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Agrément Certificate
01/3857
Product Sheet 6

NORBORD STERLING OSB

STERLING OSB Zero OSB/3 FOR SHEATHING

This Agrément Certificate Product Sheet(1) relates to Sterling OSB/3 for Sheathing, a loadbearing oriented strand board for use as sheathing on timber-frame walls of 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 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 board 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 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 structure 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 Board of Agrément

Date of First issue: 3 August 2022

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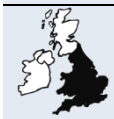
Regulations

In the opinion of the BBA, Sterling OSB Zero 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 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**
		The board is acceptable. See sections 11.1 and 11.2 and the *Installation* part of this Certificate.
Regulation:	**7 (2)**	**Materials and workmanship**
Comment:		The board is restricted by this Regulation. See sections 7.1 to 7.3 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 sections 11.1 and 11.2 and the *Installation* 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). 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 section 7.1 of this Certificate.

Standard: Comment:	2.6	Spread to neighbouring buildings The board is restricted by this Standard with reference to Clauses 2.6.5(1) and 2.6.6(2). See sections 7.1 and 7.3 of this Certificate.
Standard: Comment:	7.1(a)	Statement of sustainability 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: Comment:	**12**	**Building standards applicable to conversions** All comments given for this 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).

(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).

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

Regulation:	**23(a)(i) (iii)b(i)**	**Fitness of materials and workmanship**
Comment:		The board is acceptable. See sections 11.1 and 11.2 and the *Installation* part of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The board can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation: Comment:	**35 (1)(3)**	**Internal fire spread — Structure** The board can contribute to satisfying this Regulation. See section 7.2 of this Certificate.
Regulation: Comment:	**35(4)**	**Internal fire spread – Structure** 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 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*, Part 6 *Substructures (excluding roofs)*, Chapters 6.2 *External timber-framed walls* and 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.

Technical Specification

1 Description

1.1 Sterling OSB Zero OSB/3 for Sheathing 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)	9, 11
Width (mm) x length (mm)	1200 x 2400, 1220 x 2440, 1200 x 2700
Mean density within the board (kg· 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/3 for Sheathing.

Design Considerations

4 General

4.1 Sterling OSB Zero OSB/3 for Sheathing is satisfactory for use as structural sheathing in timber frame walls buildings.

4.2 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 exceeding 85% for only a few weeks per year.

4.3 Fabrication and installation of sheathing boards, including the provision of expansion 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.

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

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. 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 $W \cdot m^{-1} \cdot K^{-1}$ and as such will not have a significant effect on the thermal transmittance (U value) of the wall constructions into which it is incorporated.

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 design racking resistance of a timber-frame wall incorporating OSB 3 sheathing nailed to studding should be determined by test according to BS EN 594 : 2011 or calculated in accordance with the guidance given in BS EN 1995-1-1 : 2004 and its UK National Annex, by a suitably qualified and experienced 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, the racking resistance of a timber-frame wall without vertical loading and with sheathing fixed with nails is given in Table 1.

Table 1 Racking resistance of timber-frame wall(1)

Thickness of sheathing (mm)	Nail(2) spacing (mm)	Design Racking resistance ($kN \cdot m^{-1}$)
9	100	3.62
9	150	2.77
11	100	3.78
11	150	2.90

(1) Studs: timber grade C16, minimum size 38 mm 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

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

7.2 The fire resistance of wall constructions incorporating the boards may be calculated with reference 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.

7.3 In England and Wales the product should not be used on external walls of buildings that have a storey at least 18 m above ground level and contain: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.

7.4 In Scotland the product may be used more than 1 m from a boundary. The product should not be used on external walls of domestic buildings with a floor more than 18 m above the ground. Additional restrictions apply for separating elements.

7.5 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for fire resistance, cavity barriers, service penetrations and combustibility limitations for other materials and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation and cladding.

7.6 Where the product is incorporated in a wall construction where fire resistance is required by the documents supporting the national Building Regulations, the fire resistance should be confirmed by 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 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 : 20014 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 board at the time of installation or fixing, as determined using a properly calibrated moisture meter, should be close to the service class equilibrium moisture content (emc) values given in PD CEN/TR 12872 : 2014, Table 1, an extract of which is reproduced in Table 2 of this Certificate.

Table 2 Equilibrium moisture content and conditions of use

Service class	Approximate equilibrium moisture content (emc)	Conditions of use
1	4% ≤ emc ≤ 11%	dry installations, no risk of wetting in service
2	11% ≤ emc ≤ 17%	risk of wetting during installation and risk of occasional wetting in service
3	emc > 17%	risk of regular wetting in service

8.5 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.

8.6 In a wall construction, in calculations for interstitial condensation risk according to BS 5250 : 2011, 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 determined by testing in accordance with BS EN ISO 12572:2016.

8.7 In accordance with normal good practice for wood-based sheathing materials used in cold frame construction, external walls in which the product is incorporated must include an effective vapour control layer on the room side, suitable weather protection on the outside surface, a ventilated cavity and damp-proof courses. The product should be treated as conventional plywood sheathing with regard to detailing at openings, eaves and sole plate, the fixing of wall ties and breather membranes, and the effect of openings on racking strength.

8.8 The moisture content of sheathing material is affected by the humidity conditions existing in the cavity of which it forms one face. The cavity should be of conventional construction for timber framed buildings, freely drained and ventilated. The outer masonry leaf should have adequate resistance to wind-driven rain, particularly in regions classified as severe exposure. Raked mortar joints or high-porosity masonry should be avoided, particularly in these latter areas.

8.9 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 boards 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 has adequate durability and will have a service life equal to that of the structure 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 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 Sheathing 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 boards 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

Installation of the product should be in accordance with PD CEN/TR 12872 : 20014 or BS 8103-3 : 2009, and the Certificate holder's recommendations.

Technical Investigations

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.

16.3 Calculations were carried out in accordance with BS EN 1995-1-1 : 2004 to determine the racking resistance of the products.

Bibliography

BS 5250 : 2011 *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 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 panels*

BS EN 594 : 2011 *Timber structures — Test methods — Racking strength and stiffness of timber frame wall panels*

BS EN 1995-1-1 : 2004 *+A2 :2014 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: 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 07 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.