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BBA APPROVAL INSPECTION TESTING CERTIFICATION
TECHNICAL APPROVALS FOR CONSTRUCTION

Agrément Certificate
08/4546
Product Sheet 3

EUROSTRAND BOARDS

EUROSTRAND OSB 3 AND OSB 3 E0 BOARDS FOR SHEATHING

This Agrément Certificate Product Sheet[1] relates to Eurostrand OSB 3 and OSB 3 E0 Boards for Sheathing, loadbearing oriented strand panels suitable for use as sheathing in residential and office 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 supporting structure (see section 6).

Behaviour in relation to fire — for reaction to fire, the panels may be regarded as having a class 3 surface spread of flame rating (see section 7).

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

Durability — the sheathing will have a life equal to that of the building in which it is installed (see section 11).

The BBA has awarded this Agrément 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: 2 May 2013

Brian Chamberlain
Head of Approvals — Engineering

Greg Cooper
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, Eurostrand OSB 3 and OSB 3 E0 for Sheathing, if installed, used and maintained in accordance with the provisions of this Certificate, will meet or contribute to meeting 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, 6.1 and 6.2 of this Certificate.
Requirement:	B3	Internal fire spread (structure)
Comment:		The product can contribute to meeting 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 sections 11.1, 11.2 and the *Installation* part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The use of the product satisfies the requirements of this Regulation. See sections 11.1, 11.2 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), 1.1.2(1) and 1.1.3(1) of this Standard. See sections 4.1, 6.1 and 6.2 of this Certificate.
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 2.2.1(1)(2), 2.2.2(1), 2.2.3(1), 2.2.4(1), 2.2.6(1), 2.2.8(1) and 2.3.2(1). 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) and 2.4.2 (1). See section 7 of this Certificate.
Standard:	3.15	Condensation
Comment:		The board 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). See section 4.1 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to meeting 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.

(1) Technical Handbook (Domestic).

The Building Regulations (Northern Ireland) 2012

Regulation:	23(a)(i)(iii)(b	Fitness of materials and workmanship
Comment:		The product is acceptable. See sections 11.1, 11.2 and the *Installation* part of this Certificate.
Regulation:	29	Condensation
Comment:		The boards can be incorporated into a roof structure, suitably designed to prevent harmful effects due 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, 6.1 and 6.2 of this Certificate.
Regulation:	35	Internal fire spread – Structure
Comment:		The product can contribute to meeting regulatory requirements. See section 7 of this Certificate.

Construction (Design and Management) Regulations 2007

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

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

See sections: 3 *Delivery and site handling* (3.5) and 12 *General* (12.1 and 12.2) of this Certificate.

Non-regulatory Information

NHBC Standards 2013

NHBC accepts the use of Eurostrand OSB 3 and OSB 3 E0 for Sheathing, when installed and used in accordance with this Certificate, 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 products in accordance with harmonised European Standard BS EN 13986 : 2004. An asterisk (*) appearing in this Certificate indicates that data shown is given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Eurostrand OSB 3 Board for Sheathing comprises softwood flakes/strands bonded together with MUF (melamine-urea formaldehyde) resin, MDI (diisocyanate diphenylmethane) binder and wax. Eurostrand OSB 3 E0 Board for Sheathing comprises softwood flakes/strands bonded together with formaldehyde-free MDI binder glue in core and surface layer.

1.2 The panel is produced in standard sizes(1) of:

thickness (mm)	9, 11, 15
length by width (mm)	2397 by 1197, 2400 by 1200, 2440 by 1220, 2500 by 1250, 2697 by 1197
Nominal density (kg·m^{-3})	⩾ 600.

(1) Other thicknesses (in the range 8 mm to 25 mm) and sizes are available to order.

1.3 The panel is available with square or tongue-and-groove edges, and is either sanded or unsanded.

2 Manufacture

2.1 The board 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 into strands. After drying and screening to remove fines, the strands/flakes are blended with resin, 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 in the direction of the minor axis. The board is formed by curing the mat under pressure and temperature and cutting 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 nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.3 The management system of Egger Holzwerkstoffe Wismar GmbH & Co KG has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by IQNet and Quality Austria (Certificate AT-00184/0).

2.4 The product is manufactured in Germany by the Certificate holder, and distributed in the UK by EGGER (UK) Limited, Anick Grange Road, Hexham, Northumberland NE46 4JS. Tel: 01434 602191, Fax: 01434 605103, e-mail: building.uk@egger.com website: www.egger.com

3 Delivery and site handling

3.1 Handling, storage and delivery of the panels should be carried out in accordance with the requirements of DD CEN/TS 12872 : 2007 and BS 8103-3 : 2009.

3.2 To prevent distortion, panels should be stacked flat, 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 panels should be stored on a level surface in a dry environment.

3.4 Each standard size panel bears the product name, the production date and time, nominal thickness, 'EN 13986', 'OSB/3', 'E1' (formaldehyde class), and the BBA Certificate number. Where panels are cut to special order this information is given on a label attached to the packaging.

3.5 For delivery, the panels are banded together in bundles up to 2 tonnes in weight and 1030 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 Eurostrand OSB 3 and OSB 3 E0 for Sheathing.

Design Considerations

4 General

4.1 Eurostrand OSB 3 and OSB 3 E0 for Sheathing are suitable for use as structural sheathing in timber-frame buildings.

4.2 The panels are suitable for use in humid conditions, corresponding to service class 2 of BS EN 1995-1-1 : 2004. This is characterised by 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 panels, including the provision of moisture movement gaps, must be in accordance with DD CEN/TS 12872 : 2007 and BS EN 1995-1-1 : 2004. Exposure to the elements should be minimised during installation.

4.4 The timber structures in which the panel 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, Eurostrand OSB 3 and OSB 3 E0 are suitable for use in environmental conditions covered by biological hazard class 2 for wood and wood-based products, as defined in BS EN 335-3 : 1996. In such environments, the panel is covered and fully protected from the elements. 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 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 calculated in accordance with the guidance given in BS EN 1995-1-1 : 2004, by a chartered structural engineer or similarly experienced and qualified person, 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 2.77 $kN \cdot m^{-1}$.

(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 Both grades of OSB 3 and OSB 3 E0 Board, when tested in accordance with BS 476-7 : 1997, achieved a Class 3 surface spread of flame rating.

7.2 Where the panel is incorporated in a wall construction which is subject to fire resistance requirements, an appropriate assessment or test must be carried out by a United Kingdom Accreditation Service (UKAS) accredited laboratory for the test concerned.

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 by 0.02%, width by 0.03% and 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, movement gaps, in accordance with the recommendations of DD CEN/TS 12872 : 2007, should be provided when installing the panel.

8.4 To minimise subsequent movement, before installation all wet site operations should be completed and the panel conditioned 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 : 2002.

8.6 In a wall construction, the calculations for interstitial condensation according to BS 5250 : 2002, the water vapour resistance factor (μ) of OSB can be taken as 50 (dry cup) from BS EN ISO 10456 : 2007, Table 3 depending on the construction, or determined by testing in according in accordance with BS EN ISO 12572 : 2001.

8.7 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 : 2002. Where required, the product should be treated as conventional sheathing panel with regard to detailing and damp-proofing at openings, eaves and sole plate, and the fixing of wall ties.

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

9 Formaldehyde content

The panels achieve a Class E1 formaldehyde specification in accordance with BS EN 300 : 2006. The OSB 3 E0 is bonded with formaldehyde-free MDI glue in core and surface layer, therefore, when used in accordance with 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, 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 panel will have adequate durability and should have a life equal to that of the 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.

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

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 Eurostrand OSB 3 and OSB 3 E0 should be by use of conventional methods in accordance with DD CEN/TS 12872 : 2007 or BS 8103-3 : 2009 and the manufacturer's recommendations.

Technical Investigations

14 Tests

Tests were carried out to determine:

- material characteristics in accordance with the requirements of BS EN 300 : 2006 for OSB/3
- surface spread of flame in accordance with BS 476-7 : 1997
- hard body impact resistance in accordance with BS EN 1128 : 1996.

15 Investigations

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

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

15.3 A review was made of a report supplied by the Certificate holder giving details of tests by a notified body leading to the reaction-to-fire classification in accordance with BS EN 13501-1 : 2007.

Bibliography

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 5250 : 2002 *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 335-3 : 1996 *Durability of wood and wood-based products — Definition of hazard classes of biological attack — Application to wood-based panels*

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

BS EN 1995-1-1 : 2004 *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 13501-1 : 2007 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

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 : 2001 *Hygrothermal performance of building materials and products. Determination of water vapour transmission properties*

BS DD/CEN/TS 12872 : 2007 *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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