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Agrément Certificate

13/4998

Product Sheet 2

KRONOSPAN WOOD-BASED PANEL

KRONOSPAN OSB/3 FOR ROOFING

This Agrément Certificate Product Sheet⁽¹⁾ relates to Kronospan OSB/3 for Roofing, a loadbearing oriented strand panel suitable for use on roofs as lining, decking or sarking in domestic buildings.

(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

Structural performance — the product, when incorporated into a roofing structure, can contribute to structural strength and stiffness by distributing the dead and imposed loads to the supporting structure (see section 6).

Behaviour in relation to fire — the product does not achieve a reaction to fire classification of C-s2, d3 or better, and its use is restricted in some cases (see section 7).

Resistance to moisture — provided adequate precautions are taken, the product, when incorporated into a construction, should perform satisfactorily (see section 8).

Durability — the product, will have a service life equal to that of the roof in which it is incorporated (see section 11).

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 Product of Agrément

Date of Third issue: 6 May 2022

Originally certificated on 12 June 2013

Hardy Giesler
Chief Executive Officer

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 **MUST** check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

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, Kronospan OSB/3 for Roofing, 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: Comment:	A1	Loading The product has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection. See 6 of this Certificate.
Requirement: Comment:	B3(1)(3)	Internal fire spread (structure) The product can contribute to satisfying this Requirement. See sections 7.2 to 7.4 of this Certificate.
Requirement: Comment:	B3(4)	Internal fire spread (structure) The product may be restricted by this Requirement. See section 7.1 of this Certificate.
Regulation: Comment:	7(1)	Materials and workmanship The product is acceptable. See sections 11.1 and 11.2 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: Comment:	8(1)	Durability, workmanship and fitness of materials The use of the product satisfies the requirements of this Regulation. See sections 11.1 and 11.2 and the <i>Installation</i> part of this Certificate.
Regulation: Standard: Comment:	9 1.1(a)(b)	Building standards applicable to construction Structure The product has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection, in accordance with clauses 1.1.1 ⁽¹⁾ , 1.1.2 ⁽¹⁾ and 1.1.3 ⁽¹⁾ of this Standard. See section 6 of this Certificate.
Standard: Comment:	2.3	Structural protection The product can contribute to satisfying this Standard with reference to clause 2.3.1 ⁽¹⁾⁽²⁾ . See section 7.2 to 7.4 of this Certificate.
Standard: Comment:	2.4	Cavities The product is restricted by this Standard with reference to clause 2.4.2 ⁽¹⁾ . See section 7.1 of this Certificate.
Standard: Comment:	7.1(a)	Statement of sustainability The product can contribute to satisfying 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: Comment:	12	Building standards applicable to conversions All comments given for the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ .

(1) Technical Handbook (Domestic).



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

Regulation:	23(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(iv)	The product is acceptable. See sections 11.1 and 11.2 and the <i>Installation</i> part of this Certificate.
Regulation:	30	Stability
Comment:		The product has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection. See section 6 of this Certificate.
Regulation:	35(1)(3)	Internal fire spread — Structure
Comment:		The product can contribute to satisfying this Regulation. See sections 7.2 to 7.4 of this Certificate.
Regulation:	35(4)	Internal fire spread — Structure
Comment:		The product may be restricted by this Regulation. See section 7.1 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* (1.1), 3 *Delivery and site handling* (3.5) and 13 *General* of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, Kronospan OSB/3 For Roofing, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 7 *Roofs*, Chapters 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13986 : 2004.

Technical Specification

1 Description

1.1 Kronospan OSB/3 For Roofing is a loadbearing oriented strand product comprising softwood flakes/strands bonded together with MDI (methylene diphenyl diisocyanate) resin and wax. The product is manufactured in nine standard thicknesses with the dimensions given in Table 1.

Thickness (mm)	Density (kg·m ⁻³)	Panel size (mm)
11	610	2440 x 1220
12		
14	580	
15		
16		
18	570	
22		
25		
32	550	

1.2 The product is available with square or tongue-and-groove edges.

2 Manufacture

2.1 The product is manufactured to the specification detailed in BS EN 300 : 2006 for OSB/3 loadbearing oriented strand products. Timber logs, to the Certificate holder's specification, are debarked and cut to length before passing through a flaking machine. After drying and screening to remove fines, the strands/flakes are blended with MDI resin and wax and formed into a three-ply mat, which is pressed and cured under pressure and temperature, and cut to size.

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 has been assessed and registered as meeting the requirements of BS EN ISO 9001: 2015 by BM TRADA (Certificate 2238, Issue number: 2022-01).

3 Delivery and site handling

3.1 Handling, storage and delivery of the product should be carried out in accordance with the requirements of PD CEN/ TR 12872 : 2014 and BS 8103-3 : 2009, and *NHBC Standards 2022* where required.

3.2 To prevent distortion, panels should be stacked flat with all four edges flush or clear of the floor on level bearers at centres not exceeding 600 mm. The stack of panels must be kept in an enclosed dry area or under a waterproof cover, with the edges protected to prevent warping.

3.3 The product should be stored in a dry environment.

3.4 Each panel is marked in accordance with the requirements of BS EN 13986 : 2004 and with the BBA logo incorporating the number of this Certificate.

3.5 For delivery, panels are banded together in bundles up to 1.7 tonnes in weight and 900 mm in height. The panels are covered in transit to minimise changes in moisture content. Particular care should be taken to protect the edges and corners. Banding should be cut on arrival at site but protective covering should not be removed until the panels are ready for conditioning (see section 8.4).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Kronospan OSB/3 for Roofing.

Design Considerations

4 General

4.1 Kronospan OSB/3 for Roofing is satisfactory for use as decking on pitched roofs up to 70 degree or on flat roofs and can also be used as a pitched roof sarking for tiles or slates as defined in PD CEN/TR 12872 : 2014, BS 8103-3 : 2009 and BS 6229 : 2018, in domestic buildings.

4.2 Roof structures incorporating the product must be designed to resist the load requirements specified in BS EN 1991-1-1 : 2002 and BS EN 1991-1-4 : 2005.

4.3 Design and installation of the product should be in accordance with BS EN 1995-1-1 : 2004 and PD CEN/TR 12872 : 2014 or BS 8103-3 : 2009, and with *NHBC Standards 2022* where required. Characteristic values for structural design may be taken from BS EN 12369-1 : 2001. During installation, the products should be protected from the weather and should be dry when the weatherproofing membrane is applied.

4.4 In accordance with BS EN 300 : 2006, the product is satisfactory for use in environmental conditions covered by Biological Hazard Classes 1 and 2 for wood and wood-based products, as defined in BS EN 335 : 2013. In such environments, the product is covered and fully protected from the elements. As a general rule, it is recommended that the moisture content of the product at the time of installation should not exceed 12% in accordance with BS 8103-3 : 2009. Prolonged exposure to an air temperature of 20°C and a relative humidity of 90% may result in the recommended moisture content being exceeded.

4.5 The design thermal conductivity (λ value) of OSB, given in BS EN 12524 : 2000, is $0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and as such will not have a significant effect on the thermal transmittance (U value) of the roof construction into which it is incorporated.

4.6 The permissible thickness of product is dependent upon application and support centres, as defined in BS 8103-3 : 2009.

4.7 Roof timbers on which the product is supported should be designed and used in accordance with BS EN 1995-1-1 : 2004 and/or the relevant national Building Regulations. Roof voids should be ventilated in accordance with BS 5250 : 2021.

4.8 On a flat roof, decking constructed from the product provides a suitable substrate for waterproofing specifications of:

- built-up felt roofing to BS 8217 : 2005
- mastic asphalt roofing to BS 8218 : 1998
- other built-up roof waterproofing systems covered by a current BBA Agrément Certificate, when laid in accordance with that Certificate.

5 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Structural performance



6.1 For buildings within the scope of BS 8103-3 : 2009 (low-rise buildings), OSB/3 flat roof decks should be designed with minimal product thickness and maximum support centres as outlined in BS 8103-3 : 2009 Table 81, an extract of which can be seen in Table 2 of this Certificate. Other thicknesses may be appropriate where supported by a performance test from a UKAS-accredited laboratory or from a

mutually recognised accreditation scheme or calculation by a suitably qualified and experienced individual.

Table 2 Maximum recommended centres of support of OSB in flat roof decking⁽¹⁾⁽²⁾⁽³⁾

Application	Minimum product thickness (mm)	Maximum centre of support members (mm)
Roofs of small garages and similar buildings (without access other than for maintenance and repair)	11	400
	15	600
	18	600
Roofs over habitable areas, with access (in addition to that provided for maintenance and repair)	15	450
	18	600
	22	600
Roofs over habitable areas, where no access (other than that necessary for maintenance and repair) is provided	11	450
	15	600
	18	600
	22	600

(1) Although the imposed load associated with the applications highlighted in rows 1 and 3 are similar, the thicknesses quoted for garages and outbuildings provide adequate construction in these lower-risk situations.

(2) The recommendations in this Table are made on the assumption that the roof is constructed in accordance with accepted design principles for weather resistance and control of condensation within the roof. If the roof construction necessitates the provision of ventilation, the design can create an unrestricted crossflow of air through the structure.

(3) Other thicknesses or spans might be appropriate where supported by performance test or calculated design.

6.2 Panels of 22 mm thickness can withstand the concentrated and impact loads in accordance with the requirements of BS EN 12871 : 2013 and are suitable for flat roof applications in category H as defined in BS EN 1991-1-1 : 2002.

7 Behaviour in relation to fire



7.1 The product does not achieve a reaction to fire classification of C-s2, d3 or better.

7.2 The fire resistance of roof constructions incorporating the products may be calculated with reference to BS EN 1995-1-2 : 2004 and its UK National Annex or, where necessary, the fire resistance should be confirmed by an appropriate test or assessments by a suitably accredited laboratory.

7.3 A roof's resistance to external fire exposure will depend significantly on the roof covering and can also be affected by other components of the roof, eg insulation materials, substrates/decking and membranes. These constructions should therefore be evaluated by reference to the requirements of the documents supporting the relevant national Building Regulations and any consequent restrictions imposed by those documents, on a case-by-case basis. In the absence of a rating, the construction should not be used within 20 metres of a boundary (24 metres in Scotland).

7.4 Where the product is to be carried over compartment walls, designers must ensure that the roof/wall junction detail provides sufficient resistance to fire penetrating into the neighbouring compartment.

8 Resistance to moisture

8.1 In common with all timber products, OSB is subject to moisture movement. As a guide, it may be assumed that a 1% change in product moisture content will cause a dimensional change in product length by 0.2 mm per meter run, product width by 0.3 mm per meter run and product thickness by 0.5% .

8.2 Under similar environmental conditions, OSB will take longer to equilibrate and will attain an equilibrium moisture content approximately 2% to 3% lower than solid timber.

8.3 To avoid distortion and damage to finishes, expansion gaps in accordance with the recommendations of PD CEN/TR 12872 : 2014 or BS 8103-3 : 2009, and with *NHBC Standards 2022* where required, should be provided when installing the product.

8.4 To minimise subsequent movement, before installation the products should be conditioned as close as is practicable to the environmental conditions likely to occur in service. To achieve this, the maximum moisture content of the product at the time of installation or fixing, as determined using a properly calibrated moisture meter, should be as given in BS 8103-3 : 2009, Annex A, Table A.1 (ie 12% for flat roof decking and sarking for pitched roofs).

8.5 In a roof construction, in calculations for interstitial condensation risk according to BS 5250 : 2021, the water vapour resistance factor (μ) of OSB can be taken as 30 (wet cup) or 50 (dry cup) from BS EN ISO 10456 : 2007, Table 3, depending on the construction, or as determined by testing in accordance with BS EN ISO 12572 : 2016.

8.6 In conventional construction of timber flat roof decking, a vapour control layer must be provided in cold roof designs to prevent damage to the structure owing to the passage of moisture (vapour) from the interior of the building in accordance with BS 5250 : 2021.

9 Formaldehyde content

In common with other wood-based products, which include formaldehyde as a component of the resin, the product may emit small amounts of formaldehyde gas. The product achieves Class E1, Release of formaldehyde specification to BS EN 300 : 2006. Therefore, when the product is used in accordance with this Certificate, the quantity of formaldehyde gas emitted from the product alone will not raise the overall building level to an extent which will affect habitability.

10 Maintenance

As the product has suitable durability (see section 11), will normally be confined within the building structure and, in most cases, will be covered with finishes, maintenance is not required.

11 Durability



11.1 The product has adequate durability and will have a service life equal to that of the roof in which it is incorporated.

11.2 Care should be taken when designing, detailing and constructing buildings to ensure that moisture does not accumulate within the panel.

11.3 Under normal conditions of use the product is unlikely to suffer damage, but if damage does occur, repairs can be carried out in accordance with the Certificate holder's instructions.

12 Reuse and recyclability

As a wood-based material, the product can be recycled.

Installation

13 General

13.1 The product is easily cut and fixed using conventional woodworking tools. Normal precautions should be taken to avoid inhalation of wood dust when cutting, drilling and sanding the product.

13.2 The product can withstand normal site handling and fixing. Damaged product should not be used. Normal safety precautions should be observed when handling large products.

14 Procedure

14.1 Installation of the product must be carried out using conventional methods in accordance with PD CEN/TR 12872 : 2014 or BS 8103-3 : 2009, the Certificate holder's recommendations and *NHBC Standards 2022* where required.

14.2 Exposure to the elements should be minimised during installation. If wetted, the product must be allowed to dry out thoroughly before applying any coverings or subjecting them to the full design load.

15 Tests

Tests were carried out to determine the product's material characteristics in accordance with the requirements of BS EN 300 : 2006 for OSB/3.

16 Investigations

16.1 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.

16.2 An assessment was made of the product's durability and behaviour in relation to moisture.

Bibliography

- BS 5250 : 2021 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*
- BS 8103-3 : 2009 *Structural design of low-rise buildings — Code of practice for timber floors and roofs for housing*
- BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*
- BS 8218 : 1998 *Code of practice for mastic asphalt roofing*
- BS EN 300 : 2006 *Oriented Strand Products (OSB) — Definitions, classification and specifications*
- BS EN 335 : 2013 *Durability of wood and wood-based products — Use classes: definitions, application to solid wood and wood-based products*
- BS EN 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions— Densities, self-weight, imposed loads for buildings.*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1: Actions on structures — Part 1-4: General actions — Wind actions*
- BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
- BS EN 1995-1-2 : 2004 *Eurocode 5 : Design of timber structures — General — Structural fire design*
- BS EN 12369-1 : 2001 *Wood-based panels — Characteristic values for structural design : OSB, particleproducts and fibreproducts*
- BS EN 12524 : 2000 *Building materials and products — Hygrothermal properties — Tabulated design values*
- BS EN 12871 : 2013 *Wood-based panels. Determination of performance characteristics for load bearing panels for use in floors, roofs and walls*
- BS EN 13986 : 2004 + A1 : 2015 *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*
- BS EN ISO 12572 : 2016 *Hygrothermal performance of building materials and products — Determination of water vapour transmission properties*
- PD CEN/TR 12872 : 2014 *Wood-based panels — Guidance on the use of load-bearing products in floors, walls and roofs*

16 Conditions

16.1 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.

16.2 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.

16.3 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.

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

16.5 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.

16.6 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.