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Agrément Certificate

94/3055

Product Sheet 1

ONDULINE BITUMINOUS CORRUGATED ROOFING MATERIALS

ONDUTILE ROOF TILE UNDERLAY

This Agrément Certificate Product Sheet⁽¹⁾ relates to Ondutile Roof Tile Underlay, bituminous cellulose fibre corrugated sheets for use on clay and concrete tiled and conventional slated, ventilated, pitched roofs designed and constructed in accordance with the relevant clauses of 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

Weathertightness — the product has adequate resistance to the passage of moisture (see section 6).

Resistance to wind loading — the product has adequate strength to resist the loads associated with installation in either roofing or external wall cladding applications (see section 8).

Durability — under the normal conditions found in a roof space, the product will have a service life comparable to that of a traditional roof tile underlay (see section 12).



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 Third issue: 15 August 2019

John Albon
Chief Scientific Officer

Claire Curtis-Thomas
Chief Executive

Originally certificated on 25 August 1994

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.*

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Ondutile Roof Tile Underlay, 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:	C2(b)	Resistance to moisture
Comment:	The product will contribute to a roof satisfying this Requirement. See section 6 of this Certificate.	
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:	The product is of an acceptable material. See section 12 and the <i>Installation</i> part of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:	The product can contribute to a construction satisfying this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	3.10	Precipitation
Comment:	The product will contribute to a roof satisfying clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ of this Standard. See section 6 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:	Comments made in relation to the 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)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The product is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:	The product will contribute to a roof satisfying this Regulation. See section 6 of this Certificate.	

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 1 *Description* (1.3) and 13 *General* (13.1) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Ondutile Roof Tile Underlay, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standards BS EN 534 : 2006. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Ondutile Roof Tile Underlay is corrugated sheeting manufactured from cellulose fibre impregnated with bitumen. The upper face is pigmented and coated with a thermosetting resin.

1.2 The sheets are supplied in black, brown, green and red finishes.

1.3 Each sheet has 10 corrugations and has the following nominal and physical characteristics:

Length (mm)	2000 (-0.15 to +0.5)
Width (mm)	950 (± 1)
Thickness (mm)	3.0 (± 0.2)
Corrugation pitch (mm)	95 (± 2)
Corrugation depth (mm)	38 (± 2)
Weight of material ($\text{kg}\cdot\text{m}^{-2}$)	3.3 (± 0.2)
Weight per sheet (kg)	6.4 (± 0.3)
Water impermeability*	conforms
Bending under downward load* (Nm^{-2})	Category R : ≥ 1400
Impact strength* (mm)	Category R : 400
Tearing strength (N)	Category R : ≥ 200 .

1.4 Ancillary items for use with the product, but outside the scope of this Certificate, include:

- hot dipped galvanized (smooth shank) and sherardized (ring shank) nails to BS 1202-1 : 2002, to suit Ondutile mechanical fixing specifications
- reinforced bitumen membranes to BS 8747 : 2007, to form secondary flashings to ridge, hip, and abutment details
- Ondutile uPVC Preformed Eaves Tray
- Ondutile Preformed Batten-cloaking Flashing, fitted over the eaves batten to give weathering protection and to provide a neat finish to the eaves detail
- Ondutile Corrugation Closure Strip, fitted to the rear of roof abutments (for example roof lights) to provide a corrugation closure flashing to the back gutter
- polypropylene comb ventilator to inhibit bird entry (if applicable).

2 Manufacture

2.1 The product is manufactured by a continuous phase process in which cellulose fibre pulp is pressed into sheet form and pigmented, and a thermosetting resin is applied. The sheets are then corrugated, dried and cut every ten corrugations before being impregnated with bitumen by immersion.

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 non-conformities
- 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 management system of the manufacturer, Onduline Poland, has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by Bureau Veritas (Certificate PL 006855/1/P).

3 Delivery and site handling

3.1 The product is supplied on crated pallets of 300 sheets and must be stored flat on timber cross-bearers on a concrete base or firm level ground, and kept under cover to protect from dirt and dust. Pallets must not be stacked and must be stored away from the possibility of damage.

3.2 The product is handled using conventional techniques for corrugated sheeting. To avoid surface damage during handling, sheets should be lifted clear of the stack and not dragged across it.

3.3 The product may be stored in freezing conditions, but installation should not be attempted under such circumstances.

3.4 The product can be drilled and sawn by hand provided care is taken to avoid surface damage.

3.5 Each sheet bears a factory reference mark and each pallet bears 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 Ondutile Roof Tile Underlay.

Design Considerations

4 Use

4.1 Ondutile Roof Tile Underlay is satisfactory for use in tiled and slated ventilated pitched roofs constructed in accordance with the relevant clauses of BS 5534 : 2014.

4.2 The product is designed for use with lapped tile coverings at the following minimum roof pitches:

- interlocking concrete tiles — 12.5°
- natural and fibre cement slates — 20°
- double lap plain tiles — 22.5°.

4.3 Advice must be sought from the Certificate holder when installing slates/tiles below the manufacturer's minimum recommended pitches and when considering the use of hybrid tile types.

5 Practicability of installation

The product is designed to be installed by competent general building contractors experienced with this type of product.

6 Weathertightness



The product will resist the passage of water and windblown snow into the interior of a building under all normal conditions found in roofs constructed in accordance with BS 5534 : 2014.

7 Risk of condensation

7.1 The product has considerably lower water vapour permeability than that quoted as the minimum acceptable for conventional bitumen felt roof tile underlays under BS 5534 : 2014. Factors to be considered in reducing condensation in dwellings which must be met when installing the product are also described in this Standard.

7.2 The product is an impermeable underlay and this factor should be considered in regard to roof ventilation in accordance with the relevant clauses of BS 5250 : 2011.

8 Resistance to wind loading

8.1 Project design wind speeds should be determined and wind uplift forces calculated by a suitably competent and experienced individual, in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex.

8.2 A suitably competent individual should assess the suitability of the roof tiles, fixings, underlay sheet and battens of boards, for resistance to wind uplift on a project-specific basis.

9 Properties in relation to fire

9.1 The product is classified as Class E*⁽¹⁾ in accordance with BS EN 13501-1 : 2019.

(1) Report reference 00880/19/Z00NZP, issued by Instytut Techniki Budowlanej. The report is available from the Certificate holder upon request.

9.2 Use of the product will not affect the fire rating of the roof in which it is installed.

10 Sound transmission

The sound attenuating properties of the product will help reduce sound transmission through a roof.

11 Maintenance

As the product is confined within a roof space and has suitable durability, maintenance is not required. However, any damage which occurs before enclosure must be repaired (see section 16).

12 Durability



The product will be unaffected by normal conditions found in a roof space and will have a life comparable with that of a traditional roof tile underlay, provided it is not exposed to sunlight for long periods. Advice regarding exposure can be obtained from the Certificate holder.

Installation

13 General

13.1 Covering of new and existing roofs using the product must be carried out with due regard to *Health and Safety in roof work* guidelines detailed in HSG33, fourth Edition, 2012.

13.2 The structure of new constructions must be in accordance with BS 5534 : 2014, with a maximum rafter spacing of 600 mm.

13.3 The tile batten gauge for the specific tile to be used must be calculated and appropriate for the pitch of the roof.

13.4 The product must be installed on support battens 50 by 25 mm to the same centres as those required for the tile battens, or on plywood decking (minimum 20 mm thickness) which should be nailed to the rafters using smooth shanked nails to the length determined by wind uplift calculations.

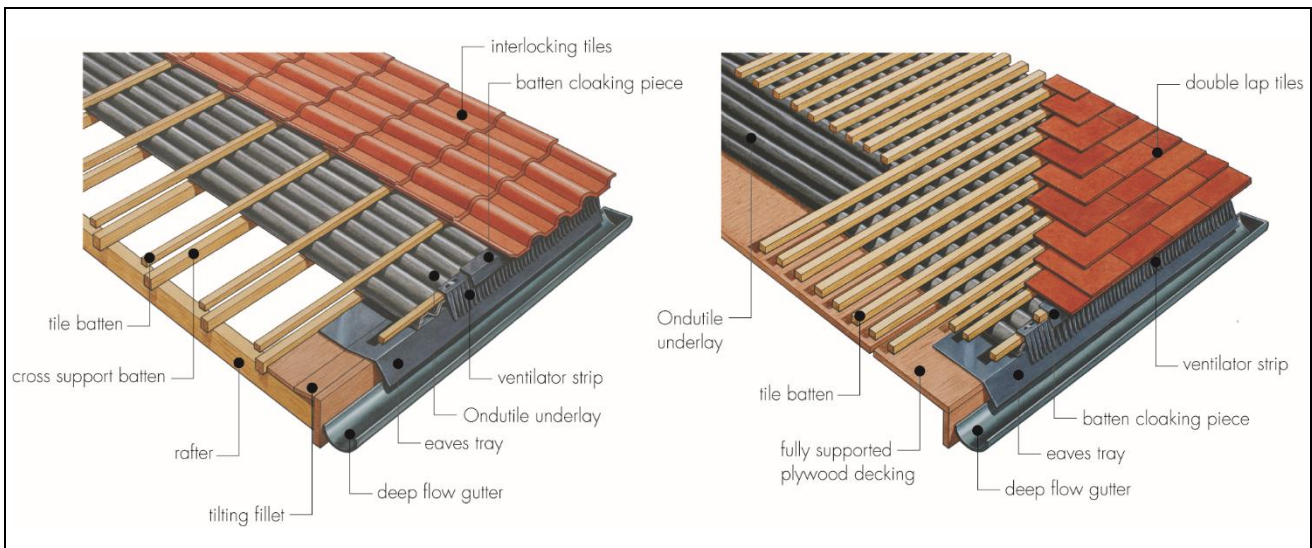
14 Procedure

14.1 Sheets are cut to size, preferably with an oiled handsaw to prevent binding. Small cuts may be made with a sharp knife.

14.2 The product is installed over the support battens or plywood decking with a vertical lap of one corrugation and each horizontal lap 200 mm.

14.3 Tile battens 38 by 25 mm are placed on top of the product directly over the underlying support battens or plywood in place, and fixed through the apex of the corrugations using 3.5 mm diameter, 85 mm long smooth shanked nails (see Figure 1). Higher specification nails must be used where wind uplift calculations dictate. Nails should enter the sheeting as close to the rafters as possible but should not come into contact with nails holding down the support batten, nor should the positioning of any two nails cause splitting of the battens.

Figure 1 Installation details



15 Eaves detail

15.1 A tilted 75 x 50 mm fillet must be attached at the eaves with 3.35 mm diameter, 100 mm long smooth shanked nails at every point of contact with the rafter and plywood support. The product is turned up slightly at the eaves to allow support for tiles at these points.

15.2 Onduline uPVC Pre-formed Eaves Tray is cut to the required length, ensuring that a 200 mm end lap is used to facilitate the passage of water over the fascia into the guttering.

15.3 A comb ventilator to prevent bird entry into the roof space can be installed if required.

15.4 Onduline Preformed Batten-cloaking Flashing is then fixed to the eaves batten to give weather protection to the batten and a neat eaves finish.

15.5 Tiles at the eave course are clipped in place in accordance with the tile manufacturer's instructions. If the tiles are to be fixed below the recommended minimum pitch, the Certificate holder must be contacted to check the structural suitability of the material and for advice on enhanced tile fixings.

16 Repair

Damaged sheets can be replaced by removing the tile battens to the damaged area, inclusive of the laps to adjoining sheets. The replacement sheets can then be laid with the correct side and end sheet laps and finally secured by laying tile battens over the new sheet, as described in section 14.

Technical Investigations

17 Tests

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

- durability
- strength
- resistance to rain penetration
- resistance to impact damage
- watertightness
- resistance to ageing
- resistance to artificial weathering
- water vapour permeability
- ash content.

18 Investigations

18.1 The BBA carried out a feasibility study to ensure that a properly designed roof would withstand the expected wind loads and uplift forces acting upon it.

18.2 A reappraisal was made of data from tests previously carried out by the BBA.

18.3 Sites in progress were visited for both types of installation (battens and boarding) to ensure that the installation procedure was practicable.

18.4 A series of tests was carried out to ensure that the product could safely withstand the dead loads expected during its life without structural failure.

18.5 Calculations relating to airborne sound transmission, wind uplift and nail pull-out resistance on a boarded system were evaluated.

18.6 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 8747 : 2007 *Reinforced bitumen sheets for roofing — Specification*

BS 1202-1 : 2002 *Specification for nails — Steel nails*

BS 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS EN 534 : 2006 + A1 : 2010 *Corrugated bitumen sheets — Product specification and test methods*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions*

BS EN 13501-1 : 2019 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.