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Agrément Certificate
15/5215
Product Sheet 1

GREEN SUSTAINABLE PRODUCTS ROOFING SYSTEMS

ENVIRO TILE

This Agrément Certificate Product Sheet⁽¹⁾ relates to Envirotile, an interlocking compression-moulded polypropylene roof tile used to provide a weatherproof finish to pitched roofs in accordance with BS 5534 : 2014.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Strength — the product has adequate strength to resist the wind and snow loads experienced in service, and loads associated with the installation of the roof (see section 6).

Properties in relation to fire — the product will enable a roof to be unrestricted under the Building Regulations (see section 7).

Weathertightness — the product resists the passage of moisture into the building (see section 8).

Durability — under normal service conditions the product will have a service life in excess of 20 years (see section 10).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 20 May 2015

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Envirotile, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B3(2)	Internal fire spread (structure)
Requirement:	B4(2)	External fire spread
Comment:	A roof incorporating the product meets these Requirements provided the installation complies with the conditions set out in section 4.2 of this Certificate. See also section 7 of this Certificate.	
Requirement:	C2(b)	Resistance to moisture
Comment:	A roof incorporating the product meets this Requirement provided the installation complies with the conditions set out in section 4.2 of this Certificate. See also section 8 of this Certificate.	
Regulation:	7	Materials and workmanship
Comment:	The product is acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:	The product can contribute to a construction satisfying this Regulation. See sections 9 and 10.1 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:	The product can contribute to satisfying these Standards provided the installation complies with the conditions set out in section 4.2 of this Certificate, with reference to clauses 2.1.15 ⁽²⁾ , 2.2.7 ⁽²⁾ and 2.2.10 ⁽¹⁾ respectively. See section 7 of this Certificate.	
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.8	Spread from neighbouring buildings
Comment:	A roof incorporating the product is unrestricted under these Standards provided the installation complies with the conditions set out in section 3.2 of this Certificate, with reference to clauses 2.6.4 ⁽¹⁾⁽²⁾ and 2.8.1 ⁽¹⁾⁽²⁾ respectively. See section 7 of this Certificate.	
Standard:	3.10	Precipitation
Comment:	The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.	
Standard:	7.1(a)	Statement of sustainability
Comment:	The product can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.	
Regulation:	12	Building standards applicable to conversions
Comment:	All comments given for this product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).	



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation	23(a)(i)(iii)b(i)	Fitness of materials and workmanship
Comment:	The product is acceptable. See section 10.1 and the <i>Installation</i> part of this Certificate.	
Regulation:	28(b)	Resistance to moisture and weather
Comment:	A roof incorporating the product can satisfy this Regulation provided the installation complies with the conditions set out in section 8 of this Certificate.	
Regulation:	35	Internal fire spread – Structure
Regulation:	36(b)	External fire spread
Comment:	A roof incorporating the product is unrestricted under these Regulations provided the installation complies with the conditions set out in section 4.2 of this Certificate. See also section 7 of this Certificate.	

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, Principal Designer/CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 1 *Description* (1.1), 2 *Maintenance* (9.2) and 12 *General* (12.3) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of Envirotile, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

Technical Specification

1 Description

1.1 Envirotile is manufactured from compression-moulded polypropylene which incorporates recycled polymers. The product has the nominal characteristics given below.

Size (mm)	365 x 325
Thickness (mm)	11.0
Weight per tile (kg)	0.645
Weight per bundle (kg)	6.45
Headlap (mm)	85, 100, 115
Gauge (mm)	280, 265, 250
Cover width (mm)	300
Coverage capacity (tiles per m ²)	11.9, 12.6, 13.3
Weight of tiling (kg·m ⁻²)	8.45, 8.93, 9.47
Colour	Anthracite (other colours are available).

1.2 Slight colour variations may exist between batches. Tiles should be randomised on site to achieve a consistent appearance when installed.

1.3 The tiles are supplied with nail holes for fixing in accordance with BS 5534 : 2014.

1.4 Accessories available for use with the product, but not covered by this Certificate, include:

- fascia eaves tray and fixing bar
- ventilated Envirotile
- Envirolay – insulated fireproof roofers' underlay.

2 Manufacture

2.1 The product is manufactured from polypropylene incorporating recycled polymers. This is moulded under pressure and heat in a moulding machine.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The product is manufactured by Flowtech Precision Mouldings Limited and is marketed by Green Sustainable Products Company Ltd.

2.4 The management system of Flowtech Precision Mouldings Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by SGS (Certificate GB08/75408).

3 Delivery and site handling

3.1 Tiles are supplied in packs of 10, and are delivered to site shrink-wrapped on wooden pallets, each pallet containing 90 packs. Storage must be on a level base in dry conditions at temperatures above 0°C, under cover and away from the possibility of damage.

3.2 The wrapping bears the Certificate holder's label and the BBA logo incorporating the number of this Certificate.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Envirotile.

Design Considerations

4 Use

4.1 Envirotile is satisfactory for use as a roof covering on conventional pitched timber roofs with a rafter pitch of 12.5° and over. It is essential that such roofs are designed and constructed to incorporate the normal precautions to prevent moisture penetration and the formation of condensation.



4.2 Roofs incorporating the tile and subject to the UK Building Regulations must be designed and constructed in accordance with the relevant recommendations of BS 5534 : 2014 and BS 8000-6 : 2013. In particular, the designer must follow the recommendations of BS 5534 : 2014 clause 5.2 for structural stability, clause 5.4 for rain and snow resistance, clause 5.4.2 for roof pitch, head-laps and side-laps, and clause 5.9.2 for condensation, and must select a construction appropriate to its location, paying due attention to design detailing, workmanship and materials to be used.

5 Practicability of installation

The product is designed to be installed by a competent roofing contractor experienced with this type of product.

6 Strength

6.1 The product has adequate resistance to impact damage during site handling and installation using conventional roofing methods.

6.2 The product has a mean bending moment of 139 Nm·m⁻¹ (average of both directions).

6.3 The product has adequate resistance to the wind and snow loads likely to be encountered in service. In situations where high local loads may occur, the designer must seek the advice of the manufacturer. Consideration must also be given to the guidance contained in BRE Digest 439 *Roof loads due to local drifting of snow*.

6.4 When fixed in accordance with the Certificate holder's instructions, the product is resistant to the effects of wind uplift likely to be encountered in the UK. Where conditions of exposure may be severe, consideration must be given to the recommendations outlined in BS 5534 : 2014.

7 Performance in relation to fire



When tested in accordance with BS 476-3 : 2004, the tiles, installed on a batten and rafter system with a plywood deck, achieved an EXT S.AA designation, and a roof incorporating the tiles is designated AA and is consequently unrestricted by the relevant requirements of the national Building Regulations.

8 Weathertightness



8.1 Wind-driven rain penetration tests indicate that the tiles have adequate resistance to the ingress of wind-driven rain when installed on a roof with a rafter pitch of 12.5°.

8.2 When used in conjunction with a suitable roof tile underlay or sarking, the tiles will provide a roof covering with satisfactory resistance to the passage of rain or snow.

9 Maintenance



9.1 Roofs covered with the product must be visually inspected twice a year to ensure continued performance, as is good practice with all roofs. Any damaged tiles must be replaced in accordance with section 15.

9.2 Care is required when carrying out maintenance work on tile roofs, and the recommendations contained in BS 5534 : 2014, clause 6.14 *Workmanship, repairs and maintenance*, and BS 8000-6 : 2013, Section 11, *Safety and general precautions* must be followed.

10 Durability



10.1 The product has an expected service life in excess of 20 years.

10.2 After natural weathering, some slight change in colour may occur. However, this process will not be progressive.

11 Reuse and recyclability

The product contains polypropylene, which can be recycled.

Installation

12 General

12.1 Envirotile is installed in accordance with the Certificate holder's instructions and relevant recommendations of BS 5534 : 2014 and BS 8000-6 : 2013, using conventional tiling techniques.

12.2 When used on large roof areas, the tiles should be randomly selected from different batches to ensure consistent appearance.

12.3 Any roof clad in tiles should be treated as fragile, and the recommendations in section 9.1 should be followed.

12.4 The roof space and batten space must be adequately ventilated in accordance with BS 5250 : 2011.

13 Cutting

The tiles may be cut (for use at eaves and valleys) with a medium-toothed handsaw. The use of a chalk line to determine straight edge cutting is recommended for use with valley and hip detail.

14 Procedure

14.1 The product is installed on pitched roofs or hung vertically as a cladding on the outer face of external walls strictly in accordance with the manufacturer's instructions, BS 5534 : 2014 and BS 8000-6 : 2013.

14.2 At verges, either side of hips or valleys, and where the roof meets an abutment, the last tile in each course must be twice nailed at the head and, in addition, once at the tail (except left-hand verge tiles). At verges, and where the tails of tiles are unsecured at valleys, verge clips must also be used. At eaves and top edges, the last course of tiles must be twice nailed at the head and, in addition, once at the tail. Tiles in the remaining area must be nailed at the head (through the right-hand fixing holes) and, in addition, once at the tail. The nails and verge clips are supplied by the Certificate holder. Other types or makes must not be used.

14.3 It is essential that fixing clips are correctly installed and the interlocking lugs are fully engaged in the correct position.

14.4 Care is required to ensure that nails are not overdriven. They must be tapped rather than driven home.

14.5 Where the tiles are to be used on an existing roof structure, the recommendations contained in BS 5534 : 2014, Section 6.14, *Workmanship, Repairs and Maintenance*, and BS 8000-6 : 2013, Section 11, clause 11.1.3 on re-covering, must be followed. Consideration must also be given to the advice contained in BRE Defect Action Sheets DAS 124 : 1988 *Pitched roofs: Renovation of older type timber roofs — re-tiling or re-slating* and DAS 125 : 1988 *Pitched roofs: Re-tiling or re-slating older type timber roofs*.

14.6 Ridge and hip details may be completed using standard concrete or clay products, and verge details may be completed using traditional mortar bedding techniques. However, the manufacturer recommends that dry-fix products are employed. Dry-fix systems are outside the scope of this Certificate.

15 Repair

Damaged tiles can be replaced by following the Certificate holder's instructions and the relevant sections of BS 5534 : 2014 and BS 8000-6 : 2013.

Technical Investigations

16 Tests

Tests were carried out on the tiles and the results assessed to determine:

- dimensions
- mechanical characteristics
- apparent density
- ash content
- dimensional stability
- impact resistance
- artificial weathering and colour stability
- prolonged water immersion and heating
- freeze/thaw cycling
- warm water immersion
- heat ageing at elevated temperatures
- heat/rain cycling.

17 Investigations

17.1 An assessment was made of existing data from independent laboratories relating to:

- behaviour in relation to fire, to BS 476-3 : 2004
- wind uplift resistance
- driving rain performance
- artificial weathering tests.

17.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

BS 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*

BS 5250 : 2011 *Code of practice for control of condensation in buildings*

BS 5534 : 2014 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 8000-6 : 2013 *Workmanship on building sites — Code of practice for slating and tiling of roofs and walls*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

Conditions of Certification

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page — no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

18.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 In issuing this Certificate, the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.