

# Masonry Support Systems Ltd (t/a IG Masonry Support part of the Keystone Group)

Ryder Close  
Cadley Hill Industrial Estate  
Swadlincote  
South Derbyshire DE11 9EU

Tel: 01283 200157 Fax: 01283 226616

e-mail: support@igmss.co.uk

website: www.igmasonrysupport.com



**Agrément Certificate**

**15/5250**

Product Sheet 6

## IG MASONRY SUPPORT SYSTEMS

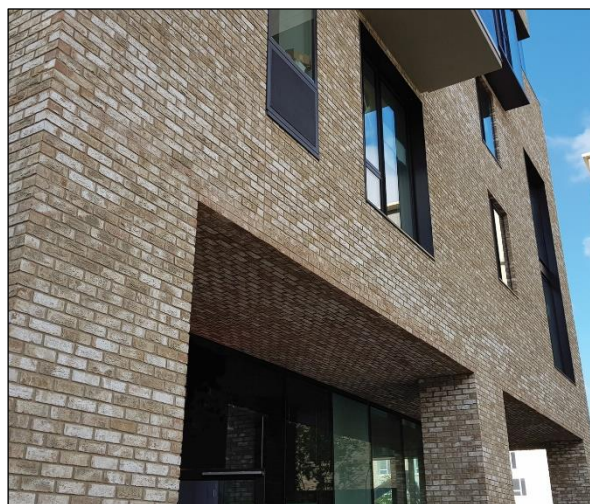
### IG BRICK PANEL SYSTEM

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the IG Brick Panel System, comprising calcium silicate boards with mechanically secured and adhesively factory-bonded brick slips, for use in external or internal soffits of masonry walls.

(1) Hereinafter referred to as 'Certificate'.

#### 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<sup>†</sup>
- formal three-yearly review.<sup>‡</sup>



#### KEY FACTORS ASSESSED

**Structural performance** – the system can support its self-weight and has adequate strength to resist the deflections that may be expected in service without deterioration (see section 6).

**Properties in relation to fire** — all components of the system are classified as A1 in accordance with BS EN 13501-1 : 2018; however, the supporting subframe is restricted in some cases by the national Building Regulations (see section 7).

**Durability** — provided that the system is designed, installed and used in accordance with this Certificate, it will have a service life of at least 60 years when used in the normal climatic conditions found in the UK (see section 10).



The BBA has awarded this Certificate to the company named above for the system described herein. This system 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: 6 July 2021

Hardy Giesler  
Chief Executive Officer

This Certificate was amended on 22 May 2024 as part of a transition of The BBA Agrément Certificate scheme delivered under the BBA's ISO/IEC 17020 accreditation. This Certificate was issued originally under accreditation to ISO/IEC 17065. Sections marked with the symbol † are not issued under accreditation. Full conversion to the ISO/IEC 17020 format will take place at the next Certificate review. The BBA is a UKAS accredited Inspection Body (No.4345). Readers MUST check the validity 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 must not be relied upon.

#### British Board of Agrément

Bucknalls Lane  
Watford  
Herts WD25 9BA

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

## Regulations

In the opinion of the BBA, the IG Brick Panel System, 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)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The system is acceptable for use as set out in section 6 of this Certificate.
<b>Requirement:</b>	<b>B2(1)</b>	<b>Internal fire spread (structure)</b>
Comment:		The system can contribute to satisfying this Requirement. See sections 7.1 and 7.2 of this Certificate.
<b>Requirement:</b>	<b>B3(2)</b>	<b>Internal fire spread (structure)</b>
Comment:		The system can contribute to satisfying this Requirement. See sections 7.1 to 7.4 of this Certificate.
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The system is unrestricted by this Requirement. See sections 7.1 and 7.2 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The system is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The system is restricted by this Regulation. See section 7.4 of this Certificate



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The system is acceptable. See sections 9.2, 9.3 and 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	1.1(a)(b)	Structure
Comment:		The system is acceptable, with reference to clauses 1.1.1 <sup>(1)(2)</sup> and 1.1.2 <sup>(1)(2)</sup> of this Standard. See section 6 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Standard:	2.4	Cavities
Comment:		The system can contribute to satisfying these Standards. See sections 7.1, 7.2 and 7.5 of this Certificate.
Standard:	2.5	Internal linings
Comment:		The system can contribute to satisfying this Standard, with reference to clause 2.5.1 <sup>(1)(2)</sup> . See sections 7.1 and 7.2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Comment:		The system is restricted by these Standards, with reference to clauses 2.6.4 <sup>(1)(2)</sup> , 2.6.5 <sup>(1)</sup> , 2.6.6 <sup>(2)</sup> and 2.7.1 <sup>(1)(2)</sup> . See sections 7.1, 7.2 and 7.5 of this Certificate.

<b>Standard:</b>	7.1(a)	Statement of sustainability
<b>Comment:</b>		The system can contribute to satisfying 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.
<b>Regulation:</b>	12	<b>Building standards applicable to conversions</b>
<b>Comment:</b>		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 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012 (as amended)

<b>Regulation:</b>	23(a)(i)	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	(iii)(b)(i)	The system is acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	30	<b>Stability</b>
<b>Comment:</b>		The system is acceptable as set out in section 6 of this Certificate.
<b>Regulation:</b>	34	<b>Internal fire spread – Structure</b>
<b>Comment:</b>		The system can contribute to satisfying this Regulation. See sections 7.1 and 7.2 of this Certificate.
<b>Regulation:</b>	35(2)(4)	<b>Internal fire spread – Structure</b>
<b>Comment:</b>		The system can contribute to satisfying this Regulation. See sections 7.1 to 7.3 of this Certificate.
<b>Regulation:</b>	36(a)	<b>External fire spread</b>
<b>Comment:</b>		The system may be restricted under this Regulation. See sections 7.1 to 7.3 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 section: 3 *Delivery and site handling* (3.3) of this Certificate.

## NHBC Standards 2021

In the opinion of the BBA, the IG Brick Panel System, 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), Chapter 6.9 Curtain walling and cladding.*

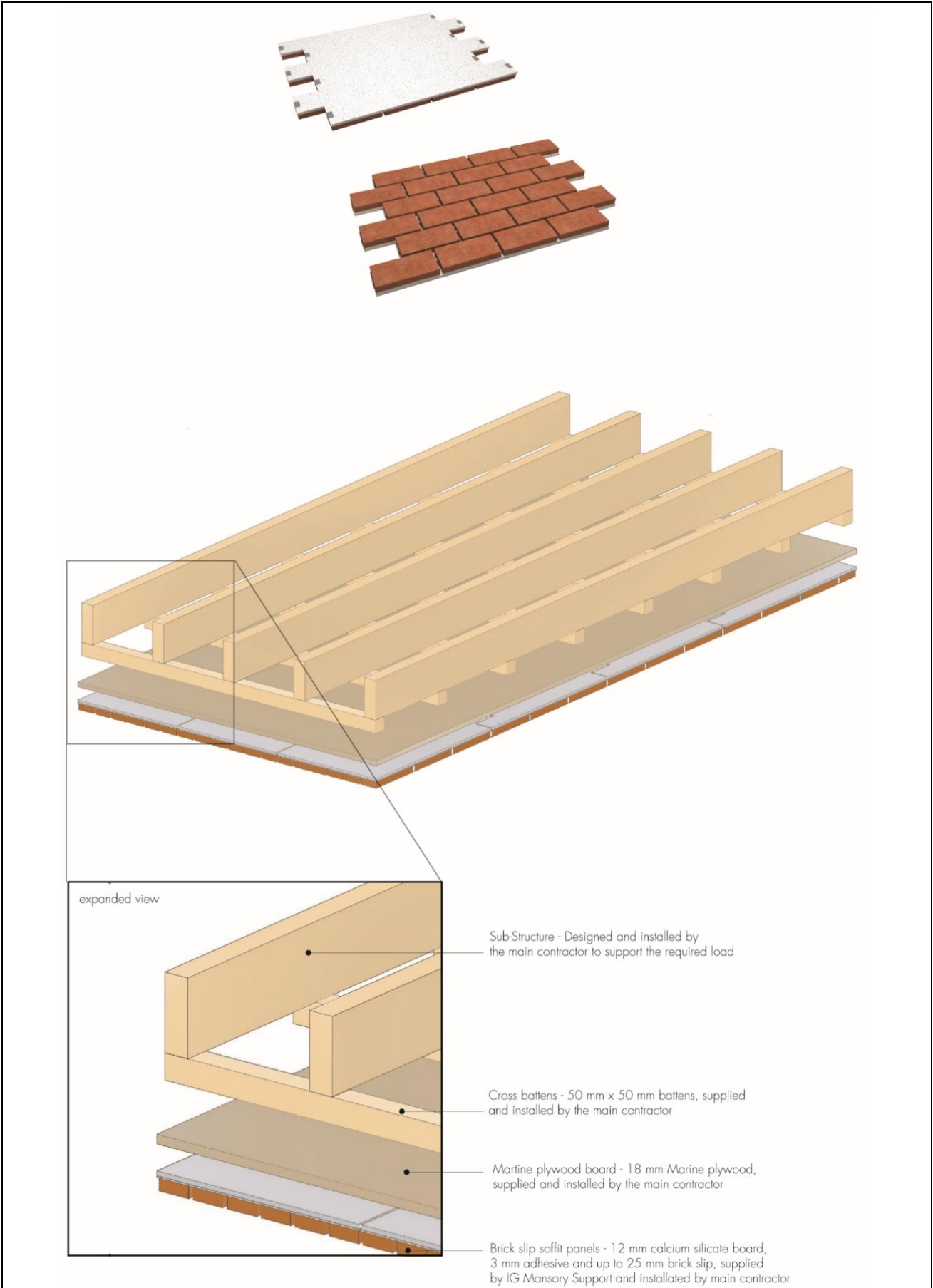
## Technical Specification

### 1 Description

1.1 The IG Brick Panel System comprises prefabricated soffit panels, consisting of brick slips mechanically secured and adhesively bonded to calcium silicate board, which are secured with stainless steel screws to the substructure and cross battens faced with plywood, to achieve project design requirements (see Figure 1). The substructure, cross battens, plywood and fixings (used to attach the plywood, cross battens and substructure) are outside the scope of this Certificate.

1.2 The system is available in different bond patterns. An example of these dimensions is shown in Figure 1 and Table 1. The calcium silicate board will always be 12 mm thick.

Figure 1 IG Brick Panel System (18 mm marine plywood, cross battens and substructure are outside scope of Certificate)



**Table 1 IG Brick Panel System**

Maximum overall length of soffit panel (mm)	890
Width of soffit panel (mm)	660
Thickness of calcium silicate board (mm)	12
Mass per unit area with brick slip ( $\text{kg}\cdot\text{m}^{-2}$ )	60

## Materials

1.3 The calcium silicate board is 12 mm thick and the subject of BBA Certificate 14/5109. The board must be screw-fixed to cross battens with stainless steel BS-S-4.8 mm x 60 mm fixings at 400 mm spacing.

1.4 The brick slip panel is created from 25 mm thick brick slips cut from standard brick masonry units to BS EN 771-1 : 2011 or BS EN 771-2 : 2011, and bonded to the calcium silicate board using 3 mm thick IG Mech-fix adhesive<sup>(1)</sup> and M3.5 x 16 mm self-tapping screws in a factory controlled environment.

1.5 Ancillary items for use with the system, but outside the scope of this Certificate, are:

- the substructure — designed and installed to support the combination of design permanent actions (due to the weight of cross battens, plywood, calcium silicate board, adhesive and brick slips), and design wind action, and to limit the deflection of the panel to  $\text{span}/500$
- cross battens — 50 x 50 mm battens at a maximum of 400 mm centres to provide a gradient of 1:200 to run off any water ingress. The battens should comply with *NHBC Standards 2021*, Chapter 7.2, with regard to timber treatment
- plywood board — 18 mm thick marine plywood board to be screw-fixed to the underside of the battens with stainless steel BS-S-4.8 mm x 60 mm fixings. All screws must be countersunk into the board to allow full contact with IG Brick Slip Soffit Panels. The exposed and cut edges of the board must be treated to comply with *NHBC Standards 2021*, Chapter 7.2
- pointing mortar.

## 2 Manufacture

2.1 The calcium silicate board is cut into specific profiles by a CNC Machine.

2.2 The brick slips are cut from bricks and factory-bonded to the soffit panels using IG Mech-fix adhesive.

2.3 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.

2.4 The management system of the Keystone Group has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by BSI (Certificates FM 523686, IG, ISO 9001 : 2015; FM 21541, Keystone Lintels Ltd, ISO 9001 : 2015 and EMS553955, Keystone Group, ISO 14001 : 2015).

## 3 Delivery and site handling

3.1 The system is delivered to site or to builders' merchants in specified lengths, each carrying a label bearing the Certificate holder's name. The BBA logo incorporating the number of this Certificate is marked on each soffit panel.

3.2 Reasonable care must be taken during unloading, stacking and storage to avoid damage to the soffit panels. Soffit panels that have suffered deformation or damage must not be used. Any repair to the soffit panels, including any defects in the bond between the brick and the calcium silicate board, must only be carried out by the Certificate holder.

3.3 The soffit panels must be stored off the ground in such a manner as to avoid the risk of either mechanical damage or contamination by corrosive substances.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the IG Brick Panel System.

### Design Considerations

#### 4 Use

4.1 The IG Brick Panel System is satisfactory for use on external or internal soffits of buildings.

4.2 It is important for designers, planners, contractors and/or installers to ensure that the installation of the system is in accordance with the Certificate holder's instructions and the information given in this Certificate.

4.3 The substructure and fixings used for attaching the plywood, cross battens and substructure must be designed by an appropriately qualified design engineer on a project-specific basis.

#### 5 Practicability of installation

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

#### 6 Structural performance



6.1 The IG Brick Panel System has adequate strength and stiffness to sustain its own weight and wind actions, providing the substructure, plywood and cross battens are designed and installed by an appropriately qualified individual to withstand the loads and limit the deflections.

6.2 The characteristic wind loads on the system should be calculated in accordance with BS EN 1991-1-4 : 2005. Special consideration should be given to locations with high wind-load pressure coefficients. In accordance with BS EN 1990 : 2002, a partial factor of 1.5 should be used to determine the design wind load to be resisted by the system. The mechanical fixing of the brick slips is capable of resisting considerably higher loads than the self-weight of the brick slips and the design wind loads expected in the UK normal conditions.

6.3 An assessment of the structural performance for a particular building must be carried out by a suitably qualified and experienced individual to confirm that the proposed system provides adequate resistance to design wind loads.

6.4 The bond resistance between the soffit panels and brick-slip interface is adequate for all expected wind actions likely to be encountered in the UK, and for the expected deflections of the panel and supporting sub-structure. The sub-structure deflections should be limited to span/500.

6.5 In addition to the requirements specifically referred to in this Certificate, structures of brickwork or blockwork in which the soffit panels are incorporated must be designed and constructed in accordance with BS EN 1996-1-1 : 2005 and BS EN 1996-1-2 : 2005, and their UK National Annexes, and the documents supporting the national Building Regulations.

#### 7 Properties in relation to fire



7.1 The calcium silicate boards, stainless steel fixings, adhesive and brick slips are classified<sup>(1)</sup> as A1 in accordance with BS EN 13501-1 : 2018.

(1) Efectis test report EFR-19-003390 dated 26 August 2019, a copy of which is available from the Certificate holder on request.

7.2 The supporting timber subframe and plywood are not classified in accordance with BS EN 13501-1 : 2018 and may be subject to restrictions on building height or proximity to boundaries.



7.3 In England, Wales and Northern Ireland, the system may be used on buildings at any proximity to a boundary. For buildings with a storey more than 18 m above the ground, designers should consider the impact on the risk of fire spread over the wall. However, also see section 7.4.



7.4 In England and Wales, the system should not be used on buildings that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



7.5 In Scotland, the system may be used on buildings with no storey at a height of more than 11 m above the ground and more than 1 m from the boundary. With minor exceptions, the system should be included in calculations of unprotected area.

## 8 Condensation

### Surface condensation

8.1 External soffits will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  (in England and Wales) or  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  (in Scotland) at any point and the junctions with walls are in accordance with the relevant requirements of *Limiting thermal bridging and air leakage: Robust construction details for dwellings and similar buildings* TSO 2002 or BRE Information Paper IP 1/06.

8.2 Further guidance on limiting the risk of surface condensation can be found in the documents supporting the national Building Regulations.

### Interstitial condensation

8.3 External soffits can adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011 (Section F.5.3), and which provide an AVCL on the warm side of the insulated soffit and a well-ventilated 50 mm air cavity between the insulation and the soffit panel.

## 9 Maintenance and repair



9.1 If the brick finish becomes damaged or stained, the advice of the Certificate holder should be sought.

9.2 Regular checks should be made on the installed system, including:

- visual inspection of the brick-slips for signs of debonding. Dislodged slips must be re-fixed using IG mech-fix adhesive
- visual inspection of architectural details designed to shed water to confirm that they are performing properly
- visual inspection to ensure that water is not leaking from external downpipes or gutters; such leakage could penetrate behind the brick slips.

9.3 Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions and the advice of the Certificate holder should be sought.

9.4 Direct jet cleaning on the brick slips should be avoided.

## 10 Durability



10.1 Provided that the system is designed, installed and used in accordance with this Certificate, it will have a service life of at least 60 years.

10.2 The brick slips will have an equivalent durability to the bricks from which they were cut (see section 1.4).

## 11 Reuse and recyclability

The stainless steel components and clay brick slips can be recycled.

## Installation

### 12 General

12.1 Weep holes must be installed along the lower perimeter of the marine plywood board at 450 mm centres.

12.2 Brick slips should be pointed using the same mortar as the rest of the brickwork. Pointing of the soffit panels should be conducted using a pointing gun and should not take place in wet weather or in temperatures below 3°C. During installation the soffit panel is held in place, before fixing, using a support jig. Once the fixings are in place, the support jig can be used on the next soffit panel.

### 13 Procedure

13.1 The IG Brick Panel System is typically fixed to the underside of the supporting plywood at maximum 400 mm centres using the stainless steel BS-S-4.8 mm x 60 mm fixings.

#### Installation of substructure, cross battens and plywood (outside the scope of this Certificate)

##### *Substructure*

13.2 The appropriately treated timbers should be attached to the substrate to support the combination of design permanent actions due to the weight of cross battens, plywood, calcium silicate board, adhesive and brick slip and design wind action, limiting the deflection of the panel to span/500.

##### *Cross battens*

13.3 50 x 50 mm cross battens are installed underneath the substructure at a maximum 400 mm centre spacing. The timber used as battens must be treated appropriately. The cross battens need to have a slight gradient of 1:200 to 'run off' any water ingress. The fixings used must be stainless steel and designed by an appropriately qualified engineer for tension, pull-out and pull-through.

13.4 18 mm marine plywood is installed under the cross battens using BS-S-4.8 mm x 60 mm stainless steel fixings. All screws must be countersunk into the plywood board to allow full contact with the IG Brick Panel System. Suitability of the substructure must be confirmed by the competent person on site.

#### Installation of IG Brick Panel System

13.5 Before installing the system, the installer should ensure the marine plywood board surface is flat and free from any dampness, dust, blemishes and bumps. The installer should also check the dimensions, and cross reference with the layout drawing to ensure that the area is compatible and suitable (diagonal checks are required to ensure the area is square).

13.6 Each panel is supplied with a panel number to indicate the starting point. The first panel is positioned at the datum point, then supported by the support jig. Each pre-cut interlocking panel allows for a 5 mm clearance gap around adjoining edges to connecting panels. Care must be taken to maintain this gap throughout.

13.7 A 5 mm clearance gap must be left to allow for a soft joint along the perimeter of the soffit panels where they abut to other elements of the building. Each panel should be fixed with stainless steel BS-S-4.8 mm x 60 mm fixings, as per the designed fixing pattern. The fixings must be as close as possible to the centre line of the batten and must start at least 50 mm from the edge of the panel, then be no more than 300 mm apart. A minimum of 4 fixings must be installed per panel. The fixings must be sufficiently countersunk into the calcium silicate board, but the fixing head should not sink beneath the surface as this will affect the structural quality of the board.



13.8 The process should be repeated until the area is completely covered. The alignment should be checked by taking regular measurements from the datum point. The gaps must then be pointed so that they allow for weep holes along the lower perimeter of the marine plywood board at 450 mm centres.

## Technical Investigations

### 14 Tests

Tests were carried out on the system and the results assessed to determine:

- bond strength after accelerated ageing
- pull-out resistance of fixings
- pull-through resistance of fixings
- integrity of the bond at maximum design deflection.

### 15 Investigations

15.1 An assessment was made of data relating to:

- calculations to establish minimum temperature factors and the  $\Psi$  values of typical constructions incorporating the system, undertaken to BRE Information Paper IP 1/06
- durability
- practicability of installation
- behaviour in relation to fire.

15.2 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.

## Bibliography

BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS EN 771-1 : 2011 + A1 : 2015 *Specification for masonry units — Clay masonry units*

BS EN 771-2 : 2011 + A1 : 2015 *Specification for masonry units — Calcium silicate masonry units*

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

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

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6: Design of masonry structures — General rules — Structural fire design*

NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6: Design of masonry structures — General rules — Structural fire design*

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

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

BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

## Conditions of Certificate

### Conditions

1. This Certificate:

- relates only to the product 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.

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product 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.

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

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 or any other product
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product
- actual installations of the product, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA, UKNI or CE marking.

6. Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.

#### British Board of Agrément

1<sup>st</sup> Floor, Building 3, Hatters Lane  
Croxley Park, Watford  
Herts WD18 8YG

©2024

tel: 01923 665300  
clientservices@bbacerts.co.uk  
[www.bbacerts.co.uk](http://www.bbacerts.co.uk)