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**Agrément Certificate**

**17/5474**

Product Sheet 4

## IBSTOCK KEVINGTON NEXUS BRICK FACED MASONRY SUPPORT SYSTEMS

### IBSTOCK KEVINGTON MECHANICALLY FIXED NEXUS XI BRICK FACED SOFFIT UNITS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units, comprising a stainless steel profile with a mechanically secured and adhesively factory-bonded brick slip façade using a specific adhesive, for use in external masonry cavity walls.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

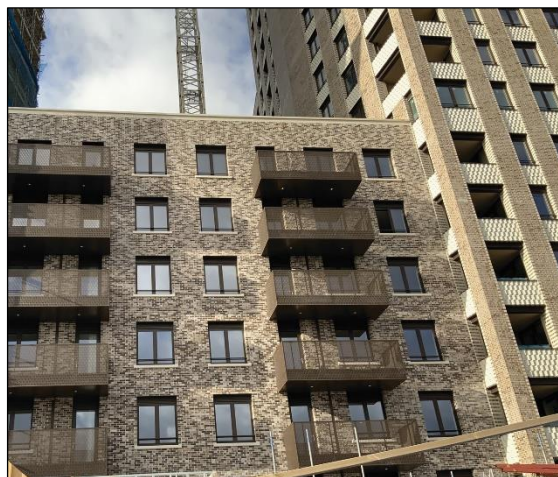
- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.

#### KEY FACTORS ASSESSED

**Structural performance** — the systems are non-structural but can support their self-weight and transfer wind actions to the supporting structure (see Tables 1 to 4 and section 6).

**Behaviour in relation to fire** — the stainless steel profiles and brick slips are classified as A1; the adhesive is classified as A2-s1, d0 in accordance with BS EN 13501-1 : 2018, and the systems' use is unrestricted in terms of building height and proximity to a boundary (see section 7).

**Durability** — provided the systems are designed, installed and used in accordance with this Certificate, they will have a service life of at least 60 years (see section 11).



The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 22 October 2020

Hardy Giesler  
Chief Executive Officer

*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](http://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.*

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## Regulations

In the opinion of the BBA, Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



### The Building Regulations 2010 (England and Wales) (as amended)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The systems can contribute to satisfying this Requirement as set out in section 6 of this Certificate.
<b>Requirement:</b>	<b>B4(1)</b>	<b>External fire spread</b>
Comment:		The systems are unrestricted by this Requirement. See section 7 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The systems are unrestricted by this Regulation. See section 7 of this Certificate.



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

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The systems are acceptable. See sections 10 and 11 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	1.1(a)(b)	Structure
Comment:		The systems are acceptable, with reference to clauses 1.1.1 <sup>(1)(2)</sup> and 1.1.2 <sup>(1)(2)</sup> of this Standard. See section 6 of this Certificate.
Standard:	2.3	Structural protection
Comment:		The systems are unrestricted by this Standard, with reference to clauses 2.3.2 <sup>(1)(2)</sup> . See section 7 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The systems are unrestricted by this Standard, with reference to clauses 2.6.5 <sup>(1)</sup> and 2.6.6 <sup>(2)</sup> . See section 7 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The systems are unrestricted by this Standard, with reference to clauses 2.7.1 <sup>(1)(2)</sup> . See section 7 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The systems can contribute to satisfying the relevant Requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		All comments given for the systems under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(iii)(b)(i)</b>	The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>30</b>	<b>Stability</b>
<b>Comment:</b>		The systems are acceptable as set out in section 6 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
<b>Comment:</b>		The systems are unrestricted by this Regulation. See section 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: 1 *Description* (1.3) and 3 *Delivery and site handling* (3.3) of this Certificate.

### Additional Information

#### NHBC Standards 2020

In the opinion of the BBA, Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units, 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 Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units are one-piece external wall soffit units prefabricated from stainless steel, with mechanically secured and adhesively factory-bonded brick slips (using a specific adhesive) to suit the project requirements (see Figures 1 to 4).

1.2 The systems comprise:

##### Steel profiles

- the steel profiles are manufactured from high grades 304 (1.4301) or 316 (1.4404) austenitic stainless steel to BS EN 10088-2 : 2014 based on the design specifications for non-aggressive or aggressive environments respectively, and are produced in four standard profiles, as detailed in section 1.3. Grades 304 (1.4301) and 316 (1.4404) are equivalent to R3 and R1 classifications respectively to PD 6697 : 2019. The steel sections of the soffit units are CE marked and manufactured in accordance with BS EN 1090-1 : 2009

##### Steel fixings

- stainless steel washer; stainless steel rear clip; M3 & M4 A2 bolts; M3 bespoke slotted nut; M4 rivnuts

##### Adhesive

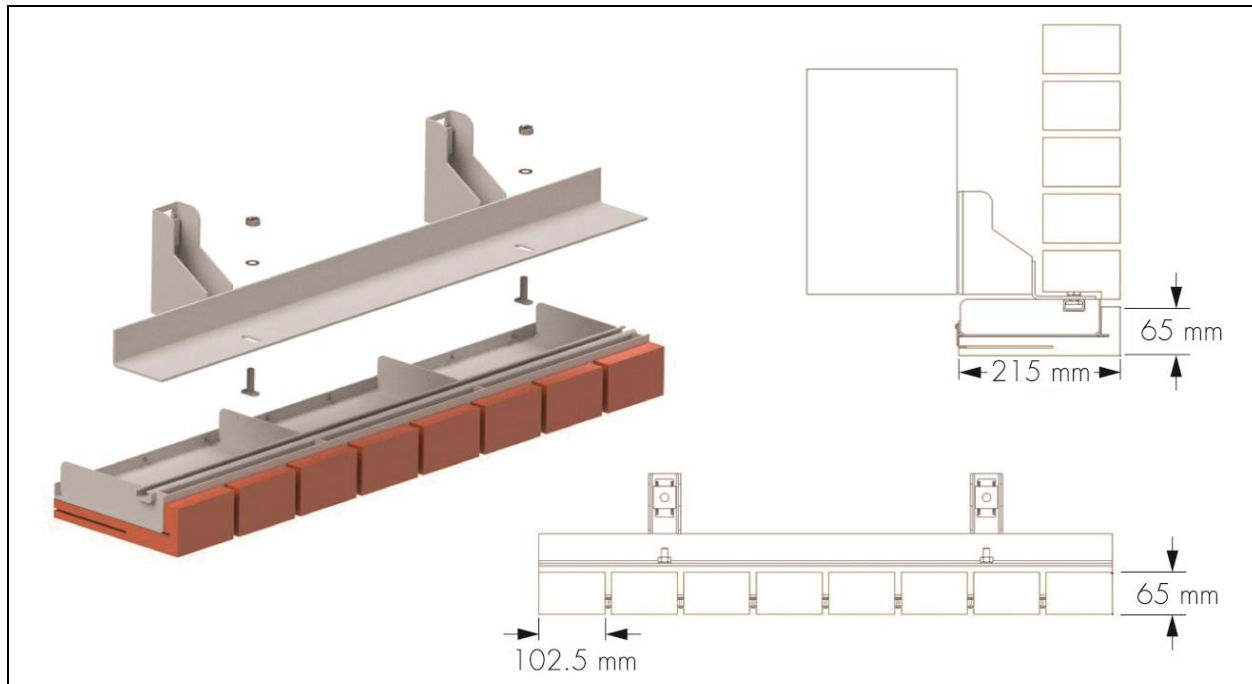
- BrickFix adhesive is classified as A2-s1,d0 to BS EN 13501-1 : 2018. A 1 mm thickness is used to bond the stainless steel profiles and brick slips at the factory

## Brick slips

- Brick slips are 25 mm thick, cut from bricks manufactured in accordance with BS EN 771-1 : 2011 and BS 4729 : 2005.

1.3 The systems are available in four standard profiles: Soffit Unit 65 x 215 mm with Header Bond (see Figure 1), Soffit Unit 65 x 440 x 65 mm with Stretcher Bond (see Figure 2), Soffit Unit 215 x 102 mm with Soldier Bond (see Figure 3) and Soffit Unit 65 x 665 x 65 mm with Stretcher Bond (see Figure 4). Further details are shown in Tables 1 to 4.

*Figure 1 Soffit Unit 65 x 215 mm with Header Bond (support angle brackets, shims and anchor bolts are outside the scope of this Certificate)*



*Figure 2 Soffit Unit 65 x 440 x 65 mm with Stretcher Bond (support angle brackets, shims and anchor bolts are outside the scope of this Certificate)*

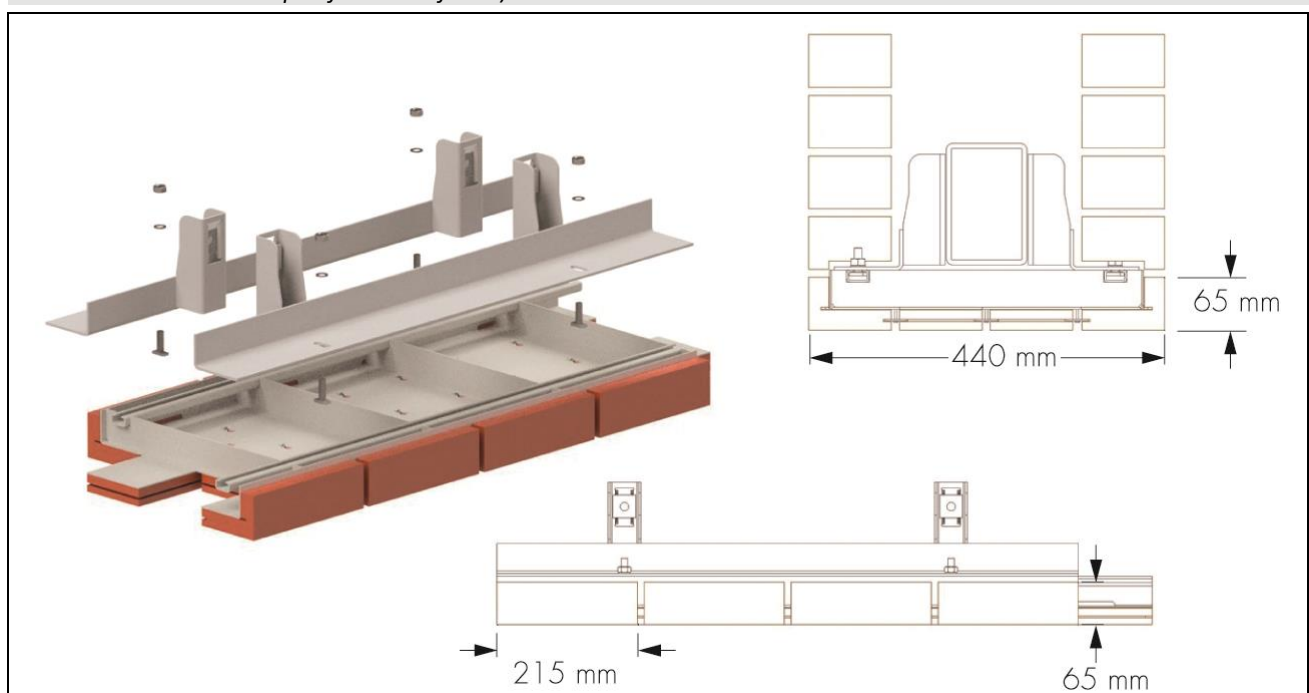


Figure 3 Soffit Unit 215 x 102.5 mm with Soldier Bond (support angle brackets, shims and anchor bolts are outside the scope of this Certificate)

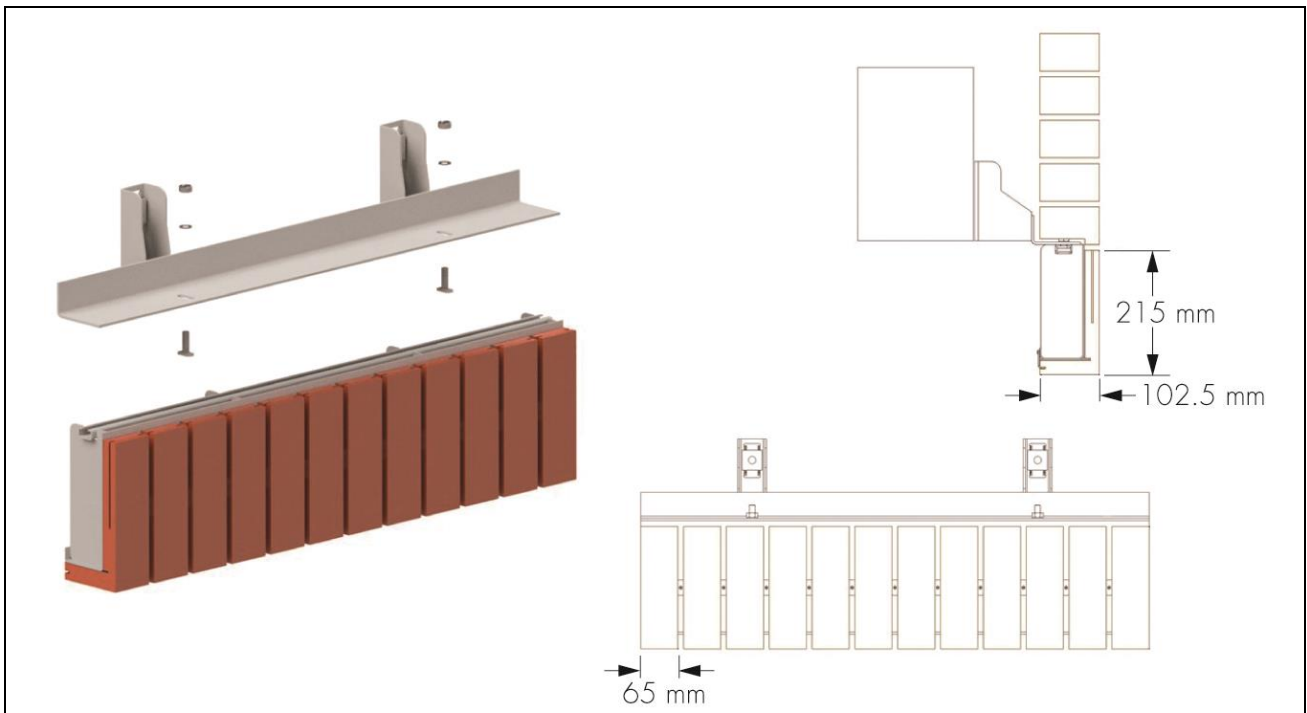


Figure 4 Soffit Unit 65 x 665 x 65 mm with Stretcher Bond (support angle brackets, shims and anchor bolts are outside the scope of this Certificate)

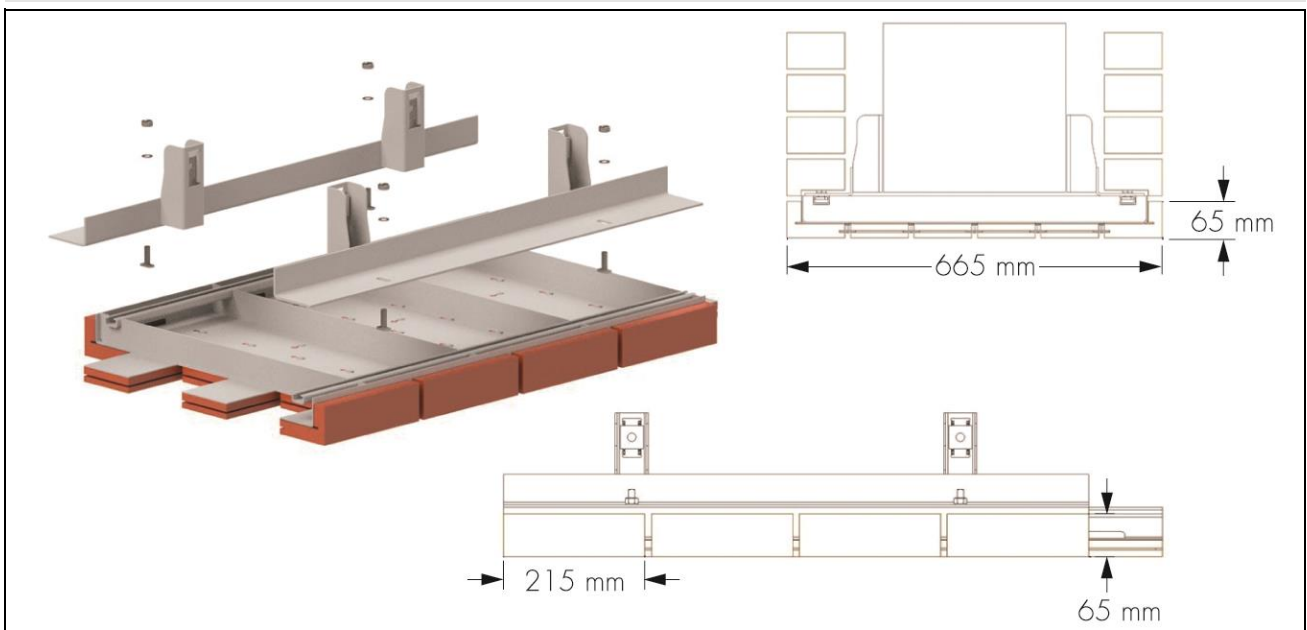


Table 1 Soffit Unit 65 x 215 mm with Header Bond

Maximum overall length of soffit profile (mm)	890
Height of soffit profile (mm)	65
Width of soffit profile (mm)	215
Thickness of steel profile (mm)	3
Mass with brick slip ( $\text{kg}\cdot\text{m}^{-1}$ )	18.2

*Table 2 Soffit Unit 65 x 440 x 65 mm with Stretcher Bond*

Maximum overall length of soffit profile (mm)	1002
Height of soffit profile (mm)	65
Width of soffit profile (mm)	440
Thickness of steel profile (mm)	3
Mass with brick slip (kg·m <sup>-1</sup> )	24.0

*Table 3 Soffit Unit 215 x 102.5 mm with Soldier Bond*

Maximum overall length of soffit profile (mm)	890
Height of soffit profile (mm)	215
Width of soffit profile (mm)	102.5
Thickness of steel profile (mm)	3
Mass with brick slip (kg·m <sup>-1</sup> )	19.3

*Table 4 Soffit Unit 65 x 665 x 65 mm with Stretcher Bond*

Maximum overall length of soffit profile (mm)	1002
Height of soffit profile (mm)	65
Width of soffit profile (mm)	665
Thickness of steel profile (mm)	3
Mass with brick slip (kg·m <sup>-1</sup> )	29.0

1.4 An ancillary item also used with the systems, but outside the scope of this Certificate, is Ancon MDC, a bracket angle support product comprising support angle brackets, shims and anchor bolts. All elements are manufactured from 1.4301 austenitic stainless steel and are CE marked to BS EN 1090-1 : 2009.

## **2 Manufacture**

2.1 The stainless steel elements of the systems are formed by folding and welding. The profiles are fabricated by welding.

2.2 The brick slips are cut from bricks and mechanically secured and adhesively fixed to the soffit unit with BrickFix adhesive at the manufacturing site.

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

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

2.4 The management system of Ibstock Brick Ltd has been assessed and registered as meeting the requirements of BS EN ISO 14001 : 2015 by Lucideon (Certificate 24494).

## **3 Delivery and site handling**

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

3.2 Reasonable care must be taken during unloading and storage of soffit units, to avoid impact and abrasion damage to their surface or integrity.



3.3 The systems can generally be handled manually, except for the longer span soffit units which incorporate lifting lugs for mechanical handling equipment. Protective gloves should be worn when handling the systems.

3.4 The soffit units must be stored off the ground on a well-drained, puddle-free hardstanding. The soffit units are delivered on pallets and must not be stacked.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units.

## Design Considerations

### 4 Use

4.1 Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units are satisfactory for use in external masonry cavity walls.

4.2 Designers, planners, contractors and/or installers must ensure that the installation of the soffit units is in accordance with the Certificate holder's instructions and the information given in this Certificate.

4.3 As with any form of cavity wall construction buildings need to comply with the recommendation of PD 6697 : 2019 and where applicable, *NHBC Standards 2020*. Specifiers should observe the requirements of these Standards and include cavity trays with stop ends. A cavity tray must be used above the soffit unit.

### 5 Practicability of installation

The systems are designed to be installed by a competent general builder, or a contractor, experienced with these types of systems.

### 6 Structural performance



6.1 Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units have adequate strength and stiffness to sustain their own weight and imposed wind actions, providing Ancon MDC is designed to withstand the loads and limit the deflections, and they are installed by an appropriately qualified individual. The systems are not designed to take any other imposed loads and must be separated from the walling above by the expansion joint mastic sealant.

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

6.3 An assessment of the structural performance for the specific building must be carried out by a suitability experienced and competent individual to confirm that the proposed system provides adequate resistance to design wind loads and transfers them through the masonry support system to the structure.

6.4 In addition to the requirements specifically referred to in this Certificate, the structures in which the soffit units are incorporated must be designed and constructed in accordance with BS EN 1996-1-1 : 2005 and BS EN 1996-1-2 : 2005, and their UK National Annexes, PD 6697 : 2019 and the technical specifications of the national Building Regulations, as appropriate.

## 7 Behaviour in relation to fire



7.1 The stainless steel profiles and brick slips are non-combustible and classified as Class A1 to BS EN 13501-1 : 2018. BrickFix adhesive is classified as limited combustibility (A2-s1,d0 to BS EN 13501-1 : 2018) reaction-to-fire<sup>(1)</sup>. The systems are therefore not subject to any restriction on proximity to boundaries and height.

(1) Warrington Fire test report WF415154 dated 15 July 2019, a copy of which is available from the Certificate holder on request.

7.2 Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units are constructed with the same components as Ibstock Kevington Nexus Brick Faced Lintels (the subject of Product Sheet 1 of this Certificate) with the exception of the adhesive, which were tested utilising heating conditions in accordance with BS EN 1363-1 : 2020 and no debonding was recorded for 120 minutes. Therefore, also the soffit units can satisfy the requirements of BS EN 1996-1-2 : 2002 and the national Building Regulations, and designers should refer to the EXOVA Warrington fire Test Report No. 399669, available from the Certificate holder for additional details.

## 8 Thermal performance

8.1 Typical example details containing the systems, based on the construction details shown in Figures 1 and 3, were analysed numerically to determine their likely hygrothermal performance.

8.2 If designed appropriately, exposed floor junctions with insulated soffit units will adequately limit excessive heat loss and allow use of the following  $\Psi$  values in carbon emission rate calculations (see Table 5).

*Table 5 Typical  $\Psi$  value for Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units*

Lintel product	Example $\Psi$ value <sup>(1)</sup> ( $W \cdot m^{-1} \cdot K^{-1}$ )	Default $\Psi$ value <sup>(2)</sup> ( $W \cdot m^{-1} \cdot K^{-1}$ )
65 x 215 mm with Header Bond <sup>(3)</sup>	0.15	1.0
215 x 102 mm with Soldier Bond <sup>(4)</sup>	0.12	

(1) 150 mm cavity width, comprising 50 mm vented cavity adjacent ( $R = 0.183 \text{ m}^2 \cdot K \cdot W$ ), 100 mm insulation.

(2) Where a junction detail has not been calculated in accordance with BS EN ISO 10211 : 2017 and BRE Report BR 497 : 2007, the default value from this Table must be used.

(3) Assumed wall construction: 102 mm brickwork ( $\lambda = 0.77 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 50 mm vented cavity [see footnote (1)] mineral wool [see footnote (1)] insulation ( $\lambda = 0.040 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 100 mm blockwork ( $\lambda = 0.11 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 15 mm service cavity ( $R = 0.17 \text{ m}^2 \cdot K \cdot W$ ), 12.5 mm plasterboard ( $\lambda = 0.25 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ). Assumed insulated soffit construction: 25 mm brick slips ( $\lambda = 0.77 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 75 mm phenolic insulation ( $\lambda = 0.020 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ) and 300 mm dense reinforced concrete slab ( $\lambda = 2.3 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ).

(4) Assumed wall construction: 102 mm brickwork ( $\lambda = 0.77 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 50 mm vented cavity [see footnote (1)] phenolic [see footnote (1)] insulation ( $\lambda = 0.020 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 100 mm blockwork ( $\lambda = 0.11 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 15 mm service cavity ( $R = 0.17 \text{ m}^2 \cdot K \cdot W$ ), 12.5 mm plasterboard ( $\lambda = 0.25 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ). Assumed insulated soffit construction: 25 mm brick slips ( $\lambda = 0.77 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ), 200 mm mineral wool insulation ( $\lambda = 0.032 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ) and 300 mm dense reinforced concrete slab ( $\lambda = 2.3 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ ).

8.3 For other junction details, the linear thermal transmittance and temperature factor should be calculated in accordance with BS EN ISO 10211 : 2017, following the guidance in BRE Report BR 497 : 2007.

## 9 Condensation risk

9.1 The construction described in section 8.1 will achieve a surface temperature factor,  $f_{Rsi}$ , in excess of 0.80, which can be compared to the critical temperature factors,  $f_{CRsi}$ , in BRE Information Paper IP 1/06 for the relevant building type. The risk of surface condensation is low when the  $f_{Rsi}$  is equal to or greater than the  $f_{CRsi}$ . The systems can therefore contribute to limiting the risk of surface condensation and mould growth in most building types. For other constructions, the temperature factor ( $f_{Rsi}$ ) must be established by numerical modelling (see section 8.3).

9.2 External soffits can adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2011, including provision of an Air Vapour Control Layer (AVCL) on the warm side of the external wall and a ventilated 50 mm air cavity between the insulation and the soffit unit.



## 10 Maintenance



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

10.2 Regular checks should be made on the installed systems, including:

- visual inspection of the brick-slips for signs of debonding. Dislodged slips must be re-fixed using brick-slip adhesive. The Certificate holder can advise on suitable materials for this purpose
- visual inspection of architectural details designed to shed water to confirm that they are performing properly
- visual inspection to ensure that water is not leaking from external downpipes or gutters; such leakage could penetrate behind the brick slips
- damaged brick slips are removed and replaced with new ones, using the adhesive as supplied by the Certificate holder
- direct jet cleaning of the brick slips should be avoided and if brick slips are stained the advice of the Certificate holder should be sought.

10.3 Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions.

## 11 Durability



Provided that Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units are designed, installed and used in accordance with this Certificate, they will have a service life of at least 60 years.

## 12 Reuse and recyclability

12.1 The stainless steel and steel components can be recycled.

12.2 The brick slips contain fired clay which can be recycled.

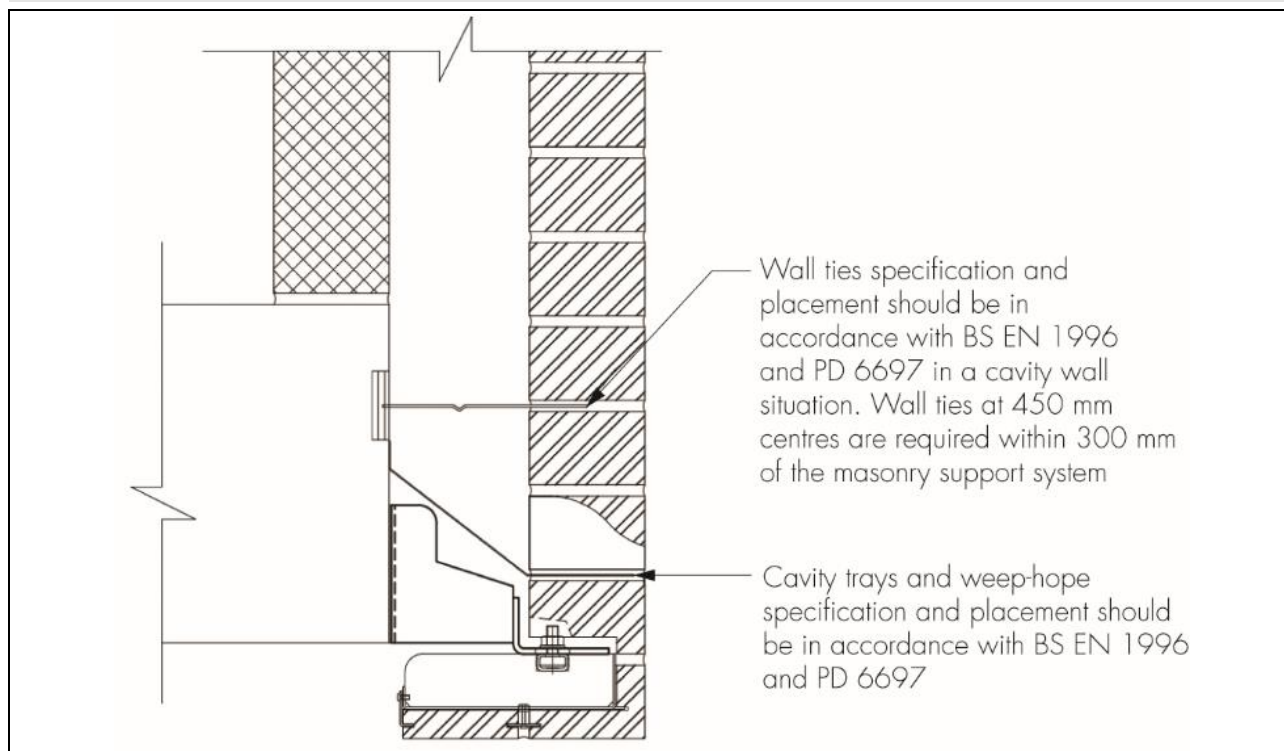
## Installation

### 13 General

13.1 Cavity tray weep-holes should be provided in the outer leaf above the soffit units to drain moisture from the cavity. A minimum of two weep-holes should be provided per soffit unit. For fair-faced masonry, weep-holes should be provided at centres not greater than 450 mm (see Figure 5).

13.2 Brick slips should be pointed using a pointing gun and the same mortar as the rest of the brickwork, but only after removal of the temporary propping. Pointing should not take place in wet weather or in temperatures below 3°C.

Figure 5 Section detail including cavity tray



## 14 Procedure

14.1 Ibstock Kevington Mechanically Fixed Nexus XI Brick Faced Soffit Units are typically fixed to the underside of masonry support systems at maximum 500 mm centres. The standard fixings are M10 stainless steel T-head bolts (grade 1.4301, class 70) which are located through slots in the bearing leg of the masonry support system and into a 28/15 integral stainless steel continuous channel. The tightening torque for the fixings is 20 Nm. The systems are bespoke items; fixing type and spacing may vary dependent upon the specific project details. Specific connection details are provided with each system, as necessary.

### Installation of the Ancon MDC system (outside the scope of this Certificate)

14.2 T Head bolts are installed into the channel and turned 90 degrees. The thermal shim, bracket and serrated washer are positioned and loosely hand-tightened. The cast-in channel provides horizontal adjustment. Vertical adjustment is achieved by the deep slot on the bracket. Ancon MDC Support Systems are designed to accommodate adjustment of  $\pm 20$ mm. Shims can be added behind the bracket for lateral adjustment. The system is then levelled and bolts are tightened using a calibrated torque wrench (see Figure 6).

### Installation of Nexus XI Brick Faced Soffit

14.3 Nexus XI soffit unit's T-head bolts are placed in the channel to align with the slots in the angle, and the soffit unit is lifted to the underside of the masonry support angle. The soffit unit should continue to be supported via the steps given in sections 14.4 and 14.5 (see Figure 6).

14.4 The washer and nut are added to the bolts and finger tightened onto the angle, ensuring the T-head bolt is fully turned and engaged in the channel. If the angle is correctly levelled, there should be no need to add shims between the soffit unit and the angle. If, however, shimming is required, they should be added at this time. Horseshoe shims must surround the bolt and extend for the full contact area between soffit unit and angle. They must not be placed in any other location other than around the bolt as this will lead to deformation of the angle when the bolts are torqued.

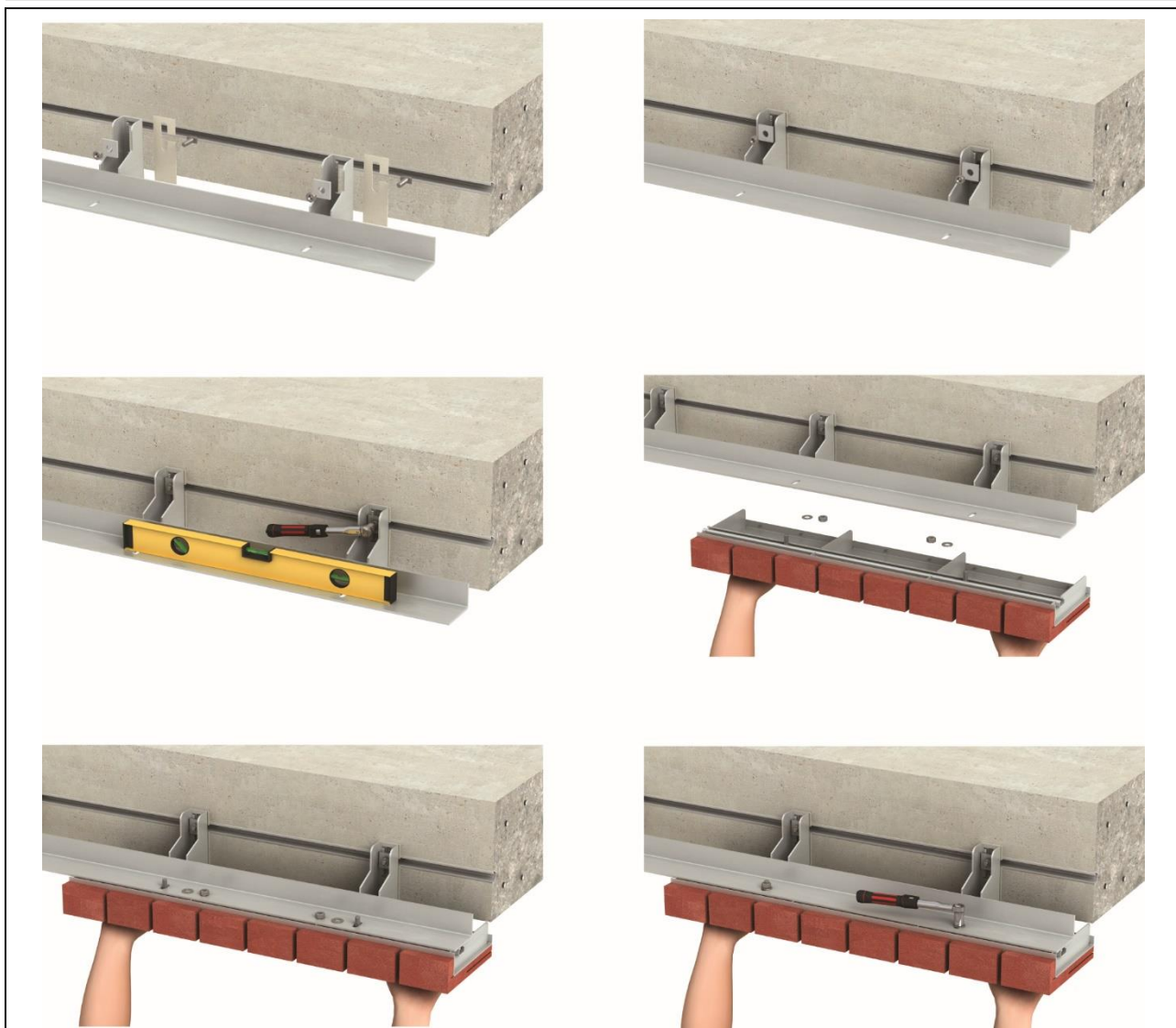
Note: The bolt should have a minimum of two threads visible above the nut; if shimming has reduced this clearance, longer bolts will be required.

14.5 Once satisfied with the line and level of the soffit unit, the bolts should be torqued to 20 Nm. The support to the soffit units can then be removed (see Figure 6).

14.6 Brickwork should continue on the masonry support system in line with normal bricklaying practice and the *Ancon MDC Masonry Support Systems Installation Guide*. The soffit units should be pointed to match the main brickwork.

Note: The movement joint in soffit-hung details is below the soffit unit. Compressible material should be placed below the soffit unit and not between the angle and soffit unit.

Figure 6 Installation procedure



## Technical Investigations

### 15 Tests

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

- bond strength after accelerated ageing
- integrity of the bond at maximum design deflection
- behaviour in relation to fire.

### 16 Investigations

16.1 An assessment was made of data relating to:

- calculations to establish minimum temperature factors and the  $\Psi$  values of typical constructions incorporating the systems, undertaken to BRE Information Paper IP 1/06

- durability
- practicability of installation.

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

## Bibliography

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

BRE Report BR 497 : 2007 *Conventions for calculating linear thermal transmittance and temperature factors*

BS 4729 : 2005 + A1 : 2016 *Clay bricks of special shapes and sizes — Recommendations*

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

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

BS EN 1090-1 : 2009 + A1 : 2011 *Execution of steel structures and aluminium structures — Requirements for conformity assessment of structural components*

BS EN 1363-1 : 2020 *Fire resistance tests — General requirements*

BS EN 1990 : 2002 + A1 : 2005 *Eurocode 1 — Basis of structural design*

NA to BS EN 1990 : 2002 + A1 : 2005 UK National Annex to *Eurocode 1 — 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*

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

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

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

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

BS EN 10088-2 : 2014 *Stainless steels. Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes*

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

BS EN ISO 10211 : 2017 *Thermal bridges in building construction — Heat flows and surface temperatures — Detailed calculations*

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

PD 6697 : 2019 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

### 17 Conditions

#### 17.1 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 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.