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Agrément Certificate
13/5079
Product Sheet 2

EUROBRICK CLADDING SYSTEMS

P-CLAD EXTERNAL CLADDING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the P-Clad External Cladding System, a clay brick slip system for use as protective/decorative cladding with or without a cavity over timber- or steel-frame and masonry external walls in new and existing domestic and non-domestic buildings.

(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
- formal three-yearly review.

KEY FACTORS ASSESSED

Strength and stability — the system can adequately resist wind loads and impact damage (see section 6).

Behaviour in relation to fire — the system is classified as Class O as defined by the national Building Regulations and its use is restricted in some cases (see section 7).

Condensation risk — the system can contribute to limiting the risk of interstitial and surface condensation (see section 9).

Weathertightness — the system resists water penetration and reduces the risk of damage to the inner wall (see section 10).

Durability — with appropriate maintenance, the system will remain effective for at least 25 years (see section 12).



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 Second issue: 26 September 2018

Originally certificated on 28 March 2014

Certificate amended on 18 January 2019 to include Regulation 7(2) for England and associated text.

Certificate amended on 13 January 2020 to include new regulatory guidance for fire in Scotland and Wales.

Paul Valentine
Technical Excellence Director

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 **MUST** check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

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Regulations

In the opinion of the BBA, the P-Clad External Cladding System, if installed, used and maintained in accordance with the provisions of 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 system can sustain and transmit wind loads to the fixing into the substrate as set out in sections 4.4, 4.5, 4.7 and 6.2 of this Certificate.	
Requirement:	B3(4)	Cavities
Comment:	The system is unrestricted by this Requirement. See section 7.2 of this Certificate.	
Requirement:	B4(1)	External fire spread
Comment:	The system is restricted by this Requirement unless specific conditions are met. See sections 7.1, 7.3, 7.7 and 7.8 of this Certificate,	
Requirement:	C2(b)	Resistance to moisture
Comment:	The system will resist the passage of rainwater to the supporting structure. See section 10 of this Certificate.	
Requirement:	C2(c)	Resistance to moisture
Comment:	The system contributes to minimising the risk of surface and interstitial condensation. See section 9.1 of this Certificate.	
Regulation:	7(1)	Materials and workmanship
Comment:	The system is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.	
Regulation:	7(2)	Materials and workmanship
Comment:	The system is restricted by this Regulation. See section 7.1 and 7.4 of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:	The use of the system satisfies the requirements of this Regulation. See sections 11 and 12 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	1.1(b)	Structure
Comment:	The system can sustain and transmit wind loads to the substrate. See sections 4.4, 4.5, 4.7 and 6.2 of this Certificate.	
Standard:	2.4	Cavities
Comment:	The system can contribute to meeting this Standard with respect to clause 2.4.2 ⁽¹⁾⁽²⁾ . See section 7.2 of this Certificate.	
Standard:	2.6	Spread to neighbouring buildings
Comment:	The system is restricted by this Standard with respect to clauses 2.6.4 ⁽¹⁾⁽²⁾ , 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ unless specific conditions are met. See sections 7.1 and 7.5 to 7.8 of this Certificate.	
Standard:	2.7	Spread on external walls
Comment:	The system is restricted by this Standard, with reference to clause 2.7.1 ⁽¹⁾⁽²⁾ unless specific conditions are met. See sections 7.1 and 7.5 to 7.8 of this Certificate.	
Standard:	3.10	Precipitation
Comment:	The system will contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ to 3.10.3 ⁽¹⁾⁽²⁾ , and 3.10.5 ⁽¹⁾⁽²⁾ . See section 10 of this Certificate.	
Standard:	3.15	Condensation
Comment:	The system can satisfy or contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.2 ⁽¹⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See section 9.1 of this Certificate.	
Standard:	7.1(a)(b)	Statement of sustainability
Comment:	The system 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. See section 9.1 of this Certificate.	
Regulation:	12	Building standards applicable to conversions
Comment:	All comments given for the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).	



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

Regulation:	23(a)(i)(iii)(b)	Fitness of materials and workmanship
Comment:	This system is acceptable. See section 12 and the <i>Installation</i> part of this Certificate.	
Regulation:	28	Resistance to moisture and weather
Comment:	The system will contribute to satisfying this Regulation. See section 10 of this Certificate.	

Regulation:	29	Condensation
Comment:		The system will satisfy the requirements of this Regulation. See section 9.1 of this Certificate.
Regulation:	30	Stability
Comment:		The system is acceptable as set out in sections 4.4, 4.5, 4.7 and 6.2 of this Certificate.
Regulation:	35(4)	Internal fire spread - Structure
Comment:		The system is unrestricted by this Regulation. See section 7.2 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The system is unrestricted by this Regulation. See sections 7.1 to 7.3 and 7.7 of this Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See sections: 3 *Delivery and site handling* (3.1) and 15 *General* (15.5) of this Certificate.

Additional Information

NHBC Standards 2018

In the opinion of the BBA, the P-Clad External Cladding System with a minimum drained cavity of 15 mm, 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

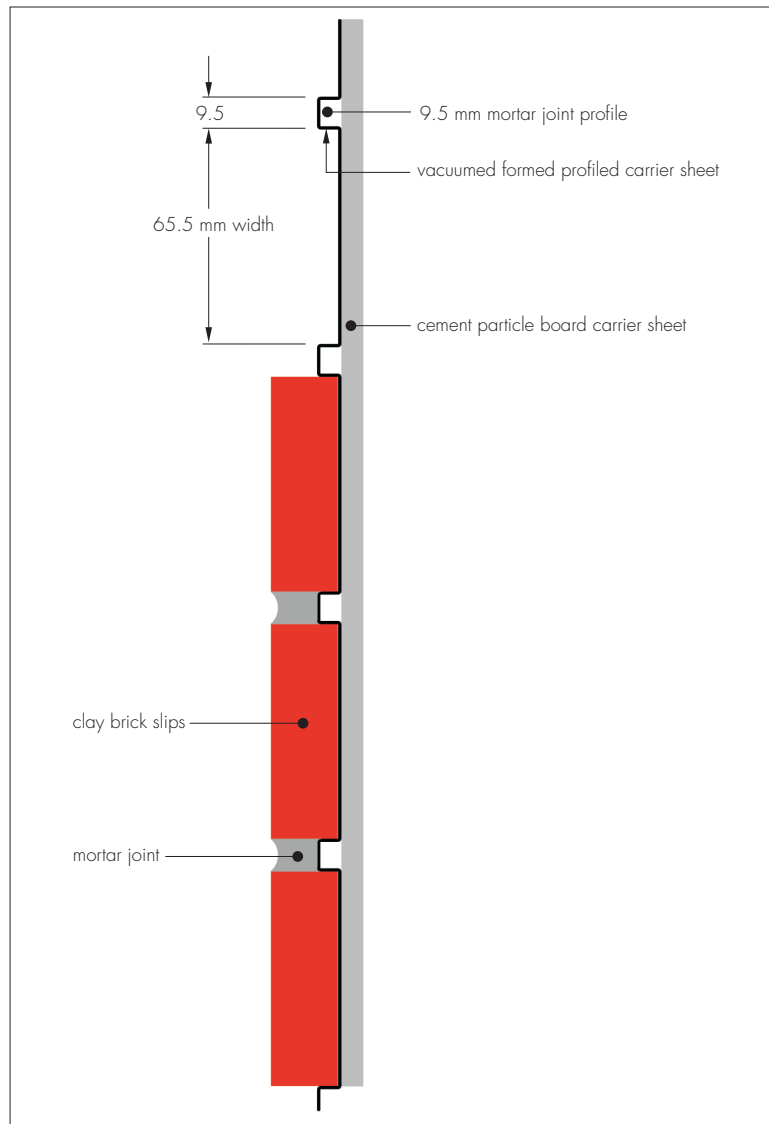
1 Description

1.1 The P-Clad External Cladding System (see Figure 1) comprises:

- backerboard panel — 1200 mm wide by 2400 mm high composite panel consisting of a high-impact, high-gloss grey polystyrene (HIPS) profiled carrier sheet, bonded to a 10 or 8 mm Viroc cement particle board. The cement-particleboard component has a density of 1297 kg·m⁻³ and has a thermal conductivity value of 0.23 W·m⁻¹·K⁻¹ in accordance with BS EN 13986 : 2004. The brick slip carrier provides a precise horizontal joint spacing track for brick slips with track dimensions of 65.5 mm high with a 9.5 mm raised mortar joint profile as standard
- clay brick slip — fired clay brick slips of nominal size 215 mm in length, 65 mm in height and 15 mm thickness⁽¹⁾, available in a range of colours. The brick slips are either extruded (Britannia range) or cut (Classic range) from masonry units CE marked in accordance with EN 771-1 : 2011 as suitable for use in 'severe exposure' conditions (designation F2). In addition, L-shaped bricks 215 by 65 by 102 mm are available for external corners
- brick slip adhesive — Korapur 126 is a one part polyurethane construction adhesive specified in accordance with BS 6213 : 2000 and used to fix the brick slips to the panel
- pointing grout/mortar — joints between brick slips are filled with proprietary cementitious mortar mix. Joints below damp-proof course (dpc) level may require a higher strength mortar to protect against potential degradation from frost attack. Mortar mixes must be selected in accordance with class 12, 6 or 4 to BS EN 998-2 : 2016.

(1) Brick slips with different dimensions are available from the manufacturer but are outside the scope of this Certificate.

Figure 1 The P-Clad External Cladding System



1.2 Ancillary components for use with the system, but outside the scope of this Certificate, include:

- base angle — polymer-coated aluminium base angle, 60 by 24 by 1 mm, supplied in 2500 mm lengths for cutting onsite to provide a fixed datum for setting out backerboard panels
- urethane based sealant — for use around openings and penetrations in accordance with BS EN ISO 11600 : 2003 and BS 6213 : 2000
- backerboard panel fasteners — stainless steel fixings suitable for the substrate incorporating a 36 mm diameter stainless steel retaining washer used to attach the panels to the substrate wall
- components forming movement joints.

2 Manufacture

2.1 The cement particle board component of the panel is manufactured to comply with BS EN 634-2 : 2007.

2.2 The HIPS profiled carrier sheet component is vacuum formed.

2.3 Clay brick slips are either extruded- or cut-slips to specified dimensions.

2.4 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the Certificate holder/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 as part of a surveillance process to ensure that standards are maintained and that the product or system remains as certificated.

2.5 The management system of Eurobrick Systems Limited has been assessed and registered as meeting the Requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by CQS Limited (Certificates GB2003636 and EM200081 respectively).

3 Delivery and site handling

3.1 The backerboards panels are stacked on timber pallets. Each pack contains a label incorporating the manufacturer's name, product name, edge type, thickness, width, length, number of boards per pallet, pallet weight, recommended storage and handling method.

3.2 During transportation, an impermeable cover should be used to protect the backerboard panels.

3.3 The panels must be stored flat, level, clear off the ground on pallets out of direct sunlight and in dry conditions. Panels should ideally be stored indoors, however, should short-term storage outdoors be necessary, they must be covered with tarpaulin. Panels must not be exposed to volatile organic solvents. When moving manually, individual panels should be maintained in a vertical position.

3.4 Clay brick slips are delivered to site in shrink wrapped bundles on pallets. They must be stored covered and on dry level ground.

3.5 Containers of adhesive, mortar, sealants and expanding foam should be stored in dry conditions and protected against frost and excessive heat. Adhesive and mortar must be used within the date indicated on the packaging or the supplier's guidelines.

Assessment and Technical Investigations

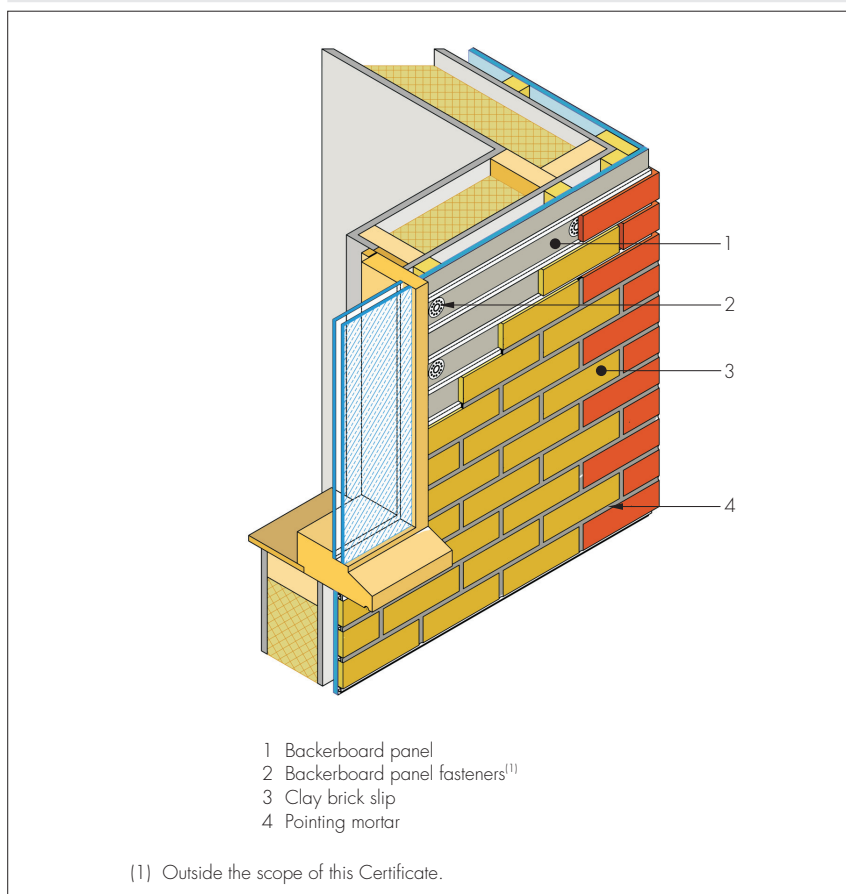
The following is a summary of the assessment and technical investigations carried out on the P-Clad External Cladding System.

Design Considerations

4 Use

4.1 The P-Clad External Cladding System is suitable for use as a durable non-structural weather-resistant, external wall façade panel system to provide a protective and decorative cladding finish for new or refurbished buildings on external vertical walls of solid and cavity masonry, dense or no-fines concrete, timber-frame or light gauge steel-frame construction with or without a vented cavity behind the system (see Figure 2). The system is restricted to sheltered areas (on timber- or steel-frame walls) and moderate areas (on masonry walls) where used without a cavity behind the system (see section 10.2). A map detailing the UK zones for exposure to driving-rain can be found in Approved Document C.

Figure 2 Typical P-Clad External Cladding System Installation with cavity



4.2 The system can be used above and below the dpc. However, when used below the dpc, suitable brick slips and mortars must be specified in accordance with the Certificate holder's advice to resist the higher moisture levels.

4.3 The system will improve the weather resistance of a wall and provide a decorative finish. However, it may only be installed where other routes for moisture penetration have been dealt with separately and where dampness, other than that caused solely by condensation, is not evident on the inner surface of the wall. The system can contribute to minimising condensation on internal wall surfaces.



4.4 Existing buildings subject to the national Building Regulations should have wall surfaces in accordance with section 4.7.

4.5 New buildings subject to the national Building Regulations should be constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005 + A1 : 2012, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006
- BS 8000-0 : 2014 and BS 8000-3 : 2001.

4.6 Other buildings, not subject to any of the previous requirements should also be built in accordance with requirements given in section 4.5.



4.7 The wall and support frame to which the cladding is to be fixed should be structurally sound and constructed in accordance with the requirements of the relevant national Building Regulations and Standards:

- timber stud walls and timber battens must be structurally sound, designed and constructed in accordance with BS EN 1995-1-1 : 2004, and preservative treated in accordance with BS EN 351-1 : 2007
- galvanized steel framework must be structurally sound, designed and constructed in accordance with BS EN 1993-1-1 : 2005 and BS EN 1993-1-3 : 2006
- new masonry buildings subject to the national Building Regulations should be constructed in accordance with the relevant recommendations of BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006.

4.8 The system transfers its self weight and design wind loads to the substrate wall. The substrate and any supporting framework should be capable of resisting the associated loads. Particular care is required around window and door openings to ensure that the structure is capable of sustaining the additional weight of the system.

4.9 The system does not make any contribution to the overall structural performance of the building and must not be used for the support of any temporary structure.

4.10 In severe exposure conditions, application of a high performance breather membrane should be considered. A map detailing the UK zones for exposure to driving-rain can be found in Approved Document C.

4.11 The system must only be used in locations where the surface temperature will not exceed 65°C.

4.12 All externally exposed perimeters and penetrations of the panel must be protected by non-combustible material.

4.13 The fixing of rainwater goods, satellite dishes, clothes lines, hanging baskets and similar items are outside the scope of this Certificate. However, support fixings must pass through the cladding into the substrate wall so as not to exert any loadings on the cladding. Care must be taken not to overtighten the fixings which could cause damage. Guidance must be sought from the Certificate holder.

5 Practicability of installation

The system should only be installed by installers who have been trained and approved by the Certificate holder.

Note: The BBA operates a UKAS-Accredited Approved Installer Scheme for external wall insulation, details of installer companies approved are included on the BBA's website: www.bbacerts.co.uk

6 Strength and stability

6.1 A suitably qualified and experienced individual must check the design and installation of the system to provide adequate resistance to design loads applicable in the UK.



6.2 Design wind actions should be calculated in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. Due consideration should be given to the higher pressure coefficients applicable to corners of the building as recommended in this Standard and a wind load factor of 1.5 applied to determine the ultimate wind load to be resisted by the system.

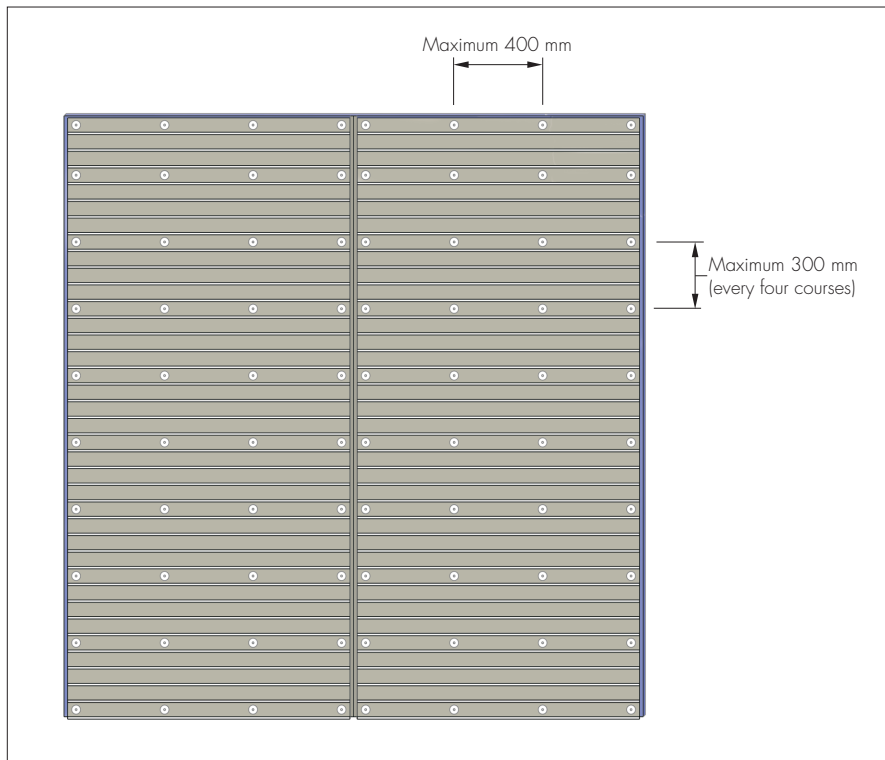
6.3 The substrate wall must be able to take the full wind loads, as well as any racking loads, on its own. No contribution from the system may be assumed in this regard.

6.4 Positive wind load (pressure) is transferred to the substrate wall directly via bearings and compression of the brick slips and panel.

6.5 Negative wind load (suction) is resisted by the bond between each component. The panel is retained by fixings.

6.6 The structural adequacy of the fixings used to attach the panel to the substrate wall, including their pull-out strength, will depend on the type and condition of the individual substrate wall and must therefore be designed and selected on a project specific basis. The maximum spacing between these fixings should not exceed 400 mm horizontally and 300 mm vertically, as shown in Figure 3.

Figure 3 Typical fixing layout



6.7 When installed in accordance with the requirements of this Certificate and the Certificate holder's instructions, the panels will withstand, without damage or permanent deformation, wind pressure or suction that does not exceed $2 \text{ kN}\cdot\text{m}^{-2}$.

6.8 The studs and support rails (the supporting framework) should be designed to limit the deflection to $1/350$ of its span, or 15 mm , whichever is the lesser.

6.9 The Viroc cement particle board has the bending strength of $10.51 \text{ N}\cdot\text{mm}^{-2}$ with Modulus of Elasticity (bending) of $6896 \text{ N}\cdot\text{mm}^{-2}$.

6.10 Assessment of structural performance for individual buildings must be carried out by a suitably qualified and experienced individual to confirm that:

- the substrate wall has adequate strength to resist additional loads that may be applied as a result of installing the system, ignoring any contribution from the system itself
- the proposed system and associated fixings (see section 1.2) and fixing pattern (see section 6.6) provide adequate resistance to negative wind loads (based on the results of the wind loading full scale test).
- the design pull-out values (based on site tests) provide adequate pull-out capacity of the fixings (not covered by this Certificate). The maximum allowable pull-out value of the fixing to be used for securing the panel to the structural substrate should be determined by tests using a minimum safety factor of 3 on the characteristic failure load or by method agreed by the engineer responsible.

Impact resistance

6.11 When tested for hard and soft body impact, a system without a cavity, comprising brick slips bonded to a 50 mm thick XPS insulation board and with timber studs and panel fixing centres not exceeding the maximum values stated in this Certificate, achieved adequate resistance. The system is therefore suitable for use in all Use Categories as defined in Table 4 of ETAG 034 : 2012, Part 1 (reproduced in Table 1 of this Certificate).

Table 1 Definition of Use Categories (reproduced from ETAG 034 Part 1, Table 4)

Use Category	Description
I	A zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use.
II	A zone liable to impacts from thrown or kicked objects, but in public locations where the height of the kit will limit the size of the impact; or at lower levels where access to the building is primarily to those with some incentive to exercise care.
III	A zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.
IV	A zone out of reach from ground level.

6.12 For system installations with a cavity, hard and soft body impact tests must be conducted to the relevant Standards to verify suitability for use.

7 Behaviour in relation to fire



7.1 In England, Wales and Northern Ireland, the system is classified as Class O as defined by national Building Regulation. In Scotland, the system should be evaluated by reference to the requirements of the documents supporting the national Building Regulation.

7.2 Viroc cement particle boards have a B-s1,d0 reaction to fire classification to BS EN 13501-1 : 2007.



7.3 In England, Wales and Northern Ireland, the panels are not classified as non-combustible or of limited combustibility and 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. See also section 7.4.



7.4 The panels should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and 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 is not classified as non combustible and may be used on buildings more than 1 m from a boundary. With minor exceptions, the system should be included in calculations of unprotected area.

7.6 In Scotland, the system should not be used on any building with a storey more than 11 m above the ground, or on any entertainment and assembly building with a total storey area more than 500 m², or on any hospital or residential care building with a total storey area more than 200 m².

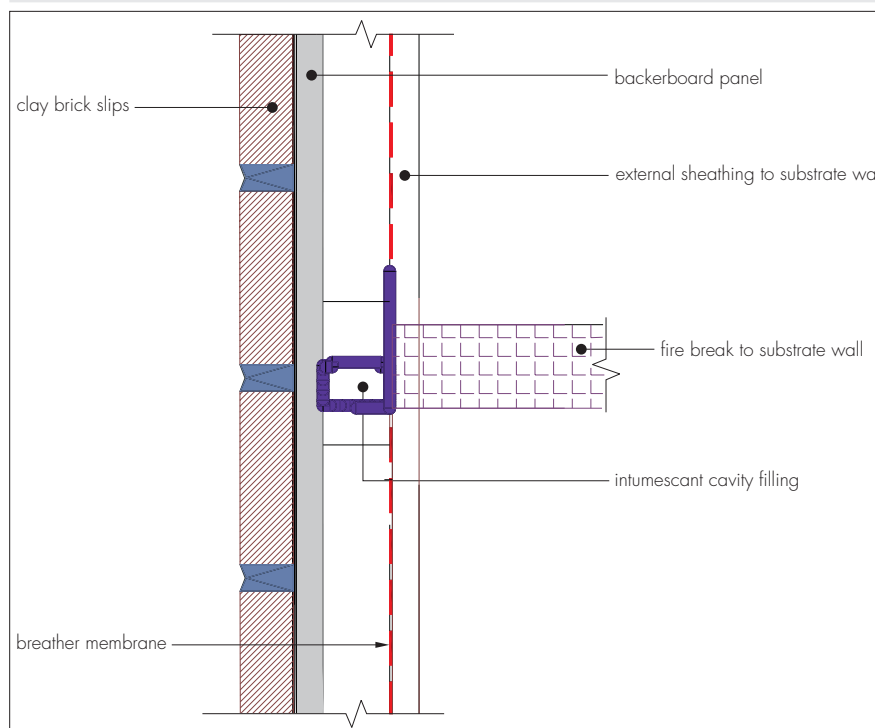


7.7 When tested to BS 8414-2 : 2005, the overall construction shown below satisfied the performance criteria of BRE Report BR 135 : 2013, Annex B. Designers should refer to the fire test report reference 283519-1 and classification report BRE 283519-2, available from the Certificate holder.

7.8 The construction described in section 7.7 is not subject to any restriction on proximity to boundaries and height, except those described in section 7.4.

7.9 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity barriers, service penetrations and combustibility limitations for other materials and components used in the overall wall construction, for example, thermal insulation.

Figure 4 Cavity/fire barriers



8 Proximity of flues and appliances

When the system is installed in close proximity to certain flue pipes the relevant provisions of the national Building Regulations should be satisfied:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clauses 3.19.2⁽¹⁾⁽²⁾, 3.19.3⁽¹⁾⁽²⁾ and 3.19.4⁽¹⁾⁽²⁾

Northern Ireland — Technical Booklet L.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

9 Condensation risk



9.1 Designers must ensure that an appropriate condensation risk analysis has been carried out for all parts of the construction, including openings and penetrations at junctions between the system, to minimise the risk of condensation. The recommendations of the BS 5250 : 2011 should be followed, including requirements for vapour control layers and breather membranes in timber-frame construction applications.

9.2 It is essential that walls incorporating the system are rain resistant and show no sign of water ingress. Careful attention must be paid to joints and junctions in and between components and elements.

9.3 Dynamic simulations to BS EN 15026 : 2007 indicate that the system is acceptable when installed creating a rain resistant wall. The simulations were done for a particular location, orientation and vapour resistance of the masonry substrate. The suitability of other constructions/parameters may be assessed by using an appropriate dynamic modelling package.

9.4 The risk of interstitial condensation in the external walling is greatest when the building is drying out after construction. Guidance on preventing condensation is given in BRE Digest 369 and BRE Report BR 262 : 2002.

9.5 The board has a water vapour resistance factor (μ) of 30 (wet cup) and 50 (dry cup) in accordance with BS EN 13986 : 2004 and the equivalent air layer thickness (s_d) for the HIPS layer is 100 m.

10 Weathertightness



10.1 The system resists the passage of moisture from the ground and from weather. Any water collecting in the cavity due to rain or condensation will be removed by drainage and ventilation.

10.2 For installation without a vented cavity, the system is limited to sheltered areas (wind-driven rain less than 33 l·m⁻² per spell) when used in conjunction with timber- or steel-framed substrate walls, and limited to moderate areas (wind-driven rain less than 56.5 l·m⁻² per spell) when used in masonry walls. A map detailing the UK zones for exposure to driving-rain can be found in Approved Document C. The wind-driven rain index can be more accurately calculated from the large scale maps and correction factors given in BS 8104 : 1992.

10.3 The brick slips are classified as F2 for resistance to freeze/thaw, in accordance with DD CEN/TS 772-22 : 2006, and are therefore suitable for conditions of severe exposure.

10.4 For the cavity installation on timber- and steel-frame constructions, the cavity should be at least 15 mm wide. The cavity must be drained and vented, incorporating perpendicular weep vents at 1.5 m centres, as defined in BS EN ISO 6946 : 2017. Ventilation and drainage openings should be suitably protected or baffled to prevent the ingress of birds, vermin and rain.

10.5 At the top of walls, the system should be protected by an adequate overhang or other detail designed for use with this type of system (see sections 16.12).

10.6 Designers and installers should take particular care in detailing around openings, penetrations and movement joints to minimise the risk of rain ingress.

11 Maintenance



11.1 Regular maintenance inspections should be carried out to ensure that the ingress of water does not occur. Necessary repairs must be effected immediately. Annual inspections should be carried out to ensure the condition of sealants is satisfactory. Sealant should be reapplied where necessary. Damaged brick slips should be replaced in accordance with the Certificate holder's installation instructions.

11.2 The brick finish may become soiled over time. For normal soiling, the surface may be cleaned using a hot water/household detergent mix, applied with a suitable cleaning pad or sponge. For more difficult chemical soiling, the advice of the Certificate holder should be sought.

12 Durability



The durability and service life of the cladding panels will depend upon the building location and height, aspect, intended use of the building and the immediate environmental conditions to which it is exposed. Providing regular maintenance is carried out as described in section 11 and in accordance with the Certificate holder's instructions, the system should have a service life of at least 25 years when used in the normal exposure conditions found in the UK.

13 Reuse and recyclability

The system consists of brick and mortar which can be recycled.

Installation

14 Approved installers

Application of the system, within the context of this Certificate, is carried out by approved installers recommended or recognised by the Certificate holder. Such an installer is a company which:

- employs operatives who have been trained and approved by the Certificate holder to install the system
- has undertaken to comply with the Certificate holder's application procedure, containing the requirement for each application team to include at least one member operative trained by the Certificate holder
- is subject to at least one inspection per annum by the Certificate holder to ensure suitable site practices are being employed. This may include unannounced site inspections.

15 General

15.1 The P-Clad External Cladding System must be installed in accordance with the manufacturer's recommendations, the requirements of this Certificate and the specification laid down by the consulting engineer.

15.2 A dpc must be provided through the thickness of the system. In new constructions, the dpc in the substrate should be carried through the system. In existing buildings, an appropriate dpc must be fitted in line with the existing dpc.

15.3 The backerboard panels must not be installed on wet walls, or in temperatures below 5°C. Pointing should not take place at temperatures below 2°C and above 30°C.

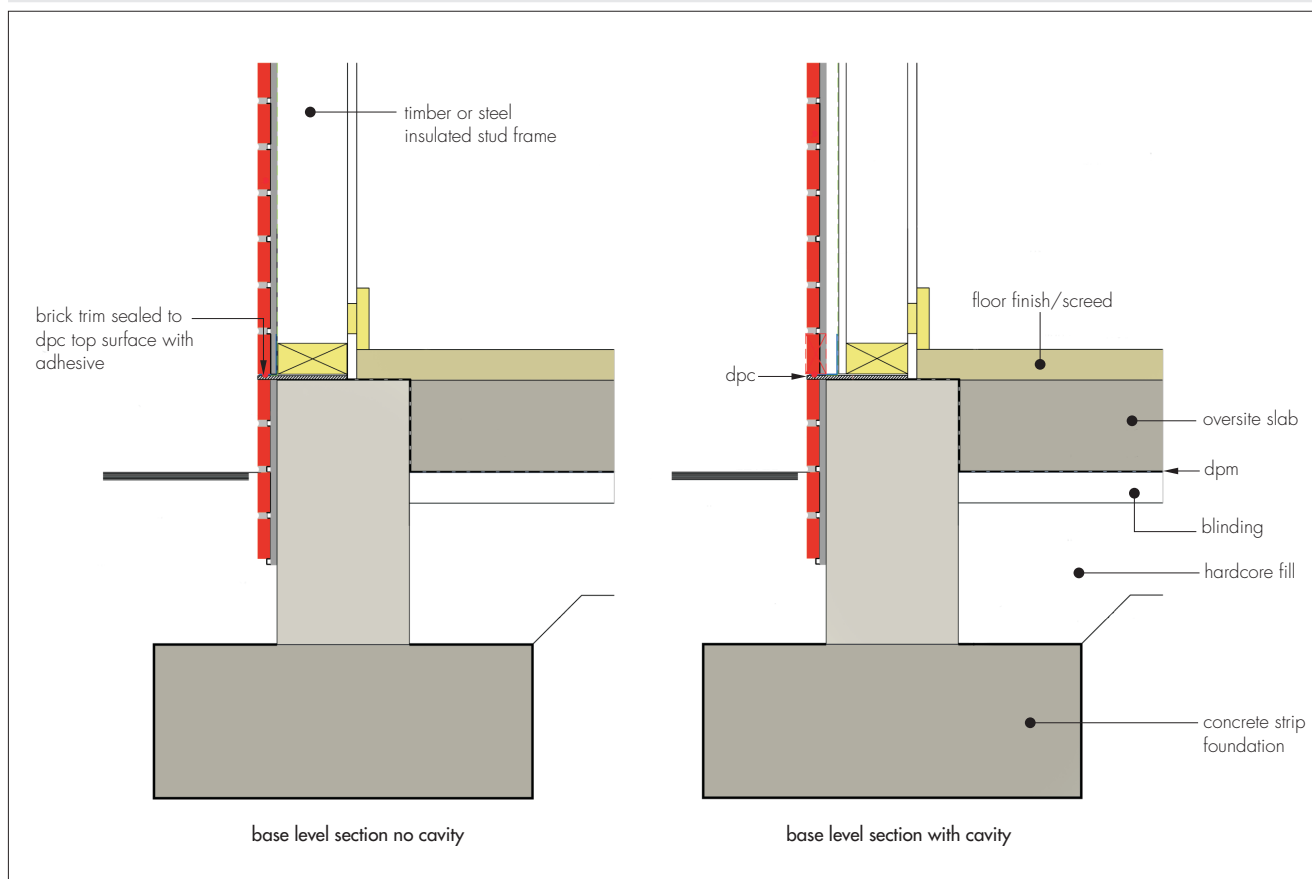
15.4 When fixed to a framed substrate, a suitable breather membrane/vapour permeable membrane must be applied to the sheathing board.

15.5 The panels can be handled on site and can be cut or trimmed using a disc cutter or fine-toothed saw. Reasonable precautions must be taken to ensure panels are not damaged during and subsequent to installation. Protective glasses and masks must be worn when cutting the boards.

16 Procedure

16.1 Typical installation of the system on a timber-frame wall is shown in Figure 5.

Figure 5 Installation detail



16.2 Before installation commences, the substrate to receive the boards must be flat and stable. Typically, installation starts from the outside corner working along the wall. A base angle is horizontally set at the appropriate height and fastened to the wall to provide a protective edge for the boards.

16.3 The panel with pre-formed brick slip carrier sheet is aligned with a spirit level against the substrate and fixing positions are marked (see section 6.6 and Figure 3).

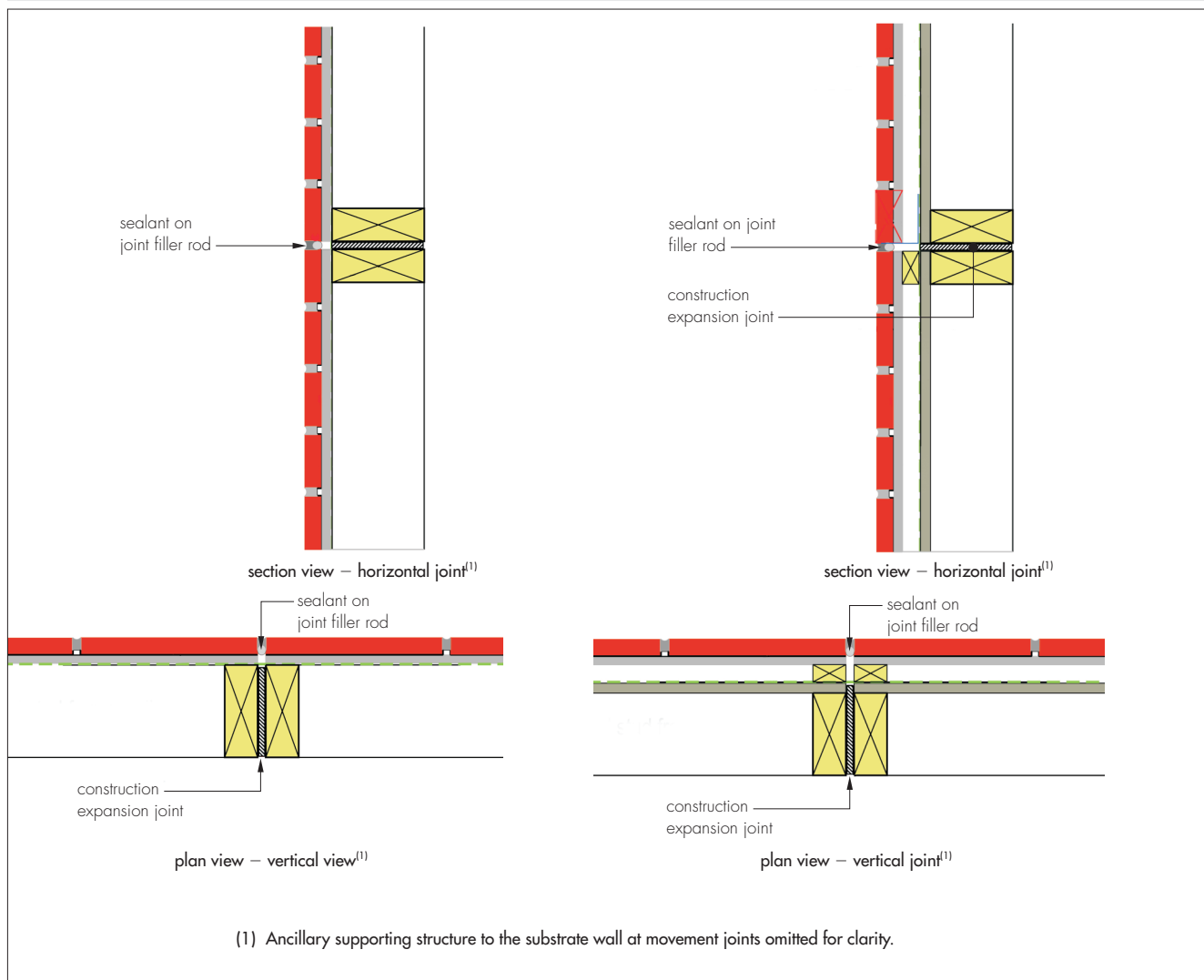
16.4 The panel is fixed to the substrate with mechanical fixings. Care must be taken to ensure the fixing holes are drilled perpendicular to the surface of the panel.

16.5 At corners, the boards must overlap to prevent creating a void behind the brick slips.

16.6 When installing onto timber-frame substrates, horizontal movement joints in accordance with BS EN13914-1 : 2016 must be provided at every floor to accommodate vertical shrinkage in the timber-frame and to follow movement joints in the substructure. With steel-frame substrates, the details for deflection at floor level and movement joints in the substructure set out by the suitably qualified and experienced individual (eg structural engineer) should be applied.

16.7 Vertical movement joints must be provided at a maximum of 7 metre intervals in accordance with the Certificate holder's recommendations. The actual spacing and position of the joints should coincide with movement joints in the structure and allow for the same degree of movement (see Figure 6).

Figure 6 Typical movement joints



16.8 The brick slip adhesive is applied between the ribs of the carrier sheet in accordance with the Certificate holder's instructions. Care must be taken to ensure an appropriate amount of adhesive is used to hold the brick slips to the backerboard.

16.9 The clay brick slips are placed on horizontal bed joint ribs of the backerboard carrier sheet. The ribs are at 75 mm centres⁽¹⁾ and the brick slips sit directly on top of the flat face and must be pressed firmly against the carrier. Alignment should be checked as work proceeds.

(1) For standard brick slip dimensions, listed in section 1.1. Alternative dimensions of brick slips are available from the manufacturer but are outside the scope of this Certificate.

16.10 Joints are filled with the pointing grout/mortar. Pointing should not take place at temperatures below 2°C and above 30°C. When pointing is completed, the mortar joints are tooled to the desired effect and excess mortar removed with a soft brush.

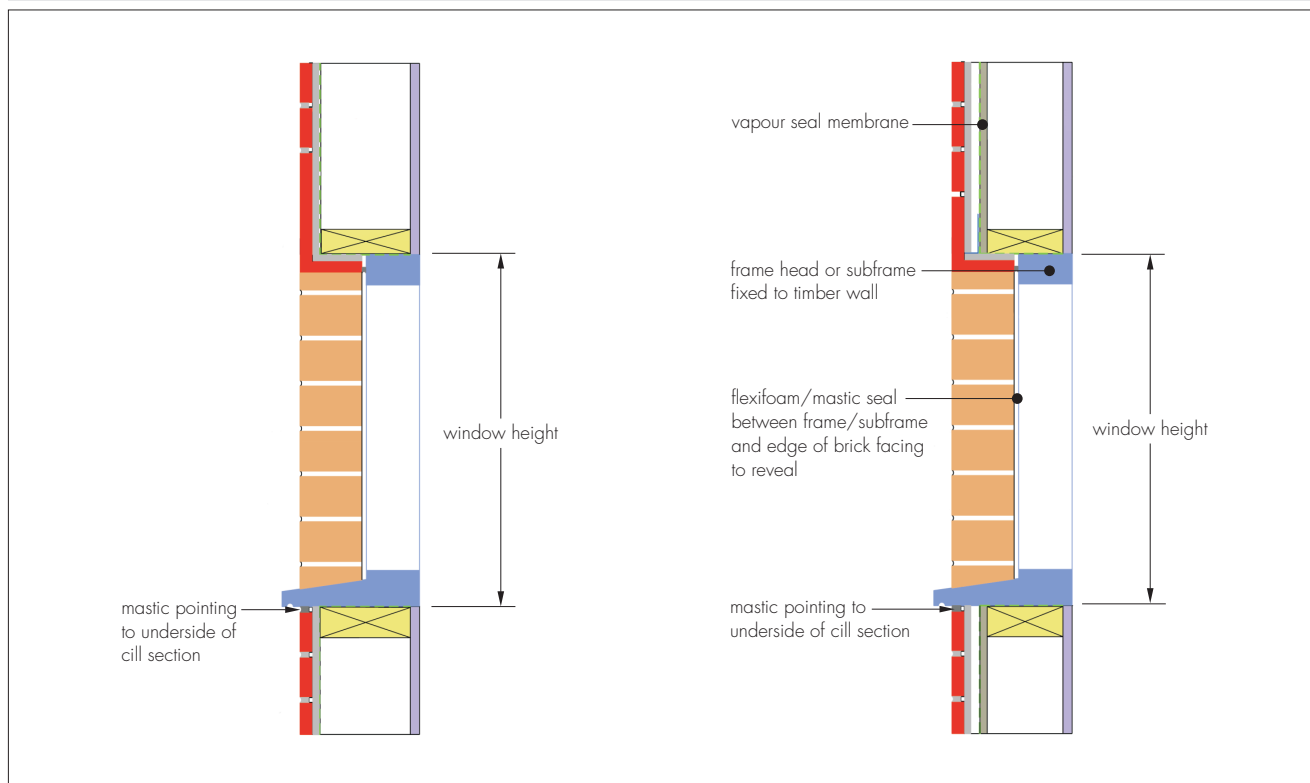
16.11 To ensure weathertightness, all window and door openings must be sealed strictly in accordance with the Certificate holder's installation instructions (see Figure 7).

16.12 At the top of walls, the system must be protected by an adequate overhang or by an adequately sealed, purpose-made flashing.

16.13 Care must be taken in the detailing the system around openings and projections to ensure adequate protection against water ingress and to limit the risk of water penetrating the system.

16.14 All movement joints are sealed using urethane sealant after brick application.

Figure 7 Typical window and door reveals



Technical Investigations

17 Investigations

17.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

17.2 An investigation was made of data relating to:

- strength and stability
- reaction to fire
- resistance to weathering
- freeze/thaw resistance
- thermal properties
- resistance to condensation
- durability.

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18 Conditions

18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.