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Agrément Certificate
14/5109
Product Sheet 1

CALCIUM SILICATE SHEATHING BOARD

Y-WALL

This Agrément Certificate Product Sheet⁽¹⁾ relates to Y-wall⁽²⁾, for use as sheathing board behind facade/rainscreen cladding applied to lightweight steel frame and timber frame, and also as an internal lining in domestic and non-domestic buildings.

(1) Hereinafter referred to as 'Certificate'.

(2) Y-wall is a registered trademark.

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

Strength and stability — partition walls incorporating the boards will have acceptable resistance to stresses (see section 6).

Behaviour in relation to fire — the boards can be incorporated in a construction meeting regulatory requirements (see section 7).

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

Durability — the boards will have a life equal to that of the building 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

Brian Chamberlain
Head of Approvals — Engineering

Claire Curtis-Thomas
Chief Executive

Date of First issue: 10 April 2014

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.

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Regulations

In the opinion of the BBA, Y-wall, if installed, used and maintained in accordance with 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:	B2	Internal fire spread (linings)
Comment:		The product can meet this Requirement for use in all locations. See sections 7.1 and 7.2 of this Certificate.
Requirement:	B3	Internal fire spread (structure)
Comment:		The product can contribute to meeting this Requirement. See sections 7.1 to 7.4 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See sections 11.1 to 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 product satisfies the requirements of this Regulation. See sections 11.1 to 11.2 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.5	Internal linings
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⁾ , 2.3.2 ⁽¹⁾ and 2.5.1 ⁽¹⁾ . See sections 7.1 to 7.4 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.
Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for this 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). (2) Technical Handbook (Non-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 to 11.2 and the <i>Installation</i> part of this Certificate.
Regulation:	34	Internal fire spread – linings
Comment:		Walls incorporating the product can satisfy this Regulation. See sections 7.1 to 7.4 of this Certificate.
Regulation:	35	Internal fire spread – structure
Comment:		The product can contribute to meeting the regulatory requirements. See sections 7.1 and 7.2 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 section 3 *Delivery and site handling* (3.1) and 12 *General* (12.1) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use Y-wall, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.2 *External timber-framed walls*, Chapter 6.3 *Internal walls*, Chapter 6.9 *Curtain walling and cladding*, Chapter 6.10 *Light steel framed walls and floors* and Chapter 8.2 *Wall and ceiling finishes*, *Clauses D3 Plastering and D4 Plasterboard and dry lining*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 12467 : 2012. 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 Y-wall is a calcium silicate sheathing board manufactured from a mixture of Portland cements, lime, calcium silicate, mica and cellulose.

1.2 The boards are available in the dimensions of:

Thickness (± 0.5 mm)	9, 12
Standard length (± 3 mm)	2400, 2800 or 3050
Standard width (± 2 mm)	1200
Weight ($\text{kg}\cdot\text{m}^3$)	11.1, 14.6

1.3 Ancillary items used in conjunction with the boards but outside the scope of this Certificate:

Fasteners (for use with timber frame) — 32 mm long self-driving screws with 10.4 mm diameter head, 4.2 mm diameter shaft

Fasteners (for use with steel frame)— 41 mm long self-driving screws with 10.4 mm diameter head, 4.2 mm diameter shaft

2 Manufacture

2.1 The Y-wall board is manufactured from wet sheet, prior to a process of autoclave and surface finishing.

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 product is manufactured in China and is marketed in the UK by the Certificate holder.

3 Delivery and site handling

3.1 Y-wall panels are stacked on timber pallets. Each pack contains a label incorporating the manufacturer's name, product name, thickness, width, length, batch number, number of boards per pallet, pallet weight, recommended storage and handling method.

3.2 The boards must be stored in a ventilated and dry environment on a flat, level surface protected from contamination. To avoid excessive flexing of the boards, long edges must be supported when lifting and handling. The Certificate holder's instructions on site handling and storage must be followed.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Y-wall.

Design Considerations

4 General

4.1 Y-wall is suitable for use as non-structural sheathing board applied to timber frame and lightweight steel frame walls with stud centres at maximum 600 mm.

4.2 The boards achieve Category B according to BS EN 12467 : 2004; 'Sheets which are intended for applications where they may be subjected to heat, moisture and occasional frost, e.g. where they are either protected from or not subjected to severe weathering conditions'.

4.3 Timber stud walls and timber battens must be structurally sound, designed and constructed in accordance with BS EN 1995-1-1 : 2004 (Eurocode 5) and preservative-treated in accordance with BS EN 351-1 : 2007.

4.4 Galvanized steel framework must be structurally sound, designed and constructed in accordance with BS EN 1993-1-1 : 2005 (Eurocode 3).

5 Practicability of installation

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

6 Strength and stability

6.1 The frame to which the boards are fixed must be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards.

6.2 The contribution of the board and finishes on the stability of the structure is assumed to be negligible. The structure, with or without Y-wall board, must be able to take the full wind actions and racking loads and be capable of sustaining the weight of the boards. The adequacy of the structural frame is outside the scope of this Certificate and must be verified by a suitably qualified and experienced individual.

6.3 Wind actions should be calculated in accordance with BS EN 1991-1-4 : 2005. The higher pressure coefficients applicable to corners of the building must be used.

6.4 A suitably qualified and experienced individual must check the design and method of installation of the boards.

6.5 The design pull-through value of Y-wall board, calculated by applying a safety factor of 3.0 to the mean failure pull-through values (determined by tests in accordance with BS EN 1383 : 1999) for the 4.2 mm diameter shaft, 10.4 mm diameter head, length 32 mm self-driving screws⁽¹⁾ is given in Table 1.

Table 1 Pull-through values⁽¹⁾ - timber frame

Mean failure value (N)	Design value (N)
976	325

(1) For fasteners other than those specified, the Certificate holder's advice must be sought.

7 Behaviour in relation to fire



7.1 Y-wall boards in accordance with the class definitions given in BS EN 13501 : 2007+A1 : 2009, are classified as 'A1 Non-combustible'.

7.2 The board may be regarded as having a 'Class 0' surface (in England, Wales and Northern Ireland) or 'low risk' material (in Scotland) in accordance with the national Building Regulations:

England and Wales — Approved Document B

Scotland — Technical Standard 2.5

Northern Ireland — Technical Booklet E.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

7.3 Cavity barriers should be incorporated as required under the national Building Regulations but should not block essential ventilation and drainage pathways. Guidance on fire barriers can be found in BRE Report 135 : 2003.

7.4 Where the board 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 Thermal insulation

The design thermal conductivity (λ value) of Y-wall boards given in BS EN 12524 : 2000 is $0.23 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and as such will not have a significant effect on the thermal transmittance (U value) of the wall construction.

9 Weathertightness

9.1 The design water vapour resistivity of Y-wall board can be taken as $164 \text{ MN s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$.

9.2 Walls must have suitable weather protection on the outside and a vented cavity. The product should be treated as conventional sheathing board with regard to detailing and damp-proofing at openings, eaves and sole plate, and the fixing of wall ties. Where required by design, the addition of a breather membrane must be in accordance with BS 5250 : 2011.

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

10 Maintenance and repair

10.1 As the boards have suitable durability, will normally be confined within the building structure and, in most cases, will be covered with finishes, maintenance is not required.

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

11 Durability



11.1 The board 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 board.

Installation

12 General

12.1 Y-Wall board can be cut with a fine tooth hand saw or power saw, ensuring suitable dust control measures are taken (eg protective safety glasses, gloves and respiratory masks) and observing all necessary health and safety regulations. Damaged boards must not be used.

12.2 The level of supervision during installation of the board and the associated structure, must be sufficient to ensure the quality of workmanship.

12.3 Framing grade timber studs or galvanized steel framework should be provided at a maximum 600 mm centres for single-layer partitions.

12.4 The frame to which the panels are fixed must be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards (see sections 4.3 and 4.4).

12.5 Screws should be a minimum of 12 mm from board edges and spaced at a maximum of 300 mm. The screws must not be over-tightened.

Technical Investigations

13 Tests

13.1 Tests were carried out in accordance with BS EN 12467 : 2004 by independent laboratories to determine:

- Modulus of rupture
- Apparent density
- Dimensional tolerance
- Water impermeability
- Freeze-thaw durability
- Warm water durability
- Soak dry durability
- Pull through strength of fixings.

13.2 A test for water vapour transmission was carried out in accordance with BS EN ISO 12572 : 2001.

13.3 A fire test for non combustibility was carried out to BS EN ISO 1182 : 2010 and heat of combustion to BS EN ISO 1716 : 2010.

14 Investigations

The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of materials used.

Bibliography

BRE Report 135 : 2003 *Fire Performance of External Insulation For Walls of Multi-Storey Buildings*.

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

BS EN 351-1 : 2007 *Durability of wood and wood-based products. Preservative-treated solid wood — Classification of preservative penetration and retention*

BS EN 1383 :1999 *Timber structures — Test methods — Pull-through resistance of timber fasteners*

BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 1993-1-1 : 2005 *Eurocode 3 : Design of steel structures — General rules and rules for buildings*

BS EN 1995-1-1 : 2004 + A1 : 2008 *Eurocode 5 : Design of timber structures — General*

BS EN 12467 : 2004 *Fibre-cement flat sheets — Product specification and test methods*

BS EN 12467 : 2012 *Fibre-cement flat sheets — Product specification and test methods*

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

BS EN 13501-1 : 2007+A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN ISO 1182 : 2010 *Reaction to fire tests for products — Non-combustibility test*

Conditions of Certification

15 Conditions

15.1 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.

15.2 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.

15.3 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.

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

15.5 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.

15.6 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.