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**Agrément
Certificate
No 04/4100**

Designated by Government
to issue
European Technical
Approvals

HARDIBACKER 250 AND 500 BACKERBOARDS

Support pour la pose du carrelage
Unterbau für die fliesenverlegung

Product




- THIS CERTIFICATE RELATES TO HARDIBACKER 250 AND 500⁽¹⁾ BACKERBOARDS, FIBRE-REINFORCED CEMENT TILE BACKER BOARDS.
- The products meet the requirements for Category C boards to BS EN 12467 : 2000 and Category B boards to ISO 8336 : 1993.
- The products are for use as an intermediate substrate to ceramic and natural stone tiling for internal use.
- It is essential that the product is used in accordance with the conditions set out in the Design Data and Installation parts of this Certificate.

(1) Hardibacker 500 is a registered trademark of the Certificate holder.


Regulations

1 The Building Regulations 2000 (as amended) (England and Wales)

 The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of Tiling Board with the Building Regulations. In the opinion of the BBA, Hardibacker 250 and 500 Backerboards, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements listed below.

Requirement: B2	Internal fire spread (linings)
Comment:	The products are unrestricted by this Requirement. See sections 10.1 to 10.4 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The products are acceptable. See sections 13.1 and 13.2 of this Certificate.

2 The Building Standards (Scotland) Regulations 1990 (as amended)

 In the opinion of the BBA, Hardibacker 250 and 500 Backerboards, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation: 10	Fitness of materials and workmanship
Standard: B2.1	Selection and use of materials, fittings and components, and workmanship
Comment:	The products can contribute to a construction meeting this Standard. See the <i>Installation</i> part of this Certificate.

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Standard:	B2.2	Selection and use of materials, fittings and components, and workmanship
Comment:		The products comply with this Standard. See sections 13.1 and 13.2 of this Certificate.
Regulation:	12	Structural fire precautions
Standard:	D7.1	Fire spread on internal linings — Principles
Comment:		The products meet the requirements for every purpose group. See sections 10.1 to 10.4 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Hardibacker 250 and 500 Backerboards, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The products are acceptable. See sections 13.1 and 13.2 of this Certificate.
Regulation:	E3	Internal fire spread — Linings
Comment:		The products meet the requirements for all purpose groups. See sections 10.1 to 10.4 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections: 5 *Description* (5.2) and 6 *Delivery and site handling* (6.1 and 6.4) of this Certificate.

5 Description

5.1 Hardibacker 250 and 500 Backerboards are fibre-reinforced cement sheets, satisfying the requirements of Category C material to BS EN 12467 : 2000 and Category B to ISO 8336 : 1993.

5.2 The products are available in the standard weights and dimensions⁽¹⁾ given in Table 1.

(1) Other dimensions are available to special order.

Table 1 Nominal dimensions and weights

Product	Hardibacker 250	Hardibacker 500
Thickness (mm)	6	12
Width (m)	0.9	0.9
Length (m)	1.5	1.5
Board weight (kg)	12.5	19.0

5.3 The products are manufactured by a batch blending operation, followed by the Hatchek process and high-pressure steam autoclaving. Quality control is maintained over raw materials, during processing and on the final product.

5.4 Ancillary materials for use with the products include:

- 50 mm wide, alkali-resistant, glass-fibre mesh reinforcing tape
- ceramic tiles to BS 6431-1 : 1983
- ceramic tile adhesives of Type 1, 2 or 3 to BS 5980 : 1980
- grout to BS EN 13888 : 2002
- zinc-coated or stainless steel fixings (see section 14.4 of this Certificate):
 - into timber, clout nail of a minimum of 2.65 mm diameter or No 8 shank with a 9.5 mm diameter head
 - into metal, screw of a minimum No 8 shank with a 9.5 mm diameter countersinking head.

6 Delivery and site handling

6.1 The products are delivered on wrapped pallets typically weighing approximately 800 kg. They can be offloaded by either mechanical handling equipment or manually removing individual boards.

6.2 The sheets should be stored flat, under cover, and on a dry, level surface. Stacks of loose boards should not exceed one metre in height.

6.3 Each sheet is marked with the product name, unique manufacturing code and the appropriate classification to ISO 8336 : 1993.

6.4 The products include crystalline silica and reference should be made to EH40/2002 *Occupational Exposure Limits*, 2002. In particular, when cutting, drilling or sanding in confined areas, dust levels should be controlled using suitable extraction equipment.

7 General

7.1 Hardibacker 250 and 500 Backerboards are satisfactory for use on walls and floors as an intermediary substrate to ceramic and natural stone tiling for internal use.

7.2 They are suitable as part of a system of tiles, cement-based tile adhesive and grout, to install a stable, water-resistant tile substrate in showers, bathrooms and wet areas (excluding shower floors).

7.3 Walls and sub-floors to be tiled should comply with the requirements of BS 5385-1 : 1995 and BS 5385-3 : 1989 respectively, including the provision of movement joints as appropriate. Where necessary, reference should also be made to BS 5385-4 : 1992.

8 Floor installations

8.1 A minimum 15.8 mm thick plywood sub-floor⁽¹⁾ should be laid over the floor joists, at a maximum of 400 mm centres.

(1) Or equivalent thickness of alternative sub-floor.

8.2 Deflection must not exceed L/360 of the span under the live and dead design loads.

8.3 On sound existing structures, all existing floor coverings should be removed and any damaged sections at the sub-floor replaced to give a clean and flat surface.

9 Wall installations

9.1 Masonry walls of new buildings should be designed and constructed in accordance with BS 5628-3 : 2001. Walls of existing buildings should be sound and watertight.

9.2 Framing grade timber studs or galvanized steel framework should be provided at a maximum of 400 mm centres. Timber studs should be nominally 75 mm by 50 mm or 100 mm by 50 mm; steel framework should be a minimum of 0.59 mm thickness.

9.3 Care should be taken to ensure that studs are straight and properly aligned.

9.4 Corners should be either solid blocked or otherwise reinforced, for example using a 35 mm by 35 mm by 0.8 mm galvanized steel angle.

9.5 In wet areas, a corner flashing, should be used to provide additional protection to the framing members.

10 Performance in fire

10.1 The boards do not change the fire resistance of the wall on which they are installed.



10.2 When tested to BS 476-6 : 1989, samples of Hardibacker 250 and 500 Backerboards gave fire propagation indices (I) of 0.0 and 0.1 respectively and sub-indices (i_1) of 0.0 and 0.1 respectively.

10.3 When tested to BS 476-7 : 1997, both Hardibacker 250 and 500 Backerboards achieved a Class 1 result.

10.4 Therefore, both products are classified as Class 0 or 'low risk' as defined in the various national Building Regulations.

11 Impact resistance

When tested in accordance with BBA test methods, tiled board performed in a satisfactory manner. Both tiled products are classified as Category I_2 as defined in Table 3.2 of MOAT No 43 : 1987.

12 Wall-mounted fittings

The recommendations of the manufacturer should be followed. Objects other than lightweight items, should be fixed through the board into the wall behind, using proprietary fixings.

13 Durability



13.1 The durability of the products is satisfactory. Provided the board is used and installed in accordance with this Certificate and the manufacturer's instructions, and are fixed to suitable, stable and durable backgrounds, the products will have a life equal to that of the building in which they are installed.

13.2 Under normal conditions of occupancy, the boards are unlikely to suffer damage, but should it occur repairs are carried out easily.

Installation

14 General

14.1 Hardibacker 250 and 500 Backerboards are for installation on internal walls and floors of new and existing buildings, in accordance with the provisions of this Certificate and the manufacturer's instructions, using suitably experienced and trained personnel.

14.2 Cutting of boards can be performed by scoring a straight edge using a carbide-tipped knife, and snapping upwards along the score line.

14.3 Large cut-outs can be made using a circular saw with a carbide-tipped blade. Small holes may be drilled using a carbide-tipped masonry bit, or scored out as above and broken out with a hammer.

14.4 The fixings (see section 5.4) to be used must be of sufficient length to penetrate:

- wooden sub-floors and wall framing — 19 mm into the substrate, or the full thickness of the substrate (whichever is less)
- metal wall framing — the metal framing by at least three full threads.

15 Procedure

Floor installations

15.1 Boards should be cut so that they fit the floor area with joints staggered in a stretcher-bond brick pattern. Four sheet corners should not meet at one point.

15.2 Hardibacker sheet joints should not align with the underlying sub-floor joints.

15.3 A 3 mm wide gap should be allowed between the edges of the sheets and walls or cabinet bases.

15.4 A levelling bed of tile adhesive should be applied to the clean and dry sub-floor, using a 6 mm square notched trowel.

15.5 The Hardibacker sheets should be firmly and evenly embedded in the adhesive, with the sheet edges in moderate contact.

15.6 The fixings specified in section 5.4 should be set flush with the sheet surface, at 200 mm centres. The fixings should be set back between 12 mm and 19 mm from the sheet edges and 50 mm back from sheet corners.

Wall installations

15.7 Boards may be installed horizontally or vertically, using the fixings specified in section 5.4. The fixings should be set flush with the surface, at 200 mm centres, and set back between 12 mm and 15 mm from the board edges and 50 mm back from corners.

15.8 When using Hardibacker 250 Backerboard, board perimeters and joints should be directly supported by frame members.

15.9 A wet-area sealant complying with the requirements of BS 6213 : 2000 and BS ISO 11600 : 2002 should be applied at corner junctions of boards and tiles.

16 Tiling

16.1 The surface of the boards should be wiped with a damp sponge to remove residual dirt and dust.

16.2 Joints between boards should be filled with the tile adhesive to be used and taped using 50 mm wide, alkali-resistant, glass-fibre mesh tape.

16.3 Tiles should then be installed and grouted in accordance with the tile manufacturer's instructions, BS 5385-1, -3 and -4 and conventional good practice.

Technical Investigations

The following is a summary of the technical investigations carried out on Hardibacker 250 and 500 Backerboards.

17 Tests

Tests were carried out to determine:

- water absorption
- resistance to hard body impact
- resistance to soft body impact
- tensile bond strength to ceramic tiles
- effect of humidity and exposure to water
- pull-through strength of fixings.

18 Investigations

18.1 Classifications were made to BS EN 12467 : 2000 and ISO 8336 : 1993 on the basis of test data supplied to these Standards on:

- dimensions
- bending strength
- apparent density
- resistance to freeze/thaw
- resistance to water soak
- resistance to soak/dry cycling
- resistance to heat/rain cycling
- water impermeability.

18.2 Examination was made of existing data relating to:

- fire propagation to BS 476-6 : 1989
- surface spread of flame to BS 476-7 : 1997.

18.3 The manufacturing process was examined, including the methods adopted for quality control.

Bibliography

- BS 476-6 : 1989 *Fire tests on building materials and structures — Method of test for fire propagation for products*
- 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 5385-1 : 1995 *Wall and floor tiling — Code of practice for the design and installation of internal ceramic and natural stone wall tiling and mosaics in normal conditions*
- BS 5385-3 : 1989 *Wall and floor tiling — Code of practice for the design and installation of ceramic floor tiles and mosaics*
- BS 5385-4 : 1992 *Wall and floor tiling — Code of practice for tiling and mosaics in specific conditions*
- BS 5628-3 : 2001 *Code of practice for use of masonry — Materials and components, design and workmanship*
- BS 5980 : 1980 *Specification for adhesives for use with ceramic tiles and mosaics*
- BS 6213 : 2000 *Selection of construction sealants — Guide*
- BS 6431-1 : 1983 *Ceramic floor and wall tiles — Specification for classification and marking including definitions and characteristics*
- BS EN 12467 : 2000 *Fibre-cement flat sheets — Product specifications and test methods*
- BS EN 13888 : 2002 *Grouts for tiles — Definitions and specifications*
- BS ISO 11600 : 2002 *Building construction — Jointing products — Classification and requirements for sealants*
- MOAT No 43 : 1987 *UEAtc Directives for Impact Testing Opaque Vertical Building Components*
- ISO 8336 : 1993 *Fibre-cement flat sheets*

Conditions of Certification

19 Conditions

19.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

19.2 References in this Certificate to any Act of Parliament, Regulation made thereunder, Directive or Regulation of the European Union, Statutory Instrument, Code of Practice, British Standard, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

19.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;

(b) continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

19.4 In granting this Certificate, the BBA is not responsible for:

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature or standard of individual installations of the product or any maintenance thereto, including methods and workmanship.

19.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the installation and use of this product.



In the opinion of the British Board of Agrément, Hardibacker 250 and 500 Backerboards are fit for their intended use provided they are installed, used and maintained as set out in this Certificate. Certificate No 04/4100 is accordingly awarded to James Hardie Building Products Ltd.

On behalf of the British Board of Agrément

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Chief Executive

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British Board of Agrément

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For technical or additional information, contact the Certificate holder (see front page).
For information about the Agrément Certificate, including validity and scope, tel: Hotline 01923 665400, or check the BBA website.