

Onduline Building Products Ltd

Eardley House
182-184 Campden Hill Road
Kensington
London W8 7AS

Tel: 020 7727 0533 Fax: 020 7792 1390
e-mail: enquiries@onduline.net
website: www.onduline.co.uk



Agrément Certificate
87/1823
Product Sheet 1

ONDULINE BITUMINOUS CORRUGATED ROOFING MATERIALS

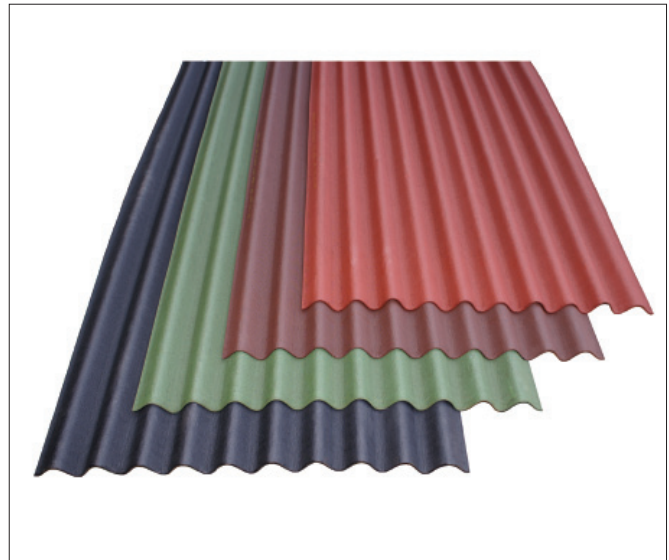
ONDULINE CLASSIC ROOFING AND CLADDING SHEETS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Onduline Classic Roofing and Cladding Sheets, bituminous cellulose fibre corrugated sheets for use on agricultural buildings as roofing on slopes with a minimum pitch of 12° and a maximum slope length of 15 m, or as cladding on similar structures.

(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 products have adequate resistance to the passage of moisture (see section 6).

Strength — the products have adequate strength to resist the loads associated with installation in either roofing or external wall cladding applications (see section 7).

Durability — under normal service conditions the products will provide a durable covering with an expected service life of 15 years (see section 9).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 12 November 2013

Originally certificated on 13 March 1987

Simon Wroe
Head of Approvals — Materials

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.

British Board of Agrément
Bucknalls Lane
Watford
Herts WD25 9BA

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tel: 01923 665300
fax: 01923 665301
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Onduline Classic Roofing and Cladding Sheets are not subject to the national Building Regulations:



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



The Building (Scotland) Regulations 2004 (as amended)



The Building Regulations (Northern Ireland) 2012

Construction (Design and Management) Regulations 2007

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

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

See sections: 1 *Description* (1.3), 8 *Maintenance* (8.1 and 8.3) and 10 *Installation* — *General* of this Certificate.

Additional Information

NHBC Standards 2013

In the opinion of the BBA, the use of Onduline Classic Roofing and Cladding Sheets, in relation to this Certificate, is not subject to the requirements of these Standards.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard 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 Onduline Classic Roofing and Cladding Sheets are manufactured from cellulose fibre in corrugated sheets. 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 characteristics:

length* (mm)	2000 (−0.15 to +0.5)
width* (mm)	950 (±1)
cover width* (mm)	855 (±5)
thickness* (mm)	3.0 (±0.2)
corrugation pitch* (mm)	95 (±2)
corrugation depth* (mm)	38 (±2)
weight of material* (kg·m ^{−2})	3.3 (±0.2)
weight per sheet* (kg)	6.4 (±0.3)
impact strength* (falling height) (mm)	>400
tearing strength*	>200 N
water impermeability*	conforms.

1.4 Onduline ridge and verge units are available for use with the sheets and are manufactured from the same material as the roofing sheet to the following dimensions:

length (mm)	1000
width (mm)	485
thickness (mm)	3.0
weight (kg)	1.2.

1.5 Galvanized steel or stainless steel nails, 70 mm long by 3.1 mm diameter, with an annular shank and moulded head, are supplied with the sheets.

2 Manufacture

2.1 The products are manufactured by a continuous phase process in which cellulose fibre pulp is pressed into sheet form, pigmented and a thermosetting resin 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 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 management system of the manufacturer, Onduline France, has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by Bureau Veritas (Certificate 1942175).

3 Delivery and site handling

3.1 The products are supplied on crated pallets of 300 sheets and must be stored flat on timber cross bearers on a concrete base or firm, level ground under a plastic 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 products are 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 products may be stored in freezing conditions, but installation should not be attempted under such circumstances.

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

3.5 Each sheet carries a factory reference mark and each pallet 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 Onduline Classic Roofing and Cladding Sheets.

Design Considerations

4 Use

4.1 Onduline Classic Roofing and Cladding Sheets, installed on a timber frame with the associated flashings and fixings, are satisfactory for use on agricultural buildings and structures in accordance with BS 5502-0 : 1992, BS 5502-11 : 1990, BS 5502-20 : 1990, BS 5502-21 : 1990, BS 5502-22 : 2003, BS 5502-23 : 2004 and BS 5427-1 : 1996.

4.2 Roofs must have a minimum pitch of 12° and a maximum slope length of 15 m.

4.3 Purlins must be spaced at 450 mm for pitches below 15° and 610 mm for pitches greater than 15°. Purlin dimensions for varying spans are shown in Table 1.

Table 1 Purlin dimensions for varying spans		
Span (m)	Purlin cross-section dimensions (mm)	
	Softwood purlins	Hardwood purlins
2.4	38 x 75	38 x 75
3.0	38 x 100	38 x 100
3.6	38 x 125	38 x 100
4.2	44 x 150	38 x 125
4.5	50 x 150	44 x 125
4.8	50 x 150	44 x 125
5.4	63 x 175	50 x 150
6.0	63 x 200	63 x 175
6.6	75 x 200	63 x 175

4.4 The sheets are suitable for use in areas where there is little possibility of impact or abrasion damage, ie at low levels in areas of restricted access, or at higher levels in other locations.

5 Practicability of installation

The products are designed to be installed by competent general building contractors experienced with these types of material.

6 Weathertightness

The sheets have satisfactory resistance to the passage of rain and snow.

7 Strength

7.1 The sheets have adequate resistance to the effects of wind suction likely to occur in service.

7.2 Each sheet weighs 6.4 kg, which is considerably less than conventional roofing materials. Roofs coverings installed using the products must therefore be securely attached to the structure to prevent wind uplift under adverse conditions. Further information can be found in the manufacturer's fixing instructions.

8 Maintenance

8.1 Maintenance and installation must be conducted using roof ladders and/or crawling boards. These must be positioned with reasonable care to avoid damaging the sheets' surface.

8.2 Provided the products are installed in accordance with the spacings defined in Table 1, they will not be distorted by maintenance work.

8.3 If access to the roof is required for some purpose other than routine maintenance of sheets a catwalk should be provided.

8.4 The roof must be cleared of leaves and any other organic matter at regular intervals.

9 Durability

9.1 The products will remain effective as a roof covering/cladding for a period in excess of 15 years provided periodic maintenance is carried out.

9.2 A uniform colour difference may develop on exposed areas, along with the appearance of lichen and algae.

9.3 Normal precautions in design are necessary to shed water clear of the surface and thus avoid the formation of drain marks.

Installation

10 General

10.1 Covering of new and existing roofs using the products must be carried out with due regard to *Health and safety in roof work* guidelines detailed in HSG33, third edition, 2008.

10.2 Installation of the sheets must be carried out in accordance with the Certificate holder's instructions and the conditions set out in this Certificate.

11 Procedure

11.1 A water vapour control layer or roof tile underlay is laid over the purlins and securely fixed to the timber structure.

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

Roofing

11.3 Sheets are laid onto the purlins, staggered, and overlapped by 200 mm for pitches below 15°, and 170 mm for pitches greater than 15°. The sides are lapped by one corrugation for normal conditions or two corrugations for exposed sites. Fixing is by nailing at every corrugation at the end purlins and at alternative corrugations for intermediate purlins, using an average of 20 nails per sheet.

11.4 An overlap of 125 mm is necessary between the roofing sheet and ridge.

Cladding

11.5 When used as cladding the sheets are overlapped by 170 mm with a side lap of one corrugation.

11.6 Side laps are laid in the opposite direction to the prevailing wind.

12 Repair

Damaged sheets can be replaced using normal installation techniques.

13 Tests

Tests were carried out 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.

14 Investigations

- 14.1 Data contained within a document from an external body were evaluated in the context of UK roofing practice.
- 14.2 A visit was made to a site in progress to assess the practicability of installation.
- 14.3 Visits were made to established sites to assess the performance in use.
- 14.4 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 5427-1 : 1996 *Code of practice for the use of profiled sheet for roof and wall claddings on buildings — Design*
- BS 5502-0 : 1992 *Buildings and structures for agriculture — Introduction*
- BS 5502-11 : 1990 *Buildings and structures for agriculture — Guide to regulations and sources of information*
- BS 5502-20 : 1990 *Buildings and structures for agriculture — Code of practice for general design considerations*
- BS 5502-21 : 1990 *Buildings and structures for agriculture — Code of practice for selection and use of construction materials*
- BS 5502-22 : 2003 *Buildings and structures for agriculture — Code of practice for design, construction and loading*
- BS 5502-23 : 2004 *Buildings and structures for agriculture — Fire precautions — Code of practice*
- BS EN 534 : 2006 *Corrugated bitumen sheets — Product specification and test methods*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

15 Conditions

15.1 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.

15.2 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.

15.3 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.

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

15.5 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.

15.6 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.