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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
18/5480
Product Sheet 3

KRONOSPAN WOOD-BASED PANEL

KRONOSPAN OSB/3 FOR SHEATHING

This Agrément Certificate Product Sheet(1) relates to Kronospan OSB/3 for Sheathing, a loadbearing oriented strand panel suitable for use as sheathing in timber-frame 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 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's surface spread-of-flame rating and reaction-to-fire classification have been determined (see section 7).

Resistance to moisture — the product will have adequate moisture resistance (see section 8).

Durability — the product will have a life equal to that of the wall in which it is installed (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 Board of Agrément

Date of First issue: 26 April 2018

Paul Valentine
Technical Excellence Director

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.

Regulations

In the opinion of the BBA, Kronospan OSB/3 for Sheathing, 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:	A1	Loading
Comment:		The product has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection. See sections 4.1 and 6 of this Certificate.
Requirement:	B3	Internal fire spread (structure)
Comment:		The product can contribute to satisfying this Requirement. See section 7 of this Certificate.
Requirement:	C2(b)(c)	Resistance to moisture
Comment:		The product can be incorporated into a roof structure suitably designed to prevent excessive interstitial and surface condensation. See section 4.1 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The use of the product satisfies the requirements of this Regulation. See section 11 and the *Installation* part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		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)(2)], 1.1.2[(1)(2)] and 1.1.3[(1)(2)] of this Standard. See sections 4.1 and 6 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Standard:	2.3	Structural protection
Standard:	2.9	Escape
Comment:		The product can contribute to meeting regulatory requirements, with reference to clauses 2.1.1[(2)], 2.1.12[(2)], 2.2.1[(1)(2)], 2.2.2[(1)(2)], 2.2.3[(1)(2)], 2.2.4[(1)(2)], 2.2.5[(2)], 2.2.6[(1)], 2.2.8[(1)] and 2.3.2[(1)(2)] of these Standards. See section 7 of this Certificate.
Standard:	2.4	Cavities
Comment:		Cavity barriers must be provided in accordance with regulatory requirements with reference to Annex 2C, clause 2, C.1, and clauses 2.4.1[(1)(2)] and 2.4.2[(1)(2)] of this Standard. See section 7 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can be incorporated into a roof structure suitably designed to prevent excessive condensation with reference to clause 3.15.3[(1)], 3.15.6[(1)] and 3.15.7[(1)] of this Standard. See section 4.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		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:	12	Building standards applicable to conversions
Comment:		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)(2)] and Schedule 6[(1)(2)].

(1) Technical Handbook (Domestic).

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

Regulation:	23(a)(i)(iii)(b)	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	29	Condensation
Comment:		The product can be incorporated into a roof structure, suitably designed to prevent harmful effects owing to interstitial condensation. See section 4.1 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 sections 4.1 and 6 of this Certificate.
Regulation:	35	Internal fire spread – Structure
Comment:		The product can contribute to satisfying regulatory requirements. See section 7 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: 3 *Delivery and site handling* (3.5) and 12 *General* of this Certificate.

Additional Information

NHBC Standards 2018

In the opinion of the BBA, Kronospan OSB/3 for Sheathing, 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 6.2 *External timber-framed walls* and Chapter 6.3 *Internal walls*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 13986 : 2004. 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 Kronospan OSB/3 for Sheathing is a loadbearing oriented strand panel comprising softwood flakes/strands bonded together with MDI (methylene diphenyl diisocyanate) resin and wax. The product is manufactured in 13 standard thicknesses with the dimensions given in Table 1.

Table 1 Board dimensions

Thickness (mm)	Density ($kg \cdot m^{-3}$)	Panel size (mm)
6	610	2440 x 1220
8		
9		
10		
11		
12		
14		
15	580	
16		
18		
22	570	
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 boards. 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 SIA Kronospan Riga has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and by Bureau Veritas (Certificate LVRIG03115A).

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.

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 boards 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 Sheathing.

Design Considerations

4 Use

4.1 Kronospan OSB/3 for Sheathing is satisfactory for use as structural sheathing in timber-frame buildings.

4.2 Fabrication and installation of sheathing panels, including the provision of moisture movement gaps, must be in accordance with PD CEN/TR 12872 : 2014 and BS EN 1995-1-1 : 2004. Exposure to the elements should be minimised during installation.

4.3 The timber structures in which the product is incorporated must be designed and constructed to comply with BS EN 1995-1-1 : 2004.

4.4 In accordance with BS EN 300 : 2006, Kronospan OSB/3 for Sheathing 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 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 $W \cdot m^{-1} \cdot K^{-1}$ and as such will not have a significant effect on the thermal transmittance (U value) of the wall construction.

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 The safe racking resistance of a timber-frame wall incorporating OSB sheathing nailed to studding should be determined by test according to BS EN 594 : 2011 in accordance with the guidance given in BS EN 1995-1-1 : 2004, by a suitably experienced and qualified individual, based upon the vertical design load on the wall and the nail spacing and nail characteristics used to attach the sheathing.

6.2 As a guide, when calculated in accordance with BS EN 1995-1-1 : 2004, Method B, the basic racking resistance of a timber-frame wall(1) without vertical loading and with 9 mm thick sheathing fixed with nails(2) at 100 mm spacing is 3.62 $kN \cdot m^{-1}$, and at 150 mm spacing is 2.77 $kN \cdot m^{-1}$.

(1) Studs: timber grade C16, minimum size 38 by 75 mm and spaced at a maximum of 600 mm.

(2) Nails: minimum diameter 3.1 mm, minimum length 50 mm and ultimate tensile strength 700 $N \cdot mm^{-2}$.

7 Behaviour in relation to fire

Where the product is incorporated in a wall construction which is subject to fire resistance requirements, an appropriate assessment or test must be carried out by a UKAS-accredited laboratory.

8 Resistance to moisture

8.1 In common with all timber products, OSB is subject to moisture movement. As a guide, an increase in moisture content of 1% increases the length and width of a panel by 0.3 mm per metre.

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, movement gaps, in accordance with the recommendations of PD CEN/TR 12872 : 2014, should be provided when installing the product.

8.4 To minimise subsequent movement, all wet site operations should be completed before installation and the panel conditioned for a minimum of 48 hours as close as is practicable to the environmental conditions likely to occur in service.

8.5 Damp-proof membranes and vapour control layers should be incorporated as necessary in accordance with the requirements of BS 8103-3 : 2009 and BS 5250 : 2011.

8.6 In a wall construction, in calculations for interstitial condensation according to BS 5250 : 2011, the water vapour resistance factor (μ) of OSB can be taken as 50 (dry cup) from BS EN ISO 10456 : 2007, Table 3.

8.7 Where required, the product should be treated as a conventional sheathing panel with regard to detailing and damp-proofing at openings, eaves and sole plate, and the fixing of wall ties. Walls must have an effective vapour control layer on the warm side, suitable weather protection on the outside, a vented cavity and membrane in accordance with BS 5250 : 2011.

8.8 The outer weatherproofing should have adequate resistance to wind-driven rain, particularly in regions classified as severe exposure.

9 Formaldehyde content

In common with other wood-based panels, which include formaldehyde as a component of the resin, the product may emit small amounts of formaldehyde gas. The extractable formaldehyde content is not greater than 8.0 mg per 100 g when measured in accordance with BS EN 120 : 1992. This complies with the lower Class E1 formaldehyde specification included in BS EN 300 : 2006. Therefore, in the context of this Certificate, the quantity of formaldehyde gas emitted from the panel 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 will have adequate durability and should have a life equal to that of the wall structure in which it is installed.

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

Installation

12 General

12.1 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 panels.

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

13 Procedure

Installation of Kronospan OSB/3 for Sheathing should be in accordance with PD CEN/TR 12872 : 2014 or BS 8103-3 : 2009 and the manufacturer's recommendations.

Technical Investigations

14 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
- hard body impact resistance in accordance with BS EN 1128 : 1996.

15 Investigations

15.1 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.

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

15.3 The racking resistance of Kronospan OSB/3 for Sheathing has been assessed as equivalent to that of a standard OSB (Type F2), as detailed in BS 5268-6 : 1996, Table 2.

Bibliography

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

BS 5268-6.1 : 1996 *Structural use of timber — Code of practice for timber frame walls — Dwellings not exceeding seven storeys*

BS 8103-3 : 2009 *Structural design of low-rise buildings — Code of practice for timber floors and roofs for housing*

BS EN 120 : 1992 *Wood-based panels — Determination of formaldehyde content — Extraction method called the perforator method*

BS EN 300 : 2006 *Oriented Strand Boards (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 594 : 2011 *Timber structures — Test methods — Racking strength and stiffness of timber frame wall panels*

BS EN 1128 : 1996 *Cement-bonded particleboards — Determination of hard body impact resistance*

BS EN 1995-1-1 : 2004 + A1 : 2008 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*

BS EN 12524 : 2000 *Building materials and products — Hygrothermal properties — Tabulated design values*

BS EN 13986 : 2004 + A1 : 2008 *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*

BS EN ISO 9001 : 2008 *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*

PD CEN/TR 12872 : 2014 *Wood-based panels — Guidance on the use of load-bearing boards 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.

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