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Agrément Certificate
14/5137
Product Sheet 2

WETHERBY EXTERNAL WALL INSULATION SYSTEM

EPSIBRICK 7 MW EXTERNAL WALL INSULATION SYSTEM

This Agrément Certificate Product Sheet(1) relates to the Epsibrick 7 MW External Wall Insulation System, comprising mineral wool dual density (MWDD) insulation slabs, mechanically fixed with supplementary adhesive, with reinforced basecoat and a clay brick-slip finish. The system is suitable for use on the outside of external masonry walls in new and existing domestic and non-domestic buildings, without height restriction.

(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

Thermal performance — the system can be used to improve the thermal performance of external masonry walls and can contribute to satisfying the requirements of the national Building Regulations (see section 6).

Strength and stability — the system can adequately resist wind loads and has sufficient resistance to impact damage (see section 7).

Behaviour in relation to fire — the system can have an A2-s1, d0 reaction to fire classification in accordance with BS EN 13501-1 : 2018, depending on the colour chosen (see section 8).

Risk of condensation — the system can contribute to limiting the risk of interstitial and surface condensation (see section 11).

Durability — when installed and maintained in accordance with the Certificate holder's recommendations and the terms of this Certificate, the system will remain effective for at least 30 years (see section 13).

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: 17 June 2019

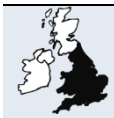
John Albon
Chief Scientific Officer

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

Regulations

In the opinion of the BBA, the Epsibrick 7 MW External Wall Insulation 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)

Requirement:	**A1**	**Loading**
Comment:		The system can sustain and transmit wind loads to the substrate wall. See sections 7.1 to 7.12 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		In England, the system can satisfy this Requirement. See sections 8.1 to 8.4 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The system provides a degree of protection against rain ingress. See section 10.1 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The system can contribute to minimising the risk of interstitial and surface condensation. See sections 11.1, 11.2 and 11.4 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The system can contribute to satisfying this Requirement. See sections 6.2 and 6.3 of this Certificate.
Regulation:	**7**	**Materials and workmanship (applicable to Wales only)**
Regulation:	**7(1)**	**Materials and workmanship (applicable to England only)**
Comment:		The system is acceptable. See section 13.1 and the *Installation* part of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship (applicable to England only)**
Comment:		The system may be restricted by this Regulation. See sections 8.1 and 8.2 of this Certificate.
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy consumption rates for buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Comment:		The system can contribute to satisfying these Regulations. See sections 6.2 and 6.3 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The system can contribute to satisfying this Regulation. See sections 12 and 13.1 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1	Structure
Comment:		The system can sustain and transmit wind loads to the substrate wall. See sections 7.1 to 7.12 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The system can satisfy this Standard, with reference to clauses 2.6.4[(1)(2)], 2.6.5[(1)] and 2.6.6[(2)]. See sections 8.1 to 8.4 of this Certificate.

Standard:	2.7	Spread on external walls
Comment:		The system can satisfy this Standard, and is acceptable with reference to clauses 2.7.1[(1)(2)] and 2.7.2[(2)] and Annex 2B[(1)]. See sections 8.1 to 8.4 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The system can contribute to satisfying this Standard with reference to clauses 3.10.1[(1)(2)] and 3.10.2[(1)(2)]. See section 10.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system can contribute to satisfying this Standard, with reference to clauses 3.15.1[(1)(2)], 3.15.4[(1)(2)] and 3.15.5[(1)(2)]. See sections 11.3 and 11.4 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Buildings insulation envelope
Comment:		The system can contribute to satisfying these Standards, with reference to clauses (or parts of) 6.1.1[(1)], 6.1.2[(1)(2)], 6.1.3[(1)(2)], 6.1.6[(1)], 6.1.10[(2)], 6.2.1[(1)(2)], 6.2.3[(1)], 6.2.4[(2)], 6.2.5[(2)], 6.2.6[(1)], 6.2.7[(1)], 6.2.8[(2)], 6.2.9[(1)(2)], 6.2.10[(1)], 6.2.11[(1)], 6.2.12[(2)] and 6.2.13[(1)(2)]. See sections 6.2 and 6.3 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The system can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting the bronze level of sustainability as defined in this Standard. In addition, the system can contribute to a construction meeting a higher level of sustainability as defined in these Standards with reference to clause 7.1.4[(1)(2)] [Aspect 1[(1)(2)] and 2[(1)]], 7.1.6[(1)(2)] [Aspect 1[(1)(2)] and 2[(1)]] and 7.1.7[(1)(2)] [Aspect 1[(1)(2)]]. See section 6.2 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for this 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**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See section 13.1 and the *Installation* part of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and water**
Comment:		Walls insulated with the system will satisfy this Regulation. See section 10.1 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		Walls insulated with the system will satisfy the requirements of this Regulation. See section 11.4 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The system can sustain and transmit wind loads to the substrate wall. See sections 7.1 to 7.12 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The system can satisfy this Regulation. See sections 8.1 to 8.4 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The system can contribute to satisfying this Regulation. See sections 6.2 and 6.3 of this Certificate.
Regulation:	**40**	**Target carbon dioxide emission rate**
Comment:		The system can contribute to satisfying this Regulation. See sections 6.2 and 6.3 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* (3.2) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, the Epsibrick 7 MW External Wall Insulation 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 Epsibrick 7 MW External Wall Insulation System comprises mineral wool dual density (MWDD) insulation slabs, mechanically fixed to the substrate wall with supplementary adhesive (ensuring a minimum of 40% coverage of adhesive is achieved). After the insulation slabs have been secured to the wall with insulation adhesive and the required number of mechanical fixings, the basecoat is trowel-applied over the slabs to a uniform thickness, followed by the reinforcing mesh, which is fully embedded within the basecoat. A further layer of basecoat render is applied over the embedded reinforcing mesh to achieve the required overall thickness. After the basecoat has fully cured, the brick slip adhesive and the brick-slips are applied. Once the adhesive is dry, pointing mortar is used (see Figure 1).

1.2 The system comprises the following components:

Adhesive (supplementary)

- Wetherby Bedding Adhesive — cementitious, polymer-modified basecoat, comprising limestone sand, cement and additives. Supplied as a grey powder, requiring the addition of 4.5 to 5 litres of clean water per 25 kg bag and applied to a thickness of 4 to 6 mm at a coverage of 6.0 kg·m^{-2}.

Insulation(1)

- MWDD 036 — dual density mineral wool slabs available in sizes up to 1200 by 600 mm and in a range of thicknesses from 80(2) to 240 mm, with nominal densities of 160/100 kg·m^{-3} (outer/inner layer), a minimum compressive strength of 10 kPa and a tensile resistance perpendicular to the faces of 10 kPa. Slabs comply with BS EN 13162 : 2012

(1) For declared thermal conductivity values (λ_D), see section 6.1 of this Certificate
(2) Thicknesses less than 80 mm are used on reveals.

Mechanical fixings

- mechanical fixings(1)(2) — anchors with adequate length to suit the substrate and the insulation thickness, approved and supplied by the Certificate holder, and selected from:
  - Ejotherm NT U: polyethylene (PE-HD) anchor sleeve with stainless steel or galvanized steel pin
  - Koelner TFix-8M: polypropylene anchor sleeve with electro-galvanized steel pin
  - Koelner TFix-8S/8ST: polypropylene anchor sleeve with electro-galvanized steel screw
  - Bravoll PTH-KZ 60/8: polypropylene anchor sleeve with stainless steel or electro-galvanized pins

(1) Other fixings may be used provided they can be demonstrated to have equal or higher pull-out, plate diameter and plate stiffness characteristics.
(2) RAWL KWL extension washers (90 and 140 mm diameter) can be used in conjunction with TFix-8S fixings to enhance the pull-through strength capacity.

Basecoat

- Wetherby Scrim Adhesive Basecoat — polymer-modified cementitious powder, comprising limestone sand, cement and additives. Supplied as a powder, requiring the addition of 4.5 to 5 litres of clean water per 25 kg bag, applied in two layers to a total 4 to 6 mm thickness, at a coverage of 6.5 kg·m^{-2}.

Reinforcement mesh

- Reinforcement mesh — alkali-resistant glass fibre mesh in 50 by 1 m rolls, with a 3.5 by 3.5 mm grid size, organic content of 20%, PCS value of 8.17 MJ·kg^{-1} and nominal weight of 160 g·m^{-2}.

Brick-slip adhesive

- Wetherby Brick-slip Adhesive — cementitious mortar, cement and additives. Supplied as a grey powder, requiring the addition of 5 litres of clean water per 25 kg bag, to a 10 mm thickness, at a coverage of 6.5 kg·m^{-2}.

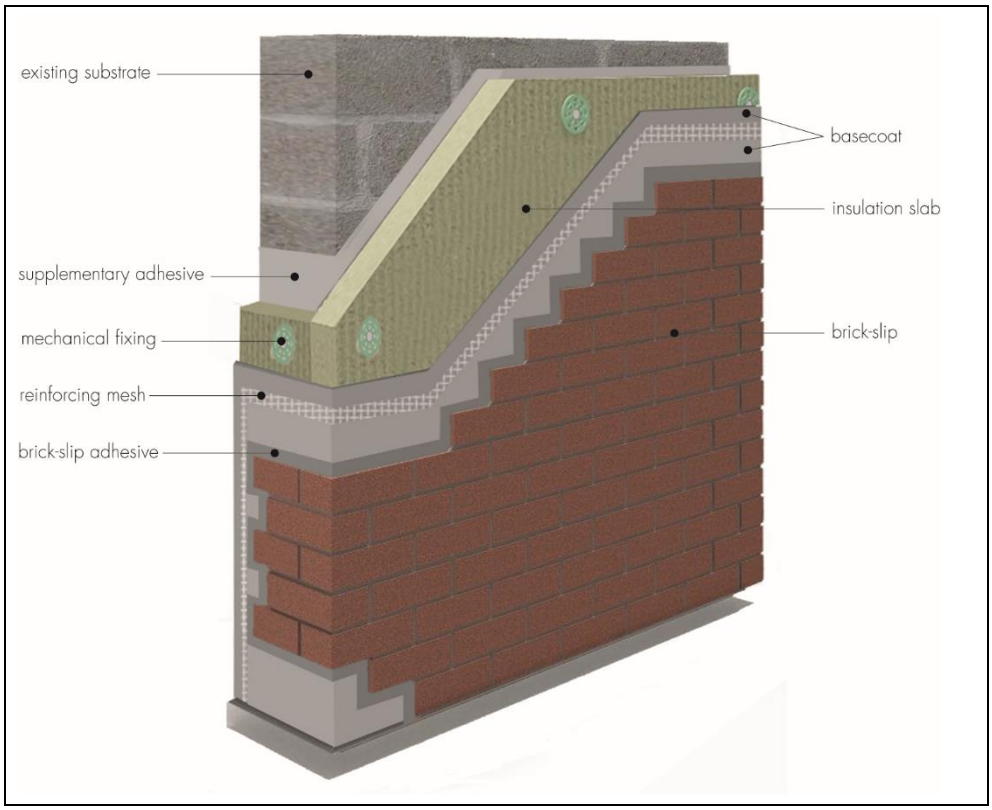
Brick-slip finishes

- Wetherby Brick-slips — handmade, extruded or cut clay brick-slips, available in sizes 215 by 65 mm, by 7 to 15 mm (average), in a range of colours
- Wetherby Brick-slip Pistols — 215/100 by 65 mm, by 7 to 15 mm clay brick-slip pistol corners, available in a range of colours.

Pointing mortar

- Wetherby Pointing Mortar— pre-coloured water-repellent, frost-resistant, cementitious pointing mortar. Supplied in powder form, requiring the addition of 5 litres of clean water per 25 kg bag, at a coverage of 6.5 kg·m^{-2}.

Figure 1 Epsibrick 7 MW External Wall Insulation System



1.3 Ancillary materials used with the system include:

- Range of aluminium, powder-coated galvanized steel, PVC-U or stainless steel profiles comprising
  - base profile, corner, render stop end

  - edge profile
  - corner profile
  - render stop profile
  - V expansion and movement joint profiles
- profile connectors and fixings.

1.4 Ancillary materials also used with the system, but outside the scope of this Certificate:

- silicone-based joint sealant
- biocidal wash
- PU foam filler
- sealing tape.

2 Manufacture

2.1 Components are manufactured by the Certificate holder or bought in from suppliers, to an agreed specification.

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.

2.3 The management system of Wetherby Building Systems Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by Alcumus (Certificates 16512-QMS-001 and 16512-EMS-001 respectively).

3 Delivery and site handling

3.1 The insulation is delivered to site shrink-wrapped in polythene packs bearing the manufacturer's and product identification, logo and batch numbers.

3.2 Components are delivered in the quantities and packages listed in Table 1. Each package carries the manufacturer's and product identification marks and batch number.

Table 1 Component supply details

Component	Quantity and packaging
Basecoat/supplementary adhesive	
Brick-slip adhesive	25 kg bags
Pointing mortar	
Brick-slips and brick-slip pistols	boxed by manufacturer
Reinforcement mesh	50 by 1 m rolls
Mechanical fixings	boxed by manufacturer

3.3 The insulation slabs should be stored on a firm, clean, level base, off the ground and protected from prolonged exposure to sunlight, either by storing opened packs under cover in dry conditions or re-covering with opaque polythene sheeting. Care must be taken when handling the insulation slabs to avoid both damage and contact with solvents or materials containing volatile organic components. Slabs that become damaged, soiled or wet should be discarded.

3.4 The basecoat, brick-slip adhesive and pointing mortar must be stored in dry conditions, off the ground and protected from frost at all times. Bags of unopened render will have a shelf life of 12 months when stored correctly. Damaged, wet or contaminated products must not be used and should be discarded.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Epsibrick 7 MW External Wall Insulation System.

Design Considerations

4 General

4.1 The Epsibrick 7 MW External Wall Insulation System, when installed in accordance with this Certificate, is satisfactory for use in reducing the thermal transmittance (U value) of external masonry or concrete walls of new and existing buildings. It is essential that the detailing techniques specified in this Certificate are carried out to a high standard if the ingress of water into the insulation is to be avoided and the full thermal benefit obtained from treatment with the system (eg the insulation must be protected by an overhang, and window sills should be designed and installed so as to direct water away from the building). Only details specified by the Certificate holder should be used.

4.2 For improved thermal/carbon-emissions performance of the structure, the designer should consider additional/alternative fabric and/or services measures.

4.3 The system is for application to the outside of external walls of masonry, normal weight concrete, lightweight concrete, autoclaved concrete and no-fines concrete construction, on new or existing domestic and non-domestic buildings (with or without existing render) without height restriction. Prior to installation of the system, wall surfaces should comply with section 14 of this Certificate.

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

- BS EN 1992-1-1 : 2004 and its UK National Annex
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS 8000-0 : 2014
- BS 8000-2.2 : 1990
- BS 8000-3 : 2001

4.5 New walls not subject to regulatory requirements should also be built in accordance with the Standards identified in section 4.4.

4.6 Movement joints should be incorporated into the system in line with existing movement joints in the building structure and in accordance with the Certificate holder's recommendations for the specific installation.

4.7 The system will improve the weather resistance of a wall and provide a decorative finish. However, for existing buildings, it should only be installed where there are no signs of dampness on the inner surface of the wall other than those caused solely by condensation.

4.8 The effect of the system on the acoustic performance of a construction is outside the scope of this Certificate.

4.9 The fixing of sanitary pipework, plumbing, rainwater goods, satellite dishes, clothes lines, hanging baskets and similar items to the system is outside the scope of this Certificate. See section 4.10.

4.10 External pipework and ducts should be removed before installation, and alterations made to underground drainage to accommodate repositioning of the pipework to the finished face of the system.

4.11 The designer should select a construction appropriate to the local wind-driven rain index, paying due regard to the design detailing, workmanship and materials to be used.

4.12 It is essential that the system is installed and maintained in accordance with the conditions set out in this Certificate.

5 Practicability of installation

The system should be installed only by specialist contractors who have successfully undergone training and registration by the Certificate holder (see section 15 of this Certificate).

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

6 Thermal performance

6.1 Calculations of thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2006, using the declared thermal conductivity value (λ_D) of 0.036 $W \cdot m^{-1} \cdot K^{-1}$.

6.2 The U value of a completed wall will depend on the selected insulation thickness, the type and number of fixings, and the insulating value of the substrate masonry and its internal finish. Calculated U values for sample constructions in accordance with the Building Regulations are given in Table 2 of this Certificate and are based on the thermal conductivity value given in section 6.1.

Table 2 Insulation thickness required to achieve design U values[1][2][3]

U value ($W \cdot m^{-2} \cdot K^{-1}$)	Thickness of insulation[4] (mm)	
	215 mm brickwork (λ = 0.56 $W \cdot m^{-1} \cdot K^{-1}$)	200 mm dense blockwork (λ = 1.75 $W \cdot m^{-1} \cdot K^{-1}$)
0.18	190	200
0.19	180	190
0.25	130	140
0.26	130	130
0.28	120	120
0.30	110	110
0.35	90	100

(1) Wall construction inclusive of 13 mm plaster (λ = 0.57 $W \cdot m^{-1} \cdot K^{-1}$), brickwork (protected) with 17.1% mortar or dense blockwork with 6.7% mortar (λ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$). Declared thermal conductivity of insulation value (λ_D) is as shown in section 6.1. An adhesive layer, 5 mm thick with λ = 0.43 $W \cdot m^{-1} \cdot K^{-1}$ covering 40% of the area is also included, together with an external render thickness of 5 mm with λ = 1 $W \cdot m^{-1} \cdot K^{-1}$.

(2) Calculations based on a system that included 7 fixings per square metre with a point thermal transmittance (X_p) of 0.003 $W \cdot K^{-1}$ per steel pin. Use of other types of fixings should be calculated in accordance with BS EN ISO 6946 : 2017. A gap correction ($\Delta U''$) of zero is assumed.

(3) Based upon an incremental insulation thickness of 10 mm.

(4) When applying the maximum available insulation thickness, these walls can achieve U values of 0.14 $W \cdot m^{-2} \cdot K^{-1}$.

6.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

7 Strength and stability

General

7.1 The Certificate holder is ultimately responsible for the design of the system and it is the responsibility of the company installing the system to accurately follow the installation instructions (see also section 5 of this Certificate). The Certificate holder must also verify that a suitably experienced and qualified individual (with adequate professional indemnity) establishes that:

- the wind loads on the different zones of the building's elevation for the specific geographical location have been calculated correctly (see section 7.3)
- the system can adequately resist and safely transfer the calculated loads, accounting for all possible failure modes, to the substrate wall and supporting structure (see sections 7.3 to 7.6).

7.2 The substrate and supporting structure must be capable of transferring all additional loading due to the installation of the system to the ground in a satisfactory manner. The adequacy of the substrate and supporting structure must be verified by the person or party responsible for the global stability of the building to which the system is applied. Any defects should be made good prior to the system being installed.

7.3 The wind loads on the walls should be calculated, taking into account all relevant factors such as location and topography, in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. All of the factors affecting wind load on each elevation and specific zones of the building must be considered. In accordance with BS EN 1990 : 2002, a partial factor of 1.5 must be applied to the calculated characteristic wind pressure values to establish the design wind load to be resisted by the system.

7.4 Installations correctly designed in accordance with this Certificate will safely accommodate the applied loads due to the self-weight of the system, wind and impact.

7.5 Positive wind load is transferred to the substrate wall directly via compression through the render and insulation system.

7.6 Negative wind load is transferred to the substrate wall via [(1)(2)]:
- the bond between the insulation and render system (see section 7.7)
- the pull-out resistance of the fixing from the substrate wall (see section 7.8)
- the pull-through resistance of the fixing (see section 7.9)

(1) For mechanically fixed systems with supplementary adhesive, the contribution of the adhesive is not considered when calculating resistance to wind load.
(2) Further guidance is available from BBA Guidance Note 1, available on the BBA website (www.bbacerts.co.uk).

7.7 The characteristic bond resistance between the insulation and render interface derived from test results was 10 $kN \cdot m^{-2}$. The design resistance of the bond between the insulation and render (N_{RD1}) should be taken as the characteristic bond resistance divided by a partial factor of 9.

7.8 Typical characteristic pull-out resistances for the fixings taken from the corresponding European Technical Assessment (ETA) are given in Table 3; the values are dependent on the fixing type and must be selected to suit the specific loads and substrate concerned. In situations where suitable data does not exist[(1)], the characteristic pull-out resistance must be established from site-specific pull-out tests conducted on the substrate of the building to ascertain the minimum resistance to pull-out failure of the fixings, and determined in accordance with the guidance given in EOTA TR051 (minimum test characteristic value = 0.6 x mean of 5 lowest test results). To obtain the design pull-out resistance of the fixings (N_{RD2}), this characteristic pull-out resistance should then be divided by the partial factor given in Table 3.

(1) To qualify as suitable data, the age and condition of the substrate must be equivalent to that used to establish the values in the ETA.

Table 3 Fixings — typical characteristic pull-out resistances

Fixing type[1]	ETA number	Substrate	Drill diameter (mm)	Effective anchorage depth (mm)	Characteristic pull-out resistance (kN)[2]	Partial factor
Ejot NT U	05/0009	Concrete C12/15 Clay bricks	8	25	1.2 1.5	2
Koelner TFix-8M	07/0336	Concrete C12/15 Clay bricks	8	25	1.2	
Koelner TFix-8S/8ST	11/0144	Concrete C12/15 Clay bricks (solid)	8	40	1.2	
Bravoll PTH-KZ 60/8 plus washer	05/0055	Concrete C12/15 Clay bricks	8	25	0.7 0.9	

(1) The minimum value for plate stiffness of fixings is 0.6 $kN \cdot m^{-2}$ and the load resistance is 2 kN

(2) Values are determined in accordance with EAD 330196-00-0604: 2016 and are dependent on the substrate. The use categories are defined in the corresponding ETA.

7.9 The characteristic pull-through resistance of the fixings was determined from tests using a 60 mm diameter fixing plate and with either a 90 or a 140 mm diameter extension washer, and minimum insulation thickness of 80 mm (without extension washer) or 100 mm (with extension washer). The design resistance per fixing (N_{RD3}) is obtained by applying an appropriate partial factor as shown in Table 4.

Table 4 Design pull-through resistances

Factor (unit)	MWDD slab (1200 x 600 mm)		
	Pull through		
Tensile resistance of the insulation (kPa)	≥ 10		
Fixing type[1]	TFix-8S		
Fixing plate diameter (mm)	60	60 + KWL 90	60 + KWL 140
Insulation thickness (mm)	80	100	
Characteristic pull-through resistance[2] per fixing kN (at panel)	0.294	0.464	0.532
Partial factor[3]	2.5		
Design pull-through resistance per fixing (N_{RD3}) kN (at panel)	0.117	0.185	0.213
Design pull-through resistance per slab kN (based on minimum number of fixings)[4]	0.59	0.93	1.06
Design pull-through resistance per slab kN (based on maximum number of fixings)[5]	1.40	2.22	2.56

(1) See Table 3 for typical characteristic pull-out resistance of the fixings.

(2) Characteristic pull-through resistance of insulation over the head of the fixing, in accordance with BS EN 1990 : 2002, Annex D7.2 and its UK National Annex.

(3) The partial factor is based on the assumption that all insulation slabs are quality controlled and tested to establish tensile strength perpendicular to the face of the slab.

(4) The minimum design pull through resistance per slab is based on a minimum of 5 fixings per slab, which equates to approximately 7 fixings per m^2. The design resistance for the minimum number of fixings is based on the fixing pattern provided in Figure 4 of this Certificate and minimum insulation thickness specified in Table 4. The fixing pattern and interaction of the fixings should be considered when calculating the design resistance per slab.

(5) The maximum design pull through resistance per slab is based on a maximum of 12 fixings per slab, which equates to approximately 17 fixings per m^2. The design resistance for the maximum number of fixings is only applicable to the minimum insulation thickness tested and as specified in Table 4. The fixing pattern, insulation thickness and interaction of the fixings should be considered when calculating the design resistance per slab.

7.10 The number and spacing of fixings should be determined by the Certificate holder. The number must not be less than the minimum specified for the system and the fixings should be symmetrically positioned about the centre of the slab both vertically and horizontally, except at openings and building corners.

7.11 The data obtained from sections 7.6, 7.7 and 7.8 must be assessed against the design wind load and the following expression must be satisfied for the safe design:

$Rd \geq W_e$

$Rd_{b.ins/rend} = A_r * N_{RD1}$
$Rd_{pull\text{-}out} = n * N_{RD2}$
$Rd_{pull\text{-}through} = (N_{RD3panel} * n_{panel}) + (N_{RD3joint} * n_{joint})/A_{slab}$

Where:
Rd is the design ultimate resistance ($kN \cdot m^{-2}$) taken as the minimum of $Rd_{b.ins/rend}$, $Rd_{pull\text{-}out}$ and $Rd_{pull\text{-}through}$
W_e is the maximum design wind load ($kN \cdot m^{-2}$)
$Rd_{b.ins/rend}$ is the design bond resistance between the insulation and render ($kN \cdot m^{-2}$)
$Rd_{pull\text{-}out}$ is the design pull-out resistance of the insulation fixings per metre square ($kN \cdot m^{-2}$)
$Rd_{pull\text{-}through}$ is the design pull-through resistance of the insulation fixings per metre square ($kN \cdot m^{-2}$)
A_r is the reinforced basecoat bond area (based on % area covered)
N_{RD1} is the design adhesive bond resistance between the insulation and render, based on test ($kN \cdot m^{-2}$)
n is the number of anchor fixings per m^2
N_{RD2} is the design pull-out resistance per fixing based on test (kN)
$N_{RD3panel}$ is the design pull-through resistance per anchor not placed at the panel joint, based on test (kN)
$N_{RD3joint}$ is the design pull-through resistance per anchor placed at the panel joint, based on test (kN)
n_{panel} is the number of internal anchors in a panel
n_{joint} is the number of joint anchors in a panel
A_{slab} is the area of the slab (m^2)

7.12 The insulation system is mechanically fixed to the substrate wall with a minimum of 5 fixings per slab or approximately 7 fixings per square metre, as per the fixing pattern shown in Figure 4, and in conjunction with a minimum 40% coverage of supplementary adhesive (see section 16 of this Certificate). Additional fixings may be required, depending on the results of the calculations detailed above for the specific site.

Impact resistance

7.13 Hard body impact tests were carried out in accordance with ETAG 004 : 2013. The system is suitable for use in all Categories(1).

(1) The Use Categories are defined in ETAG 004 : 2013 as:
- Category I — a zone readily accessible at ground level to the public and vulnerable to hard body impacts but not subjected to abnormally rough use
- Category II — a zone liable to impacts from thrown or kicked objects, but in public locations where the height of the system 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
- Category III — a zone not likely to be damaged by normal impacts caused by people or by thrown or kicked objects.

8 Behaviour in relation to fire

8.1 The reaction to fire classification(1) for the rendering system in 'Laguna' colour is A2-s1, d0 in accordance with BS EN 13501-1 : 2018.

(1) Exova Warringtonfire Test Report WF 403569. A copy is available from the Certificate holder on request.

8.2 The classification applies to the full range of thicknesses covered by the Certificate. The classification for other colours should be confirmed by:

England and Wales — test or assessment to Approved Document B, Appendix A, clause A1
Scotland — tests conforming to Mandatory Standard 2.8, clause 2.8.1
Northern Ireland — test or assessment by a UKAS-accredited laboratory, or an independent consultant with appropriate experience.

8.3 The mineral wool insulation material in isolation is classified as non-combustible.

8.4 Where a fire classification of A2-s1, d0 is confirmed (see sections 8.1 and 8.2), the system is suitable for use in buildings without height restriction on, or at any distance from, the boundary. The use of systems achieving other classifications should be as defined in the documents supporting the national Building Regulations.

8.5 For application to second storey walls and above, it is recommended that the designer includes at least one stainless steel fixing per square metre, as advised in BRE Report BR 135 : 2013.

9 Proximity of flues and appliances

Where 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, clause 3.19.4(1)(2)
(1) Technical Handbook (Domestic).
(2) Technical Handbook (Non-Domestic).
Northern Ireland — Technical Booklet L.

10 Water resistance

10.1 The system will provide a degree of protection against rain ingress. Care should be taken to ensure that walls are adequately weathertight prior to application of the system. The system must only be installed where there are no signs of dampness on the inner surface of the substrate other than those caused solely by condensation.

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

10.3 The guidance given in BRE Report BR 262 : 2002 should be followed in connection with the weathertightness of solid wall constructions. The designer should select a construction appropriate to the local wind-driven index, paying due regard to the design detailing, workmanship and materials to be used.

10.4 At the tops of walls, the system should be protected by a coping, adequate overhang or other detail designed for use with these types of system (see section 16).

11 Risk of condensation

11.1 Designers must ensure that an appropriate condensation risk analysis has been carried out for all parts of construction, including at openings and penetrations at junctions between the insulation system and windows, to minimise the risk of condensation. The recommendations of BS 5250 : 2011 should be followed.

Surface condensation

11.2 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.7 $W \cdot m^{-2} \cdot K^{-1}$ at any point and the junctions with other elements and openings comply with section 6.3 of this Certificate.

11.3 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point. Guidance may be obtained from BS 5250 : 2011, section 8 and Annex G, and BRE Report BR 262 : 2002.

Interstitial condensation

11.4 Walls incorporating the system will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011 (Section 4 and Annexes D and G) and section 11.5 of this Certificate.

11.5 The water vapour resistance factor (μ) (for the insulation slabs) and equivalent air layer thickness (s_d) (for the render systems) is shown in Table 5.

Table 5 Water vapour resistance factors and equivalent air layer thicknesses

Layers	Thicknesses (mm)	S_d (mm)	μ
Mineral wool (MW)	80 – 250	–	1(1)
Wetherby Scrim Adhesive Basecoat + Wetherby Brick-slip Adhesive + Brick-slip	8.5	0.50	–

(1) This value is taken from BS EN 12524 : 2000.

12 Maintenance and repair

12.1 An initial inspection should be made within 12 months and regularly thereafter to include:

- visual inspection of the brick slip for signs of damage. Cracks in the render exceeding 0.2 mm must be repaired
- examination of the sealant around openings and service entry points
- 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 the rendering
- necessary repairs effected immediately and the sealant joints at window and door frames replaced at regular intervals
- maintenance schedules, which should include the replacement and resealing of joints, for example between the insulation systems and window and door frame.

12.2 Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions and in accordance with BS EN 13914-1 : 2016.

13 Durability

13.1 The system will remain effective for at least 30 years, provided any damage to the surface finish is repaired immediately, and regular maintenance is undertaken as described in section 12 of this Certificate.

13.2 The brick slip finish may become discoloured with time, the rate depending on the initial colour, the degree of exposure and atmospheric pollution, as well as the design and detailing of the wall. In common with traditional renders, discoloration by algae and lichens may occur in wet areas. The appearance may be restored by a suitable power wash.

13.3 To maintain a high quality aesthetic appearance, it may be necessary to periodically overcoat the building using a suitable masonry coating (ie one covered by a valid BBA Certificate for this purpose). Care should be taken not to adversely affect the water vapour transmission or fire characteristics of the system. The advice of the Certificate holder should be sought as to the suitability of a particular product.

Installation

14 Site survey and preliminary work

14.1 A pre-installation survey of the property must be carried out to determine suitability for treatment and the need for any necessary repairs to the building structure before application of the system. A specification is prepared for each elevation of the building indicating:

- the position of beads
- detailing around windows, doors and at eaves
- damp-proof course (dpc) level
- exact position of expansion joints, if required
- additional corner mesh and reinforcement, where required
- areas where flexible sealants must be used
- any alterations to external plumbing.

14.2 The survey should include tests conducted on the walls of the building by the Certificate holder or their approved installers (see section 15) to determine the pull-out resistance for mechanical fixings for the appropriate substrate. An assessment and recommendation is made on the type and number of fixings required to withstand the building's expected wind loading, based on calculations using the fixing's pull-out resistance test data (see section 7).

14.3 All modifications, such as alteration to external plumbing and necessary repairs to the building structure, must be completed before installation of the system commences.

14.4 Surfaces should be sound, clean, and free from loose material. The flatness of surfaces must be checked; this may be achieved using a straight-edge tool spanning the storey height. Any excessive irregularities, ie greater than 10 mm in 1 m, must be made good prior to installation, to ensure that the insulation slabs are installed with a smooth, in-plane finished surface.

14.5 Where surfaces are covered with an existing render, it is essential that the bond between the background and the render is adequate. All loose areas should be hacked off and reinstated.

14.6 On existing buildings, purpose-made sills must be fitted to extend beyond the finished face of the system. New buildings should incorporate suitably deep sills.

14.7 In new buildings, internal wet work (eg screeding or plastering) should be completed and allowed to dry prior to the application of the system.

15 Approved installers

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

- employing operatives who have been trained and approved by the Certificate holder to install the system
- which has undertaken to comply with the Certificate holder's application procedure, containing the requirements for each application team to include at least one member-operative trained by the Certificate holder
- 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.

16 Procedure

General

16.1 Installation of the system should be carried out in accordance with the Certificate holder's current installation instructions and this Certificate.

16.2 Weather conditions should be monitored to ensure correct application and curing conditions. Application of coating materials must not be carried out at temperatures below 5°C or above 30°C, nor if exposure to frost is likely, and the coating must be protected from rapid drying. Installation should not take place during rainfall or if rain is anticipated. In addition, cementitious-based renders must not be applied if the temperature will fall below 0°C within 72 hours of completion.

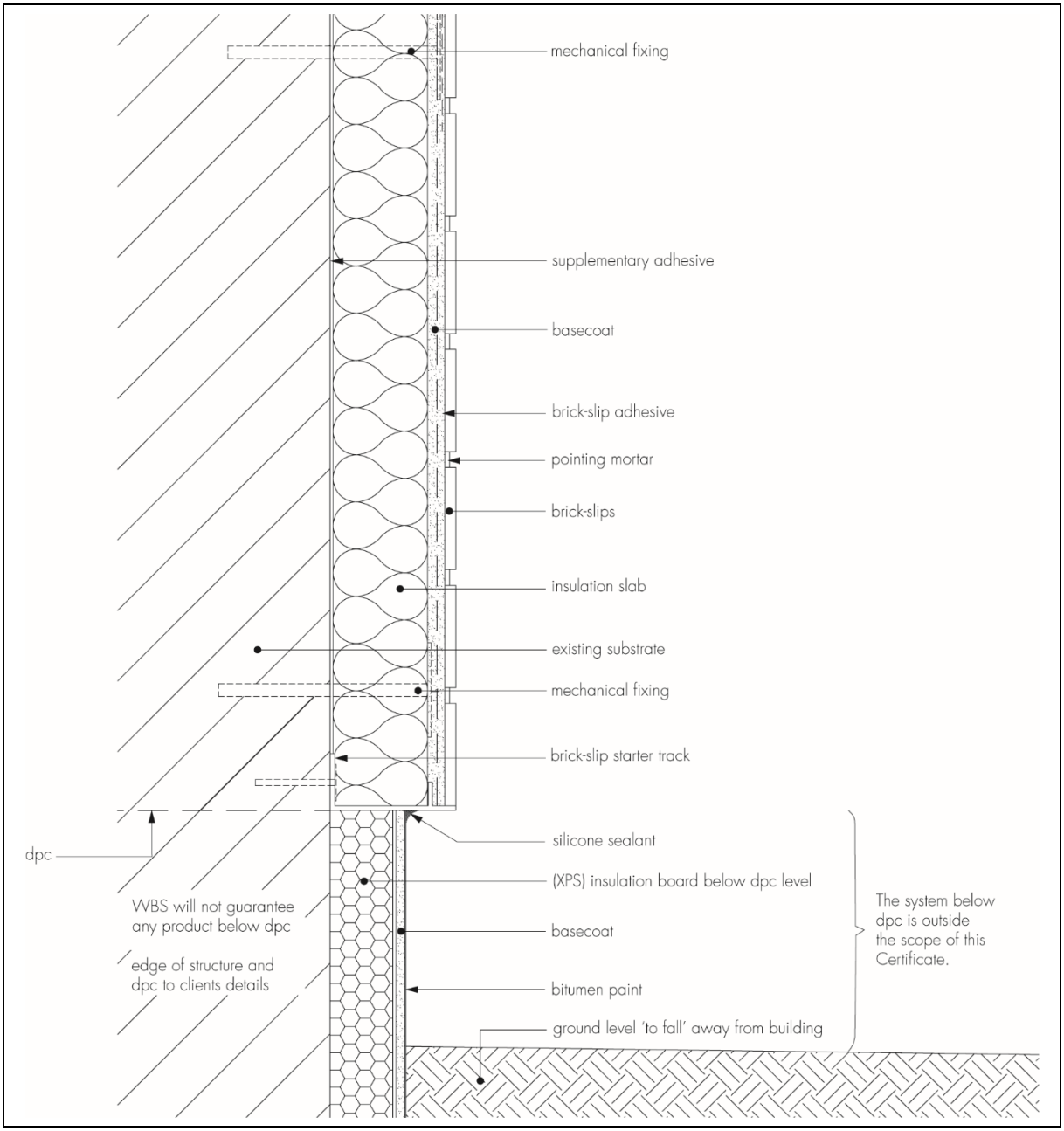
16.3 Where required, a fungicidal wash is applied to the entire surface of the external wall by brush, roller or spray.

16.4 All rendering should be in accordance with the relevant recommendations of BS EN 13914-1 : 2016.

Positioning and securing insulation slabs

16.5 A base profile should be fixed to the external wall above the dpc to coincide with the lower edge of the insulation using the approved profile fixings at approximately 300 mm centres (see Figure 2). Base rail connectors are inserted at all rail joints. Extension profiles are fixed to the front lip of the base rail or stop end channel where appropriate.

Figure 2 Typical section at base level

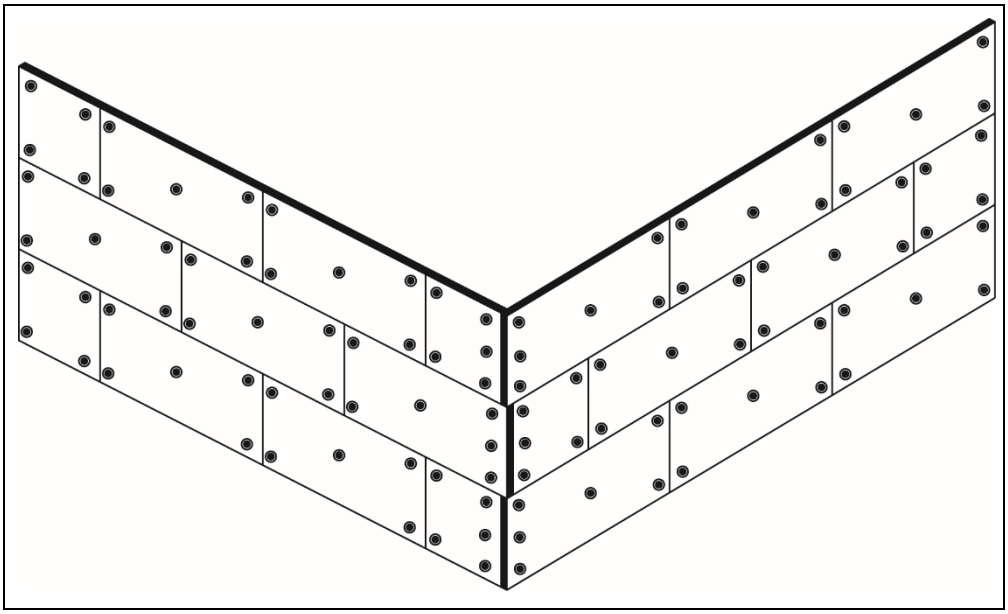


16.6 Stop beads are positioned vertically or by using the 'wrap back' technique, eg at party wall positions where the adjoining house does not require treatment.

16.7 The insulation slabs should be bonded to the wall using Wetherby Bedding Adhesive, which is prepared by mixing each 25 kg bag with 4.5 to 5 litres of clean water for five minutes using a paddle mixer, and allowing to stand for two minutes. The adhesive is applied to the back of the insulation slabs by one of two methods, depending on whether the substrate is flat or undulating. For flat substrates, the adhesive is applied with a 10 mm notched trowel to fully cover the back of the insulation slab. For undulating substrates, a dot and dab method is used whereby the perimeter of the insulation slab is covered with a strip of adhesive, and three large dabs applied at even spacing to the centre of the slab. The adhesive must cover at least 40% of the slab overall.

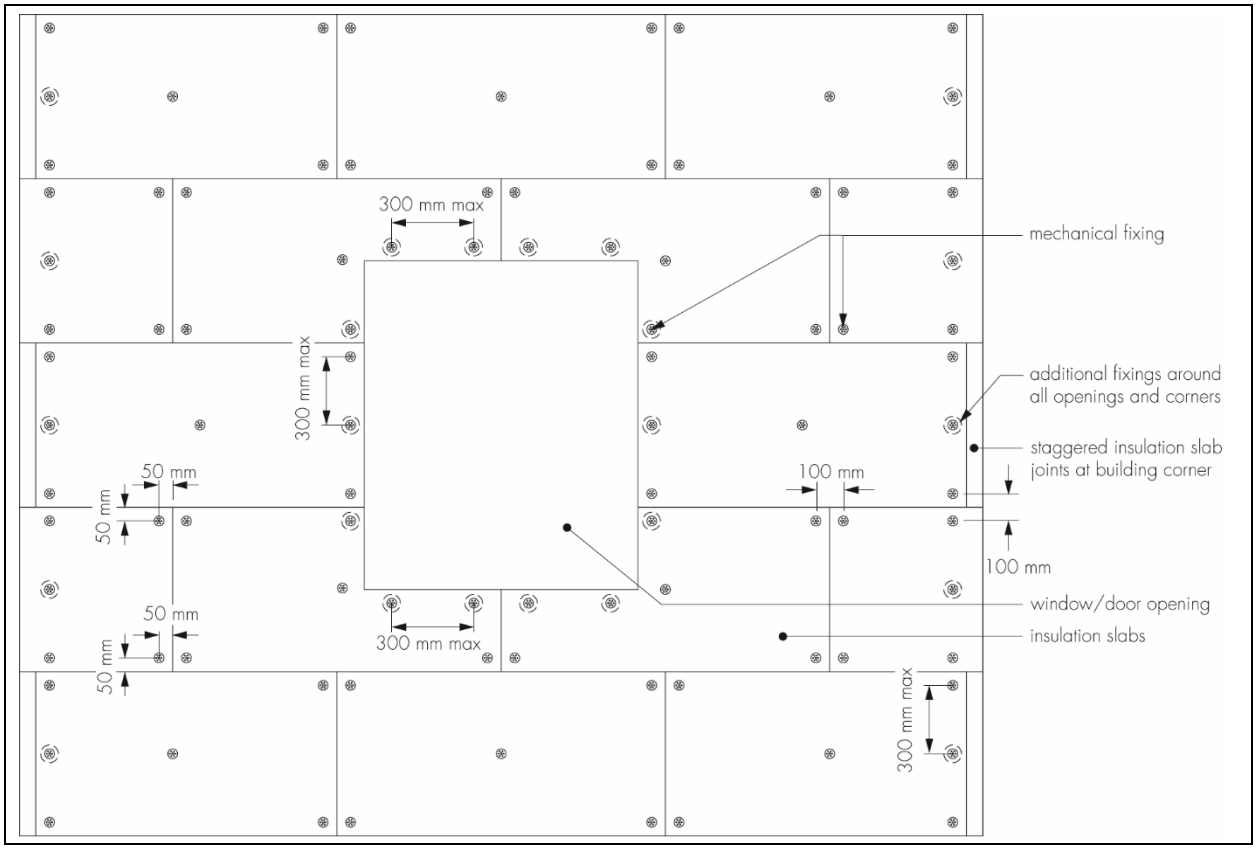
16.8 The first run of insulation slabs is positioned on the base profile. The slabs must be pressed firmly against the wall and butted tightly together, with the vertical joints staggered by at least 200 mm (including staggered joints at the building corners) (see Figure 3). Joints between slabs should be maintained in a straight line and surfaces levelled. Gaps greater than 10 mm should be closed by repositioning or, where appropriate, by cutting slabs to fit. Alignment should be checked as work proceeds.

Figure 3 Slab layout on the wall and at corners of the building



16.9 After the insulation is positioned on the wall, mechanical fixings are applied through each insulation slab to secure them during installation of the system. Holes are drilled into the substrate wall to the required depth through the insulation at the corners of each slab and at positions which would result in a minimum of five fixings per slab or seven fixings per square metre. The fixing pattern is shown in Figure 4. Around openings, additional fixings should be used at 300 mm centres. The mechanical fixings are inserted and tapped or screwed firmly into place, securing the insulation to the substrate. Subsequent rows of slabs are positioned so that the vertical slab joints are staggered and overlapped at the building corners and so that the slab joints do not occur within 200 mm of the corners of openings.

Figure 4 Insulation slabs fixing pattern



16.10 To fit around details such as doors and windows, the slabs may be cut with a sharp knife or a fine-tooth saw. If required, purpose-made window sills are fitted. They are designed to prevent water ingress and incorporate drips to shed water clear of the system, but their performance is outside the scope of this Certificate.

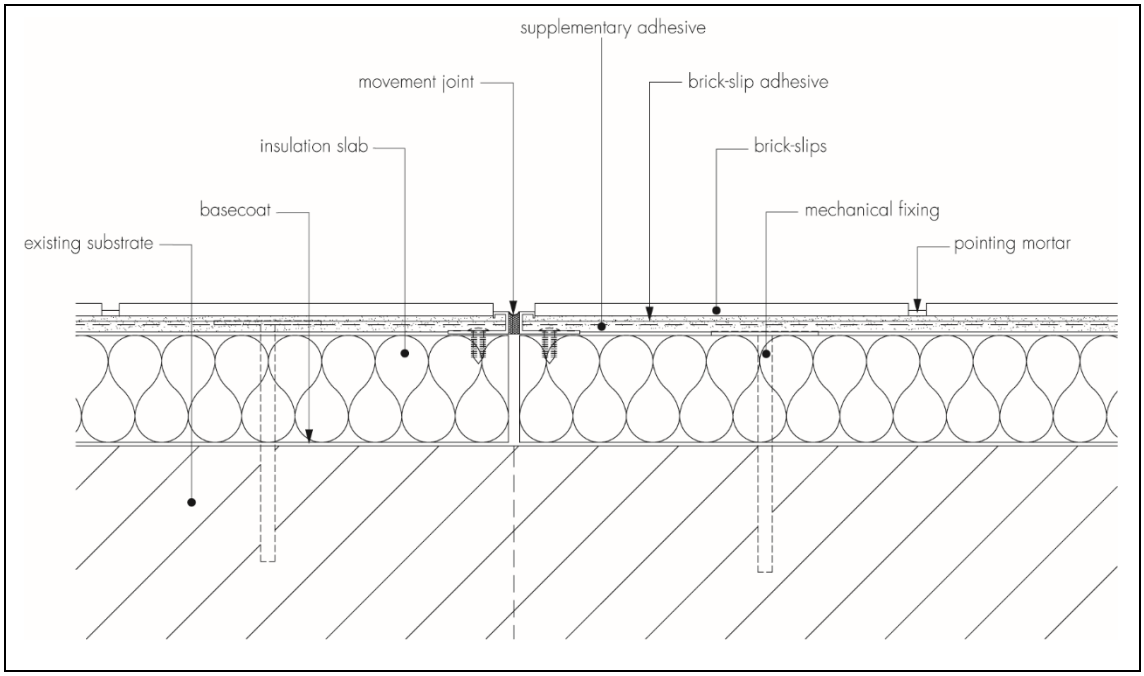
16.11 Window and door reveals should be insulated to minimise the effects of cold bridging. Where clearance is limited, strips of insulation should be installed to suit available margins and details. Installation continues until the whole wall is completely covered including, where appropriate, the building soffits and eaves.

Movement joints and profiles

16.12 Generally, movement joints are not required in the system but, if such a joint is already incorporated in the substrate, a movement joint must be provided in the insulation system (see Figure 5).

16.13 Expansion beads are positioned at approximately seven metre centres along a building, the centres depending on the individual requirements of each job.

Figure 5 Movement joint detail



16.14 At all locations where there is a risk of insulation exposure, eg window reveals or eaves, the system must be protected by an adequate overhang or by purpose-made sub-sills, seals or flashing. All building corners, door/window heads and jambs are protected using PVC corner beads with wing mesh (installed with adhesive mortar), before applying basecoat to form the corners in accordance with the Certificate holder's instructions. Where appropriate, PVC corner beads with drip mesh are installed, to allow the rainwater to drain away.

16.15 Prior to the application of the render system, the relevant seals are positioned and installed at all openings (or a bead of joint sealant is gun-applied at window and door frames), overhanging eaves, gas and electric meter boxes, and wall vents, or where the render abuts any other building material or surface. This helps to reduce the risk of water ingress into the structure. Corner beads are fixed to all building corners and to door and window heads and jambs where required.

Application of basecoat and reinforcing and reinforcing mesh

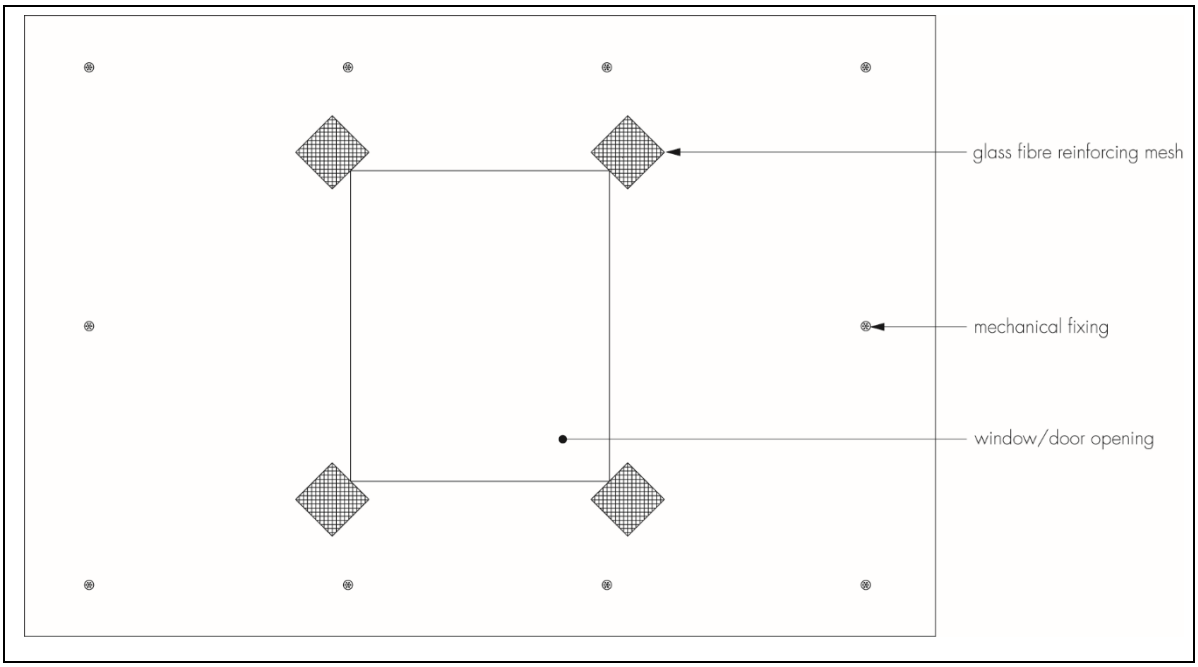
16.16 The Wetherby Scrim Adhesive Basecoat is prepared by mixing each 25 kg bag with 4.5 to 5 litres of clean water for five minutes using a paddle mixer, and allowing to stand for two minutes.

16.17 The first layer of basecoat is applied using a 10 mm stainless steel notched trowel to the surface of the dry insulation slabs, to a minimum 4 mm thickness. A layer of alkali-resisting glass-fibre reinforcing mesh is applied (with its concave surface facing the wall). The mesh should be pressed into the basecoat using a float; it must be in the upper third of the basecoat render. The surface of the scrim adhesive is scratched back to provide a surface for the brick slip adhesive.

16.18 The mesh should be free of wrinkles and fully embedded in the basecoat. The basecoat is applied progressively, working in one-metre sections vertically or horizontally. Overlapping at all mesh joints should not be less than 100 mm.

16.19 Additional pieces of reinforcing mesh (approximately 200 by 200 mm) are applied diagonally at a 45° angle to the corners of windows and doors and other openings so that they extend equally either side of the corner (see Figure 6).

Figure 6 Additional reinforcement at openings



16.20 Surface-mounted PVC render beads are fixed with fir-tree fixings and bedded in scrim adhesive, ensuring all mesh/PVC is covered. The basecoat should be keyed, ready to accept the brick-slip adhesive.

Finishing

16.21 The drying period of the basecoat will depend on the applied thickness and weather conditions; however, the basecoat must be left to harden for at least 24 hours before application of the Wetherby Brick-slip Adhesive.

16.22 The brick-slip adhesive is prepared by mixing each bag with approximately 5 litres of clean water for five minutes using a paddle mixer, and allowing to stand for two minutes.

16.23 After brick-slip application, sealant is positioned and installed at all openings (eg windows and doors),overhanging eaves, gas and electric meter boxes, wall vents or where the brick-slips abut any other building material or surface.

16.24 Where necessary, the brick-slips can be cut to size, using a bench saw or standard tile cutter and the brick-slip adhesive is applied to the back of brick-slips at minimum 4 to 6 mm. Consistent joint spaces (approximately 10 mm) are made between the brick-slips, using spacers where required. Vertical joints are staggered to give the appearance of conventional brickwork, or installed in a stack bond pattern, in accordance with the required design.

16.25 Once the brick-slips have set, pointing is performed using Wetherby Pointing Mortar and a pointing gun. Shaping of the mortar is done with a pointing trowel. Once the mortar is dry, walls should be brushed to remove all loose mortar etc.

16.26 After the pointing application is completed, sealant is installed at all openings (eg windows and doors), overhanging eaves, gas and electric meter boxes, wall vents or where the brick-slips abut any other building material or surface.

16.27 Care should be taken in the detailing of the system around features such as openings, projections and at eaves (see Figures 7 to 11) to ensure adequate protection against water ingress and to limit the risk of water penetrating the system.

16.28 It is imperative that weather conditions are suitable for the application and curing of the finishing coats. In wet weather, the finished walls should be protected to prevent wash-off. It is also advisable that protective covers remain in place.

16.29 At the top of walls, the system should be protected by an adequate overhang (see Figure 11) or other detail designed for use with this type of system.

Figure 7 Insulated window or door reveal

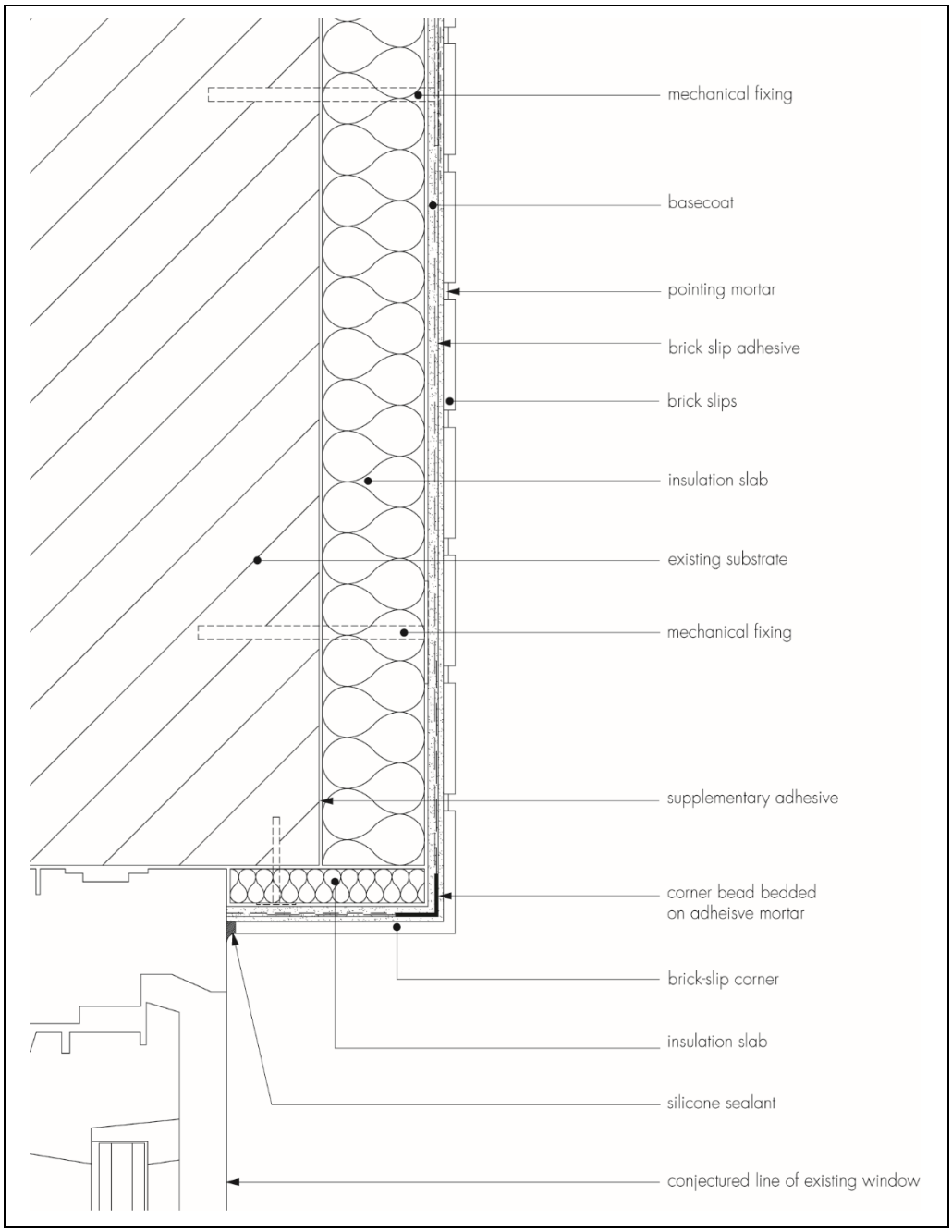


Figure 8 Corner details

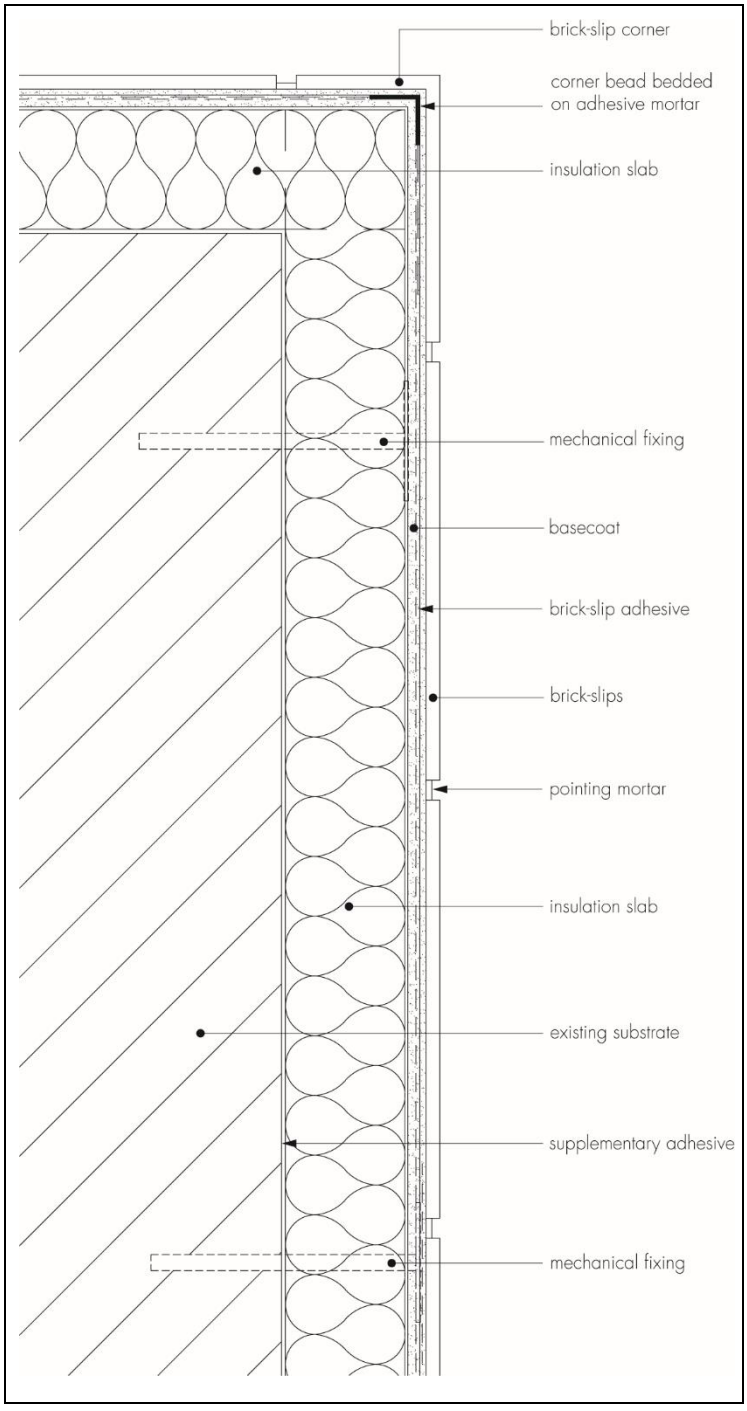


Figure 9 Window jambs details

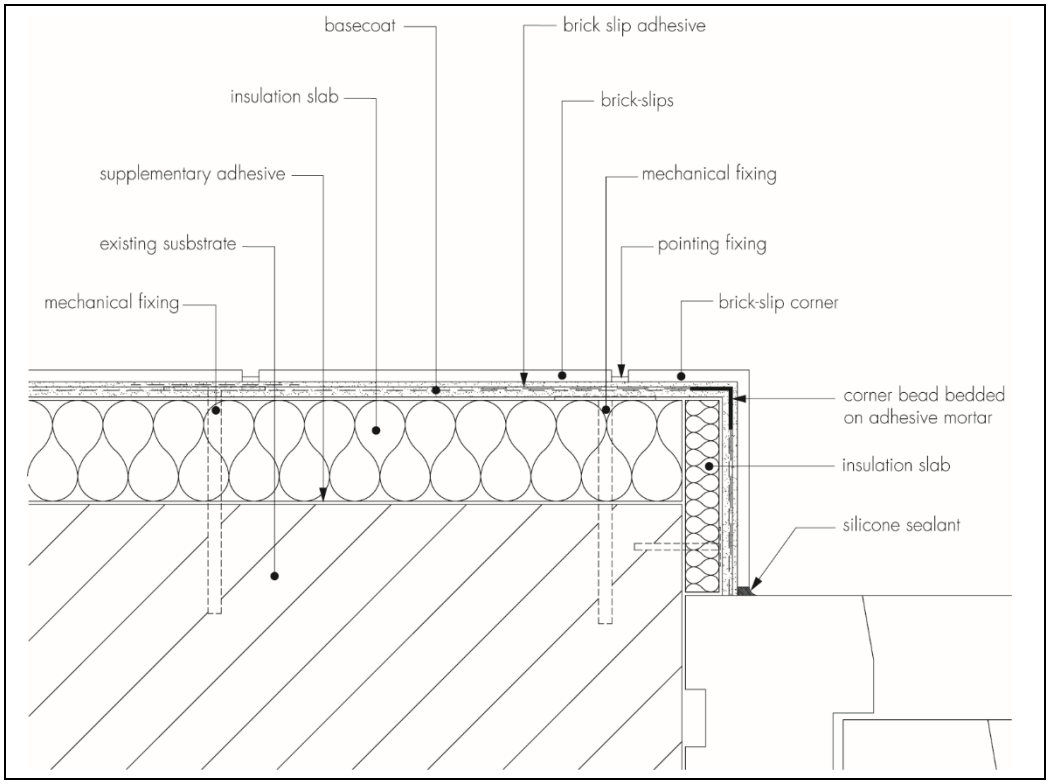


Figure 10 Typical sill detail

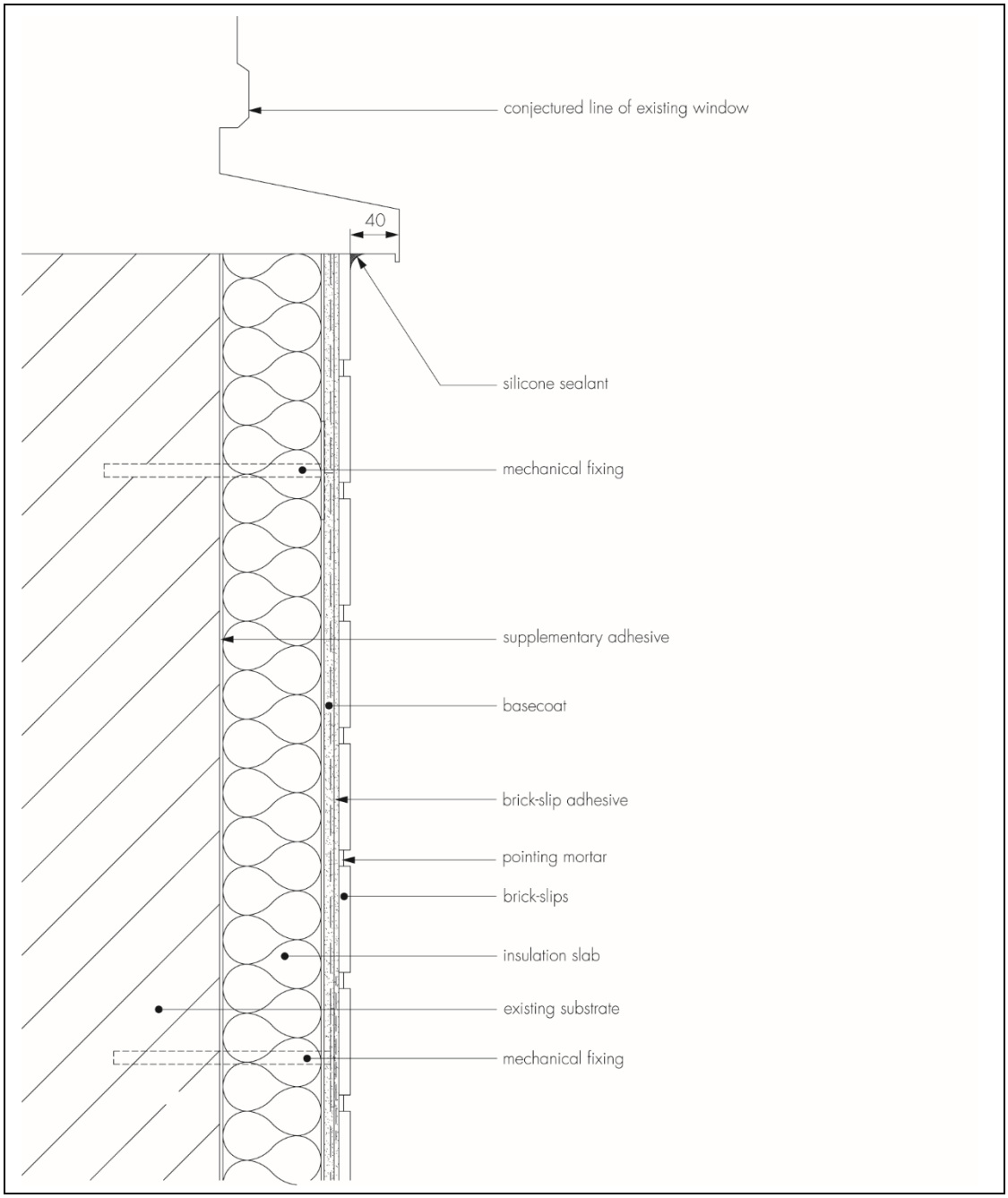
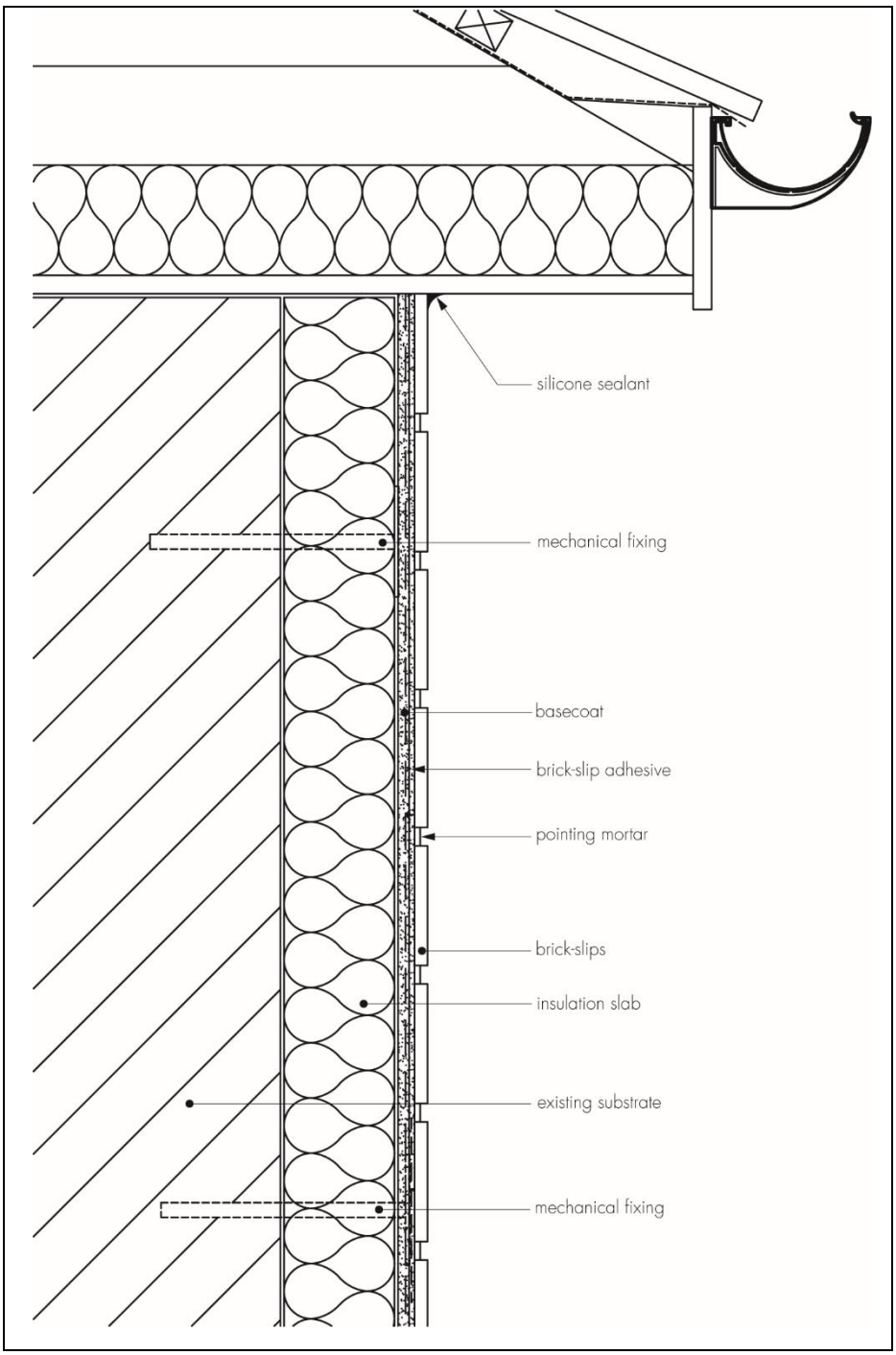


Figure 11 Typical eaves detail



Technical Investigations

17 Tests

Results of tests were assessed to determine:

- reaction to fire classification in accordance with BS EN 13501-1 : 2018
- hygrothermal performance (heat/spray cycling) and resistance to freeze thaw
- render bond strength
- resistance to hard impact
- water vapour permeability
- water absorption
- pull through resistance of fixings.

18 Investigations

18.1 Investigations were carried out to determine:

- durability
- adequacy of the fixing system
- the risk of interstitial condensation
- thermal conductivity and example U values
- system wind load resistance.

18.2 The practicability of installation and the effectiveness of detailing techniques were assessed.

18.3 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

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BRE Report BR 262 : 2002 *Thermal Insulation : avoiding risks*

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BS 8000-2.2 : 1990 *Workmanship on building sites – Code of practice for concrete work – Sitework with in situ and precast concrete*
BS 8000-3 : 2001 *Workmanship on building sites — Codes of practice for masonry*

BS EN 1990 : 2002 + A1 : 2005 *Eurocode — Basis of structural design*
NA to BS EN 1990 : 2002 + A1 : 2005 *Eurocode — Basis of structural design*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*

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NA + A2 : 14 to BS EN 1992-1-1 : 2004 + A1 : 2014 *UK National Annex to Eurocode 2 — Design of concrete structures — General rules and rules for buildings*

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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*
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BS EN 13162 : 2012 *Thermal insulation products for building — Factory made mineral wool (MW) products — Specification*

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

BS EN 13914-1 : 2005 *Design, preparation and application of external rendering and internal plastering — External rendering*

BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

ETAG 004 : 2013 *Guideline for European Technical Approval of External Thermal Insulation Composite Systems with Rendering*

EOTA TR051 : 2016 *Recommendations for job-site tests of plastic anchors*

EAD 330196-00-0604 *Guideline for European Technical Approval of Plastic Anchors for fixing of External Thermal Insulation Composite Systems with Rendering, June 2016.*

19 Conditions

19.1 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.

19.2 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.

19.3 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.

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

19.5 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.

19.6 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.