



## James Hardie Building Products Ltd

7 Albemarle Street  
London W1S 4HQ

Tel: 0800 068 3103 (Customer Service)  
0800 917 3975 (Technical) Fax: 0800 917 5424  
e-mail: info@jameshardieeu.com  
website: www.jameshardieeu.com

**Agrément  
Certificate  
No 04/4147**  
Second issue\*

Designated by Government  
to issue  
European Technical  
Approvals

### HARDIPLANK SIDING

Habillage de façade  
Verkleidung von Faserverstärkter Zement

## Product



• THIS CERTIFICATE RELATES TO HARDIPLANK<sup>(1)</sup> SIDING, FIBRE-REINFORCED CEMENT SIDING WEATHERBOARDS.

• The product meets the requirements for Category A, Class 2 boards to EN 12467 : 2004 and Type A, Category 3 to ISO 8336 : 1993/Amd 1 : 2004.

• The product is for use as an exterior non-loadbearing lap cladding.


• It is essential that the products are used in accordance with the Certificate holder's instructions and the Design Data and Installation sections of this Certificate.

• The product may be fixed horizontally, vertically or diagonally over braced timber stud walls or conventional masonry.

(1) 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 cladding systems with the Building Regulations. In the opinion of the BBA, Hardiplank Siding, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements listed below.

|                                  |   |
|----------------------------------|---|
| Requirement: <b>A1</b>           | Loading   |
| Comment:                         | The product is acceptable for use as set out in sections 7.2 to 7.4 and 8.1 to 8.5 of this Certificate.   |
| Requirement: <b>B4(1)</b>        | External fire spread  |
| Comment:                         | The uncoated product is unrestricted by this Requirement. See sections 9.1 to 9.4 of this Certificate.  |
| Requirement: <b>C2(b)</b>        | Resistance to moisture  |
| Comment:                         | The product does not provide a watertight or airtight facing. To achieve a weatherproof barrier, a breather membrane must be provided. See sections 10.1 to 10.4 of this Certificate. |
| Requirement: <b>Regulation 7</b> | Materials and workmanship   |
| Comment:                         | The product is acceptable. See sections 12.1 and 12.2 of this Certificate.  |

## 2 The Building (Scotland) Regulations 2004



In the opinion of the BBA, Hardiplank Siding, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Mandatory Standards as listed below.

|             |           |   |
|-------------|-----------|---|
| Regulation: | 8         | Fitness and durability of materials and workmanship   |
| Regulation: | 8(1)      | Fitness and durability of materials and workmanship   |
| Comment:    |           | The product can contribute to a construction satisfying this Regulation. See sections 12.1 and 12.2 and the <i>Installation</i> part of this Certificate.   |
| Regulation: | 9         | <b>Building standards – construction</b>  |
| Standard:   | 1.1(a)(b) | Structure   |
| Comment:    |           | The product is acceptable for use, with reference to clause 1.1.1 <sup>(1)(2)</sup> . See sections 7.2 to 7.4 and 8.1 to 8.5 of this Certificate.   |
| Standard:   | 2.4       | Cavities  |
| Comment:    |           | The product is a 'low risk' material. Cavity barriers should be provided as required by clause 2.4.2 <sup>(1)(2)</sup> of this Standard. See sections 9.1 to 9.4 of this Certificate.   |
| Standard:   | 2.6       | Spread to neighbouring buildings  |
| Comment:    |           | The product is not classified as 'non-combustible' and therefore the use will be restricted under clauses 2.6.5 <sup>(1)</sup> and 2.6.6 <sup>(2)</sup> of this Standard. See section 9.5 of this Certificate.  |
| Standard:   | 2.7       | Spread on external walls  |
| Comment:    |           | The product is not classified as 'non-combustible' and therefore the use will be restricted under clause 2.7.1 <sup>(1)(2)</sup> . See section 9.5 of this Certificate.   |
| Standard:   | 3.10      | Precipitation   |
| Comment:    |           | The product does not form a watertight or airtight facing. To achieve a weatherproof barrier a breather membrane must be provided to meet this Standard, with reference to clause 3.10.5 <sup>(1)(2)</sup> . See sections 10.1 to 10.4 of this Certificate.                     |
| Standard:   | 3.15      | Condensation  |
| Comment:    |           | Provided there is provision for adequate drainage and ventilation behind the cladding, and a breather membrane is incorporated, as required, the product will comply with clause 3.15.1 <sup>(1)</sup> of this Standard. See sections 7.7 and 10.1 to 10.4 of this Certificate. |
| Regulation: | 12        | <b>Building standards – conversions</b>   |
| Comment:    |           | All comments given for this product under Regulation 9, also apply to this Regulation, with reference to clause 0.12 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .<br>(1) Technical Handbook (Domestic).<br>(2) Technical Handbook (Non-Domestic).                       |

## 3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Hardiplank Siding, 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 product is acceptable. See sections 12.1 and 12.2 of this Certificate.   |
| Regulation: | C4 | Resistance to ground moisture and weather  |
| Comment:    |    | The product does not form a watertight or airtight facing. To achieve a weatherproof barrier, a breather membrane must be provided. See sections 10.1 to 10.4 of this Certificate. |
| Regulation: | D1 | Stability  |
| Comment:    |    | The product is acceptable for use as set out in sections 7.2 to 7.4 and 8.1 to 8.5 of this Certificate.  |
| Regulation: | E5 | External fire spread   |
| Comment:    |    | The product is unrestricted by this Regulation. See sections 9.1 to 9.4 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.

# Technical Specification

## 5 Description

5.1 Hardiplank Siding is a range of fibre-reinforced Portland cement planks, satisfying the requirements of Category A, Class 2 boards to EN 12467 : 2004 and Type A, Category 3 to ISO 8336 : 1993/Amd 1 : 2004.

5.2 The product is available in a textured or smooth finish, and in standard weights and dimensions of:

|                |      |
|----------------|------|
| thickness (mm) | 8    |
| width (mm)     | 180  |
| length (mm)    | 3600 |
| weight (kg)    | 7.4  |

5.3 The product is supplied factory primed, ready for overcoating on site (see section 14.8). The performance of the primer is outside of the scope of this Certificate.

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

5.5 Ancillary materials for use with the products include:

- Harditrim<sup>(1)</sup> Siding with XLD technology — a fibre-reinforced cement board complying with the requirements of Category A, Class 1 boards to BS EN 12467 : 2004, and suitable for use as decorative trim around openings. It is available as a 25 mm thickness, in lengths of 3050 mm and widths of 90 mm, 140 mm and 185 mm

(1) Registered trademark.

- Type 1 breather membrane to BS 4016 : 1997
- flexible joint sealant selected in accordance with the recommendations given in BS 6213 : 2000
- galvanized or stainless-steel nail fixings, 50 mm long by 3.4 mm minimum diameter, with a minimum 10 mm head diameter
- zinc-plated or stainless-steel screw fixings 32 mm by 4.6 mm minimum diameter, with a minimum 10 mm diameter head.

## 6 Delivery and site handling

6.1 Hardiplank Siding and Harditrim Siding are delivered on wrapped pallets weighing up to approximately 1500 kg and 900 kg respectively. They can be offloaded by either mechanical handling equipment or manually removing individual boards.

6.2 Both products should be stored on edge or flat, under cover, and on a dry, level surface. Stacks of loose planks should not exceed one metre in height.


6.3 At least two planks in each pallet row are marked with the product name, unique manufacturing code and the appropriate classification to ISO 8336 : 1993/Amd 1 : 2004.

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.

## Design Data

### 7 General

7.1 Hardiplank Siding is suitable for horizontal, vertical or diagonal fixing, as a decorative and protective external facing over a timber stud or masonry wall.

 7.2 The designer should ensure that the strength and integrity of the intended substrate is commensurate with that required of the cladding system (see sections 7.3 and 7.4).

7.3 Brickwork or blockwork walls should be constructed in the conventional manner in accordance with BS 5628-1 : 2005 and BS 5628-3 : 2005 or one of the technical specifications given in the national Building Regulations:

#### *England and Wales*

Approved Document A1/2, Section 2C

#### *Scotland*

Mandatory Standards 1.1 and 1.2, clauses 1.1.1<sup>(1)(2)</sup> and 1.2.1<sup>(1)(2)</sup> respectively.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).


#### *Northern Ireland*

Technical Booklet D *Structure*.

7.4 Timber stud walls should be constructed in accordance with BS 5268-2 : 2002 and BS 5268-6.1 : 1996, and preservative treated in accordance with BS 5268-5 : 1989. Studding and framing should be adequately supported by noggings to ensure rigidity.


7.5 The product should be fixed to preservative-treated, good-quality timber battens aligned vertically at 400 mm or 600 mm centres. The minimum batten thickness over timber studs is 25 mm; over masonry substrates, this should be increased to accommodate the 50 mm length of the fixings.

7.6 Where a CCA (copper/chrome/arsenic) preservative is used, care should be taken to ensure that sufficient time is allowed for complete fixation of the preservative (approximately seven days) before the cladding is fixed.

 7.7 In accordance with BS 8200 : 1985, a continuous 10 mm ventilation pathway must be maintained behind the cladding, with minimum 5000 mm<sup>2</sup> ventilation slots per metre run at the top and bottom of the installation. This will also satisfy the NHBC requirement (see NHBC Standards, Chapter 6.2 : 1992) for a minimum 10 mm cavity behind cladding installed over timber sheathing. To comply with the requirement of *Zurich Building Guarantee Technical Manual Section 4 Superstructure, Sub-section External walls — render/cladding/curtain walling* (page 213) for cladding installed over timber sheathing, however, a minimum 19 mm cavity is required.

## 8 Strength and stability

### Wind loading

 8.1 Under wind loading, the most likely mode of failure of the cladding will be by failure of the plank at the fixing under wind suction.

8.2 When installed in accordance with the requirements of this Certificate, onto battens at 600 mm spacings, the products can withstand dynamic wind pressures not exceeding 1.7 kPa.


8.3 The permissible dynamic wind pressure may be increased by reducing batten spacing. This is particularly recommended at the corner of buildings and in exposed locations. In common with all cladding, the adequacy of a proposed installation should always be checked by a qualified engineer, who should include in the check the adequacy of the fixing of battens to the substrate, not covered by this Certificate.

8.4 The cladding should not be taken into account when designing a timber stud wall to resist racking forces.

### Resistance to impact

8.5 When tested in accordance with BBA test methods, the product performed in a satisfactory manner. It is suitable for use in areas where there is little possibility of impact or abrasion damage, ie at low levels in areas of restricted access or at higher levels in public areas (the areas described in Categories C to F of BS 8200 : 1985, or E<sub>3</sub> and E<sub>4</sub> of MOAT No 43 : 1987).


## 9 Performance in relation to fire

 9.1 When tested to BS 476-6 : 1989, an uncoated sample of the product achieved a fire propagation index (I) of 0.5 and a sub-index (i<sub>1</sub>) of 0.1.


9.2 When tested to BS 476-7 : 1997, the product achieved a Class 1 result.

9.3 Therefore, the product is classified as Class 0 or 'low risk' as defined in the various national Building Regulations.

9.4 This performance may not be achieved when the product is overcoated and care should be taken to select a coating system with the appropriate performance in fire for the installation in question.

 9.5 The product should not be used on a wall one metre or less from a boundary.

## 10 Air and water penetration

 10.1 The product is not airtight, watertight or water-vapourtight. When used on timber stud walls the product must be backed by a breather membrane acting as a vapour-permeable water barrier, incorporated behind the cladding under the supporting battens. This barrier must meet the requirements of BS 4016 : 1997 and have a vapour resistance less than 0.6 MNsg<sup>-1</sup> when calculated from the results of tests carried out at 25°C and a relative humidity of 75%, in accordance with BS 3177 : 1959.

10.2 Where the product is used as a decorative facing attached to weathertight masonry walls, a water barrier is not necessary as the amount of water that will penetrate the cladding will be small and will not have an adverse effect on the wall.

10.3 If the product is used in the renovation of a masonry wall which is structurally sound but not fully weathertight, the use of a vapour-permeable water barrier is advisable.


10.4 Provision must always be made to allow water that has penetrated behind the cladding to drain away.

## 11 Repair and maintenance

11.1 Under normal conditions of use, the products are unlikely to suffer damage, but should it occur, repairs are easily carried out by replacement of damaged planks. This may require the temporary removal of undamaged planks above the damaged area.

11.2 Maintenance is restricted to occasional cleaning and recoating as necessary.

## 12 Durability

 12.1 When installed in accordance with this Certificate and the manufacturer's instructions and subjected to normal conditions of exposure and use, the product will have an estimated service life in excess of 30 years.

12.2 In common with other cementitious materials (eg masonry block), the matrix material can embrittle with time. This can be minimised by the selection of an appropriate coating and regular maintenance painting.

## Installation

### 13 General

13.1 Hardiplank Siding is for installation on external braced timber studs, in accordance with the provisions of this Certificate and the manufacturer's instructions, using suitably experienced and trained personnel.

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

13.3 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 Procedure

14.1 Where required, a breather membrane in accordance with section 5.5 should be laid along the wall, with minimum laps of 150 mm.

14.2 Timber wall battens should be fixed over the breather membrane in accordance with sections 7.5 and 7.6.

14.3 A strip of Hardiplank Siding from 25 mm to 50 mm wide should be cut and fixed along the front face of the battens to provide a lap spacing for the first row (see Figure 1).

14.4 The first course of the product should then be installed, using the fixings described in section 5.5, in accordance with the manufacturer's instructions, leaving a 10 mm drip edge at the lower edge.

14.5 Subsequent courses should be installed in the same way, allowing a 30 mm overlap of the lower edge over the previous row (see Figure 1).

14.6 Where joints are required, two options are available. The planks can either be butted in moderate contact to form a joint, or a 3 mm gap is provided between joints, which should be filled with sealant selected in accordance with the recommendations given in BS 6213 : 2000. Where the first option is employed, a 50 mm polyurethane weather strip should be installed directly behind the joint.

14.7 At corners, wall battens should be fitted to overlap, forming a solid corner for fixing of the Hardiplank Siding or Harditrim Siding. The Harditrim Siding can either be installed over the Hardiplank Siding as shown in Figure 2(a), or alternatively, the Hardiplank Siding can be butted up against the Harditrim Siding corner, as shown in Figure 2(b). Where this second option is employed, the joint between must be filled with a suitable polyurethane sealant (see section 5.5).

14.8 The completed installation should be painted with an acrylic coating system. The manufacturer can advise on suitable products for this purpose. The performance of such coatings has not been assessed and is outside of the scope of this Certificate.

Figure 1 Installation details

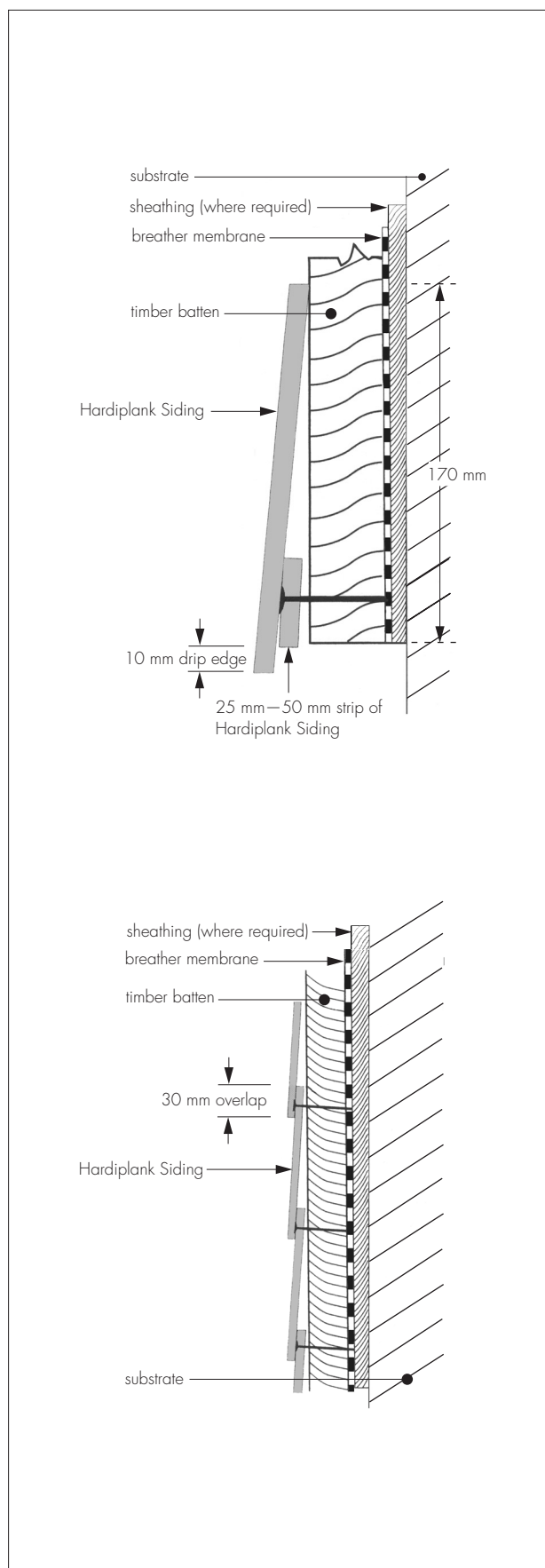
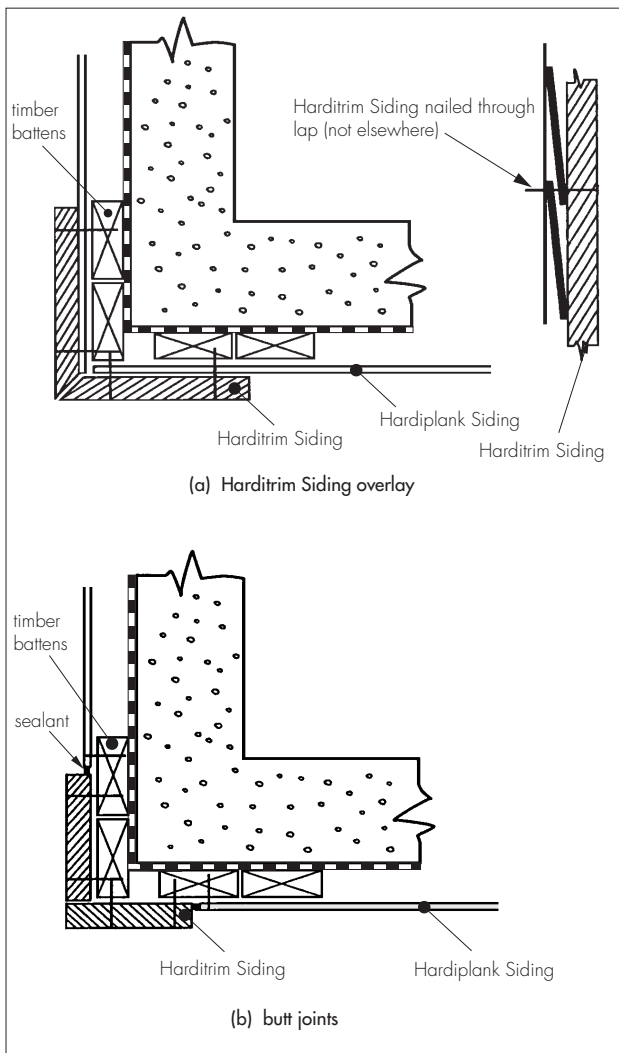


Figure 2 Corner details



## Technical Investigations

The following is a summary of the technical investigations carried out on Hardiplank Siding.

### 15 Tests

Tests were carried out to determine:

- water absorption
- water vapour permeability
- resistance to hard body impact
- resistance to soft body impact
- ease of overcoating
- adhesion of coatings.

### 16 Investigations

16.1 Classifications were made to BS EN 12467 : 2000 and ISO 8336 : 1993/Amd 1 : 2004 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.

16.2 Examination was made of existing data relating to:

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

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

16.4 Visits were made to existing sites where the product had been in service for up to nine years.

## Additional Information

The product meets the requirement for Category A, Class 2 boards to EN 12467 : 2004 and the manufacturer has declared conformity with Attestation of Conformity System 4. The product may have CE Marking, accordingly.

## 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 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*
- BS 4016 : 1997 *Specification for flexible building membranes (breather type)*
- BS 5268-2 : 2002 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*
- BS 5268-5 : 1989 *Structural use of timber — Code of practice for the preservative treatment of structural timber*
- BS 5268-6.1 : 1996 *Structural use of timber — Code of practice for timber frame walls — Dwellings not exceeding four storeys*
- BS 5628-1 : 2005 *Code of practice for use of masonry — Structural use of unreinforced masonry*
- BS 5628-3 : 2005 *Code of practice for use of masonry — Materials and components, design and workmanship*
- BS 6213 : 2000 *Selection of construction sealants — Guide*
- BS 8200 : 1985 *Code of practice for design of non-loadbearing external vertical enclosures of buildings*
- EN 12467 : 2000 *Fibre-cement flat sheets — Product specifications and test methods*
- EN 12476 : 2004 *Fibre-cement flat sheets — Product specification and test methods*
- ISO 8336 : 1993/Amd 1 : 2004 *Fibre-cement flat sheets*
- MOAT No 43 : 1987 *UEAtc Directives for Impact Testing Opaque Vertical Building Components*

## Conditions of Certification

### 17 Conditions

17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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 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.

17.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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 In granting this Certificate, the BBA is not responsible for:

- 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
- individual installations of the product or system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

17.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does 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 information 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 manufacture, supply, installation, use and maintenance of this product/system.



In the opinion of the British Board of Agrément, Hardiplank Siding is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 04/4147 is accordingly awarded to James Hardie Building Products Ltd.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'G. A. Cooper'.

Date of Second issue: 21st September 2006

Chief Executive

*\*Original Certificate issued on 13th September 2004. This amended version includes revised references to the Scottish Building Regulations, a statement on CE Marking and new Conditions of Certification.*

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**British Board of Agrément**

P O Box No 195, Bucknalls Lane  
Garston, Watford, Herts WD25 9BA  
Fax: 01923 665301

©2006

e-mail: [mail@bba.star.co.uk](mailto:mail@bba.star.co.uk)  
website: [www.bbacerts.co.uk](http://www.bbacerts.co.uk)



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.