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Agrément Certificate
05/4248
Product Sheet 2

JAMES HARDIE CLADDING SYSTEMS

HARDIEPANEL (SOFFIT APPLICATION)

This Agrément Certificate Product Sheet⁽¹⁾ relates to HardiePanel⁽²⁾, a fibre-reinforced Portland cement-based soffit board, for use in new and existing buildings as an exterior non-loadbearing, decorative cladding for the underside of roof overhanging eaves or balconies fixed directly over timber truss members, or aluminium or steel framework.

(1) Hereinafter referred to as 'Certificate'.

(2) HardiePanel is a registered trademark of James Hardie International Finance B.V.

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 product has acceptable resistance to wind and impact loads (see section 6).

Performance in relation to fire — the product is classified as Class 0 or 'low risk', as defined in the national Building Regulations (see section 7).

Condensation risk — the product, when installed, will contribute to enabling a roof or balcony to meet national Building Regulations. The risk of interstitial condensation will depend on the location and humidity class and should be assessed for each project (see section 8).

Durability — the product is durable and can be expected to have a service life in excess of 30 years (see section 10).



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

Date of First issue: 29 May 2015

John Albon — Head of Approvals
Construction Products

Claire Curtis-Thomas
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.

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Regulations

In the opinion of the BBA, HardiePanel, 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 product is acceptable for use as set out in sections 4.2 to 4.5 and 6 of this Certificate.
Requirement:	B4(2)	External fire spread
Comment:		The uncoated product is unrestricted by this Requirement. See sections 7.1 and 7.2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The risk of interstitial condensation must be assessed for each construction. The product can adequately limit the risk of surface condensation provided the necessary ventilation area is maintained within the roof space. See sections 4.2 to 4.5 and 8 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See section 10 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 product can contribute to a construction satisfying this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	1.1(a)(b)	Structure
Comment:		The product is acceptable for use, with reference to clause 1.1.1 ⁽¹⁾⁽²⁾ . See sections 4.2 to 4.5 and 6 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The product is not classified as 'non-combustible' and therefore its use will be restricted under clause 2.7.1 ⁽¹⁾⁽²⁾ . See sections 7.1 and 7.2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The risk of interstitial condensation must be assessed for each construction. The product will contribute to enabling a roof to comply with clauses 3.15.1 ⁽¹⁾ , 3.15.2 ⁽¹⁾ and 3.15.4 ⁽¹⁾ of this Standard. See sections 4.2 to 4.5 and 8 of this Certificate.
Standard:	7.1(a)	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 (as amended)

Regulation:	23a(i)(iii)b(i)	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Condensation
Comment:		The risk of interstitial condensation must be assessed for each construction. See section 8 of this Certificate.
Regulation:	30	Stability
Comment:		The product is acceptable for use as set out in sections 4.2 to 4.5 and 6 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The product is unrestricted by this Regulation. See sections 7.1 and 7.2 of this Certificate.

Construction (Design and Management) Regulations 2015

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

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

See sections: 1 *Description* (1.2), 3 *Delivery and site handling* (3.1, 3.2 and 3.5) and 11 *General* (11.5) of this Certificate.

Additional Information

NHBC Standards 2014

In the opinion of the BBA, the use of HardiePanel in soffit and eaves applications, in relation to this Certificate, is not subject to the requirements of these Standards.

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 are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 HardiePanel is a fibre-reinforced Portland cement soffit board, satisfying the requirements of Category A, Class 2 boards in accordance with BS EN 12467 : 2012 and Category B boards in accordance with ISO 8336 : 2009.

1.2 The product has the following characteristics:

Thickness (mm)*	8
Width (mm)*	1220
Length (mm)*	2400, 3050
Weight (kg·m ⁻²)*	8.6, 11.2
Finish	smooth and cedarmill as standard.

1.3 The product is supplied factory primed and coated with ColorPlus⁽¹⁾. The performance of the primer and ColorPlus, including durability and resistance to fire, has not been assessed by the BBA and is outside the scope of this Certificate.

(1) ColorPlus is a registered trademark of James Hardie International Finance B.V.

1.4 Ancillary materials for use with the product include:

- breather membrane meeting the requirements of BS 5250 : 2011
- galvanized or stainless-steel screw fixings, 40 mm long by 2.4 mm diameter, with a minimum 10 mm head diameter for fixing to metal frames
- stainless-steel T25 drive, 5.5 mm x 25 mm screws, with a minimum head diameter of 12 mm
- stainless-steel self-drilling/tapping T20 drive, 4.8 mm x 38 mm screws with a 12 mm Torx head diameter for fixing to timber battens.

1.5 Other items which may be used with the product, but which are outside the scope of this Certificate, are:

- James Hardie EPDM tape for protection of timber battens on board joints
- PVC or metal 'H' profile joint trims for covering butted joints between the boards
- proprietary soffit ventilators designed to provide the minimum ventilation recommended in BS 5250 : 2011 and the national Building Regulations
- flexible joint sealant.

2 Manufacture

2.1 The product is manufactured by a batch blending process, followed by the Hatschek process and high-pressure steam autoclaving.

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.

3 Delivery and site handling

3.1 HardiePanel boards are delivered on wrapped pallets weighing between 900 kg and 2200 kg depending on the size of the product. They can be unloaded using mechanical handling equipment or by manually removing individual boards.

3.2 The boards should be stored flat, under cover and on a dry, level surface, with the edges and corners protected from breakage. Stacks of loose boards should not exceed one metre in height.

3.3 Each board is marked with the product name and a unique manufacturing code.

3.4 If for any reason the boards become wet, they should be allowed to dry prior to installation.

3.5 The boards contain crystalline silica, and reference should be made to the current version of EH40 *Occupational Exposure Limits*. In particular, when cutting, drilling or sanding in confined areas, dust levels should be controlled using suitable extraction equipment.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on HardiePanel.

Design Considerations

4 General

4.1 HardiePanel is satisfactory for use externally as soffit boards over timber-framed, masonry or concrete, or aluminium or steel-framed walls.



4.2 The designer must ensure that the strength and integrity of the intended substrate is commensurate with that required of the soffit boards. The boards must be fixed only to sound substrates at centres not exceeding 600 mm.

4.3 Framing must have sufficient strength and stiffness to accept the boards, and to resist and transmit any dead and imposed loads that may be applied to the structure.

4.4 New timber should be provided with preservative treatment in accordance with the recommendations given in BS 8417 : 2011. Guidance on recommended wood preservation is also given in *NHBC Standards 2014, Part 2 Materials, Chapter 2.3 Timber preservation (natural solid timber)*.

4.5 Care should be taken to ensure sufficient time is allowed for complete fixing or drying of the preservative before the boards are fixed to the substructure.

4.6 Ventilated boards can contribute towards providing the necessary roof space ventilation. Guidance on the provision of the minimum adequate ventilation to avoid condensation is given in BS 5250 : 2011 and the national Building Regulations.

4.7 Appropriate ventilation may be provided by the use of additional ventilation grilles (see section 1.5 for details).

5 Practicability of installation

The product must be installed by a competent general builder, or a contractor, experienced with this type of product.

6 Strength and stability



6.1 Under wind loading, the most likely mode of failure will be pull-through/shear through the panel of the fixings owing to wind suction.

6.2 When installed in accordance with the requirements of this Certificate, the boards will withstand, without permanent deformation or damage, the design wind loads likely to be encountered in the UK.

6.3 The adequacy of a proposed installation must always be checked by a suitably-qualified engineer, who should include in the check the adequacy of the fixings of substrate (outside the scope of this Certificate).

6.4 The boards have adequate resistance to the hard and soft body impacts likely to occur in practice.

6.5 The boards are not designed to be load-bearing and therefore must not be independently used to support fixtures. Items required to be attached to the soffit must be fixed in line with the structural framing elements and only after ensuring that the required loads can be accommodated.

7 Performance in relation to fire



7.1 The product has an A2-s1,d0* fire classification in accordance with BS EN 13501-1 : 2007.

7.2 The product is classified as Class 0 or 'low risk' as defined in the national Building Regulations and therefore is unlikely to change detrimentally the fire resistance of the structure onto which it is installed.

7.3 Care must be taken when using a coating system to ensure that the fire performance of the installation is not compromised.

8 Condensation risk



8.1 The product can limit the risk of interstitial condensation when it is installed in accordance with BS 5250 : 2011 and the *Installation* part of this Certificate.

8.2 Provision must always be made to allow water that has penetrated behind the soffit boards to drain away.

9 Maintenance



Under normal conditions, maintenance is restricted to occasional cleaning, maintenance painting, localised repairs and replacing of elements such as joint seals and fixings. Advice regarding recoating and maintenance procedures can be obtained from the Certificate holder.

10 Durability



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

10.2 In common with other cementitious materials, the matrix material can become brittle over time. This can be minimised by the selection of an appropriate coating and regular maintenance painting.

10.3 In the unlikely event that the boards are damaged, they are easily replaced.

Installation

11 General

11.1 Installation of HardiePanel must be carried out in accordance with the Certificate holder's instructions and the requirements of this Certificate.

11.2 The boards must be fixed to a sound timber frame or metal frame (aluminium or steel), using suitable corrosion-resistant nails and screws.

11.3 Large cut-outs can be made using a circular saw, and small holes may be drilled using a carbide-tipped knife, or scored and snapped upwards along the scoring line.

11.4 When a penetration in the board is required, a hole should be formed using a hole saw. The hole should be made approximately 8 mm larger in diameter than the penetration, and the gap sealed with a suitable sealant.

11.5 When cutting the boards, especially when using power tools, precautions should be taken to avoid exposure to silica dust. Suitable personal protective equipment must be used.

11.6 Calculations should be made to ascertain if the resulting roof ventilation conforms to the requirements of relevant Building Regulations or whether additional ventilation is required.

12 Procedure

12.1 The boards should be fixed at maximum 600 mm centres along their length and 300 mm centres across their width, using the nails or screws described in section 1.4.

12.2 A gap should be maintained between the fascia and the edge of the HardiePanel to allow for drainage/vent gap at this location; fixings must be provided at the distance specified in the *Installation* manual.

12.3 The boards are butted together in moderate contact or can be fixed with an open joint with a maximum width of 8 mm. In both cases the joint must be supported behind by a metal rail or timber batten; the latter should be protected by the installation of James Hardie's EPDM (see Figures 1 and 2).

Figure 1 HardiePanel balcony soffit and face

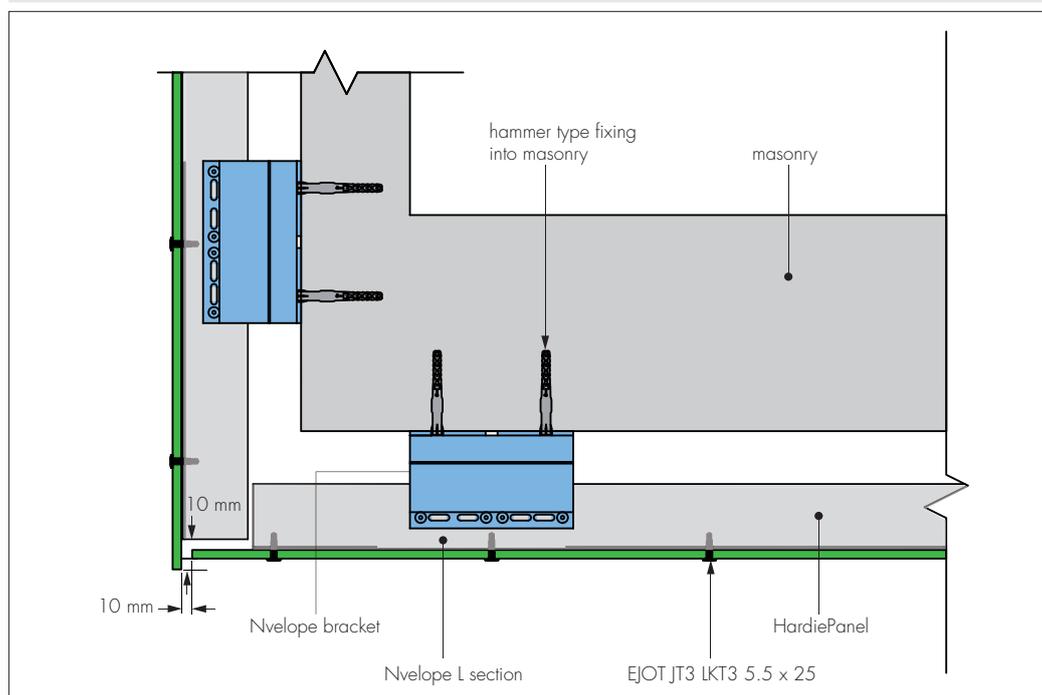
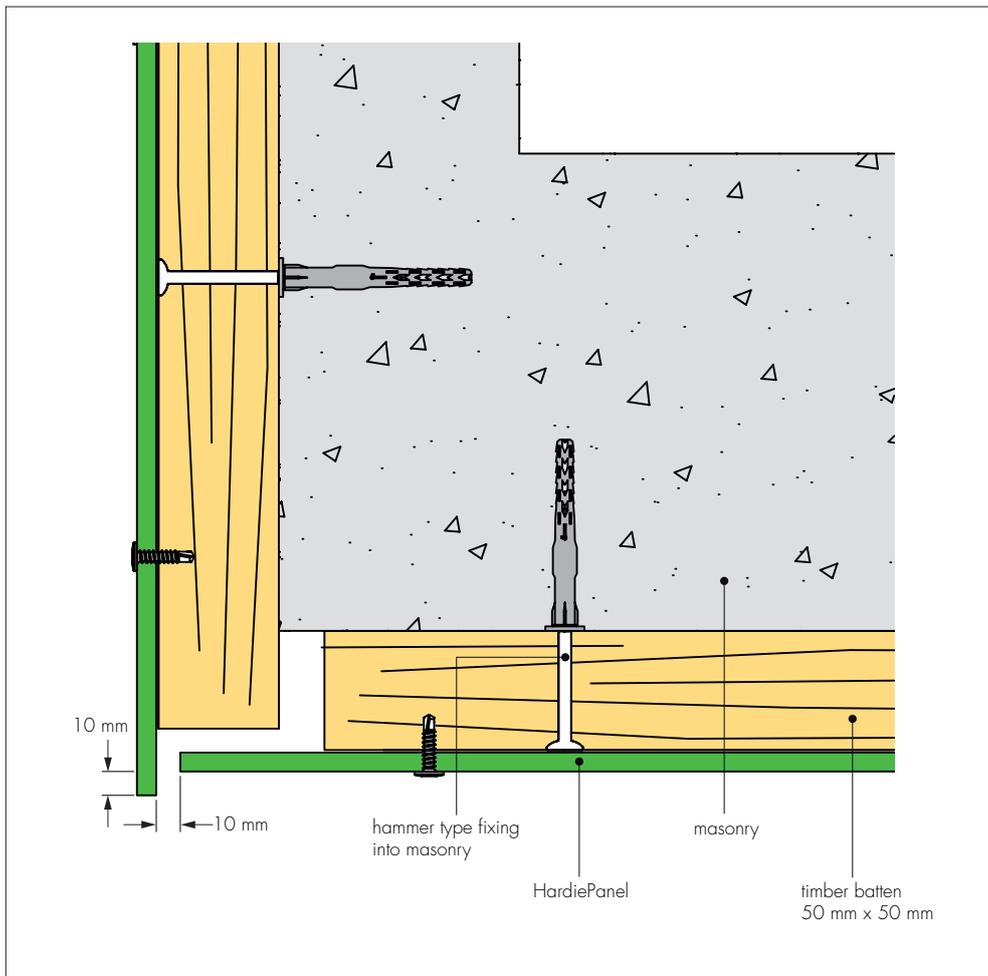


Figure 2 HardiePanel soffit detail on timber battens



12.4 Building expansion joints should be followed through the boards.

Technical Investigations

13 Tests

Tests were carried out and the results assessed to determine:

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

14 Investigations

14.1 An assessment was made on test data to BS EN 12467 : 2012, in relation to:

- 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*.

14.2 An assessment was made of the existing data relating to:

- fire propagation
- surface spread of flame
- resistance to wind loading.

14.3 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

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

BS 8417 : 2011 *Preservation of wood — Code of practice*

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

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

ISO 8336 : 2009 *Fibre-cement flat sheets — Product specification and test methods*

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.