FIBRE CEMENT SLATES

product range







WHY CHOOSE ETERNIT FIBRE CEMENT SLATES?

- **01** BES 6001 Very Good
- **02** A+ rated in the BRE Green Guide*
- **03** Can be used for both roof and facade
- **04** Range of colour, edge and surface options
- **05** Full range of fittings and accessories
- **06** Low carbon footprint of $13 CO_2e/m^2$
- **07** Shapes and colours available

* Element ref. 812410006















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





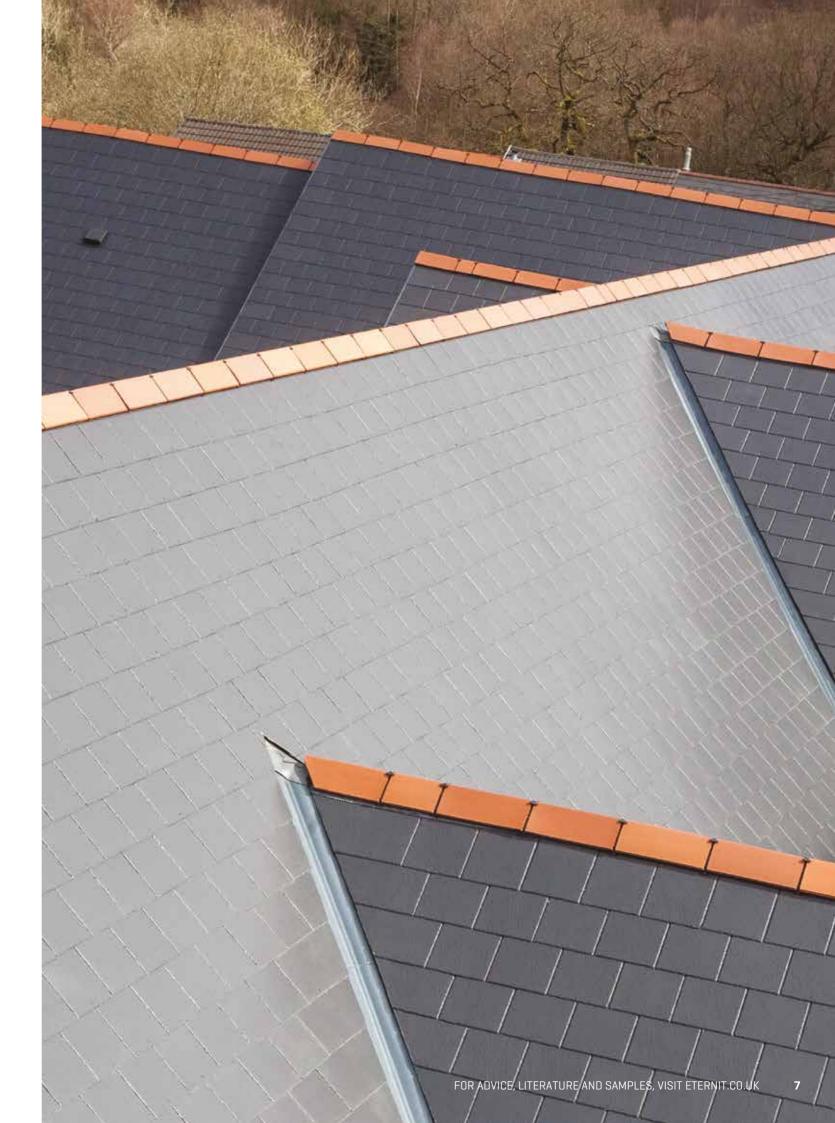
Project information

Location:	Aberdare, Wales	
Application:	Education	
Product:	Rivendale fibre cement slates	
Specifier:	Rhondda Cynon Taf Council	

Rhondda Cynon Taf Council has chosen 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 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 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





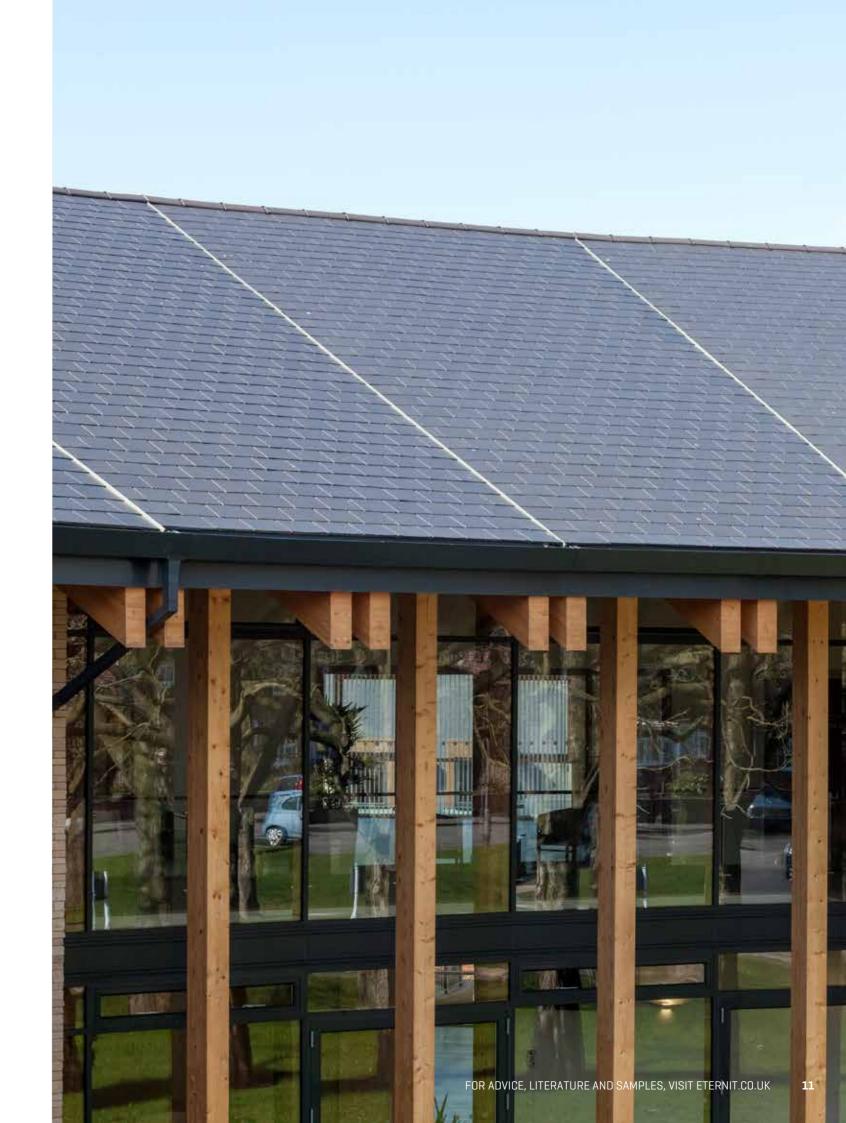
Project information

South Derbyshire
Residential
Rivendale fibre cement slates
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. 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

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	

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

600mm x 300mm		
Moderate exposure	22.5° (100mm lap) 20° (110mm lap)	
Severe exposure	25° (100mm lap) 22.5° (110mm lap)	
90°		
100, 110mm		
245-250mm		
4mm		
13.4 slates/m² at 100mm lap 13.6 slates/m² at 110mm lap		
20.4 kg/m² (0.20 kN/m²) at 100mm lap 20.9 kg/m² (0.20 kN/m²) at 110mm lap		
4.00 lin.m/m² at 100mm lap 4.08 lin.m/m² at 110mm lap		
38 x 25mm for rafters/supports not exceeding 450mm centres		
50 x 25mm for rafters/supports not exceeding 600mm centres		
Slate nails (30 x 2.65mm) Copper disc rivets (19mm dia. x 2mm stem)		
14 gauge self sealing		
BS EN 492		
	Moderate exposure Severe exposure 90° 100, 110mm 245-250mm 4mm 13.4 slates/m² at 100m 13.6 slates/m² at 110m 20.4 kg/m² (0.20 kN/m² 20.9 kg/m² (0.20 kN/m² 4.00 lin.m/m² at 100m 4.08 lin.m/m² at 110m 38 x 25mm for rafters/exceeding 450mm cen 50 x 25mm for rafters/exceeding 600mm cen Slate nails (30 x 2.65m Copper disc rivets (19m 14 gauge self sealing	

^{*} 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 Team.

[†] Made to order.



BIRKDALE

fibre cement slates



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



Sustainability

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

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)	20° (150mm lap) (Max. 6m rafter length)
Severe exposure	25° (100mm lap) 22.5° (110mm lap)	20° (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/m² at 100mm lap 13.6 slates/m² at 110mm lap	14.8 slates/m² at 150mm lap
Weight of slating (approx.)	20.4 kg/m² (0.20 kN/m²) at 100mm lap	22.8 kg/m² at 150mm lap
	20.9 kg/m² (0.20 kN/m²) at 110mm lap	
Battens required (net)	4.00 lin.m/m² at 100mm lap 4.08 lin.m/m² at 110mm lap	4.45 lin.m/m² 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

^{*} 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 Team.

GARSDALE

fibre cement slates







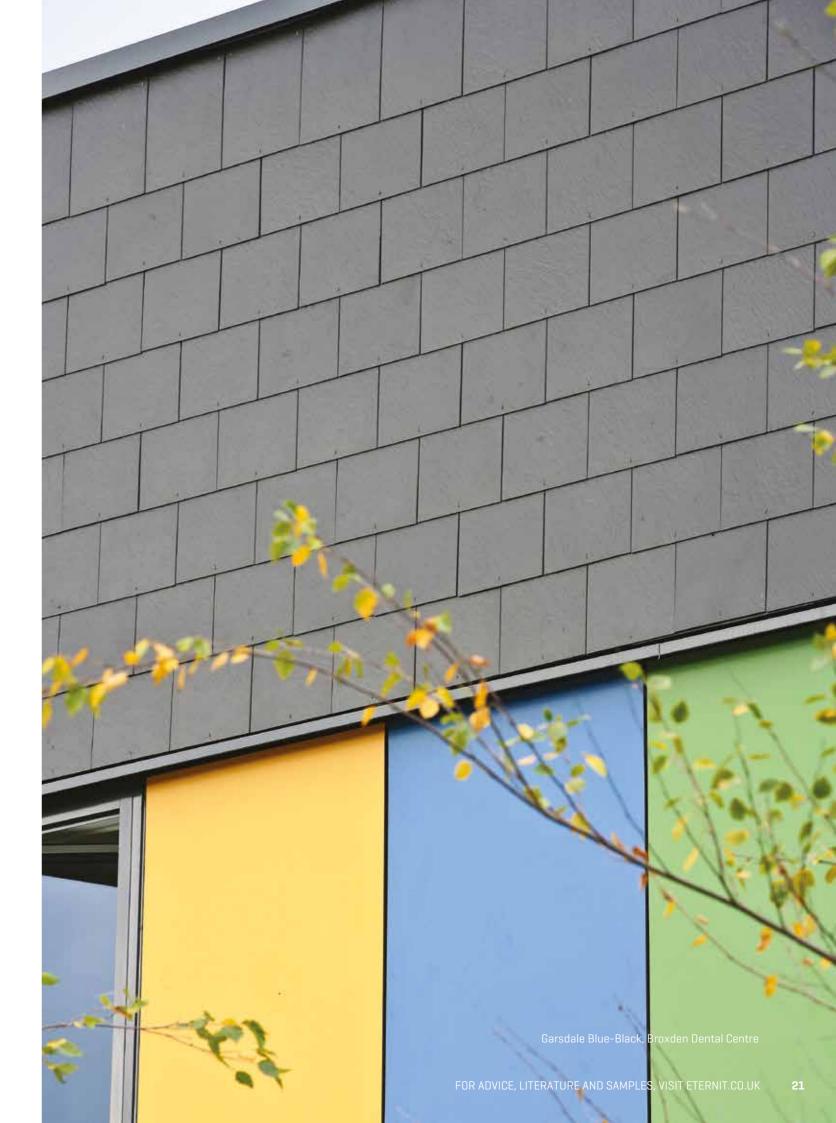
Sustainability

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

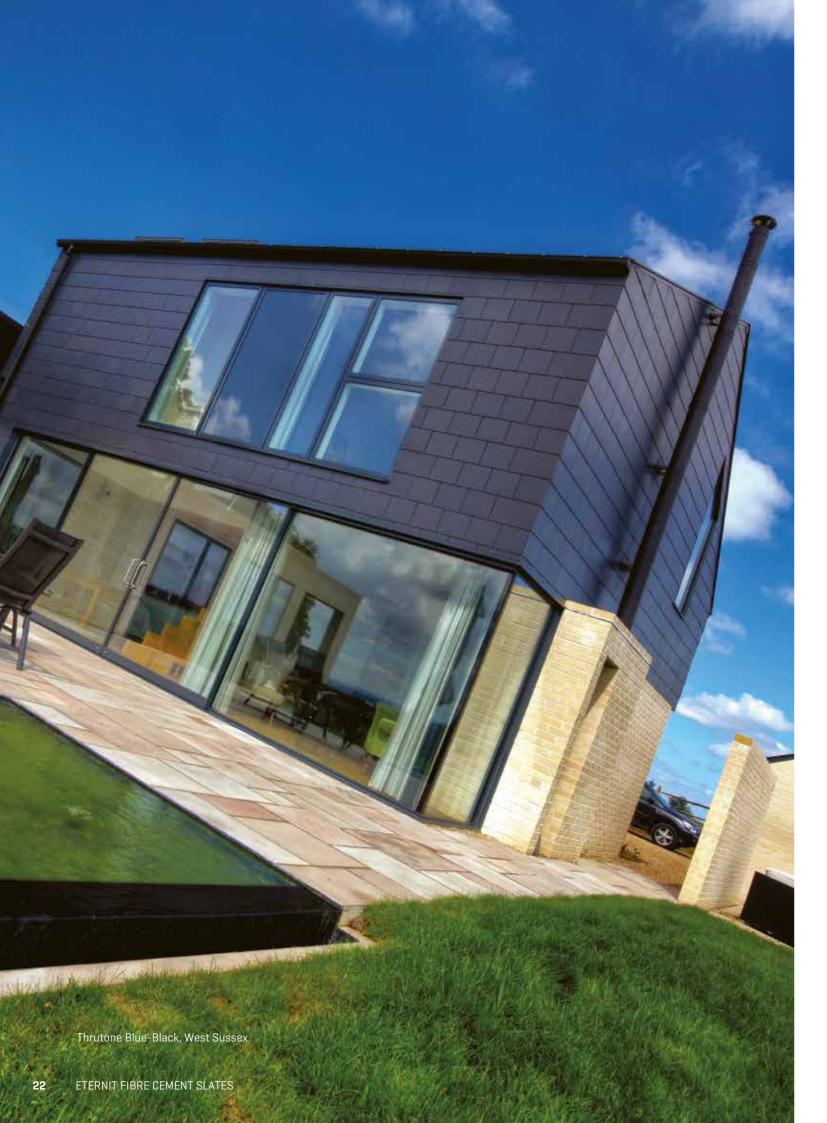
A detailed surface and square edge closely resembles natural slate but is easier and faster to install.

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/m² at 100mm lap 13.6 slates/m² at 110mm lap	
Weight of slating [approx.]	20.4 kg/m² [0.20 kN/m²] at 100mm lap 20.9 kg/m² [0.20 kN/m²] at 110mm lap	
Battens required (net)	4.00 lin.m/m² at 100mm lap 4.08 lin.m/m² at 110mm lap	
Batten size recommended	38 x 25mm for rafters/supports not exceeding 450mm centres	
(fixed to BS 5534)	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	

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 Team.



THRUTONE

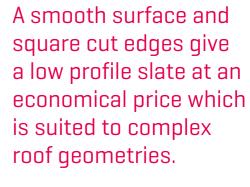
fibre cement slates

















Sustainability

Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
Credit uplift available	with EPD

Shapes availability





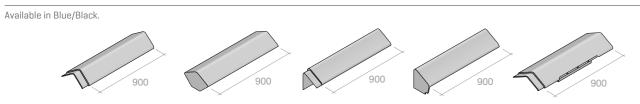


recimical ua	ala	
Size of slate	600mm x 300mm	500mm x 250mm [‡]
Minimum pitch**		
Moderate exposure	22.5° (100mm lap) 20° (110mm lap)	22.5° (100mm lap)
Severe exposure	25° (100mm lap) 22.5° (110mm lap)	25° (100mm lap)
Maximum pitch	90°	90°
Typical laps	100, 110mm	100mm
Maximum gauge	245-250mm	200mm
Slate thickness	4mm	4mm
Covering capacity (net)	13.4 slates/m² at 100mm lap 13.6 slates/m² at 110mm lap	20.0 slates/m² at 100mm lap
Weight of slating [approx.]	20.4 kg/m² (0.20 kN/m²) at 100mm lap	21.3 kg/m² (0.21 kN/m²) at 100mm lap
	20.9 kg/m² (0.20 kN/m²) at 110mm lap	
Battens required [net]	4.00 lin.m/m² at 100mm lap 4.08 lin.m/m² at 110mm lap	5.00 lin.m/m² at 100mm lap
Batten size recommended (fixed to BS 5534)	$38\times25mm$ for rafters/supports not exceeding 450mm centres $50\times25mm$ 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	14 gauge self sealing
Authority	BS EN 492	BS EN 492
* [I /IDO

- * 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 Team.
- † Made to order.

FITTINGS

Fibre cement fittings



Description	Duo ridge/hip	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°	20-55°	20-45°	20-45°	20-45°		

^{*} Made to order.

Relative pitches of fibre cement ridge and hip cappings

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



PROPERTIES & PERFORMANCE

Features of fibre cement slates

- Low pitch options down to 20°
- · 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.

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

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".

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.

Anatomy of Rivendale fibre cement slate Clear wax coating on underside 03 Nail hole UV-resistant acrylic coating Dressed or Fibre cement slate coatings 01 UV-resistant acrylic coating Flat or riven **02** Primer coating **03** Secondary coating Tail rivet hole [cement/pigment/iron oxide] 04 Fibre cement base sheet 05 Clear wax coating

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 slates. An 'R' value of 0.002m2K/W should be added for the roof underlay.

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

For advice on the suitability of application, please contact the Technical advisory team.

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.

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

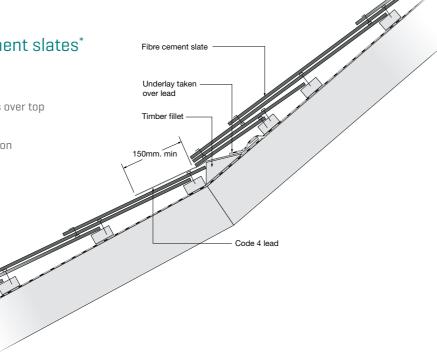
ETERNIT FIBRE CEMENT SLATES FOR ADVICE, LITERATURE AND SAMPLES, VISIT ETERNIT.CO.UK

DESIGN DETAILS

Change of pitch with fibre cement slates*

Suitable for all fibre cement slates.

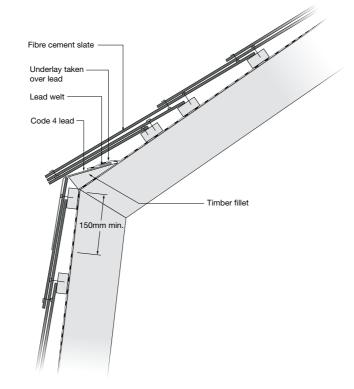
- detail lower edge of upper slope as at eaves
- provide timber fillet for lead flashing to dress over top course slates
- maintain continuous lap of underlay at junction of two pitches
- allow minimum 150mm lap of Code 4 lead flashing onto top course of slates
- fix edge of flashing with copper clips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



Mansard with fibre cement slates*

Suitable for all fibre cement slates.

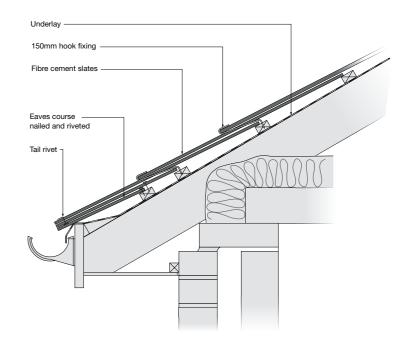
- detail lower edge of upper slope as at eaves
- ensure upper eaves course overhangs lower slope by 50mm
- · provide timber fillet for lead flashing
- use Code 4 lead cover flashing dressed 150mm minimum onto top course slates
- fix edge of flashing with copper clips at 300mm to 500mm centres



Hook fixing with Birkdale slates for pitches down to 20°*

- 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: eternit.co.uk



Curved and conical roofs

Curved roofs can be designed with either horizontal or vertical curves, or a combination of both to form a dome. Fibre cement 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 slates on curved roofs, as the shape and pitch may compromise their function as a weatherproof roof covering. In these circumstances, the slates 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 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 and the side-lap that can be achieved. The calculated 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.
- 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 slating battens.

^{*} When using a breather membrane, counter battens are required.

^{*} When using a breather membrane, counter battens are required.

SERVICES

Getting our knowledge to you and your project smoothly and efficiently

Customer services

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

E-mail infouk@etexgroup.com

To find your nearest stockist, please visit: eternit.co.uk

Technical Advisory Team

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

Our Technical Advisory Team is staffed by a qualified team with specialist knowledge not only of all 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.

E-mail techuk@etexgroup.com

SUSTAINABILITY & 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 Eternit's factories in the UK are ISO 9001, 14001 and ISO 0HSAS 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 Team 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.





Email infouk@etexgroup.com. Or visit eternit.co.uk