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Agrément Certificate

01/3857

Product Sheet 4

NORBORD STERLING OSB

STERLING OSB Zero OSB /3 FOR FLOORING

This Agrément Certificate Product Sheet⁽¹⁾ relates to Sterling OSB Zero OSB/3 for Flooring, a loadbearing oriented strand board for use as flooring in domestic and non-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 board, when incorporated into a floor 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 board does not achieve a reaction to fire classification of C_{FL} or better, and its use is restricted in some cases (see section 7).

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

Durability — the product, will have a service life equal to that of the floor in which they are 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 Board of Agrément

Date of First issue: 3 August 2022

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, Sterling OSB Zero OSB/3 for Flooring, 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 board has sufficient strength and stiffness to sustain and transmit design loads to the primary structure without excessive deflection. See section 6 of this Certificate.
Requirement:	B3(1)(3)	Internal fire spread (structure)
Comment:		The board can contribute to satisfying this Requirement. See section 7.2 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The board may be restricted by this Requirement. See section 7.1 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The board 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:	8(1)	Durability, workmanship and fitness of materials
Comment:		The use of the board satisfies the requirements of this Regulation. See section 11.1 and 11.2 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The board 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 section 6 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Standard:	2.3	Structural protection
Comment:		The board can contribute to satisfying regulatory requirements in accordance with clauses 2.1.1 ⁽²⁾ , 2.1.12 ⁽²⁾ , 2.2.1 ⁽¹⁾⁽²⁾ , 2.2.4 ⁽²⁾ , 2.2.5 ⁽²⁾ , 2.2.6 ⁽¹⁾ , 2.2.7 ⁽¹⁾ , 2.2.8 ⁽¹⁾ and 2.3.2 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.2 of this Certificate.
Standard:	2.4	Cavities
Comment:		The board is restricted by this Standard with reference to Clause 2.4.2 ⁽¹⁾⁽²⁾ . See sections 7.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The board 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 - Conversions
Comment:		All comments given for the board 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⁾ .



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

Regulation:	23(a)(i)(iii)(iv)	Fitness of materials and workmanship
Comment:		The board is acceptable. See sections 11.1 and 11.2 and the <i>Installation</i> part of this Certificate.
Regulation:	30	Stability
Comment:		The board 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 board can contribute to satisfying this Regulation. See section 7.2 of this Certificate.
Regulation:	35(4)	Internal fire spread — Structure
Comment:		The board 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* (1.2), 3 *Delivery and site handling* (3.2) and 12 *General* of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, Sterling OSB Zero OSB/3 for Flooring, 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 5.2 *Suspended ground floors*, 6.4 Timber and concrete upper floors, and 9.3 Floor finishes.

CE marking

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

1 Description

1.1 Sterling OSB Zero OSB/3 for Flooring comprises softwood flakes/strands bonded together with pMDI (poly methylene diphenyldiisocyanate) resin/binder and wax.

1.2 The board is available with the following panel sizes and characteristics:

Thickness (mm)	15, 18 and 22
Width (mm) x length (mm)	1200 x 2400, 1220 x 2440, 1200x2700
Mean density within the board ($\text{kg} \cdot \text{m}^{-3}$)	≤ 600
Edge	square or tongue-and-groove
Finish	sanded or unsanded.

2 Manufacture

2.1 The board is manufactured to the specification detailed in BS EN 300 : 2006 for OSB/3, relating to loadbearing oriented strand boards used in humid conditions.

2.2 Logs, to the Certificate holder's specification, are debarked and cut to length before passing through a waferiser machine. After drying and screening to remove fines, the strands/flakes are blended with resins, binder and wax and formed into a three-ply mat. In the outer two layers the strands/flakes (and woodgrain) are bound with resin and oriented in the direction of the major axis; in the core layer, the strands are bound with a binder and oriented in the direction of the minor axis. The board is formed by curing the mat under pressure and temperature and cutting to size.

2.3 Quality control includes checks on raw materials and on the finished product, in accordance with the requirements of BS EN 300 : 2006, for appearance, dimensions, moisture resistance and content, swelling, strength and elasticity.

2.4 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.

2.5 The management system of Norbord Europe Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by British Standards Institute (Registration No Q05688).

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, BS 8103-3 : 2009, and *NHBC standards* 2022 where required.

3.2 To prevent distortion, boards should be stacked flat and clear of the floor, on level bearers, at centres not exceeding 600 mm. The top board should be covered to prevent warping.

3.3 The boards should be stored in a dry environment.

3.4 Each board bears the legends 'Sterling OSB Zero OSB/3', and the production reference, board size, thickness and the BBA logo incorporating the number of this Certificate. The bundles of tongue-and-groove boards are protected with OSB edge protectors and cardboard, and bundles of some sizes of square edge boards are covered with cardboard.

3.5 For delivery, boards are banded together in bundles up to 1.7 tonnes in weight and 900 mm in height. They are covered in transit to minimise changes in moisture content. When handling, particular care should be taken to protect the edges and corners. Banding should be cut on arrival at site, but protective coverings should not be removed until the boards 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 Sterling OSB Zero OSB/3 for Flooring.

Design Considerations

4 General

4.1 Sterling OSB Zero OSB/3 for Flooring is satisfactory for use as domestic or non-domestic flooring as specified for OSB/3 in PD CEN/TR 12872 : 2014 or BS 8103-3 : 2009. The product may be continuously supported or suspended over joists or battens.

4.2 Floor structures incorporating the boards must be designed to resist the load requirements specified in BS EN 1991-1-1 : 2002.

4.3 The boards are suitable for use in service classes 2 (humid conditions) of BS EN 1995-1-1 : 2004. This is characterised by a moisture content in the material corresponding to a temperature of 20°C and a relative humidity of the surrounding air only exceeding 85% for a few weeks per year.

4.4 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. During installation, the board should be protected from the weather and should be completely dry when any floor finish is applied.

4.5 In accordance with BS EN 300: 2006, the product is satisfactory for use in environmental conditions covered by Use Classes 1 and 2 for wood and wood-based products, as defined in BS EN 335 : 2013. In such environments, the board 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 at the time of installation. Prolonged exposure to an air temperature of 20°C and a relative humidity of 90% may result in the recommended moisture content being exceeded.

4.6 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 floor constructions into which it is incorporated.

4.7 In suspended timber floor applications:

- the boards must have a minimum thickness of 15 mm (in domestic applications) and 18 mm (in non-domestic applications)
- timber support work must be designed and used in accordance with BS EN 1995-1-1 : 2004 and/or the relevant national Building Regulations
- ventilation underneath ground floors must be provided in accordance with BS 5250 : 2011. The ground beneath the floor should be free of topsoil and vegetation matter and be covered to resist moisture and prevent plant growth.

4.8 The product will provide a suitable substrate for loose-laid floor coverings or those bonded with solvent or water-based adhesives. Resilient floor coverings such as cork, linoleum, rubber or vinyl should be laid in accordance with BS 8203: 2017.

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 domestic loading for buildings within the scope of BS 8103-3 : 2009 (low-rise buildings), Sterling OSB Zero OSB/3 floor decks should be designed with a minimum board thickness of 15 mm joist spacing up to 450 mm, and 18 mm for joist spacing up to 600 mm, for domestic loading.

6.2 For floor applications not covered by BS 8103-3 : 2009, designers need to ensure that the selected board will meet the load requirements specified in BS EN 1991-1-1 : 2002. Characteristic values for structural design using Sterling OSB Zero OSB/3 may be taken from BS EN 12369-1 : 2001 and used in accordance with BS EN 1995-1-1 : 2004.

7 Behaviour in relation to fire



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

7.2 The fire resistance of floor constructions incorporating the boards 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 tests or assessments by a suitably accredited laboratory.

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 board moisture content will cause a dimensional change in board length by 0.2 mm per meter run, board width by 0.3 mm per meter run and board 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 board.

8.4 To minimise subsequent movement, before installation all wet site operations should be completed and the boards conditioned as close as is practicable to the environmental conditions likely to occur in service. To achieve this, the maximum moisture content of the boards 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%). When quality of finish is of prime importance, the boards should be laid at a moisture content within the range likely to be encountered in service and after the initial drying-out period is complete. For timber flooring, the range of moisture content at the time of laying depends mainly on the type and intensity of heating to be employed in the building. Guidance provided in BS 8103-3 : 2009, Annex A, Table A.1 (footnote), indicates that, under normal circumstances, moisture content ranges encountered for various heating conditions are:

unheated:	15 % to 19 %
intermittent heating:	10 % to 14 %
continuous heating:	9 % to 11 %
underfloor heating:	6 % to 8 %

8.5 Laying of the flooring at a higher moisture content and earlier in the building process can result in shrinkage gaps.

8.6 Damp-proof membranes, breather membranes and vapour control layers should be incorporated as necessary in accordance with the requirements of BS 8103-3 : 2009 and BS 5250 : 2011, and *NHBC standards* 2022 where required.

8.7 In a floor construction, in calculations for interstitial condensation risk according to BS 5250: 2011, the water vapour resistance factor (μ) of OSB can be taken as 50 (dry cup) and 30 (wet cup) from BS EN ISO 10456 : 2007, Table 3 depending on the construction, or determined by testing in accordance with BS EN ISO 12572 : 2016.

8.8 When used in high risk areas, such as kitchens and bathrooms, the product must be protected from wetting, eg by providing a continuous waterproof covering, turned up and sealed at junctions with walls and where services pass through the floor.

9 Formaldehyde content

In common with other wood-based panels which include formaldehyde as a component of the resin, the board may emit small amounts of formaldehyde gas. The boards achieve Class E1, Release of formaldehyde specification to BS EN 300 : 2006. Therefore, when the board is used in accordance with this Certificate, the quantity of formaldehyde gas emitted from the boards 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 service life equal to that of the floor 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 product.

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 wood-based materials, the products can be recycled.

Installation

13 General

13.1 Sterling OSB Zero OSB/3 for Flooring can be cut and fixed using conventional woodworking tools. Normal precautions should be taken to avoid inhalation of wood dust when cutting, drilling and sanding the boards.

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

14 Procedure

14.1 Installation of the product should be 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 The boards should be completely dry and laid after all wet site operations have been completed.

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

15 Tests

Tests were carried out and the results assessed to determine 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 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

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

BS 8203 : 2017 *Code of practice for installation of resilient floor coverings*

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

BS EN 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions— Densities, self-weight, imposed loads for buildings*

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, particleboards and fibreboards*

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

BS EN 13986 : 2004+ A1: 2015 *Wood-based panels for use in construction — Characteristics, evaluation of conformity and marking*

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 boards in floors, walls and roofs*

ISO 9001 : 2015 *Quality management systems — Requirements*

17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.