



Fibre cement slates

Fibre cement slates

The appearance of the slated roof has been part of the built environment since time immemorial. As well as adorning some of the nation's most important historic buildings and being a staple of vernacular architecture in many parts of the UK, slated roofs are used increasingly in design-led projects for the commercial, public, leisure and retail sectors.

Introduction

Marley Eternit fibre cement slates provide the charm of a natural slate roof with all the economical, functional and environmentally friendly attributes of modern slate technology.

Quality and sustainability

An A+ rating (the lowest environmental impact) in the Building Research Establishment's Green Guide to Specification can be achieved using Marley Eternit's fibre cement slates, concrete and clay tiles.

Marley Eternit operate a Quality System to BS EN ISO 9001 and comply with the Environmental Standard BS EN ISO 14001 (independently assessed by BSI), Health and Safety Standard OHSAS 18001 and are also certified with a 'Very Good' rating to BES 6001: Responsible Sourcing.



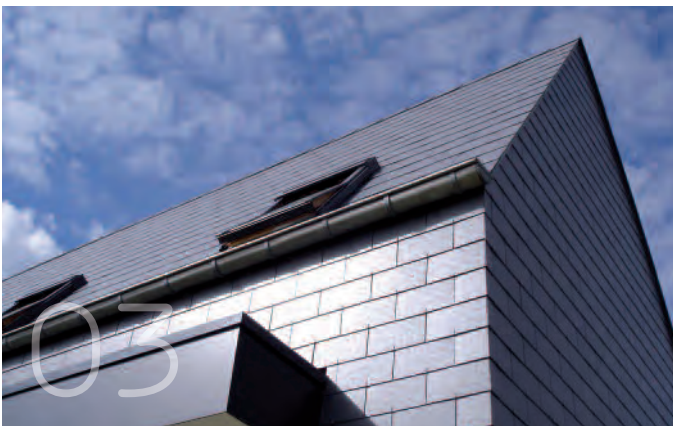


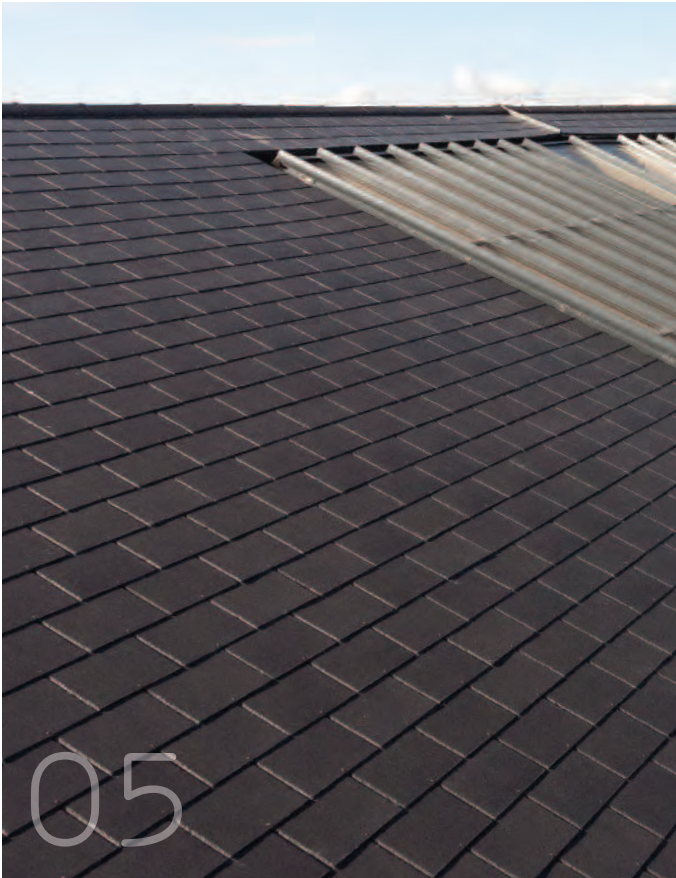
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Rivendale Blue-Black, Bishops Grosseteste University, Lincoln

Why choose Marley Eternit slates?





- 01 BES 6001 'Very Good'
- 02 A+ rated in the BRE Green Guide*
- 03 Can be used for both roof and facade
- 04 15° low pitch options available
- 05 Full range of fittings and accessories
- 06 Low carbon footprint of 13 CO₂e/m²
- 07 Shapes and colours available

* Element ref: 812410008

Cwmaman Infant School

case study

“Cwmaman Infant School lies in the heart of the valley community and the aesthetics of the school building are integral to the architectural heritage of the area. We chose Rivendale fibre cement slates to remain in keeping with the original design and surrounding buildings, whilst still maintaining a cost-effective alternative to natural slate.”

Kerry Chinnock, Building Surveyor, Rhondda Cynon Taf Council



Project information

Location: Aberdare, Wales

Application: Education

Product: Rivendale fibre cement slates

Specifier: Rhondda Cynon Taf Council

Rhondda Cynon Taf Council has chosen Marley Eternit Rivendale fibre cement slates for an authentic, beautiful slate roof finish for a school built in the early 1900s near Aberdare in Wales.

As a Victorian building, Cwmaman infant school's slate roof had reached the end of its economic lifespan and was starting to leak. It was such a large roof that it would not have been possible to replace it during one single summer holiday period so Rhondda Cynon Taf Council decided to tender the project in two separate phases so as to ensure there was minimum disruption to the school's function.

The council decided to specify Marley Eternit Rivendale fibre cement slates in blue black for the roof following their successful use on a similar project at Rhigos primary school, the previous year.





Knock Rushen

case study

“We were looking for a cost-effective product that seamlessly blended in with the local environment. Houses in Castletown are predominantly finished with natural slate roofs but we were confident that fibre cement would enable us to create a finish that would be sympathetic to the local surroundings.”

Paul Brew, Hartford Homes



Project information

Location: Castletown, Isle of Man

Application: Residential

Product: Rivendale fibre cement slates

Specifier: Hartford Homes

The site of Knock Rushen in Castletown had previously been subject to a number of unsuccessful planning applications. High quality products along with aesthetically pleasing designs were demanded by planning officers in an effort to mirror the local character of the town. The successful property development company therefore needed to carefully select products that would complement the beautiful surrounding coastal countryside.

After more than a decade of thought, design and planning, a unique collection of 45 luxury homes, made up of three, four and five bedroom designs, all of which have been finished with Marley Eternit's Rivendale fibre cement slates in blue/black, was completed by developers, Hartford Homes.

Oaklands Village

case study

“It was important to ensure the slates visually met our criteria, as we were looking to specify a product with a very thin leading edge. We wanted to create a crisp roof line where the slates could also be used on a curved plan form. Natural slate proved to be cost prohibitive, so Rivendale fibre cement slate was specified as the ideal solution; it facilitates flexible design whilst offering strong environmental credentials”

Sandeep Magar, Architect Associate, Glancy Nicholls



Project information

Location: South Derbyshire

Application: Residential

Product: Rivendale fibre cement slates

Specifier: Glancy Nicholls

Rivendale fibre cement slates were specified for Oakland Village in South Derbyshire, a £20 million state of the art care community and recent winner of the best social housing project at LABC's East Midlands Building Excellence Awards.

Sandeep Magar, architect associate at Glancy Nicholls, comments: “Oakland Village was conceived to dispel the stereotypical notion of an ‘old people’s home’. It was important for this project to have a contemporary design in order to accommodate the future provision of elderly care within the county, whilst at the same time ensuring quality materials were utilised. Marley Eternit’s Rivendale fibre cement slate enabled us to achieve the desired aesthetic.”

“Due to the topography of the site, the scale of the development was designed to be low profile in order to give the impression of individual houses, no more than two storeys in height.”





Tally Ho Police Training College

case study

“A combination of Birkdale’s colour, edge finish, modular scale size and design flexibility supported our design vision to use a traditional material in a contemporary and unusual manner.”

Rob Martin, Architect at Nichol Thomas



Project information	
Location:	Birmingham
Application:	Public sector
Product:	Birkdale fibre cement slates
Specifier:	Nichol Thomas
Contractor:	Dent and Partners

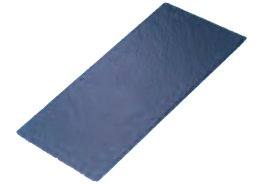
Marley Eternit’s Birkdale fibre cement slate was chosen as the perfect answer to fulfil part of a complex and challenging rainscreen design.

The new single storey training centre, which will be used by the West Midlands police force, consists of a fully grassed roof with ‘basket weave’ Birkdale slates used as a form of a raked rainscreen cladding to elevate the building.

Architect Rob Martin: “The fact that the building sits in a greenfield site meant that the choice of materials was critical in enabling the scheme to appropriately respond to its context. We had to find a solution which would also respond to the surrounding urban environment and would naturally ‘bed’ into the landscape. The familiarity of the traditional slate look of the tile helps the building settle well into its surrounding urban environment whilst the green tile and the use of the zoomorphic basket weave creates a softer ‘naturalistic’ feel which we felt lent itself to the grassy site in which it lays. The naturalisation of the building is completed with the introduction of the grass roof which due to its sunken position can be visible from the nearby roadside.”

Rivendale

fibre cement slates



Sustainability

Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
Credit uplift available with EPD	
Embodied carbon	Low carbon footprint of 13 CO ₂ e/m ²



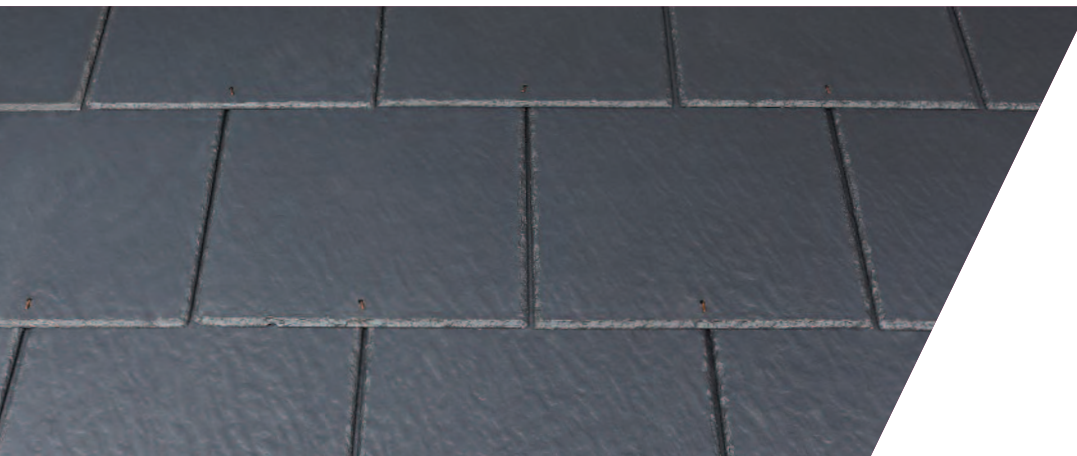
Rivendale, Oakland Village, Swadlincote

Technical data*

Size of slate	600mm x 300mm	
Minimum pitch**	Moderate exposure	22.5° (100mm lap) 20° (110mm lap)
	Severe exposure	25° (100mm lap) 22.5° (110mm lap)
Maximum pitch	90°	
Typical laps	100, 110mm	
Maximum gauge	245-250mm	
Slate thickness	4mm	
Covering capacity (net)	13.4 slates/m ² at 100mm lap	
	13.6 slates/m ² at 110mm lap	
Weight of slating (approx.)	20.4 kg/m ² (0.20 kN/m ²) at 100mm lap	
	20.9 kg/m ² (0.20 kN/m ²) at 110mm lap	
Battens required (net)	4.00 lin.m/m ² at 100mm lap	
	4.08 lin.m/m ² at 110mm lap	
Batten size recommended (fixed to BS 5534)	38 x 25mm for rafters/supports not exceeding 450mm centres	
	50 x 25mm for rafters/supports not exceeding 600mm centres	
Fixings	Slate nails (30 x 2.65mm)	
	Copper disc rivets (19mm dia. x 2mm stem)	
Fittings screws	14 gauge self sealing	
Authority	BS EN 492	

* Marley Eternit fibre cement slates meet the strength requirement of BS EN 492, achieving an average bending movement greater than 50 NM/M (Class B). The slates also have a minimum density of 1700 kg/m³ and a nominal thickness of 4mm.

** The minimum recommended pitch and lap may be influenced by special circumstances, please contact the Technical Advisory Service.



A finely detailed surface and dressed edges that together reproduce the attractive appearance of natural slate.

> Tilefix

marleyeternit.co.uk/tilefix

> CAD

marleyeternit.co.uk/cad

> NBS specs

marleyeternit.co.uk/specrite

> Fixing guide

marleyeternit.co.uk/resources



A smooth surface and dressed edges offer a traditional and pleasing look.

> Tilefix

marleyeternit.co.uk/tilefix

> CAD

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> NBS specs

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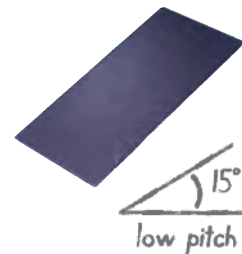
> Fixing guide

marleyeternit.co.uk/resources



Birkdale

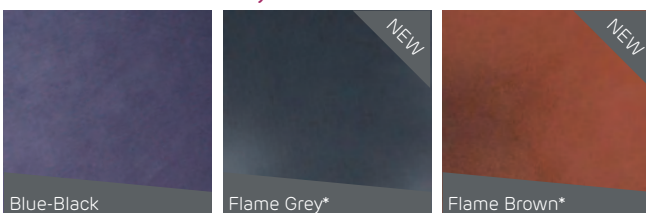
fibre cement slates



Sustainability

Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
Credit uplift available with EPD	
Embodied carbon	Low carbon footprint of 13 CO ₂ e/m ²

Colour availability



* Made to order

Technical data*

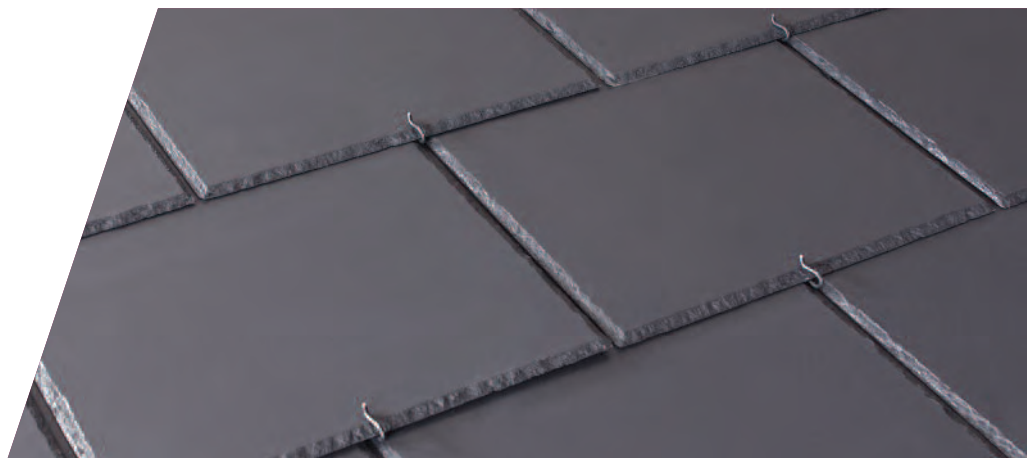
Fixing method	Nail and rivet**	Slate hooks
Size of slate	600mm x 300mm	600mm x 300mm
Minimum pitch		
Moderate exposure	22.5° (100mm lap) 20° (110mm lap)	15° (150mm lap) (Max. 6m rafter length)
Severe exposure	25° (100mm lap) 22.5° (110mm lap)	17.5° (150mm lap) (Max. 9m rafter length)
Maximum pitch	90°	90°
Typical laps	100, 110mm	150mm
Maximum gauge	245-250mm	225mm
Slate thickness	4mm	4mm
Covering capacity (net)	13.4 slates/m ² (100mm lap) 13.6 slates/m ² (110mm lap)	14.8 slates/m ² (150mm lap)
Weight of slating (approx.)	20.4 kg/m ² (0.20 kN/m ²) (at 100mm lap) 20.9 kg/m ² (0.20 kN/m ²) (at 110mm lap)	22.8 kg/m ² (at 150mm lap)
Battens required (net)	4.00 (net lin.m/m ²) (at 100mm lap) 4.08 (net lin.m/m ²) (at 150mm lap)	4.45 (net lin.m/m ²) (at 150mm lap)
Batten size recommended (fixed to BS 5534)	38 x 25mm for rafters/supports not exceeding 450mm centres 50 x 25mm for rafters/supports not exceeding 600mm centres	
Fixings	Slate nails (30 x 2.65mm) Copper disc rivets (19mm dia. x 2mm stem)	Slate hooks (150mm) Slate nails for local areas of roof (30 x 2.65mm) Copper disc rivets for local areas of roof (19mm dia. x 2mm stem)
Fittings screws	14 gauge self sealing	14 gauge self sealing
Authority	BS EN 492	BS EN 492

* Marley Eternit fibre cement slates meet the strength requirement of BS EN 492, achieving an average bending movement greater than 50 NM/M (Class B). The slates also have a minimum density of 1700 kg/m³ and a nominal thickness of 4mm.

** The minimum recommended pitch and lap may be influenced by special circumstances, please contact the Technical Advisory Service.

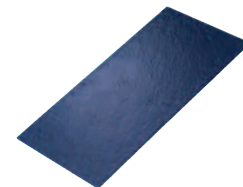


Watch a quick video on hook fixing at www.marleyeternit.co.uk/birkdale or scan the QR code above.



Garsdale

fibre cement slates



Sustainability

Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
Embodied carbon	Low carbon footprint of 13 CO ₂ e/m ²



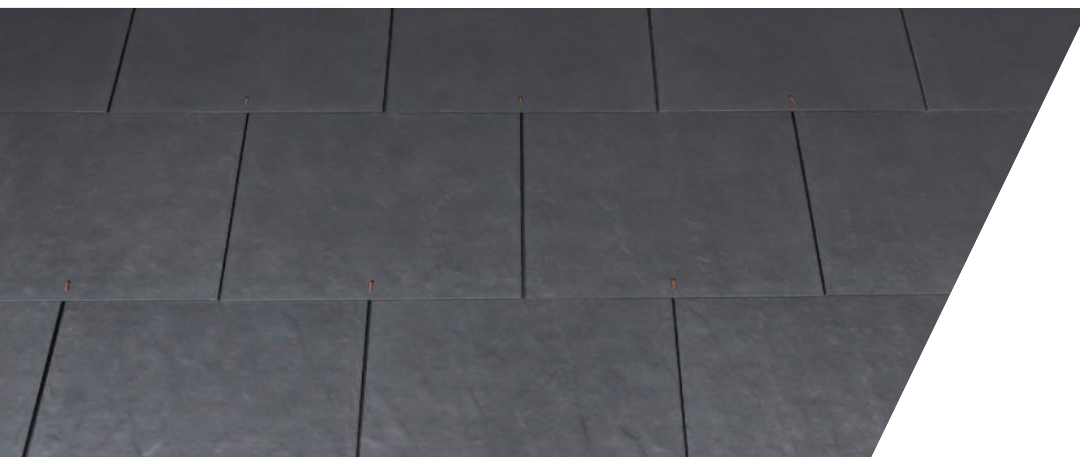
Garsdale, Perth

Technical data*

Size of slate	600mm x 300mm	
Minimum pitch**	Moderate exposure	22.5° (100mm lap) 20° (110mm lap)
	Severe exposure	25° (100mm lap) 22.5° (110mm lap)
Maximum pitch	90°	
Typical laps	100, 110mm	
Maximum gauge	245-250mm	
Slate thickness	4mm	
Covering capacity (net)	13.4 slates/m ² at 100mm lap	
	13.6 slates/m ² at 110mm lap	
Weight of slating (approx.)	20.4 kg/m ² (0.20 kN/m ²) at 100mm lap	
	20.9 kg/m ² (0.20 kN/m ²) at 110mm lap	
Battens required (net)	4.00 lin.m/m ² at 100mm lap	
	4.08 lin.m/m ² at 110mm lap	
Batten size recommended (fixed to BS 5534)	38 x 25mm for rafters/supports not exceeding 450mm centres	
	50 x 25mm for rafters/supports not exceeding 600mm centres	
Fixings	Slate nails (30 x 2.65mm)	
	Copper disc rivets (19mm dia. x 2mm stem)	
Fittings screws	14 gauge self sealing	
Authority	BS EN 492	

* Marley Eternit fibre cement slates meet the strength requirement of BS EN 492, achieving an average bending movement greater than 50 NM/M (Class B). The slates also have a minimum density of 1700 kg/m³ and a nominal thickness of 4mm.

** The minimum recommended pitch and lap may be influenced by special circumstances, please contact the Technical Advisory Service.



A detailed surface and square edge closely resembles natural slate but is easier and faster to install.

> Tilefix

marleyeternit.co.uk/tilefix

> CAD

marleyeternit.co.uk/cad

> NBS specs

marleyeternit.co.uk/specrite

> Fixing guide

marleyeternit.co.uk/resources



A smooth surface and square cut edges give a low profile slate at an economical price which is suited to complex roof geometries.

> Tilefix

marleyeternit.co.uk/tilefix

> CAD

marleyeternit.co.uk/cad

> NBS specs

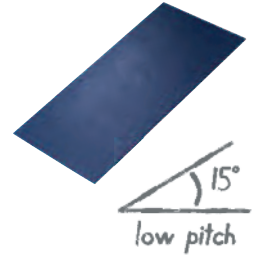
marleyeternit.co.uk/specrite

> Fixing guide

marleyeternit.co.uk/resources

Thrutone

fibre cement slates



Sustainability

Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
Embodied carbon	Low carbon footprint of 13 CO ₂ e/m ²

Technical data*

Size of slate	600mm x 300mm	500mm x 250mm
Minimum pitch**		
Moderate exposure	22.5° (100mm lap) 20° (110mm lap)	22.5° (100mm lap)
Severe exposure	25° (100mm lap) 22.5° (110mm lap)	25° (100mm lap)
4m max. rafter length	15°-17.5° (110mm lap)	–
6m max. rafter length	17.5°-20° (110mm lap)	–
Maximum pitch	90°	90°
Typical laps	100, 110mm	100mm
Maximum gauge	245-250mm	200mm
Slate thickness	4mm	4mm
Covering capacity (net)	13.4 slates/m ² (100mm lap) 13.6 slates/m ² (110mm lap)	20.0 slates/m ² (100mm lap)
Weight of slating (approx.)	20.4 kg/m ² (0.20 kN/m ²) (at 100mm lap) 20.9 kg/m ² (0.20 kN/m ²) (at 110mm lap)	21.3 kg/m ² (0.21 kN/m ²) (at 100mm lap)
Battens required (net)	4.00 (net lin.m/m ²) (at 100mm lap) 4.08 (net lin.m/m ²) (at 150mm lap)	5.00 (net lin.m/m ²) (at 100mm lap)
Batten size recommended (fixed to BS 5534)	38 x 25mm for rafters/supports not exceeding 450mm centres 50 x 25mm for rafters/supports not exceeding 600mm centres	
Fixings	Slate nails (30 x 2.65mm) Copper disc rivets (19mm dia. x 2mm stem)	Slate nails (30 x 2.65mm) Copper disc rivets (19mm dia. x 2mm stem)
Fittings screws	14 gauge self sealing	
Authority	BS EN 492	

* Marley Eternit fibre cement slates meet the strength requirement of BS EN 492, achieving an average bending movement greater than 50 NM/M (Class B). The slates also have a minimum density of 1700 kg/m³ and a nominal thickness of 4mm.

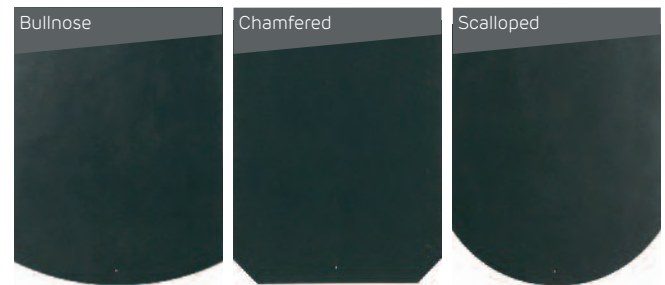
** The minimum recommended pitch and lap may be influenced by special circumstances, please contact the Technical Advisory Service.

Colour availability



* Made to order

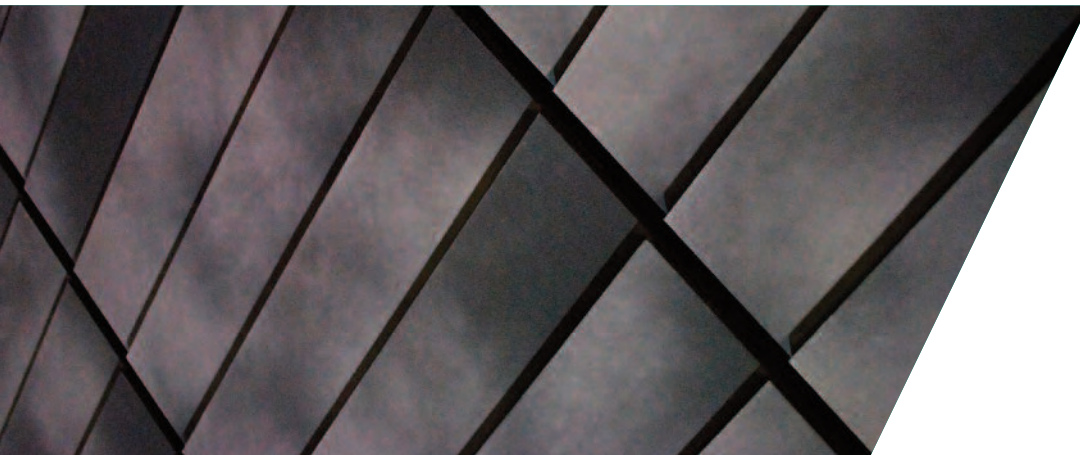
Shapes availability



Watch a quick video on how to fit low pitch Thrutone slates at marleyeternit.co.uk/thrutone

Vertigo

Contemporary or traditional, our NEW Vertigo range follows the lines of your creativity and brings a new solution to rainscreen cladding.





NEW

The small unit size perfectly follows all shapes like a second skin, enabling continuity between roof and facade to be achieved.

For more information visit marleyeternit.co.uk/vertigo

Fittings and accessories

Marley Eternit ventilation systems

To assist the designer in meeting the requirements of the Building Regulations, Marley Eternit has developed a range of ventilation accessories that combine discreet and aesthetic solutions with the highly efficient removal of moisture-laden air and gases.

This comprehensive range is designed to ventilate roof voids with terminals for the ridge and roof, with connection to mechanical extract systems and soil vent pipes, allowing easy provision of precise amounts of free airspace.

Available systems: Universal eaves ventilation systems (10 and 25mm)*, Universal RidgeFast*, Universal HipFast*, Universal fibre cement ridge roll, Ventilated dry ridge and mono ridge, Ridge vent terminals, In-line vents.

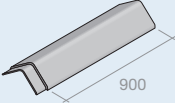
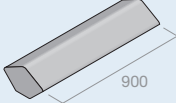
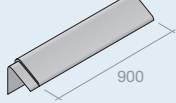
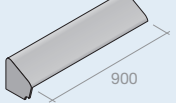
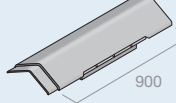
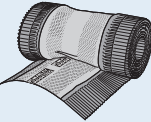
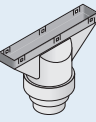

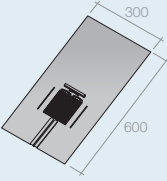
Marley Eternit dry fix systems

To improve the speed and economy of roof construction, a choice of high performance, maintenance-free dry fix systems are offered to suit ridge, verge, hip and valley details providing easy to fix alternatives to traditional mortar bedding. When correctly installed, they are designed to satisfy the requirements of BS 5534 'Code of practice for slating and tiling' with respect to the mechanical fixing of roof fittings to resist wind uplift and the provision of a weathertight roof.

Available systems: Universal RidgeFast*, Universal HipFast*, Dry ridge and mono ridge, GRP interlocking slate dry valley system, Slate verge trim.

Fibre cement fittings

Available in Blue/Black.

					
Description	Duo ridge**	Stop end for duo pitch ridge**	Mono pitch ridge**	Stop end for mono pitch ridge**	In-line ridge ventilator plus extension sleeve*
Pitch range	15-60°	15-55°	15-45°	15-45°	20-45°
					
Description	Fibre cement ridge roll	In-line ridge ventilator stepped adaptor Also available: Ridge vent pipe adaptor	Flexible pipe	In-line slate ventilator	

Relative pitches of fibre cement ridge and hip cappings

Design pitch main roof	15°	20°	22.5°	25°	27.5°	30°	35°	40°	45°	50°	55°
Pitch of ridge cappings	***	20°	25°	25°	30°	30°	35°	40°	45°	50°	55°
Effective pitch at hip	***	14°	15°	17.5°	19°	20°	24°	27°	30°	33°	35°
Recommended pitch of duo pitch hip cappings	***	15°	15°	20°	20°	20°	25°	30°	30°	35°	35°

The above table assumes that pitches on each side are identical and that slopes intersect at right angles on plan.

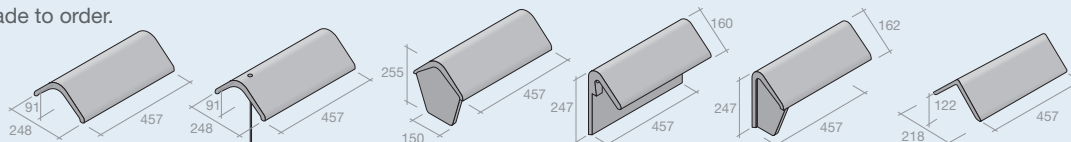
*** Please contact the Technical Advisory Service

* Universal systems are designed to be compatible with tiles and slates used in the roofing industry. ** 6m ventilated ridge roll is available to provide continuous ventilation. * Made to order.

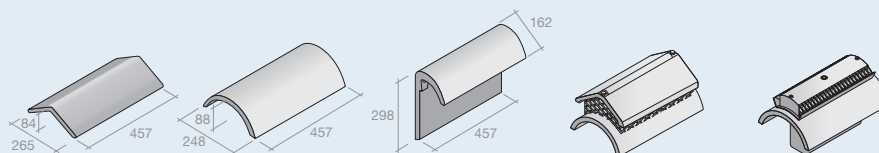
‡ Maximum pitch may vary depending on product and system used. Please contact the Technical Advisory Service for more information. † Angle ridge wing length will vary depending on ridge angle.

Concrete fittings

Available in a range of colours. Crested ridges and finials are available in Smooth Grey, Smooth Brown, Old English Dark Red, Mosborough Red. All other colours made to order.



Description	Modern ridge	Modern security ridge	Modern block end ridge	Modern mono ridge	Modern mono block end ridge	90° Angle/Security angle ridge
Pitch range‡	15-55° dry ridge	15-45° bedded	15-55° dry ridge	15-45° bedded	15-45°	45-50°
Can be used with						
Ventilated dry ridge system	✓	-	✓	-	-	-
Universal RidgeFast	✓	-	✓	-	-	✓
Universal HipFast	✓	-	-	-	-	-

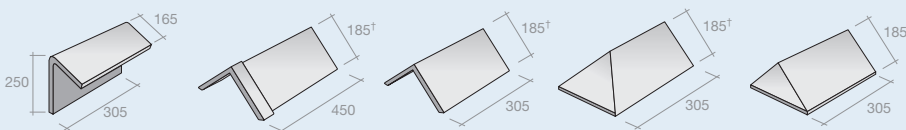


Description	125° Angle/Security angle ridge/hip Also available: 145° Angle ridge/hip and Security 145° angle ridge/hip	Segmental ridge	Segmental mono ridge	Gas vent ridge terminal Also available: Gas vent ridge for condensing boilers (use with concrete ridges only)	Ridge vent terminal
Pitch range	15-25° 15-22.5°	15-55° dry ridge	15-55° dry ridge	15-55° dry ridge	15-55° dry ridge
Can be used with					
Ventilated dry ridge system	-	-	✓	✓	-
Universal RidgeFast	✓	✓	✓	-	✓
Universal HipFast	✓	✓	-	-	-

Clay fittings

Available in a range of colours and angles. Security fixing is available for all ridges.

For details of the full range, please contact the Technical Advisory Service.



Description	Mono ridge	Capped angular ridge	Angular ridge	Angular ridge hip end	Angular ridge stop end
Pitch range	30-45°	30-50°	30-50°	30-50°	30-50°

Properties and performance

Features of fibre cement slates

- > Low pitch options down to 15°
- > Can achieve an A+ rating in the BRE Green Guide
- > Low carbon footprint of 13 CO₂e/m²
- > BES 6001 certified
- > Proven in application to last in excess of 60 years
- > Clean, low energy production process
- > Fully recyclable

Authority

Fibre cement slates are manufactured in accordance with a quality management system registered by BSI to BS EN ISO 9001 'Quality Management Systems requirements' for products manufactured to BS EN 492 'Fibre cement slates and fittings – Product specification and test methods'.

Fibre cement slates are also designed to meet the relevant performance requirements of BS 5534 'Code of practice for slating and tiling (including shingles)'.

Additionally, the manufacturing location operates an environmental management system, registered with the BSI as meeting the requirements of BS EN ISO 14001 'Environmental management systems – Specification with guidance for use' and Health and Safety Standard OHSAS 18001.

The range of Marley Eternit blue/black fibre cement slates have been tested by Birmingham City Council Laboratories and approved for use on Birmingham City Council projects.

Fibre cement slates are also rated 'Very Good' to BES 6001 Framework Standard for Responsible Sourcing of Construction Products.

Batch coding

In accordance with the requirements of the product standard EN492: 2012, a manufacturing code is marked on the underside of a minimum of 15% of slates in the following format (e.g. T 2 14 20 C1 NT) – where the first character signifies the factory of origin; the second gives the specific coating line used; the next 6 characters denote the year, week and shift of manufacture as well as product type; The code ends with "NT".

Anatomy of Rivendale fibre cement slate

Clear wax coating on underside

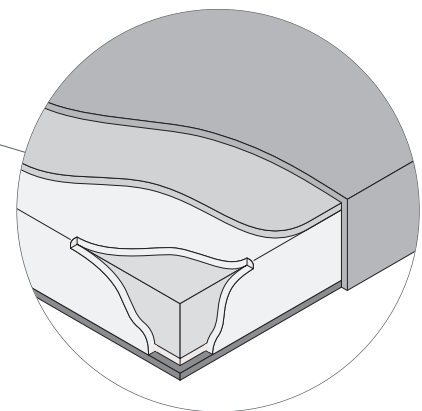
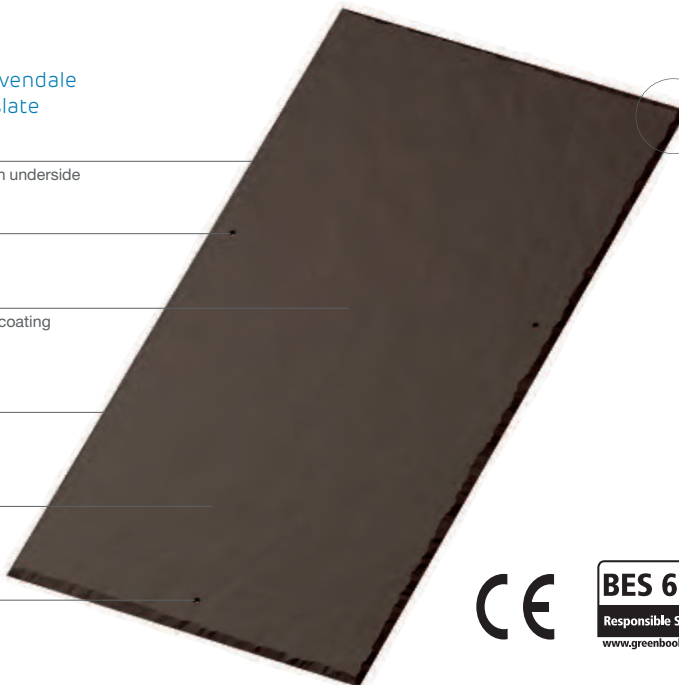
Nail hole

UV-resistant acrylic coating

Dressed or square edges

Flat or riven surface

Tail rivet hole



Fibre cement slate coatings

- UV-resistant acrylic coating
- Primer coating
- Secondary coating (cement/pigment/iron oxide)
- Fibre cement base sheet
- Clear wax coating



Carbon footprinting

Fibre cement slates can have a carbon footprint figure of as low as 13 CO₂e/m².

Recyclability

At 'end of life' crushed fibre cement products can be recycled without need for further processing, as a raw material for use in Portland clinker.

Composition and manufacture

Fibre cement slates are manufactured from cement, water, selected cellulose and polymeric fibres, sheet formers and fillers which are all bonded together using the Hatschek rotational cylinder process. Slates are cut from formed base sheets, pressed and cured and in a separate process cured slates are sealed on the reverse, sprayed with an acrylic coating, cooled and stacked.

Density and thickness

The slates also have a minimum apparent density of 1700kg/m³ when tested to BS EN 492 and a nominal thickness of 4mm.

Performance

The slates are tested for resistance to wind driven rain and meet the requirements of BS 5534 'Code of practice for slating and tiling (including shingles)' with respect to windloading, when fixed in accordance with our recommendations.

Strength and durability

Fibre cement slates meet the strength requirements of BS EN 492, achieving an average bending moment greater than 50Nm/m (Class B).

Fire resistance

Fibre cement slates are non-combustible and considered 'deemed to satisfy without the need for further testing' in relation to the requirements for external fire performance when tested for fire protection and spread of flame to BS EN 1187 'Test methods for external fire exposure to roofs' (BS 476-3).

There are no restrictions on their use under the Building Regulations and they achieve a Class 1 surface spread of flame when tested to BS 476-7 and are classified Class O. A roof incorporating the slates is designated AA as referred to in Table A5 of Notional designations of roof coverings.

Environmental effects

Thermal

The thermal resistance (R) of fibre cement slates when dry is 0.011m²K/W.

For the purpose of thermal transmittance calculations, the 'R' values above should be substituted by a figure of 0.12m²K/W which includes the roof covering and airspace behind the tiles or slates. An 'R' value of 0.002m²K/W should be added for the roof underlay.

Heat

After an initial period of stabilisation, slates are normally unaffected by the range of climatic temperatures (-20°C to +70°C). Slates should be laid with a maximum gap of 5mm to accommodate any movement induced by changes in temperature and to facilitate the fitting of the tail rivet.

Frost

Unaffected by frost and meets the requirements of BS EN 492.

Sunlight

The acrylic coating used on the slate surface has good colour stability proven over long periods of exposure to UV and sunlight. Some lightening may occur over a period of exposure to sunlight and normal weathering, which may affect the surface coating. This gradual lightening is similar to that experienced with natural slate.

Atmospheric pollution

Suitable for most rural, marine and normal industrial environments. Avoid discharge of gases or liquids from chemical processes onto the surface of the slates.

Resistant to all but the most highly polluted atmospheres where sulphur dioxide levels exceed 70 microgrammes/m³ of air.

For advice on the suitability of application, please contact the Technical Advisory Service.

Electricity

Fibre cement slates are electronically insulating. Reference should be made to BS 6651 for recommendations on the protection of buildings against lightning strikes.

Biological effects

Birds and rodents

Not affected or degraded by birds, rodents or insects.

Mosses and lichens

Water absorption of the slates is around 18%. The growth of mosses and lichens may occur over time, but does not adversely affect their performance. The acrylic coating helps to inhibit organic growth on the surface for a period of 5 to 15 years. Removal may only be required if they affect the drainage of water from the roof.

Health and safety Guidance Sheets

Fibre cement slates can be simply scored and snapped with no dust creation, or cut with standard hand tools without requiring compliance with Health and Safety Guidance Sheet S (August 2012). If cutting slates with machine tools, measures to reduce the effect of dust should be taken in accordance with the HSE Guidance Note EH 40 'Occupational Exposure Limits' and EH 44 'Dust in the workplace: general principles of protection'.

Fixing specification

Slates should be fixed in accordance with the recommendations of BS 5534. The Technical Advisory Service can provide a fixing specification, given the relevant criteria relating to type of slate, site location, topography, and building/roof dimensions. Fixing specifications can also be completed on line at www.marleyeternit.co.uk/tilefix

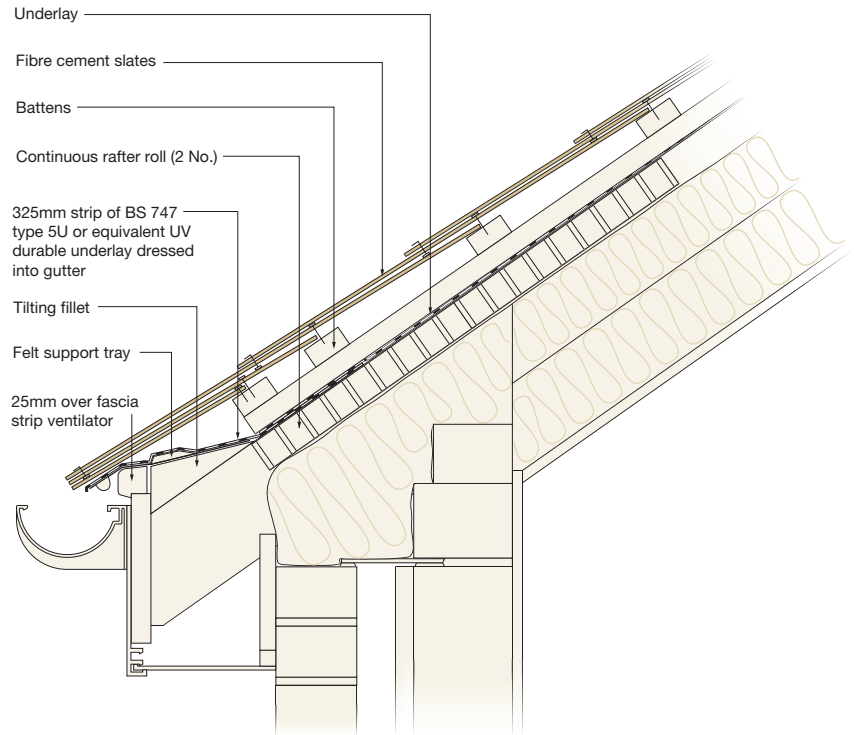
Consideration should be given to sealing any cut edges to prevent potential efflorescence showing. Please contact the Technical Advisory Service for more details.

Design details

Universal 25mm eaves ventilation system

Suitable for fibre cement slates.

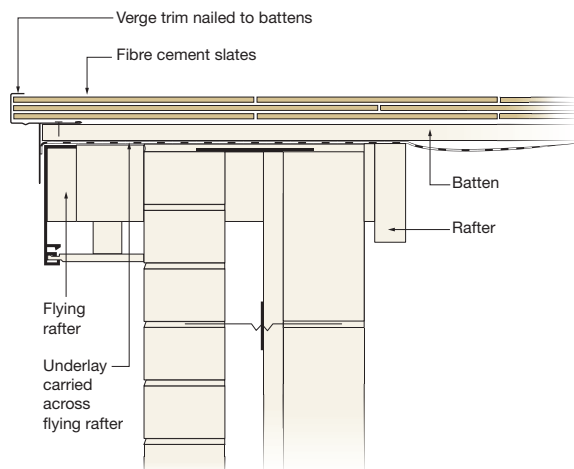
- eaves ventilation to satisfy 25mm conditions
- eaves to ridge ventilation for pitches of 15°-50°
- continuous rafter roll compresses insulation to allow free air passage (use two rolls to compress deep insulation)
- strip ventilator has discreet ventilation grille and is nailed to fascia or timber fillet
- suitable with or without soffit board
- mechanically fix all slates at eaves



Slate verge trim

Suitable for fibre cement slates.

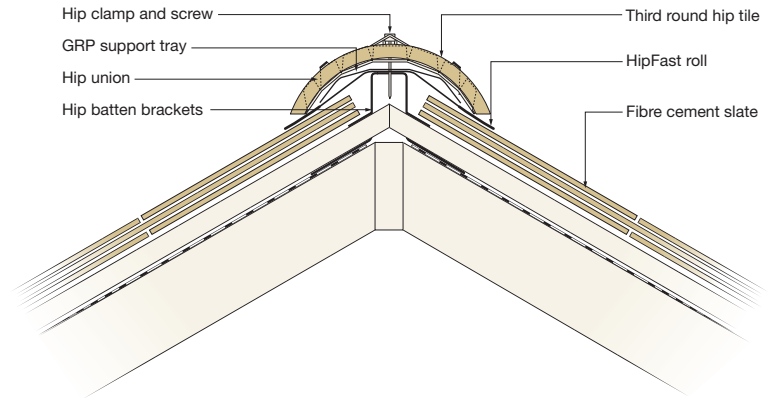
- suitable for dry verges with or without bargeboard
- not suitable for raking verges
- when used with timber sarking, ensure outer structure is brought up to underside of tiling battens
- extend battens to edge of bargeboard or brickwork



Universal HipFast system

Suitable for fibre cement slates.

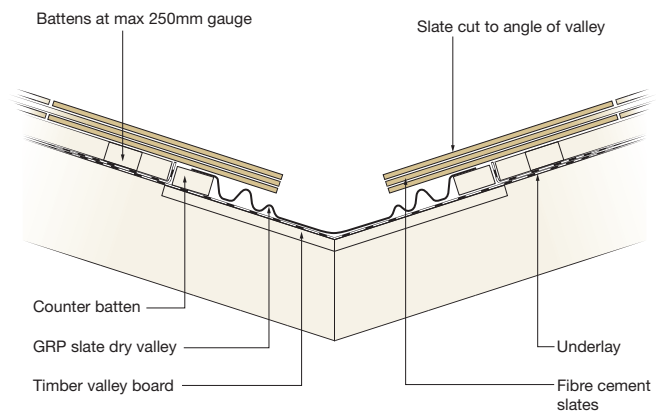
- 50° maximum rafter pitch
- provides ventilation when used with a vapour permeable underlay, or 5mm gap in impermeable underlay
- use one or two thicknesses of 50mm x 25mm batten to fit batten brackets
- use block end hip tile at eaves
- mechanically fixes each hip tile via hip unions and clamps
- complete hip at ridge with soaker flashing



GRP slate dry valley with fibre cement slates

Suitable for all double-lap fibre cement slates.

- minimum rafter pitch 22.5°, maximum 45°
- suitable for all plan angles and where the pitch either side of the valley varies by a maximum of 15°
- provide continuous support for valley trough using 19mm ply timber lay boards inset between rafters or 6mm continuous ply boards laid over rafters
- form 125mm minimum gap between raking cut slates (for pitches below 35° or valley lengths over 5m contact the Technical Advisory Service)
- use tail rivets and nails to secure rafting cut fibre cement slates
- complete top of valley with a lead saddle

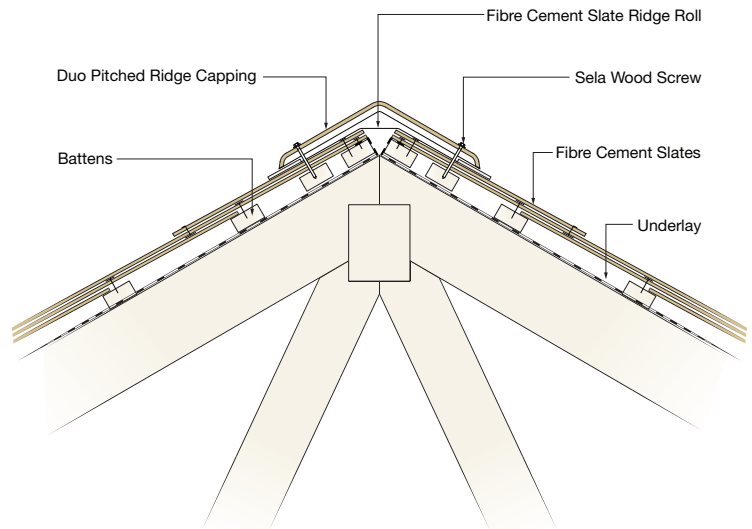


Design details

Universal Ridge Roll for use with fibre cement slates and ridges

Suitable for all fibre cement slates with duo pitch ridges (15°, 20°, 25°, 30°, 35°, 40°, 45°, 50°, 55° and 60°).

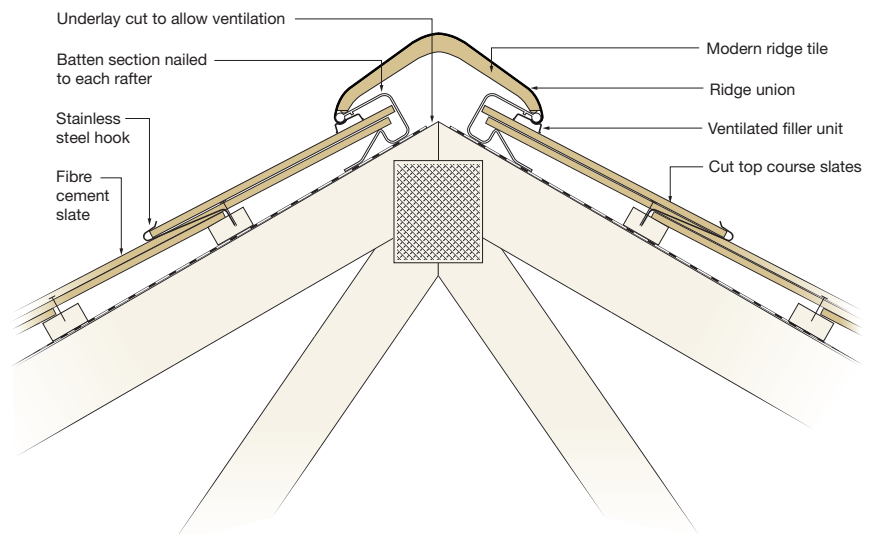
- provides 5,000mm² free air space
- ensure gap is provided in roof underlay to vent roof void
- cut top two courses of slates as necessary from standard slates
- site drill two new holes for head nailing
- site drill ridge units and stop ends with 8mm dia. fixing holes
- mechanically fix using 64 x 6.35mm self-sealing woodscrews



Ventilated dry ridge

Suitable for fibre cement slates (using Modern and Segmental concrete ridges).

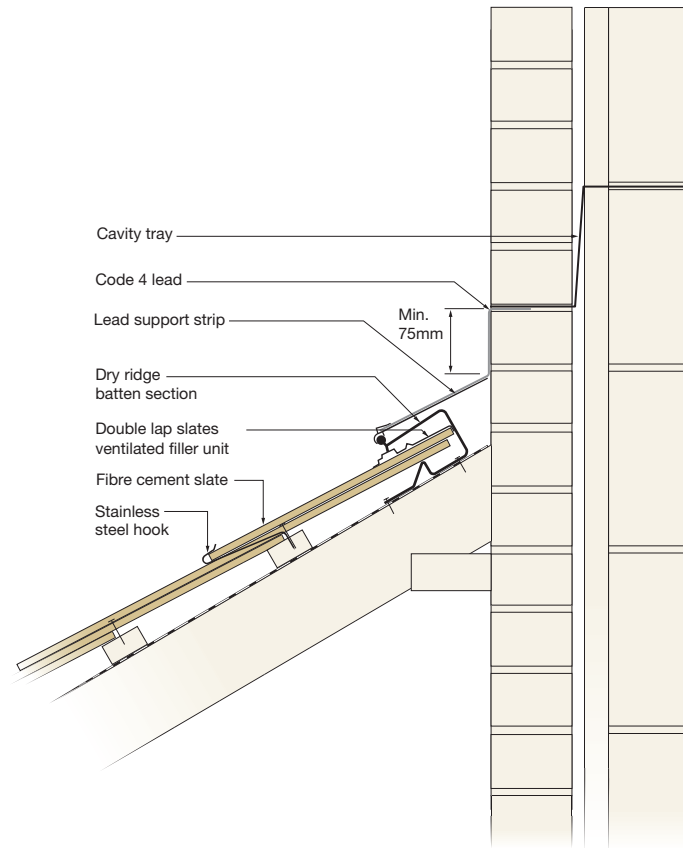
- maximum rafter pitch 45° (55° with steep pitch ridge batten)
- provides 5,000mm²/m free vent area at ridge apex
- ensure gap is provided in roof underlay to vent roof void
- fix all top course slates
- mechanically fix each ridge tile via ridge unions
- complete ridge with dry ridge end cap or block end tile



Abutment ventilation system

Suitable for fibre cement slates.

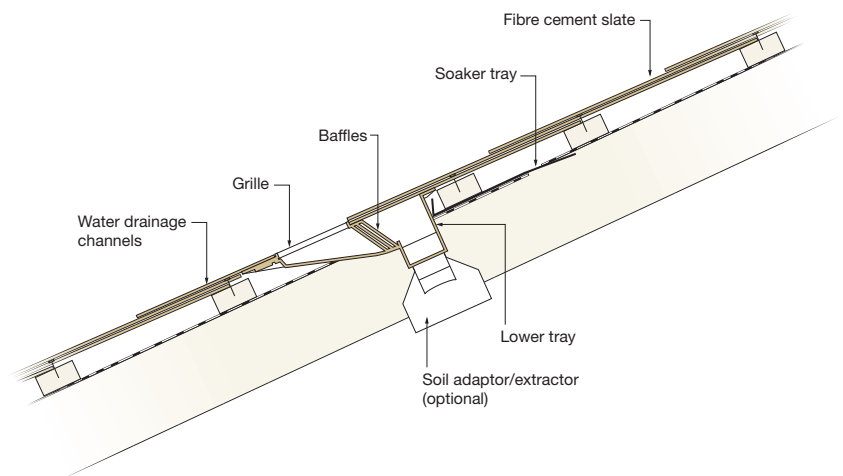
- maximum rafter pitch 45° (55° using steep pitch batten section)
- provides 5,000mm²/lin.m ventilation
- ensure air passage from roof void is not obstructed
- mechanically fix all top course slates
- use minimum 1.5m length of lead flashing with 150mm side laps



In-line fibre cement slate vent terminal

Suitable for all fibre cement slates.

- locate clear of rafters
- use soaker tray to weather hole in underlay for spigot
- locate at 2.0m centres for 5,000mm²/lin.m ventilation and 1.0m centres for 10,000mm²/lin.m ventilation
- use slate vent adaptor and flexible pipe for connection to 110mm dia. pipework as termination to mechanical extract or soil vent pipe
- do not use as exhaust for hot flue gases
- when used as extract for soil vent pipes, keep minimum 900mm above any opening into building within 3m

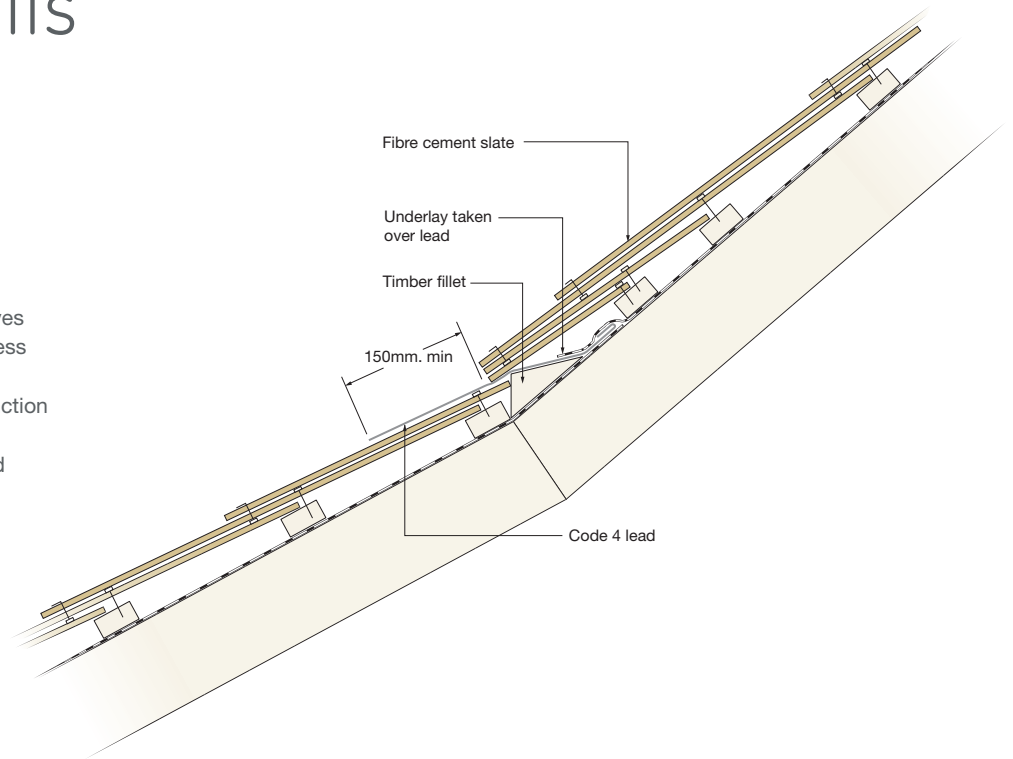


Design details

Change of pitch with fibre cement slates

Suitable for all fibre cement slates.

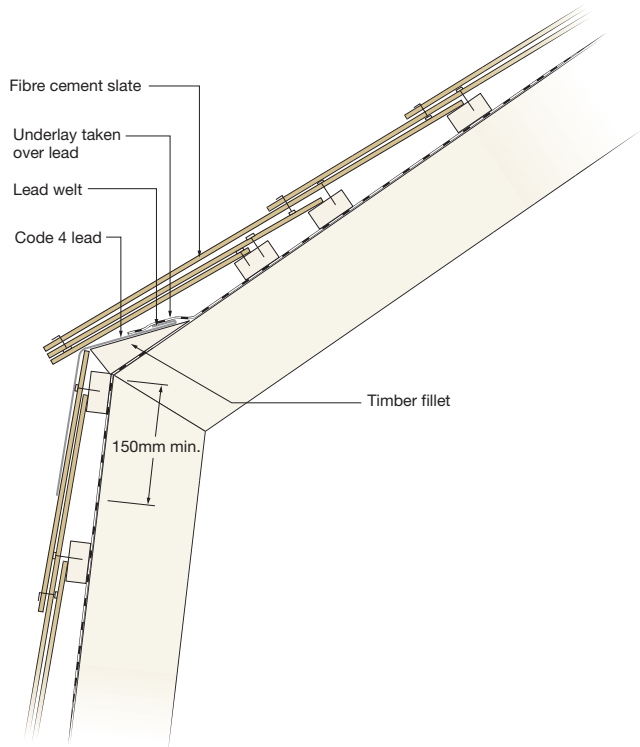
- detail lower edge of upper slope as at eaves
- provide timber fillet for lead flashing to dress over top course slates
- maintain continuous lap of underlay at junction of two pitches
- allow minimum 150mm lap of Code 4 lead flashing onto top course of slates
- fix edge of flashing with copper clips at 300-500mm centres



Mansard with fibre cement slates

Suitable for all fibre cement slates.

- detail lower edge of upper slope as at eaves
- ensure upper eaves course overhangs lower slope by 50mm
- provide timber fillet for lead flashing
- use Code 4 lead cover flashing dressed 150mm minimum onto top course slates
- fix edge of flashing with copper clips at 300mm to 500mm centres



Curved and conical roofs

Curved roofs can be designed with either horizontal or vertical curves, or a combination of both to form a dome. Double-lap plain tiles and slates are the most suitable covering as they are relatively thin and are easily tapered to accommodate the radius of the roof. Designers should, however, be aware of the limitations of using tiles and slates on curved roofs, as the shape and pitch may compromise their function as a weatherproof roof covering. In these circumstances, the slates or tiles are decorative and a suitable weatherproof sub-roof should be provided.

Conical roofs can be formed as a complete circle on plan, as in the case of a turret or can also be segmental as in an apse end. The following points should be considered when designing a curved or conical roof:

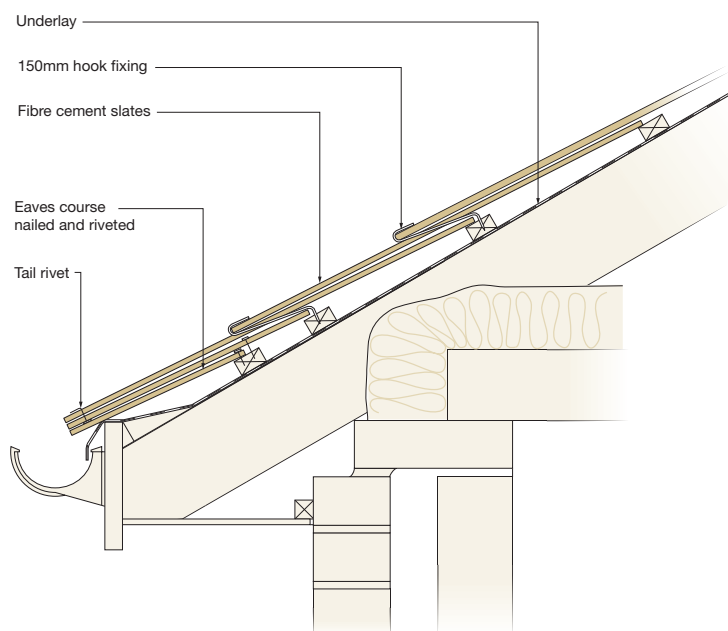
- Maintain a steep roof pitch – 55° and above. (At pitches below this, extensive use of double width slates or tile-and-a-half tiles may be required to maintain the necessary side laps below).

- Consider the maximum and minimum radii of the curve – this will dictate the available taper in the slate or tile and the side-lap that can be achieved. Plain tiles require a minimum side lap of 55mm (35-55° rafter pitch), and 45mm (56° rafter pitch and over) in moderate exposure. The necessary side lap of all slates must be maintained, and where required, a transition course of wider slates double the width of those in the previous course must be introduced. This may necessitate reducing the length of the slate when doubling the width in the change course.
- Keep spacing of the rafters at 450mm or less.
- Provide two or three layers of plywood boards (min. thickness 4.5mm) or softwood boards (min. thickness 15mm) with counter layers laid diagonally around radius of the roof as groundwork for battens or for direct nailing of slates.

Hook fixing with Birkdale slates for pitches down to 15°

- All slates should be fixed in accordance with BS 5534 and BS 8000-6
- Slates should be laid broken bond using slate-and-a-half width slates in alternate courses formed from double width slates at verges, hips, valleys and abutments.
- Allow a 5mm gap between adjacent slates for tail of hook
- 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

For further details request a copy of our fibre cement slates fixing guide at: www.marleyeternit.co.uk/slates



Technical toolkit

tools and assets that make design and specification as straightforward as possible



> NBS

A tool to produce instant NBS clauses that meet the recommendations of British Standards and Codes of Practice: marleyeternit.co.uk/specrite



> Dry fix selector

Easy-to-use and comprehensive system finder delivering results from choice of pitch, material type or specific tile type: marleyeternit.co.uk/roofing



> CAD details

Access to over 2,000 CAD drawings illustrating how specific tile and slate details can be formed: marleyeternit.co.uk/cad



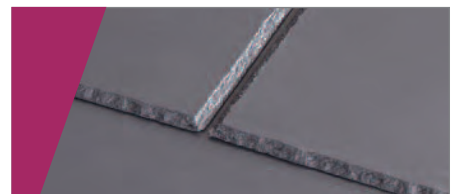
> Tilefix

Tool to create fixing specifications based on the geographical location and building dimensions of specific roofing projects: marleyeternit.co.uk/tilefix



> CPDs

A range of Continuous Professional Development roofing seminars accredited by the RIBA CPD Certification Service. For more information or to make a booking: marleyeternit.co.uk/cpd



> Samples

Samples of all fibre cement slates, clay and concrete tiles are available at: marleyeternit.co.uk/samples



> BIM

BIM Space is a set of free to download Building Information Modelling (BIM) objects that provide a standard range of build ups for our fibre cement roof slates, clay plain tiles and facades (EQUITONE, Operal and Cedral): marleyeternit.co.uk/bim



> Fixing instructions & literature

Comprehensive sitework, fixing and installation literature and videos: marleyeternit.co.uk/resources

All current product and technical literature can be downloaded: marleyeternit.co.uk/downloads

Services

Getting our knowledge to you and your project smoothly and efficiently



> Customer services

Marley Eternit is committed to providing outstanding customer care and is staffed by experienced personnel:

Tel 01283 722588 E-mail info@marleyeternit.co.uk

To find your nearest stockist, please visit:

www.marleyeternit.co.uk/resources

> Technical Advisory Service

Specifiers require prompt, knowledgeable and detailed responses to a vast range of enquiries covering everything from the embodied energy of a typical roof tile, to the different ventilation options available.

Our Technical Advisory Service is staffed by a qualified team with specialist knowledge not only of all Marley Eternit products, but also crucially, how those systems integrate with other roofing components and comply with Building Regulations, Health and Safety, environmental and other critical roofing criteria.

**Tel 01283 722588 E-mail info@marleyeternit.co.uk
www.marleyeternit.co.uk**

Sustainability and standards

Credits, credentials and clarity of information



> BES 6001

Demonstrating our commitment to sustainable building, all our roofing products are certified under the BES 6001 standard for responsible sourcing and therefore contribute to extra credits under BREEAM and The Code for Sustainable Homes.

Embodied carbon

Embodied carbon figures are available at product level for our entire roofing range. This absolute clarity of environmental information allows our customers to make informed choices.

> BREEAM and the Code for Sustainable Homes

Credits gained from specifying our A-rated products, combined with additional credits from BES 6001 make our products more beneficial to the specifier.

Quality standard

All Marley Eternit's factories in the UK are ISO 9001, 14001 and ISO OHSAS 18001 accredited. They achieve the highest standards in quality, health and safety and the environment.

CE Marking

All of our products covered by an EN Standard carry an appropriate CE Mark. This means that our products meet the required safety standards and have a guaranteed level of quality.



This publication is based on the latest data available at the time of printing. Due to product changes, improvements and other factors, the Company reserves the right to change or withdraw information contained herein without prior notice. For specific applications users should refer to the Technical Advisory Service and relevant Standards and Codes of Practice for guidance. The photography shown in the document should not necessarily be taken as recommendations of good practice. The printing process restricts the exact representation of colours. For true colour reference, please request product samples.

Call 01283 722588
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Or visit www.marleyeternit.co.uk



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an **etex** company