nibs.
- 2 Cut vertical tiles to meet lower taking batten using tile-and-a-half tiles at the end of each course.

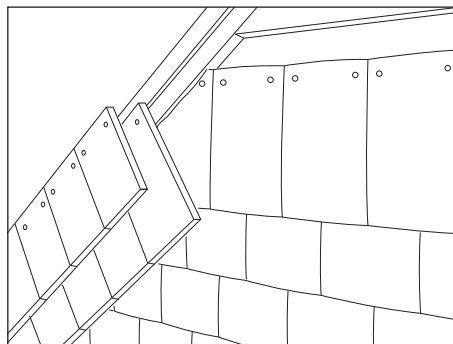


Fig. 25 – Fixing double soldier course of tiles to raked batten

- 3 Fix courses of standard Plain tiles to lower of two raked battens, then fix course of eaves tiles to remaining (top) raked batten (Fig. 25).

- 4 A cover flashing can be used to cover the soldier course tile nail holes and up to the apex.

Note: Spot bedding is recommended beneath the laps of cut tiles to prevent wind chatter and damage.

It is not recommended that Feature tiles are used for gable ends. If they are, however, use plain tile-and-a-half tiles to complete course beneath rake of the verge.

# Vertical tiling

## Gables: Sussex cut

- 1 Fix an additional batten onto face of vertical tiling battens and parallel to the verge to allow fixing of cut tiles.
- 2 Form raking cuts using tile-and-a-half tiles as necessary (Fig. 26).
- 3 Fix edge tile close to undercloak/soffit, securing by spot bedding and double nailing into raking batten (Fig. 27).

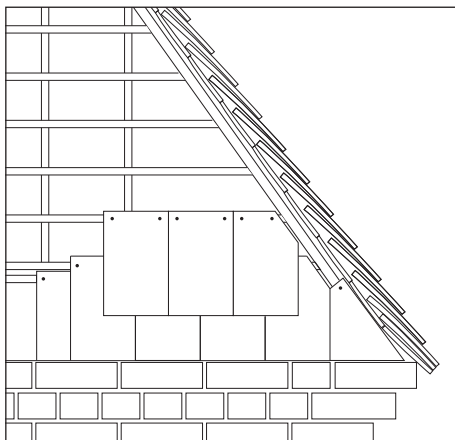


Fig. 26 – Cut tile to meet rake of verge

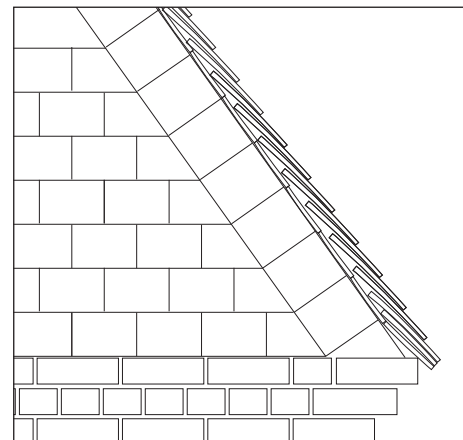


Fig. 27 – Fixing tiles to raked batten

# Vertical tiling

## Abutments

Where the tiling meets an abutment, use tile-and-a-half tiles in alternate courses to provide a broken bond.

- 1 When tiling meets a brickwork wall, fix tiles to within 50mm of return.
- 2 A Code 4 lead sheet can be taken a minimum of 75mm behind tiles and turned in a single welt on a vertical counterbatten.
- 3 Lead is taken around corner and top edge taken into brickwork mortar joints (Fig. 28).
- 4 If lead soakers are used, slot them between tiles and turn along abutment wall.
- 5 Turn and dress the stepped flashing over soakers.
- 6 When meeting timber cladding or a window jamb, turn flashing behind cladding or return into the jamb (Fig. 29).

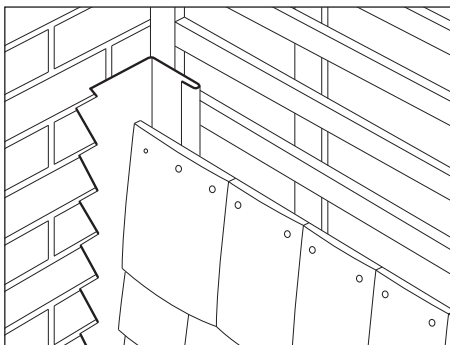


Fig. 28 – Abutment to wall, with flashing

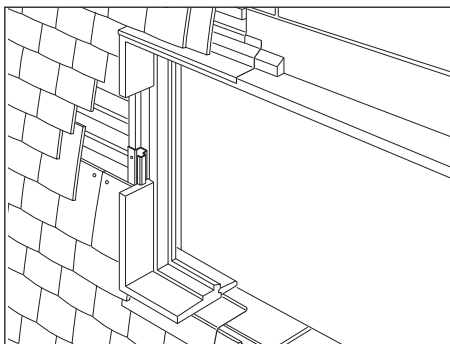


Fig. 29 – Abutment to window

## Vertical tiling check points

- Ensure each Plain and Feature tile is twice nailed on vertical tiling.
- Use double course of tiles at eaves and top edges
- Always use tile-and-a-half tiles at raking cut abutments.
- Maintain broken bond in all cases.
- Avoid using Feature tiles on pitches below 70° unless adequate weathering is provided by additional groundwork.
- Ensure battens are securely fixed to groundwork with suitable fixings.
- For corner tiles ensure they hang off shank of nail rather than the lug on the reverse.



# Interlocking tiles

**Dry fix and ventilation systems**  
For more details, see pages 108-195

- |    |                      |    |                            |
|----|----------------------|----|----------------------------|
| 55 | Setting out the roof | 67 | Ashmore interlocking tiles |
| 60 | Eaves                | 71 | Maxima interlocking tiles  |
| 61 | Verges               | 78 | Melodie interlocking tiles |
| 62 | Hips                 |    |                            |
| 63 | Valleys              |    |                            |
| 65 | Ridges               |    |                            |



# Setting out

It is important that the tiler should set out the roof prior to fixing. This will help to save time and avoid unequal overhangs at verges and expensive labour costs in cutting tiles at abutments (Fig. 1).

## Position of top and bottom battens

1 Batten gauge required must be worked out on site. Fix eaves course batten first and position using one of the following methods:

- 2 The eaves batten should be set to ensure that the tail of the tile extends over the fascia board by no less than 50mm on the rake (Fig. 2).  
Or
- 3 Position eaves batten and measure distance from top edge to outside edge of fascia. This distance should approximately equal length of tile less nib depth and gutter overhang e.g. (Mendip length 420mm, nib depth 20mm, overhang 50mm hence =  $420\text{mm} - 20\text{mm} - 50\text{mm} = 350\text{mm}$  ).

For Melodie overhang into gutter, see specific installation instructions on pages 78-84.

- 4 Fix top course batten so that ridge tile provides a minimum 75mm cover to top course tile (Fig. 3).

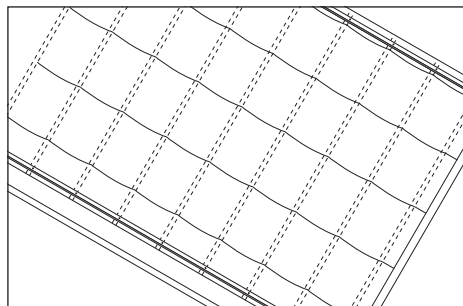


Fig. 1 – Setting out

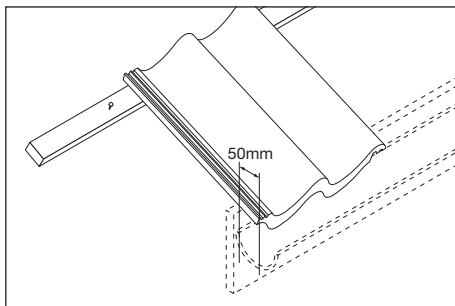


Fig. 2 – Measuring tile overhang into gutter

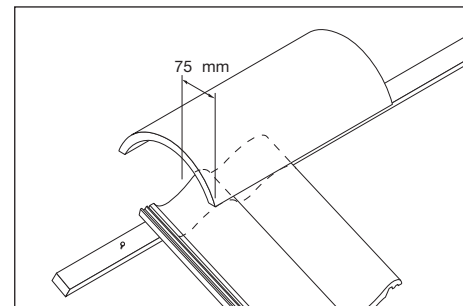


Fig. 3 – Fixing top (ridge) course batten

# Setting out

## Calculating the batten gauge

- 1 Measure distance between top of eaves batten and top of ridge batten.
- 2 Divide distance by maximum gauge of tile being used.
- 3 Round figure up to give number of courses up slope as a whole number.
- 4 Divide measured distance by number of courses to give batten gauge.
- 5 The practice of adjusting gauge over last few courses at eaves or ridge is technically acceptable, provided maximum gauge for tile is not exceeded.
- 6 It is important, with deeply profiled tiles, to maintain a fixed gauge up roof to avoid a 'dog leg' diagonal.
- 7 If necessary, tiles should only be cut in ridge course, drilled and nailed.

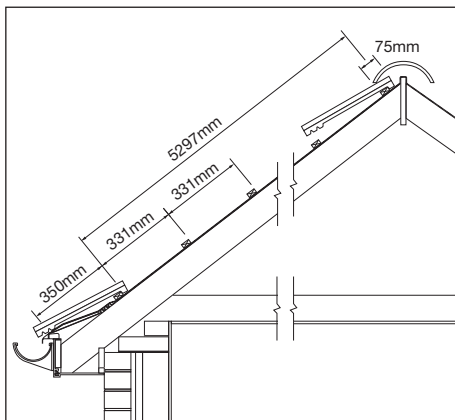


Fig. 4 – Calculating batten gauge

## Example (Fig. 4)

Distance eaves to ridge batten: 5297mm

Max. gauge for Mendip tiles: 345mm

No. of courses  $(5297 \div 345) = 15.35$

15.35 rounded up: 16

Batten gauge  $(5297 \div 16)$ : 331mm

### Notes

The above applies only to a roof pitch with no features such as dormers, chimneys etc. Batten gauges between all such fixed points should be calculated individually.

Where two roof slopes of varying pitch intersect, batten gauge should be set to lower or longer rafter pitch.

# Setting out

## Horizontal alignment

There are several ways of achieving true horizontal alignment:

- 1 Strike a chalk/ochre line at 90° to perpendicular line (Fig. 5).
- 2 Measure two pieces of timber, each length of batten gauge minus width of one batten (advantageous for vertical tile hanging).
- 3 Drive nails through a length of timber the distance of batten gauge apart and protruding approximately 5mm. Scribe required gauge onto underlay.

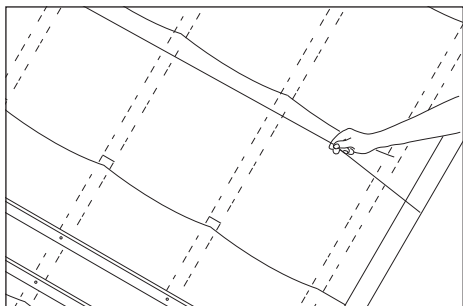


Fig. 5 – Striking chalk lines

## Perpendicular alignment

- 1 Set out roof along eaves starting with correct overhang at right-hand verge.
- 2 Correct overhang on left-hand verge can be achieved using full tiles by opening or closing side lap between tiles.
- 3 Marley Eternit interlocking tiles allow a tolerance ('shunt') of approximately 3mm in side lock for adjustment (Fig. 6).
- 4 Overhang at verges should not be more than 50mm.
- 5 On a short eaves, tiles may require cutting. Cut tiles at verges should be at least half width of a full tile. Half tiles are available for use at verges with Modern and Edgemere (produced in pairs for cutting on site) to enable broken-bond laying.
- 6 Strike perpendicular chalk or ochre lines over eaves to ridge at three tile intervals to coincide with edges of tiles.
- 7 A gauge rod the width of three tiles can be used as an alternative to actual tiles.

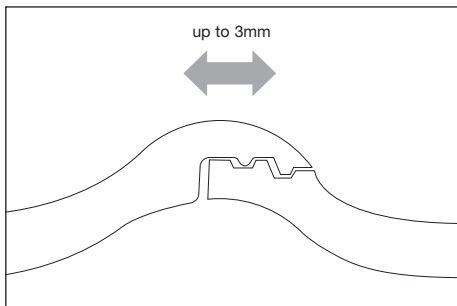


Fig. 6 – Interlocking tile 3mm 'shunt'

# Setting out

## Achieving broken bond pattern (Duo Modern and Duo Edgemere)

Duo Modern and Duo Edgemere interlocking slates are laid quarter bonded, using half or three-quarter width tiles at verges, cut on site.

- 1 Ensure that the eaves course right hand or left hand verge starts with either a three-quarter width, half width or standard tile as indicated in Figs. 7 and 8.
- 2 Continue subsequent courses of slates laid in a quarter bond, ensuring that left and right verge tiles are cut as either half tiles, three quarter tiles or standard tiles (see Fig. 7).
- 3 Mechanically fix all verge tiles by either nailing, clipping, or nailing and clipping in accordance with the recommended fixing specification.

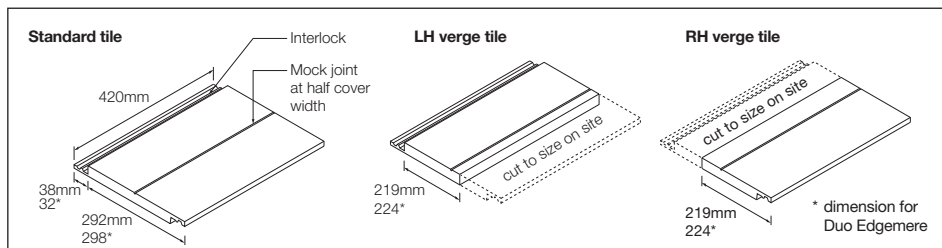


Fig. 7 – Cutting dimensions for LH and RH verge (Duo Modern and Duo Edgemere)

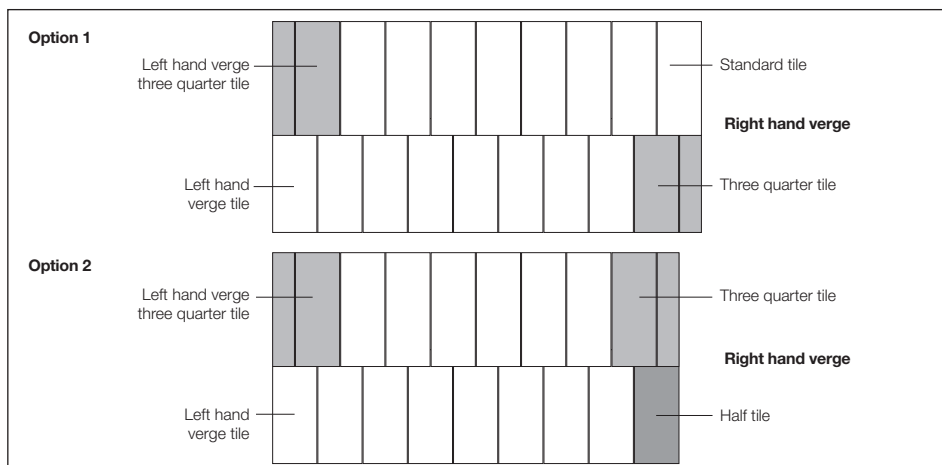


Fig. 8 – Two tile laying options to achieve broken bond

# Setting out

## Completion of tiling

- 1 Load out all tiles on the roof evenly before commencing tiling (see page 12).
- 2 Work from right to left (Fig. 9). Depending on fixing specifications, you may leave out some tiles towards left-hand verge and make use of tile battens as a ladder enabling upper part of roof to be reached for fixing ridges.
- 3 On a hipped roof, cut tiles so that end tiles of each course align with rake of hip.

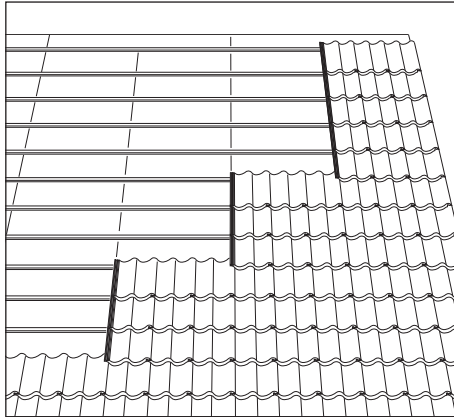


Fig. 9 – Completion of tiling

## Setting out check points

- Never exceed maximum gauge for tile used at recommended pitch.
- Avoid cutting tiles wherever possible.
- Never cut bottom edge of a tile.
- Vertical cuts should never be less than half a tile width.
- On adjacent roof slopes of varying pitch, set batten gauge to the lower roof pitch to ensure alignment at intersections.
- Ensure ridge tiles provide a minimum 75mm cover to top course tiles.
- Eaves tiles should lie over the fascia board 50mm on the rake.

# Eaves

## Interlocking tiles

- 1 Lay out full course of eaves tiles.
- 2 Eaves tiles should lie over the fascia board 50mm on the rake (Fig. 10).
- 3 If gutter is not fixed, an overhang of min. 50mm should be allowed (Fig. 11).

Note: Fascia heights shown in tables on page 112. Assume the 50mm distance is measured between bottom right corner of tile and fascia board, that is bottom corner of overlock.

- 4 Fit underlay protector or draw underlay taut over tilting fillet and front edge of fascia board before fixing.

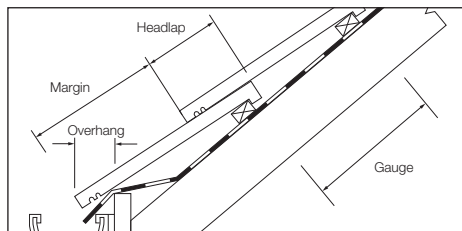


Fig. 10 – Typical layout at eaves

- 5 Fix eaves course tiles with nail or purpose-made eaves clip nailed to top of fascia board (Fig. 12).
- 6 If fascia board has been fixed at right height, eaves course will automatically be at correct pitch.

Note: Sprockets are not recommended with interlocking tiles.

- 7 Eaves ventilation should be provided for all new projects.
- 8 For deep profile tiles, nail comb filler to top of fascia board (Fig. 13).

Note: Eaves ventilation can be achieved unobtrusively by using Marley Eternit Universal eaves ventilation systems (10mm and 25mm). See page 197 for Eaves fascia heights without ventilation.

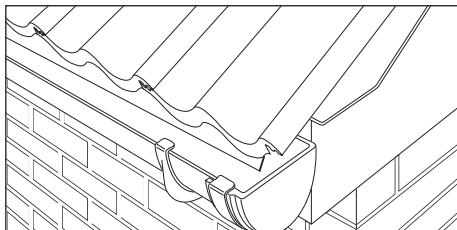


Fig. 11 – Overhanging tiles ensuring water discharges into gutter

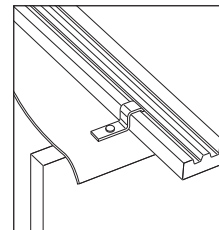


Fig. 12 – Eaves clip

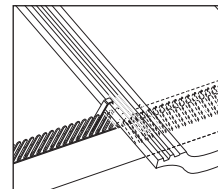


Fig. 13 – Eave clip and comb fillers for deep profile tiles (> 16mm gap)

## Eaves check points

- Nail or clip all eaves tiles.
- Make sure eaves course does not tilt backwards.
- Where appropriate, fit correct eaves comb filler strip.
- Use Marley Eternit Eaves Ventilation Systems
- If above is not used, a tilting fillet or fascia must take its place.
- Eaves tiles should lie over the fascia board 50mm on the rake.

# Verges

## Groundwork

- 1 Form verges by bedding tiles onto undercloak of fibre cement strip (1200mm x 150mm).
- 2 Lay undercloak rough side upwards, closely butted together, with a slight tilt outwards to provide drip at outside edge.
- 3 Level off irregularities in brickwork by laying undercloak onto a buttering of mortar, bringing height up to adjacent rafter.
- 4 Carry roofing underlay over cavity wall and cover by inside edge of undercloak.
- 5 When laid on boarding, nail each length of undercloak at maximum of 300mm centres.

## Tiling battens

- 1 Tiling battens should finish 100mm from edge of brickwork or bargeboard.
- 2 Place undercloak below battens, overhanging by maximum of 50mm (Fig. 14).
- 3 Provide about 50mm of mortar width.
- 4 Ensure that batten ends remain clear.
- 5 Bed all verge tiles and fix either by nailing or clipping as required by fixing specification.

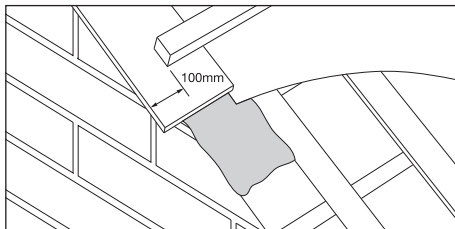


Fig. 14 – Fibre cement undercloak fitted over tiling batten

## External clipping

- 1 When required, nail verge clips to top of battens with upstand level with edge of undercloak (Fig. 15).
- 2 Under normal conditions, set roof out to avoid cutting. Where not possible, ensure cut tiles are symmetrical at both verges.
- 3 Remove interlocks where necessary to facilitate the fixing of external verge clips.
- 4 Strike all mortar bedding off flush and neatly point.

Note: It is recommended that tiles are not swept up at verges.

## Verge at eaves

- 1 Verges at eaves should overhang by same amount as rest of tiling.
- 2 Adjust or remove small piece of undercloak to prevent first tile from riding up.

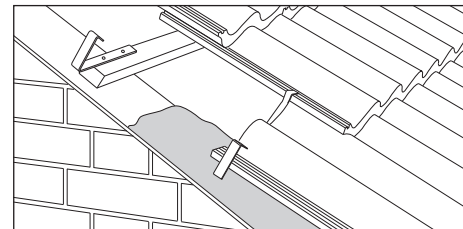


Fig. 15 – Clip all verge tiles

## Verge check points

- Twice mechanically fix all verge tiles.
- Continue underlay across wall cavity and below undercloak (where appropriate).
- Mortared verges should have an overhang of 38 to 50mm.
- Undercloak should have an outward tilt on mortared verges.
- Avoid pointing with a separate mix of mortar.



# Hips

## Groundwork

Hips should be weathered by covering the junction of the tiles, often achieved by securing hip tiles along the length of hip.

- 1 Mitre tiling battens and fix to continuous structural member.
- 2 Fix a galvanised hip iron minimum 5mm thick at base of hip tree with two 5mm diameter nails, or suitable screws.
- 3 Cut tiles closely to rake of hip.
- 4 Edge-bed, hip tiles with solid bedding at butt joints, onto roof tiles. Ensure they are mechanically fixed.
- 5 Shape first hip tile at foot to line of tiling at eaves and fill fair end with mortar inset with pieces of tile. Neatly point.
- 6 Edge and solid bed hip tiles continuing along length of hip (Fig. 16). Ensure all hips are mechanically fixed.

## Hip/roof apex junction

- 1 Mitre junction of hip and roof apex using a standard three-way mitre and solid bed (Fig. 17).

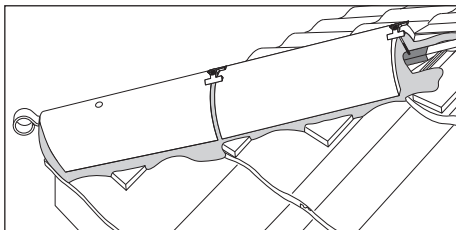


Fig. 16 – First hip tile bedded and supported with tile slips and mechanically fixed

- 2 In exposed situations, it is recommended that a lead saddle Code 4 is used beneath the apex junction.
- 3 For Mendip, Wessex and Anglia, lay a course of dentil slips into pans and bed in mortar.
- 4 Where a bedded hip tile meets a dry ridge line, height of bedding should be the same as that of profiled filler units so that ridge height is even and line continuous.

## Mechanically fixing mortar bedded hips

Marley Eternit offer a Mortar bedded security hip fixing kit to ensure that all mortared ridges are mechanically fixed and meet the requirements of BS 5534.

For full installation details of these kits, see pages 106-107.

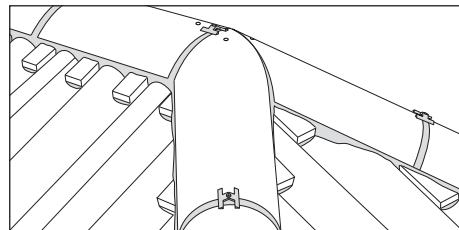


Fig. 17 – At ridge hip junction, cut tiles with three-way mitre to ensure continuous line

## Hip check points

- Fix a suitable hip iron to the base of rafter.
- Close mitre roof tiles where they meet hip and ensure each tile is nailed or clipped.
- Bed and fix all small pieces of tile.
- Mitre hip tiles at ridge junctions ensuring that the end tile does not ride up.
- Cut bottom hip tile to align with eaves.
- Ensure all hip tiles are mechanically fixed.

# Valleys

## Metal valleys

Sheet metal valleys can be used at roof pitches down to 15°, and are especially useful where a valley forms a junction between slopes of different pitch.

Metal used to form the valley should be not less than 500mm wide, and should extend a minimum of 250mm up each side of the valley (Fig. 18).

## Valley widths

A traditional valley gutter width of 125mm is satisfactory for most gutter lengths. For pitches below 35°, or valley lengths exceeding 5 metres, valley width may require increasing to cope with the additional flow experienced during storm conditions.

## Support for metal valley linings

- 1 Support all metal linings adequately along their entire length.
- 2 Valley boards for valleys below 30° pitch may be inset into suitably housed traditional rafters, or fitted between trussed rafters.
- 3 Lay a 4mm thick ply lining board over valley boards to provide a smooth surface for metal lining.
- 4 If roof pitch is 35° or more, valley boards may be laid on top of the rafters and the tiling battens swept up to valley by packing them with timber furring pieces. (This detail is not recommended for small valleys, such as at dormers, where sweep of tile courses will be clearly visible).

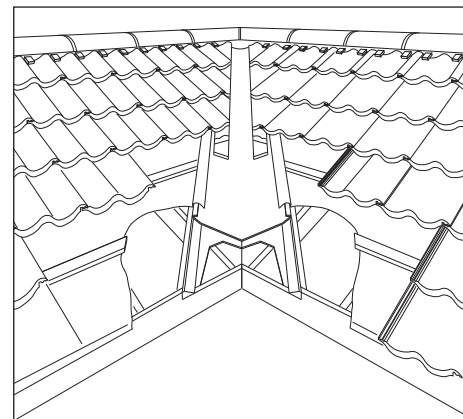


Fig. 18 – Metal valley construction for interlocking tiles

# Valleys

## Lead sheet valleys

Where lead is used, use minimum Code 4, preferably Code 5. To avoid staining, the Lead Sheet Association recommends an application of patination oil immediately after the lead is fixed.

- 1 Dress metal lining down tightly onto lay boards and fix in lengths not exceeding 1500mm with copper nails across the top of each piece.
- 2 Laps should be a min. 150mm although below 30°, this increases to 290mm min. at 15° valley pitch (see LSA recommendations).
- 3 Dress metal lining over tilting fillets at each side of valley and tack to form a welt.

- 4 Restrict any fixings down sides to top third of each piece of gutter lining.
- 5 Cut roofing underlay so that it laps over tilting fillets.
- 6 Cut roof tiles to a rake and bed with mortar onto a suitable undercloak laid onto lead lining. Ensure that tile interlocks are kept free and a gap is maintained between tilting fillets and mortar bedding.
- 7 Never lay mortar directly onto lead as there is a risk of differential movement causing mortar to crack and lead to split.
- 8 Nail or clip all tiles adjacent to valley and ensure small tile cuts are well bedded in mortar.

## Valley check points

- Keep an open channel between cut edges of roof tiles (125mm minimum).
- Do not block interlock laps of tiles with mortar since this may cause water damming.
- Do not lay bituminous underlay directly beneath a lead valley; heat causes underlay to expand. This may split lead.
- Do not apply mortar direct to lead.
- Tile slips or undercloak beneath mortar bedding is generally recommended to prevent differential movement between the mortar and lead lining.
- Twice mechanically fix all tiles either side of valley.

# Ridges

## Duo-pitch ridges

The apex of the roof should be covered using ridge tiles of complementary colour, or contrasting, and texture to that of main roof tiles. Always check that the ridge tile design suits the pitch and type of roof tile being used. (See Marley Eternit Roofing Product Catalogue).

- 1 Edge-bed ridge tiles onto the top course tiles with solid bedding at butt joints (Fig. 19) and ensure all ridges are mechanically fixed.

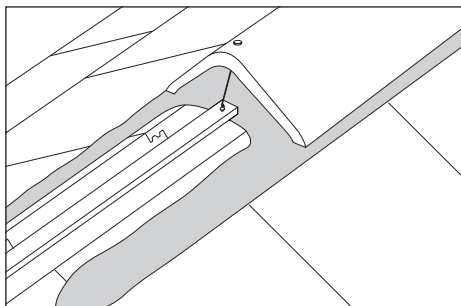


Fig. 19 – Bedded ridge tile using mortar bedded security ridge kit

- 2 A minimum of 75mm cover should be provided over top course tiles.
- 3 Exposed mortar should be neatly pointed.

## Ridges with traditional security wire fixing

- 5 Drive a nail into batten and attach a Security Ridge tile to it using the galvanised wire provided in tile (Fig. 20) (concrete ridges), or security strap (clay ridges).
- 6 Fill fair ends of ridges with mortar inset with pieces of Plain tile and neatly point.

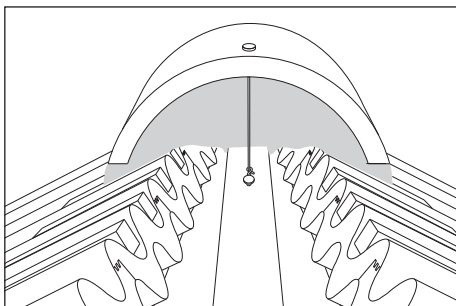


Fig. 20 – Security Ridge fixing at gable ends (concrete ridges)

## Dentil slips

- 7 For Mendip, Wessex, Anglia or Double Roman (optional) tiles, lay dentil slips into pans of top courses.
- 8 A mortar bed approx 10mm thick should be provided to bed the dentil onto (Fig. 21).

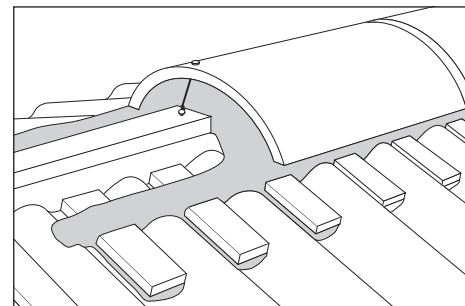


Fig. 21 – Mortar bedded ridge using dentil slips for deep profiled tiles

# Ridges

## Mono-ridge

- 1 Carry roofing underlay over ridge line and cut below vertical leg of mono-ridge tile.
- 2 Lay mono-ridge tiles for Interlocking profiles as standard ridge tiles and mechanically fix each by using 2 No. 50mm x 10g stainless steel screws (supplied) to timber fascia behind vertical leg (Fig. 22) (concrete mono-ridge tiles only).

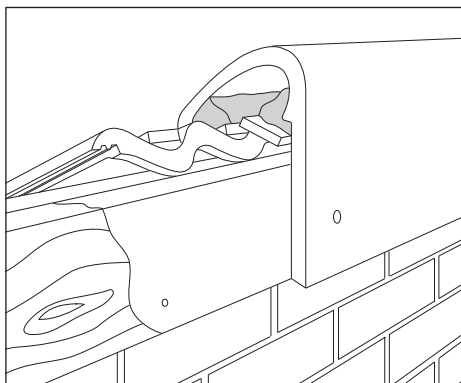


Fig. 22 – Bedded mono-ridge tile with two screw fixings (concrete)

## Mechanically fixing mortar bedded ridges

Marley Eternit offer a Mortar bedded security hip fixing kit to ensure that all mortared ridges are mechanically fixed and meet the requirements of BS 5534.

For full installation details of these kits, see pages 103-105.

## Ridge check points

- Nail and/or clip all top course tiles either side of ridge.
- Bed dentil slips in mortar in pans of deep profile tiles.
- Overlap ridge underlay by minimum 150mm.
- Ensure minimum 75mm cover by ridge tile over top course.
- Keep ridge tiles set in a true line.
- Do not over-tighten screws to fix mono-ridge tiles.
- Ensure all ridge tiles are mechanically fixed.

# Ashmore interlocking tiles

Ashmore single lap interlocking roof tiles have a 'mock bond' joint to give the appearance of two traditional double-lap plain tiles when laid on the roof. Tiles are laid single lap with a broken bond, utilising left hand and right hand 3/4 tiles for use in alternate courses at verges and abutments. Tile-and-a-half tiles are also available to assist with setting out to hips and valleys to avoid small cut sections of tile.

## Setting out

- 1 Position eaves course batten first and measure distance from top of outer edge of fascia. This should be equal to length of tile, less nib and tile overhang to centre line of gutter width, i.e. 267mm less 50mm (overhang) less 28mm (nib width and indent) = 189mm from outer edge of fascia or tilting fillet. Top course batten should be fixed so that ridge tile provides a minimum 75mm cover over top course tiles.
- 2 Measure distance between the top of eaves batten and top of ridge course batten. Divide distance by 190mm (maximum gauge of Ashmore tile). Round this figure up to give number of courses up roof slope as a whole number.  
  
Divide measured distance by number of courses to give required batten gauge.  
  
Note: Batten gauges between fixed points should be calculated individually.
- 3 Where two roof slopes of varying pitch intersect, set batten gauge to the lower or longer rafter pitch.
- 4 The practice of adjusting gauge over last few courses at eaves or ridge is technically acceptable, provided maximum gauge is not exceeded. Tiles should only be cut at top, and drilled, nailed/clipped as required.
- 5 Horizontal alignment can be checked by striking a chalk/ochre line at 90° to vertical line.
- 6 Check perpendicular alignment by setting out roof along eaves starting with correct overhang at the right hand verge. Overhang at left hand verge can be achieved using full and 3/4 tiles by opening or closing side lock shunt (max. verge overhang 50mm).
- 7 Cut tiles at verge should never be less than 3/4 the width of a standard tile, unless cut from a tile and a half tile.

# Ashmore interlocking tiles

## Fixing

Before commencing to tile the roof, check to ensure the correct fixing specification is being used.

Ashmore tiles should be mechanically fixed in the following manner:

Step A: Tiles requiring once nailing should be nailed through right hand nail hole using a 45mm x 3.35mm aluminium or stainless steel nail.

Step B: Tiles requiring clipping should be nailed through the left hand nail hole using a 45mm x 3.35mm aluminium or stainless steel nail and clipped using Ashmore stainless steel wire clip, which is located over side lock of tile with tail push fitted under back edge of the nailed course of tiles beneath.

## Eaves

- 1 The eaves course of tiles may be fixed by either nailing or clipping, or both.
- 2 Purpose made eaves clips are nailed to fascia board and located over side lock of the eaves course tile (Fig. 23).
- 3 Eaves course must be laid at same pitch as remainder of roof.
- 4 Care should be taken to adjust height of fascia or tilting fillet to accommodate any eaves vent strips (see tables on page 112).

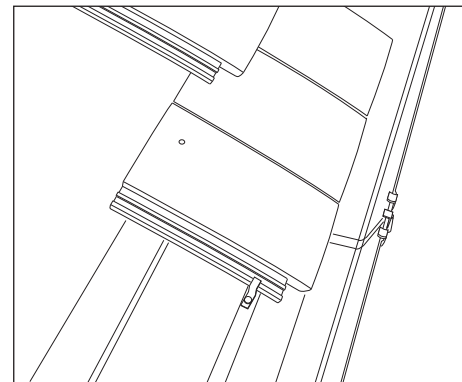


Fig. 23 – Clipping eaves course

# Ashmore interlocking tiles

## Bedded verges

- Verges should be formed using standard tiles with left hand or right hand 3/4 width verge tiles in alternate courses. Standard tiles on left hand verges will require the sidelock to be removed (Fig. 24).
- Form verges by mortar bedding tiles onto an undercloak of fibre reinforced cement strip (1200mm x 150mm).
- Lay undercloak rough side up and closely butted together with a slight tilt outwards to provide a drip edge with a maximum 50mm overhang from brickwork gable or bargeboard.
- Provide 65mm width of mortar to bed all verge tiles and fix each verge tile by twice nailing and clipping.
- Use purpose made verge clips on both left hand and right hand verges and twice nailed to battens with upstand level with edge of the undercloak.
- Strike all mortar bedding off flush and neatly point in one operation.

For Ashmore Continuous Dry verge system, see pages 127-129.

## Ridges

- Roof apices may be covered using Marley Eternit segmental ridge tiles or any other ridge tile design suitable for the pitch of the roof (see Marley Eternit Roofing Product Catalogue).
- Edge bed all mortar bedded ridge tiles onto top course of tiles with solid bedding at butt joints.
- Support mortar at butt joints with pieces of cut tile.
- Ensure that a minimum 75mm cover is provided by ridge tile over top course of tiles with any exposed mortar neatly pointed (Fig. 25).
- Ensure all ridge tiles are mechanically fixed.

Note: For details of Marley Eternit Dry Ridge systems refer to pages 156-176.

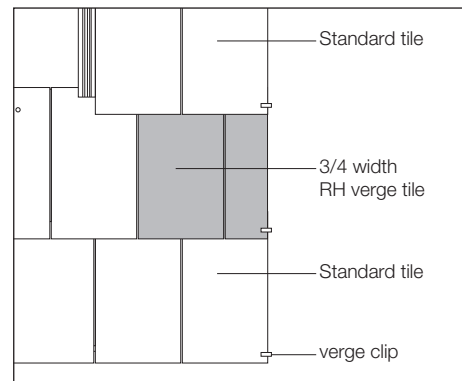


Fig. 24 – Typical bedded verge (right hand)

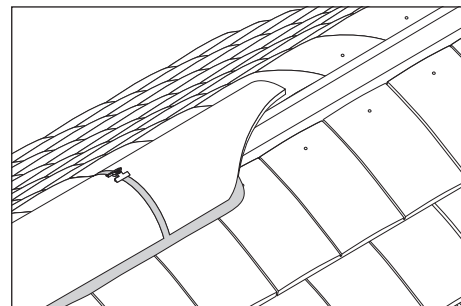


Fig. 25 – Typical bedded ridge



# Ashmore interlocking tiles

## Hips

Hips should be formed using tile-and-a-half tiles, each tile being nailed or nailed and clipped.

- 1 Cut tiles to rake of hip and cover with third round hip tiles or alternative suitable hip tiles, edge bedded, with solid bedding at butt joints, onto adjacent tiles. Support mortar at butt joints with pieces of cut tile.
- 2 Ensure that a minimum 75mm cover is provided by hip tile over adjacent courses of tiles with any exposed mortar neatly pointed.
- 3 Fix a hip iron at base of hip rafter and shape first hip tile at front to align with tiling at the eaves (Fig. 26).
- 4 Ensure all hip tiles are mechanically fixed.
- 5 Mitre junction of hip and ridge, using a concealed lead saddle in exposed locations.

Note: For details of Marley Eternit dry hip systems refer to pages 147-151.

## Valleys

Valleys should be formed using tile-and-a-half tiles, each tile being nailed and clipped.

- 1 Cut tiles to rake of valley trough, leaving a clear channel of minimum 125mm wide.
- 2 Form valley with either a metal lining (Code 4 lead sheet) of not less than 500mm wide (see LSA recommendations) or with the Marley Eternit GRP dry valley trough (low profile).
- 3 Bed raking cut tiles at edges of valley using mortar, ensuring that there is adequate space kept clear behind mortar to avoid water capillarity (Fig. 27).

Note: For details of Marley Eternit GRP valley trough refer to page 151.

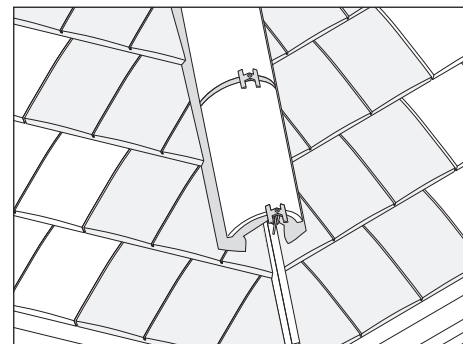


Fig. 26 – Typical bedded hip using third round ridge units as hip capping Tile and a half tiles shown shaded

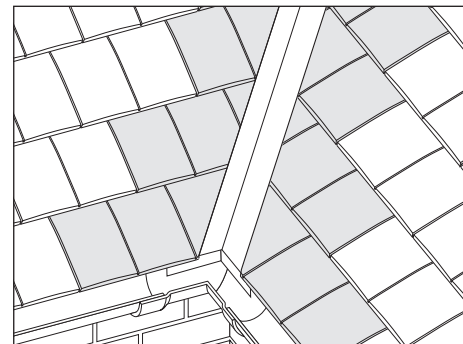


Fig. 27 – Typical bedded valley – tile and a half tiles shown shaded

# Maxima clay interlocking tiles

## Introduction

Marley Eternit Maxima single lap clay interlocking roof tiles have the appearance of a double roman when laid on the roof. Tiles are laid single lap with a straight bond, utilising special left hand verge finishing tiles at bedded left-hand verges and at abutments. Dentil slips are available for bedded ridges and hips.

For a Maxima clay interlocking tile fixing specification, please contact Marley Eternit.

All perimeter tiles should be mechanically fixed using a minimum of two fixings.

For fittings, all mortar bedded components should be supplemented by mechanical fixings to secure them to the roof structure.

## Setting out – vertical coverage

- 1 Tile battens should be set out at a max. spacing of 328mm to ensure a minimum headlap of 75mm. Maxima tiles have an open gauge making them easy to install.

- 2 Position the eaves course batten to allow the bottom edge of the eaves course tiles to overhang the fascia board so that water discharges into the centre of the gutter. If no gutter is fixed an overhang of minimum 50mm should be allowed for.
- 3 Measure the distance between the top of the eaves batten and the top of the ridge course batten which should be fixed so that the ridge tile provides a minimum 75mm cover over top course tile.

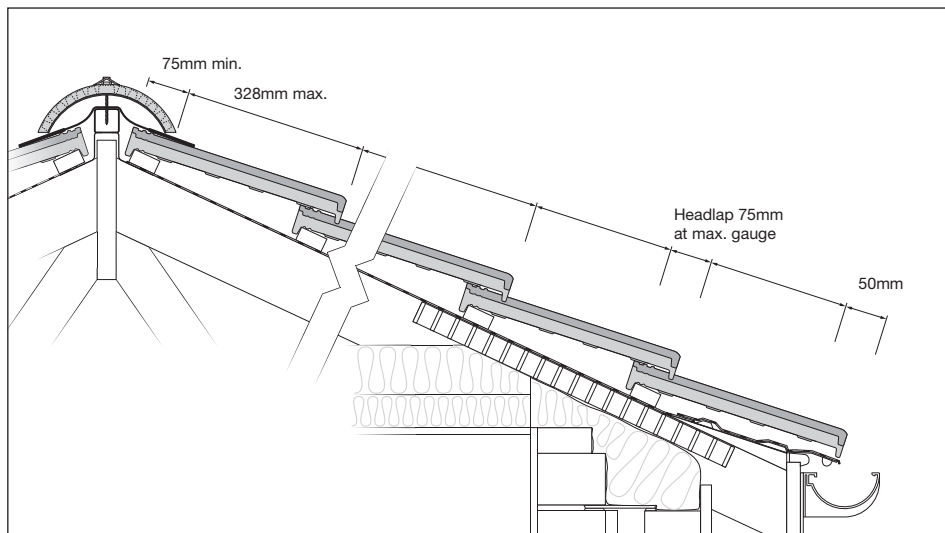


Fig. 28 – Maxima eaves to ridge setting out

# Maxima clay interlocking tiles

- 4 Divide the distance by 328mm, the maximum gauge of the Maxima tile. Round this figure up to give the number of courses up the roof slope as a whole number. Divide the measured distance by the number of courses to give the required batten gauge.

Note: Batten gauges between fixed points should be calculated individually.

- 5 The practice of adjusting the gauge over the last few courses at eaves or ridge is technically acceptable provided the maximum gauge is not exceeded, although the resulting distortion of the diagonal lines may not be aesthetically acceptable.

Tiles should be nailed using a 45mm x 3.35mm aluminium nail and clipped at the top course.

## Linear coverage

The average linear coverage (cover width) of the Maxima tile is 300mm. There is a 3mm adjustment (shunt) built into the side interlocks to aid setting out across the roof.

- 1 Lay a course of tiles along the eaves length, setting the tiles at the average linear coverage, and make adjustment in the shunt to allow for a 38-50mm overhang at the verges.
- 2 Ensure that a Maxima left hand verge finishing tile is used to complete the linear tile array and that the verge overhang is equal on both left and right hand verges.

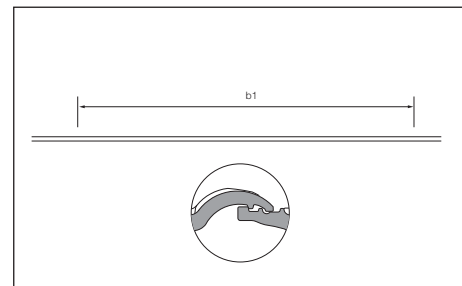


Fig. 29 – Using tile 'shunt' to adjust linear coverage inwards

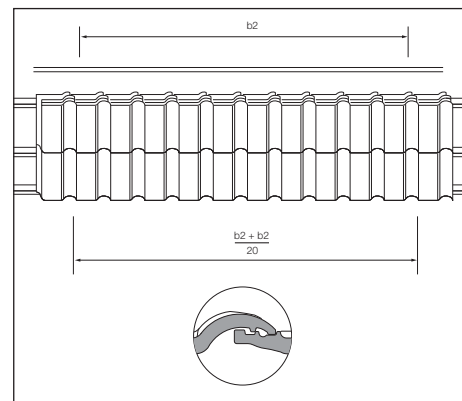


Fig. 30 – Using tile 'shunt' to adjust linear coverage outwards

# Maxima clay interlocking tiles

## Using a gauging rod

- 1 An alternative method is to use a gauging rod (a short length of batten) and mark the position of three tiles with their sidelocks fully closed, then mark the position of the three tiles 'open'. Set the average coverage by making a third mark midway between the two previous two marks on the rod. Use this third position to set out the linear coverage on both eaves and top course battens.
- 2 Strike a chalk or ochre line from the eaves to ridge at each mark so that the tiles can be laid to a straight perpendicular alignment.

## Alignment and cutting of tiles

Horizontal alignment can be checked by striking a chalk or ochre line at 900mm to the vertical line. Perpendicular alignment should be checked by setting out the roof along the eaves, starting with the correct overhang at the right hand verge.

- 1 The left hand verge can be achieved using special LH Verge finishing tiles (max. verge overhang 50mm).

- 2 Cut tiles at the verge should be avoided wherever possible, but if this is unavoidable, should never be less than half the width of the standard tile.

## General fixing

Before commencing to tile the roof, check to ensure the correct fixing specification is being used. Load out all sides of the roof uniformly, randomly mixing tiles from different pallets.

- 1 Maxima tiles should be laid straight bonded, commencing at the right hand side of the roof and working from right to left.
- 2 The following is the minimum specification for fixing Maxima tiles:

A – Tiles requiring once clipping should be fixed using a one piece SoloFix tile clip, located over the side lock of the tile (Fig. 31).

B – Tiles requiring clipping and nailing (side and head) should be fixed using a SoloFix tile clip, located over the side lock of the tile, and head nailed using a 45mm x 3.35mm aluminium nail.

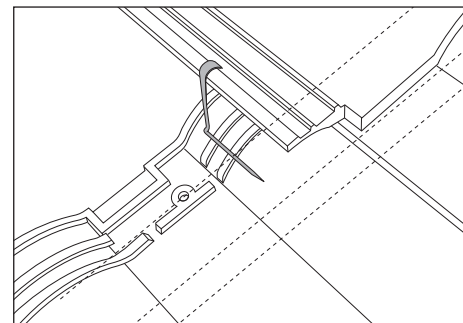


Fig. 31 – SoloFix tile clip

- 3 For rafter pitches of 45° and over, each tile should be nailed with at least one nail. For rafter pitches of 55° and over, the tail of each tile should also be mechanically fixed using SoloFix.

# Maxima clay interlocking tiles

## Eaves

The eaves course tiles should be laid at the same pitch as the remainder of the roof with the fascia board or tilting fillet fixed at the correct height, taking account of any over fascia ventilation strip.

- 1 The roof underlay should be laid over the tilting fillet or eaves vent strip and into the gutter.
- 2 All eaves course tiles should be twice fixed; nailed and/or clipped using a purpose-made Maxima eaves clip nailed to the fascia or tilting fillet (Fig. 33).

- 3 A comb filler strip should be fitted above the fascia/tilting fillet/eaves vent strip to prevent the ingress of birds or vermin.
- 4 Position the eaves course batten to allow the bottom edge of the eaves course tiles to overhang the fascia board so that water discharges into the centre of the gutter; if no gutter is fixed an overhang of minimum 50mm should be allowed for.

See page 197 for 'Fascia Heights'.

## Universal eaves vent system

10 and 25mm Universal eaves vent systems are available for Maxima tiles, see pages 109-113.

## Bedded verges

Verges should be formed using standard tiles for right-hand verges with special left-hand verge finishing tiles for left-hand verges.

- 1 Verges should be formed by mortar bedding the tiles onto an undercloak of fibre reinforced cement strip (1200mm x 150mm).
- 2 Lay the strips of undercloak rough side up and closely butted together, with a slight tilt outwards to provide a drip edge with a maximum 50mm overhang from the brickwork gable or bargeboard.

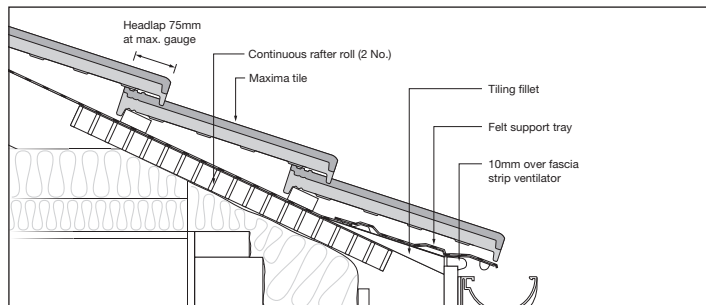


Fig. 32 – Section through typical eaves

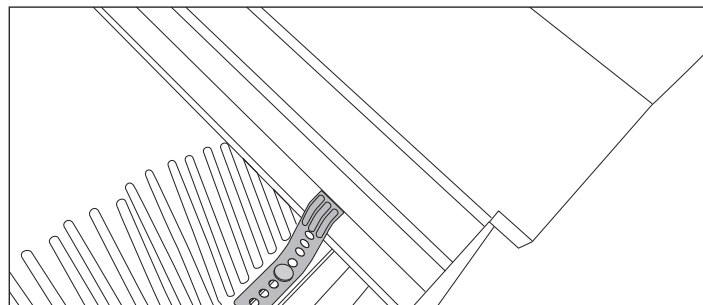


Fig. 33 – Eaves clip and comb filler

# Maxima clay interlocking tiles

- 3 Provide 65mm width of mortar to bed all verge tiles. Fix each verge tile with at least two mechanical fixings.
- 4 Head nail each verge tile using 45 x 3.25mm aluminium nails and purpose-made Maxima verge clips – both left hand and right hand.
- 5 Twice nail the verge clips to the battens with two 25mm x 3.35mm aluminium nails and ensure the upstand is level with the undercloak.

- 6 Strike all mortar bedding off flush and neatly point in one operation.

## Ridges with 457mm Segmental Ridge Bedded ridges

The roof apex should be covered using concrete segmental ridge tiles onto the top course of tiles with dentil slips bedded into the pans.

- 1 Ensure that a minimum 75mm cover is provided by ridge tile over the top course of tiles with any exposed mortar neatly pointed.
- 2 Bedded ridges must also be mechanically fixed using the Marley Eternit mortar bedded security ridge fixing kit, see pages 103-105.

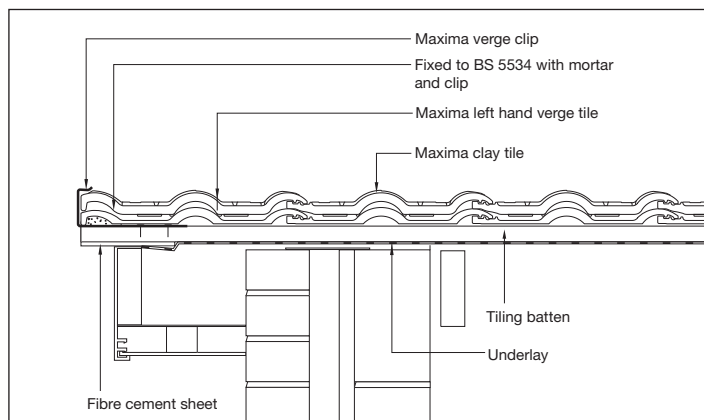


Fig. 34 – Section through typical brickwork verge showing verge clips

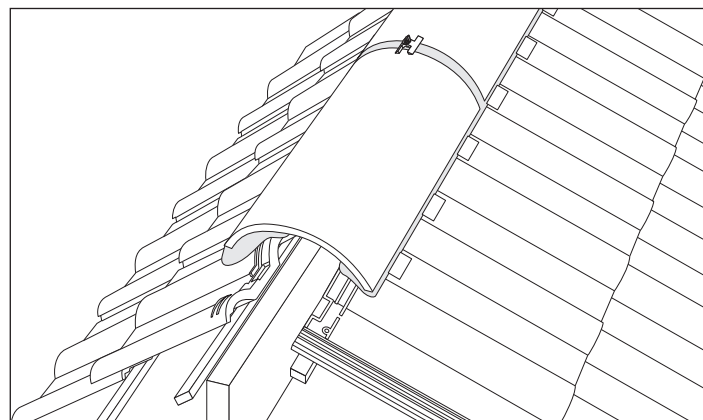


Fig. 35 – Bedded 457mm segmental ridge with security ridge fixing kit.

# Maxima clay interlocking tiles

## Universal RidgeFast

For use with concrete segmental ridges and Maxima tiles, RidgeFast provides a simple and rapidly installed, dry fixed ridge system (see pages 157-163).

A Block end ridge tile should be used at the gable end.

## Bedded hips with 457mm third round hip

- 1 Cut tiles to the rake of the hip and cover with concrete third round hip tiles, edge bedded, with dentil slips bedded in the pans of the adjacent raking cut tiles.

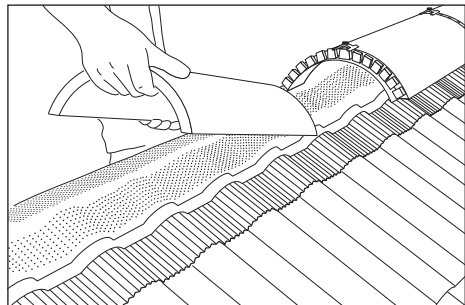


Fig. 36 – Ridge tiles laid with Universal RidgeFast unions

- 2 Ensure that a minimum 75mm cover is provided by the hip tile over the adjacent courses of tiles with any exposed mortar neatly pointed.
- 3 Fix a hip iron at the base of the hip rafter and shape the first hip tile at the front to align with the tiling at the eaves. Secure by drilling a 6mm diameter hole through the tile 100mm from the end and screwing a 75mm screw into the batten. Mitre the junction of the hip and ridge, using a lead saddle in exposed locations.

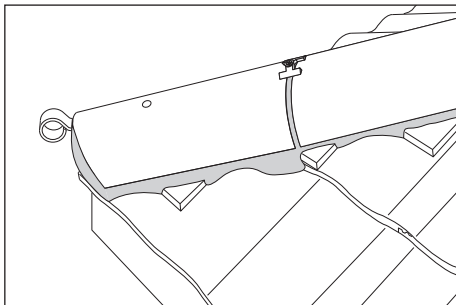


Fig. 37 – Mechanically fixed hip tiles

- 4 Mortar bedded hip tiles must also be mechanically fixed using the Marley Eternit mortar bedded security hip fixing kit, see Fig. 37 and pages 106-107.

## Universal HipFast

For use with 457mm concrete third round hip tiles and Maxima tiles, Universal HipFast is a simple and rapidly installed, dry fix hip system, see pages 139-144.

A third round stop end hip tile should be at the hip end.

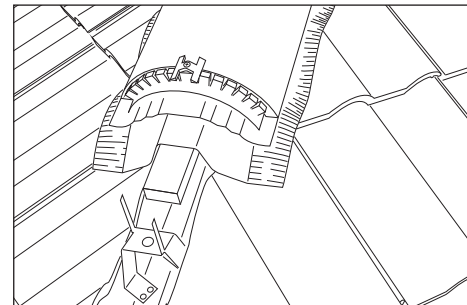


Fig. 38 – HipFast with Maxima clay interlocking tiles

# Maxima clay interlocking tiles

## Valleys

- 1 Cut tiles to the rake of the valley trough, leaving a clear channel of minimum 125mm wide.
- 2 Form the valley with either a metal lining (Code 4 or 5 lead sheet) of not less than 500mm wide (see LSA recommendations) or with a Marley Eternit Universal Dry Valley see pages 151-153.
- 3 For mortar bedded valleys, bed raking cut tiles at the edges of the valley using mortar, ensuring that tile interlocks are kept free and there is adequate space kept clear behind the mortar to avoid water capillarity.
- 4 Ensure the mortar is laid onto a fibre cement undercloak strip above the lead valley gutter lining.
- 5 All tiles adjacent to the valley should be twice fixed and any small cut pieces of tile should be mechanically fixed using Marley Eternit purpose-made head and tail clips.

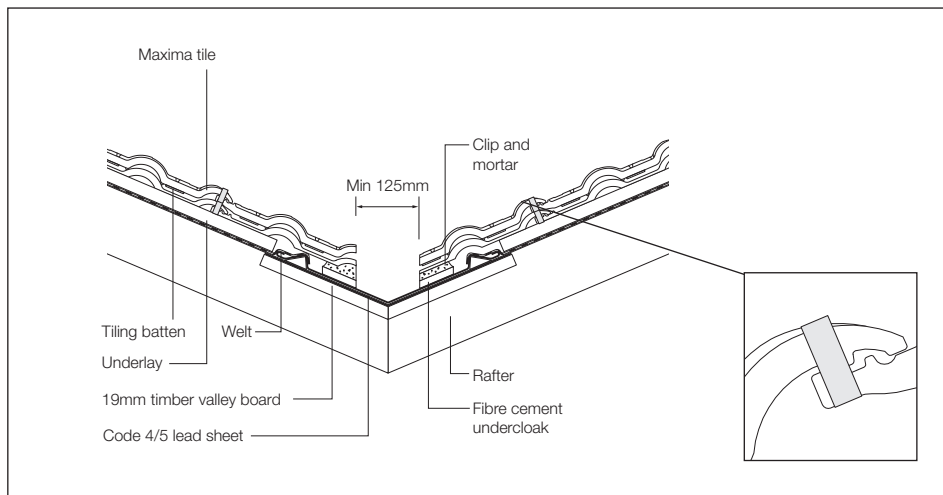


Fig. 39 – Section through bedded, metal lined valley (inset shows fixing clip for small cut pieces)



# Melodie clay interlocking tiles

## Introduction

Marley Eternit Melodie single lap clay interlocking roof tiles have the appearance of a traditional single pantile when laid on the roof. Tiles are laid single lap with a straight bond, utilising special left hand verge finishing tiles at bedded left-hand verges and at abutments. Dentil slips are available for bedded ridges and hips.

For a Melodie clay interlocking tile fixing specification, please contact Marley Eternit.

All perimeter tiles should be mechanically fixed using a minimum of two fixings.

For fittings, all mortar bedded components should be supplemented by mechanical fixing to secure them to the roof structure.

## Setting out – vertical coverage

- 1 The tile battens should be set out at a maximum spacing of 348mm to ensure a minimum headlap of 92mm. Melodie tiles have a built in head lock adjustment which allows the gauge to be reduced within the range 348 - 314mm (Fig. 40).

When setting out the batten gauge for the Melodie tile, lay a sample set of seven to ten tiles on a flat surface with headlaps and interlocks engaged. Lay the tiles first with a tight headlock and calculate the average

margin. Relay the tiles with an open headlock and recalculate the margin again. The gauge used to set out the roof battens should equal a figure between these two averages.

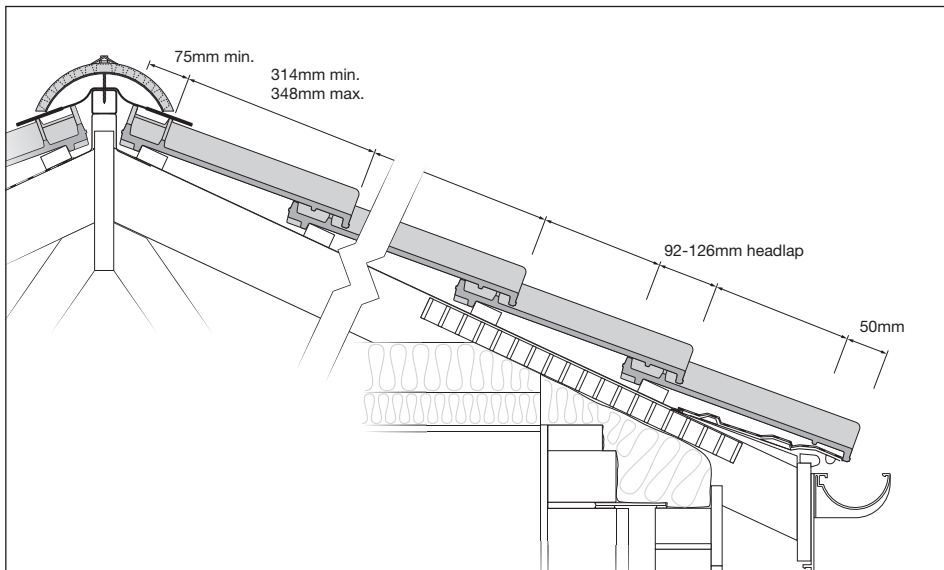


Fig. 40 – Melodie eaves to ridge setting out

# Melodie clay interlocking tiles

Where two roof slopes of varying pitch intersect, the batten gauge should be set to the lower or longer rafter pitch.

- 2 Position the eaves course batten to allow the bottom edge of the eaves course tiles to overhang the fascia, due to the position of the interlock; an 80mm overhang of the fascia board with suitable gutter profile / positioning will be required.

Note: Depending on the gutter type, width and roof build up, a supplementary support in the form of a proprietary eaves support guard to channel any water away into the gutter may be required – alternative methods to drain any water that enters the interlock/drainage channel may be used.

- 3 Measure the distance between the top of the eaves batten and the top of the ridge course batten which should be fixed so that the ridge tile provides a minimum 75mm cover over top course tile.
- 4 Divide the distance by 348mm, the maximum gauge of the Melodie tile. Round this figure up to give the number of courses up the roof slope as a whole number. Divide the measured distance by the number of courses to give the required batten gauge.

Note: Batten gauges between fixed points should be calculated individually.

- 5 The practice of adjusting the gauge over the last few courses at eaves or ridge is technically acceptable provided the maximum gauge is not exceeded, although the resulting distortion of the diagonal lines may not be aesthetically acceptable.
- 6 Tiles should be nailed using a 45mm x 3.35mm aluminium nail and clipped at the top course.

## Linear coverage

The average linear coverage (cover width) of the Melodie tile is 209mm. There is a 4mm adjustment (shunt) built into the side interlocks to aid setting out across the roof.

- 1 Lay a course of tiles along the eaves length, setting the tiles at the average linear coverage, and make adjustment in the shunt to allow for a 38mm – 50mm overhang at the verges.
- 2 Ensure that a Melodie LH Verge Finishing Tile is used to complete the linear tile array and that the verge overhang is equal on both left and right hand verges.

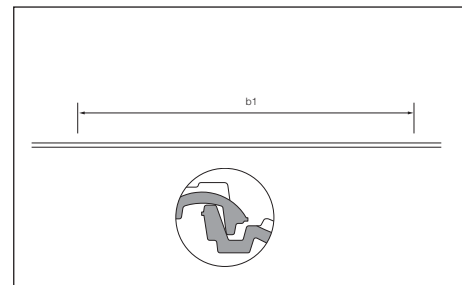


Fig. 41 – Using tile 'shunt' to adjust linear coverage inwards

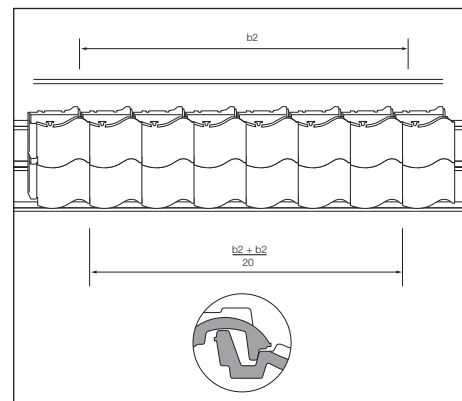


Fig. 42 – Using tile 'shunt' to adjust linear coverage outwards

# Melodie clay interlocking tiles

## Using a gauging rod

- 1 An alternative method is to use a gauging rod (a short length of batten) and mark the position of three tiles with their sidelocks fully closed, then mark the position of the three tiles 'open'. Set the average coverage by making a third mark midway between the two previous two marks on the rod. Use this third position to set out the linear coverage on both eaves and top course battens.
- 2 Strike a chalk or ochre line from the eaves to ridge at each mark so that the tiles can be laid to a straight perpendicular alignment.

## Alignment and cutting of tiles

Horizontal alignment can be checked by striking a chalk or ochre line at 900mm to the vertical line. Perpendicular alignment should be checked by setting out the roof along the eaves starting with the correct overhang at the right hand verge.

- 1 The left hand verge can be achieved using special left hand verge finishing tiles (max. verge overhang 50mm).

- 2 Cut tiles at the verge should be avoided wherever possible, but if this is unavoidable, should never be less than half the width of the standard tile.

## General fixing

Before commencing to tile the roof, check to ensure the correct fixing specification is being used. Load out all sides of the roof uniformly, randomly mixing tiles from different pallets.

- 1 Melodie tiles should be laid straight bonded, commencing at the right hand side of the roof and working from right to left.
- 2 The following is the minimum specification for fixing Melodie tiles:

A – Tiles requiring once clipping should be fixed using a one piece SoloFix tile clip, located over the side lock of the tile (Fig. 43).

B – Tiles requiring clipping and nailing (side and head) should be fixed using a SoloFix tile clip), located over the side lock of the tile, and head nailed using a 45mm x 3.35mm aluminium nail.

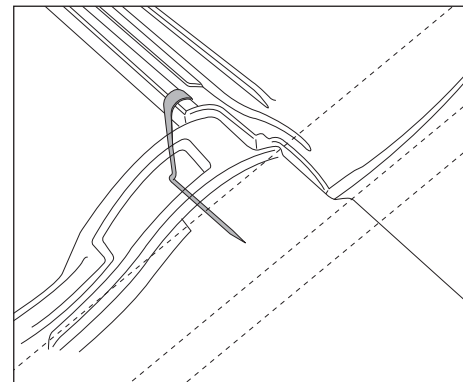


Fig. 43 – SoloFix tile clip

# Melodie clay interlocking tiles

## Eaves

The eaves course tiles should be laid at the same pitch as the remainder of the roof with the fascia board or tilting fillet fixed at the correct height, taking account of any over fascia ventilation strip.

- 1 The roof underlay should be laid over the tilting fillet or eaves vent strip and into the gutter.
- 2 All eaves course tiles should be twice fixed; nailed and/or clipped using a purpose-made Melodie eaves clip nailed to the fascia or tilting fillet (Fig. 45).
- 3 A comb filler strip should be fitted above the fascia/tilting fillet/eaves vent strip to prevent the ingress of birds or vermin.

- 4 Position the eaves course batten to allow the bottom edge of the eaves course tiles to overhang the fascia, due to the position of the interlock; an 80mm overhang of the fascia board with suitable gutter profile or positioning to allow for the overhang will be required.

See pages 112 and 197 for 'Fascia heights'

Note: Depending on the gutter type, width and roof build up, a supplementary support in the form of a proprietary eaves support guard to channel any water away into the gutter may be required – alternative methods to drain any water that enters the interlock/drainage channel may be used (Fig. 44).

## Universal eaves vent system

10 and 25mm Universal eaves vent systems are available for Melodie tiles, see pages 109-113.

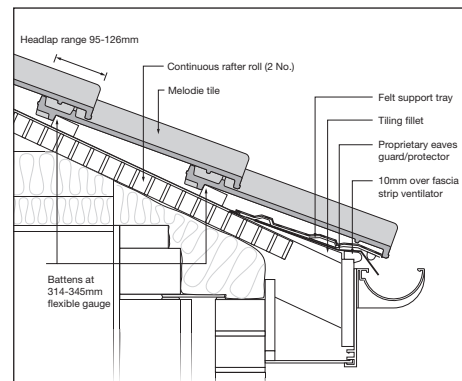


Fig. 44 – Section through typical eaves

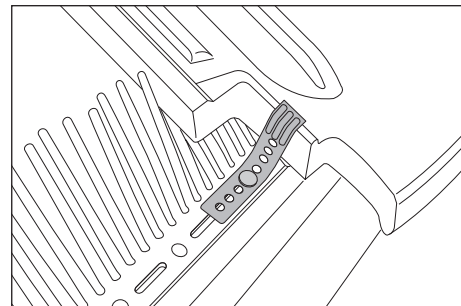


Fig. 45 – Eaves clip and comb filler

# Melodie clay interlocking tiles

## Bedded verges

Verges should be formed using standard tiles for right hand verges with special left hand verge finishing tiles for left hand verges.

- 1 Verges should be formed by mortar bedding the tiles onto an undercloak of fibre reinforced cement strip (1200mm x 150mm).
- 2 Lay the strips of undercloak rough side up and closely butted together, with a slight tilt outwards to provide a drip edge with a maximum 50mm overhang from the brickwork gable or bargeboard.
- 3 Provide 65mm width of mortar to bed all verge tiles. Fix each verge tile with at least two mechanical fixings.
- 4 Head nail each verge tile using 45 x 3.25mm aluminium nails and purpose-made Melodie verge clips – both left hand and right hand.
- 5 Twice nail the verge clips to the battens with two 25mm x 3.35mm aluminium nails and ensure the upstand is level with the undercloak.
- 6 Strike all mortar bedding off flush and neatly point in one operation.

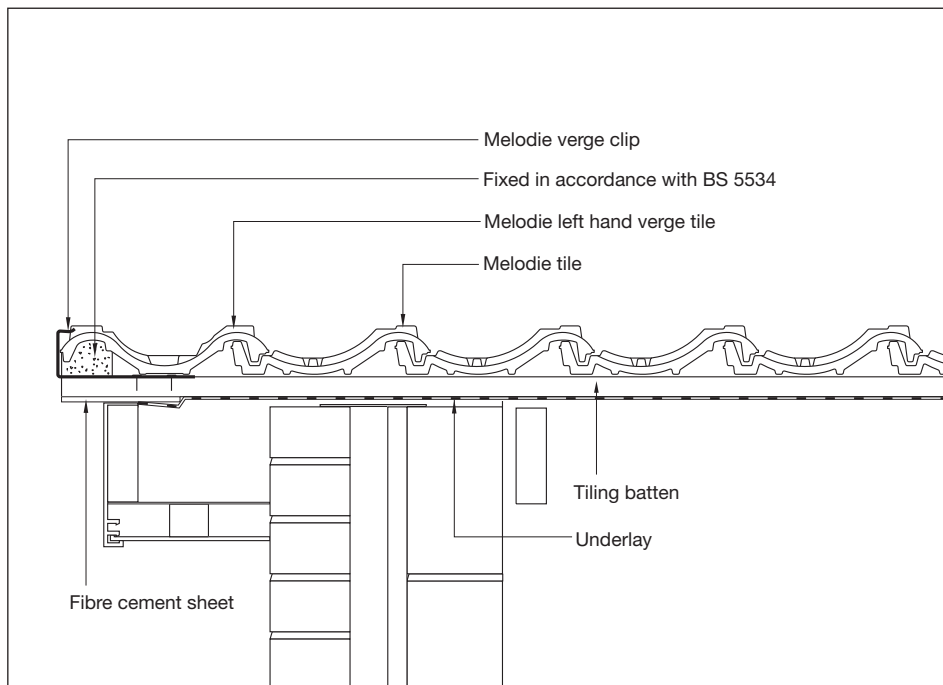


Fig. 46 – Section through typical brickwork verge showing verge clips

# Melodie clay interlocking tiles

## Ridges with 457mm Segmental Ridge Bedded ridges

The roof apex should be covered using concrete segmental ridge tiles onto the top course of tiles with dentil slips bedded into the pans.

- 1 Ensure that a minimum 75mm cover is provided by the ridge tile over the top course of tiles with any exposed mortar neatly pointed.
- 2 Mortar bedded ridges must also be mechanically fixed (Fig. 47) using the Marley Eternit mortar bedded security ridge kit, see pages 103-105.

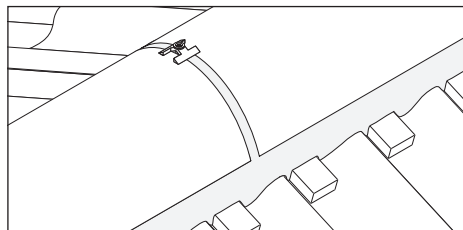


Fig. 47 – Bedded 457mm Segmental Ridge with security ridge kit

## Universal RidgeFast

For use with concrete segmental ridges and Melodie tiles, RidgeFast provides a simple and rapidly installed, dry fixed ridge system (see pages 157-163).

A Block end ridge tile should be used at the gable end.

## Bedded hips with 457mm third round hip

- 1 Cut tiles to the rake of the hip and cover with concrete third round hip tiles, edge bedded, with dentil slips bedded in the pans of the adjacent raking cut tiles.

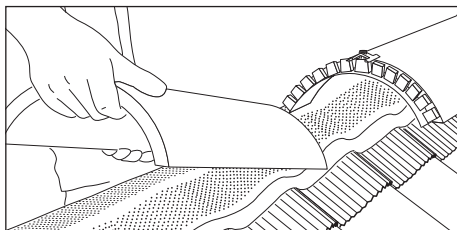


Fig. 48 – Ridge tiles laid with Universal RidgeFast unions

- 2 Ensure that a minimum 75mm cover is provided by the hip tile over the adjacent courses of tiles with any exposed mortar neatly pointed.
- 3 Fix a hip iron at the base of the hip rafter and shape the first hip tile at the front to align with the tiling at the eaves. Secure by drilling a 6mm diameter hole through the tile 100mm from the end and screwing a 75mm screw into the batten. Mitre the junction of the hip and ridge, using a lead saddle in exposed locations.
- 4 Mortar bedded hip tiles must also be mechanically fixed using the Marley Eternit mortar bedded security hip fixing kit (see pages 106-107).

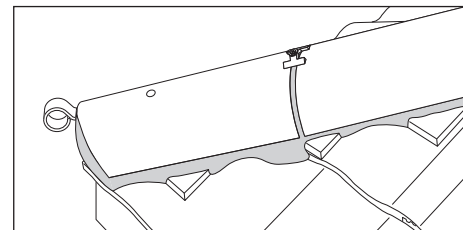


Fig. 49 – Mechanically fixed hip tiles

# Melodie clay interlocking tiles

## Universal HipFast

For use with 457mm third round hip tiles, Universal HipFast is a simple and rapidly installed dry fix hip system, see pages 139-144.

A third round stop end hip tile should be at the hip end.

## Valleys

- 1 Cut tiles to rake of the valley trough, leaving a clear channel of minimum 125mm wide.

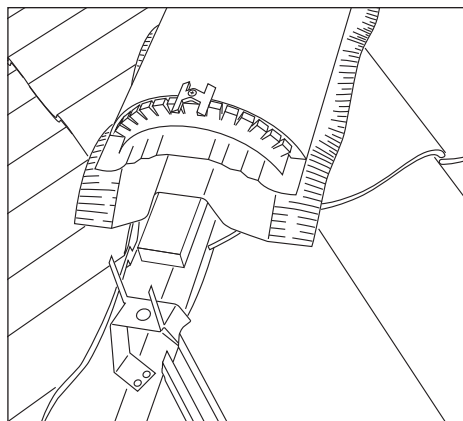


Fig. 50 – HipFast with Melodie clay interlocking tiles

- 2 Form the valley with either a metal lining (Code 4 or 5 lead sheet) of not less than 500mm wide (see LSA recommendations) or with a Marley Eternit Universal Dry Valley see pages 151-153.
- 3 For mortar bedded valleys, bed raking cut tiles at the edges of the valley using mortar, ensuring that tile interlocks are kept free and there is adequate space kept clear behind the mortar to avoid water capillarity.
- 4 Ensure the mortar is laid onto a fibre cement undercloak strip above the lead valley gutter lining.
- 5 All tiles adjacent to the valley should be twice fixed and any small cut pieces of tile should be mechanically fixed using Marley Eternit purpose-made head and tail clips.

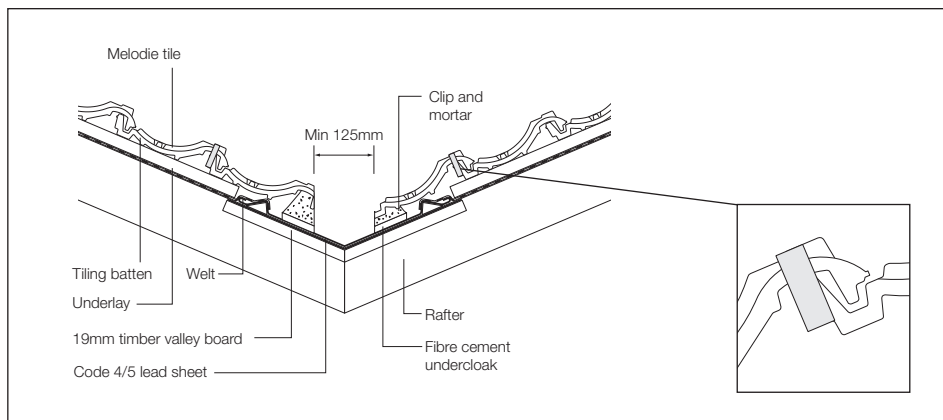


Fig. 51 – Section through bedded, metal lined valley (inset shows fixing clip for small cut pieces)



# Fibre cement slates

**Dry fix and ventilation systems**  
For more details, see pages 108-195

- 86 Setting out the roof
- 89 Hook fixing
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- 95 Hips
- 98 Valleys
- 99 Ridges
- 101 Vertical slating





# Setting out the roof

## General

- Slates should be fixed in accordance with BS 5534 'Code of practice for slating and tiling (including shingles)' and BS 8000-6 'Workmanship on building sites – Code of practice for slating and tiling of roofs and claddings'.
- Slates may be scored using a scribing tool and snapped over a straight edge to form cut slates for abutments/hips/valleys etc.
- Slates may also be cut using a normal handsaw/hacksaw with teeth of 3-3.5mm pitch, preferably wide set. Saws should always be used to start off when cutting acute angles.
- Marley Eternit fibre cement slates may be cut with a reciprocating saw. The use of angle grinders is not recommended for cutting as these tools can raise nuisance dust levels.
- Additional fixing holes should be drilled using a 4.5mm dia. standard drill bit.
- Fixing holes must not be punched.
- After cutting or drilling, remove cutting dust from the slate to avoid subsequent staining.
- Marley Eternit fibre cement slates should not be cut with a slater's axe.
- Consideration should be given to sealing any cut edges to prevent potential efflorescence staining.

## Setting out of battens

Roofs should be set out with battens, to the appropriate gauge. Select the appropriate gauge for the slate size by using the formula:

$$\text{gauge} = \frac{\text{length of slate} - \text{lap required}}{2}$$

Allow the eaves slates to overhang into the gutter by approximately 50mm. The verge overhang should be restricted to a maximum of 50mm.

Care must be taken when setting out to avoid the need for rectangular cut slates less than half the width of the slate to be used as it may be difficult to fix.

A vertical or raking batten is advisable at the verge and at intersections.

# Setting out the roof

## Slate fixing method

- 1 Set out roof with battens by calculating the gauge using the formula on page 86, remembering to allow eaves slates to overhang gutter by 50mm (Fig. 8, page 89).
- 2 Set out both under-eaves battens to accommodate the under-eaves slate lengths, similar to those shown in the table, page 93 and Fig. 1, but following the correct laps and gauges.  
  
Begin by cutting and head nailing the first under-eaves course along the eaves.
- 3 Cut and fix second under-eaves course to the lower batten with slate-and-a-half widths at the verge (Fig. 3). Prior to fixing slate-and-a-half slate, drill hole half a slate width in from verge and 25mm up, to allow for copper disc rivet to fix first full slate course.

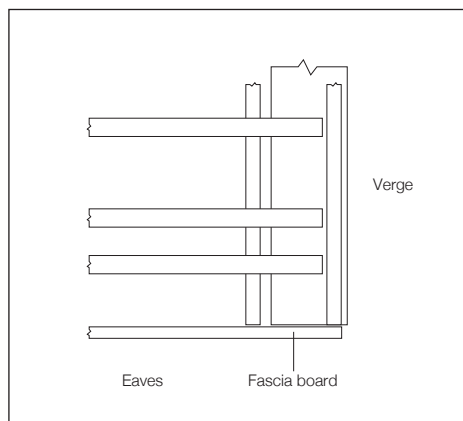


Fig. 1 – Batten configuration at eaves

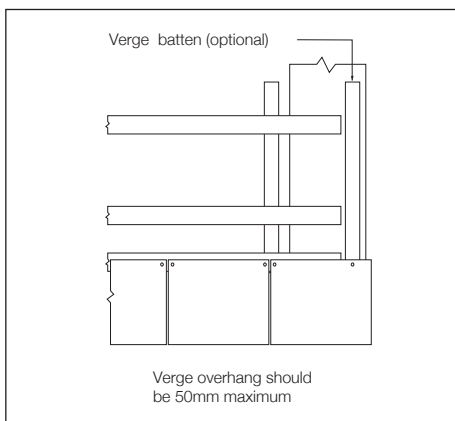


Fig. 2 – 1st under eaves course

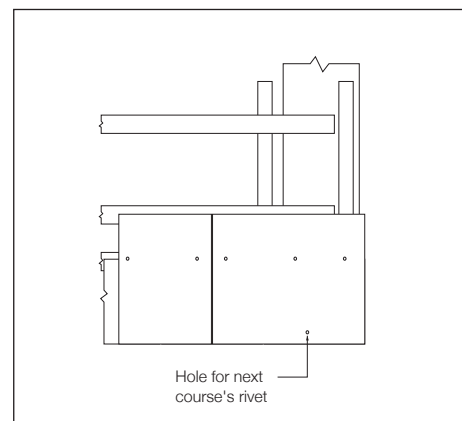


Fig. 3 – 2nd under eaves course

# Setting out the roof

4. Fix the first course of full size slates. At the verge, a second hole is required to allow for the copper disc rivet for the next course. This is drilled 50mm from the outside edge of the slate, and 25mm plus gauge from the bottom edge or tail (Fig. 4).
5. Each full size slate is now fixed with two nails firmly into the slate batten and a rivet placed between the edges of the two lower slates (Fig. 6 inset).

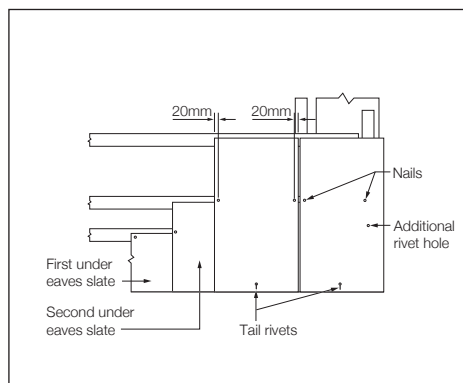


Fig. 4 – 1st course of standard slates

The shaft of the rivet projects through the hole in the tail of the appropriate slate in the next course and is bent down the roof slope to secure the tail of the slate.

6. At the verge, install the first full length slate-and-a-half slate, drilling 3 nail holes on the batten line and two additional holes for the copper disc rivets (Fig. 5).

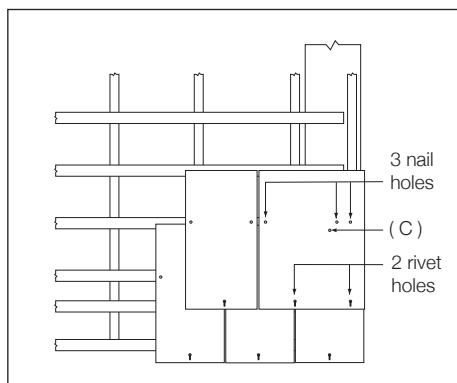


Fig. 5 – Using slate-and-a-half to break bond

For remaining courses where single and slate-and-a-half slates are used, a third copper disc rivet hole is required to accommodate the rivet for the next single width verge slate (at point C, Fig. 5).

This is drilled half the single slate width from the side of the slate, and 25mm plus gauge from the bottom edge or tail.

7. Continue across and up the roof with whole slates, trimming to verges, hips, valley and ridges as necessary (Fig. 6).

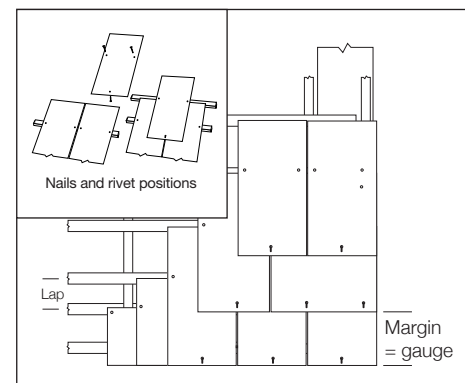


Fig. 6 – Continue laying broken bond

# Hook fixing

For Birkdale slates at 15-20°.

- 1 Set out roof with battens gauged to suit a 225mm long first under-eave course, a 375mm long second under-eave course and general batten gauge of 225mm. Allow a 50mm eave overhang into gutter (Fig. 7).
- 2 Begin by cutting to size and drilling 2 no. 4mm holes 20mm in from either edge of the slate for head nailing the first under-eaves course along the eaves (Fig. 8).
- 3 Cut to size and drill 2 no. 4mm holes 20mm in from either edge for shoulder nailing the second under-eaves course of full width slates to the bottom batten. The slate-and-a-half widths laid at the verge require 2 additional drilled holes, 1 on the batten line for centre nailing and 1 drilled half a slate width in from verge and 25mm up, to allow for a copper disc rivet to fix the first full slate course (Fig. 9).

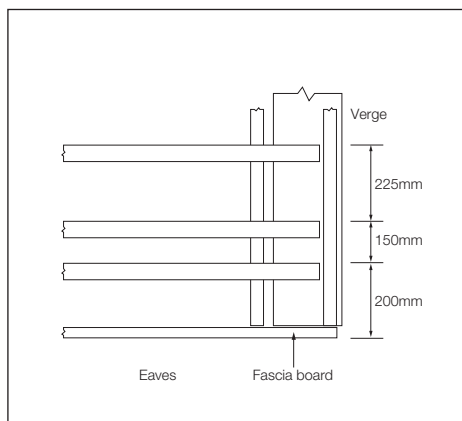


Fig. 7

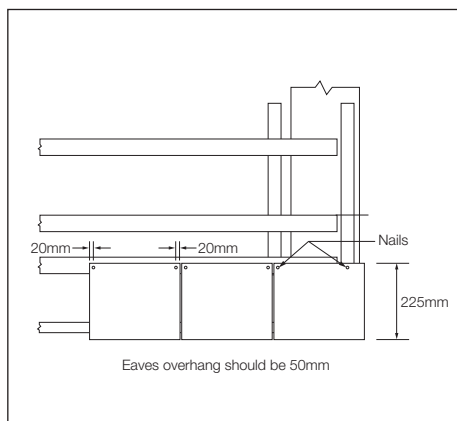


Fig. 8

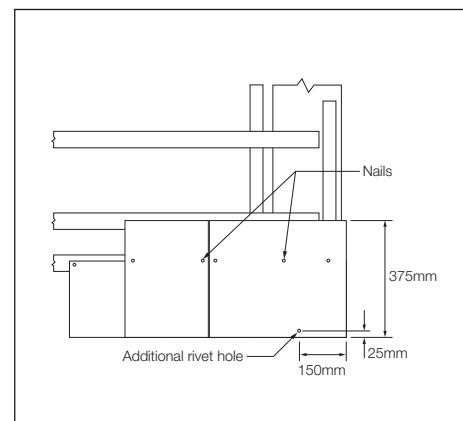


Fig. 9

# Hook fixing

- 4 first course of full size slates (Fig. 10). All these slates need to be drilled with 3 no. 4mm holes, 2 for shoulder nailing to the batten 20mm in from each edge and 1 drilled along the centre line of the slate and 25mm up from the bottom edge to accept a copper disc rivet fitted between the perps of the course below. At the verge, a fourth 4mm hole is required to allow for the copper disc rivet for the next course.

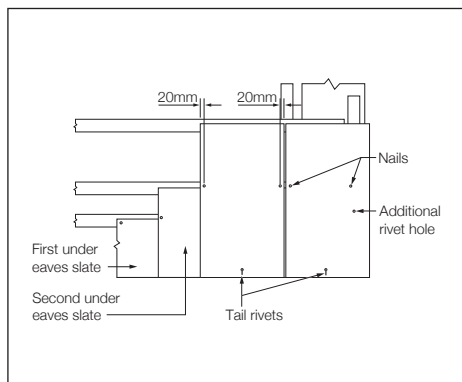


Fig. 10

This is drilled 50mm from the outside edge of the slate and 25mm plus gauge (225mm) from the bottom edge.

- 5 At the verge on the course above install the first full length slate-and-a-half slate, by drilling 3 no. 4mm nail holes on the batten line for shoulder nailing and two additional 4mm holes for the copper disc rivets to secure the tail of the slate and that of the slate above (Fig. 11).

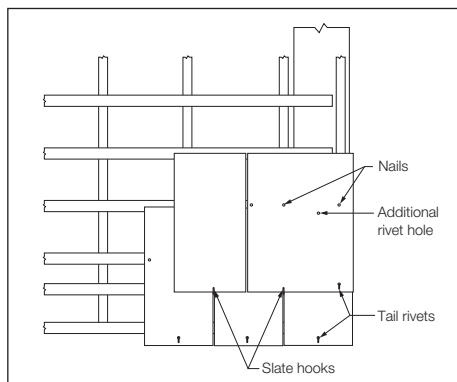


Fig. 11

- 6 Each full size slate on this course is now fixed with a 150mm long spiked hook driven into the batten between the edges of the two slates below (Fig. 12).

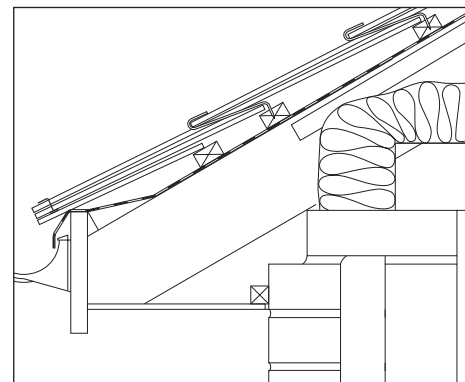


Fig. 12

# Hook fixing

- 7 The full size slate fitted at the verge on the course above requires 2 no. 4mm nail holes drilled on the batten line as well as 2 no. 4mm disc rivet holes to accommodate the tail rivet for the slate and half slate above (Fig. 13).

Continue across and up the roof with hook fixed whole slates and nail and riveted perimeter slates, trimming to verges, hips, valley and ridge as necessary.

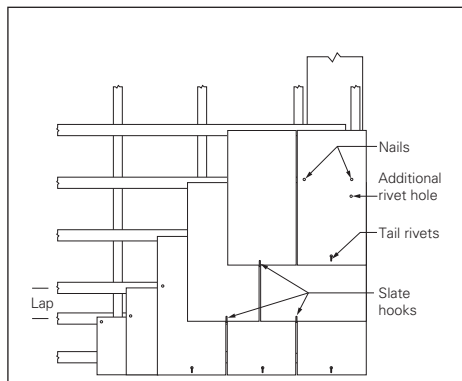


Fig. 13

## Hook fixing at ridges

When using hook fixings at ridges, slates should be nailed and hooked. The ridge should be covered with an appropriate ridge capping.

## Hook fixing at hips

When hook fixing at hips, the hips should be capped with an appropriate capping. Each hip slate should be nailed in addition to a rivet.

## Hook fixing at valleys

When hook fixing at valleys, each valley slate should be nailed in addition to a rivet.



Watch a quick video on hook fixing at [www.marleyeternit.co.uk/birkdale](http://www.marleyeternit.co.uk/birkdale) or scan the QR code above.

# Eaves

For fibre cement slates, it is essential for the function and long term performance of the roof that three courses of slates are laid at all eaves. Set out the under-eaves battens to accommodate the typical under-eaves slate lengths as shown in the table below.

## Tilting fillet

The dual purpose of the tilting fillet is to ensure that the underlay is evenly dressed over the fascia to avoid trapping water and, in association with the fascia, commence the correct laying of the slates. To achieve these functions, the fascia/tilting fillet should be approximately 8-15mm above the top of the general batten level.

Note: At low pitches, the tilting fillet upslope length should ensure a minimum of 10° slope to the underlay.

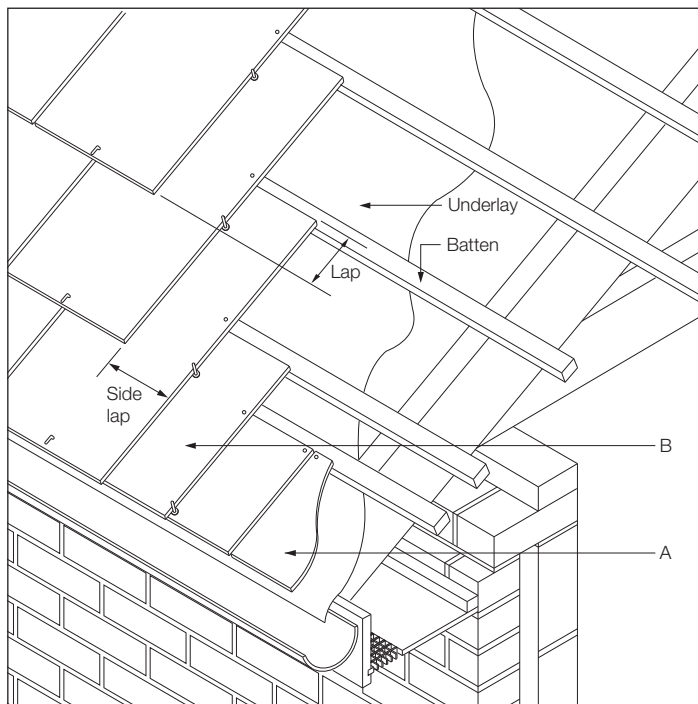


Fig. 14 – Detailing at eaves

# Eaves

## Fixing

- 1 Install the underlay (and durable strip of Type 5U or UV resistant underlay) parallel to the eaves with the horizontal overlap appropriate to the rafter-pitch (see page 13).
- 2 Ensure that the underlay overhangs the fascia sufficiently to drain into the gutter and that dressing the underlay over the tilting fillet prevents any collection of water.\*
- 3 Locate and secure the battens to the correct centres appropriate to the size of slate and rafter pitch.

- 4 Follow the slate fixing procedure described on pages 86-88.
- 5 Place rivets between the slates on the second under-eaves course, with their head resting on the lower slate course. Pass the rivet shank through the hole provided in the first full length slate at its tail. Secure slate and dress the rivet shank down the slope.
- 6 Proceed laying further full length slates up the roof.

\* Note: When using an LR underlay, a felt support tray should be used with timber fillets fitted at each rafter. If batten cavity is to be vented, fit felt support trays under OFV strips and lap underlay over by a minimum 200mm.

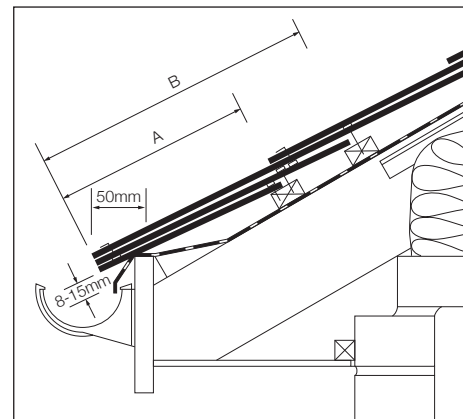


Fig. 15 – Detailing at eaves

## Under-eaves slate lengths

	Slate size (mm)	Typical laps (mm)	1st under eaves slate length (A) (mm)	2nd under eaves slate length (B) (mm)
Birkdale (15-20°) hook fixed	600 x 300	150	225	375
Birkdale (20-90°)	600 x 300	110	245	355
Thrutone (20-90°)	600 x 300	110	245	355
Rivendale (20-90°)	600 x 300	110	245	355
Garsdale (20-90°)	600 x 300	110	245	355



# Verges

## Verge on bargeboard

- 1 Extend the underlay to oversail the gable ladder and trim to the edge of the bargeboard. Nail fix the undercloak, projecting not more than 50mm beyond the face of the bargeboard. Nail the slating battens to finish 100mm from the edge of the undercloak.
- 2 Finish the slating over the verge with alternate courses of full width and slate-and-a-half slates.
- 3 Mortar the edge of the verge slates flush with the undercloak on a bed of mortar. Neatly point to form a weathered profile giving 5mm overhang of slates over the mortar. Make sure that the mortar is not displaced or cracked when nail-fixing the roof slates (Fig. 16).

## Verge on brickwork

- 1 Extend the underlay 50mm onto the outer leaf of the gable wall. Bed the fibre cement undercloak or similar durable strip, projecting not more than 50mm beyond the face of the wall, on mortar and point neatly. The undercloak is to be level with the underside of the slating battens, which should finish 100mm from the edge of the undercloak.
- 2 Complete the slating over the verge with alternate courses of full width and slate-and-a-half or extra wide slates, except in hook fixing, where alternate courses of full width and half width slates should be used.
- 3 Mortar the edge of the verge slates flush with the undercloak on a bed of mortar. Neatly point to form a weathered profile giving a 5mm overhang of slates over the mortar. Make sure that the mortar is not displaced or cracked when nail-fixing the roof slates (Fig. 17).

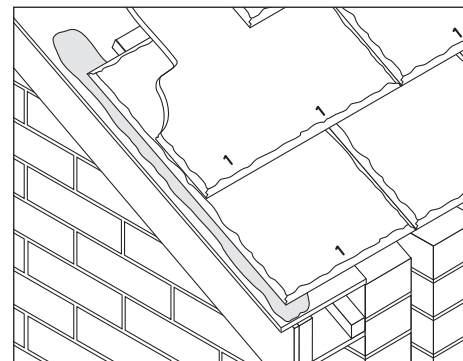


Fig. 16 – Bedded verge on bargeboard with fibre cement undercloak

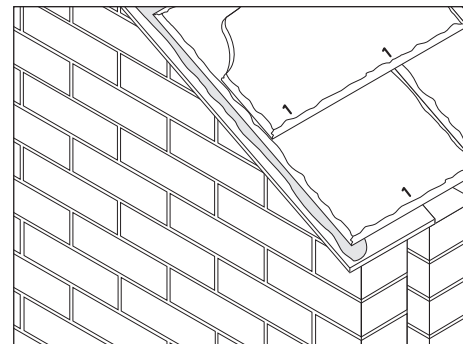


Fig. 17 – Bedded verge on brickwork with fibre cement undercloak

# Hips

## Mortar bedded hips

- 1 Install either an additional layer of underlay (not less than 600mm wide) centrally over hip line, or cut the underlay to the hip rafter and overlap the upper layer 150mm beyond the hip line.
- 2 Nail the slating battens to the hip rafter, or ensure that the ends are fixed to timber noggin.
- 3 Galvanised steel hip irons in accordance with BS 5534 are to be fixed to the hip rafter or hip batten with 2 No. 5mm diameter galvanised steel screws.
- 4 Form neat raking cut slates from extra wide slates to fit closely at the junction, and fix each slate with 3 No. nails and 2 No. copper disc rivets avoiding small pieces of slate.

(The use of additional extra wide slates may be necessary adjacent to the mitre-cut slates to reinstate the slate bond sequence across the roof).

- 5 Shape the first hip tile neatly to align with the corner of the eaves and fill the end with mortar and slips as necessary (Fig. 18).
- 6 Make weathertight, with edges and joints of hip ridge solidly bedded in mortar.
- 7 Each hip tile must be mechanically fixed in accordance with BS 5534.

Marley Eternit offer security ridge/hip straps (supplied separately). Alternatively, security hip fixing kits are available.

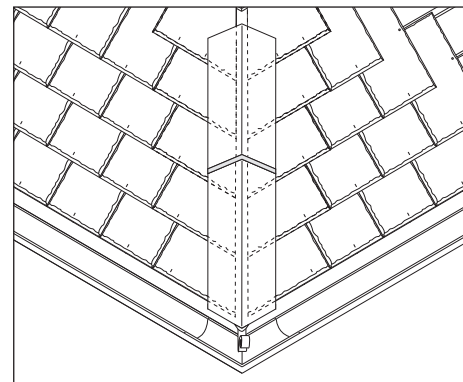


Fig. 18 – Mortar bedded hip with ridge/hip tile capping

# Hips

## Close mitred hips

Close mitred hip constructions should not be used for roof pitches below 30°.

If the site is in an exposed location, additional fixings are required.

- 1 Dress the underlay along each slope and cut at the hip rafter. Dress additional underlay along the hip rafter, overlapping 300mm on each side.
- 2 Fix roofing battens to the hip rafter and align on each slope. Insert lead soakers in every course up the hip (Fig. 19).

Mitred slates cut from double blank units must be fixed with three copper nails and two copper disc rivets. The third nail must be fixed into either:

- A An additional batten parallel and central to the slating battens securely fixed to at least two rafters on either side of the hip.
- B A continuous board either side of the hip, again securely fixed, or
- C A continuous batten either side.

**In areas of severe exposure, a supplementary fixing in addition to the above should be used. Refer to Technical Advisory Service for further advice.**

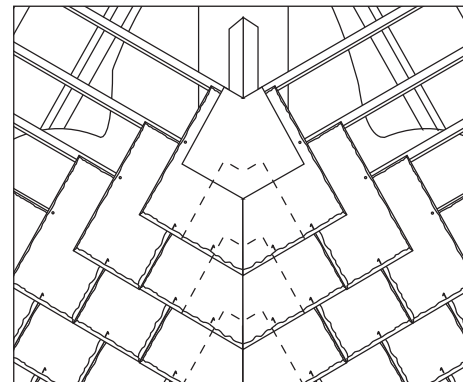


Fig. 19 – Close mitred hip with lead soakers

# Hips

## Hips with fibre cement duo pitch ridges

Marley Eternit duo pitch ridges can be used to cap hips as well as roof apexes.

- 1 Dress the underlay along each slope and end at the hip rafter. Dress additional underlay along the hip rafter, overlapping 300mm each side.
- 2 Fix a 150 x 25mm hip board on each side of the hip rafter. Cut and nail battens into side of hip board.
- 3 Mitred slates cut from double blanks should be fixed to the battens and hip boards. Each raking cut slate should be site drilled with 3 nail holes and 2 rivet holes, plus an additional rivet hole for the next course.
- 4 Place duo pitch unit over hip, with internal socket pointing upwards and cut bottom edge to suit angle of the eaves. Drill 8mm holes (125mm from the effective ends of the capping, 50mm up from the edges) through the hip capping and the slates. Fix capping with 4 No. 60mm x 6.3mm self-sealing screws into hip boarding.
- 5 Fix subsequent units up the hip, sealing the joints with 6mm diameter butyl strip (Fig. 20).
- 6 At the intersection of the hips and ridge, all the duo pitch cappings should be mitre cut to form a neat detail with tight joints. The whole junction should be weathered with a Code 4 lead saddle fitted beneath the cappings. To avoid lead carbonate staining, patination oil should be applied to the lead immediately after fixing.

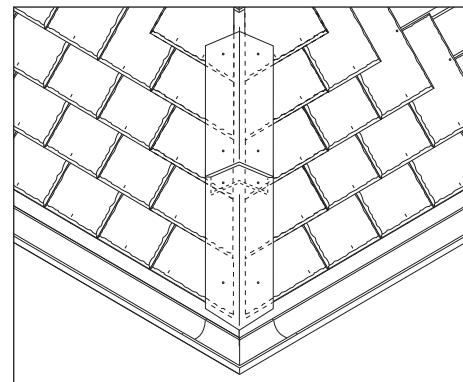


Fig. 20 – Fibre cement duo pitch ridge units used as hip capping

# Valleys

## Open metal valley

- 1 Fix support noggin to the inside of each rafter face at a level to receive individual lay boards between the rafters.
- 2 Nail valley boards to lay flush with the tops of the rafters, fix valley fillets ensuring sufficient valley width.
- 3 Drape the underlay and fix slating battens to bear 50mm on each valley board.
- 4 Lift the underlay and fix the lead gutter lining over the valley boards and dress on valley fillets. Form welted ends on the inside edges of the gutter lining, reposition the underlay over the welted edges of the valley and trim 40mm beyond the fillets.

- 5 Vertical infill noggins or raking battens may be required between the slating battens to accommodate the third slate nail.

Note: If trussed rafters are used, the manufacturer may not permit the notching of rafters. This can be overcome by fixing timber noggins to the insides of the rafter faces at a level to receive individual lay boards between the rafters.

- 6 Centre-nail slates, positioning rivets before fixing down. Ensure a 50mm overhang from the valley fillet and provide the required clear gutter to maintain an uninterrupted flow of water from the roof (Fig 21).

Note: Double width slates should be used in every course adjacent to the valley with additional nail fixings.

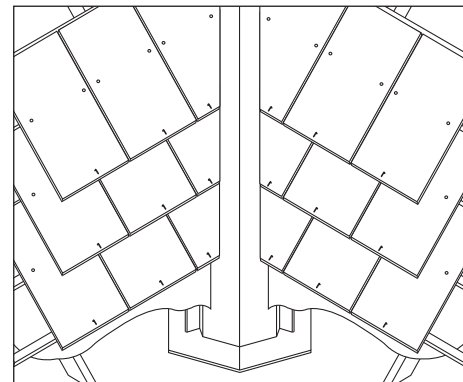


Fig. 21 – Open metal valley

# Ridges

## Fibre cement duo pitch ridge

Marley Eternit duo pitch ridge units and stop ends are designed with a socket for a simple fix by drilling and screwing to an additional ridge fix batten at the apex. Recommended screws are 60mm x 6.3mm self-sealing wood screws. Other sizes are used for different applications – contact the Technical Advisory Service. An alkali-resisting, non-oil based 6mm diameter butyl strip should be used to seal across the socket, 50mm from the end.

- 1 Fix the underlay along the roof apex to overlap opposite roof slopes by 300mm.
- 2 Fix the top batten to suit the gauge of the slate.
- 3 Fix an additional ridge fix batten downslope to enable the self-sealing screw to penetrate the ridge unit 50mm up from the bottom edge of the ridge unit.

- 4 Head nail the top slate course to the top batten.  
  
Locate the starter ridge stop end at one end, drill and screw the end of the ridge to the ridge fix battens. Drill 125mm from the effective ends 50mm up, i.e. ignore the socket.
- 6 Apply 6mm butyl diameter strip across the socket, 50mm from the end.
- 7 Locate successive ridge units along the roof apex, drill and screw to the ridge fix battens, ensuring a level ridge with joints bedded on butyl strip (Fig. 22).
- 8 Shorten the ridge units and finish the stop end as necessary, which may include removal of the socket. Avoid ridge units less than 450mm length. Do not shorten the stop ends.

Note: If a mortar bedded ridge unit is used (see page 103), the surface of the slate should be primed with a suitable bonding agent, and the mortar should contain a non-shrink additive.

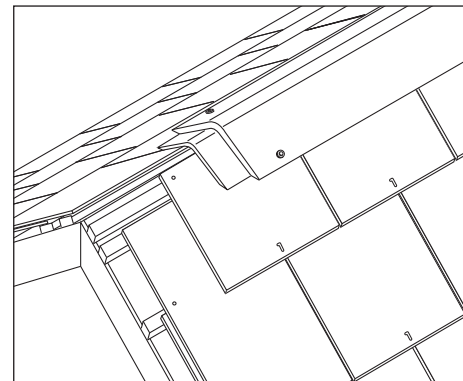


Fig. 22 – Ridge finished with duo pitch ridge units\*

\* The duo pitch right angle return units are fixed in the standard manner, drilled and screwed and bedded on butyl strip as described above.

# Ridges

## Mortar bedded ridges

- 1 Lay the top course of the underlay from one side of the ridge over the apex to overlap the top course of the underlay on the other side by not less than 150mm.
- 2 Position two slating battens downslope from the ridge line. The last full length roof slate/short course is cut to head rest on the lower batten and centre nailed, as normal. The top course of slate is then formed to the required length and head nailed to the highest batten, 40mm from the side and 30mm from the top edge.

(To ensure that the top course of slates lays neatly, an additional timber strip can be placed on top of the batten to compensate for the thickness of the slate course below.)

- 3 The ridge fittings should be edge bedded onto the top course of the slates with solid bedding at butt joints, supported by slate pieces (Fig. 23).

- 4 Install the stop end ridge tiles neatly to align with the ridge and verge edge, solidly bed in mortar and, where specified, secure the ridge mechanically.
- 5 Make all joints with the adjacent ridge tile weathertight and solidly bed in mortar.
- 6 Ensure all ridge units are mechanically fixed. See Mortar bedded security ridge and hip fixing kits, pages 102-107.

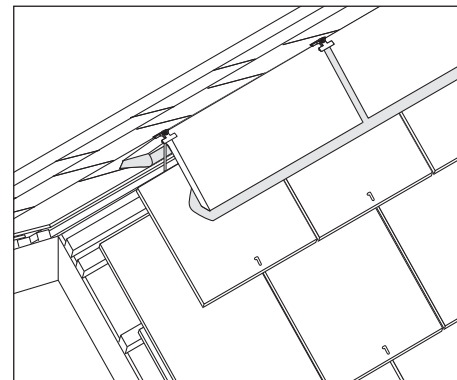


Fig. 23 – Ridge finished with mortar bedded angular ridge tile, mechanically fixed

# Vertical slating

In general, vertical slating follows the same installation principles as roof slating (Fig. 24).

- 1 Finish the vertical slating at each end with alternate courses of full width and slate-and-a-half or extra wide slates.
- 2 All corners and angles should be weathered with Code 3 lead soakers interlaced with the slates or with feature lead roll details.
- 3 The soakers for vertical slating are 200mm width, with length equal to gauge + lap + 20mm.
- 4 Junction of vertical slating with roof verge. Install an additional slating batten parallel to and below the roof verge.
- 5 At the ends of the courses mitre-cut the extra wide slates to the angle of the verge rake. Fix cut slates to the batten with the cut edge parallel to and below the verge (not illustrated).
- 6 Complete roof apex using either a fibre cement mono-ridge capping or concrete/ clay mono-ridge tile (mechanically fixed as recommended).

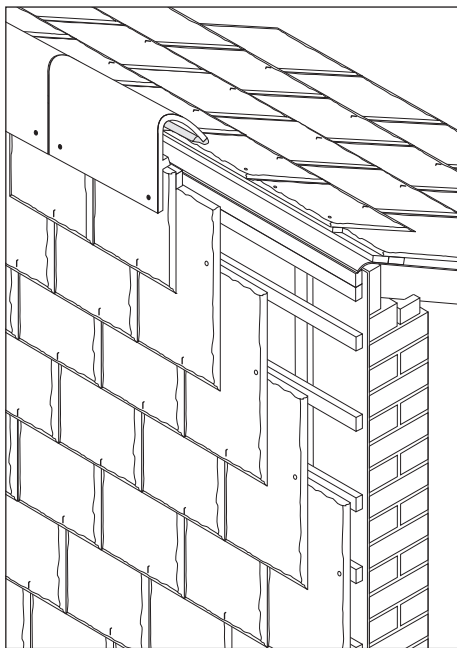


Fig. 24 – Vertical slating with concrete mono-ridge capping

## Vertigo

Vertigo fibre cement slates are also available for ventilated facade applications. To find out more visit [www.marleyeternit.co.uk/vertigo](http://www.marleyeternit.co.uk/vertigo) or scan the QR code below.



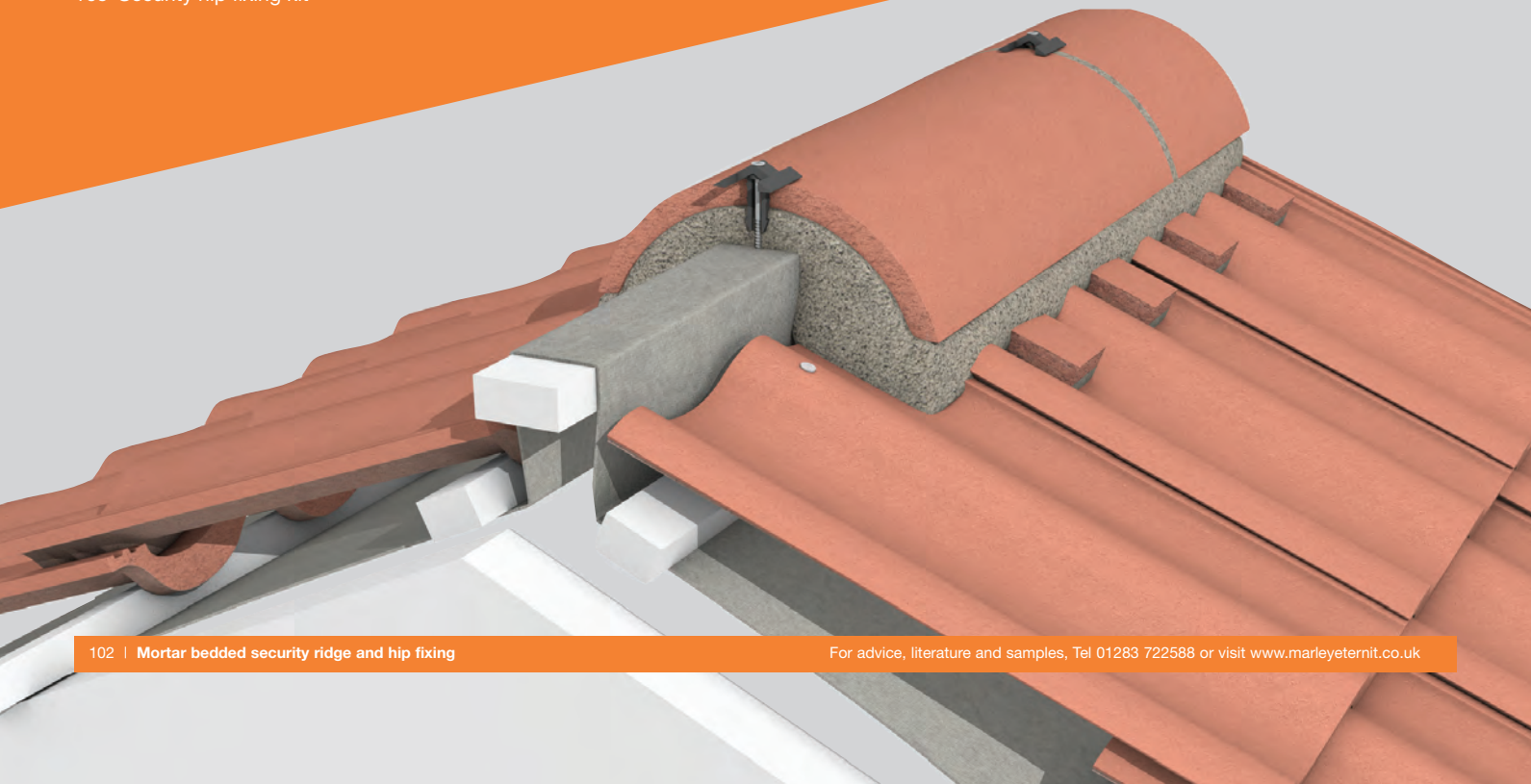


# Mortar bedded security fixing kits

**Dry fix and ventilation systems**  
For more details, see pages 108-195

103 Security ridge fixing kit

105 Security hip fixing kit



# Security ridge fixing kit

- 1 Felt and batten roof in the normal way, but before fixing the top course battens, secure a ridge batten bracket to each rafter centrally about apex using the nails supplied.

To establish the point to bend the legs of the ridge batten bracket, parallel to the rafters, a short length of top course batten should be temporarily nailed into place either side of the ridge, onto which a tile is laid. Position a ridge tile centrally onto the roof tiles and offer up a ridge batten bracket against the rafter. The bracket

should be bent at the best position to achieve a minimum 20mm screw penetration into the ridge tree (1 or 2 tiling battens) (Fig. 1). For Marley Eternit tiles and slates, refer to the batten setting height table and Fig. 7, page 105.

Place the ridge batten(s) along the length of the ridge between the perforated straps of the ridge batten brackets. Bend over the straps and nail securely to the ridge batten using the nails supplied. Joints in the battens should be made over a bracket to ensure the ends are secured.

- 2 Lay the top edges of the roofing underlay (or additional length) loosely over the ridge batten and secure the top course battens such that the appropriate ridge tile headlap can be maintained (Fig. 2).
- 3 Finish tiling the roof up to the ridge (Fig. 3).

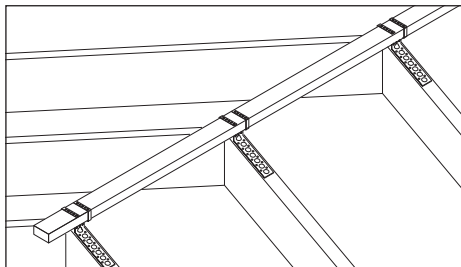


Fig. 1 – Secure ridge batten brackets and fix ridge batten

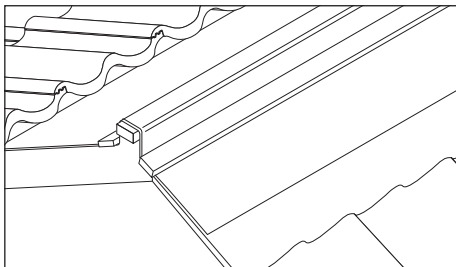


Fig. 2 – Lay underlay over ridge batten

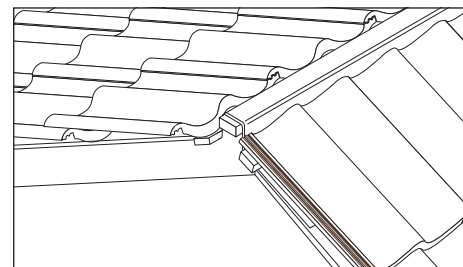


Fig. 3 – Tile to ridge

# Security ridge fixing kit

- 4 Edge bed the ridge tiles along the roof in the normal way using dentil slips where needed and solid bed the butt joints (Fig. 4).
- 5 To mechanically fix the ridge tiles push a plastic ridge clamp centrally between the ridge tiles into the wet mortar and secure in place by driving the 75mm stainless steel screw provided into the ridge batten (Fig. 5).
- 6 Repair any displaced mortar at the ridge tile joints.
- 7 End ridge tiles need to be secured by drilling a 6mm dia. hole through the ridge tile, 100mm from the open end, and driving one of the 75mm long s/steel screws supplied into the ridge batten (Fig. 6).

**A separate fixing kit is also available for capped angle ridge tiles – contact us for more details.**

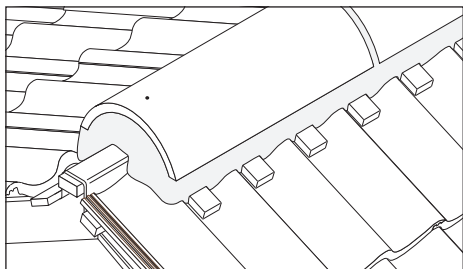


Fig. 4 – Edge bed ridge tiles

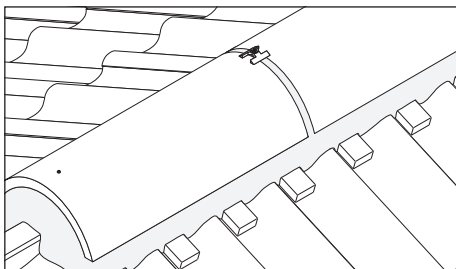


Fig. 5 – Mechanically fix all ridge tiles

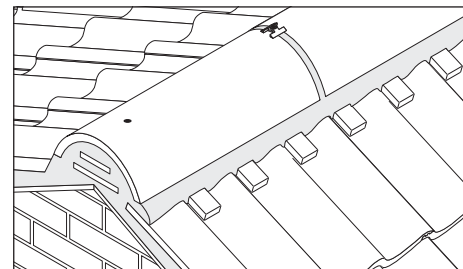


Fig. 6 – Secure end tile

# Security ridge fixing kit

## Batten height setting

The first figure gives ridge batten height (in mm), figure in brackets gives hole positions at which ridge batten bracket legs are bent to fix to rafter

Tile/Slate	Ridge type	Roof pitch											
		12.5°	15°	17.5°	22.5°	25°	30°	35°	40°	45°	50°	55°	60°
Edgemere/ Duo Edgemere	Segmental Ridge			50 (2)	50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)		
	Modern Ridge			50 (2)	50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)			
Ashmore	Segmental Ridge				50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)			
	Modern Ridge				50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)			
Modern/ Duo Modern	Segmental Ridge			50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)		
	Modern Ridge			50 (2)	50 (1)	50 (1)	50 (1)	25 (2)	25 (1)	25 (1)			
Ludlow Plus	Segmental Ridge				50 (2)	50 (2)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)		
	Modern Ridge				50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)			
Ludlow Major	Segmental Ridge			50 (2)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)	
	Modern Ridge			50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)		
Concrete Plain	Segmental Ridge							50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)
	Modern Ridge							50 (1)	50 (1)	25 (2)	25 (1)	25 (1)	
Double Roman	Segmental Ridge			50 (3)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (2)	25 (1)	25 (1)	
Mendip and Wessex	Segmental Ridge		50 (3)	50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)
	Modern Ridge		50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)			
Anglia	Segmental Ridge			50 (4)	50 (3)	50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (1)	50 (1)	50 (1)
Fibre cement slates	Segmental Ridge		50 (1)	50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)				
	Modern Ridge		50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)					
Maxima	Segmental Ridge			50 (2)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)	
Melodie	Segmental Ridge	50 (4)	50 (4)	50 (4)	50 (3)	50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (1)	50 (1)	50 (1)

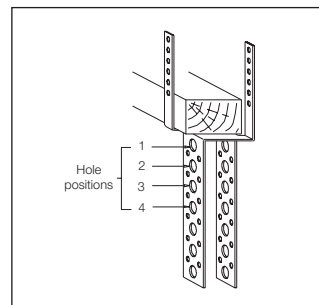


Fig. 7

# Security hip fixing kit

- 1 Felt and batten roof in the normal way, mitring the tiling battens at the hip. Secure the mitred ends to the hip tree or continuous structural member.
- 2 Fix a galvanised hip iron, minimum 4mm thick, at the base of the hip tree with two 5mm diameter nails or suitable screws.
- 3 Tile roof leaving an 80mm gap between the raking cut tiles and slates laid adjacent to the hip tree. Ensure all raking cut tiles and slates are fully supported on the battens and if not, provide suitable packers to prevent tiles from rocking.
- 4 Ensure that all raking cut tiles and slates along the length of the hip are fully secured.
- 5 Fix hip batten brackets to the hip tree using 4 nails per bracket at approx. 550mm centres.
- 6 Position the first bracket immediately above the hip iron and the topmost bracket no more than 100mm from the hip/ridge apex. (When fixing Plain tiles the tiling battens will require trimming back from hip tree, locally, to provide space for fitting batten brackets. Support the free batten ends with noggins.)
- 7 Batten brackets can be fitted at a choice of 2 heights achieved by bending the bracket legs inwards along the appropriate diagonal line of holes (see page 107).
- 8 Secure either one or two thicknesses of 50mm x 25mm tiling batten to the top of the batten brackets, parallel to the hip rafter, by folding over bracket arms and nailing through perforations into the battens.
- 9 Where 2 depths of batten are needed ensure they are secured to each other before locating into the batten brackets. Joints in the hip battens should be made over a batten bracket so both free ends can be secured.

Note: To establish whether one or two batten thicknesses are needed place a hip tile in situ over the hip tree, at the highest point of the roof tiling, and assess the space remaining between the top of the batten bracket and underside of the hip tile. Install two battens if two fit without fouling the hip tile.

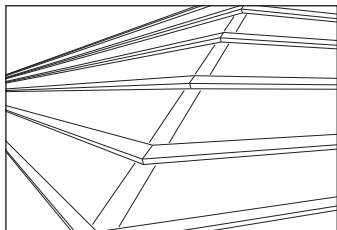


Fig. 8 – Felt and batten roof in normal way

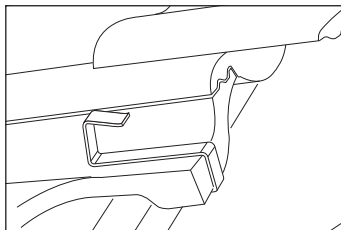


Fig. 9 – Ensure all cut tiles are clipped

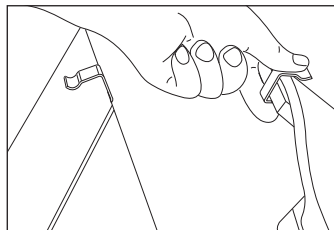


Fig. 10 – Ensure all cut tiles are clipped

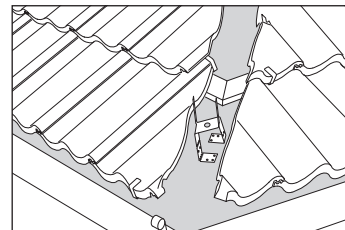


Fig. 11 – Fix batten brackets

# Security hip fixing kit

- 10 The capped end of the first hip tile needs to be placed against the hip iron, shaped to the line of the eaves and secured by drilling a 6mm dia. hole through the tile, 100mm from the open end, and driving one of the 75mm long stainless steel screws supplied into the hip batten. Fair fill the open end with mortar inset with pieces of tile. Neatly point.
- 11 Edge bed the hip tiles onto roof tiling and mechanically fix each as they are laid.
- 12 To mechanically fix the ridge tiles drive one of the stainless steel screws supplied through the slot in a capped angle ridge clip and hole in the end of the tile into the hip batten. Do not over tighten.
- 13 Slide the capped end of the adjacent ridge tile into the open end of the clip and secure the opposite end with a clip and screw. Continue this procedure up the length of the hip.
- 14 The topmost hip tiles need to be secured by drilling a 6mm dia. hole through the hip tile, 100mm from the open end, and driving one of the 75mm long stainless steel screws supplied into the ridge batten.

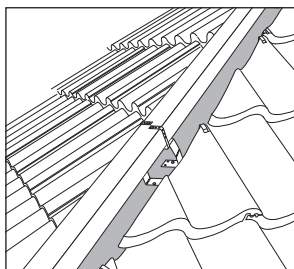


Fig. 12 – Fix hip batten

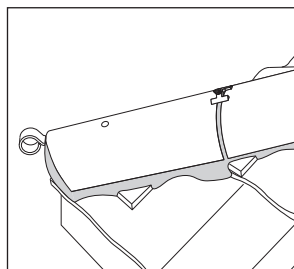


Fig. 13 – Mechanically fix hip tiles

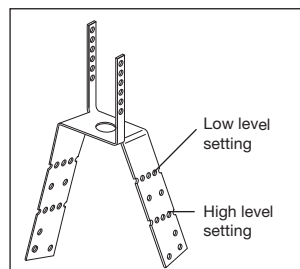


Fig. 14

## HipFast batten bracket setting table for Marley Eternit roof tiles\*

### Low level batten bracket setting (bend along top row of diagonal holes)

Edgemere (above 25° pitch)

Duo Edgemere (above 25° pitch)

Ashmore

Plain

Ludlow Plus

Ludlow Major (above 32.5° pitch)

### High level batten bracket setting (bend along bottom row of diagonal holes)

Edgemere (17.5° to 25° pitch)

Duo Edgemere (17.5° to 25° pitch)

Modern

Duo Modern

Ludlow Major (22.5° to 32.5° pitch)

Double Roman

Mendip

Wessex

Anglia

Maxima

Melodie

\* Apply same settings for other manufacturers equivalent tile profiles.



# Dry fix and ventilation systems

109 Eaves ventilation systems

113 Verge systems

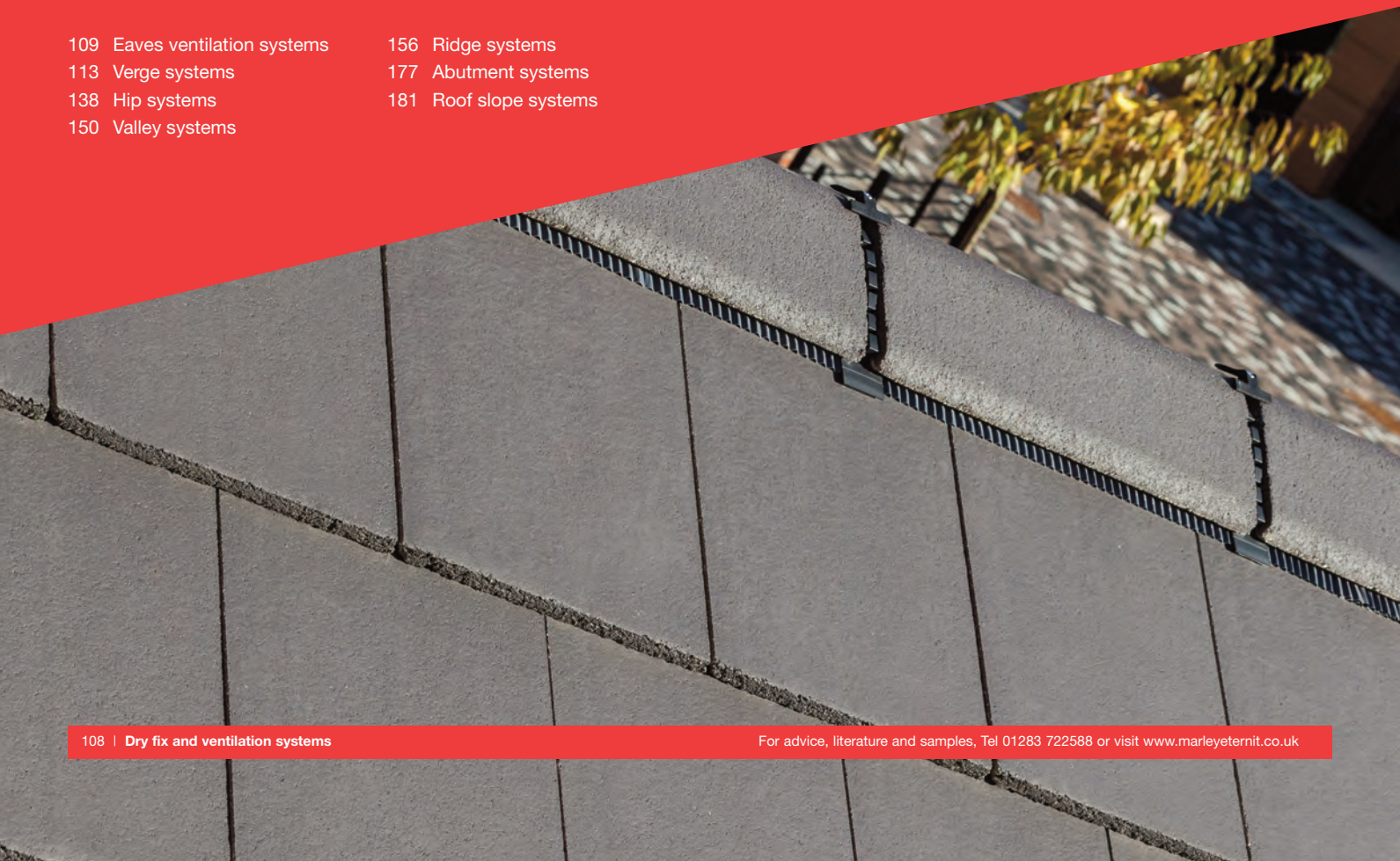
138 Hip systems

150 Valley systems

156 Ridge systems

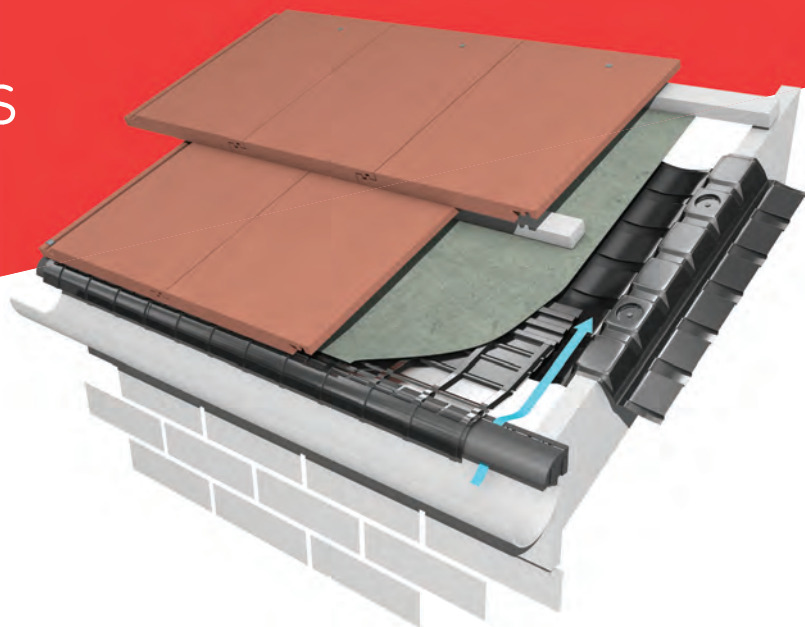
177 Abutment systems

181 Roof slope systems

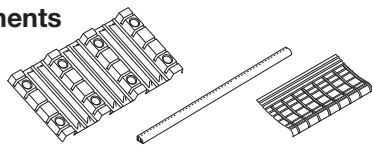


# UNIVERSAL eaves vent systems

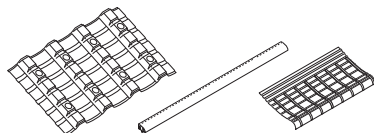
Marley Eternit universal eaves ventilation systems are designed to provide continuous 10mm or 25mm free vent areas to roof voids in an efficient and unobtrusive manner for roof pitches from 12.5° to 55°. The 25mm system can also be used to ventilate the batten cavity where this is required.



## Components

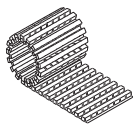


10mm eaves vent pack\* (6 metres)  
(code 46350)

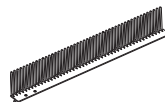


25mm eaves vent pack\*\* (6 metres)  
(code 46351)

## Individually available components



Continuous rafter  
roll pack (2 x 6m)  
(code 46323)



Comb filler strip pack  
(6 x 1m)† (code 30425)



Gutter spacers  
(20 per pack)  
(code 46353)

For advice, literature and samples, Tel 01283 722588 or visit [www.marleyeternit.co.uk](http://www.marleyeternit.co.uk)

Eaves ventilation systems | 109

\* Packs contain: 6 No. over fascia ventilators (10mm), 1 No. continuous rafter roll, 10 No. felt support trays

\*\* Packs contain: 6 No. over fascia ventilators (25mm), 1 No. continuous rafter roll, 10 No. felt support trays

† For use with profiled tiles



# UNIVERSAL eaves vent systems

## Installation

Before commencing work, check that fascia or tilting fillet is fixed to correct height for type of tile and rafter pitch being used, taking into account height of over fascia ventilator and comb filler strip (if required). For fascia height details, see table on page 112. Ensure that eaves course tiles are laid in the same plane.

Note: 25mm warm roof constructions (when ventilating the roof space). Dependent on gutter type, consideration should be given to maintaining a sufficient airpath behind the gutter. This can be achieved using gutter spacers (available separately). Contact the Technical Advisory Service for further information.

- 1 Roll out continuous rafter roll over full length of eaves rafters so that wall plate is directly under centre of the roll.
- 2 Pull and adjust to correct rafter centres and twice nail to top of each rafter, using 25mm long aluminium nails (Fig 1).

Note: The continuous rafter roll fits rafters from 400-600mm centres. It is advisable to lay some insulation material at this stage to ensure that it extends over wall plate into eaves, to prevent cold bridging. Two rolls of rafter roll may be required to ensure depth of insulation does not block ventilation path.

- 3 Place over fascia ventilator (OFV) on top of fascia board or tilting fillet with location stop hard up against front of board.

- 4 Nail to top of fascia or tilting fillet using 45mm x 3.35mm (10mm OFV) or 60mm x 3.35mm (25mm OFV) aluminium nails at every nail hole position (Fig. 2).

Note: To assist with correct fascia height dimensions, allowance should be made for height of strip ventilator.

- 5 Place felt support trays over the over fascia vent strips and nail to rafters with 25mm x 3.35mm aluminium nails (Fig. 3).

Note: When used with plain tiles, substitute felt support tray with 6mm thick plywood strips supported by timber fillets fitted at each rafter.

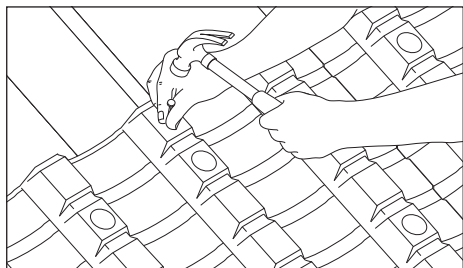


Fig. 1

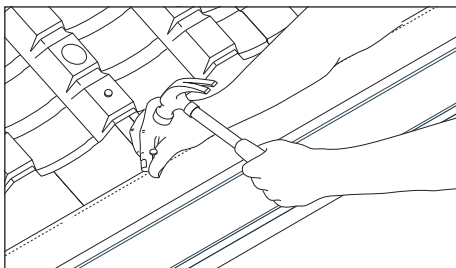


Fig. 2

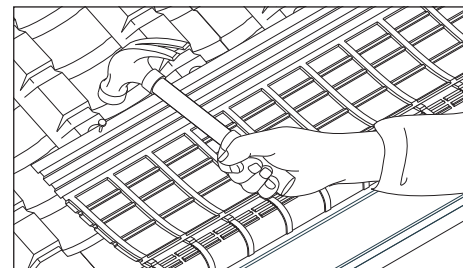


Fig. 3

# UNIVERSAL eaves vent systems

- 6 The support tray should be laid so that the curved front edge dresses down over the fascia vent unit towards the gutter (each tray provides 600mm effective cover) (Fig. 4).
- 7 Lay the underlay over the support tray stopped approx. 25mm from the top of the curved front edge of the felt support tray. (Fig 5). The underlay should not be left exposed to UV light.
- 8 When profiled tiles are used, fit a comb eaves filler strip to prevent ingress of birds and vermin into roof void or batten space. Locate over the felt support tray such that the eaves comb is directly above the OFV strip.
- 9 Nail comb eaves filler strip to top of fascia board using 45mm x 3.35mm (10mm OFV) or 60mm x 3.35mm (25mm OFV) aluminium nails at every nail hole position (Fig 6).
- 10 Where eaves course tiles require fixing with clips, nail appropriate eaves clip through OFV strip and into fascia board, using 45mm x 3.35mm (10mm OFV) or 60mm x 3.35mm (25mm OFV) nails.

**See page 112 for Eaves fascia heights.**

## Ventilating the batten cavity using 25mm eaves vent system

- 1 Install the roofing underlay over the rafters, ensuring sufficient drape into gutter (Fig 7).

Notes: Timber fillets or plywood strip should be fitted at each rafter to provide support for the underlay into the gutter. Underlay support trays are not required for this type of construction. Use only suitable UV resistant membranes at the eaves.

- 2 Install counter battens on top of the underlay at each rafter. Roofing battens should then be installed as normal on top of the counter battens.
- 3 Install over fascia ventilator on top of fascia board, using 60mm x 3.35mm nails at every nail hole position.
- 4 When profiled tiles are used, install a comb filler strip.

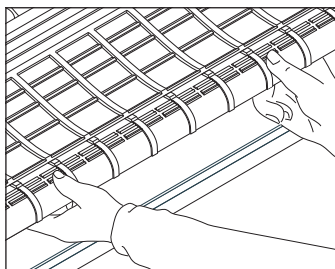


Fig. 4

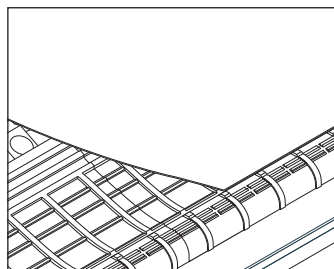


Fig. 5

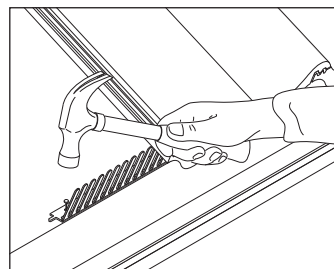


Fig. 6

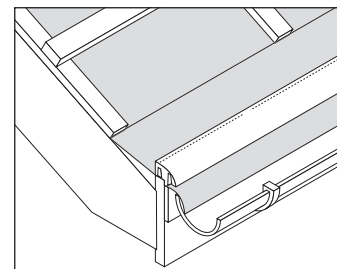


Fig. 7

# UNIVERSAL eaves vent systems

## Fascia height settings (mm) for 10mm Universal eaves vent system (without gutter spacer)

Pitch	12.5°	15°	17.5°	20°	22.5°	25°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	47.5°	50°	55°
Anglia	-	-	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Ashmore	-	-	-	-	28	28	28	28	28	28	28	28	28	28	28	28	28
Double Roman	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Edgemere range	-	-	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
Fibre cement slates	-	2	2	2	2	2	2	2	2	2	2	6	6	6	6	6	6
Ludlow Major	-	-	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Ludlow Plus	-	-	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
Maxima	-	-	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
Melodie	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mendip	-	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Modern/Duo Modern	-	-	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
Plain	-	-	-	-	-	-	-	26	26	26	26	26	26	26	26	26	26
Wessex	-	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22

## Fascia height settings (mm) for 25mm Universal eaves vent system (without gutter spacer)

Pitch	12.5°	15°	17.5°	20°	22.5°	25°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	47.5°	50°	55°
Anglia	-	-	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ashmore	-	-	-	-	9	9	9	9	9	9	9	9	9	9	9	9	9
Double Roman	-	-	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1	-1
Edgemere range	-	-	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Fibre cement slates	-	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-12	-25	-25	-25	-25	-25
Ludlow Major	-	-	2	2	2	2	2	2	2	2	2	2	-6	-6	-6	-6	-6
Ludlow Plus	-	-	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Maxima	-	-	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
Melodie	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Mendip	-	0	0	0	0	0	0	0	0	0	0	0	-10	-10	-10	-10	-10
Modern/Duo Modern	-	-	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Plain	-	-	-	-	-	-	-	8	8	8	8	8	8	8	8	8	8
Wessex	-	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8

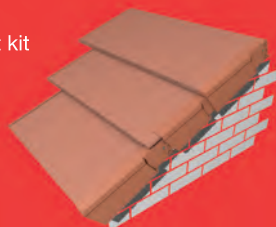
## Fascia height settings (mm) for 25mm Universal eaves vent system (with gutter spacer)

Pitch	12.5°	15°	17.5°	20°	22.5°	25°	27.5°	30°	32.5°	35°	37.5°	40°	42.5°	45°	47.5°	50°	55°
Anglia	-	-	2	2	2	2	2	2	2	2	-8	-8	-8	-8	-8	-8	-8
Ashmore	-	-	-	-	7	7	7	7	7	7	7	7	7	7	7	7	7
Double Roman	-	-	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4	-4
Edgemere range	-	-	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Fibre cement slates	-	-15	-15	-15	-15	-15	-15	-15	-15	-15	-29	-29	-29	-29	-29	-29	-29
Ludlow Major	-	-	0	0	0	0	0	0	0	0	-8	-8	-8	-8	-8	-8	-8
Ludlow Plus	-	-	2	2	2	2	2	2	2	2	-10	-10	-10	-10	-10	-10	-10
Maxima	-	-	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
Melodie	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Mendip	-	-4	-4	-4	-4	-4	-4	-4	-4	-4	-12	-12	-12	-12	-12	-12	-12
Modern/Duo Modern	-	-	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
Plain	-	-	-	-	-	-	-	3	3	3	3	3	3	3	3	3	3
Wessex	-	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4

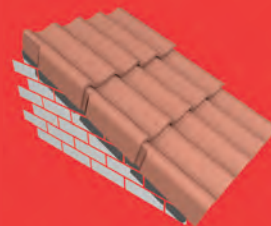
# Verge systems

114 UNIVERSAL dry verge system

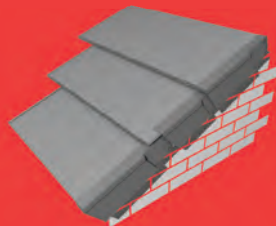
118 UNIVERSAL dry verge refurbishment kit



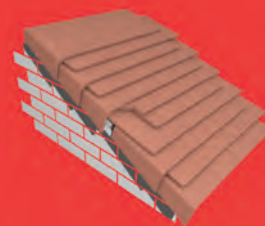
129 Interlocking tile cloak verge system



119 Edgemere dry verge system



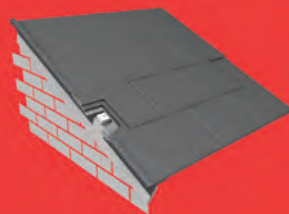
133 Clay and concrete plain tile cloak verge system



123 Continuous dry verge systems

124 Slate verge trim

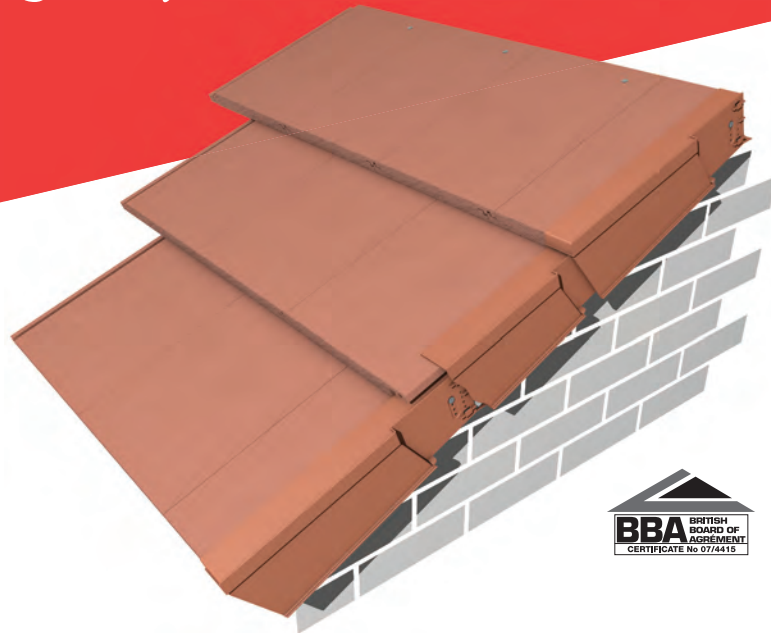
127 Plain tile and Ashmore  
dry verge system



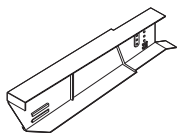
# UNIVERSAL dry verge system

The Marley Eternit universal dry verge system provides a strong, weathertight and maintenance-free verge. Individual verge units retain the stepped appearance of a traditional mortar bedded verge while mechanically fixing the verge tiles.

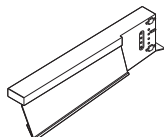
Note: Universal dry verge acts as a single mechanical fixing in accordance with BS 5534: 2014.



## Components



Universal dry verge unit (LH code 391)



Universal dry verge unit (RH code 392)



Segmental ridge end cap (code 395)



Modern ridge end cap (code 394)



Segmental mono-ridge end cap and wire hook (LH code 408, RH code 409)



Modern mono-ridge end cap and wire hook (LH code 408, RH code 409)



Universal dry verge fixing kit\* (code 53930)

\* Kit contains:

- > 28 No. 40mm x 3 mm aluminium alloy A.R.S. Nails
- > 2 No. 25mm x 8g stainless steel screws
- > 2 No. starter inserts
- > 2 No. 30mm x 8g stainless steel, pozidrive-headed screws
- > 4 No. 20mm x No.6 stainless steel countersunk screws

# UNIVERSAL dry verge system

## Installation

- 1 Set out eaves course of roof tiles in normal manner, ensuring that wherever possible full tiles complete verge overhangs or that highest section of tile profile is cut to finish at edge.
- 2 Saw tiling battens off square to overhang bargeboard or brickwork by 50mm and nail within a maximum of 500mm from ends (Fig. 1).
- 3 Position top course tiling battens to suit roof pitch and lap at a maximum of 85mm from roof apex.
- 4 Place first eaves roof tile in position overhanging the verge.
- 5 Slide starter insert into internal fixing channels of dry verge unit, and position assembly for fixing over the eaves verge tile. The verge unit should be sitting tightly against the top of the verge tile while the starter insert rests against the end and face of the fascia board (Fig. 2).
- 6 Secure the lower flange of the starter unit to the front of the fascia board using 2 No. 6 x 20mm stainless steel screws (supplied). If necessary, the upper flange can be trimmed to avoid interfering with the underside of the eave tile (Fig. 3), whilst leaving a gap to the brickwork/bargeboard along the bottom edge of the unit.

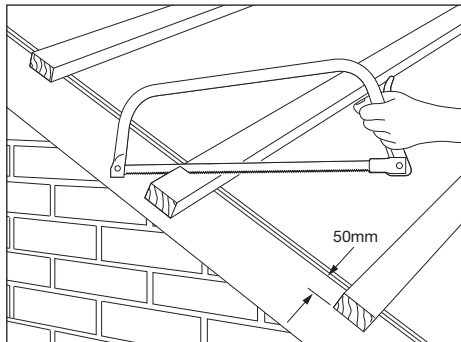


Fig. 1 – Position top course tiling battens

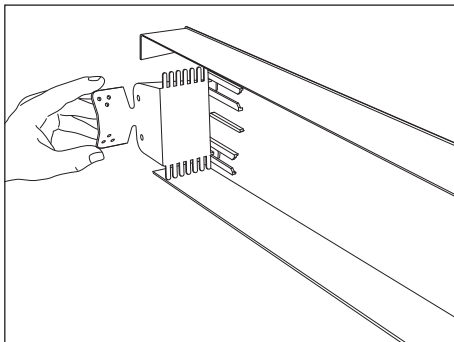


Fig. 2 – Locate starter insert in dry verge unit

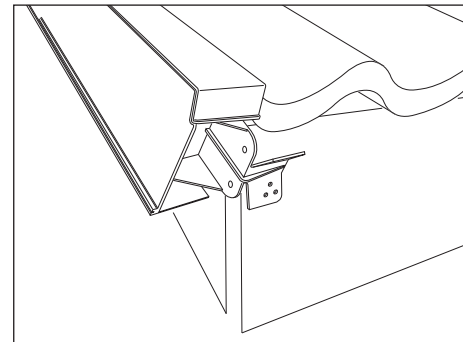


Fig. 3 – Mechanically fix starter unit

# UNIVERSAL dry verge system

- 7 Nail the verge unit to the tiling batten using the appropriate hole (nearest to the centre of the tiling batten) with 40mm x 3.35mm annular ring shank nail provided in the fixing kit (Fig. 4).
- 8 Fix subsequent dry verge units as tiling proceeds, or in a single operation after completion of roof tiling. Ensure that the verge tiles are fully inserted into verge units.
- 9 Successive dry verge units are interlocked together by sliding upwards against unit below, ensuring that lugs on outside of verge unit fit into internal locating slots (Fig. 5).

**IMPORTANT:** Verge units can be slid together at two different height positions dependent on the roof tile profile and therefore it is important that the underside of the top flange of each verge unit is in contact with the top surface of the roof tile and slid upwards to engage in the correct height position.

All verge tiles should be mechanically fixed in accordance with BS 5534 in addition to the use of the Universal dry verge units, i.e. by nailing, clipping or screwing as appropriate.

## Use with dry ridge system battens

- 10 At apex of roof, where battens are located, retain top course dry verge unit by securing a 30mm long pozidrive head screw (supplied) into second series of holes in verge unit and locate it behind nib section of dry ridge batten (Fig. 6).
- 11 If required, trim flange of ridge and cap to fit between top course verge units (Figs. 9 and 10). Screw ridge end cap to end of dry ridge batten by locating 25mm x 8g stainless steel screws into end of circular beads on upper flange (Fig. 7).

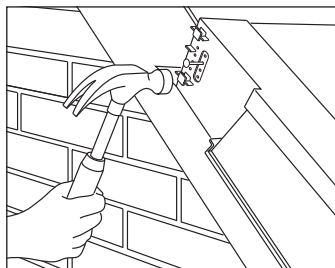


Fig. 4 – Nail fix verge unit

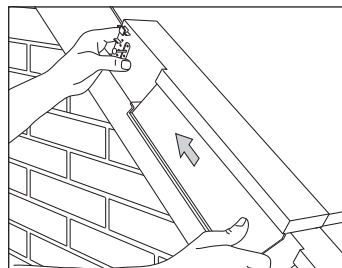


Fig. 5 – Slide up each unit to interlock

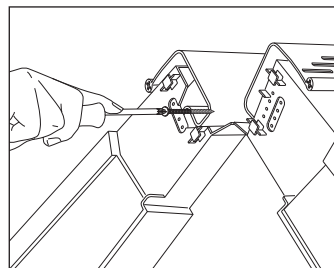


Fig. 6 – Screw verge units at apex of verge

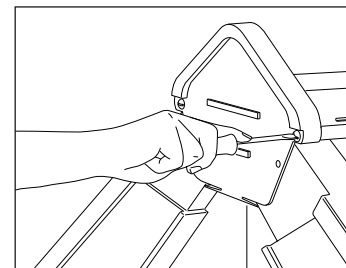


Fig. 7 – Screw fix ridge end cap

# UNIVERSAL dry verge system

## Using bedded ridges and RidgeFast dry ridge

- 12 Screw ridge end cap through top course verge unit, to end of top course tiling batten. Locate 25mm x 8g stainless steel screws through lower, partly formed fixing holes (Fig. 8).
- 13 If required, trim flange of ridge end cap to fit between top course verge units (Figs. 9 and 10). Top course verge unit is secured to end of top course tiling batten in normal manner.

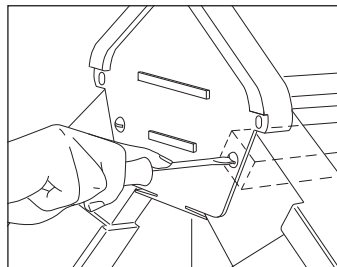


Fig. 8 – Screw ridge end cap

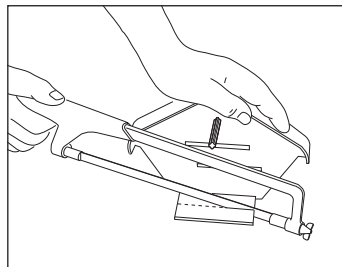


Fig. 9 – Cutting end cap flange

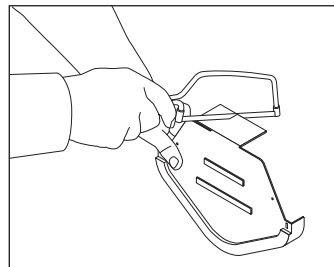


Fig. 10 – Cutting end cap flange

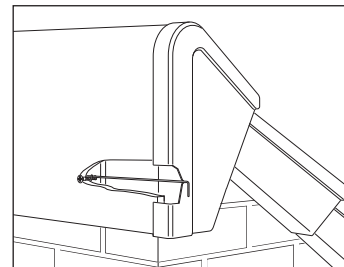


Fig. 11 – Mono-ridge end cap

## Mono-ridge end cap fixing wire

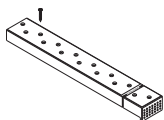
- 14 Construct dry verge units as before up to the roof apex.
- 15 Prior to fixing the gable end mono-ridge tile, push the security wire through the outside face of the mono-ridge tile (using the same fixing hole for screwing the mono-ridge tile to the wall) and bend through 90° (Fig. 11).
- 16 Feed the free end of the wire through the hole in the mono-ridge end cap. Push the end cap tightly against the mono-ridge tile and bend the wire protruding through the end cap downwards flush with the vertical face.
- 17 This assembly can now be placed into position, securing the mono-ridge tile with the stainless steel screws provided. The leading edge of the end cap is secured to the dry ridge batten section (or end of top tiling batten for mortar bedded ridges) using a 25mm x 8g stainless steel screw supplied in the fixing kit.



# UNIVERSAL dry verge refurbishment kit

The dry verge refurbishment kit facilitates the application of Universal dry verge systems to existing tiled roofs, where mortar bedded verges require replacement.

## Components



Dry verge refurbishment fixing kit (code 53580)

> 24 No. batten extension units (suitable for 38mm x 25mm battens only)

## Installation

- 1 Rake out and carefully remove all mortar bedding at verge and ridge ends.
- 2 Remove one row of roof tiles and end ridge tiles immediately adjacent to verge.
- 3 Remove any mortar adhering to these tiles in the area where they engage on tiling batten and at headlap.
- 4 Remove undercloak (fibre cement strip or tile) and check that visible parts of tiling battens are in good condition.

- 5 Fit batten extension units onto the ends of tiling battens, using line moulded into top of unit as guide, so that they should overhang gable end by 45 - 50 mm. Use 3 x No. 6 20mm stainless steel screws, ensuring 'ridge side' face is in contact with back face of batten.

Note: If any battens are damaged or rotten, cut back to good timber prior to fixing batten extension units. Where extensive damage has occurred, replace affected batten by a new section. Fixing flange of batten extension unit can be cut off to leave a continuous U-shaped channel and can be used as a bridging piece between new and old batten ends, avoiding the need to remove additional roof tiles.

- 6 Commence installation of the dry verge units in accordance with the fixing instructions (product codes 53930 or 53830), by aligning an appropriate hole in verge unit with a suitable hole in the end flange of batten extension unit.
- 7 Secure each verge unit using No. 6 x 20mm stainless steel screws.
- 8 Subsequent dry verge units can be fixed either during tiling operation or after tiles have been laid.
- 9 End ridge tiles should be re-bedded and secured by ridge end cap.

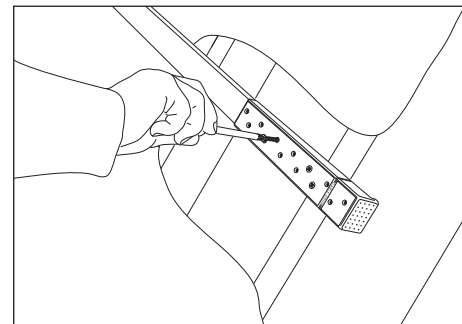


Fig. 1 – Fit extension unit using line moulded into unit top unit as guide

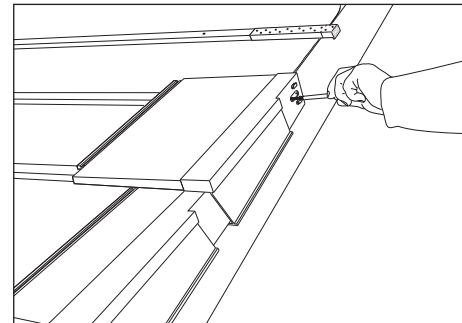


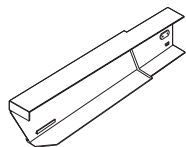
Fig. 2 – Commence installation of dry verge units in normal manner

# Edgemere dry verge system

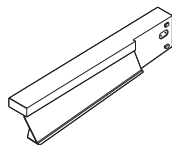
The Edgemere dry verge system provides a strong, weathertight and maintenance-free verge. Individual verge units retain the stepped appearance of a traditional mortar bedded verge while mechanically fixing the verge tiles.



## Components



Edgemere dry verge unit (LH code 381)



Edgemere dry verge unit (RH code 382)



Edgemere ridge end cap (code 384)



Modern mono-ridge end cap and wire hook (RH code 409, LH code 408)



Edgemere dry verge fixing kit\* (code 53830)



\* Kit contains:

- > 28 No. 40mm x 3 mm aluminium alloy A.R.S. Nails
- > 2 No. 25mm x 8g stainless steel screws
- > 2 No. starter inserts
- > 2 No. 30mm x 8g stainless steel, pozidrive headed screws
- > 2 No. nylon spacers

# Edgemere dry verge system

## Installation

- 1 Set out eaves course of roof tiles in normal manner, ensuring that wherever possible full tiles complete verge overhangs.
- 2 Saw tiling battens off square to overhang bargeboard or brickwork by 50mm and nail within a maximum of 500mm from ends (Fig. 1).
- 3 Position top course tiling battens to suit roof pitch and lap at a maximum of 85mm from roof apex.
- 4 Place first eaves roof tile in position overhanging the verge.
- 5 Slide starter insert into internal fixing channels of dry verge unit, and position assembly over eaves roof tile into position at which it will be fixed (Fig. 2).
- 6 Mark location of a suitable fixing position against gable wall or bargeboard through one of the slots in starter insert.
- 7 Remove roof tile and dry verge unit and slide out starter insert.

- 8 Once removed, re-locate starter insert in marked position and mechanically fix through spacer supplied, trapping between starter insert and gable wall or bargeboard (Fig. 3).

Note: Where brickwork is encountered, starter inserts should be drilled and plugged to ensure secure fixing.

For non-standard eaves/verge constructions, contact the Technical Advisory Service for advice on fixing.

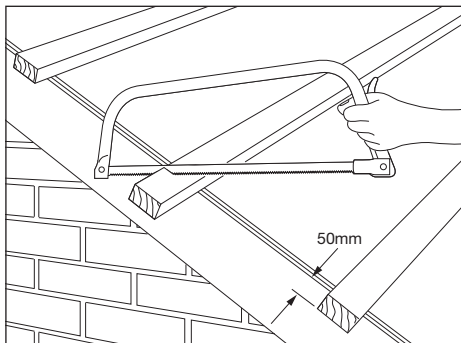


Fig. 1 – Position top course tiling battens

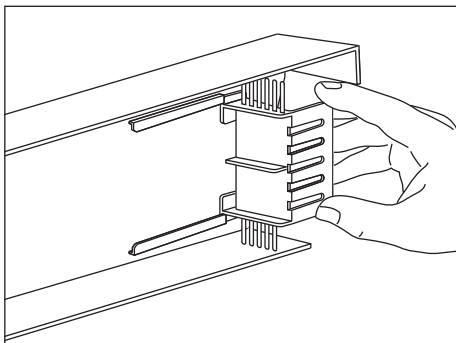


Fig. 2 – Locate starter insert in dry verge unit

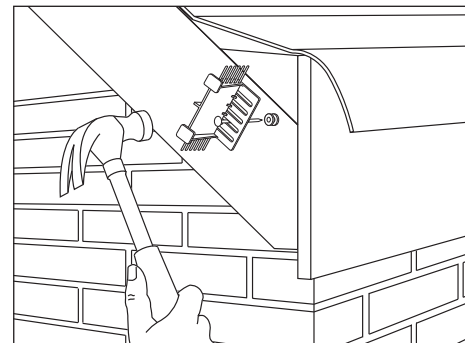


Fig. 3 – Mechanically fix starter unit

# Edgemere dry verge system

- 9 Engage eaves course dry verge unit with lugs of the starter insert.
- 10 After sliding eaves roof tile downwards into position, nail verge unit using appropriate hole (i.e. nearest to the centre of tiling batten) with 40mm x 3.35mm annular ring shank nail provided in fixing kit (Fig. 4).

Note: Ensure that nail head fits flush into moulded recess around the nail hole and does not interfere with fitting of next verge unit.

- 11 Fix subsequent dry verge units as tiling proceeds, or in a single operation after completion of roof tiling. Ensure that verge tiles are fully inserted into verge units.

- 12 Successive dry verge units are interlocked together by sliding upwards against unit below, ensuring that lugs on outside of verge unit fit into internal locating slots (Fig. 5).

**IMPORTANT:** All verge tiles should be mechanically fixed in accordance with BS 5534 in addition to the use of the Edgemere dry verge units, i.e. by nailing, clipping or screwing as appropriate.

## Use with dry ridge system battens

- 13 At apex of roof, where battens are located, retain top course dry verge unit by securing a 30mm long pozidrive head screw (supplied) into second series of holes in verge unit and locate it behind nib section of dry ridge batten (Fig. 6).

- 14 If required, trim flange of ridge end cap to fit between top course verge units (Figs. 9 and 10, page 122). Screw ridge end cap to end of dry ridge batten locating 25mm x 8g stainless steel screws into end of circular beads on upper flange (Fig. 7).

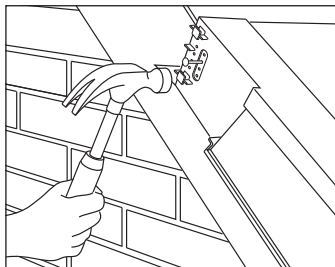


Fig. 4 – Nail fix verge unit

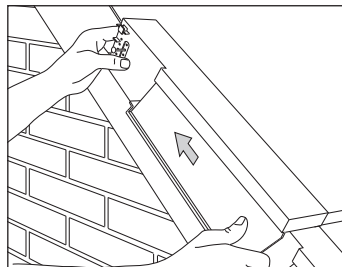


Fig. 5 – Slide up each unit to interlock

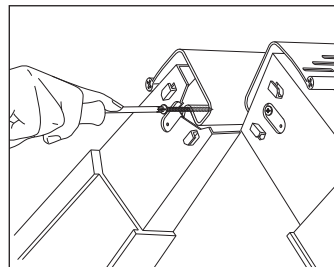


Fig. 6 – Screw verge units at apex of verge

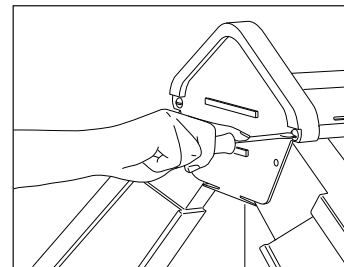


Fig. 7 – Screw fix ridge end cap

# Edgemere dry verge system

## Use with bedded ridges and RidgeFast dry ridge

- 15 Top course verge unit is secured to end of top course tiling batten in normal manner.
- 16 If required, trim flange of ridge end cap to fit between top course verge units (Figs. 9 and 10). Screw ridge end cap to top course verge unit, locating stainless steel screws through lower, partly formed fixing holes (Fig. 8).

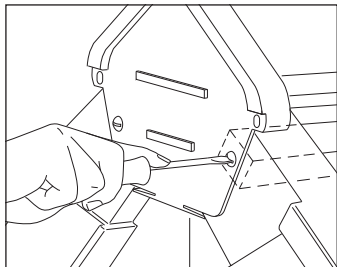


Fig. 8 – Screw ridge end cap

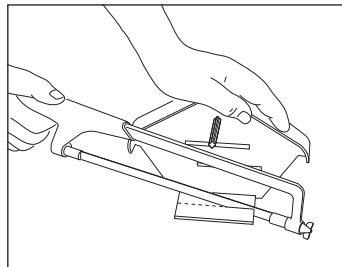


Fig. 9 – Cutting end cap flange

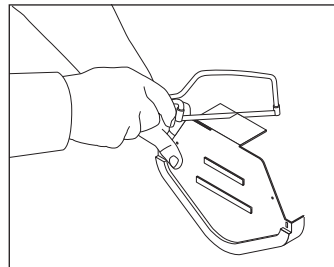


Fig. 10 – Cutting end cap flange

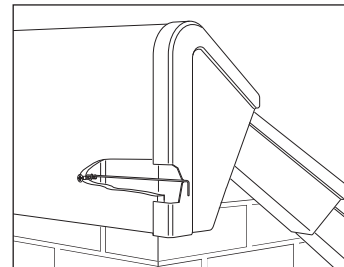


Fig. 11 – Mono-ridge end cap

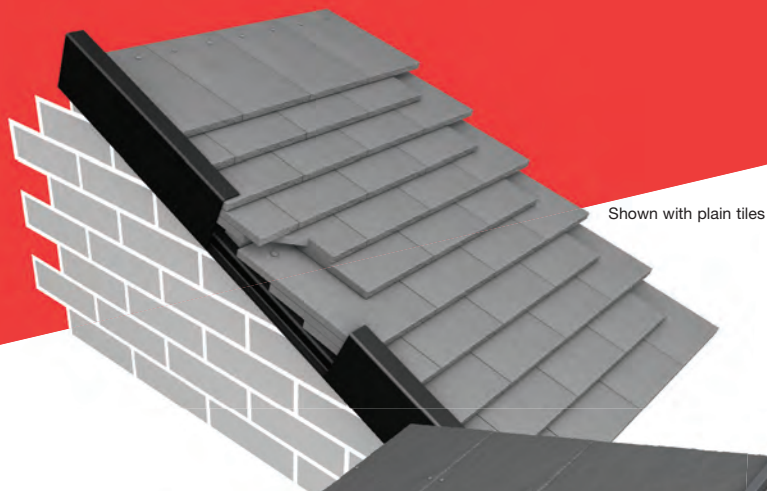
## Mono-ridge end cap fixing wire

- 17 Construct dry verge units as before up to the roof apex.
- 18 Prior to fixing the gable end mono-ridge tile push the security wire through the outside face of the mono-ridge tile (using the same fixing hole for screwing the mono-ridge tile to the wall) and bend through 90° (Fig. 11).
- 19 Feed the free end of the wire through the hole in the mono-ridge end cap. Push the end cap tightly against the mono-ridge tile and bend the wire protruding through the end cap downwards flush with the vertical face.

- 20 This assembly can now be placed into position, securing the mono-ridge tile with the stainless steel screws provided. The leading edge of the end cap is secured to the dry ridge batten section (or end of top tiling batten for mortar bedded ridges) using a 25mm x 8g stainless steel screw supplied in the fixing kit.

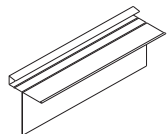
# Continuous dry verge systems

For use with fibre cement slates, Ashmore interlocking tiles, concrete plain tiles and clay plain tiles

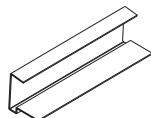


Shown with plain tiles

## Components



Fibre cement slates  
verge trim 3m  
(code MA42206)



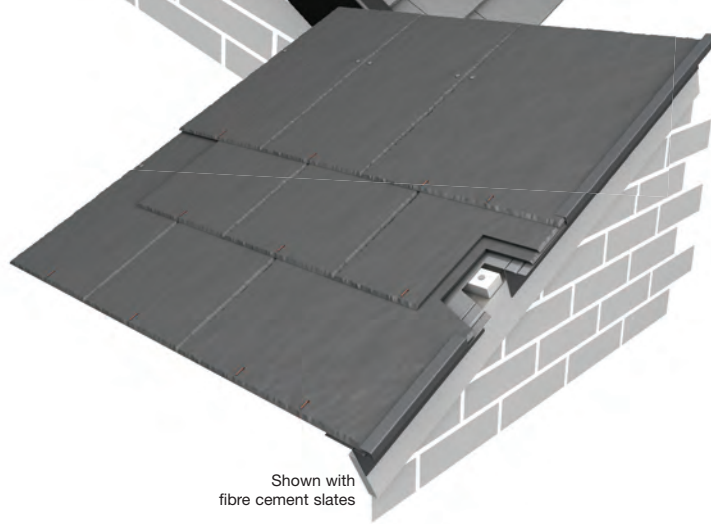
Universal plain tile and  
Ashmore dry verge (3m)  
(code 38501)



Modern ridge end cap  
(code 394)



Plain tile dry verge fixing kit\*  
(code 38510)



Shown with  
fibre cement slates

For advice, literature and samples, Tel 01283 722588 or visit [www.marleyeternit.co.uk](http://www.marleyeternit.co.uk)

Verge systems | 123

\*Kit contains: 1 No. Connector unit, 15 No. 35mm x 2.65mm ARS stainless steel nails, 2 No. 25mm x 10g stainless steel screws

# Slate verge trim

## Installation for standard verge (bargeboards and brickwork)

- 1 Underlay and battens should be laid and cut flush with outer edge of gable wall or bargeboard.
- 2 Position the verge trim on top of the battens and align the vertical leg against the batten ends
- 3 Position the first length to overhang at the eaves into the gutter, by the required amount, and remove part of the down leg to allow fitting of the gutter (Fig. 1).
- 4 Nail the horizontal flange of the trim to each batten using a 25mm long galvanised clout nail ensuring the batten ends are nailed to the substructure.
- 5 When joining adjacent lengths of verge trim, ensure the lower length of trim is nailed securely to each batten (joints at the centre of a batten) (Fig. 2).
- 6 Cut away a rectangle 15mm in from the end of the trim beneath the drip bead (Fig. 3).



Fig. 1 – Nail each length of trim to batten



Fig. 2 – Cut 15mm in from end of trim

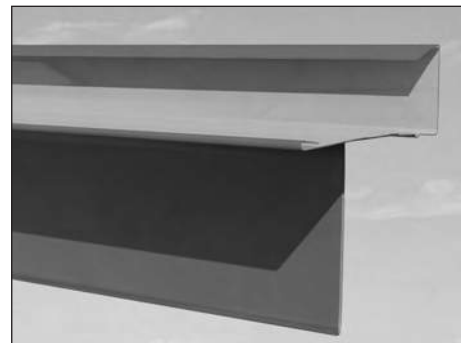


Fig. 3 – Make triangular cut

# Slate verge trim

- 7 Trim the inside corner of the trim. Make a small triangular cut into the top lap of the trim and press down slightly. (Fig. 4). This will allow the upper length to push inside the lower length.
- 8 Ensure the two down legs line up. Firmly push into place and nail into position (Fig. 5).

If the upper leg is to form part of a ridge joint, carry out the apex cutting process prior to nailing to battens.

- 9 Slide the verge slates under the lip of the verge. Trim and nail in accordance with the recommended fixing specification.

Please note that sheet metal cutters should always be used to cut the trim. Use protective gloves when handling to avoid injury from sharp edges.

## Installation at ridge apex

- 1 Prior to fixing, offer the left hand trim up to the apex of the ridge and plumb cut the depth of the trim to the desired angle dependent on the pitch of the roof (Fig. 6).

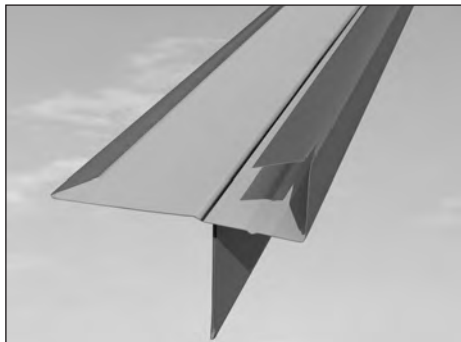


Fig. 4 – Insert upslope trim into lower trim section.



Fig. 5

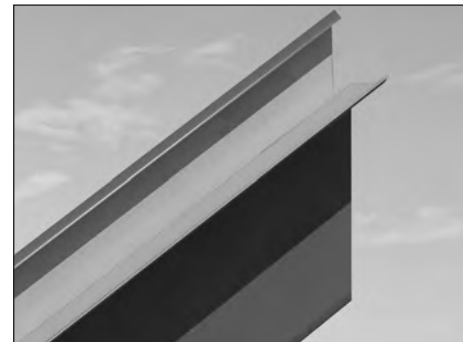


Fig. 6 – Cut trim to correct angle.



# Slate verge trim

- 2 Cut away a slot 30mm x 5mm behind the down leg (Fig. 7).
- 3 Nail the left hand trim into place (Fig. 8).
- 4 Carefully interlock the right hand length of trim into the left hand length (Fig. 9).

The down leg of the right hand length should slot behind the left hand length. Nail the right hand length into position.

Please note that sheet metal cutters should always be used to cut the trim. Use protective gloves when handling to avoid injury from sharp edges.



Fig. 7 – Cut slot



Fig. 8 – Nail left hand trim in place



Fig. 9 – Interlock left and right hand trims

# Plain tile and Ashmore dry verge system

## Installation

- 1 Ensure the gable end is reasonably level and free from projections. The roofing underlay and tiling battens should be laid across the cavity/gable ladder and the battens finished flush with the outer wall or outer edge of the bargeboard (Fig. 1). The verge extrusion is fitted prior to tiling.
- 2 Square cut the ends of the verge extrusion to the desired length. A connector unit is available to join lengths of extrusion. At the eaves, cut away a length of horizontal flange to accommodate the tilting fillet or support tray (Fig. 2).
- 3 At the ridge apex, allow a 10mm expansion gap at the mitred joint between the verge extrusions. Cut away the top flange and 20mm depth of the side wall (Fig. 3) to accommodate the ridge tile (and dry ridge batten section, if appropriate).
- 4 The horizontal flange of the extrusion is pushed between the top of the wall (or gable ladder) and tiling battens along its whole length. Ensure the bottom end lines up with the leading edge of the eaves tiling course (Fig. 3).
- 5 Where necessary, a connector unit is fitted at joints between extrusions (Fig. 4).

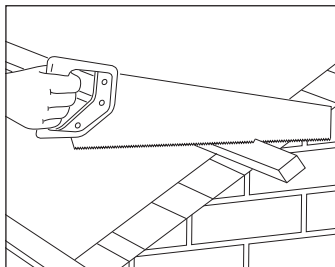


Fig. 1 – Preparing gable end

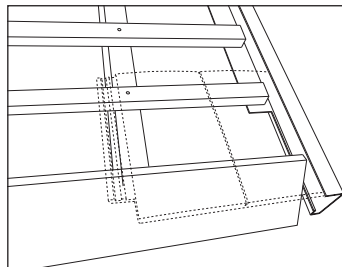


Fig. 2 – Lining up at eaves

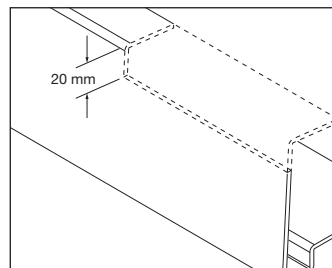


Fig. 3 – Cut away section at ridge

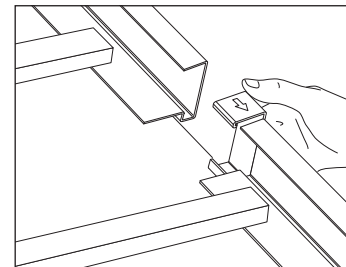


Fig. 4 – Connector units

# Plain tile and Ashmore dry verge system

- 6 Secure the verge extrusion by driving the annular ring shank nails provided through each tiling batten (40mm from the end) into the extrusion (Fig. 5).
  - 7 Lay tiles in the usual manner, ensuring the verge tiles are fully inserted into the verge extrusion and mechanically fixed (Fig. 6).
- ## Fixing at ridge
- 1 When used with the Marley Eternit dry ridge system the low profile batten sections should extend 15mm beyond the outer wall or outer edge of the bargeboard (Fig. 7).
  - 2 When using a ridge end cap with either the Marley Eternit dry ridge or RidgeFast systems, the bottom flange of the cap will need to be reduced to 25mm overall depth (Fig. 8).  
Fix the ridge end cap using the 2 No. 25mm x 10g stainless steel screws provided in the fixing kit.
  - 3 When using a bedded ridge and/or block end ridge tile, the verge extrusion will need to be cut away to accommodate the internal rib of the tile and provide a close fit to the outer face of the verge extrusion (Fig. 9).

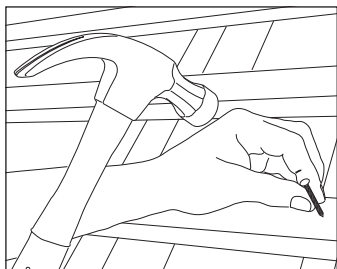


Fig. 5 – Nailing verge units

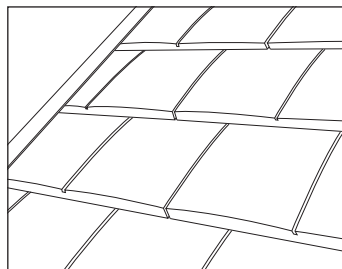


Fig. 6 – Inserting verge tiles

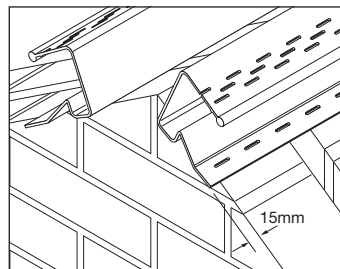


Fig. 7 – Detail at ridge

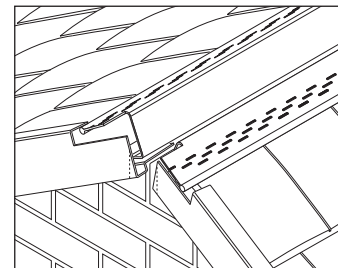


Fig. 9 – Trim units for block end ridge fitting

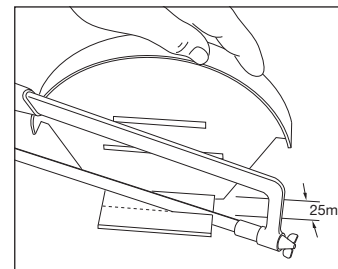
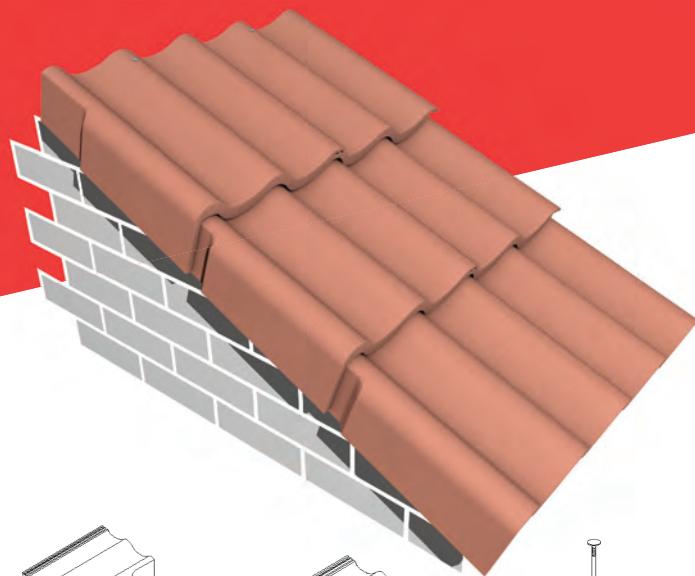


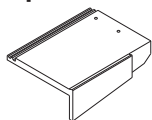
Fig. 8 – Trimming the ridge cap

# Interlocking tile cloak verge system

Marley Eternit cloak verge systems consist of simply installed composite concrete tile and verge units designed to eliminate the need for mortar bedding. They provide a mechanically fixed, durable and maintenance-free finish to the roof verge.



## Components



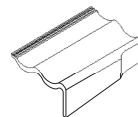
Modern cloak verge tile  
(RH code 370, LH code 371)



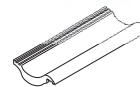
Modern half tile  
(code 372)



Fixing kit for Modern  
(28 No. fixings, code 53730)



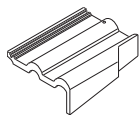
Mendip cloak verge tile  
(RH code 246, LH code 245)



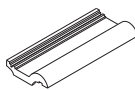
Mendip half tile  
(code 247)



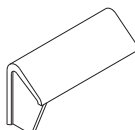
Fixing kit for Mendip  
and Double Roman  
(28 No. fixings, code 54252)



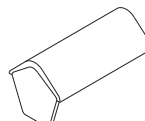
Double Roman cloak  
verge tile  
(RH code 266, LH code 265)



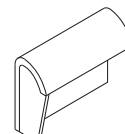
Double Roman half tile  
(code 102)



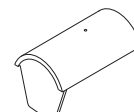
Modern mono-ridge  
block end ridge  
(RH code 375, LH code 376)



Modern block end  
ridge (code 374)



Segmental mono-ridge  
block end ridge  
(RH code 190, LH code 189)



Segmental block end  
ridge (code 191)

# Interlocking tile cloak verge system

## Installation

- 1 Install roof underlay and tiling battens in normal manner, allow underlay to overhang verge by approximately 50mm.

Note: Maximum gauge 345mm (75mm lap), minimum gauge 305mm (115mm gap).

- 2 Saw ends of tiling battens off flush with gable wall or bargeboard and nail within a maximum of 500mm from end (Fig. 1).
- 3 For rafter pitches over 30°, where it is not possible to gain a firm fixing for ends of tiling battens, use a double course of battens across a complete rafter span (two fixings minimum), to increase rigidity of system (Fig. 2).

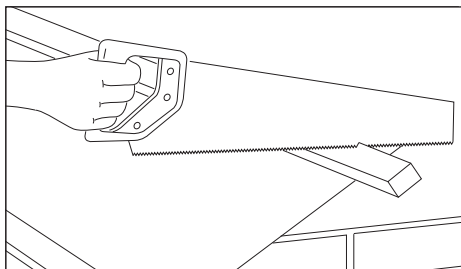


Fig. 1 – Saw fixing battens flush

- 4 If, during setting out, vertical leg of cloak verge unit cannot be closely fitted with brickwork or bargeboard, fix fibre cement undercloak strip beneath tiling battens, to prevent ingress of birds and vermin (Fig. 2).

Note: Maximum overhang using this method must not exceed 50mm, measured to outside of verge unit.

- 5 Position cloak verge unit at eaves and mark position where embedded PVC channel on underside rests on fascia or tilting fillet.
- 6 Remove cloak verge unit and nail comb filler, or cut filler as applicable to top of fascia (excluding Modern).

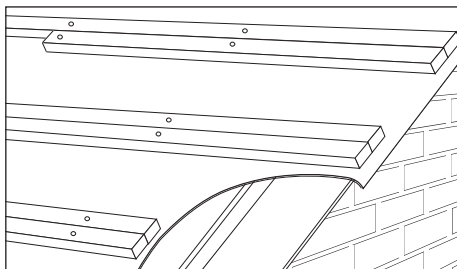


Fig. 2 – Double course of battens increase rigidity

- 7 Drive the stainless steel a.r.s. nail with nylon spacer unit (supplied in Fixing Kit) into top of fascia or tilting fillet to coincide with position of embedded PVC channel.
- 8 Ensure nail and spacer assembly is fitted to align with the pitch of roof.
- 9 Leave a small amount of play to allow cloak verge unit to slide down and engage spacer unit (Fig. 3).

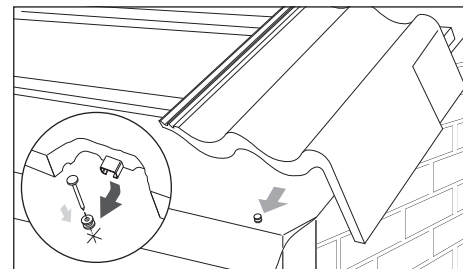


Fig. 3 – Allow play for verge unit to slide down

# Interlocking tile cloak verge system

10 Ensure nibs of cloak verge unit are correctly located against top edge of tiling batten.

11 Drive aluminium nail with spacer unit assembly, through cloak verge nail hole, leaving a degree of free play (Fig. 4).

12 Lay next cloak verge unit in a similar manner, by sliding it down so that embedded PVC channel locates over nylon spacer unit and tile nibs are in contact with tiling battens (Fig. 5).

Note: Nail holes in cloak verge half tiles should be sealed with mastic, when used on roof pitches below 25° and should be clip fixed where required.

13 Install remaining cloak verge units in a similar manner and tile roof in normal way.

14 Fit half tiles, if required, either next to cloak tiles or elsewhere in tiling, ensuring that bond is maintained throughout. Fix by either nail and/or clip fixing.

Lay Modern cloak verge half tiles in alternate courses adjacent to cloak verge units to maintain broken bond of roof tiles (Fig. 6).

15 When installing cloak verge tiles with Marley Eternit dry ridge system for both left hand and right hand top course cloak verge tiles, cut away embedded PVC channel at rear for a distance of 20mm. This allows nylon spacer to cloak verge tile below to locate into the channel.

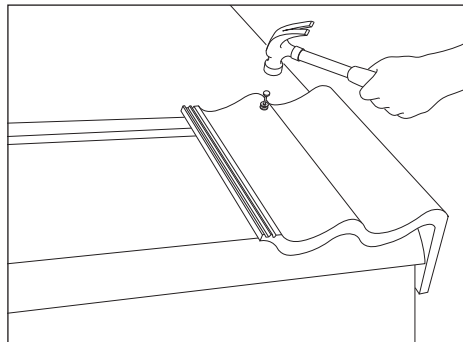


Fig. 4 – Mechanically fix verge unit

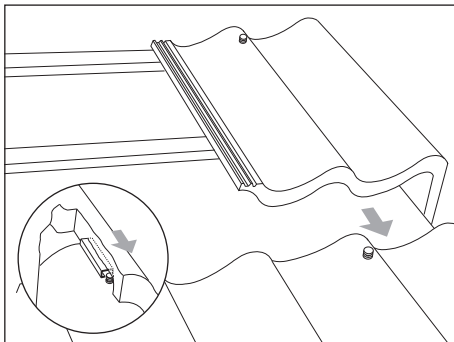


Fig. 5 – Slide next unit down

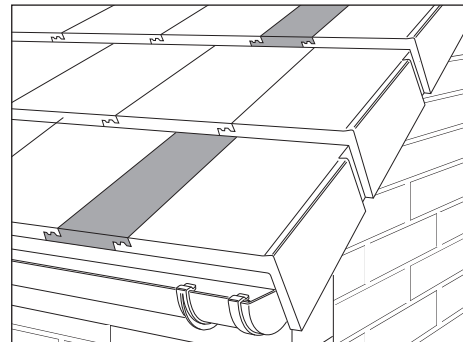


Fig. 6 – Maintain broken bond with half tiles for Modern Cloak Verge

# Interlocking tile cloak verge system

16 Push cloak verge tile upwards and fit into dry ridge batten section (Fig. 7).

17 Install Segmental or Modern block end ridge by either bedding in mortar, or mechanically fixing using Marley Eternit Dry Ridge System or Universal RidgeFast. Mono-ridge block end tiles are available for mono-pitch roofs (Figs. 8 and 9).

Note: Segmental mono-ridge tiles should be used with Marley Eternit Dry Mono-ridge system. When using the Marley Eternit Dry Ridge System, the block end ridge tile should be fixed using a supplementary ridge union fitted over the top of the ridge tile near to the end of the ridge.

18 When using the Marley Eternit Dry Ridge System, the block end ridge tile should be fixed using a supplementary ridge union fitted over the top of the ridge tile near to the end of the ridge.

A maximum 5mm cut should be made in the base of the ridge tile to accommodate the 'claw' of the ridge union. The lugs on the underside of the union should be broken off.

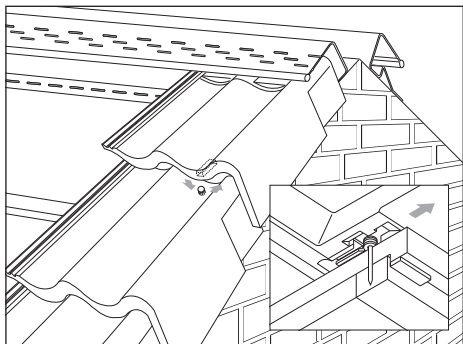


Fig. 7 – Engage nylon spacer with nail into channel of verge unit

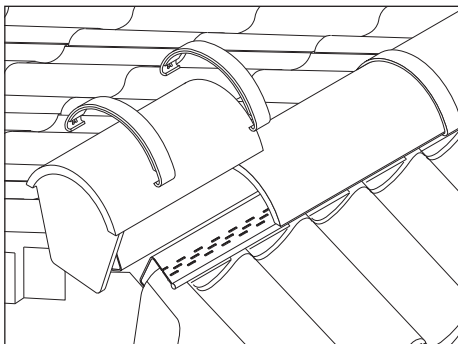


Fig. 8 – Completion at ridge

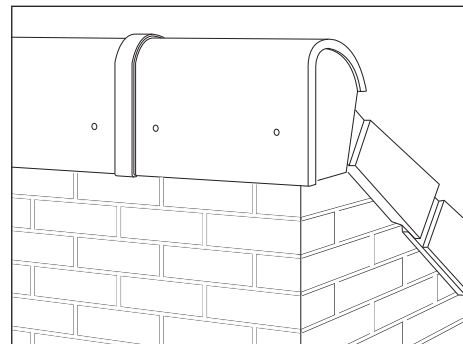
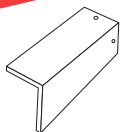


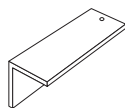
Fig. 9 – Completion at mono ridge

# Clay and concrete plain tile cloak verge system

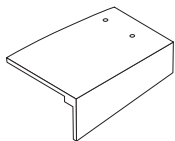
Plain tile cloak verges provide a weatherproof and mortar free finish to the roof verge. They are available in right and left hand units in colours to match the main roof tiles, twice nailed for maximum security. The apex of the roof is finished with matching stop-end ridge tiles.



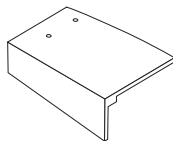
Clay plain tile right hand cloak verge



Clay plain tile left hand cloak verge



Concrete plain tile right hand cloak verge



Concrete plain tile left hand cloak verge



Concrete plain tile cloaked verge shown



# Clay plain tile cloak verge system

## Installation

- 1 Felt and batten the roof in the normal manner, allowing the ends of the tiling battens to over sail the gable wall or bargeboard by 50mm.
- 2 Where possible, set out the tiling so that the leg of the cloak verge fits flush with the brickwork or bargeboard. If so, cut the ends of the battens flush with the outer edge of the gable wall or bargeboard (Fig. 1).

Where setting out dictates, the cloak verge tiles can be laid to a maximum 50mm overhang, a fibre cement strip should be inserted beneath the tiling battens and the top of the wall or bargeboard to prevent the ingress of birds or vermin (Fig. 2).

- 3 Commence laying an under eaves course of tiles using a standard eaves tile or a cloak verge tile cut down to size (Fig. 3). Where possible use a standard eaves tile, but establish what will be required for the top course at the roof apex, to ensure that the same unit is provided on both sides of the apex. In this way, opposite gable ends can be constructed with cloak verge tiles in different courses, but will still maintain a balanced appearance when viewed from the ground.

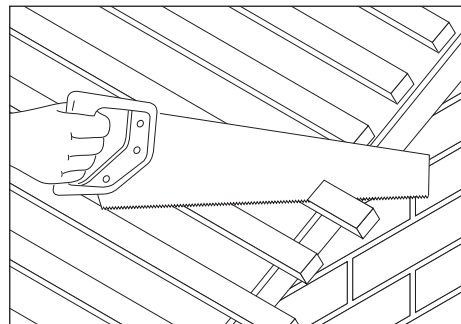


Fig. 1 – Saw battens flush

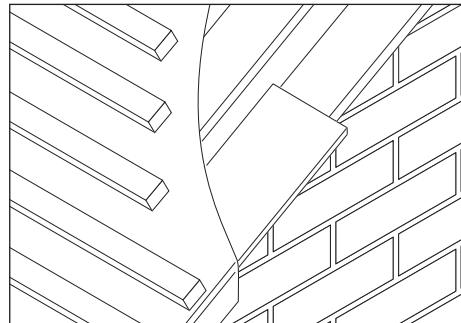


Fig .2 – Fibre cement strip inserted under battens, 50mm overhang

# Clay plain tile cloak verge system

- 4 Nail the eaves cloak verge tile with 2 No. 38mm x 3.35mm aluminium or stainless steel ring shank nails to both top and end of the tiling batten using the holes in the top and vertical leg. Alternatively, if the verge construction allows, a timber batten can be secured to the outer edge of the bargeboard or gable wall to assist nailing the vertical leg of the cloak verge tile (Fig. 3).
- 5 Each alternate course should contain a normal plain tile to break bond, which should be twice nailed using standard 38mm x 2.65mm aluminium or stainless steel nails (Fig. 4).
- 6 The remainder of the verge is completed using successive cloak verge and plain tiles until the apex is reached. The top course may be either a tops/eaves tile or a cloak verge tile cut to size, with nail holes drilled to suit, and fixed as required. If necessary, trim the vertical legs of the cloak verge tiles where steep pitch roofs are encountered.

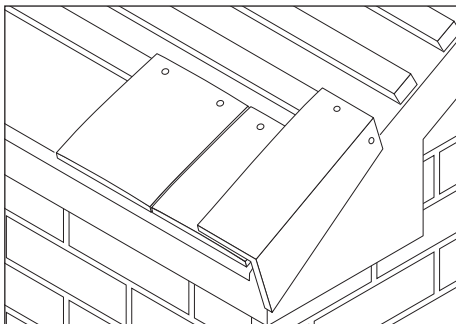


Fig. 3 – Eaves course

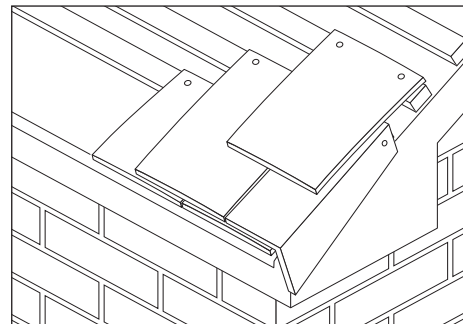


Fig. 4 – Standard tile used to break bond

- 7 Complete the apex closure of the two top course cloak verge tiles by fitting a Stop End Ridge Tile and a tile-and-a-half/gable tile, cut to fit between the vertical legs of the top course cloak verge tiles. Drill and nail cut tile to timber groundwork (Fig. 5).
- 8 Either mortar bed end ridge tile with mechanical fixing, or use a dry fix system.

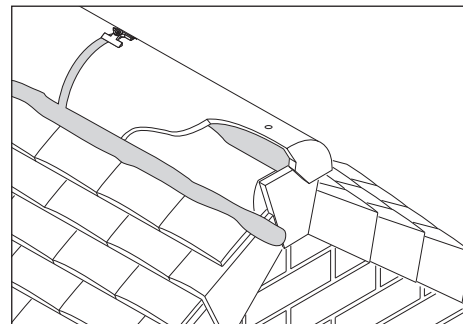


Fig. 5 – Mortar bedded stop end ridge tile used to finish cloak verge at ridge

# Concrete plain tile cloak verge system

## Installation

- 1 Felt and batten the roof in normal way.
- 2 Where possible, set out tiling so that cloak verge tile fits flush with brickwork or bargeboard (Fig. 6).
- 3 Where cloak verge tiles are laid to maximum 50mm overhang, it is recommended that a strip of fibre cement board is fitted between tiling battens and wall or bargeboard to prevent ingress of birds (Fig. 7).
- 4 Fix under-eaves course using either a normal eaves tile or cloak tile cut down to size. Where possible, use standard eaves tiles, but establish what will be required at top course, and ensure that same finish is provided on both sides of apex. In this way, opposite gable ends can be constructed with cloak verge tiles in different courses but still maintain an even appearance when viewed from ground level.
- 5 Fix the eaves cloak verge tile with 2 No. 38mm x 2.65mm aluminium nails (Fig. 8).

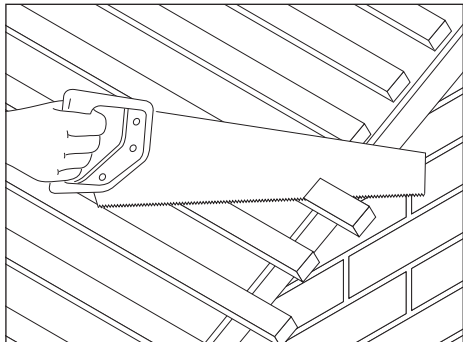


Fig. 6 – Saw battens flush

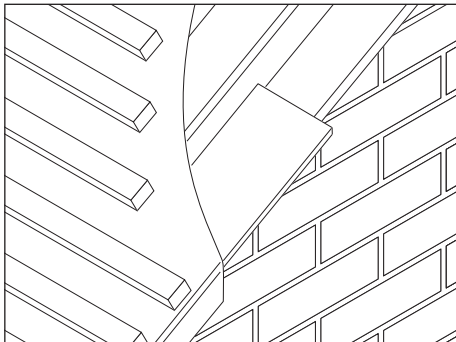


Fig. 7 – Fibre cement strip inserted under battens, 50mm overhang

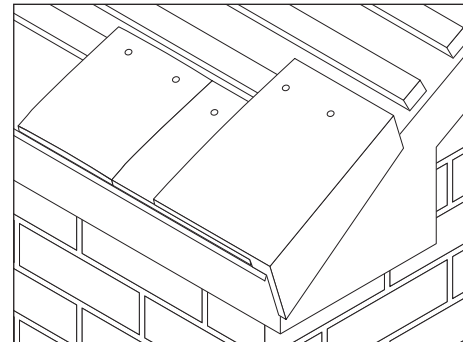


Fig. 8 – Eaves course

# Concrete plain tile cloak verge system

- 6 Each alternate course should contain a tile-and-a-half to break bond and must be twice nailed (Fig. 9).
- 7 Build up verges with successive cloak verge and tile-and-a-half tiles until apex is reached. The top course may be either a tops or eaves tile or a cloak verge tile cut to size with nail holes drilled to suit as required.
- 8 Mechanically fix these or install with Marley Eternit dry ridge system (Fig. 10).
- 9 Lay special block end segmental ridge either bedded in mortar or mechanically fixed by use of Marley Eternit dry ridge system (Fig. 11).
- 10 When using the Marley Eternit dry ridge system, the block end ridge tile should be fixed using a supplementary ridge union fitted over the top of the ridge tile near to the end of the ridge. A maximum 5mm cut should be made in the base of the ridge tile to accommodate the 'claw' of the ridge union. The lugs on the underside of the union should be broken off.

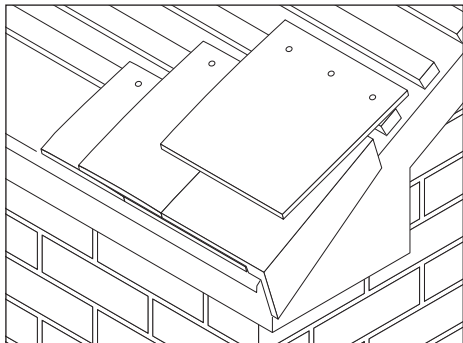


Fig. 9 – Tile-and-a-half used to break bond

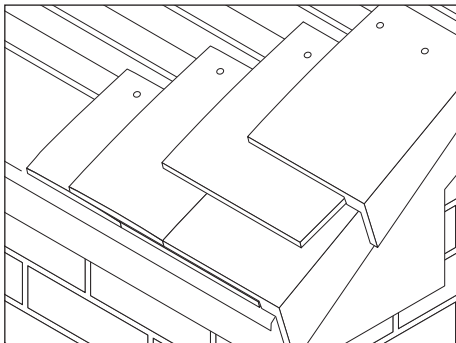


Fig. 10 – Successive courses

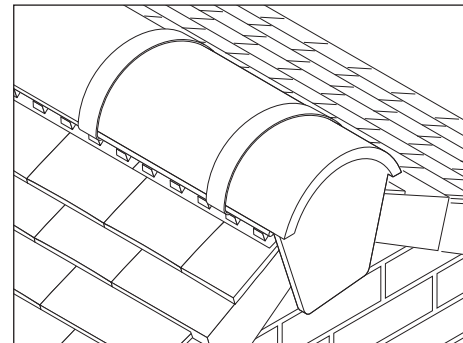
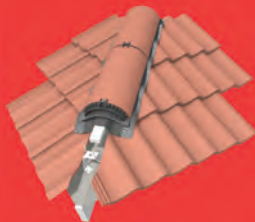


Fig. 11 – Lay special block end ridge

# Hip systems

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139 UNIVERSAL HipFast system



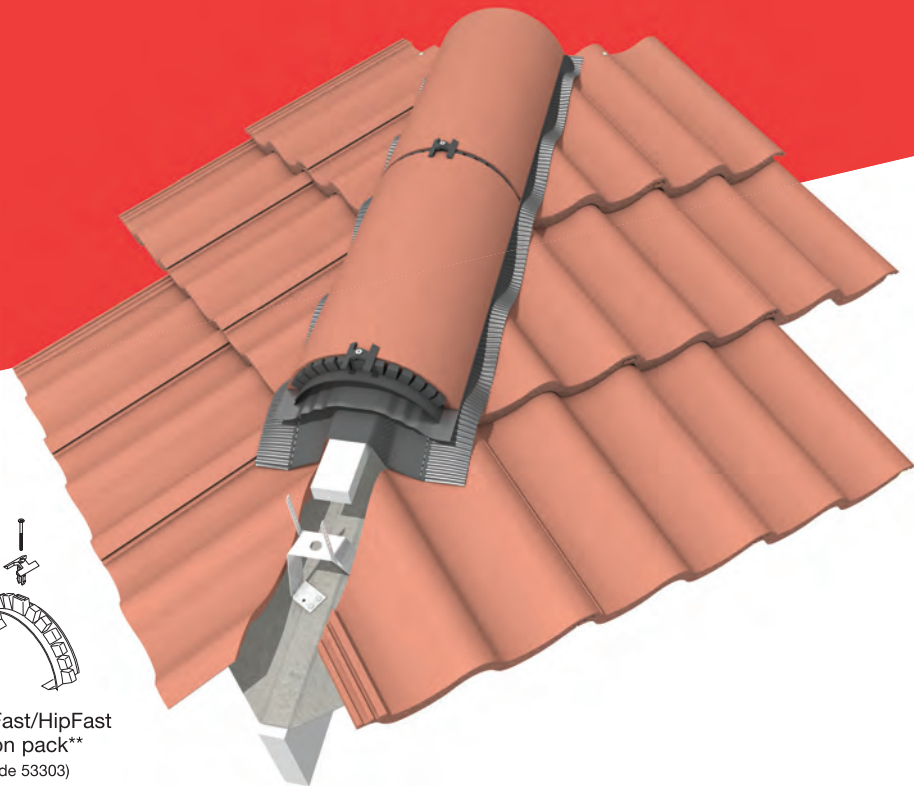
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145 Dry hip system

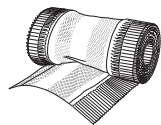


# UNIVERSAL HipFast system

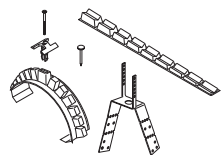
HipFast is a simple and rapidly installed, dry fixed hip system suited to all Marley Eternit tiles and slates, as well as those of other manufacturers.



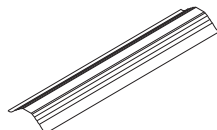
## Components



Universal 6m  
HipFast system\*  
(code 53400)



## Also available



Universal HipFast  
support tray\*\*  
(code 34002)



RidgeFast/HipFast  
union pack\*\*  
(code 53303)

### \* Kit contains:

- > 1 No. 6m length hip roll
- > 11 No. batten brackets
- > 13 No. unions and clamps
- > 2 No. tapered filler units
- > 16 No. 75mm x 4.8mm s/s screws
- > 36 No. 25mm x 3.35mm s/s ARS nails
- > 3 No. washers
- > 24 No. tile head C clips
- > 36 No. tile tail clips

# UNIVERSAL HipFast system

## Installation

- 1 Lay roof underlay and battens in the normal manner, leaving a 5mm continuous gap in underlay either side of hip rafter if roof void is to be ventilated to recommendations of BS 5250. Mitre cut the ends of tiling battens and support on hip rafter (Fig. 1).

If rigid sarking is used, finish the board at side of hip rafter (allow a 5mm continuous gap either side of the hip rafter if the roof void is to be ventilated).

- 2 Fix Hip Batten Brackets to hip rafter using nails provided (4 No. per bracket).

Ensure first Bracket is fixed as close as possible to base of the hip rafter and

topmost Bracket no more than 100mm from hip/ridge apex (when fixing with Plain tiles, tiling battens will require trimming back from hip rafter, locally, to provide space for fitting hip brackets) (Fig. 2). Support any batten ends with noggins.

Fix remaining batten brackets equally over the length of the hip.

Batten Brackets can be fitted at a choice of two heights achieved by bending bracket legs inwards along the appropriate diagonal line of holes, (see table on page 144).

- 3 Tile roof leaving a gap of 80mm between raking cut tiles laid adjacent to hip rafter (Fig. 3). Ensure all raking cut tiles and slates

are fully supported on the battens and if not, provide suitable packers to prevent tiles from rocking.

- 4 Ensure that all raking cut roof tiles along the length of hip are secured using the head 'C' clips and tail clips provided (Figs. 4 and 5).

In areas of high exposure raking cut tiles or slates may be bonded to adjacent fully fixed tiles or slates using an appropriate epoxy resin adhesive. This will minimise the risk of smaller cut pieces of tile or slate becoming dislodged. (Details of suitable adhesives can be obtained from the Technical Advisory Service).

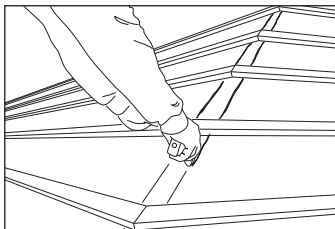


Fig. 1 – Neatly mitre battens

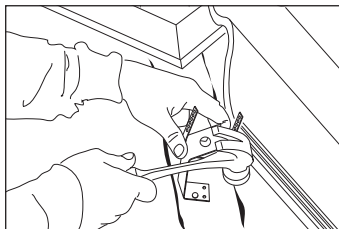


Fig. 2 – Fixing hip batten brackets

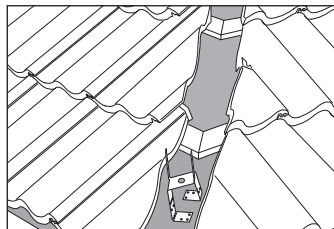


Fig. 3 – Lay tile to hip with raking cut

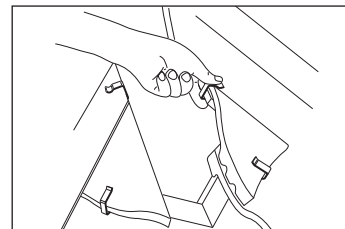


Fig. 4 – Clip all small pieces of tile along hip

# UNIVERSAL HipFast system

Note: When using Plain Tiles, ensure that tile-and-a-halves are used on all courses adjacent to the hip, in order to minimise small cut pieces.

The use of half-tiles with interlocking tiles will also reduce small cut pieces adjacent to the hip.

- 5 Secure either one or two thicknesses of 50mm x 25mm tiling batten to the top of Batten Brackets, parallel to hip rafter, by folding over Batten Bracket arms and nailing through perforations into the battens using nails provided (Fig. 6).

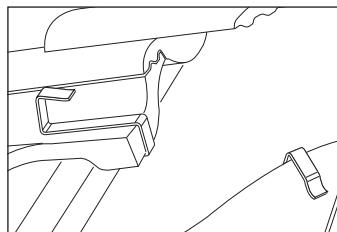


Fig. 5 – Clip all small pieces of tile along hip

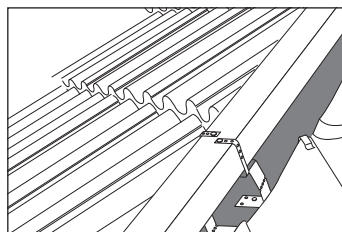


Fig. 6 – Fixing hip batten

Where two battens are needed, ensure lowest is screwed to upper batten before locating into Batten Brackets, with any joints in hip battens made over Batten Brackets to ensure both ends are fixed.

Note: To establish if one or two batten thicknesses are required, place a hip tile over the hip junction at the highest point of the tiling and assess the space remaining between the top of the batten bracket and the underside of the hip tile. Install two battens where two battens locate without fouling the hip tile.

- 6 Starting from eaves, roll out HipFast roll centrally over hip rafter battens, and secure in position using well spaced felt nails, leaving a distance of 100mm to oversail the hip/ridge apex. Joints along hip should be lapped by 100mm to drain water down roof (Fig. 7).

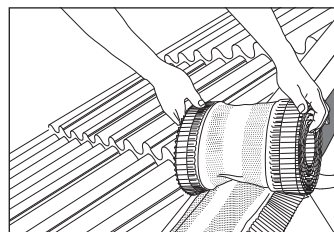


Fig. 7 – Roll out HipFast roll

- 7 Remove backing tape covering both mastic strips from underside of the roll (Fig. 8). Press adhesive strips on both sides of hip firmly onto tiles below to ensure a continuous seal along length of both sides of hip.

Both sides should be dressed down together to ensure edge of roll is kept aligned. Avoid stretching HipFast Roll during fitting.

Wash off any surface dust on raking cut tiles with brush and water and allow to dry thoroughly prior to sticking down the HipFast Roll.

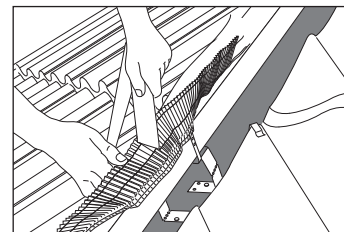


Fig. 8 – Remove backing tape



# UNIVERSAL HipFast system

- 8 In all applications it is recommended that Hipfast support trays (34002) be used. These are designed to ensure the correct support and alignment of hip tiles. Cut a HipFast Hip Support Tray to suit angle and overhang of tiles at eaves (Fig. 9).
- 9 Fit a purpose designed Block End Hip tile tight against eaves tiles and trim the Block End if required. Fix Block End Hip tile through HipFast Hip Support Tray to hip batten using 75mm x 4.8mm screw and sealing washer provided. Tighten securely to ensure a firm seal (Fig. 10).

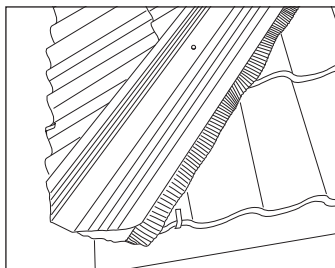


Fig. 9 – HipFast support tray cut at eaves

- 10 Select a hip union, union clamp and 75mm x 4.8mm screw. Fit a union clamp into the central slot in the hip union and offer up the assembly into the open end of the hip tile so that it is trapped between the clamp and the union flange. Where the ends on the union overlap the edges of the hip tile, cut off or fold inward the excess length along the crease lines at either end (Fig. 11).

When the union clamp is fully engaged in the hip union, it may create an interference fit with the sub-structure. In this case, the protruding length of the clamp can be snapped off below the hip union flange.

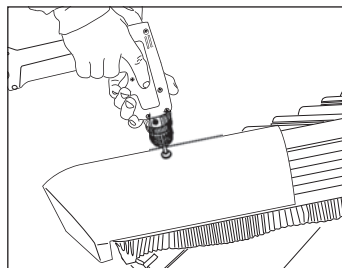


Fig. 10 – Fixing Block End Hip tile

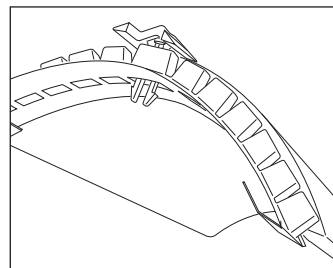


Fig. 11 – Fold in union tabs to suit capping

- 11 Position next Hip tile into open side of Hip Union and Clamp assembly. Continue process of laying support trays (centrally along hip tree at 100mm overlap), hip tiles, unions and clamps ensuring that all tiles are aligned. Ensure screws are tightened well and the edges of the Hip tiles sit evenly on Hip Support Trays (Fig. 12).

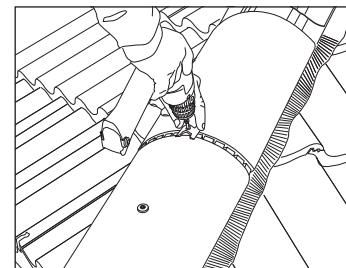


Fig. 12 – Fixing Hip Unions

# UNIVERSAL HipFast system

12 At apex, ensure final Hip tile is a full length unit, with any adjustments to suit the length of hip taken up by cutting the adjacent one or two Hip tiles.

Top Hip tile should be mitred into other Hip and Ridge tiles. The hip support tray should also be mitred at internal angle.

13 Secure the mitred end of the top Hip tile by drilling a 6mm dia. hole centrally through the tile, approx. 125mm down from the apex, using a masonry drill. Fix the Hip tile to the hip battens using a screw with washer provided and weather all mitre joints using a proprietary sealant (Fig. 13).

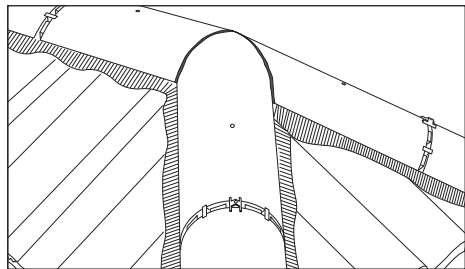


Fig. 13 – Weathering of hip/ridge junction with sealant

Note: When using the Marley Eternit Universal HipFast system with the Marley Eternit Universal RidgeFast system, the mitred end of the Ridge tile should be secured to the drilling and screwing in the manner described above.

14 When using the Marley Eternit Universal HipFast system with alternative ridges, valley and abutment details, a Code 4 lead saddle or soaker may be used to weather the junction (Fig. 14).

16 Where Marley Eternit RidgeFast is also being used and the hip tiles are the same as the ridge tiles, a Tapered Filler unit must be fitted beneath both edges of the end ridge tile to ensure a close fitting mitre can be achieved at the apex (Fig. 15).

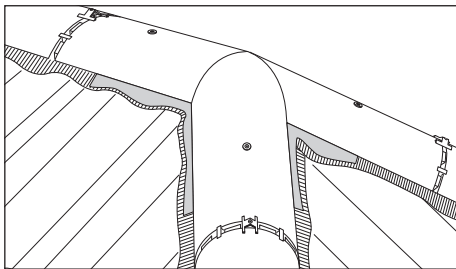


Fig. 14 – Weathering of hip/ridge junction with lead soaker

When using flat tiles or slates, the Fillers are trapped between the RidgeRoll and the bottom edges of the ridge tile, with the deeper end toward the hip. With profiled tiles, a 500mm length of HipFast Support Tray must be nailed centrally to the ridge batten through the RidgeRoll to act as a bearer for the Tapered Fillers and end ridge tile (Fig. 14).

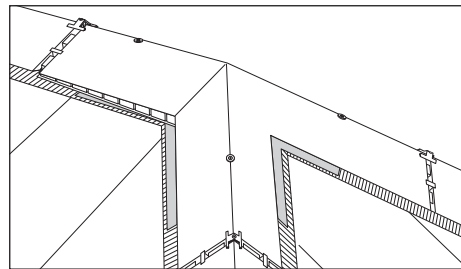


Fig. 15 – Weathering of hip/ridge junction with soaker

# UNIVERSAL HipFast system

## HipFast batten bracket setting table for Marley Eternit roof tiles\*

### Low level batten bracket setting (bend along top row of diagonal holes)

Edgemere range (above 25° pitch)

Ludlow Major (above 32.5° pitch)

Ashmore

Plain

Ludlow Plus

### High level batten bracket setting (bend along bottom row of diagonal holes)

Edgemere range (17.5° to 25° pitch)

Ludlow Major (22.5° to 32.5° pitch)

Modern

Duo Modern

Double Roman

Wessex

Mendip

Anglia

Maxima

Melodie

\* Apply same settings for equivalent tile profiles from other manufacturers

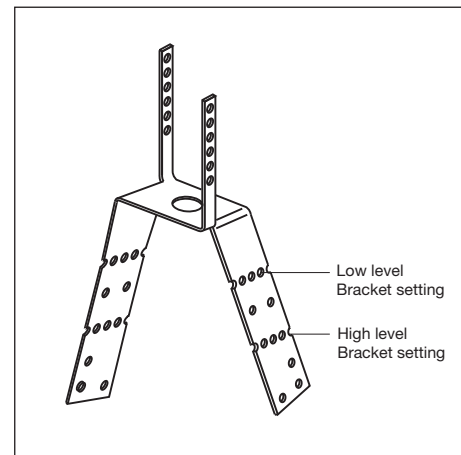
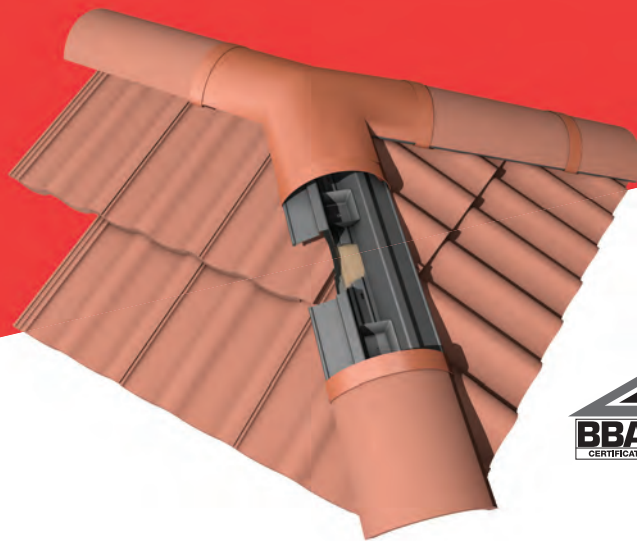


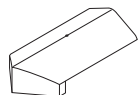
Fig. 16 – Batten Bracket settings

# Dry hip system

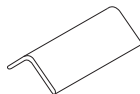
The Marley Eternit dry hip system has been developed to provide a mechanically fixed, weathertight and maintenance-free system for hipped roofs without the need for mortar bedding. It is suitable for use with all Marley Eternit concrete plain tiles and concrete interlocking tiles and is designed for use with third round and modern hip tiles.



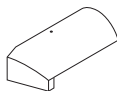
## Components



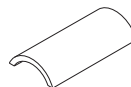
Modern block end  
hip tile (code 292)



Modern ridge/hip tile  
(code 209)



Third round block end  
hip tile (code 291)



Third round hip tile  
(code 289)



Modern hip  
apex cap units:  
15°-24° (code 4381\*)  
25°-35° (code 4382\*)  
36°-45° (code 4383\*)



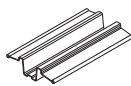
Third round hip  
apex cap units:  
15°-24° (code 4371\*)  
25°-35° (code 4372\*)  
36°-45° (code 4373\*)



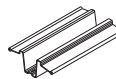
Modern ridge/  
hip union (code 4140\*)



Third round hip union  
(code 4350\*)



Dry hip batten section  
(low profile)†  
(code 43300)



Dry hip batten section  
(high profile)‡  
(code 43400)

Tile tail clip pack  
(20 clips) (code 43602)

Low profile fixing kit  
(code 54360)\*\*

High profile fixing kit  
(code 54361)\*\*

† For Modern, Duo Modern, Ludlow Plus, Double Roman, Ludlow Major, Edgemere, Duo Edgemere, Ashmore and Plain tiles  
‡ For Mendip, Wessex and Anglia

For advice, literature and samples, Tel 01283 722588 or visit [www.marleyeternit.co.uk](http://www.marleyeternit.co.uk)

Hip systems | 145

\* Suffix with colour code ....

\*\* Kits contain: 2 No. 3m lengths of closed-cell rubber foam strips, 5 No. PVCu fixing/ expansion blocks, 12 No. head clips, 2 No. PVCu 'H' section clips, 18 No. tail clips, 7 No. 75mm x 10g s/s drive screws, 1 No block end hip bracket and set screw with sealing washer

# Dry hip system

## Installation

- 1 Felt and batten roof in normal manner, ensuring ends of the tiling battens are cut neatly to a mitre and nailed to hip tree or rafter.

Note: In situations where counter-battens and/or rigid sarking have been fixed to adjacent roof slopes, an additional timber batten of equivalent depth, must be securely fixed to top of hip rafter.

- 2 Lay roof tiles in normal manner and fix in accordance with specification.

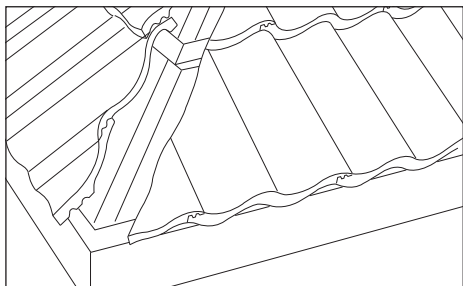


Fig. 1

- 3 Mark and cut tiles accurately, abutting either side of hip rafter in a straight line, to form a gap of 110mm width (Fig. 1). Ensure all raking cut tiles and slates are fully supported on the battens and if not, provide suitable packers to prevent tiles from rocking.

- 4 Secure any small cut pieces of tile\* to adjacent large tile by means of the special head clip (supplied in the fixing kit) and ensure they are fully supported at hip intersection. Ensure orientation of clip is such that end of throat is flush with cut tile (Figs. 2 and 3).

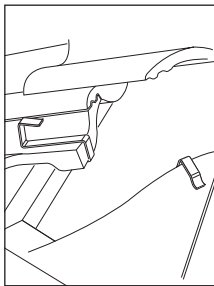


Fig. 2

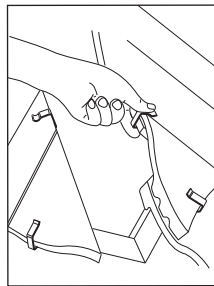


Fig. 3

- 5 In addition, prevent any small cut pieces of tile from slipping down the roof slope by using tail clip (supplied in fixing kit), which is simply bent over back of tile below and fitted over front edge of the cut tile.

In areas of high exposure raking cut tiles or slates may be bonded to adjacent fully fixed tiles or slates using an appropriate epoxy resin adhesive. This will minimise the risk of smaller cut pieces of tile or slate becoming dislodged.

Note: When using Plain tiles, ensure that tile-and-a-halves are used on all courses adjacent to the hip, in order to minimise small cut pieces adjacent to the hip.

\* The use of half tiles with interlocking tiles will also reduce small cut pieces.

# Dry hip system

- 6 Insert the closed cell foam rubber strip (supplied in fixing kit), into recesses on each side of PVCu extruded dry hip batten section (Fig. 5).
- 7 Trim top flanges of batten section to maintain angle of external corner of hip. If necessary, make a horizontal cut in walls of batten section, to enable it to fit over fascia upstand (Fig. 6).
- 8 Locate batten section assembly into gap between cut tiles up length of hip. Two or more lengths may be joined together up hip, ensuring that closed cell foam rubber strip from each section abuts tightly to prevent water ingress (Fig. 7).
- 9 Fit small 'H' section PVCu clips (included in fixing kit), onto top flange of batten section each side of butt joint to provide added support.
- 10 Locate PVCu fixing/expansion blocks inside the dry hip batten section and fix to hip tree or rafter using the 75mm x 10g stainless steel drive screws (supplied in fixing kit) (Fig. 8).
- 11 Position first expansion block at eaves, a maximum 185mm from mitred end of batten section (Fig. 10).
- 12 Position remaining fixing/expansion blocks at approximately 565mm centres from first block.

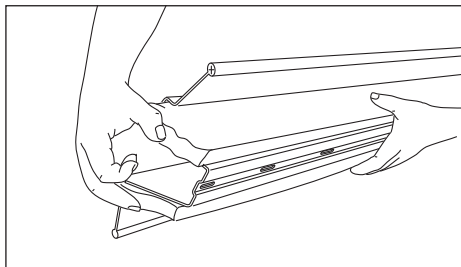


Fig. 5 – Fit foam rubber strip to each side of batten section

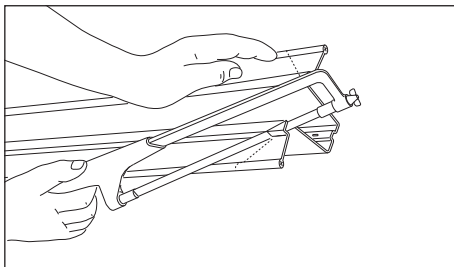


Fig. 6 – Make angled cut, if required

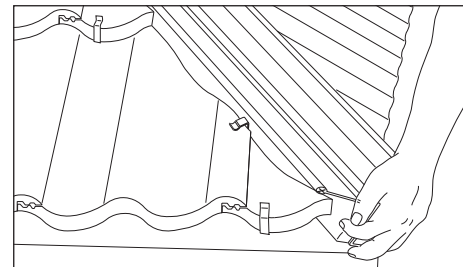


Fig. 7 – Locate Hip Batten Section between cut tiles

# Dry hip system

- 13 Screw firmly into position, so that as they reach base of dry hip batten section, they expand sides of section and form a weathertight seal between closed cell foam rubber strip and raking cut roof tiles.
- 14 Fit last block over junction of two lengths of dry hip batten section to firmly secure both ends.
- 15 Fix uppermost fixing/expansion block as close to apex as possible.
- 16 Commence laying hip tiles from eaves using block end hip tile. Ensure that downstand at end does not foul eaves gutter, and trim if necessary, using a disc cutter.
- 17 Secure block end hip bracket to underside of block end hip tile by assembling set screw and sealing washer through hole in tile to captive nut on bracket (supplied in the fixing kit) .
- 18 Locate block end hip tile and assembly onto top of circular beads of dry hip batten section, and fix end of bracket to hip rafter using two 75mm x 10g stainless steel drive screws (Fig. 10).
- 19 Firmly secure block end hip tile with a PVCu hip/ridge union fitted over end of tile and clip to the circular beads of dry hip batten section.
- 20 Break off locating lugs on underside of hip/ridge union with pincers or other suitable tool before fitting. Make two small cuts (max. 5mm deep) at either side of block end hip tile to allow claws of hip ridge union to clip onto bead of batten section (Fig. 11, page 149).
- 21 Lay remaining hip tiles up length of hip, with each leg seated on top of circular bead. Leave gap of approximately 3mm between each hip tile to allow clearance for locating lugs of the PVCu hip/ridge unions.

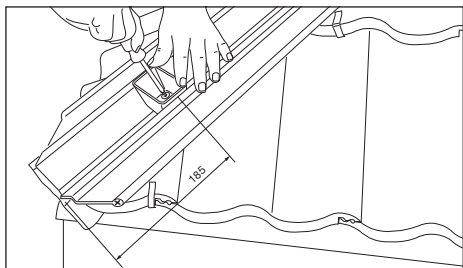


Fig. 8

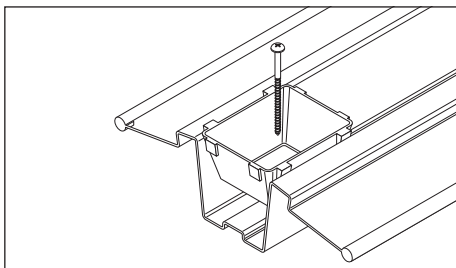


Fig. 9

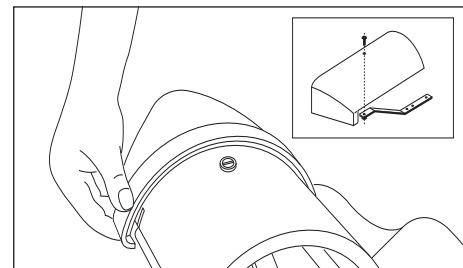


Fig. 10

# Dry hip system

- 22 Secure each hip tile by clipping ends of PVCu hip/ridge union over circular beads of dry hip batten section. Fix any cut hip tiles adjacent to end hip tiles, which must be full tiles (Fig. 14).
- 23 At hip apex, mitre dry hip batten sections together as closely as possible. When forming a junction with the Marley Eternit ventilated dry ridge system, ensure the closed cell foam rubber strip 100mm longer than required, and insert into dry ridge batten sections to ensure a watertight seal (Fig. 12).

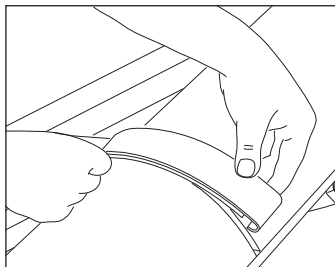


Fig. 11 – Fit ridge unions

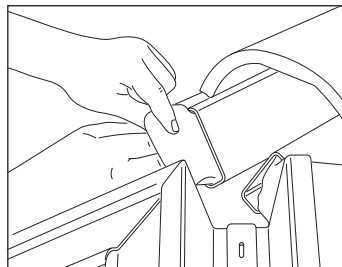


Fig. 12 – Insert closed cell foam rubber slip

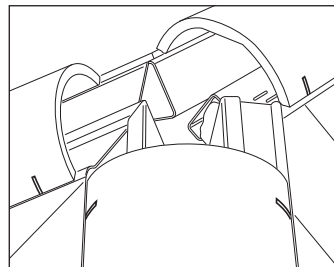


Fig. 13 – Slots cut in ridge/hip tiles

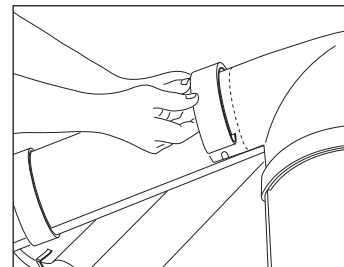


Fig. 14 – Secure apex junction cap with unions

- 24 Place purpose-made Styrosun® PVC apex cap suitable for roof pitch, over uppermost ridge/hip tiles, and mark position of two cut out slots at lower edges. Remove cap and cut a small corresponding slot in hip/ridge tile, maximum 5mm deep (Fig. 13).
- 25 Obtain the three hip/ridge unions suitable for the hip/ridge profile, and break off three central spacers on underside with pincers or other suitable tools. Do not break off two location lugs remaining.
- 26 Secure legs of apex junction cap with hip/ridge unions ensuring that location lugs

align with slot at sides of cap, and are fully clipped to circular beads of dry hip and dry ridge batten sections (Fig. 14). The foam gasket on the underside of the hip/ridge union must be retained.

- 27 Where universal dry hip system does not terminate at a conventional three-way intersection (or as an alternative to a PVC apex cap), the hip/ridge junction can be weathered with a Code 4 or 5 lead saddle with edges secured in above manner.

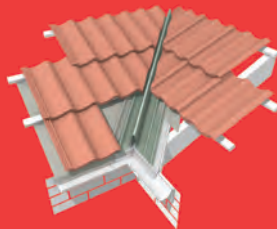
Note: Where special roof groundwork is encountered e.g. rigid insulation boards laid above the roof structure, please consult Technical Advisory Service for advice concerning the suitability of fixings.



# Valley systems

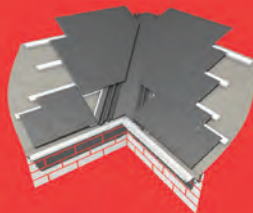
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151 UNIVERSAL dry valley system



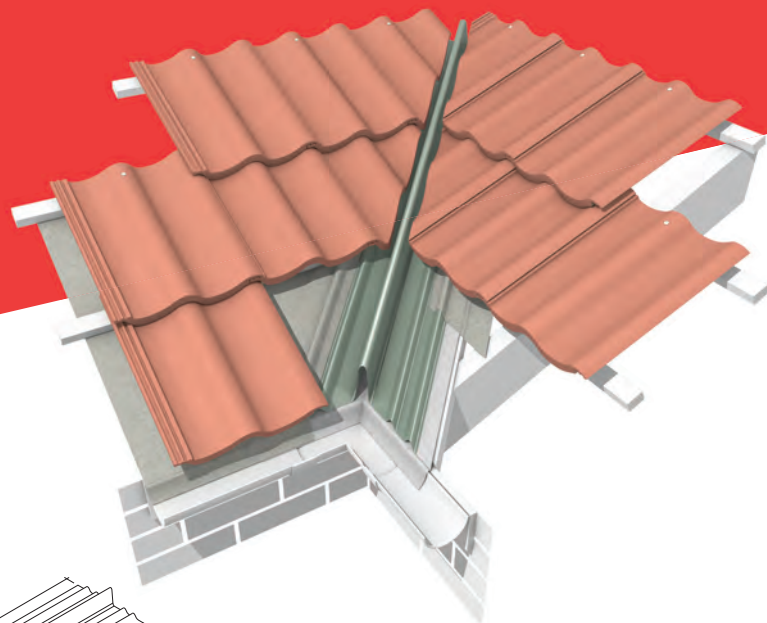
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154 GRP slate dry valley system



# UNIVERSAL dry valley system

Developed to allow the designer freedom to specify a completely mortar-free roof, this system utilises the latest GRP technology. The advanced and unique gutter section improves discharge rates and gives the appearance of a close-cut finish.

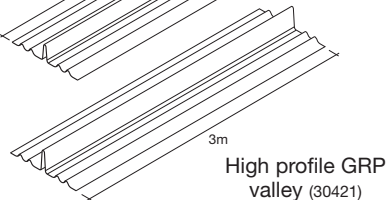
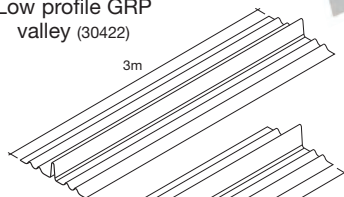


## GRP dry valley trough suitability

Tile	High profile	Low profile
Ludlow Plus	•	
Ludlow Major	•	
Mendip	•	
Double Roman	•	
Anglia	•	
Wessex	•	
Modern/Duo Modern		•
Edgemere/Duo Edgemere		•
Ashmore/Plain		•
Maxima/Melodie	•	

## Components

Low profile GRP  
valley (30422)



High profile GRP  
valley (30421)

# UNIVERSAL dry valley system

- 1 In all cases, valley boards should be fitted. Valley boards may be inset or continuous over the rafters. Where they are inset, they should be a minimum of 12mm thick and supported on bearers or noggins of 50 x 25mm or similar and set at a depth to suit the thickness of the valley board (Fig. 1).
  - 2 Continuous overlaid boards should be minimum of 6mm thick plywood and only butt jointed over a supporting rafter (Fig. 2).
  - 3 The width of the valley boards should extend by a minimum of 50mm beyond the edge of the valley trough. For overlaid boards on rafter spacings above 450mm, it is recommended that support noggins of 75 x 50mm are fixed under the outer edge of the valley board between the rafters (Fig. 3).
- The fascia or barge board may be trimmed to allow the valley trough to pass through without flattening the profile, or alternatively a lead soaker may be used if required.

## Lining the valley

- 4 A single strip of roofing underlay, at least the full width (500mm) of the valley boards, should be laid up the centre and directly on top of the boards allowing for an overlap beyond the fascia line where appropriate and which may be trimmed later (Fig. 4).

## Fixing the valley trough

- 5 Fix dry valley trough by nailing outer welts to supporting timbers at 500mm max, centres, and overlapping lead (Code 4) apron by a minimum of 150-200mm (Fig. 5, page 153).

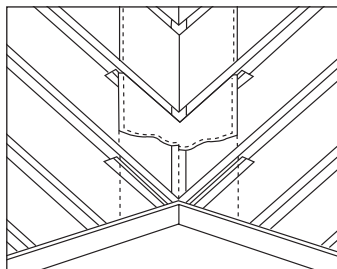


Fig. 1 – Construction of valley boards

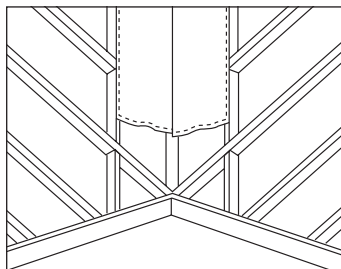


Fig. 2 – Butt joint valley boards over supporting rafters

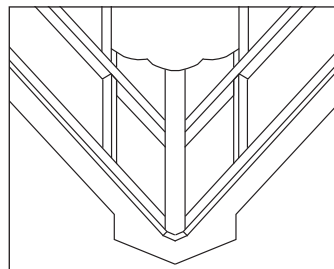


Fig. 3 – Use of support noggins

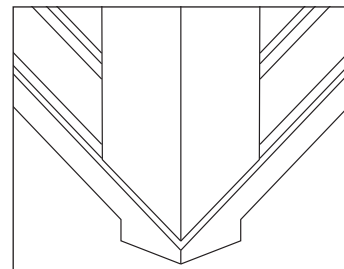


Fig. 4 – Lining the valley

# UNIVERSAL dry valley system

Lay roof underlay to overlap valley trough and trim between outer and inner welts.  
Trim tiling. Battens to lap on to outer welt and nail to supporting timbers.

- 6 Where a lead soaker is to be used at the foot of the valley, i.e. where the dry valley terminates above eaves level or where an eaves intersects with a verge or it is not appropriate to notch the fascia boards, the soaker should be welted at the edge and supported with suitable timber work. The valley trough should be trimmed to suit before fixing if necessary.

## Laying raking cut tiles to valley trough

- 7 Cut raking tiles neatly to butt closely to central upstand of valley trough and secure all small raking cut tiles with tail clips or, where appropriate, use tile and a half tiles to avoid small cut pieces.
- 8 Fill any small voids in the upstand of the valley trough with a suitable mastic.

## Valley intersections

- 9 Where a section of dry valley intersects with another section of dry valley e.g. at

the roof apex of a dormer roof or where one or more sections intersect with the ridge of a roof, it is necessary to mark the angle of intersection and cut the valley trough prior to fixing.

A minimum Code 4-lead saddle should then be dressed over the mitred sections of the dry valley(s) and ridge if necessary. The length of the overlap of the saddle onto the dry valley should be in accordance with LSA guidance. Alternatively, the lead saddle may be dressed over the slates or tiles.

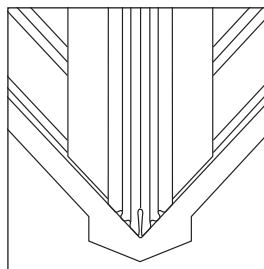


Fig. 5 – Fixing the valley trough

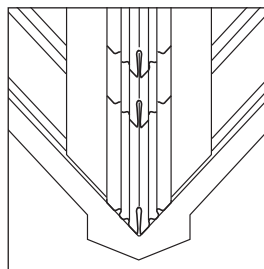


Fig 6 – Valleys terminating above eaves level

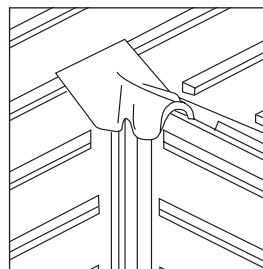


Fig 7 – Mid-slope valley intersection

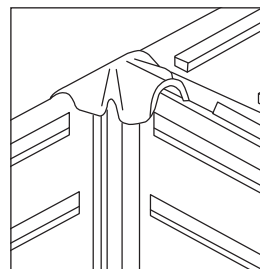


Fig 8 – Roof apex level valley intersection

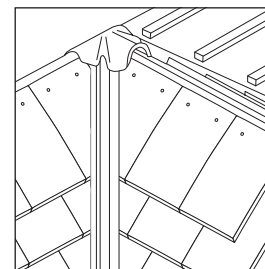
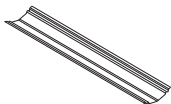


Fig 9 – Cut tiles to rake of valley

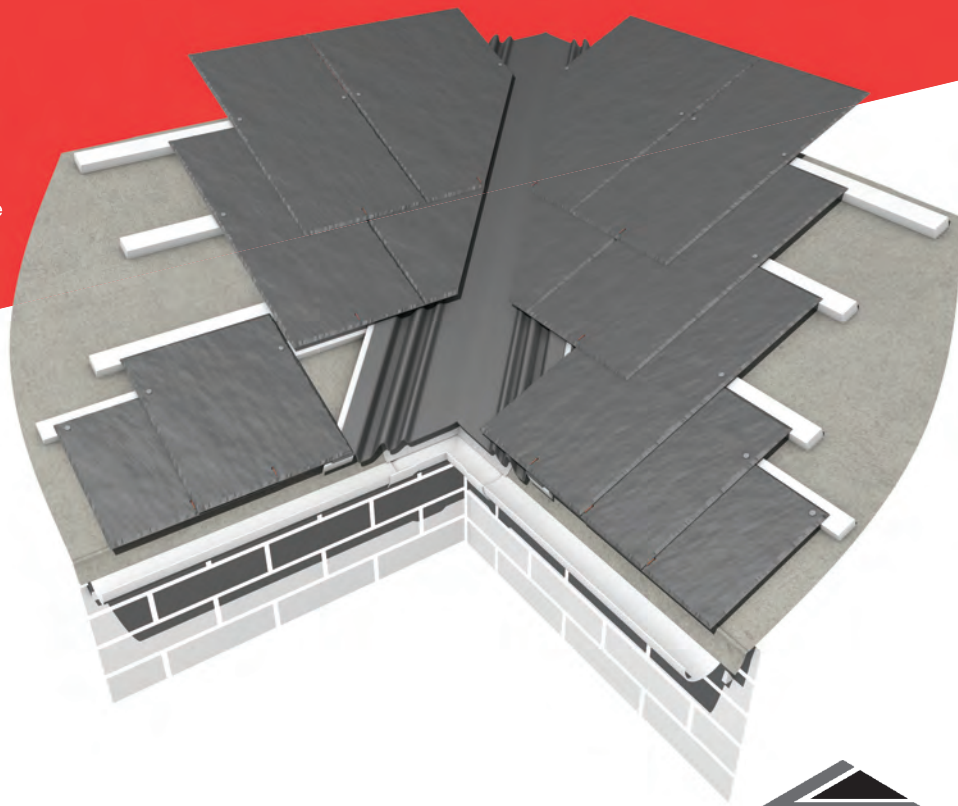
# GRP slate dry valley system

Developed to allow the designer freedom to specify a completely mortar-free roof, this system utilises the latest GRP technology. The advanced and unique parabolic gutter section improves discharge rates without added gutter depth.

## Components



GRP slate dry valley trough (code 30578)



# GRP slate dry valley system

- 1 The valley trough may be fixed directly onto counter battens either to existing or new valley boards.
- 2 The valley should first be lined with an approved underlay one metre wide.
- 3 Counter battens of the same depth as the tiling battens should be nailed onto the valley boards over the underlay.
- 4 The lengths of the valley trough should be firmly pressed down on to the valley board to support the base and nailed, through pre-drilled holes at a maximum of 500mm centres, to the counter battens.
- 5 The roof tile underlay should then be laid and dressed over the counter battens.
- 6 The fascia board should be cut to allow the GRP valley trough to pass through and discharge into the gutter without flattening out. The end should be trimmed to the approximate centre line of the gutter.
- 7 At the head of the valley, a lead saddle should be fixed to lap over the valley trough.

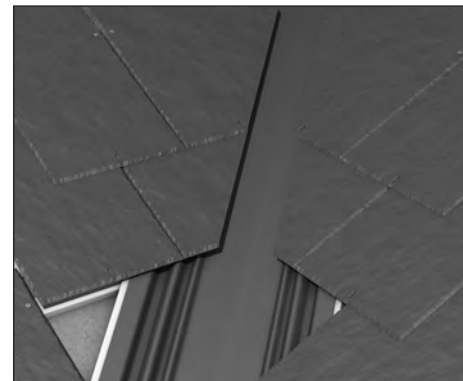
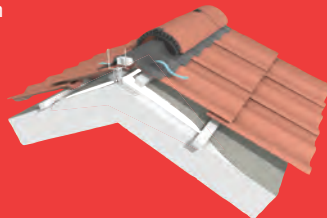


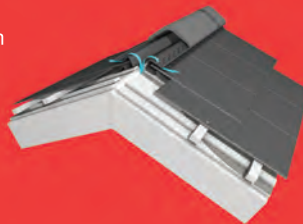
Fig. 1 – Raking cut slates laid with GRP valley trough.

# Ridge systems

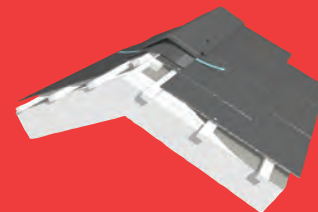
157 UNIVERSAL RidgeFast system



164 Ventilated dry ridge system  
168 Ventilated dry mono ridge system



171 UNIVERSAL Ridge Roll  
for fibre cement slates

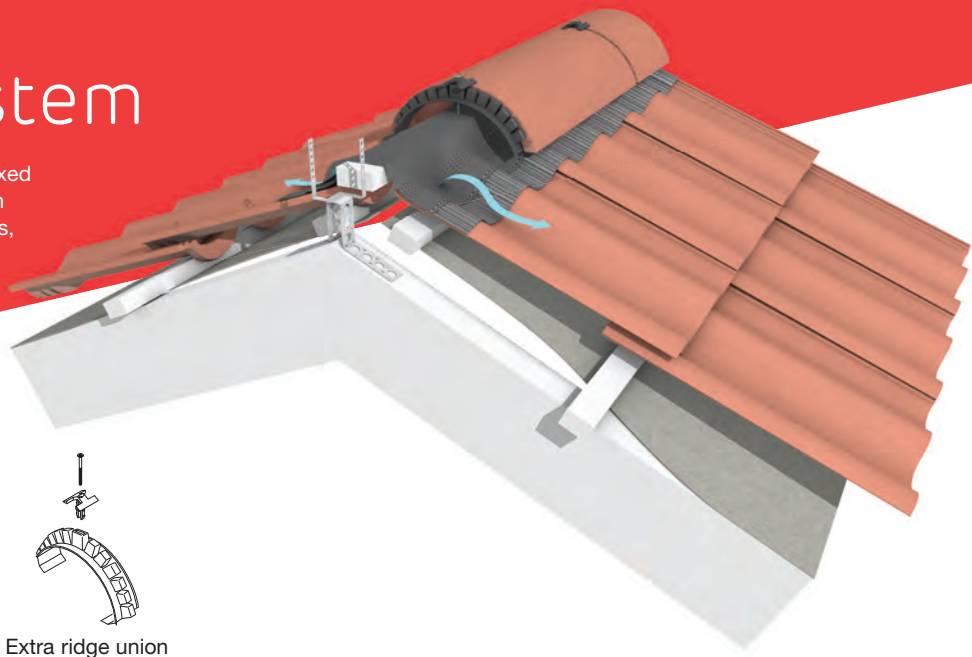


173 Ridge vent terminals

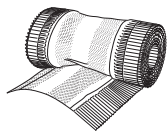


# UNIVERSAL RidgeFast system

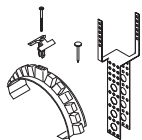
RidgeFast is a simple and rapidly installed, dry fixed ridge ventilation system suitable for all duo- pitch roofs using all Marley Eternit tile and slate profiles, as well as those of other manufacturers.



## Components



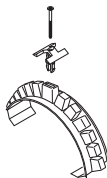
Universal 6m  
RidgeFast system\*  
(code 33000)



## Also available



RidgeFast blanking  
tape (optional)  
(code 33001)



Extra ridge union  
pack (optional)  
(code 53303)

### \*Kit contains:

- > 1 No. 6m length hip roll
- > 10 No. batten brackets
- > 13 No. ridge unions
- > 13 No. ridge union clamps
- > 13 No. 75mm x 4.8mm s/s screws
- > 40 No. 25mm x 2.65mm s/s ARS nails



# UNIVERSAL RidgeFast system

## Installation

- 1 Lay the roof underlay and battens in the normal manner leaving a minimum 5mm continuous gap in underlay at roof apex (refer to BS 5250 recommendations for specific advice) (Fig. 1).

Before fixing top course tiling batten, fix ridge batten brackets to each rafter, centrally about ridge apex, using the 25mm x 2.65mm dia./s ring shank nails supplied.

Note: Where a ridge tree is in place, a ridge batten bracket may not be required. In this case the ridge tree may be raised in height by fixing appropriately sized lengths of timber centrally to ridge tree.

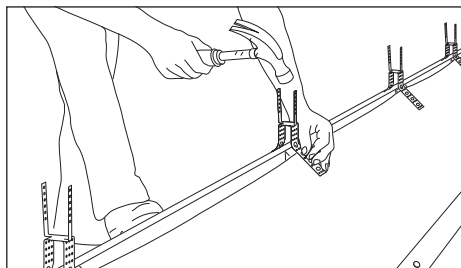


Fig. 1

To achieve required height of ridge batten bracket, legs of bracket need to lie parallel to rafters bent at a position where they will provide a minimum 20mm penetration of the ridge screw into a 25mm thick ridge batten. For all Marley Eternit tiles and slates, please refer to 'RidgeFast batten height setting table', page 163.

To establish the appropriate point at which to bend legs of ridge batten bracket and depth of ridge batten (1 or 2 tiling battens) a short length of top tiling batten should be temporarily nailed into place either side of ridge and onto which a tile is laid. Position

a ridge tile centrally onto roof tiles. By offering up a ridge batten bracket to the side of ridge tile bend point and batten thickness can be assessed so that minimum 20mm screw penetration is achieved.

For further clarification please contact Marley Eternit Technical Advisory Service.

- 2 Fix the top course tiling battens into position, over the ridge batten brackets, leaving approximately 45mm between the rafter apex and the tiling batten to ensure 75mm of ridge tile overlap (Fig. 2).

For RidgeFast bracket settings, see page 163.

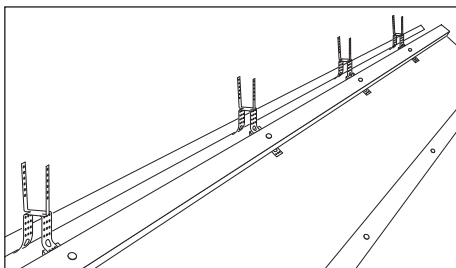


Fig. 2

# UNIVERSAL RidgeFast system

- 3 Place the ridge batten(s) along length of ridge between the perforated straps of ridge batten brackets. Bend over the straps and nail each securely to the ridge batten using the nails supplied. Joints in ridge batten should be made half way across a ridge batten bracket to ensure the ends are secured (Fig. 3).

It is recommended that ridge batten is finished at either end of ridge a little beyond the outer edge of gable end tiles. This will allow for trimming back in accordance with requirements of the chosen ridge end treatment. Where a bedded verge is used,

the ridge batten should be cut back by 100mm from the face of mortar.

With the ridge batten(s) secured to the ridge batten brackets at each rafter, lay and fix the roof tiles in the normal manner.

- 4 Unroll RidgeFast roll centrally along entire length of ridge batten and fix at approximately 2 metre centres to ridge batten using felt nails. Overlap roll ends by 100mm at each joint. At gable ends, roll should be able to lap over the edge of gable tile/verge finish by approximately 50mm (where a bedded verge is used it should be cut back by 50mm) (Fig. 4).

- 5 Remove release paper covering mastic strip on underside of corrugations on both sides of roll.

Ensure area of top course tiles to which RidgeFast roll is to be adhered is dry and clean before proceeding (Fig. 5).

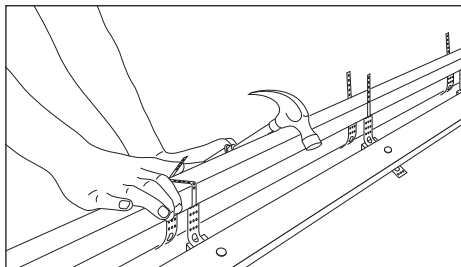


Fig. 3

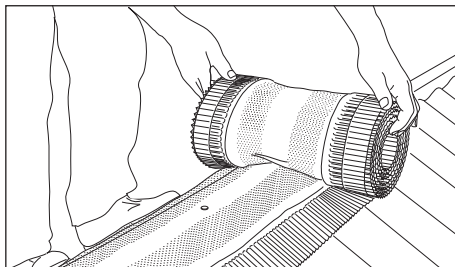


Fig. 4

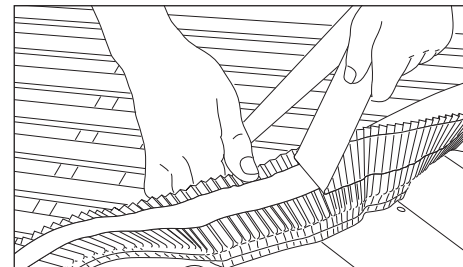


Fig. 5

# UNIVERSAL RidgeFast system

- 6 Firmly press corrugations onto tiles on both sides along length of the ridge. With profiled tiles, it is best to adhere mastic to the top of profile either side of tile pan first, to ensure an even spread of corrugated strip across roof (Fig. 6).
- 7 Lay first ridge tile in correct relative position to gable end and secure to ridge batten, either directly through ridge tile with appropriate fixing, or through ridge end cap.

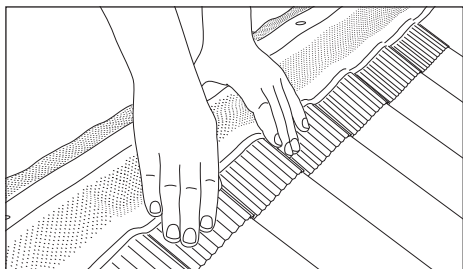


Fig. 6

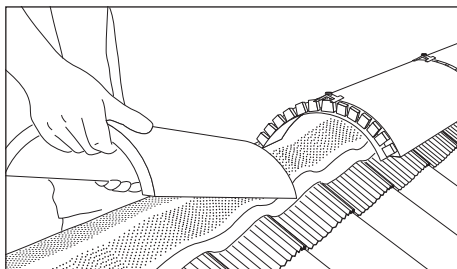


Fig. 7

Select a ridge union, a union clamp and 75mm x 4.8mm s/s screw. Fit a union clamp into the central slot in the ridge union and offer up the assembly into the open end of the ridge tile so that it is trapped between the clamp and the union flange. Ensure it is centrally aligned with the ridge batten. Where the ends of the union overlap the edges of the ridge tile, cut off or fold inward, the excess length along the crease lines at either end (see Fig. 7). Engage the next ridge tile so that it is trapped between the union clamp and ridge union flange.

When the union clamp is fully engaged in the ridge union, it may create an interference fit with the sub-structure. In this case, the protruding length of the clamp can be snapped off or folded below the ridge union flange (Fig. 8).

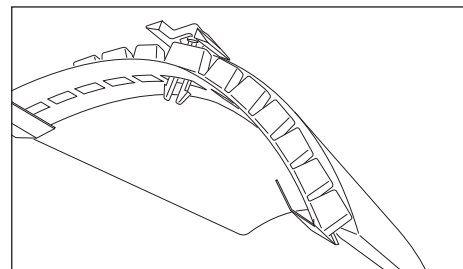


Fig. 8 – Union tabs folded

# UNIVERSAL RidgeFast system

- 9 Push ridge tile firmly into position and secure ridge union assembly to ridge batten by fixing screw through hole in union clamp using a pozidrive No.2 screw bit (Fig. 9).
- 10 Repeat this process along ridge line, ensuring screws are not over-tightened. The ridge line should be finished with a full-length ridge tile. The minimum length of any cut ridge tile should be no less than 250mm (Fig. 10).

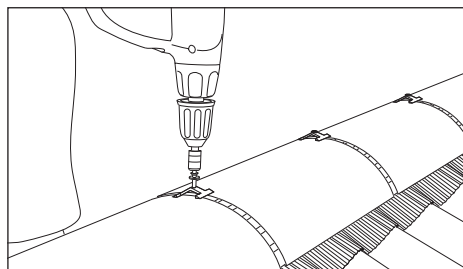


Fig. 9

## Installation with ventilated ridge terminal/gas vent ridge terminal

For both applications, ensure the ridge is covered with segmental ridge tiles to facilitate the fixing of the ridge union clamp.

Where a ridge vent terminal is installed at the ridge it will be necessary to either trim the ridge board or cut the ridge batten to allow the extension box to enter the roof void. Where a gas vent ridge terminal is used, ensure that all timbers are cut to provide a 25mm gap around the flue extension box.

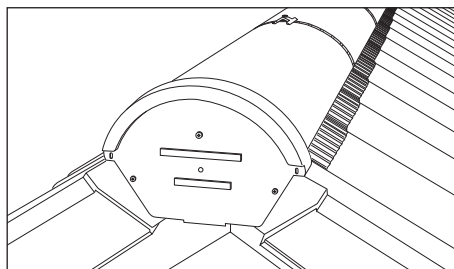


Fig. 10

To comply with Building Regulations it is necessary to prevent noxious gases and fumes from entering the roof void from the ridge terminal so the ventilation holes either side of the ridge roll need to be blanked off along a 2 metre length.

2 metre long x 75mm wide blanking strips available in the ridge vent terminal accessory pack should be used for this purpose.

Cut a hole in the RidgeFast roll to correspond with the position of the ridge vent terminal extension box. Peel off the backing tape from the blanking strips and apply over the vent holes either side of the RidgeFast roll equidistant about the centre of the terminal. Fit the ridge union and adjacent ridge tiles in the normal manner.

It is recommended that the blanking strips are adhered to the RidgeFast roll on a flat even surface prior to offering to the roof. This will help to provide a secure, even bond.

# UNIVERSAL RidgeFast system

## Ridge Abutments

At an abutment, ensure the RidgeFast roll is turned up the wall by 75mm, with the end ridge tile drilled and screw fixed. A Code 4/5 lead saddle should be fitted over the ridge tile in accordance with LSA recommendations.

## Junctions

At ridge/hip junctions, the ridge batten should be cut 50mm beyond the apex of the hip rafters and the ridge. Turn down the RidgeFast roll over the top of the roof tiles on the hip end by 75mm. A code 4/5 lead saddle should be fitted between the RidgeFast roll and the ridge/hip tiles, with a welt formed along the edges under the ridge and hip tiles. The end ridge tile should be cut to a neat mitre with the hip tiles mechanically fixed (see gable end fixing).

Where an 'L shaped' junction occurs, ensure that the RidgeFast roll is lapped prior to the lead saddle being fitted. Form a welt along the edges of the lead saddle where it is fitted under the ridge and hip tiles. Mitre cut the end ridge tiles prior to fixing with screws and washers.

Where a 'T shaped' ridge junction occurs, or where a dormer ridge intersects the main roof, the Ridgefast construction should not cross the valley. A lead saddle (Code 4/5) should be fitted prior to the roof tiles being laid. The Ridgefast roll should be rolled out along the head of the T shape, with the corrugated edge stuck to the surface of the lead saddle (Code 4/5). The Ridgefast roll on the leg of the 'T' shaped junction or dormer intersection, should finish 50mm back from the face of any mortar bedding. The end ridge tile should be mechanically fixed.

# UNIVERSAL RidgeFast system

## RidgeFast batten height setting

First figure gives ridge batten height (in mm), figure in brackets gives hole positions at which ridge batten bracket legs are bent to fix to rafter

Tile and ridge type	Roof pitch		17.5°	22.5°	25°	30°	35°	40°	45°	50°	55°	60°
	12.5°	15°										
<b>Edgemere/Duo Edgemere</b>												
Segmental Ridge			50 (2)	50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)		
Modern Ridge			50 (2)	50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)			
<b>Ashmore</b>												
Segmental Ridge				50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)			
Modern Ridge				50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)			
<b>Modern/Duo Modern</b>												
Segmental Ridge			50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)		
Modern Ridge			50 (2)	50 (1)	50 (1)	50 (1)	25 (2)	25 (1)	25 (1)			
<b>Ludlow Plus</b>												
Segmental Ridge				50 (2)	50 (2)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)		
Modern Ridge				50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)			
<b>Ludlow Major</b>												
Segmental Ridge				50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)	
Modern Ridge				50 (2)	50 (2)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)		
<b>Concrete Plain tile</b>												
Segmental Ridge							50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)
Modern Ridge							50 (1)	50 (1)	25 (2)	25 (1)	25 (1)	
<b>Double Roman</b>												
Segmental Ridge			50 (3)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (2)	25 (1)	25 (1)	
<b>Mendip and Wessex</b>												
Segmental Ridge		50 (3)	50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)
Modern Ridge		50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)			
<b>Maxima</b>												
Segmental Ridge			50 (2)	50 (2)	50 (2)	50 (2)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)	
<b>Anglia Plus/Melodie</b>												
Segmental Ridge	50 (4)*	50 (4)	50 (4)	50 (3)	50 (3)	50 (3)	50 (3)	50 (2)	50 (2)	50 (1)	50 (1)	50 (1)
<b>Fibre cement slates</b>												
Segmental Ridge		50 (1)	50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)	25 (1)			
Modern Ridge		50 (1)	50 (1)	50 (1)	50 (1)	25 (1)	25 (1)					

\* Melodie only

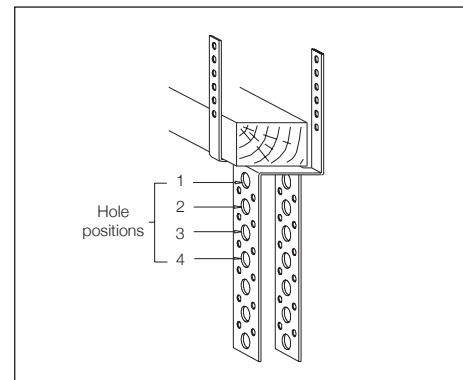
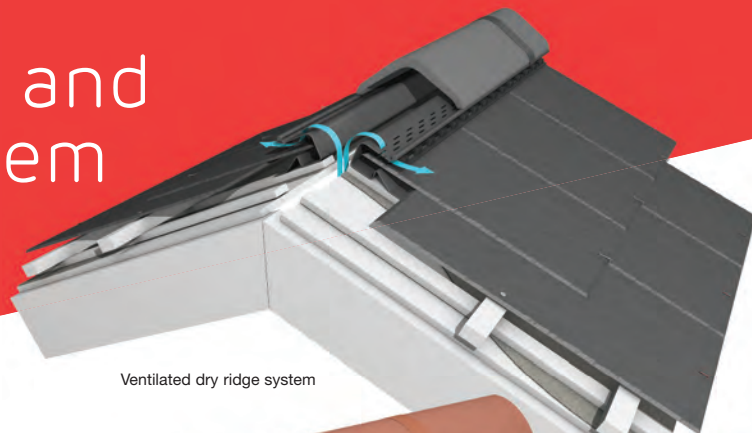


Fig. 12 – RidgeFast Batten Bracket hole settings

# Ventilated dry ridge and dry mono-ridge system

The Marley Eternit ventilated dry ridge system remains one of the simplest, aesthetically pleasing and effective means of providing continuous ventilation along the length of the ridge for the removal of stagnant, moist air which would otherwise be trapped in the roof apex.



Ventilated dry ridge system

## Components



Modern ridge union  
(code 414\*)



Segmental ridge union (code 413\*)



Segmental mono-ridge union  
(code 423\*)



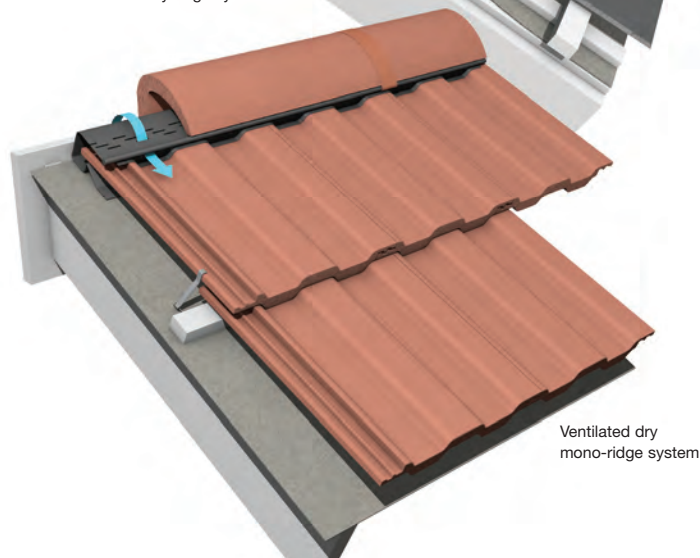
Modern/Segmental ridge adaptor union  
(code 420\*)



Modern ridge junction apex cap  
(code 440\*)



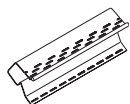
Segmental ridge junction apex cap  
(code 439\*)



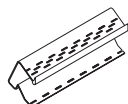
Ventilated dry mono-ridge system

# Ventilated dry ridge system

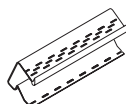
## Components (continued)



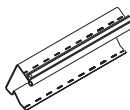
Plain tile batten  
section (3m long)  
(code 41099)



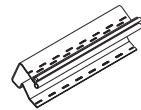
High profile batten  
section (3m long)†  
(code 41201)



Low profile batten  
section (3m long)‡  
(code 41101)



Steep pitch high  
profile batten section  
45-55° (3m long)†  
(code 41202)



Steep pitch low  
profile batten section  
45-55° (3m long)†  
(code 41102)

Dry ridge fixing kit\*\*  
(code 41000)

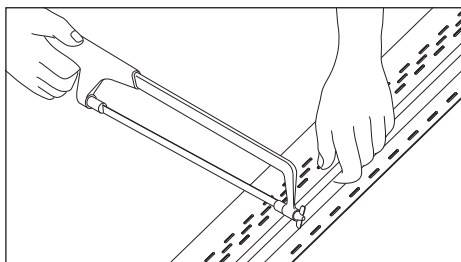
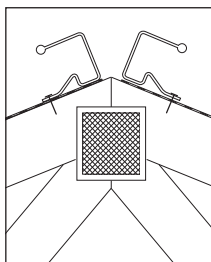
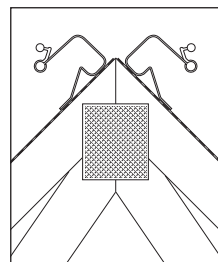


Fig. 1 – Cut batten section



Figs. 2 and 3 – Secure ends of batten section (standard and steep pitch ridges shown)



## Interlocking tiles installation

- 1 Cut batten section with a fine-toothed saw with ends of sections at joints meeting halfway over a rafter, so each end can be nailed (Fig. 1).
- 2 Provide overhang of 45mm at verges to allow fitting of top course Marley Eternit interlocking dry verge unit and end cap.
- 3 Free ends of batten section can be restrained by either fitting a ridge union or second gauge (Figs. 2 and 3).
- 4 Nail batten sections to each rafter, taking care gauge position is constantly checked.

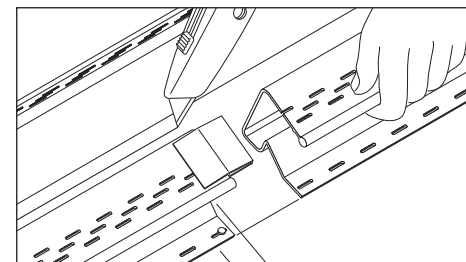


Fig. 4 – Slit underlay between batten sections and clip using 'H' section piece



# Ventilated dry ridge system

- 5 Join batten section over a rafter and clip an 'H' section piece, provided in the fixing kit, over top flanges before nailing.

Wherever possible, stagger joints on opposite sides of roof. Underlay must be slit to provide 5mm gap between batten sections along roof apex to allow free passage of air to and from roof space below (Fig. 4).

Note: Allow a 12.5mm gap between each 3m length of batten section. Form fire breaks where necessary and fill the space beneath the ridge tile spanning the party wall with suitable non-combustible material.

- 6 Place appropriate ridge filler unit onto head of tile.

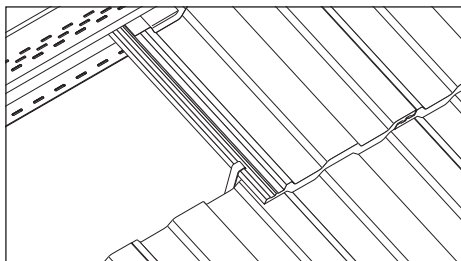


Fig. 5 – Clip top course interlocking tiles

- 7 Insert tile with filler unit into batten section by lifting top flange slightly until nibs engage over upstand and tile is held securely. (The ridge filler unit for Plain/Modern has raised lugs which fit beneath circular beads on batten sections) (Fig. 5).

- 8 Ensure each tile is mechanically fixed by using a standard tile clip located over side lock and nailed to top edge of second course tiling batten (Fig. 5).

- 9 When using Modern/Duo Modern/Edgemere range interlocking slates, fit a standard eaves clip. Secure to top of interlock of all top course slates where they are located into dry ridge batten section.

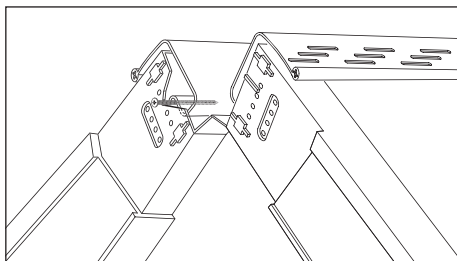


Fig. 6 – Insert verge unit with previous unit

Nail eaves clip to a timber batten fixed directly below lower flange of batten section, ensuring clip locates over sidelock.

- 10 Complete verges.

- 11 For the Marley Eternit Universal dry verge system, top course verge unit is retained by inserting a screw into second series of holes in verge unit and locating unit behind mid section of dry verge batten (Fig. 6)

- 12 For the Marley Eternit Slate dry verge, batten section should be cut as shown (Fig. 7) to allow free movement of verge section under top flange.

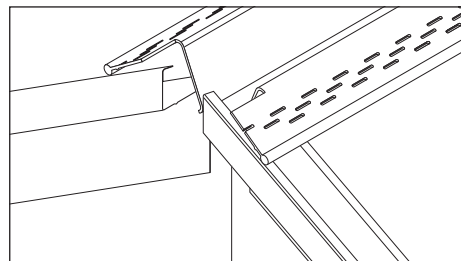


Fig. 7 – Slate dry verges

# Ventilated dry ridge system

- 13 For bedded verges, cut back lower flange of each dry ridge batten by approx. 50mm.

Lay undercloak under flange and bed tiles in normal manner (Fig. 8). Where a PVC end cap is used (see Fig. 9).

- 14 Screw Ridge end cap to end of Marley Eternit dry ridge batten, locating stainless steel screws (supplied in fixing kit) in end of circular beads on upper flange (Fig. 9).

- 15 When fixing with slates, use a standard dry verge end cap to suit ridge profile, but cut lower flange along visible guide line on inside to reduce effective overhang (Fig. 10).

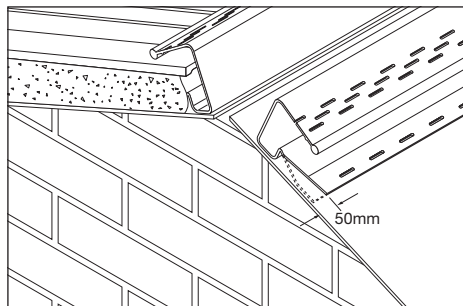


Fig. 8 – Bedded verges

- 16 Cut lower flange across width (Fig. 11) where necessary, to avoid interference with dry verge units. This will always be the case for use with steep pitch roof apexes.

- 17 Lay ridge tiles with each leg sitting on top of circular bead, with a gap of 3mm approx. between each ridge tile. This allows clearance for internal lugs of ridge union.

- 18 Fit ridge union by clipping each end over circular beads (Fig. 12).

- 19 Fix any cut ridge tiles adjacent to full end ridge tiles.

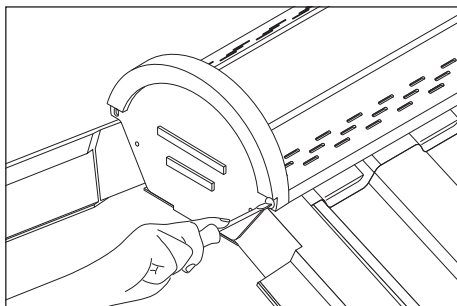
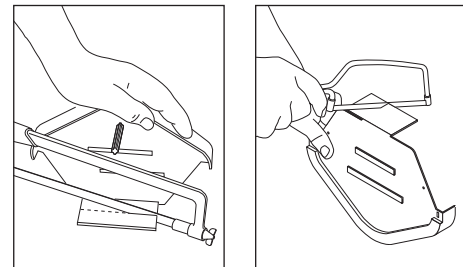


Fig. 9 – Fixing ridge end cap



Figs. 10 and 11 – Cutting ridge end cap flange

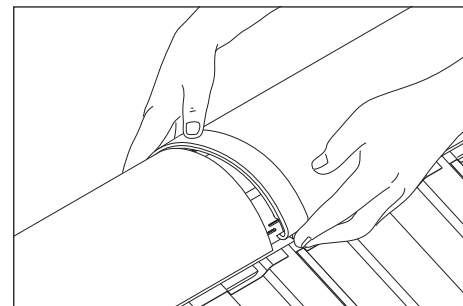


Fig. 12 – Fit ridge union

# Ventilated dry mono-ridge system

## Mono-ridge installation

- 1 Nail front edge of batten section to each rafter 150mm from vertical face of timber fascia for a roof at 35° (this will vary slightly, dependent upon roof pitch).
- 2 Continue to install dry ridge system.
- 3 Complete all verges, where necessary (see Marley Eternit Universal dry verge fixing instructions) and fit segmental mono-dry ridge end cap, if required.
- 4 Lay mono-ridge tiles with front leg sitting on top of circular bead with a gap of approximately 3mm between each tile to allow clearance for locating tongues of mono-ridge union.
- 5 Fit ridge unions by clipping front end over circular bead of batten section, followed by back end over bottom edge of mono-ridge tile (Fig. 13).
- 6 Secure any cut tiles adjacent to end ridge tiles, which should be full tiles.
- 7 Mechanically fix each mono-ridge union by using a 50mm x 10 gauge stainless steel screw (supplied with ridge tile) fixed to a timber fascia behind vertical leg (Fig. 14).

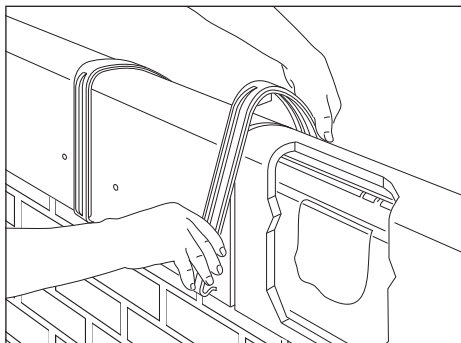


Fig. 13 – Locate mono-ridge union

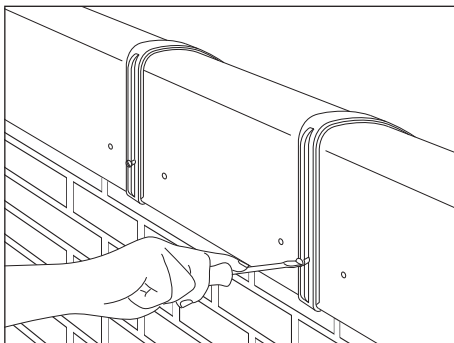


Fig. 14 – Mechanically fix mono-ridge union

# Ventilated dry ridge system

## Concrete plain tile installation

- 1 Install Marley Eternit (concrete plain tile) dry ridge system as for standard interlocking tiles.
- 2 Insert two top courses of tiles (eaves/standard tile) into batten section together with plain /modern ventilated filler units on top (Fig. 15).
- 3 For a ventilated roof, ensure that roofing underlay is slit for required length of roof before proceeding further.
- 4 Lay and secure ridge tiles in normal way using segmental ridge unions. Finish end ridge either using a purpose made block end tile or a segmental ridge end cap (Fig. 16).
- 5 Where block end ridge is used, use additional fixing by clipping a ridge union over tile near end (Fig. 17). Break off locating lugs on underside of hip/ridge union with pincers or other suitable tool before fitting. Make two small cuts (max. 5mm deep) at either side of block end hip tile to allow claws of hip ridge union to clip onto bead of batten section (Fig. 17).
- 6 If ridge end cap is used, lower flange may require trimming to suit tile overhang.

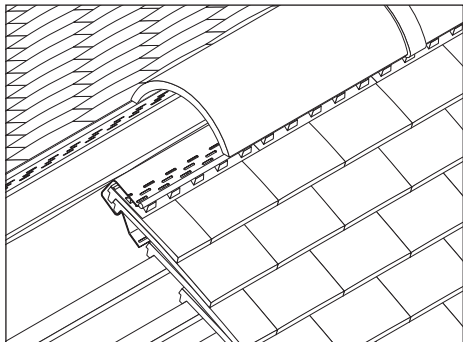


Fig. 15 – Insert two top courses of tile into batten section

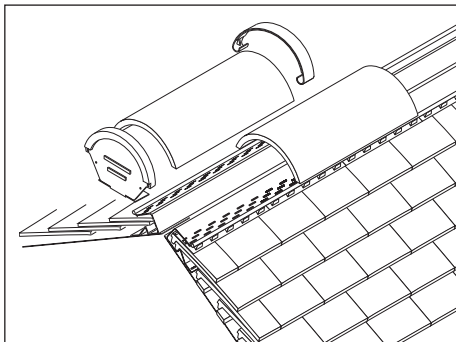


Fig. 16 – Finish ridge end using segmental ridge end cap

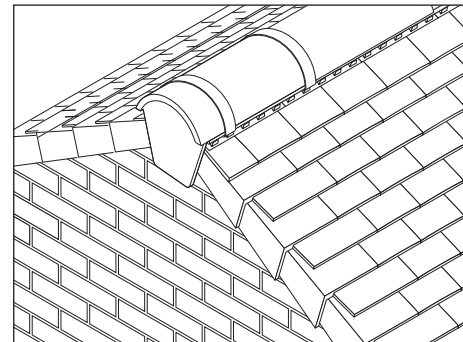


Fig. 17 – Finish ridge using block end ridge

# Ventilated dry ridge system

## Marley Eternit fibre cement slate installation

- 1 Lay slates up to dry ridge batten so back edge of top full length slate engages into batten section.
- 2 Centre nail to top batten in normal way.
- 3 For slate-and-a-half abutting verge, cut a 3mm wide slot parallel to verge from the head of slate down to point where leading edge of top course slate will be (Fig. 18).
- 4 Make slot a half slate width in from verge to allow for hook fixing standard width slate above.
- 5 Drive slate hook into top timber batten between each full length slate (provided by others).
- 6 Slide top course slates (cut to length) into place so leading edges are retained centrally by slate hooks.
- 7 Back edge of top course slates should touch inside edge of ridge batten section.
- 8 Place ridge filler units in position, trapped between top slate and top edge of batten section, butted together along length of ridge.
- 9 For mortar bedded verges, hips and valleys drill a 4mm diameter hole through top two courses as shown (Fig. 19) 25mm from verge and insert a copper slate nail.
- 10 Ridge filler unit should cover nail head, preventing internal movement of top course slate.

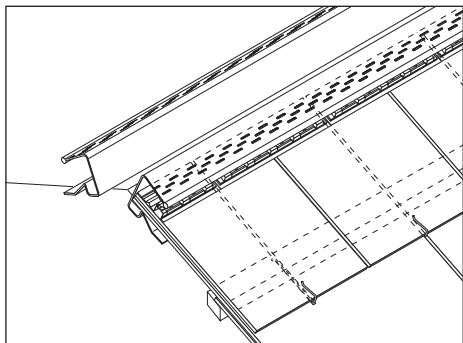


Fig. 18 - Cutting slots for hook fixing

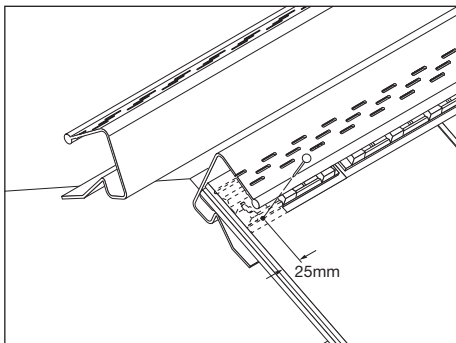
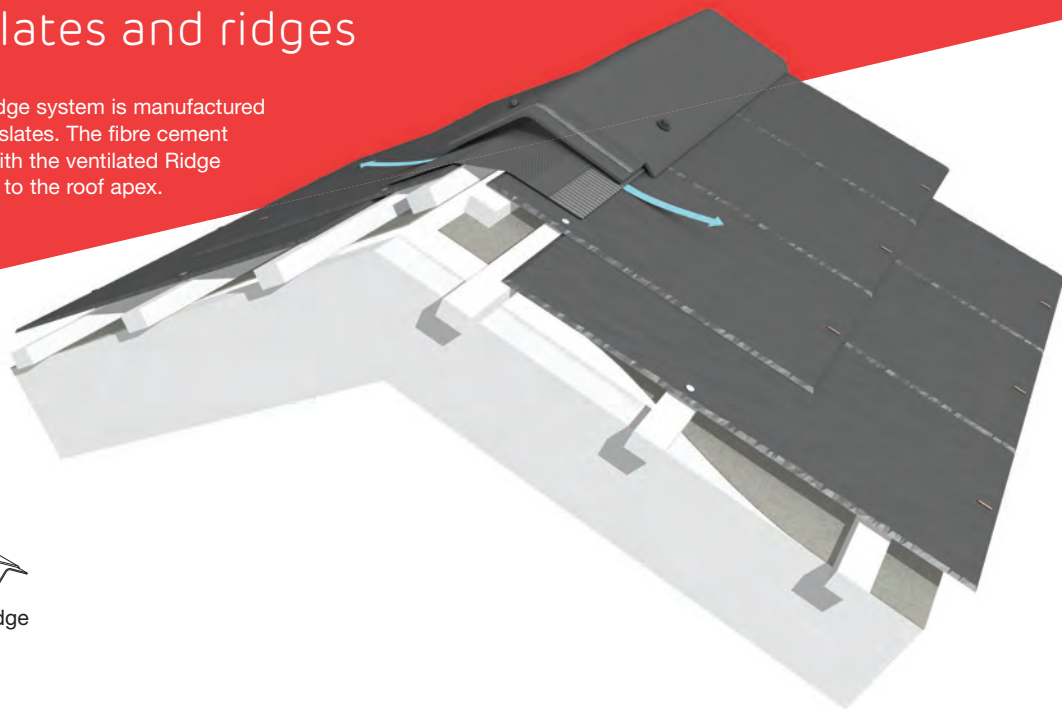


Fig. 19 - Mortar bedded verges for Marley Eternit fibre cement slates

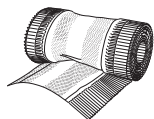
# UNIVERSAL Ridge Roll

## for fibre cement slates and ridges

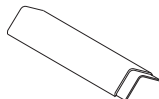
The Marley Eternit duo pitch ventilated ridge system is manufactured in fibre cement for use with fibre cement slates. The fibre cement ridge cappings are used in conjunction with the ventilated Ridge Roll and provides 5000mm<sup>2</sup>/m ventilation to the roof apex.



### Components



Universal Ridge Roll  
(code 33010)



Duo pitch ridge

Also available: 60mm x 14 gauge self-tapping screws

# UNIVERSAL Ridge Roll

- 1 Lay the underlay along the ridge apex of the roof ensuring a 5mm clear air gap is maintained between the top edges.
- 2 Fix the top course slate batten to suit the gauge of the slate size being used and fix an additional ridge fix batten downslope to enable the 60mm x 6.3mm self-sealing wood screw fixings to penetrate the ridge unit 50mm from its bottom edge.
- 3 Head nail the top course slates to the top battens either side of the ridge apex, ensuring a 5mm clear gap is maintained between the top edges.
- 4 Unroll a 6 metre length of Fibre Cement Slate Ridge Roll (sold separately) centrally along the length of the ridge apex. (At gable ends the roll should overlap the gable end by approximately 50mm or in the case of a mortar bedded verge cut back 50mm from the gable).
- 5 Remove the release paper covering the mastic strip on the underside of the corrugations on both sides of the roll and press the corrugations onto the top course slates either side of the ridge line.
- 6 Repeat this process along the entire length of ridge overlapping the roll ends by 100mm at each joint.
- 7 Locate the starter ridge stop end at one end of the roof apex, above the Ridge Roll, and drill and screw the end of the ridge to the ridge fix battens. Holes should be drilled 125mm from the effective ends, 50mm up i.e. ignoring the socket.
- 8 Apply a 6mm dia. butyl strip across the socket, 50mm from the end.
- 9 Locate successive ridge units above the Ridge Roll along the ridge, drill and screw the fitting to the batten using 4 No. fixings, ensuring a level ridge with joints bedded onto the butyl strip.
- 10 Shorten the ridge units and finish the stop end as necessary, including the removal of the socket. Avoid using ridge units less than 450mm long and do not shorten the stop ends.

**IMPORTANT:** Ensure the area of slates onto which the mastic strips will be adhering is thoroughly dry and dust free.

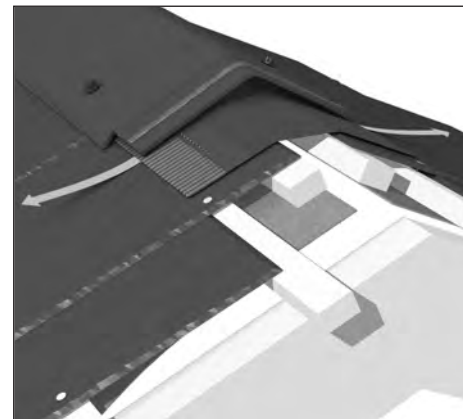


Fig. 1 – Universal Ridge Roll with duo pitch ridge

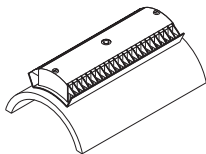
# Ridge vent terminals



## Components

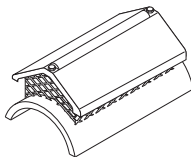
### Ridge vent terminal

For natural ventilation of the roof void apex and connection to mechanical ventilation systems.

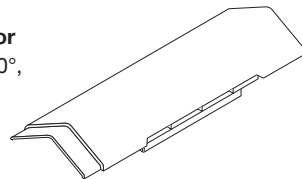


### Gas vent ridge terminal

For connection to gas appliances of rated input of 60 Kw max. only (not suitable for gas condensing boilers or oil fired boilers.)



**Fibre cement in-line ridge ventilator**  
plus extension sleeve. Available in 20°, 25°, 30°, 35°, 40°, 45°.





# Ridge vent terminals (concrete)

## used with ventilated dry ridge system

### General installation guidance

Marley Eternit ridge ventilation terminals should be installed in a horizontal position clear of any obstructions which may hinder the airflow of exhaust fumes. Terminals must be positioned as follows:-

- Gas vent ridge – min. 300mm apart.
- Ridge vent – min. 600mm away from any Gas vent ridge terminal or flue outlet.

### Ridge boards

If a ridge board is used, it should be cut away for a length of 400mm and if any rafters are to be cut, trimmers should be provided. The roofing underlay should be neatly cut to provide a close fit to the sides of the riser (with the gas vent ridge the top batten and underlay must be cut a min. 25mm away from the riser).

### Ridge terminals

Marley Eternit ridge terminals can be bedded to the roof tiles in the normal manner or may be incorporated in the Marley Eternit dry ridge system. Where Modern ridge tiles are used in a dry ridge construction, special Modern/Segmental ridge adaptor units should be used to connect the terminals to the ridge tiles (Dry ridge system only, not suitable for RidgeFast).

### Concrete gas vent and ridge vent terminals

- 1 Cut a slot in the back of the batten section to allow the terminal throat extension to clear the base of the section.
- 2 Seal the slots in the top flange of the batten section for a distance of 2000mm both sides of the ridge below the terminal using the RidgeFast blanking tape (Code 33001). This is to prevent the ingress of exhaust fumes from the terminal entering the roof space.

- 3 Mechanically fix the ridge vent terminal to the batten section using the appropriate Ridge Union. Where Modern ridge tiles are used, special Modern/Segmental Ridge Adaptor Unions should be used to mechanically fix the terminals to the ridge batten section

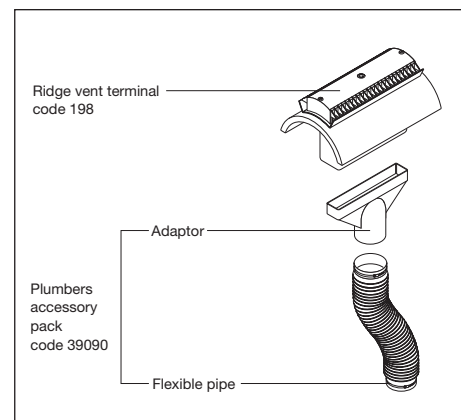


Fig. 1 – Ridge vent terminal

# Ridge vent terminals (concrete) used with ventilated dry ridge system

## Gas vent ridge terminal

- 1 Connect flue using a metal 'R' type adaptor of suitable diameter, which is bolted to flange provided at base of throat extension (supplied by others).

- 2 Place gasket of suitable material between throat section extension and 'R' type adaptor and compress sufficiently, using bolts to form gas tight seal.

Throat extension allows easy connection of flue after ridge terminal has been installed.

- 3 Make provision to support flue pipe in accordance with requirements of BS 5440 : Part 1.
- 4 Align exactly with ridge terminal to prevent undue stress at joints.
- 5 Do not hang unsupported flues from ridge terminal, or damage could occur to ridge terminal and adjacent tiling and seal between ridge tile and flue could be broken.

## Ridge vent terminal for roof space ventilation

- 1 Install terminal in normal manner ensuring riser is kept free of all obstructions.

## Ridge vent terminal for mechanical ventilation

- 1 The mechanical services engineer should connect the 110mm pipework.
- 2 Push flexible pipe over spigot end of adaptor and secure using jubilee clips.
- 3 Ensure that all ductwork is adequately supported to prevent strain being transmitted to ridge terminal.

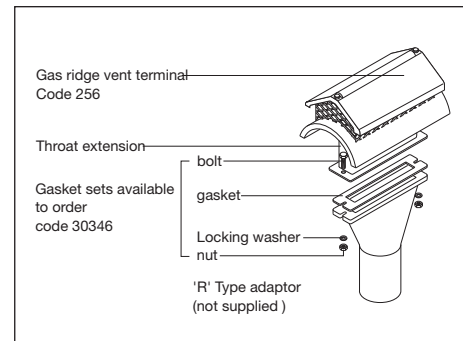


Fig. 2 – Gas vent ridge terminal

# Ridge vent terminals (fibre cement slates)

## Introduction

The fibre cement in-line ridge vent terminal offers a practical and unobtrusive solution to the problem of roofspace ventilation and can also be used for terminating soil vent pipes and mechanical ventilation systems when used with the stepped pipe adaptor. It provides 10,000mm<sup>2</sup> free vent area.

## Installation

- 1 Suitable for roof pitches 20-45° (use appropriate duo pitch fibre cement in-line ridge ventilator).
- 2 Locate between two adjacent rafters and at least 600mm from any flue outlet.
- 3 Cut underlay around riser and fold up to protect from water ingress.
- 4 Provide additional battens for fixing ridge vent.
- 5 Fix shorter top course slates and standard slates to battens in normal manner.
- 6 Fit ridge vent capping and drill and screw fix to ridge battens using 60mm x 6.3mm self sealing wood screws.
- 7 Bed ridge vent capping joints with butyl strip.
- 8 Push fit stepped pipe adaptor as required.
- 9 Ensure all ductwork is fully supported.

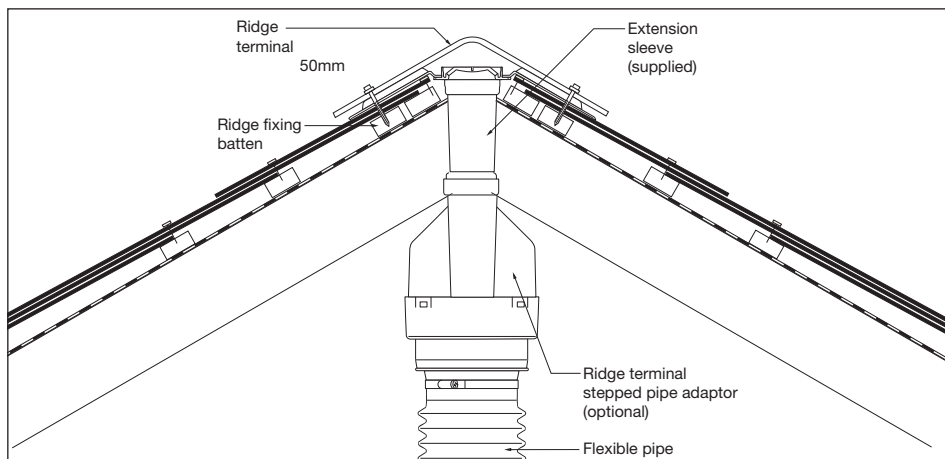
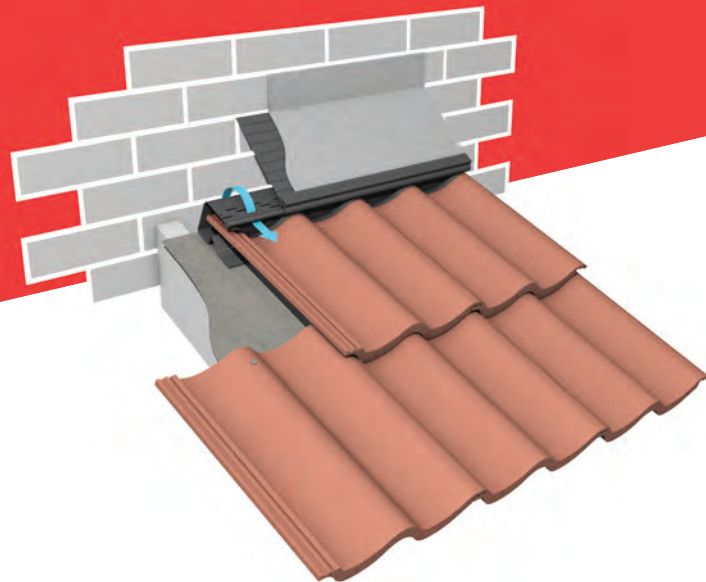


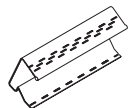
Fig. 3 – Fibre cement in-line ridge ventilator

# Top abutment ventilation system

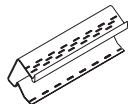
The Marley Eternit top abutment ventilation system has been developed to provide high level ventilation at the apex of lean-to roofs where they abut a vertical wall. Completely weatherproof, this continuous system provides eaves-to-apex ventilation when combined with the Marley Eternit eaves ventilation system.



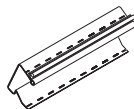
## Components



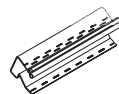
**High profile batten section (3 m long)**  
for Mendip, Wessex,  
Double Roman, Anglia  
(code 41201)



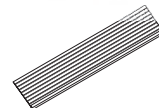
**Low profile batten section (3 m long)**  
for Modern, Duo Modern,  
Ludlow Major, Ludlow Plus,  
Edgemere range, Ashmore  
and fibre cement slates  
(code 41101)



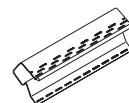
**Steep pitch high profile batten section (3 m long) 45-55°**  
for Mendip, Wessex,  
Double Roman, Anglia  
(code 41202)



**Steep pitch low profile batten section (3 m long) 45-55°**  
for Modern, Duo Modern,  
Ludlow Major, Ludlow Plus,  
Edgemere range, Ashmore  
and fibre cement slates  
(code 41102)



**Abutment vent lead support strip (1.5 m)**  
(code 42505)



**Batten section (3 m) for plain tile**  
(code 41099)



**Fixing Kit (code 41000)**  
16 No. Nails, 2 No. Screws, 2 No. 'H' Section  
Sufficient to fix: 2 No. 3m lengths

# Top abutment ventilation system

## Installation

- 1 Felt and batten roof in normal way but do not return felt up abutment wall (Fig. 1).
- 2 A gap of 5mm to 10mm should be left to allow air flow from roof void.
- 3 Cut a small piece of lead support to use as a guide to setting out uPVC batten section. Lead support strip should coincide with a mortar joint above line of tiling and leave a gap not less than 5mm between batten section and wall (Fig. 2).
- 4 Lead support should not be in contact with top flange of batten section, otherwise ventilation flow will be affected.
- 5 Roof is tiled in normal way and top course tiles/slates with their respective fillers fitted into batten section (Fig. 3).
- 6 Ensure each top course tile is clipped or each top course slate is secured by a hook. Where concrete plain tiles are used, the top tile is laid over the full size plain tile and inserted into the batten section with the vented filler unit.

## Interlocking tiles and slates

Complete main roof tiling/slating in the normal manner and insert the top course tiles/slates into the batten section with their respective filler units. Ensure each top course tile/slate is clipped/nailed.

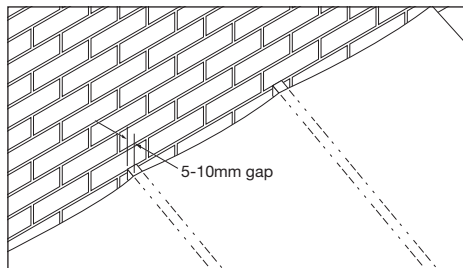


Fig. 1 – Felt and batten normally

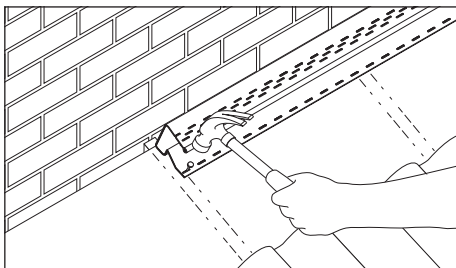


Fig. 2 – Fix batten section

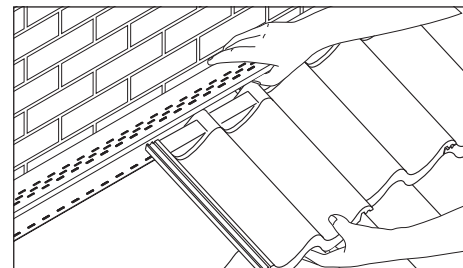


Fig. 3 – Insertion of profiled tiles into batten section

# Top abutment ventilation system

## Plain tiles (clay)

Complete main roof tiling in the normal manner. Insert two plastic rawlplugs (30mm x 60mm dia) into the nail holes of the eaves/tops tiles and hook them over the course of standard tiles and insert both courses into the batten section with the plain tile filler unit (Fig. 4).

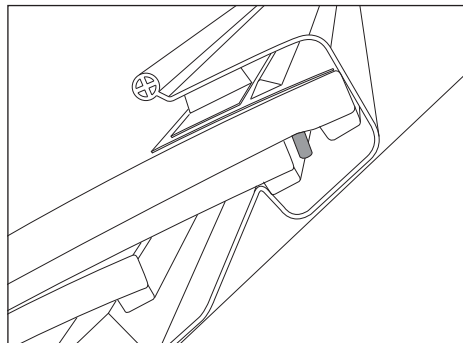


Fig. 4 – Insertion of clay plain tiles into batten section using plastic rawlplugs

## Plain tiles (concrete)

Complete main roof tiling in the normal manner and lay the eaves/tops tiles over the course of standard tiles and insert both courses into the batten section with the plain tile filler unit (Fig. 5).

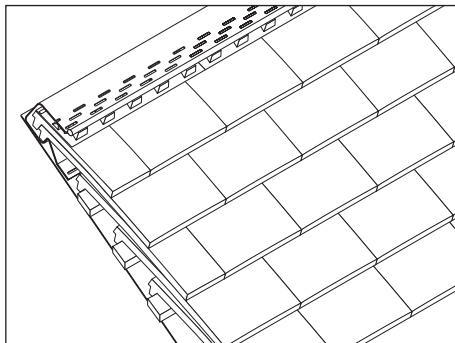


Fig. 5 – Insertion of concrete plain tiles with filler unit

# Top abutment ventilation system

## Fibre cement slates

Complete main roof slating in the normal manner. Refer to ventilated dry ridge system for instructions for fitting top course slates and filler units into batten section (page 170, Fig 19).

- 7 Clip lead support strips to batten section so that free edge rests in mortar joint previously identified (Fig. 6).
- 8 A gap of about 5mm should be left between successive lengths of lead support to allow for thermal expansion.
- 9 Dress Code 4 lead or similar flashing material, over lead support strip and fit front edge into integrated retaining channel on front edge support (Fig. 7).
- 10 Wedge hip edge of lead into mortar joint as required by the Lead Sheet Association.
- 11 Ensure laps are staggered to support the unit.
- 12 At verge, dress lead flashing down over verge, turn around corner of wall and secure in a mortar joint with lead wedges.

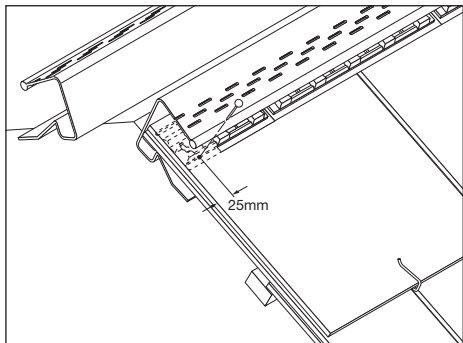


Fig. 6 – Insertion of fibre cement into batten section

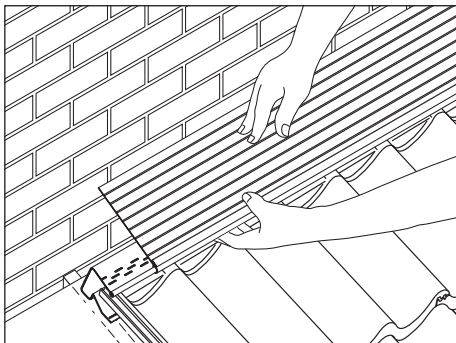


Fig. 7 – Clip lead support strips to batten section

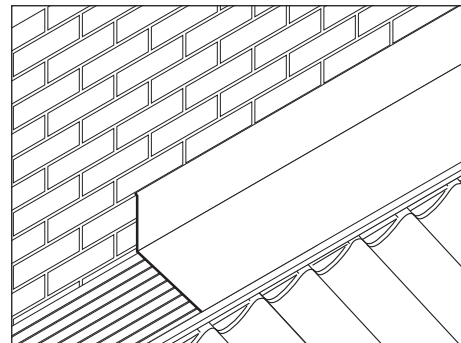
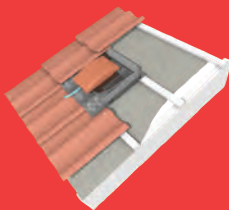


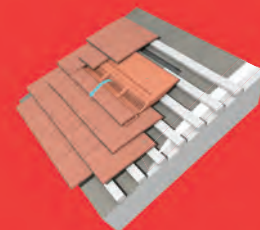
Fig. 8 – Dress lead onto lead support strips

# Roof slope systems

182 UNIVERSAL tile vent terminal



191 Clay in-line vent terminal

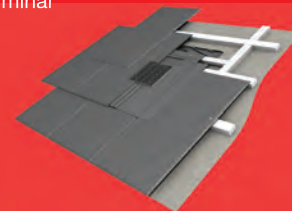


184 Tile vent terminals

187 Ashmore ventilation roof tile



193 Fibre cement slate in-line vent terminal



188 Contour tile vent terminals





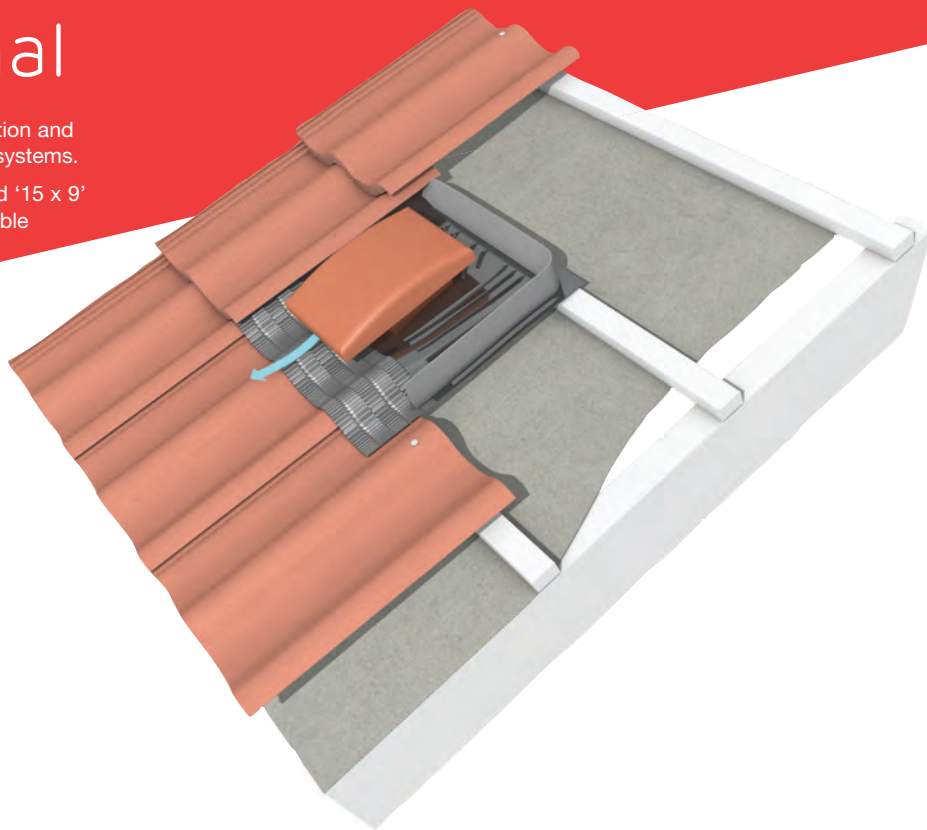
# UNIVERSAL

## tile vent terminal

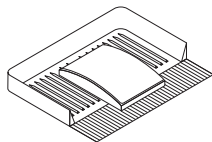
The Universal tile vent is designed for roof void ventilation and connection to 110mm soil pipe or mechanical extract systems.

It is suitable for use with most popular large format and '15 x 9' concrete interlocking tile profiles and Maxima clay double roman tiles at roof pitches 20° and above.

Free area: 15,000mm<sup>2</sup>/m.



### Components



Universal tile vent  
(code 36700)



Flexible pipe  
(sold separately)

# UNIVERSAL tile vent terminal

## Installation

- 1 Lay underlay and batten the roof in the normal manner.
- 2 Lay roof tiles up to the desired position of the vent (ideally mid-span between rafters).
- 3 Form a 'V' shaped cut in the underlay, 270mm long x 140mm wide – aligned with the centre line of the **overall** width of the tile below – to correspond with the position of the tile vent spigot (Fig. 1).
- 4 Fold up and secure the underlay as shown (Fig. 2).
- 5 Place the tile vent into position centrally over the **overall** width of the tile below, ensuring the 'nib' is resting squarely against the back face of the tiling batten. Secure the vent tile by nailing through the slot in the 'nib' into the back face of the tiling batten using a 25mm long x 3mm dia. non-corrosive nail (galvanised steel, aluminium or stainless steel) (Fig. 3).
- 6 Peel off the release paper from the mastic along the underside leading edge of the corrugated flashing and press the flashing down evenly, ensuring a good seal against the tiles below. The surface of the tiles to which the mastic is adhered must be dry and free of dust (Fig. 4).
- 7 Finish tiling. The tiles immediately adjacent to the tile vent will compress the foam upstands creating a weatherproof seal. Ensure the cutaway in the back edge of the foam is laid over the lock of the adjacent right hand tile (Fig. 5).
- 8 Tail clip the left hand tile adjacent to the tile vent and the 3 tiles immediately above.

Note: When using '15 x 9' tiles, the underlock of the adjacent right hand tile may be removed to provide more space to accommodate the vent cap.

If the unit is to be used to ventilate the roof void, the circular spigot must be sawn off on site prior to installation to achieve the maximum designed ventilation area. This product is not suitable as an exhaust for hot gases.

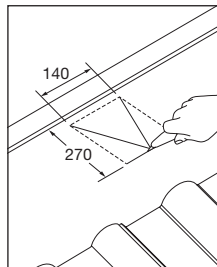


Fig. 1

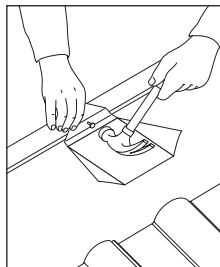


Fig. 2

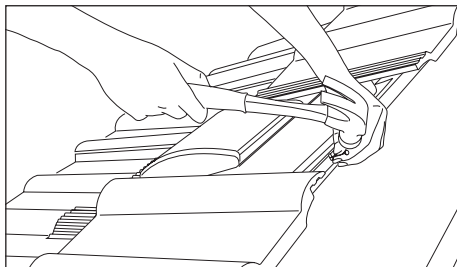


Fig. 3

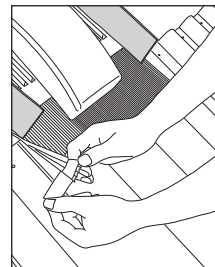


Fig. 4

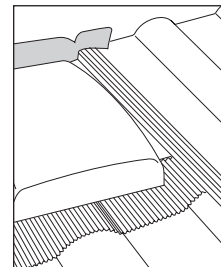
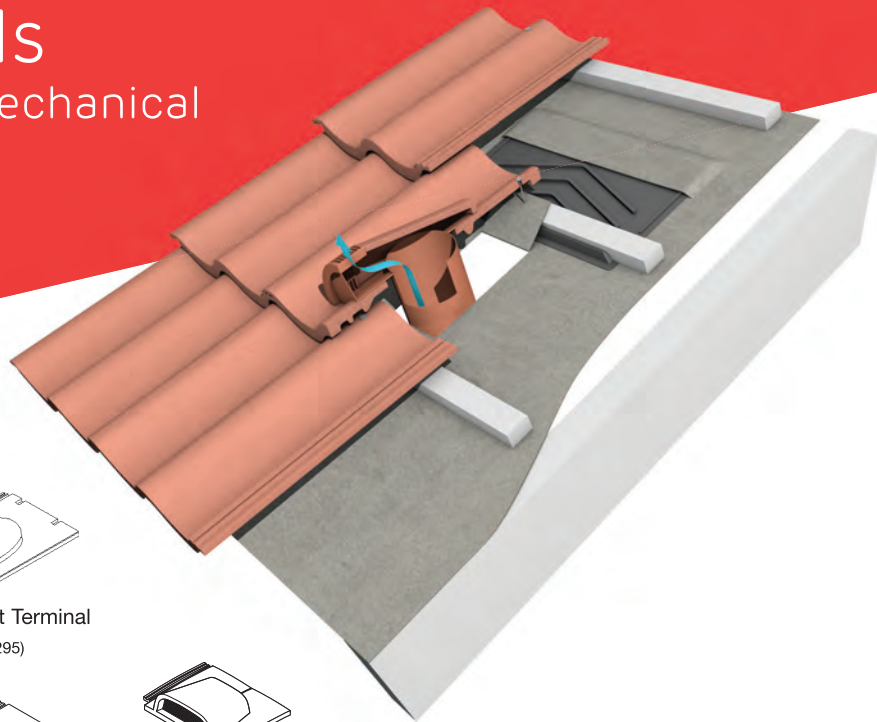


Fig. 5

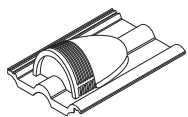
# Tile vent terminals

## for roof space ventilation, mechanical extract and soil vent pipes

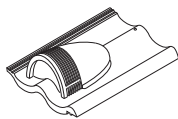
Tile vent terminals can be used for high or low level ventilation and are also designed for connection to mechanical extract ventilation systems and soil vent pipes.



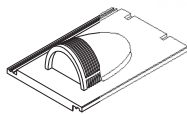
### Components\*



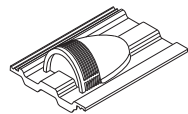
Double Roman  
Vent Terminal  
(code 298)



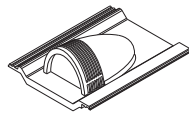
Mendip Vent Terminal  
(code 294)



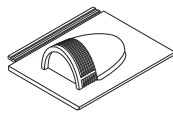
Modern Vent Terminal  
(code 295)



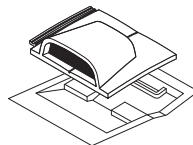
Ludlow Major  
Vent Terminal  
(code 297)



Wessex Vent Terminal  
(code 296)



Edgemere Vent  
Terminal  
(code 259)



Ashmore ventilation roof  
tile and catchment tray  
(code 263)

\* For mechanical extract and soil vent pipe installation use flexible pipe (code 39091).

# Tile vent terminals

for roof space ventilation, mechanical extract and soil vent pipes

## Pressure resistance (Pa)

Tile	Free area (mm <sup>2</sup> )	Pa (litres/sec airflow)		
		15	30	60
Ashmore	4500	-	-	-
Double Roman	7614	6.5	24.8	89.1
Ludlow Major	7665	6.7	24.3	88.4
Mendip	7107	7.6	27.9	101.7
Modern	7081	7.6	28.6	106.7
Wessex	6929	7.9	29.7	110.6
Edgemere	7081	7.6	28.6	106.7

## Installation

- 1 Locate vent tile clear of rafters and place special polystyrene end spacer marked 'Template' flat onto underlay at desired position (Fig. 1).
- 2 Mark batten with corresponding arrows on template to assist setting out.
- 3 Remove lower course of tiles and replace template flat onto underlay and mark outline of hole.
- 4 Carefully cut out a cross with a sharp knife.
- 5 Make a horizontal cut in the underlay, 390mm long, at a distance 150mm above bottom edge of tiling batten supporting vent tile.
- 6 Slide soaker tray under batten and through slit in underlay.
- 7 Secure soaker tray by folding cut underlay over batten and nail into top edge of tiling batten above (Fig. 2).

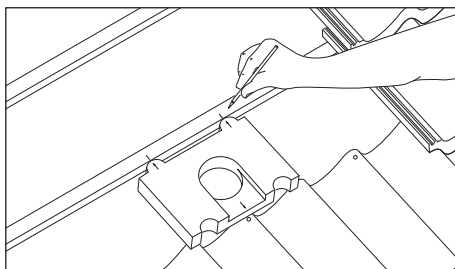


Fig. 1 – Mark position

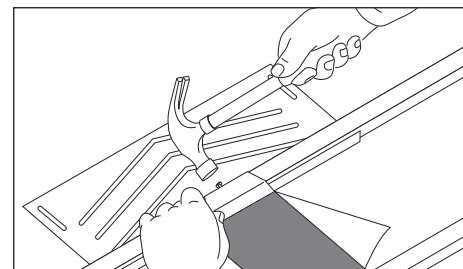


Fig. 2 – Cut and nail back underlay

# Tile vent terminals

for roof space ventilation, mechanical extract and soil vent pipes

8 Lay vent terminal ensuring that pipe enters hole cleanly and is fixed in accordance with required fixing specification.

9 Lay adjacent tiling in normal manner (Fig. 3).

For Tile vent terminal spacings, see page 198.

Note: Tile vent terminals may be used for termination of mechanical extract systems or soil vent pipes, but must be connected by a plumber. To avoid misalignment problems, connections to 110mm pipework should be carried out using a flexible pipe connector (Code 39091) and any long runs of pipework should be supported to avoid strain on the terminal.

To enable the completed pipework to be tested, the vent grille may be prised out of the concrete hood, to allow an inflatable bag to be used, and replaced later when testing is completed. Where the terminals are used for extraction of soil vent pipes they must not terminate lower than 900mm above any opening into a building within 3m.

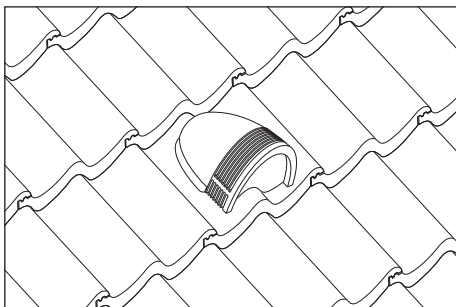


Fig. 3 – Continue tiling

# Tile vent terminals

for roof space ventilation, mechanical extract and soil vent pipes

## Ashmore ventilation roof tile

The Ashmore ventilation roof tile is designed to provide ventilation of the roof space, either at high or low level and have a colour-matched concrete hood with matt black aluminium grille. Incorporating a standard tile base, the terminal is simply substituted for a standard tile and fixed accordingly. Free area: 3,000mm<sup>2</sup>/m.

- 1 Select a position for vent tile clear of rafters and lay catchment tray in position. Cut a 170mm gap in the batten to accommodate the catchment tray.
- 2 Mark airway aperture on underlay (Fig. 4).
- 3 Remove catchment tray and cut underlay back to tiling batten to form a flap which should be pulled up so there is a gap of approx. 6mm between underside of batten and underlay.
- 4 Nail flap to top of tiling batten (Fig. 5).
- 5 Lay ventilation tile over catchment tray and clip or nail, if necessary (Fig. 6).
- 6 Lay adjacent tiling in normal manner (Fig. 7).

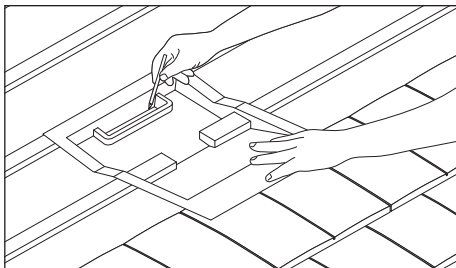


Fig. 4 – Mark aperture

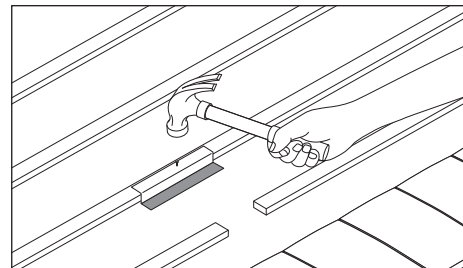


Fig. 5 – Cut and nail back underlay

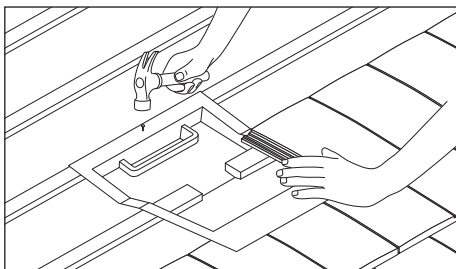


Fig. 6 – Nail catchment tray

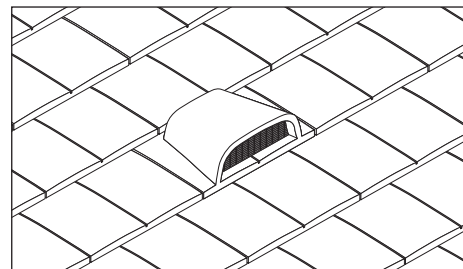
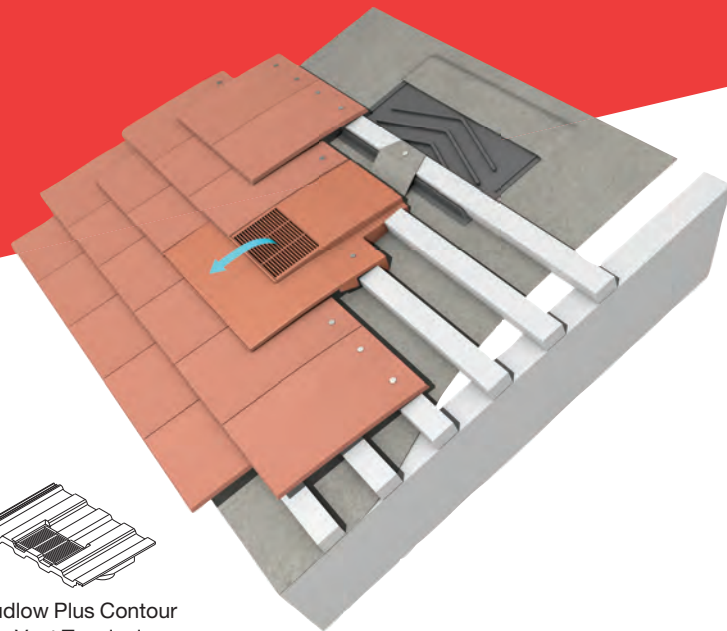


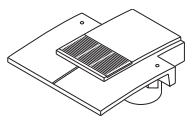
Fig. 7 – Continue tiling

# Contour tile vent terminals

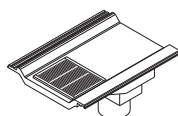
Offering an unequalled combination of performance and appearance, contour vent terminals are designed to provide ventilation of the roof space, either at high or low level for either mechanical extraction or soil vent pipes whilst retaining an uninterrupted roofscape.



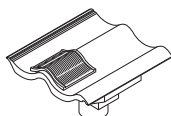
## Components



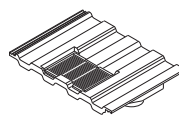
Universal Plain Tile  
Contour Vent Terminal  
(double tile unit, code 455)



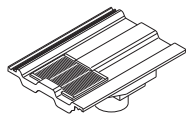
Wessex Contour  
Vent Terminal  
(code 459)



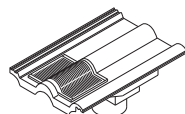
Anglia Contour  
Vent Terminal  
(double tile unit, code 453)



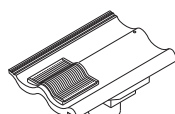
Ludlow Plus Contour  
Vent Terminal  
(double tile unit, code 457)



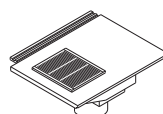
Ludlow Major  
Contour Vent Terminal  
(code 456)



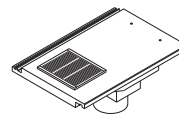
Double Roman  
Contour Vent Terminal  
(code 453)



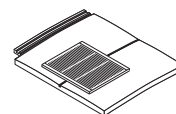
Mendip Contour  
Vent Terminal  
(code 452)



Edgemere Contour  
Vent Terminal  
(code 465)



Modern Contour  
Vent Terminal  
(code 451)



Ashmore Contour  
Vent Terminal  
(code 450)

# Contour tile vent terminals

## Installation for Ashmore, Ludlow Plus, Plain Tile and Anglia

### 1 Felt and batten roof in normal manner.

Note: If unit is to be used as a roof void vent, circular spigot and 5mm of box section must be sawn off on site to achieve maximum designed free vent area.

### 2 Determine position of vent tile (ideally mid-span between rafters) and remove section(s) of tiling batten to accommodate unit.

Note: the battens should be cut to provide a gap of 210mm when fitting with clay plain tiles and 260mm with concrete plain tiles.

### 3 Form a 'V' cut in underlay in manner shown to accommodate rectangular spigot.

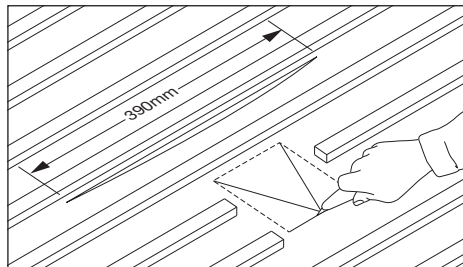


Fig. 1 – Make aperture in underlay

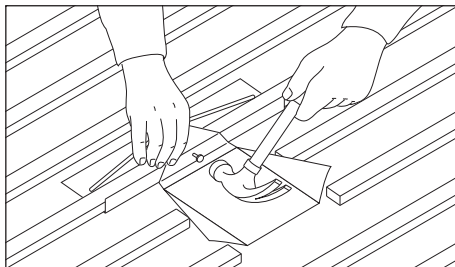


Fig. 2 – Secure soaker tray

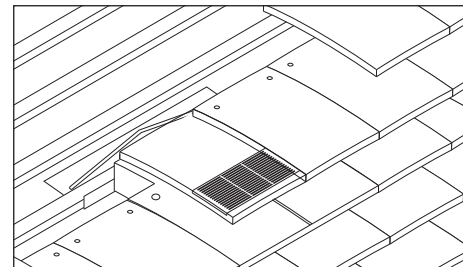


Fig. 3 – Fix contour tile vent

- 4 Make a horizontal cut in underlay, 390mm long, at a distance 150mm above bottom edge of tiling batten above unit and slide soaker tray under batten and through slit in underlay (Fig. 1).
- 5 Secure soaker tray by folding cut underlay over batten and nail into bottom edge of tiling batten above (Fig. 2).
- 6 Insert tile unit and mechanically fix using screws provided (Fig. 3).
- 7 Continue tiling in normal manner.



# Contour tile vent terminals

## Installation for Ludlow Major, Edgemere, Mendip, Modern, Double Roman, Duo Modern, Wessex.

- 1 Felt and batten the roof in normal manner.

Note: If unit is to be used as a roof void vent, circular spigot and 5mm of box section must be sawn off on site to achieve designed free vent area.

- 2 Determine position of tile vent terminal (ideally mid-span between rafters) and form a 'V' cut in the underlay to accommodate box spigot (Fig. 1).

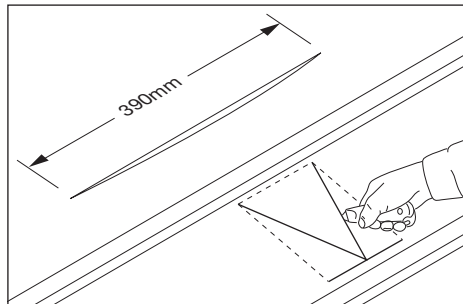


Fig. 1 – Make aperture in underlay

- 3 Make horizontal cut in underlay, 390mm long, at a distance 150mm above bottom edge of tiling batten, supporting vent tile and slide soaker tray under batten and through slit in underlay (Fig. 2).

- 4 Secure soaker tray by folding cut underlay over the batten and nail into the top edge of the tiling batten above.

- 5 Insert tile vent unit within main body of tiling and mechanically fix using standard tile clip fixings (Fig. 3).

Note: This product is not suitable as an exhaust for hot gases.

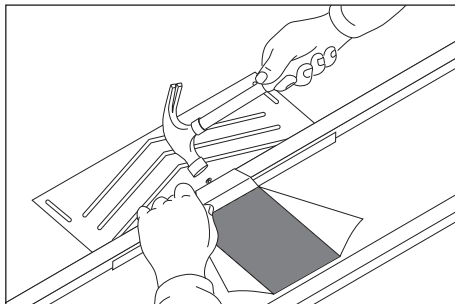


Fig. 2 – Secure soaker tray

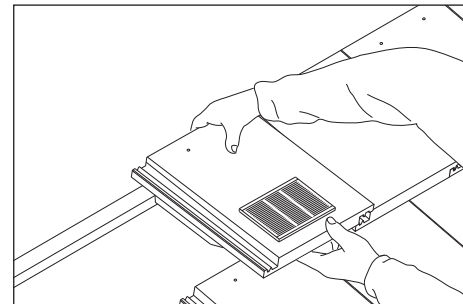
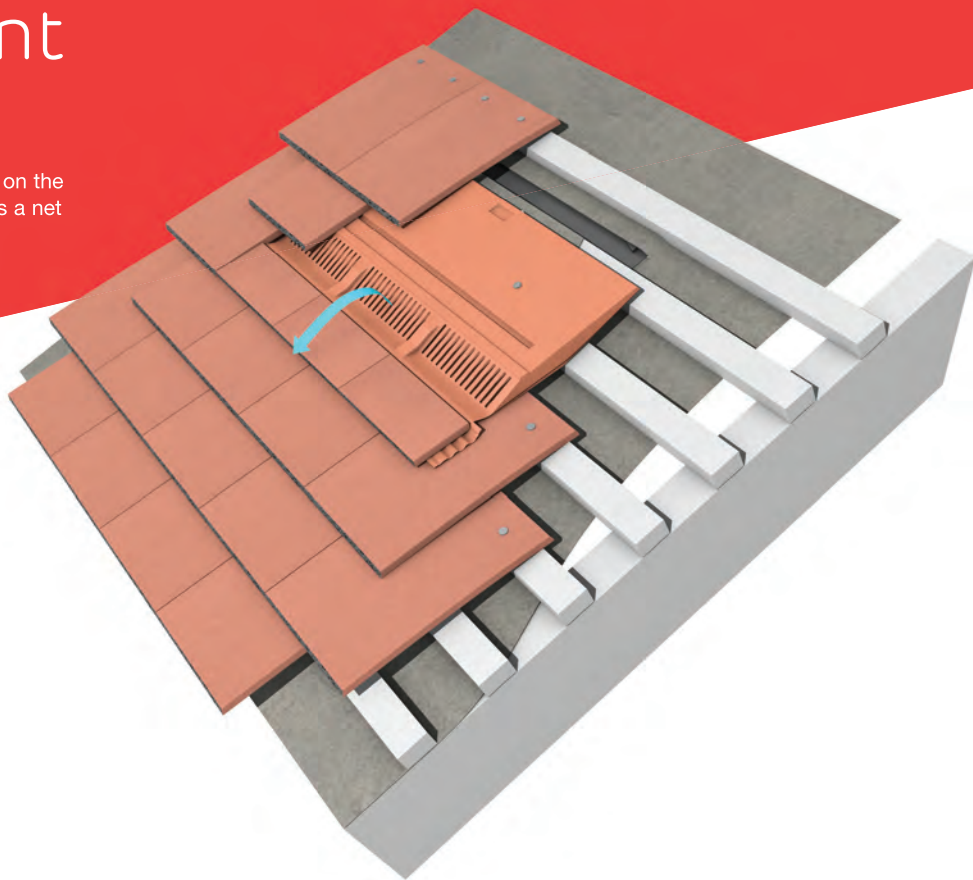


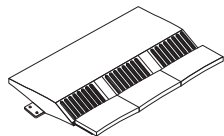
Fig. 3 – Fix contour vent tile

# Clay in-line vent terminal

Available in a range of bases with real clay tile slips on the visible edge (3 tiles wide). The clay tile vent provides a net ventilation area of 7,500mm<sup>2</sup> per vent. Suitable for natural, mechanical or soil pipe ventilation.



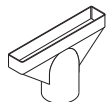
## Components



Clay in-line vent  
terminal



Flexible pipe  
(sold separately)  
(code 39091)



Clay in-line vent  
adaptor  
(sold separately)

# Clay in-line vent terminal

## Installation

- 1 Fix the roof underlay, batten and tile in the normal manner.
- 2 At the position the ventilator is required, align the throat between two tile battens, and mark the throat position before cutting through the underlay as shown (Fig. 1).
- 3 Fold the three flaps upwards and outwards to provide the hole for the ventilator throat (Fig. 1).
- 4 Make a second horizontal cut 340mm wide in the underlay between the next two battens directly above the opening already created. Slide the underlay protector unit through the horizontal cut as shown (Fig. 2).
- 5 Insert the ventilator throat through the hole in the underlay into the roof space and position ventilator onto surrounding tiles. Fix to tile batten by the two side flanges using two nails ensuring half bond is maintained. Positive fixing is required to prevent the ventilator lifting when fitting pipe adaptor.
- 6 Continue tiling in the normal manner (Fig. 3).
- 7 For soil venting or mechanical extraction, attach pipe adaptor and flexible pipe (supplied separately) after installation of the ventilator.

Note: The ventilator is not suitable for the extraction of hot combustion gases.

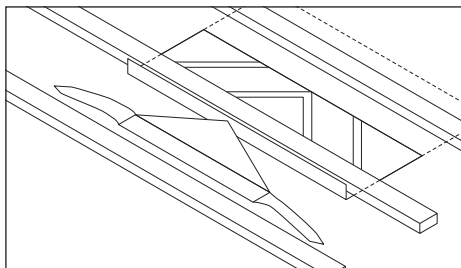


Fig. 1 – Mark throat position and cut underlay

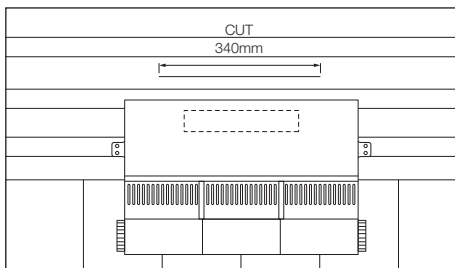


Fig. 2 – Position and fix in-line vent unit

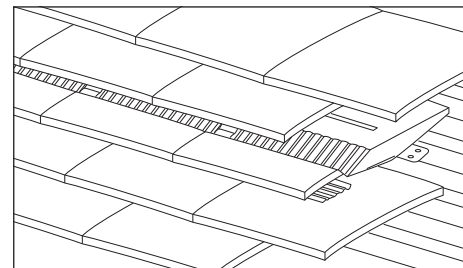
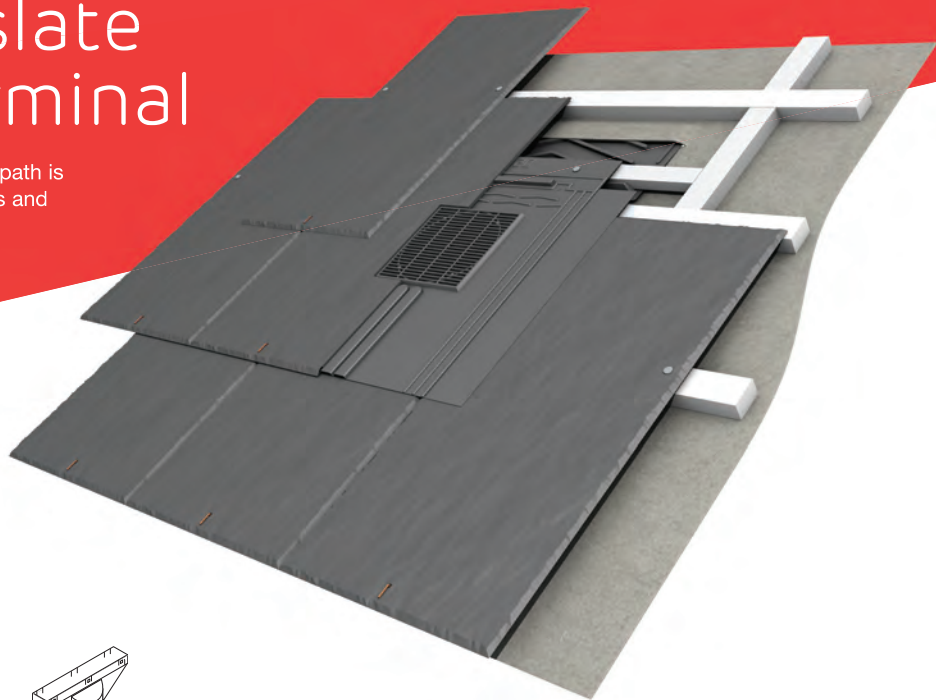


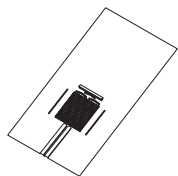
Fig. 3 – Continue tiling

# Fibre cement slate in-line vent terminal

Ideal for roof designs where the normal ventilation airpath is blocked by valleys, hips, abutments, dormer windows and firebreaks or party walls or where it is not possible to incorporate standard eaves or ridge ventilation.  
For 600x300mm slates only.



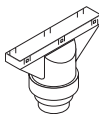
## Components



Fibre cement in-line  
slate ventilator



Flexible pipe  
(sold separately)  
(code 39091)



In-line fibre cement  
slate vent adaptor  
(sold separately)

# Fibre cement slate in-line vent terminal

## Installation

- 1 Felt and batten the roof in the normal manner.
- 2 Determine the position of the ventilator, between rafters. Cut the slate directly below the ventilator so that it does not project past the slate batten to which it is secured. Ensure that the bottom edge of slate vent aligns with bottom edge of adjacent slates. Remove a 280mm section of batten to accommodate the unit. Form a 'V' cut in the underlay to accommodate the rectangular spigot (Fig. 1).
- 3 Secure an additional support batten 20mm above the cut batten. Cut a 354mm horizontal slit in the underlay 50mm – 60mm centrally above the additional support batten. Slide the underlay protector tray above the additional support batten until the protector's up-stand can be secured to the lower edge of this batten. Nail the uppermost 'V' of the underlay to the rear of the additional support batten (Fig. 2).
- 4 Position the slate ventilator centrally on the slate coursing below and level with adjacent slates. Drill two 5mm holes in the ventilator, ensuring adequate clearance to accommodate the copper disc rivet shanks for securing the tail of the overlapping slates (Fig. 3).

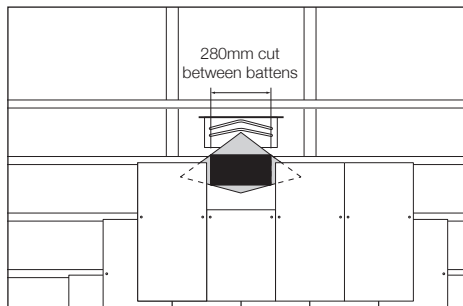


Fig. 1 – Determine position of ventilator

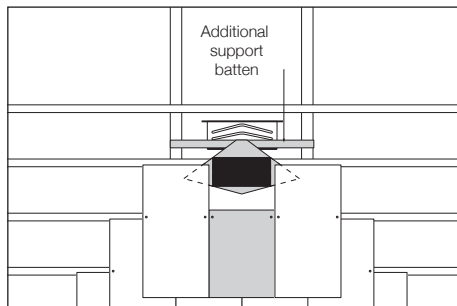


Fig. 2 – Secure additional support batten

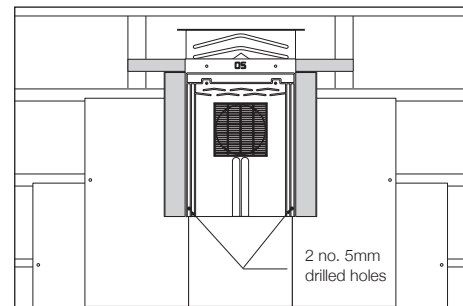


Fig. 3 – Secure underlay support to support batten

# Fibre cement slate in-line vent terminal

- 5 Cut two 'C' shaped slates to fit either side of the ventilator so that they neatly abut the grille and central draining up-stand. Hole each formed slate piece as shown, ensuring that it is twice nailed to battens (Fig. 4). Continue slating in the normal manner.
- 6 Lay the next course of slates, cutting the slate directly above, to neatly abut the ventilator grille as required. Inspect the junction, security of the ventilating unit and adjacent slating before laying further courses. (Figs. 5 and 6). Continue slating in the normal manner.

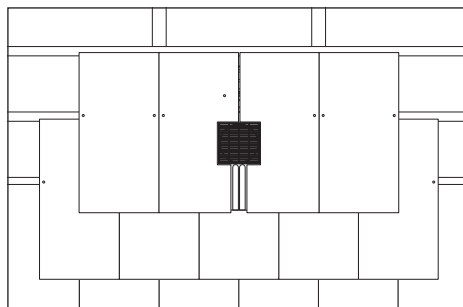


Fig. 4 – Cut slates to avoid grille on vent unit

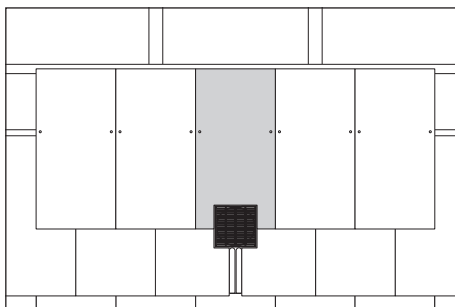


Fig. 5 – Cut slates to avoid grille on vent unit

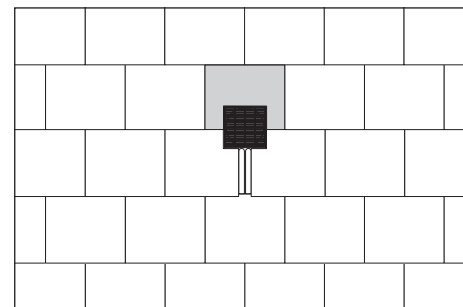


Fig. 6 – Continue slating in the normal manner

# Tables and terminology

- 197 Eaves fascia heights
- 198 Ventilation roof tiles and vent terminal spacing
- 199 Valley gutter widths
- 200 Pitched roofing terminology
- 202 Resources

# Eaves fascia heights

The following tables, calculated using a 19mm thick timber fascia board with tile projecting 50mm beyond the front plane of the fascia. Heights shown will be affected where rigid sarking and counterbattens (Scottish practice) are used or where there is variation in batten thickness, tile overhang, fascia thickness or pitch.

The eaves course of tiles must be in the same plane as the remainder of roof.

- 1 For comprehensive tabulated reference for vertical measurement of eaves fascia above rafter, see below. For measurements using the Marley Eternit Universal 10mm and 25mm Eaves ventilation systems, please refer to tables on page 112.

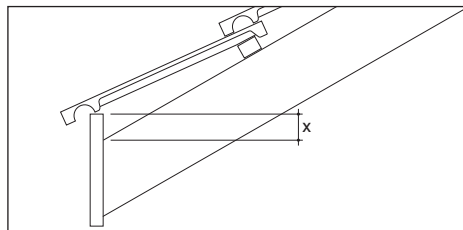


Fig 1 'x' = Fascia height setting

## Fascia height settings (mm) 'x' without over fascia ventilation system\*

Pitch	12.5°	15°	20°	30°	40°	50°	60°	70°
Anglia	–	–	–	34	34	38	72	95
Ashmore	–	–	–	44	44.6	50	–	–
Double Roman	–	–	31	32	34	38	49	–
Edgemere range	–	–	40	40	41	44	52	68
Fibre cement slates	–	–	24	22	22	22	56	–
Ludlow Major	–	–	–	35	36	39	45	58
Ludlow Plus	–	–	–	33	35	55	65	84
Maxima	–	–	55	55	55	58	70	90
Melodie	44	44	44	44	44	46	50	64
Mendip	–	–	–	33	33	36	42	53
Modern/Duo Modern	–	–	47	48	51	58	71	98
Plain	–	–	–	–	45	50	58	76
Wessex	–	44	47	52	57	62	71	–

\* The nominal dimensions given are for guidance only and may need to be adjusted to suit site requirements by ensuring that the eaves course of tiles or slates is laid at the same pitch as the main body of the roof.



# Ventilation roof tiles and vent terminal spacing

## Marley Eternit ventilation roof tile and vent terminal spacing

Product and profile	Code	Free area	Tile spacing to suit vent equivalent to gap of			Cover width
			5mm	10mm	25mm	
Ventilation roof tile						
Ashmore	263	4000mm <sup>2</sup>	800mm	400mm	–	302mm
Universal tile vent terminal						
All profiles	36700	15000mm <sup>2</sup>	3000mm	1500mm	600mm	–
In-line vent terminals						
Clay plain tiles	–	7500mm <sup>2</sup>	1500mm	750mm	300mm	495mm
Fibre cement slates	–	10000mm <sup>2</sup>	2000mm	1000mm	400mm	300mm
Tile vent terminals						
Mendip	294	7107mm <sup>2</sup>	1420mm	710mm	–	298mm
Modern / Duo Modern	295	7081mm <sup>2</sup>	1415mm	705mm	–	292mm
Wessex	296	6929mm <sup>2</sup>	1385mm	690mm	–	298mm
Ludlow Major	297	7665mm <sup>2</sup>	1530mm	765mm	–	295mm
Double Roman	298	7614mm <sup>2</sup>	1520mm	760mm	–	300mm
Edgemere range	259	7081mm <sup>2</sup>	1415mm	705mm	–	290mm

Product and profile	Code	Free area	Tile spacing to suit vent equivalent to gap of			Cover width
			5mm	10mm	25mm	
Contour vent terminals						
Plain	455	10000mm <sup>2</sup>	2000mm	1000mm	400mm	165mm
Modern/Duo Modern	451	10000mm <sup>2</sup>	2000mm	1000mm	400mm	292mm
Ludlow Major	456	11000mm <sup>2</sup>	2200mm	1100mm	440mm	295mm
Wessex	459	12500mm <sup>2</sup>	2500mm	1250mm	500mm	298mm
Double Roman	453	13500mm <sup>2</sup>	2700mm	1350mm	540mm	300mm
Mendip	452	14500mm <sup>2</sup>	2900mm	1450mm	580mm	298mm
Anglia (2 tile)	460	15000mm <sup>2</sup>	3000mm	1500mm	600mm	408mm
Ludlow Plus (2 tile)	457	15000mm <sup>2</sup>	3000mm	1500mm	600mm	408mm
Edgemere/Duo Edgemere	465	10000mm <sup>2</sup>	2000mm	1000mm	400mm	290mm
Ashmore	450	10000mm <sup>2</sup>	2000mm	1000mm	400mm	302mm
Ridge vent terminals						
Concrete segmental	198	9500mm <sup>2</sup>	1900mm	–	–	497mm (length)
Fibre cement	–	10000mm <sup>2</sup>	2000mm	–	–	900mm

# Valley gutter widths

## Minimum widths of valley gutter for different roof pitches and plan areas

Roof pitch	Design rainfall rate 225mm/h		Design rainfall rate 150mm/h		Design rainfall rate 75mm/h	
Degrees (°)	25m <sup>2</sup> and less on plan (mm)	over 25m <sup>2</sup> up to 100m <sup>2</sup> on plan (mm)	25m <sup>2</sup> and less on plan (mm)	over 25m <sup>2</sup> up to 100m <sup>2</sup> on plan (mm)	25m <sup>2</sup> and less on plan (mm)	over 25m <sup>2</sup> up to 100m <sup>2</sup> on plan (mm)
15° - 17°	150	250	125	200	125	150
17.5° - 22°	125	200	125	150	100	125
22.5° - 29.5°	100	150	100	125	100	100
30° - 34.5°	100	125	100	100	100	100
> 35°	100	100	100	100	100	100

## Minimum width of lead to line valley gutters for different roof pitches and plan areas

Degrees (°)	Area to be drained 25m <sup>2</sup> and less on plan (mm)	Area to be drained over 25m <sup>2</sup> up to 100m <sup>2</sup> on plan (mm)
15° - 17°	550	650
17.5° - 22°	525	600
22.5° - 29.5°	500	550
30° - 34.5°	500	525
> 35°	500	500

# Pitched roofing terminology

**ABUTMENT** – The junction of a roof surface with a wall, or any other structural feature which arises above it.

**BARGE BOARD** – A board fixed along the edge of a gable.

**BATTENS** – Horizontal, small-section timbers on which tiles or slates are laid.

**BONNET HIP** – Rounded hip tile used in plain tiling.

**BROKEN BOND** – A way of laying tiles so that the edge of each tile is above the middle of the tile in the course below.

**CAPILLARY ACTION** – A phenomenon whereby moisture is drawn up into the space between closely fitting surfaces.

**CLOAK VERGE TILE** – A tile to cover the edge of a verge.

**CLOSE COUPLE ROOF** – Roof composed of rafters with their feet to wall plates, their heads butting against a ridge board and with horizontal ties at wall plate level.

**COLD ROOF** – Roof that has insulation laid horizontally at ceiling level and a void between the insulation and its outer roof structure and covering.

**COLLAR ROOF** – Roof composed of rafters with their feet fixed to wall plates, their heads butting against a ridge board and with horizontal ties at approximately mid slope.

**COUNTERBATTENS** – Timbers fixed vertically between the battens and the surface below.

**COUPLE ROOF** – Roof composed of rafters with their feet fixed to wall plates and their heads butting against a ridge board without ties.

**COURSE** – A horizontal row of tiles or slates.

**DENTIL SLIP** – Small rectangular pieces of plain tile bedded between the underside of a ridge tile or hip tile and the pan of a profiled single-lap tile.

**DOUBLE PANTILE** – Single-lap tile moulded to two pans in section.

**DRY RIDGE** – A roof ridge which is fixed mechanically without mortar.

**DRY VERGE** – A roof verge which is fixed mechanically without mortar.

**EAVES** – The lower edge of a roof.

**EAVES FILLER** – A component that fills the space under the roll of a roof tile at the eaves to keep out birds, vermin and insects.

**EFFLORESCENCE** – The formation of a white crystalline deposit on the surface of a tile, caused by mineral migration to the surface.

**FASCIA BOARD** – The board attached vertically to the rafter ends at the eaves, the wall plate or the wall face.

**FELT** – (Also known as underlay or sarking felt). Untearable bituminous or PVC sheet material, supplied in rolls and laid over rafters or counter battens.

**FINIAL** – A decorative fitting used at the end of a ridge or at the highest point of a roof.

**FLASHING** – A sheet of metal, usually lead or aluminium, which protects a joint from water penetration.

**GABLE** – The vertical triangular section of wall above the level of the eaves and below the sides of a pitched roof.

**GAUGE** – The length of tile exposed after it has been installed. It equals the distance between the top of one batten and the top of the next.

**GUTTER (BACK)** – A gutter formed at the back of a chimney, or any other structure which penetrates the roof.

**GUTTER (SECRET)** – A gutter formed at an abutment and effectively hidden from sight. (As opposed to Side Gutter, which is exposed to view).

**GUTTER (VALLEY)** – A visible gutter running down the valley.

**HIP** – The meeting of two pitched roof surfaces which meet at an external angle (known as a Piend in Scotland).

# Pitched roofing terminology

**HIP IRON** – A metal strap bent to form a stop for the hip covering and screwed to the lower end of a hip rafter (known as a Piend Strap in Scotland).

**HIP TILE** – A fitting designed to cover the hip (Piend in Scotland) intersection of a pitched roof of a given pitch.

**INTERLOCKING TILE** – A single-lap tile designed to connect with adjoining tiles by close fitting ribs.

**LAP** – The amount by which a tile overlaps the course below it - or, in the case of plain tiles, the course next but one.

**MANSARD ROOF** – A roof having two slopes on both sides and ends, the lower slopes being steeper in pitch.

**MONOPITCH ROOF** – A pitched roof with a single slope from eaves to ridge.

**NIBS** – Projecting lugs on the underside of a tile near the head, which locate the tile on the battens.

**PANTILE** – Single-lap tile moulded to a flat S-shape in section.

**PITCH** – The angle of the roof to the horizontal. (Normally applies to the rafters).

**PLAIN TILE** – A small, slightly cambered roofing tile, size 267mm x 165mm. Usually with nibs and nail holes.

**RAKING CUT** – A diagonal cut across courses of tiles.

**RIDGE APEX** – The junction of two slopes forming the apex of a pitched roof.

**RIDGE TILE** – A fitting designed to cover the apex of a pitched roof of a given pitch.

**RIDGE VENT TERMINAL** – A ridge tile which incorporates a ventilation outlet.

**SADDLE** – A piece of impervious flexible sheet material (usually lead) dressed to shape, fitted to provide weather protection.

**SOAKER** – A small piece of sheet (usually lead), shaped and inserted between double lap tile or slates on the abutment between a roof slope and a vertical wall, or at a hip or valley.

**SOFFIT BOARD** – Board fixed to the feet of rafters which forms the underside of projecting eaves.

**SPROCKET** – An alteration in pitch from steep to shallow, normally close to the eaves (Bellcast).

**TILTING FILLET** – A strip of wood laid beneath a course, to tilt it up slightly so that the slates or tiles rest properly on the roof.

**UNDERCLOAK** – Roofing slates, plain tiles or fibre cement strip fixed at the verge beneath the battens, on to which the verge tiles are bedded.

**UNDER EAVES COURSE** – The courses of plain tiles or slates laid broken bond under the eaves course, finished flush with its lower edge and of such a length to give the correct lap.

**UNDERLAY** – A layer of material acting as a barrier between the roof covering and the sub-structure (see Felt).

**VALLEY** – The junction of two inclined roof surfaces at an internal angle.

**VALLEY TILE** – A concrete or clay tile used at valleys with plain tiles.

**VALLEY TROUGH** – A concrete tile or glass reinforced polyester resin section, used for weathering valley junctions when using interlocking tiles or slates.

**VAPOUR CONTROL LAYER** – Layer of material intended to restrict the transmission of water vapour.

**VENT TERMINAL** – A roof tile fitted with a hood and grille for natural ventilation which can also be connected to soil pipes or mechanical extractors.

**VENTILATION TILE** – A roof tile with a hood and grille to ventilate the roof space.

**VERGE** – A free end of a roof surface; for example that at the end of a gable or dormer.

**WARM ROOF** – Roof that has insulation and a vapour barrier laid above its supporting structure (normally on the pitch of the rafters) and immediately below its weatherproofing membrane.

# Resources



## Technical advice

Our Technical Advisory Service is staffed by a qualified team with specialist knowledge.

**Tel 01283 722588**

**E-mail [info@marleyeternit.co.uk](mailto:info@marleyeternit.co.uk)**



## Stockist information

To find details for stockists of Marley Eternit products, visit: **[marleyeternit.co.uk/stockists](http://marleyeternit.co.uk/stockists)**



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**E-mail [info@marleyeternit.co.uk](mailto:info@marleyeternit.co.uk)**



## Sitework Guide app

Make roofing on site even easier by using our app to get instant advice, illustrations and step-by-step fixing procedures on your tablet or mobile. **Download for free from the App Store or from Google Play.**



## Fixing instructions and literature

Comprehensive sitework, fixing and installation literature and videos: **[marleyeternit.co.uk/resources](http://marleyeternit.co.uk/resources)**

All current product and technical literature can be downloaded: **[marleyeternit.co.uk/downloads](http://marleyeternit.co.uk/downloads)**



## Samples

Samples of clay interlocking and plain tiles, fibre cement slates and concrete tiles are available on request.

**Tel 01283 722588**

**[marleyeternit.co.uk/samples](http://marleyeternit.co.uk/samples)**



### Sales support

Our Area Sales Managers have in-depth knowledge of your local area. They are available to visit your site to carry out a roof survey, and to offer specific solutions for both new build and refurbishment projects.

[marleyeternit.co.uk/localcontacts](http://marleyeternit.co.uk/localcontacts)



### Tilefix

A tool to create fixing specifications based on the geographical location and building dimensions of specific building projects.

[marleyeternit.co.uk/tilefix](http://marleyeternit.co.uk/tilefix)



### Training centre

We have a purpose-built training centre where we are able to impart our expertise through a range of practical and classroom courses. To find out more about our courses, visit: [marleyeternit.co.uk/training](http://marleyeternit.co.uk/training)



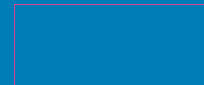
### Estimator

A tool designed to create a complete bill of materials for your roofing project, based on a wide range of roof shapes: [marleyeternit.co.uk/estimator](http://marleyeternit.co.uk/estimator)



### Health and safety

In line with the requirements of the Health and Safety at Work Act, The Consumer Protection Act and The Chemicals (Hazard Information and Packaging for Supply) Regulations and the Control of Substances Hazardous to Health Regulations, **please view or download copies of our COSHH data sheets at [marleyeternit.co.uk/coshh](http://marleyeternit.co.uk/coshh)**



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