Properties & performance of Tegral fibre cement 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 "Excellent"
- 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 SR82 '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 "Excellent" 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.

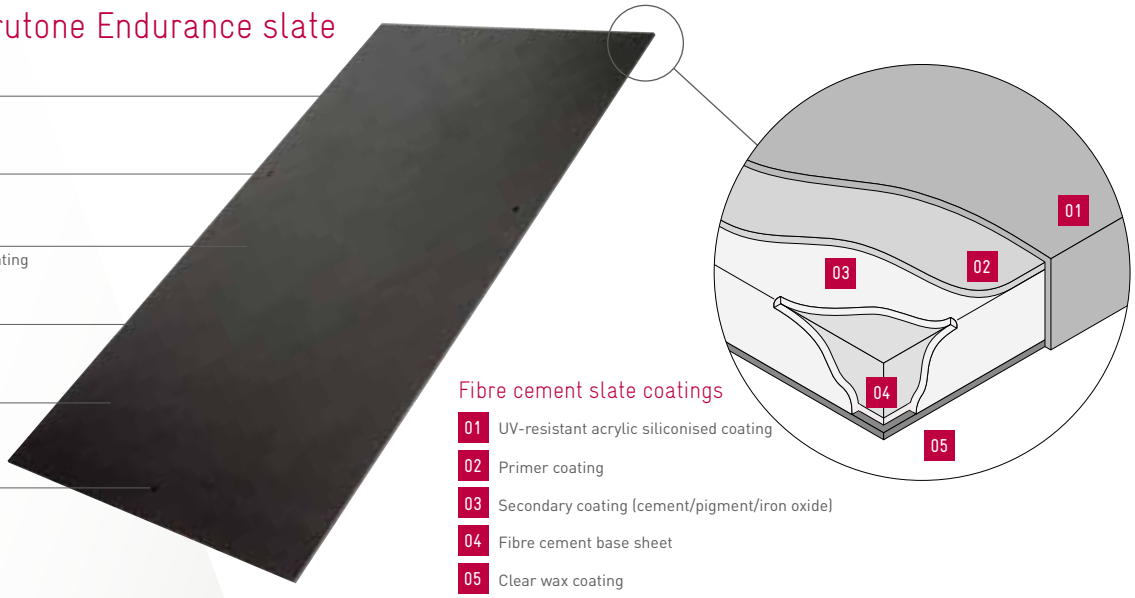
Environmental Product Declarations

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 Thrutone Endurance 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 an average density of 1970kg/m³ (minimum of 1750kg/m³) when tested to EN492 and a nominal thickness of 4mm.

Performance

The slates are tested for resistance to wind driven rain and meet the requirements of SR82 '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 (where the Standard requirement is >45Nm/m), achieving an average bending moment of 65Nm/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.

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.

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/m³ of air.

Health and 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 SR82 '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.