

Forticrete® roofing

Redefining traditional products



HARDROW® SLATES *Ducks* roofing slates

Replicating the appeal of naturally weathered stone slate





Hardrow® Slates Duets® Forest laid in diminishing courses for R. Bailey, Long Clawson, Leicestershire.

An authentic traditional appearance - guaranteed

Hardrow® Slates offer virtually the same architectural properties and aesthetic appeal as natural stone or slate. Formed from concrete, they retain a characteristic that mellows with age and can also be laid in either random widths or diminishing courses for an authentic traditional appearance.

Front cover

Hardrow® Slates Duets® Barley laid in diminishing courses on Bastion Homes.



Hardrow® Slates Duets® ability to replicate the appeal of naturally weathered stone or slate enables a building to blend into its surroundings. Ideal for use in rural areas or where an established appearance is required.

Hardrow® Slates Duets® Twilight at Orion Homes, Halifax, West Yorkshire.



An infinite variety of unique roofscapes

Introduced in 1996, Hardrow® Slates Duets® are quite unique in every way, a true innovation in roofing. Duets® take the subtle shades of the Hardrow® Slates Solos™ range and combine them in a single slate, to create the ultimate in random appeal.

With Duets®, all the subtle variations which have been an inherent feature of Hardrow® Slates for over 80 years are not only retained but are enhanced within a range which includes 10 blended colour options.



Hardrow® Slates qualify as an ECOSLATE® under Forticrete's unique marking scheme, signifying that it conforms to a specified range of environmental criteria.

Colour range



Forest



Barley



Harvest



Glade



Dusk



Twilight



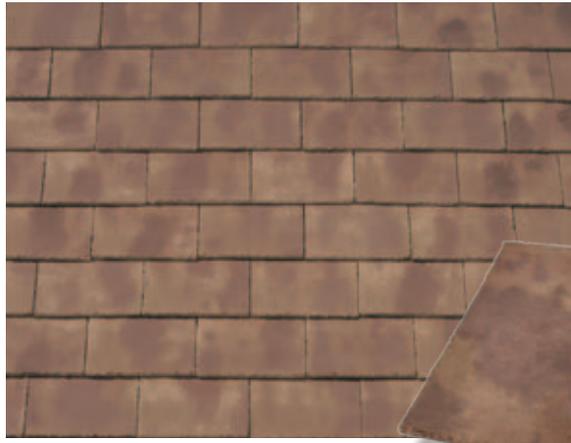
Wheat



Ember



Sunset



Spice

From the distinctive Grey/Green of **Forest** to the warm Red/Thatch tones of **Ember**; or the intense Red/Brown of **Sunset**, each Duet creates its own mood to add impact to your designs. The imposing Light and Dark Grey of **Dusk** is brightened with Yellow in **Twilight**. Combining the shades of Moss and Orange creates the lustre of **Harvest**, and Dark Grey with Moss the fresh appeal of **Glade**, while differing combinations of Brown, Moss, Yellow and Orange create **Spice**, **Barley** and **Wheat**.

Hardrow® Slates Duets® Barley on a Barn Conversion at Chesterton, Oxon.

Guarantee

The colour of Hardrow® Slates will change with natural weathering, but the integrity of the slate carries a 30-year guarantee from date of supply, subject to the company's normal terms. Forticrete® Roofing Products' policy is one of continuous improvement and the Company reserves the right to change specifications and designs at any time without notice. Where an exact colour match is critical, you are advised to view actual tile samples.





Hardrow® Slates Duets® Barley at Ponderosa Park, Heckmondwike, West Yorkshire.

The timeworn appeal of naturally weathered stone or slate

Designing with Hardrow® Slates enables an abundance of creativeness and great flexibility for the specifier. The most popular sizes range from 457mm x 305mm (min pitch 25°) right up to the imposing 610mm x 457mm which can be laid at pitches as low as 17.5°, creating a bold appearance.

There's a wide range of detailing components, some of which are hand crafted on wooden formers to blend in perfectly with each of the 10 Duets® colours. Duo-pitch ridges, mono-pitch ridges, stop-end ridges, hip slates, valley slates and mansards are all available as is a range of ornamental slates to create striking detailing and features on both pitched roofing and vertical cladding.



Hardrow® Slates Duets® Twilight roof incorporating purpose made valley.

- Stone slate appearance
- Double lap offers flexibility of roof design
- Choice of 10 Duets® colours - detailed overleaf
- Wide range of sizes
- Extensive pitch capability
- Purpose made fittings to suit roof detailing
- Available in diminishing courses and random widths (for an additional charge)
- Exceptional water resistance
- Kitemarked to BS EN 490:2002
- Full range of dry fix systems available
- Full range of ventilation products



Hardrow® Slates Duets® Forest, Sunset and Wheat at Honeycombe Beach, Boscombe, Bournemouth.

Creating a synergy

A range of purpose designed ventilating products include a gas terminal ridge, tested to comply with BS 1289:Part 1,1986; and both Lo-Vent slates and ridges for clean air and soiled air ventilation. Splays, special mansards, pyramid caps, all are achievable to give you complete flexibility in design.

Should you be concerned about the feasibility of an idea, or be unsure about precisely how to achieve that special effect, there's a helpful technical advisory service to offer advice and guidance based on years of experience.

Accreditations

- Hardrow® holds the quality Kitemark BS EN 490
- Forticrete is certified to the International Environmental Standard BS EN ISO 14001:2004
- BES 6001 for Responsible Sourcing of Construction Products – all seven factories are rated as 'very good'
- We operate to BS EN ISO 9001 for Quality Management
- A+ BREEAM Rating – assessment method for sustainable buildings
- Achilles BuildingConfidence certified. The standard for supplier excellence

Hardrow® Slates dimensions and specifications

Standard roofing slates

Nominal slate size	381mm x 229mm (15" x 9")	457mm x 305mm (18" x 12")	457mm x 457mm (18" x 18")		610mm x 457mm (24" x 18")		
Pitch	30° & above	25° & above	20°-24.5°	25° & above	17.5 - 19.5°	20°-24.5°	25° & above
Max gauge	150mm (6")	191mm (7 1/2")	178mm (7")	191mm (7 1/2")	241mm (9 1/2")	255mm (10")	267mm (10 1/2")
Minimum headlap	75mm (3")	75mm (3")	102mm (4")	75mm (3")	127mm (5")	100mm (4")	75mm (3")
Min side lap	95mm (3 3/4")	95mm (3 3/4")	89mm (3 1/2")	75mm (3")	121mm (4 3/4")	102mm (4")	107mm (4")
Cover width	232mm	311mm	464mm	464mm	468mm	468mm	468mm
Nominal hanging length	331mm	407mm	407mm	407mm	560mm	560mm	560mm
Nominal thickness	14mm (7/16")	14mm (7/16")	14mm (7/16")	14mm (7/16")	16mm (5/8")	16mm (5/8")	16mm (5/8")
Mass per 1000 slates	3.0 tonnes	4.8 tonnes	7.2 tonnes	7.2 tonnes	10.6 tonnes	10.6 tonnes	10.6 tonnes
Number per m ²	29.1	17.22	12.3	11.5	9.07	8.61	8.2
Weight per m ²	87 kg	83 kg	88 kg	83 kg	96 kg	91 kg	87 kg
Batten required lin m/m ²	6.7	5.24	5.62	5.24	4.15	3.92	3.75
Verge slates	381mm x 343mm (15" x 13 1/2")	457mm x 457mm (18" x 18")	457mm x 686mm (18" x 27")		610mm x 686mm (24" x 27")		
Eaves & tops	254mm x 229mm (10" x 9")	330mm x 305mm (13" x 12")	305mm x 457mm (12" x 18")		457mm x 457mm (18" x 18")		

Note: The minimum pitch is based on a maximum rafter length of 10m. For rafter lengths greater than this, please contact the Forticrete Technical Advisory Service.
Batten size: 50mm x 25mm for all rafter centres up to 600mm graded timber in accordance with BS 5534:2003.

Standard vertical cladding slates

Nominal Slate Size	Cover Width	Nominal Hanging Length	Standard Headlap	Standard Gauge	Number per m ² at Standard Headlap	Mass per m ² at Standard Headlap	Mass (approx) per 1000 Slates	Nominal Thickness	Verge Slates	Eaves & Tops						
mm	in	mm	mm	mm		kg	Tonnes	mm	m	mm						
330 x 229	13 x 9	232	280	50	2	140	5 1/2	31.2	81	2.6	14	7/16	330 x 343	13 x 13 1/2	229 x 229	9 x 9
*381 x 229	15 x 9	232	331	50	2	165	6 1/2	26.5	80	3.0	14	7/16	*381 x 343	15 x 13 1/2	254 x 229	10 x 9
330 x 305	13 x 12	311	280	50	2	140	5 1/2	23.4	81	3.5	14	7/16	330 x 457	13 x 18	229 x 305	9 x 12
457 x 305	18 x 12	311	407	50	2	203	8	16.2	78	4.8	14	7/16	457 x 457	18 x 18	330 x 305	13 x 12

*Also available to order as Ornamental Slates.

Diminishing courses

Slates are available in the following sizes: (length x width):
381 x 457mm; 457 x 457mm; 533 x 457mm; 610 x 457mm

Note: Slate and a half slates are supplied for all these sizes:
Under Eave: 457 x 457mm Tops: 305 x 457mm

Number of courses of each size of slate - The percentage number of different length slates on the rafter is dependant on the rafter length. Where the size of slate changes the gauge should be gradually diminished, so it blends into the next size of slate with the reduced gauge.

Number and weights of diminishing slates

Per square metre at 75mm (3in) head lap

Length x Width	Gauge mm	Number	Weight kg
381 x 457	152	14.4	86
457 x 457	190	11.5	83
533 x 457	229	9.6	81
610 x 457	267	8.2	87

Roof pitch - It is recommended that Hardrow Diminishing Course Slates should be laid to a minimum pitch of 30° and a maximum pitch of 47 1/2°.

Random width slates

Slates are available in the following sizes: (l x w): 457 x 305mm; 457 x 381mm; 457 x 457mm

Verge slates: 457 x 686mm
Under Eaves: 305 x 457mm
Top Course: 330 x 305mm
Numbers per size: Random a third of each size.
Minimum pitch: 25°

Headlap: All sizes 75mm. Gauge common to all sizes 191mm maximum.
Side lap: Never less than 100mm.
Weight of random slates: 83kg per square metre.
Hips and valleys: Purpose made to pitch.

Tile Fixing

Each slate must be secured with two 40mm x 3.35mm aluminium nails. For the 610 x 457 slate, above 30° the nail should be 40mm x 4mm. At pitches below 40°, depending on the exposure, it may be possible to hang slates. The nail hole diameter is approximately 5mm with the holes being positioned c. 50mm from the head and edge of the slate. Nail specification may alter for marine environments, and you should seek advice from the Technical Advisory Service.

Tile Hanging on a sloping elevation

If hanging slates over the battens, an additional batten should be fixed above all parent batten spanning over at least two rafters to provide a mechanical fixing at the verge. Depending on the span of the gable overhang, secondary battening may be required to add additional strength to carry the weight of the slates. If hanging the slates under eaves, 1st course and last course of main slates must be nailed into the batten. Top tile clips are available for fixing the top slates to the adjacent main slates. CURVED ROOFS - please contact the Technical Advisory Service for specification advice

Designation of standard slates

Nominal Slate Size	Designation No.
mm	in
Standard roofing slates	
381 x 229	15 x 9
457 x 305	18 x 12
457 x 457	18 x 18
610 x 457	24 x 18

Standard fittings - Hips, valleys and mansard slates are available to order to cover the full range of roof pitches.

Nominal Slate Size	Designation No.
mm	in
Standard vertical cladding slates	
330 x 229	13 x 9
381 x 229	15 x 9
330 x 305	13 x 12
457 x 305	18 x 12

Non standard fittings - Non standard fittings can be made to order to suit special applications. Please consult our Technical Advisory Service for help and advice.

Working procedures, safety & general precautions

Slates should be fixed in accordance with BS 5534. Forticrete recommend that fixers of all slates regard the products as fragile as stated in BS8000:Pt6:1990 Section 5. During installation of the products, the correct setting out and working procedures should be employed to avoid walking directly on to products which have been fixed or are on any completed area of a roof. Should it be necessary to gain access via the roof where battens of adequate strength cannot be used as footholds, this should not be attempted without the use of adequate protection to the tiles or slates including the required number of crawling boards, ladders and cat ladders.

Please note that where there is a change of pitch, packing may be required between crawling boards, cat ladders and the surface of the tiles or slates to avoid damage to the product. Fixers should note that Forticrete do not recommend the practice of cutting tiles or slates in-situ. Other information can be obtained from the Health and Safety in Roof Work publication HSG33 and in the 'Working on Roofs' publication INDG284. When unpacking the slates from the pallets, please cut the shrink wrap as instructed and maintain even distribution of the slates on the pallet to avoid tipping. Reference should also be made to the Forticrete Technical Literature and Fixing Instructions.

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Information on the complete range of Forticrete products can be found on the Internet at www.forticrete.co.uk

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