

Klasse Group Ltd

Beacon House
Queensway
Swansea SA5 4DH

Tel: 01432842030

e-mail: sales@klassegroup.co.uk

website: www.klassegroup.co.uk



Agrément Certificate

22/6085

Product Sheet 1

KLASSE EXTERNAL SHEATHING BOARD

KLASSE G-BOARD EXTERNAL SHEATHING BOARDS (OUTWEAR)

This Agrément Certificate Product Sheet⁽¹⁾ relates to KLASSE⁽²⁾ G-BOARD External Sheathing Boards (OUTWEAR), glass fibre-reinforced gypsum boards. The boards are for use in façade construction as non-load bearing/non-structural sheathing boards behind drained and ventilated rain-screen cladding, over vertical light gauge steel-frame external walls, in new and existing buildings.

(1) Hereinafter referred to as 'Certificate'.

(2) KLASSE 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 — the products have sufficient strength to resist the loads likely to be encountered in service (see section 6).

Behaviour in relation to fire — the products have a reaction to fire classification of A1 in accordance with EN 13501-1 : 2018 (see section 7).

Water absorption — the products have a designation of GM-H1 in accordance with BS EN 15283-1 : 2008 and therefore have reduced water absorption rate (see section 10).

Durability — under normal service conditions, the boards will have a life equal to that of the building in which they are installed (see section 12).

The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 5 May 2022

Certificate amended on 28 July 2022 to update general and specific title

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.

British Board of Agrémente

Bucknalls Lane
Watford
Herts WD25 9BA

©2022

tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, KLASSE G-BOARD External Sheathing Boards (OUTWEAR), 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 products have sufficient strength and stiffness to sustain and transmit the design loads to the primary structure without excessive deflection. See sections 6.1 and 6.6 of this Certificate.
Requirement:	B3(4)	Internal fire spread (structure)
Comment:		The products can contribute to satisfying this Requirement. See section 7.1 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The products are unrestricted by this Regulation. See sections 7.1 and 7.2 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The use of the products satisfies the requirements of this Regulation. See section 12 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	1.1(a)(b)	Structure
Comment:		The products are acceptable, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.1 and 6.6 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Standard:	2.3	Structural protection
Comment:		The products can contribute to satisfying these Standards with respect to 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 products can contribute to satisfying this Standard with respect to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 7.1 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The products can contribute to satisfying this Standard, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 7.1 and 7.2 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction satisfying a bronze level of sustainability as defined in this Standard.

Regulation:	12	Building standards applicable to conversions
Comment:		All comments given for the products 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)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The products are acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation:	30	Stability
Comment:		The products can contribute to satisfying this Regulation. See sections 6.1 and 6.6 of this Certificate.
Regulation:	35(4)	Internal fire spread - Structure
Comment:		The products can contribute to satisfying 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* (3.1, 3.5 and 3.6) and 14 *General* (14.4 and 14.5) of this Certificate.

Additional Information

NHBC Standards 2022

In the opinion of the BBA, KLASSE G-BOARD External Sheathing Boards (OUTWEAR), 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 Superstructure (excluding roofs)*, Chapters 6.3 *Internal walls*, 6.10 *Light steel framed walls and floors* and 9.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 15283-1: 2008.

Technical Specification

1 Description

1.1 KLASSE G-BOARD External Sheathing Boards (OUTWEAR) comprise a gypsum core in the middle, with coated fibre glass mat reinforcement on both sides (see Figure 1).

1.2 The boards have the following nominal characteristics:

Length (mm)	2400
Width (mm)	1200
Thickness (mm)	12.5
Weight per unit area (kg·m ⁻²)	11.3

Density ($\text{kg}\cdot\text{m}^{-3}$)	900
Edges	square
Colour	Green
Water vapour resistance (S_d in m)	0.222
Water vapour resistance factor (μ)	17.4
Thermal conductivity ($\text{W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)	0.25.

Figure 1 KLASSE G-BOARD External Sheathing Boards (OUTWEAR)



1.3 Ancillary items or components specified for use with the boards, but outside the scope of this Certificate, include:

- fixings — for attaching KLASSE G-BOARD External Sheathing Boards (OUTWEAR) over light gauge steel-frame — 4.8 x 40 x 9 mm head diameter A4 (316) stainless steel Drill Fast screw (DF3-SSA4-W-4.8 x 40), to BS 5427: 2016 at maximum 300 mm centres
- steel-frame — light gauge metal studs 1.2 mm gauge thickness and 90 x 50 mm — C Section at 600 mm maximum centres, fixed vertically to the main structure
- any insulation within the frame or cavity
- FireFend⁽¹⁾ silicone sealant or joint tape — for sealing board joints
- breather membrane.

(1) FireFend is a registered trademark.

2 Manufacture

2.1 The crushed gypsum is stocked in silos to feed the calcinator. After the calcination process, the calcined gypsum is transferred to the plasterboard gypsum silos. The calcined gypsum is fed to the mixer with additives. The mixed slurry is poured into the upper and lower face of the coated fibre glass mat at the forming station. The facer, which is green, used on both faces contains fibre glass. Once hardened, the boards are cut and dried, prior to trimming and storage. The boards are manufactured to the specification of BS EN 15283-1 : 2008.

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 systems of the manufacturer have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by TGS International Certification (Certificate Q-US-17227206).

3 Delivery and site handling

3.1 The boards are delivered to site on polythene-wrapped wooden pallets, in quantities of 52 boards per pallet. Each pallet weighs approximately 1817 kg. Packs can be unloaded using a forklift truck or hydraulic trolley.

3.2 Each pallet bears a label incorporating the product name, thickness, width, length, batch number and number of boards per pallet.

3.3 The boards should always be stored in dry and flat conditions.

3.4 The boards must always be carried by two people and on the edge. They should never be carried flat as this will result in bending of the boards. Precautions must be taken to ensure the boards are not damaged before, during and after installation. The Certificate holder's instructions on site handling and storage must be followed

3.5 The use of personal protective equipment (PPE) is strongly recommended whenever required.

3.6 When manually handling, consideration of the correct manual handling technique must be made to limit risk, according to the Manual Handling Operations Regulations 1992.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on KLASSE G-BOARD External Sheathing Boards (OUTWEAR).

Design Considerations

4 Use

4.1 KLASSE G-BOARD External Sheathing Boards (OUTWEAR) are satisfactory for use as non-loadbearing sheathing boards behind drained and ventilated rain-screen cladding, over vertical light gauge steel-framed external walls, with vertical steel studs at maximum 600 mm centres and specified fixings at maximum 300 mm centres, in new and existing buildings above the damp-proof course (dpc) level.

4.2 The frame to which the boards are fixed must be structurally sound, and designed and constructed in accordance with BS EN 1993-1-1 : 2005 and BS EN 1993-1-3 : 2006, and their UK National Annexes.

4.3 Any external finishes/cladding applied to the boards must be such that the cavity between the cladding and boards satisfies the appropriate minimum cavity width required by *NHBC Standards 2022*.

4.4 Where expansion joints occur in the steel-frame, the boards must not be installed across these joints.

4.5 It is essential that the products are installed and maintained in accordance with the conditions set out in this Certificate.

5 Practicability of installation

The products are designed to be installed by a competent contractor experienced with these types of products.

6 Strength and stability



6.1 When tested in accordance with BS EN 15283-1 : 2008, a 12.5 mm thick KLASSE G-BOARD External Sheathing Boards (OUTWEAR) achieved a mean flexural breaking load of 761 N in the longitudinal direction and 601 N in the transverse direction.

6.2 The designer must ensure that the steel-frame has adequate strength to resist all lateral, and any other, loads on its own and is capable of sustaining the weight of the boards. No contribution may be assumed from the boards in this regard. The adequacy of the steel-frame is outside the scope of this Certificate and must be verified by a suitably qualified and experienced individual.

6.3 A suitably qualified and experienced individual must check the design and method of installation of the products.

6.4 The cladding support brackets (helping hands) and any other applied loads must be fixed back through the boards to the steel-frame structure.

6.5 The fixings defined in section 1.3 should be used to attach the boards to the steel-frame. The design should ensure adequate capacity against wind actions.



6.6 The characteristic pull-through resistance values, determined by calculation using test data in accordance with EAD 090062-00-0404 : 2018 for the screws described in sections 1.3 and 15.1 of this Certificate, are given in Table 1 of this Certificate.

Table 1 Board characteristic pull-through resistance (kN)⁽¹⁾

Position	Characteristic pull-through resistance (kN)
Centre	0.604
Edge	0.262
Corner	0.120

(1) In accordance with BS EN 1990 : 2002 for design value calculations, a partial material factor of 1.3 must be applied to the characteristic values.

7 Behaviour in relation to fire



7.1 The boards have a reaction to fire classification of A1⁽¹⁾ in accordance with EN 13501-1 : 2018.

(1) Turkish Standard Institute, reference number 640424, dated 10 October 2021. The Report is available from the Certificate holder on request.



7.2 The boards are not subject to any restriction on building height or proximity to boundaries by the documents supporting the national Building Regulations.

7.3 Where fire resistance is required by the documents supporting the national Building Regulations, the performance of constructions should be confirmed by a suitably qualified and experienced individual or by a test from a suitably accredited laboratory.

7.4 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 components used in the overall wall construction (for example, thermal insulation and cladding).

8 Proximity of flues and appliances

Detailed guidance can be found in the documents supporting the national Building Regulations for the provisions that are applicable when the products are installed in close proximity to certain flue pipes and/or heat-producing appliances.

9 Water impermeability

9.1 When tested for water impermeability in accordance with BS EN 12467 : 2012, the products showed no signs of water penetration after the 24-hour test, and no dampness or dripping on the undersides of the sample was noted. The boards, therefore, satisfy the requirements in accordance with this Standard.

9.2 External walls must have suitable weather protection on the outside, and a drained and ventilated cavity must be provided between the cladding and boards. The products must be treated as a conventional sheathing board with regard to detailing and damp-proofing at openings, eaves and sole plates, and the fixing of wall ties. Where required by the design, the addition of a breather membrane must be in accordance with BS 5250 : 2021.

10 Water absorption

The water absorption of the boards is $\leq 5\%$ when tested in accordance with BS EN 15283-1 : 2008 and therefore is designated as Type GM-H1 – that is, gypsum boards with mat reinforcement with reduced water absorption rate.

11 Maintenance

The products are installed behind a drained and ventilated rain-screen cladding system and once the cladding system is installed the boards are inaccessible and maintenance is not possible. However, any damage occurring before enclosure must be repaired (see section 16).

12 Durability



12.1 Provided that the products are used in accordance with this Certificate and the Certificate holder's instructions, and are fixed to satisfactory, stable and durable backgrounds and protected by suitable cladding by fully trained operatives, they will have a life equal to that of building in which they are installed.

12.2 When tested in accordance with MOAT 33 : 1986, the boards were found to be resistant to algal growth.

13 Reuse and recyclability

The boards are made from gypsum, which can be recycled.

Installation

14 General

14.1 KLASSE G-BOARD External Sheathing Boards (OUTWEAR) must be installed in accordance with this Certificate and the Certificate holder's instructions.

14.2 Reasonable precautions must be taken to ensure the boards are not damaged during installation and during applications of the over cladding .

14.3 The lowest point of the boards must be kept above dpc level.

14.4 The boards may be cut using a Stanley knife. When cutting the boards, hand tools should be used with care and in accordance with the Certificate holder's recommendations.

14.5 It is important to observe appropriate health and safety legislation when working on site, eg personal protective clothing and equipment. The Certificate holder should be consulted for material safety data sheets and advice. When working in enclosed areas, precautions should be taken to ensure dust levels are controlled in accordance with the current issue of EH40/2005.

15 Procedure

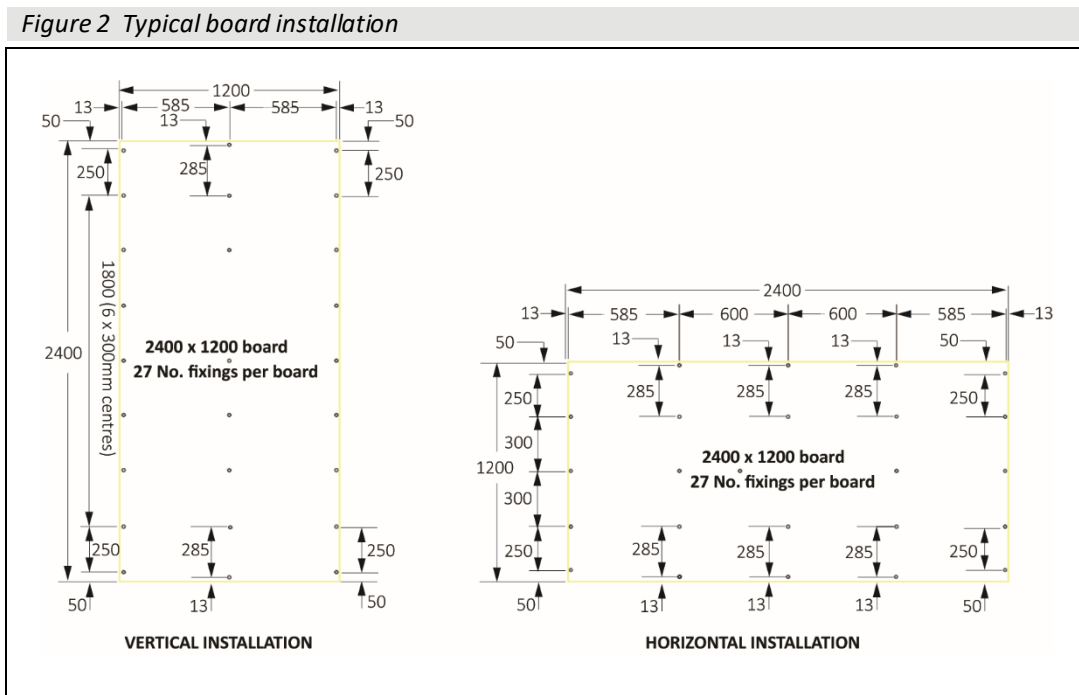
15.1 The boards are secured to the steel-frame profiles vertically in a staggered brick pattern using screws as specified in section 1.3. The boards can be installed in either a horizontal or vertical orientation, with the details as follows (also see Figure 2):

- maximum steel stud spacing = 600 mm
- maximum fixings centres = 300 mm

- minimum fixings distance from the board edge = 13 mm
- minimum fixings distance from the board corner (both horizontal and vertical) = 50 mm.

15.2 Subsequent boards are installed in the same manner, with sealant applied to all board edges as the construction progresses to allow two boards to be butted (see also section 4.4).

15.3 All board joints must be adequately taped to ensure protection against water ingress.



16 Repair

16.1 The completed installation must be inspected, and any damaged boards and sealant replaced.

16.2 Under normal conditions of use, the products are unlikely to suffer more than cosmetic damage, but should large cracks or breakages occur, damaged boards should be replaced as soon as possible.

17 Over cladding/façades

Wall claddings support systems must be fixed through the boards into the structural framing. The over-cladding or façade manufacturer must be consulted for fixing specifications. Any damaged boards must be replaced before fixing the façade.

Technical Investigations

18 Tests

Tests were conducted and the results assessed to determine:

- density
- thickness
- length and width
- squareness
- flexural strength
- fixing pull through
- water absorption
- water vapour transmission
- water impermeability
- anti-algal activity of building panels.

19 Investigations

19.1 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.

19.2 An assessment was made of test reports relating to the reaction to fire classification of the products to EN 13501-1 : 2018.

Bibliography

BS 5250 : 2021 *Code of practice for control of condensation in buildings*

BS 5427 : 2016 + A1 : 2017 *Code of practice for the use of profiled sheet for roof and wall cladding on buildings*

BS EN 1990 : 2002 + A1 : 2005 *Eurocode — Basis of structural design*

BS EN 1993-1-1 : 2005 + A1 : 2014 *Eurocode 3 — Design of steel structures — General rules and rules for buildings*

NA to BS EN 1993-1-1 : 2005 + A1 : 2014 *UK National Annex to Eurocode 3 — Design of steel structures — General rules and rules for buildings*

BS EN 1993-1-3 : 2006 *Eurocode 3 Design of steel structures — General rules — Supplementary rules for cold-formed members and sheeting*

NA to BS EN 1993-1-3 : 2006 *UK National Annex to Eurocode 3 — Design of steel structures — General rules — Supplementary rules for cold-formed members and sheeting*

BS EN 12467 : 2012 + A2 : 2018 *Fibre-cement flat sheets — Product specification and test methods*

BS EN 15283-1 : 2008 + A1 : 2009 *Gypsum boards with fibrous reinforcement — Definitions, requirements and test methods — Gypsum boards with mat reinforcement*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

EAD 090062-00-0404 *Kits for external wall claddings mechanically fixed*

EH40/2005 *Workplace Exposure Limits — containing the list of workplace exposure limits for use with the Control of Substances Hazardous to Health Regulations (as amended)*

MOAT NO 33 : 1986 — *Determination of Anti-algal activity of Building Panels*

EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

20 Conditions

20.1 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.

20.2 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.

20.3 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.

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

20.5 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.

20.6 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.