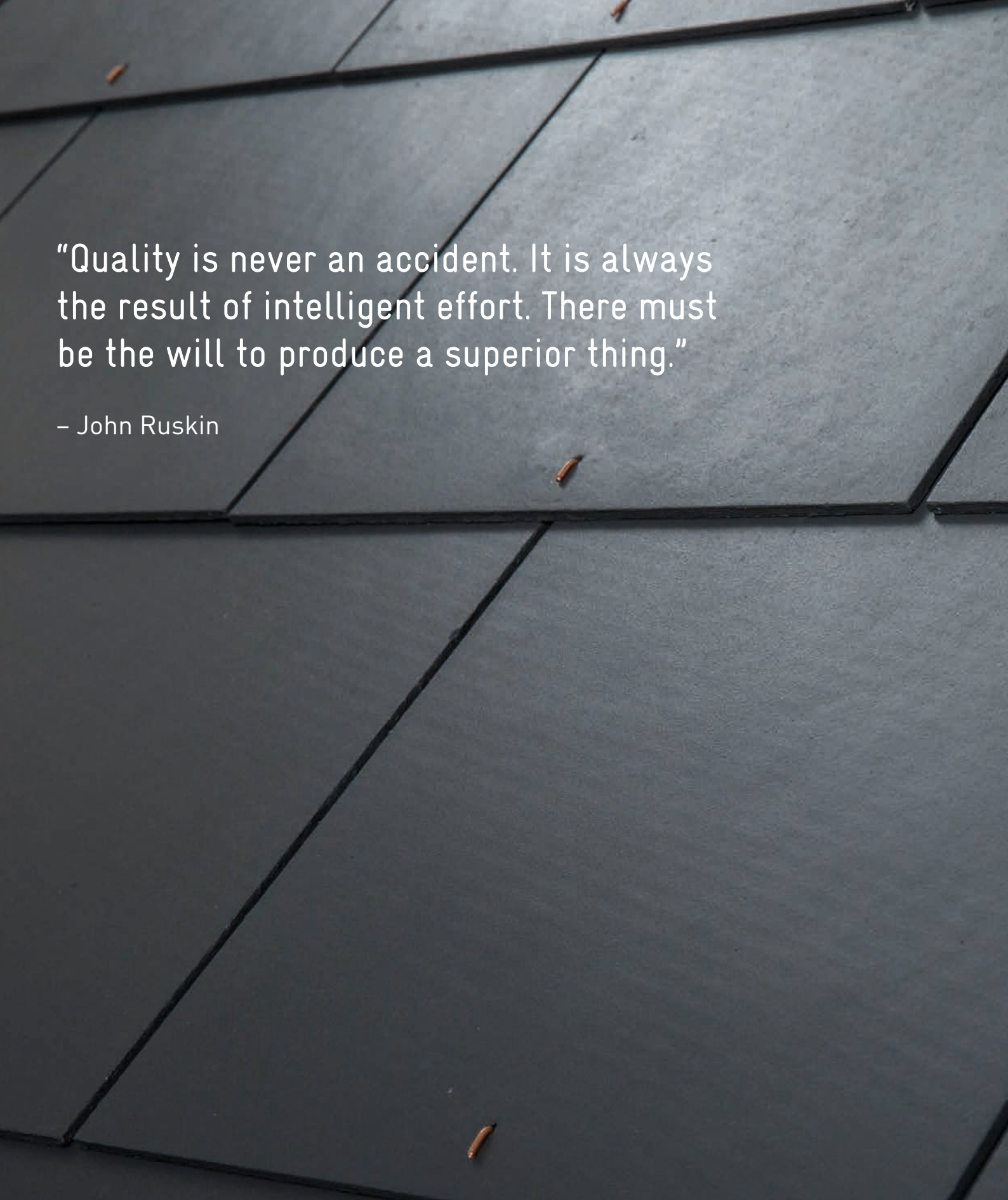
CI/SfB | | (4-) | Nf9 | |
October 2016

Fibre cement slates

Tegral
BUILDING FOR GENERATIONS


"Quality is never an accident. It is always the result of intelligent effort. There must be the will to produce a superior thing."
– John Ruskin

Introduction

Since 1936, Tegral has made a distinctive contribution to Irish architecture as the only local manufacturer of fibre cement roofing and cladding materials. In 1988 Tegral joined the market-leading Etex Group, which operates 120 factories in 42 countries around the world. Committed to continual innovation, Tegral has recently developed Ireland's strongest slate – Thrutone Endurance – and a revolutionary new architectural cladding system for slates, Vertigo.

Contents

Why choose Tegral?

Tegral is a modern, innovative Irish company with a long and distinguished history. Tried, tested and trusted, we are Ireland's only manufacturer of fibre cement slates.

As part of the Etex Group, Tegral benefits from the best technical research available globally and is committed to driving the Irish industry forward by developing affordable and environmentally sustainable building products.

With over 80 years experience of working with architects, we have developed a deep understanding of the requirements of specifiers and their clients.

As market leader, Tegral supports the industry by sharing its unrivalled knowledge of slating across a unique range of useful platforms. Writing in Architecture Ireland, Professor J Owen Lewis described Tegral's CPD-approved Online Slating Manual as "essential reading for every young architect." Our expert technical support team is always available to provide helpful advice on the detailed design and specification of your projects. The Tegral Academy, based at our factory in Athy, is Ireland's only dedicated centre for slating excellence, offering hands-on practical training for installers of Tegral products.

Ryan W. Kennihan Architects

Why choose
Tegral's fibre cement slates?

Using the Hatschek manufacturing process, Portland (Irish) cement, wood cellulose, synthetic fibres and water are combined to produce the highest quality fibre cement slates on the market – Thrutone Endurance, Rivendale and Vertigo.

01 Irish-made for Irish conditions

02 Proven reliability over generations

03 A modern material with classic appearance

04 Can be used on both roof and façade

05 Wide range of colours, shapes, sizes and surface textures

06 Fully certified and guaranteed for structure and colour

07 BES 6001 'Very Good' rating for responsible sourcing

Thrutone Endurance

Ireland's Strongest Slate

Thrutone has been Ireland's best-selling fibre cement slate for decades, tried and trusted by architects throughout the island. Building on this proud tradition, Tegral's commitment to continual innovation, research and ever-improving standards has enabled us to develop Thrutone Endurance, Ireland's strongest slate. Thrutone Endurance slates come with a 20-year colour guarantee and 30-year structural guarantee, are available in two surface finishes – smooth and textured – and a wide range of sizes, shapes and colours.

Sean Harrington Architects

What makes them the best?

Higher density
= best frost resistance on the market

Added fibres
= highest flexural strength

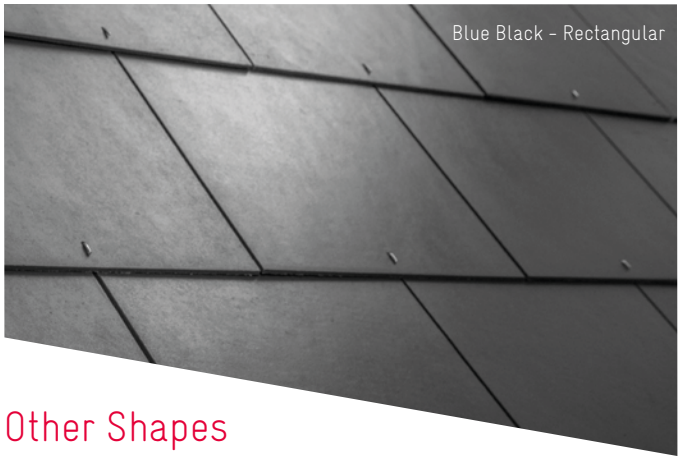
Siliconised paint
= unique water repellency

Improved paint application & rigorous testing
= highest quality standards

Rated 'Very Good' to BES 6001
= environmentally sustainable

"Architecture is measured against the past, you build in the present and you try to imagine the future."
– Richard Rogers

Thrutone Endurance Smooth
fibre cement slates



Other Shapes


Scalloped


Chamfered


Bullnose


Diamond

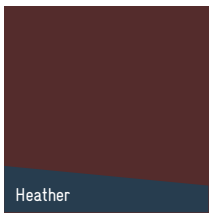
Sustainability	
Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
EPD	Available for Thrutone Endurance slates

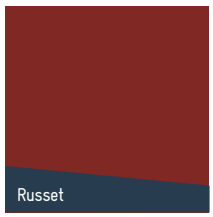
Technical data		
Size of slate	600mm x 300mm	500mm x 250mm
Minimum pitch	25° (110mm head lap)	25° (100mm head lap)
Maximum pitch	90°	90°
Typical laps	100, 110mm	100mm
Batten gauge	245-250mm	200mm
Slate thickness	4mm	4mm
Covering capacity (net)	13.4 slates/m² (100mm lap) 13.6 slates/m² (110mm lap)	20.0 slates/m² (100mm 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)	21.3 kg/m² (0.21 kN/m²) (at 100mm lap)
Battens required (net)	4.00 (net lin.m/m²) (at 100mm lap)	5.00 (net lin.m/m²) (at 100mm lap)
Batten size recommended (fixed to ICP2)	50 x 25mm for rafters/supports not exceeding 400mm centres 50 x 35mm 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)
Authority	EN 492	EN 492

Tegral Thrutone Endurance smooth slates are manufactured to EN492, Type NT, 4.0mm thick Fibre Cement Slates in Ireland, with a nominal density of 1930kg/m³. Thrutone Endurance smooth slates have a smooth surface with a square edge and are offered with a 20 year manufacturer's colour guarantee due to Tegral's siliconised painting process and a 30 year structural guarantee. Tegral Building Products is independently certified as meeting requirements of ISO 9001 (quality), ISO 14001 (environment), OHSAS 18001 (safety) and BES 6001 (responsible sourcing).

This information is available for download at **tegral.com**

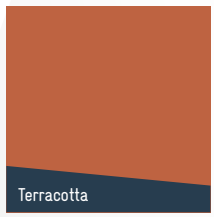
Other Colours


Heather


Russet


Stone Green


Turf Brown


Terracotta


Zinc Grey

The printing process restricts the exact representation of products. For true colour and shape reference, please request product samples.

Thrutone Endurance Textured
fibre cement slates

Sustainability	
Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
EPD	Available for Thrutone Endurance slates

Technical data		
Size of slate	600mm x 300mm	500mm x 250mm
Minimum pitch	25° (110mm head lap)	25° (100mm head lap)
Maximum pitch	90°	90°
Typical laps	100, 110mm	100mm
Batten gauge	245-250mm	200mm
Slate thickness	4mm	4mm
Covering capacity (net)	13.4 slates/m² (100mm lap) 13.6 slates/m² (110mm lap)	20.0 slates/m² (100mm 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)	21.3 kg/m² (0.21 kN/m²) (at 100mm lap)
Battens required (net)	4.00 (net lin.m/m²) (at 100mm lap)	5.00 (net lin.m/m²) (at 100mm lap)
Batten size recommended (fixed to ICP2)	50 x 25mm for rafters/supports not exceeding 400mm centres 50 x 35mm 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)
Authority	EN 492	EN 492

Tegral Thrutone Endurance textured slates are manufactured to EN492, Type NT, 4.0mm thick Fibre Cement Slates in Ireland, with a nominal density of 1930kg/m³. Thrutone Endurance textured slates have a textured surface with a square edge and are offered with a 20 year manufacturer's colour guarantee due to Tegral's siliconised painting process and a 30 year structural guarantee. Tegral Building Products is independently certified as meeting requirements of ISO 9001(quality), ISO 14001 (environment), OHSAS 18001 (safety) and BES 6001 (responsible sourcing).

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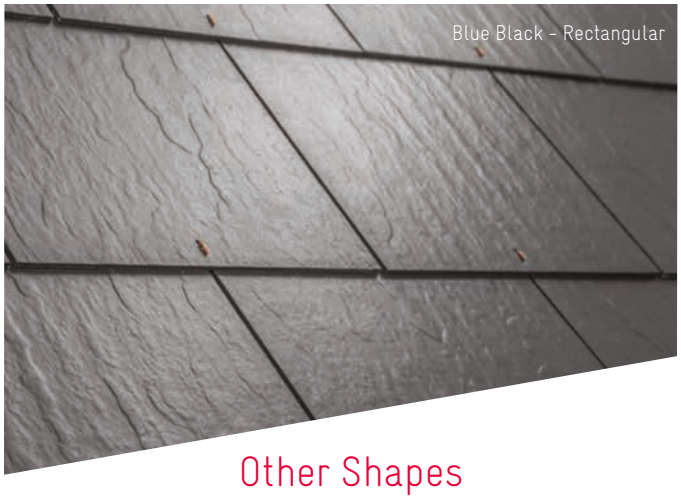


Other Shapes

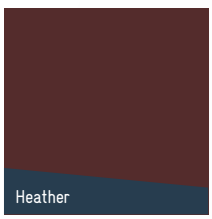

Scalloped

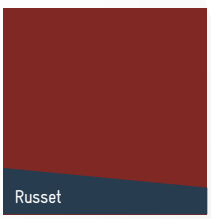

Chamfered


Bullnose

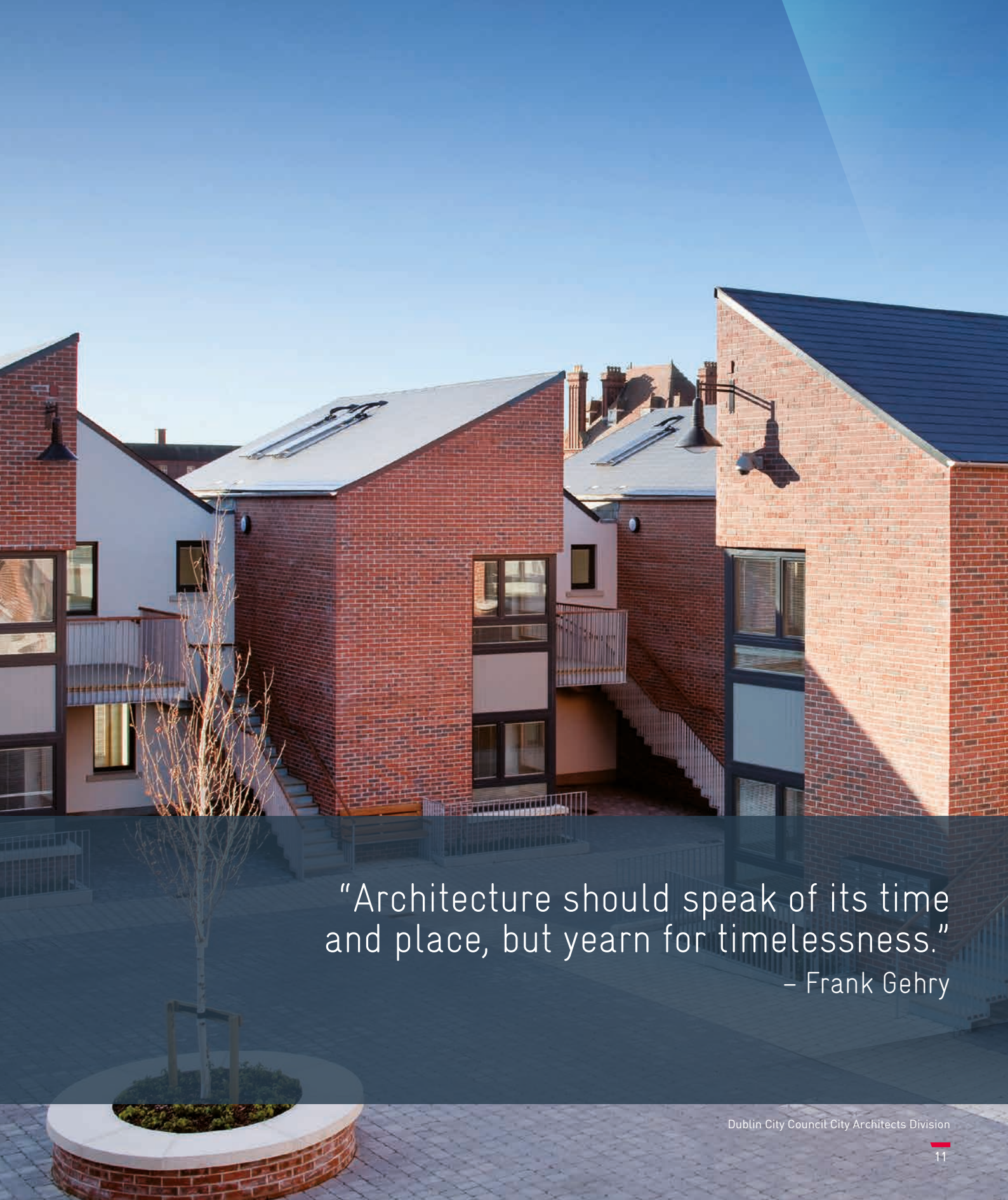

Diamond

Other Colours





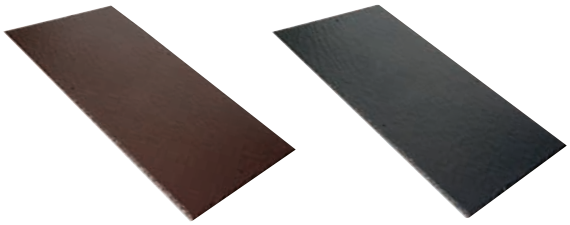
The printing process restricts the exact representation of products. For true colour and shape reference, please request product samples. For textured slates, the six additional colours and four shapes are made to order. Talk to Tegral about availabilty.



"Architecture should speak of its time and place, but yearn for timelessness."

– Frank Gehry

Rivendale
made as natural

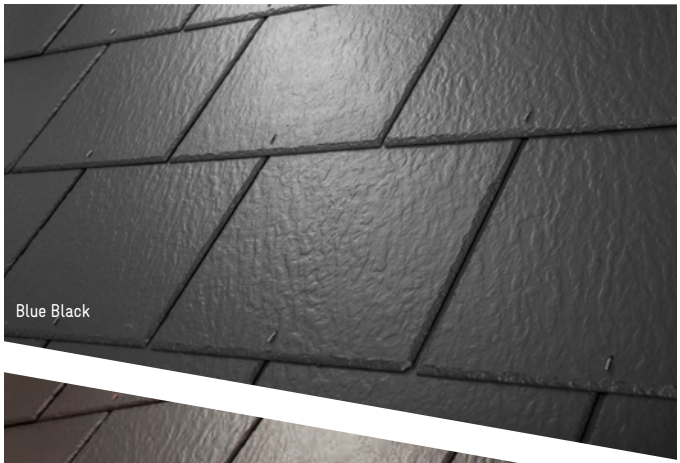


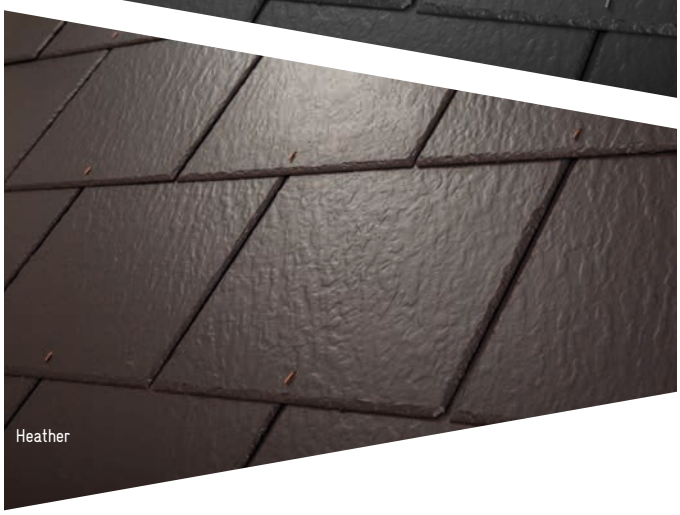
Sustainability	
Green guide rating	A+ (Element ref: 812410008)
BES 6001	Very good – can achieve 3 credits
EPD	Available for Rivendale slates

Technical data	
Size of slate	600mm x 300mm
Minimum pitch	25° (110mm head 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 (net lin.m/m²) (at 100mm lap)
Batten size recommended (fixed to ICP2)	50 x 25mm for rafters/supports not exceeding 400mm centres 50 x 35mm for rafters/supports not exceeding 600mm centres
Fixings	Slate nails (30 x 2.65mm) Copper disc rivets (19mm dia. x 2mm stem)
Authority	EN 492

Tegral Rivendale slates are manufactured to EN492, Type NT, 4.0mm thick Fibre Cement Slates. Rivendale slates have a textured surface with a dressed edge and are offered with a 20 year manufacturer's colour guarantee due to the unique painting process and a 30 year structural guarantee. Tegral Building Products is independently certified as meeting requirements of ISO 9001(quality), ISO 14001 (environment), OHSAS 18001 (safety) and BES 6001 (responsible sourcing).

This information is available for download at **tegral.com**





The printing process restricts the exact representation of colours.
For true colour reference, please request product samples.

"Architecture should be rooted in the past, and yet be part of our own time and forward looking."

– Moshe Safdie

Properties & performance of Tegral slates

Features of Tegral fibre cement slates

- Minimum service life of 60 years confirmed by the Building Research Establishment (BRE)
- Can achieve an A+ rating in the BRE Green Guide
- Low carbon footprint of 19.4 kg CO2 – Eq
- BES 6001 certified as 'Very Good'
- Clean, low energy production process
- Fully recyclable

Authority

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

Tegral fibre cement slates are also designed to meet the relevant performance requirements of ICP2* 'Irish code of practice for slating and tiling' and BS5534 'British code of practice for slating and tiling'.

Additionally, the manufacturing location operates an environmental management system certified to ISO 14001 'Environmental management systems' and Health and Safety Management Standard, OHSAS 18001.

Demonstrating our commitment to sustainable building, all of our roofing products are certified "Very Good" under the BES 6001 standard for responsible sourcing.

Traceability

Tegral exceed the requirements of the product standard EN 492: 2012 which state a minimum of 15% of slates must feature a manufacturing code on the underside of the slates. We mark a minimum of 50% of our slates.

Environmental Product Declarations

An Environmental Product Declaration has been issued for Tegral fibre cement slates and is available on tegral.com.

Declarations of performance

Declarations of performance are available on tegral.com.

Anatomy of a Tegral fibre cement slate

Fibre cement slate coatings

01 UV-resistant acrylic siliconised coating
02 Primer coating
03 Secondary coating (cement/pigment/iron oxide)
04 Fibre cement base sheet
05 Clear wax coating

BES 6001 Responsible Sourcing www.greenbooklive.com

CE

Recyclability

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

Composition and manufacture

Tegral slates are made from cement, water, selected cellulose and polymeric fibres 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, coated with an acrylic siliconised coating, cooled and stacked.

Density and thickness

Tegral fibre cement slates have a minimum density of 1750kg/m^3 when tested to EN 492 and a nominal thickness of 4mm.

Performance

The slates are tested for resistance to wind driven rain and meet the requirements of ICP2* 'Irish code of practice for slating and tiling' and BS5534 'British code of practice for slating and tiling' with respect to wind loading, when fixed in accordance with our recommendations.

Strength

Tegral fibre cement slates meet the strength requirements of EN 492, achieving an average bending moment greater than 45Nm/m.

Fire resistance

Tegral 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 EN 1187 'Test methods for external fire exposure to roofs' (BS 476-3).

The slates are designated A2-S1, d0 in accordance with EN 13501-1 and Class 0 for Part B of the Building Regulations, meaning their usage on roofs and walls is unrestricted. When tested in accordance with BS 476: Part 3, they achieved an EXT SAA designation; under BS 476: Part 6, they achieved an index rating of less than 12 and a sub-index rating of less than 6; and under BS 476; Part 7, they achieved a Class 1 rating.

*ICP2 changes to SR82 in 2017

Environmental effects

Thermal

The thermal resistance (R) of fibre cement slates when dry is 0.011m^{2}K/W. For the purpose of thermal transmittance calculations, the 'R' values above should be substituted by a figure of 0.12m^{2}K/W which includes the roof covering and airspace behind the slates. An 'R' value of 0.002m^{2}K/W should be added for the roof underlay.

Heat

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 crampion / disk rivet.

Frost

Unaffected by frost and meets the requirements of EN 492.

Atmospheric pollution

Suitable for most rural, marine and normal industrial environments. Avoid discharge of gases or liquids from chemical processes onto the surface of slates. Resistant to all but the most highly polluted atmospheres where sulphur dioxide levels exceed 70 microgrammes/m^3 of air.

Health & safety guidance

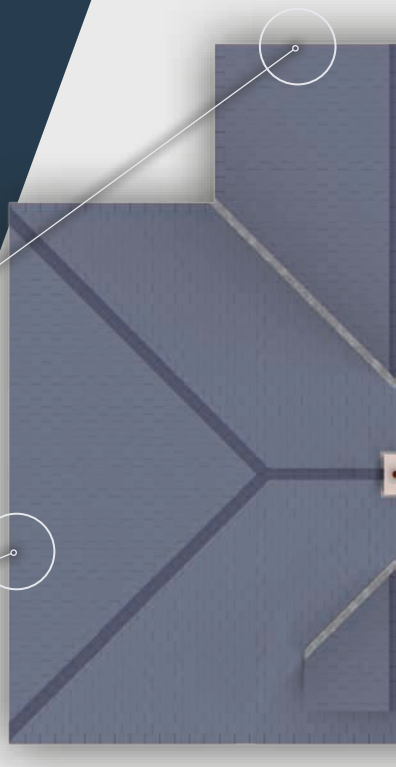
Tegral slates are fully compressed and are solid and inert when supplied. All component materials are essentially non-volatile and of low toxicity. The major components can be regarded as essentially harmless. Tegral slates can be cut by scribing and breaking over a straight edge or by using a hand slate cutter. The use of power tools to cut fibre cement slates is not recommended as it can generate harmful dusts. The use of any power tools to cut or drill fibre cement slates should be carefully risk assessed and appropriate controls put in place. Guidance on harmful dusts in the workplace is available from the Health & Safety Authority, Ireland, the Health and Safety Executive Northern Ireland and UK.

Fixing specification

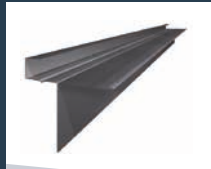
Tegral slates should be fixed in accordance with the recommendations of ICP2* 'Irish code of practice for slating and tiling' and BS5534 'British code of practice for slating and tiling'. The Tegral Technical Support Department can provide a fixing specification, given the relevant criteria relating to the type of slate, site location, topography and building/roof dimensions.

Fixings & Accessories

Trims



C01 Aluminium Trim
3050mm long
New Roofs

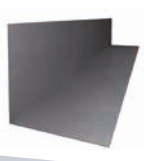


C02 Aluminium Trim
3050mm long
Flush Gables

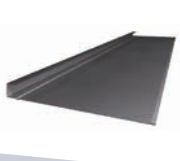
C03 Aluminium Trim
3050mm long
Existing Roofs

C04 Aluminium Ridge Cap Small
3050mm long

C05 Aluminium Ridge Cap Large
3050mm long



C06 Aluminium Soaker
330mm long



C07 Aluminium Valley Trim
3050mm long

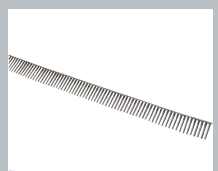
Available in Blue Black and Black

Eaves

TCRR Rafter Roll
6m long

UST60 Rafter Tray
600mm long

UST12 Eaves Carrier
1.5m long



TCF1 Eaves Comb Filler
1000mm long

TFV10 & TFV25 Over-Fascia Vents
1000mm long

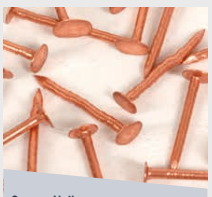
TSV10 & TSV25 Soffit Vents
2.5m long

General Fixings

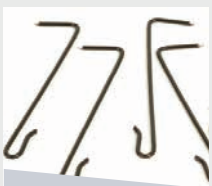
Slater's Tub
2,000 Stainless Steel Nails
(30mm x 2.65mm gauge)
1,000 Copper Disk Rivets / Crampions

Copper Crampions
(Natural Copper)

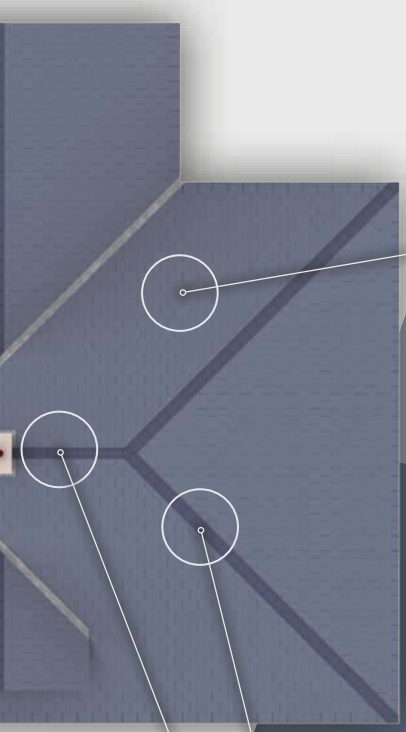
Black Lacquered Drive Screws
For FC Ridge 110mm long



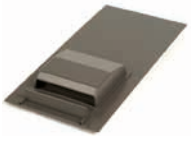
Copper Nails
Various Sizes



Stainless Steel Slate Hooks
Various Sizes

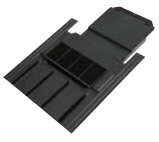


Main Roof



TV1 & TVP1 Economy Vent
5,000mm²
Free Area

TVS2 Utility Slate
(Pipe not included -
for illustration purposes only)



TVP11 Nature Vent
10,000mm²
Free Area

TVP5 Large Capacity Vent
20,000m²
Free Area

TVPP Flexitube
Including 1 Jubilee Clip
110mm

TVFW Felt Weir

Ridge & Hip Roll
for continuous ventilation
310mm wide. 2 x 5m rolls

Available Ridge & Hip Angles

Fibre Cement Standard Angles: 145°; 135°; 120°; 105°; 90°; 72½°
Fibre Cement Mono Angles: 67½°; 62½°; 55°; 45°
Clay Standard Angles: 135°; 125°; 115°; 105°; 90°; 75°
Clay Mono Ridge: This ridge suits all roof pitches between 35° & 45°
No.2 Clay Universal Ridge: This ridge suits all roof pitches between 22 ½° and 40°

Ridges & Hips

Fibre Cement Ridge
525mm cover
Blue Black, Black & Colours

Fibre Cement Mono Ridge
525mm cover
Blue Black, Black & Colours

Fibre Cement Stop-End
190mm cover
Blue Black, Black & Colours

Fibre Cement Hip Stop-End
525mm cover
Blue Black, Black & Colours

No.2 Clay Universal Ridge
380mm cover
Black, Red

No.2 Clay Universal Hip Starter
380mm
Black, Red

No.2 Ridge Stop-End Insert
Black, Red

Clay Plain Angle Ridge
450mm
Black, Red

Clay Half Round Ridge
305mm
Black, Red

Clay Mono Ridge
305mm
Black, Red

Clay Capped Angle Ridge
450mm
Black, Red

PAR Dry Fix Ridge Junction Long
Suitable for 135° - 105°
10 per box

PAR Dry Fix Ridge Junction Short
Suitable for 90° - 75°
10 per box

Vertigo

Avant-garde or traditional, Tegral's Vertigo range of cladding slates gives free rein to your creativity and brings a new dimension to design with fibre cement slates.

Vertigo
slate rainscreen cladding system

Versatility & Vision

For new build as well as renovation work, the Vertigo range of fibre cement slates offers an excellent aesthetic and protective solution.

Existing buildings with irregularities in walls can be corrected at the same time as being radically embellished and given real added value.

Without impact on the interior surface of buildings or causing disruption to the occupants, Vertigo slates allow regeneration and insulation of façades in an elegant, original and effective way.

Each building is unique and we have designed the Vertigo range to respond to the huge scope of architectural requirements for both new build and renovation, aesthetically and in terms of performance.

A range of 8 colours, both flat and brindled, including two beautifully riven, textured colours, offers generous design scope. Added to this are a number of configuration and fixing permutations to create the façade you want for your building.

With their invisible fastening, the different colours in the range combined with the different types of installation allow total freedom of design.

Colour availability

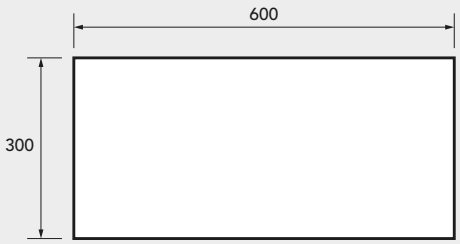
Why choose Vertigo?

1. Beautiful vertical cladding solutions
2. Enables continuity between roof and façade
3. Perfect for new build or renovation projects
4. Easy and rapid installation
5. Wide range of panel configurations and colours
6. "Very good" BES 6001 rating

Vertigo
how it works...

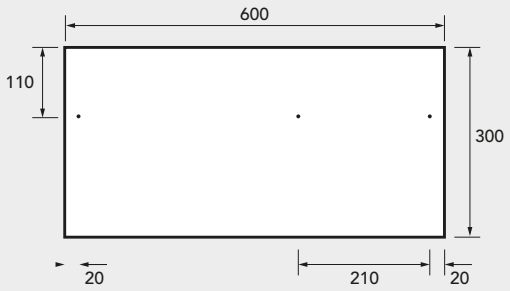
Traditional

Natural slate appearance with slate hooks. No drilling.



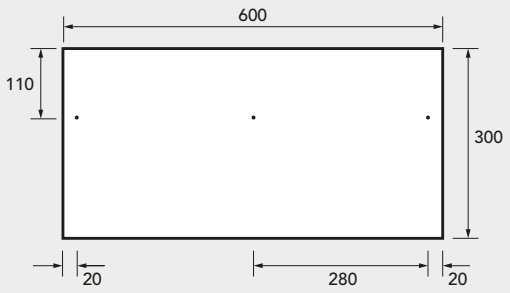
Broken Bond

Staggered panels giving close boarded effect. Pre-holed for broken bond installation.



Panel

Regular bond panels giving geometric precision. Pre-holed for regular installation.



The slates shown in these diagrams are Flame Grey. For full information on rainscreen cladding installation requirements and design for traditional, broken bond and panel installation systems, including typical abutment details and standard accessories, visit tegral.com

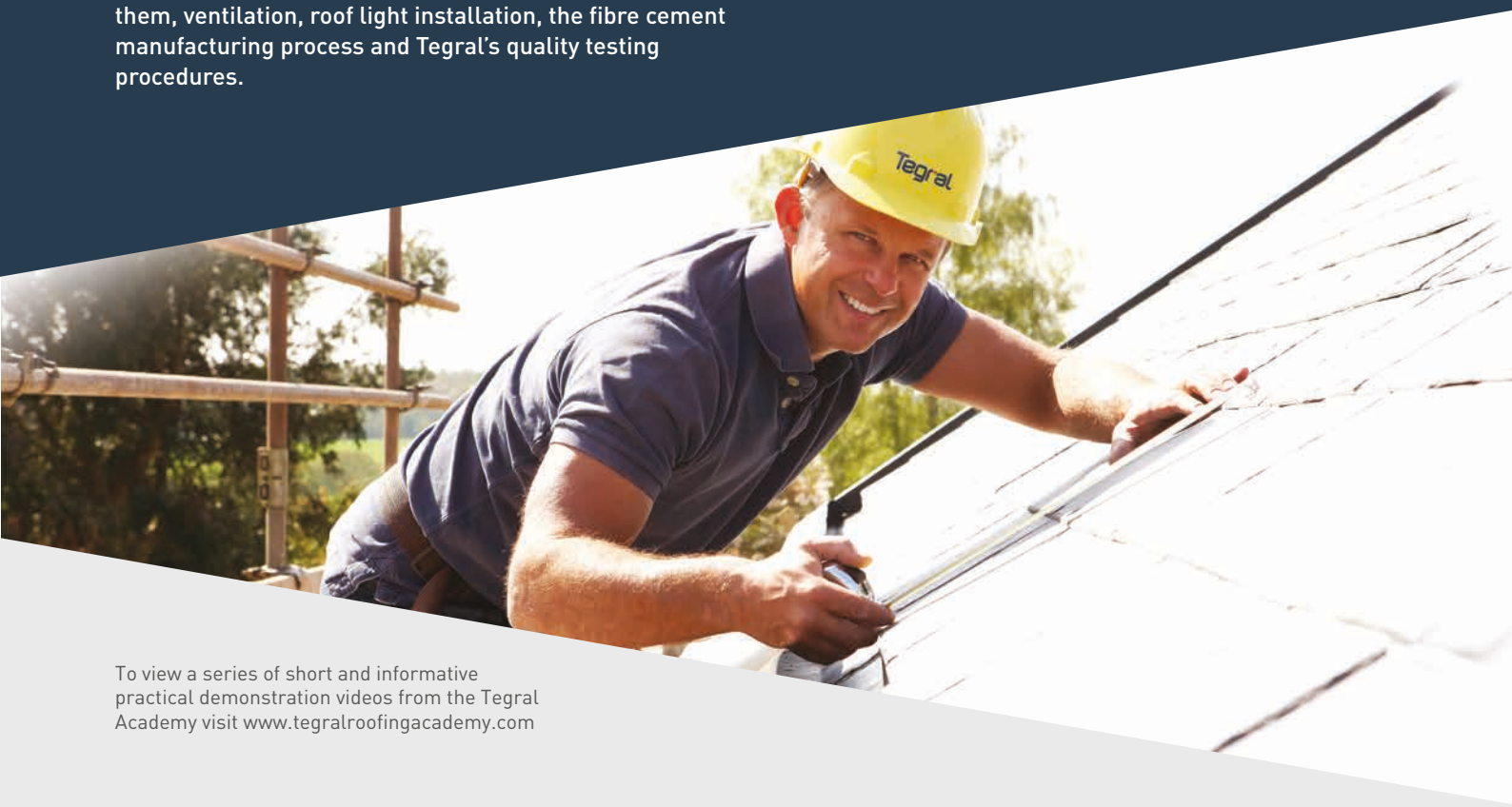
Tegral | ACADEMY

Raising the Standards of Roofing

The Tegral Academy, Ireland's first-ever dedicated training facility for roofing, was launched in 2015 as part of an initiative to raise the standard of roofing in Ireland. Topics covered at Academy training sessions include codes of practice ICP2* and BS5534, BC(A)R regulations, common defects in roof construction and how to avoid them, ventilation, roof light installation, the fibre cement manufacturing process and Tegral's quality testing procedures.

"The ten point inspection programme developed by Tegral for architects makes my job easier during my inspection of the roof."

Brian Watchorn, Architect



To view a series of short and informative practical demonstration videos from the Tegral Academy visit www.tegralroofingacademy.com

"Everything was really useful. If you stick to Tegral's specifications, you can't go wrong after today's lesson."

Jack Goucher Roofing

"Seeing exactly how the slates were made and the amount of tests done to meet Tegral's very high standard was impressive. I hadn't been aware before just how many products Tegral supply!"

Redmond Roofing Ltd.

Support & Backup

At Tegral, we are committed to providing outstanding customer care, supporting your project at every stage.

Customer Service & Sales

We have a team of highly experienced Technical Sales Representatives covering every corner of Ireland who are available to discuss your roofing requirements.

Technical Support

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

We pride ourselves on our Technical Support Department, which is staffed by a qualified team with specialist knowledge not only of Tegral products, but also crucially, how those systems integrate with other roofing components and comply with building regulations, health and safety and environmental criteria.

Tel: +353 (0) 59 863 1316 Email: support@tegral.com

CPD Information

To organise a CPD presentation in your office, talk to us today.

Tel: +353 (0) 59 863 1316 Email: info@tegral.com

Sustainability & Environment

Credits, credentials and clarity of information

Quality Standards

Tegral is certified to ISO 9001, ISO 14001 and OHSAS 18001.

BES 6001

Demonstrating our commitment to sustainable building, all of our fibre cement products are certified "Very Good" under the BES 6001 standard for responsible sourcing.

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.

CE Marking

All of our products covered by an EN Standard carry an appropriate CE Mark. This means that our products meet the required European health, safety and environmental protection legislation.

Thrutone Endurance, Rivendale & Vertigo Guarantee

30 year structural, 20 year colour

Description

Thrutone Endurance slates are manufactured in Ireland under the ISO 9001:2008 Quality Management System certified by both NSAI and in accordance with the European Norm EN 492:2012. Rivendale and Vertigo slates are manufactured for Tegral by a Group factory utilising the same processes.

Use

Thrutone Endurance and Rivendale slates are for use on pitched roofs, or hung vertically in accordance with the fixing of fibre cement slates as specified in the Irish Code of Practice for Slating and Tiling ICP2:2002*, or the British Code of Practice for Slating and Tiling BS5534:2014 and BS8000: Part 6. Reference should also be made to Tegral's Slating Manual.

Structural Guarantee

Thrutone Endurance and Rivendale slates meet the requirements of EN 492:2012 and when fixed in accordance with ICP2:2002* and BS5534:2014 carry a 30 year structural guarantee from the date of manufacture. If during the period of guarantee the product is found not to conform to the stated properties in the standard, when sampled in accordance with ISO 390, the affected slates will be replaced at no cost.

Thrutone Colourisation

The Thrutone colourisation system, used on Thrutone Endurance, Rivendale and Vertigo, is a multi-stage process, incorporating water-based coatings and ensuring a highly durable surface finish.

Colour Guarantee

Tegral Building Products Limited guarantee the Thrutone colourisation system for a period of 20 years. The slates will be affected by weather as described below and will take on a more matt appearance over time. However, when the roof/wall is viewed at a reasonable distance from ground level, the slates will continue to show their generic colour appearance. If Thrutone Endurance, Rivendale or Vertigo slates fail to give their generic colour appearance within the 20 year period, then an on-site treatment to the affected area(s) will be applied free of charge.

This guarantee does not affect consumers' statutory rights.

Weathering

On exposure the slate surface and/or its coating will be affected by weathering which may vary with site location, aspect, pitch of roof and duration of exposure. Any deterioration in this respect shall not detract from the mechanical and physical characteristics as specified in the standard or from the function of the slate as a durable element.

*ICP2 changes to SR82 in 2017

Under certain climatic conditions, moisture movement in fibre cement slates can cause flexing of the exposed edges. This will not affect their structural integrity or their weatherproof performance. Tegral fibre cement slates are manufactured to EN 492:2012. They are also manufactured under the ISO 9001 Quality Management System.

Tegral

an etex company

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