

## ACS Stainless Steel Fixing Ltd

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**Agrément Certificate**

**19/5650**

Product Sheet 4

### ACS AZURE BRICK SLIP MASONRY SUPPORT SYSTEMS

#### ACS AZURE II BRICK FACED SOFFIT UNITS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to ACS Azure II Brick Faced Soffit Units, comprising a stainless steel profile with a mechanically fixed brick slip façade, for use in external masonry cavity wall constructions to provide functional cover and for aesthetic purposes.

(1) Hereinafter referred to as 'Certificate'.

#### CERTIFICATION INCLUDES:

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



#### KEY FACTORS ASSESSED

**Structural performance** — the systems are non-structural but can support their self-weight and transfer wind actions to the supporting structure and are suitable for use with masonry support systems (see Table 1 and section 6).

**Behaviour in relation to fire** — the stainless steel profiles, connecting rails and brick slips are non-combustible and the systems use is unrestricted in terms of building height and proximity to a boundary (see section 7).

**Thermal performance and condensation risk** — suitably designed junctions incorporating the systems can adequately limit heat loss and the risk of condensation (see sections 8 and 9).

**Durability** — under normal service conditions, provided that the systems are designed, installed and used in accordance with the 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: 10 August 2020

A handwritten signature in black ink, appearing to read 'Hardy Giesler'.

Hardy Giesler  
Chief Executive Officer

This Certificate was amended on 22 May 2024 as part of a transition of The BBA Agrément Certificate scheme delivered under the BBA's ISO/IEC 17020 accreditation. This Certificate was issued originally under accreditation to ISO/IEC 17065. Sections marked with the symbol † are not issued under accreditation. Full conversion to the ISO/IEC 17020 format will take place at the next Certificate review. The BBA is a UKAS accredited Inspection Body (No. 4345). Readers MUST check the validity of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly. Any photographs are for illustrative purposes only, do not constitute advice and must not be relied upon.

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## Regulations

In the opinion of the BBA, ACS Azure II 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 2.3.1 <sup>(1)(2)</sup> and 2.3.3 <sup>(1)(2)</sup> of this Standard. See section 7.2 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> of this Standard. See section 7.2 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The systems can contribute to satisfying the requirements of this Standard, with reference to clauses 2.7.1 <sup>(1)(2)</sup> and 2.7.2 <sup>(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 in relation to 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), 3 *Delivery and site handling* (3.3) of this Certificate.

### Additional Information

#### NHBC Standards 2020

In the opinion of the BBA, ACS Azure II 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 ACS Azure II Brick Faced Soffit Units are one-piece external wall soffit units, prefabricated from stainless steel profile with a mechanically fixed brick slips, using a connecting rail welded, riveted or mechanically fixed to the profile, see Figures 1 to 7.

1.2 The systems comprise:

##### Lightweight stainless steel profiles

- the steel profiles are manufactured from grade 304 (1.4301) or 316 (1.4404) austenitic stainless steel to BS EN 10088-7 : 2014 based on the design specifications for non-aggressive or aggressive environments respectively, with a profile thickness of 2 mm. Grades 304 (1.4301) and 316 (1.4404) are equivalent to R3 and R1 classification to PD 6697 : 2019 respectively. The steel sections of the soffit units are CE marked in accordance with BS EN 845-2 : 2013 and manufactured to comply with the requirements of BS EN 1090-1 : 2009

##### Connecting rails and fixings

- connecting rails are manufactured from the same grade of stainless steel as the profile and are welded, riveted or mechanically fixed to the profile. The rails have nibs that accommodate the grooves on the reverse side of the brick slips

## Brick slips

- brick slips are 25 mm thick, and cut from bricks manufactured to comply with the requirements of BS EN 771-1 : 2011 and BS 4729 : 2005

## Fixings

- the bolts, nuts and washers used with the soffit units are manufactured from stainless steel of grade 304 (1.4301), M12 size. Bolts and nuts conform to BS EN ISO 3506-1 : 2020 and washers to BS 4320 : 1968. Horse shoe packing shims with 50 x 50 x 3 mm dimensions made of glass-reinforced plastic (GRP) material are used with the fixings when required.

1.3 The systems are available in seven standard profiles with three different brick slip bonds. Further details are given in Table 1 and shown in Figures 1 to 7:

- Soffit Unit 1 — 215 x 65 mm with stretcher bond (Figure 1)
- Soffit Unit 2 — 102 x 65 mm with stretcher bond (Figure 2)
- Soffit Unit 3 — 102 x 215 mm with soldier bond (Figure 3)
- Soffit Unit 4 — 215 x 65 mm with header bond (Figure 4)
- Soffit Unit 5 — 215 x 102 mm with rowlock header bond (Figure 5)
- Soffit Unit 6 — 327 x 65 mm with stretcher bond (Figure 6)
- Soffit Unit 7 — 440 x 65 mm with stretcher bond (Figure 7).

Figure 1 Soffit Unit 1 – 215 x 65 mm with stretcher bond

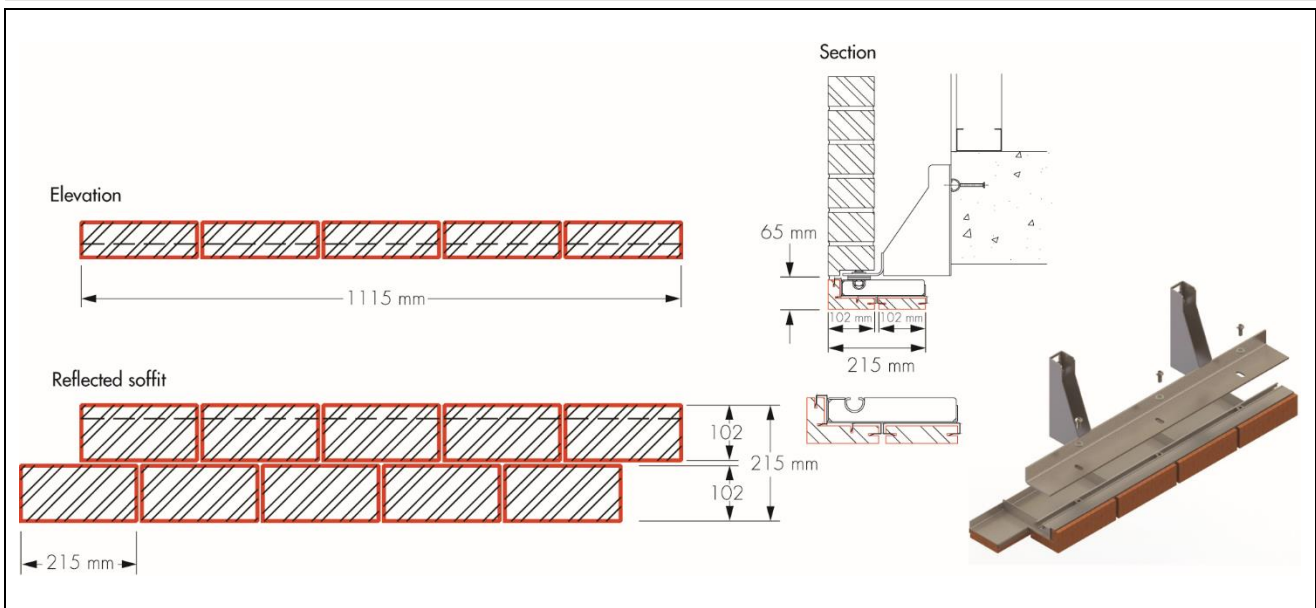


Figure 2 Soffit Unit 2 – 102 x 65 mm with stretcher bond

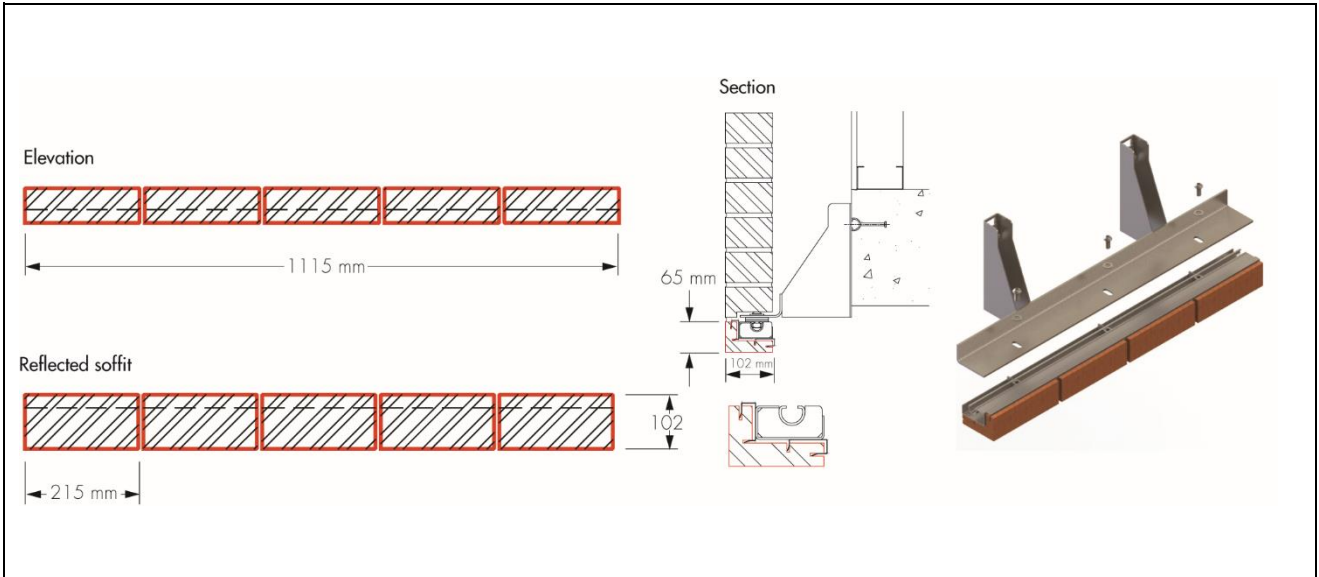


Figure 3 Soffit Unit 3 – 102 x 215 mm with soldier bond

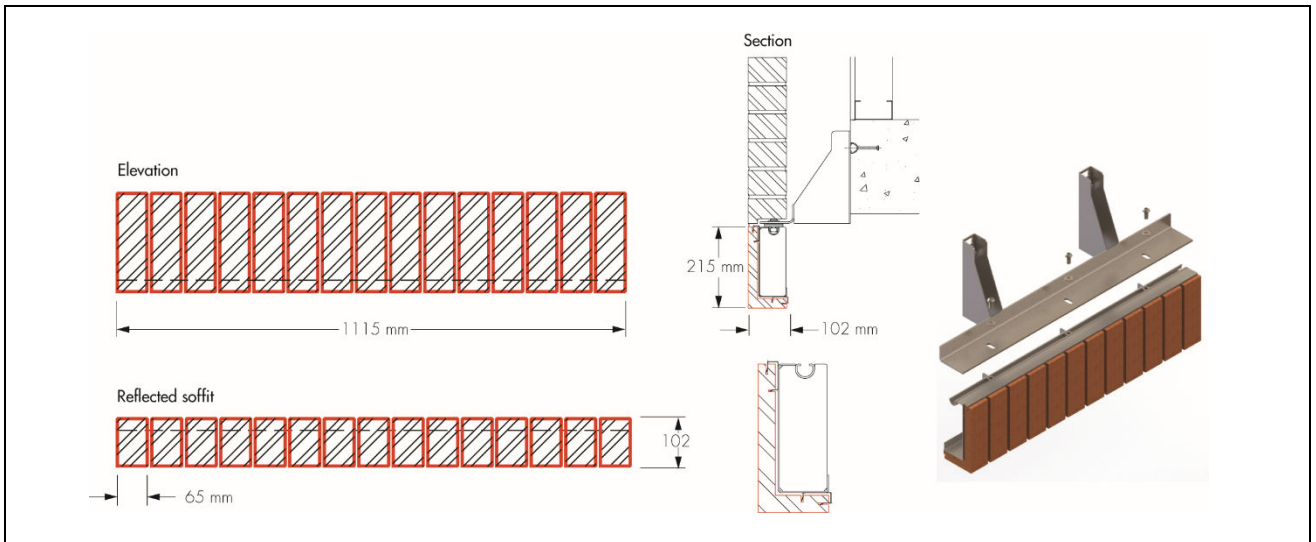


Figure 4 Soffit Unit 4 – 215 x 65 mm with header bond

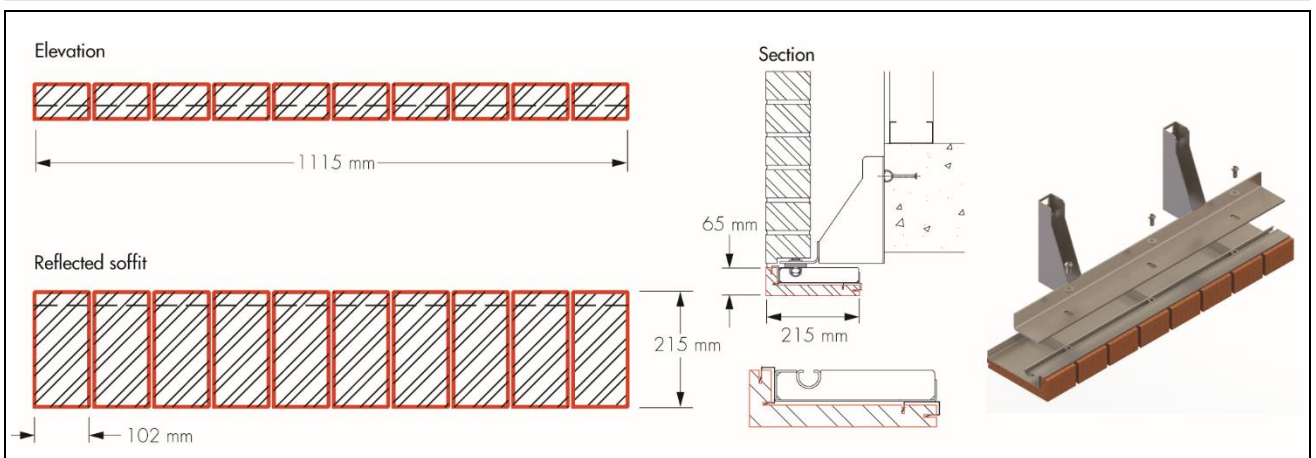




Figure 5 Soffit Unit 5 – 215 x 102 mm with rowlock header bond

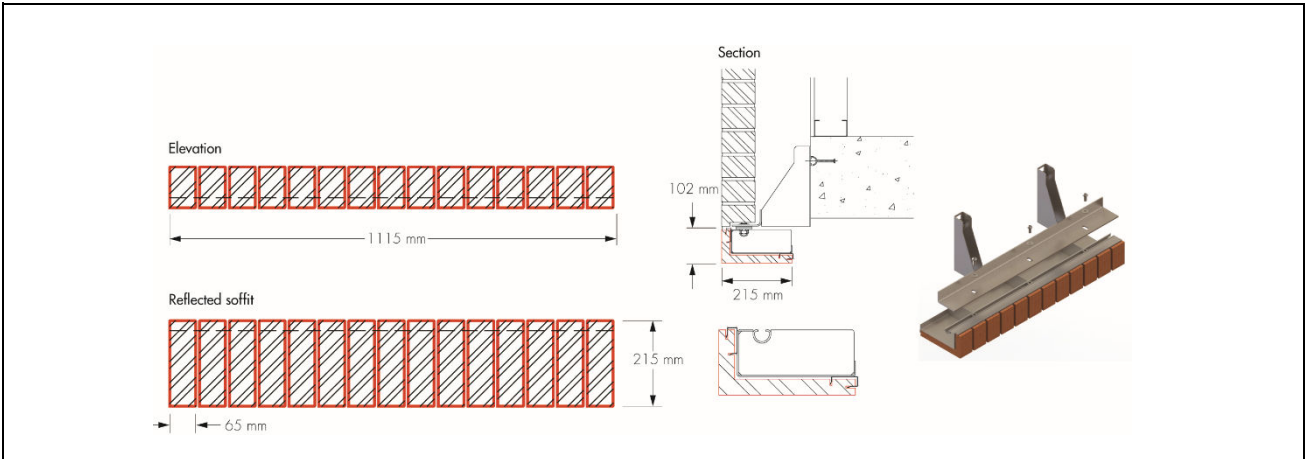


Figure 6 Soffit Unit 6 – 327 x 65 mm with stretcher bond

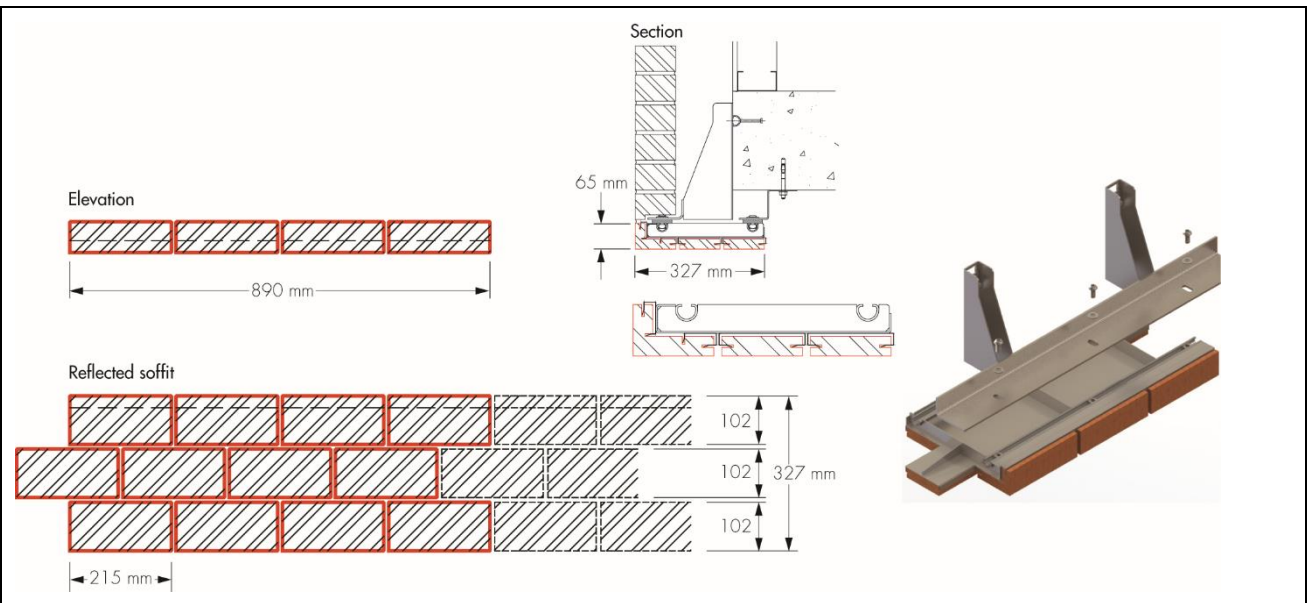


Figure 7 Soffit Unit 7 – 440 x 65 mm with stretcher bond

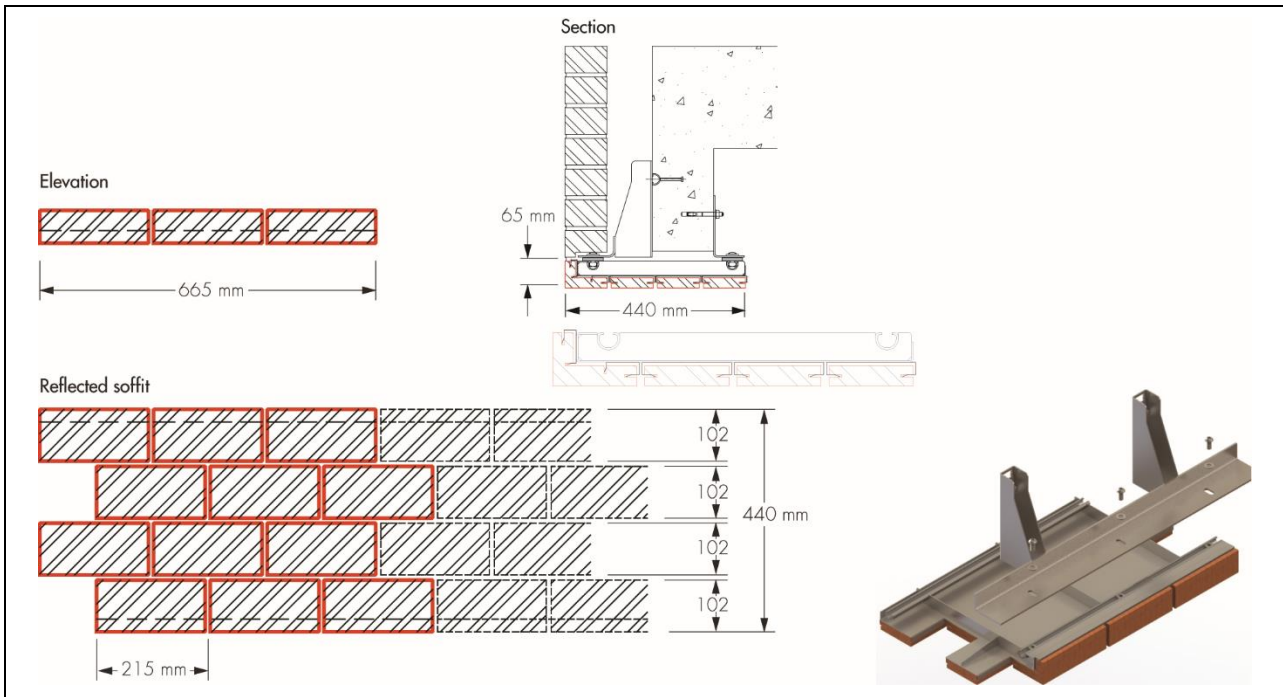


Table 1 Soffit unit range — characteristics

Soffit profile	Overall length of soffit profile (mm)	Height of soffit profile (mm)	Width of soffit profile (mm)	Thickness of steel profile (mm)	Mass with brick slip (kg·m <sup>-1</sup> )
Soffit Unit 1 – 215 x 65 mm with stretcher bond; Figure 1	1120	65	215	2	12.97
Soffit Unit 2 – 102 x 65 mm with stretcher bond; Figure 2	1120	65	102	2	7.88
Soffit Unit 3 – 102 x 215mm with soldier bond; Figure 3	1120	215	102	2	16.17
Soffit Unit 4 – 215 x 65 mm with header bond; Figure 4	1120	65	215	2	17.08
Soffit Unit 5 – 215 x 102 mm with rowlock header bond; Figure 5	1120	102	215	2	16.30
Soffit Unit 6 – 327 x 65 mm with stretcher bond; Figure 7	895	65	327	2	21.22
Soffit Unit 7 – 440 x 65 mm with stretcher bond; Figure 7	670	65	440	2	26.92

1.4 Ancillary items that must be used with the products, but which are outside the scope of this Certificate, are ACS T1 and T2 Masonry Support Systems. These are stainless steel bracket systems comprising cold form angles, support brackets, shims and anchor bolts. All products are CE marked to BS EN 1090-1: 2009 and BS EN 845-2 : 2013.

## 2 Manufacture

2.1 The soffit units comprise stainless steel profiles and mechanically fixed brick faced units. The stainless steel profiles are manufactured from sheet material which is folded and formed in the factory. The profiles are fabricated by welding. The brick slips are cut from bricks.

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 ACS Stainless Steel Fixing Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by the Steel Certification Scheme (Certificate 2370407).

### 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 the soffit units, to avoid impact and abrasion or 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 dry, well-drained 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 ACS Azure II Brick Faced Soffit Units.

### Design Considerations

#### 4 Use

4.1 ACS Azure II Brick Faced Soffit Units are satisfactory for use on cavity walls of brickwork and/or blockwork.

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 where buildings need to comply with *NHBC Standards 2020*, specifiers should observe the requirements of these Standards, including the provision of appropriate cavity trays and weep-holes.

#### 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 ACS Azure II Brick Faced Soffit Units have adequate strength and stiffness to sustain their own weight, providing the substructure (stainless steel T1 and T2 Masonry Support Bracket System) is designed and installed by experienced and competent individuals to withstand the loads and limit the deflections. The systems are not designed to take any load other than their own self weight and wind load 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 by suitably experienced and competent individual in accordance with BS EN 1991-1-4 : 2005. Special consideration should be given to locations with high wind-load pressure coefficients. In accordance with BS EN 1990 : 2002, a partial load 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 taking 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 suitably experienced and competent individual to confirm that the proposed system provides adequate resistance to design wind loads. An assessment of the structural performance for the specific building must be carried out by a suitably 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, structures of brickwork or blockwork 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. Reference should also be made to PD 6697 : 2019, and the technical specifications of the documents supporting the national Building Regulations, as appropriate.

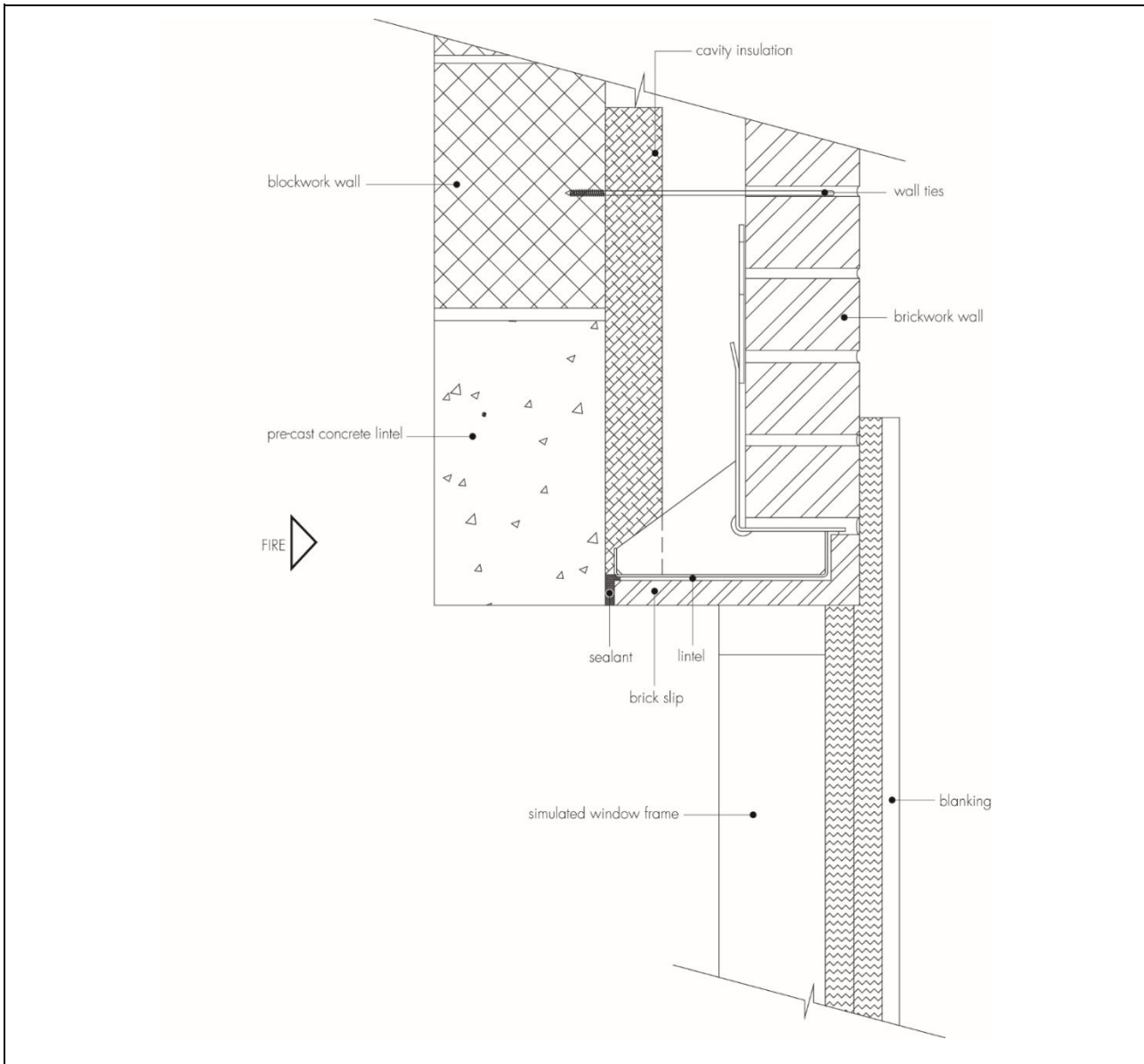
## 7 Behaviour in relation to fire



7.1 The stainless steel profiles, connecting rails and brick slips are non-combustible (Class A1 as defined in BS EN 13501-1 : 2018) as defined in the documents supporting the national Building Regulations.

7.2 ACS Azure II Brick Faced Soffit Units are constructed with the same components as Azure Brick Slip Lintels (the subject of Product Sheet 1 of this Certificate), which were tested (see Figure 8) utilising heating conditions in accordance with BS EN 1363-1 : 2012, and no debonding was recorded for 104 minutes. Therefore, the soffit units can equally satisfy the requirements of BS EN 1996-1-2 : 2005; designers should refer to the EXOVA Warrington fire Test Report No. 388403, Issue 3 (available from the Certificate holder for additional details). The systems are not subject to any restriction on proximity to boundaries and height.

Figure 8 Fire resistance test construction



## 8 Thermal performance

8.1 Typical example details containing the systems, based on the construction details shown in Figures 2, 3 and 7, were analysed numerically to determine their likely hygrothermal performance.

8.2 If designed appropriately, exposed floor junctions with insulated soffits will adequately limit excessive heat loss and allow use of the following  $\psi$  ( $\Psi$ ) values in carbon emission rate calculations (see Table 2).

**Table 2 Linear thermal transmittance,  $\psi$ -values, for exposed floor (normal) junctions**

Soffit Unit	Example $\Psi$ value <sup>(1)</sup> ( $W \cdot m^{-1} \cdot K^{-1}$ )	Default $\Psi$ value <sup>(5)</sup> ( $W \cdot m^{-1} \cdot K^{-1}$ )
Unit 2: 102 x 65 mm with stretcher bond <sup>(2)</sup> (Figure 2)	0.18	
Unit 3: 102 x 215 mm with soldier bond <sup>(3)</sup> (Figure 3)	0.16	0.32
Unit 7: 440 x 65 mm with stretcher bond <sup>(2)(4)</sup> (Figure 7)	0.30	

- (1) Assumed wall build-up: 102 mm brickwork ( $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$ ), 50 mm low-E vented cavity ( $R = 0.66 m^2 \cdot K \cdot W$ ) 75 mm PUR insulation ( $\lambda = 0.027 W \cdot m^{-1} \cdot K^{-1}$ ), 100 mm blockwork/mortar ( $\lambda = 0.162 W \cdot m^{-1} \cdot K^{-1}$ ), 15 mm service cavity ( $R = 0.17 m^2 \cdot K \cdot W$ ), 12.5 mm plasterboard ( $\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$ ).
- (2) Assumed insulated soffit construction: 10 mm brick slips ( $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$ ), 80 mm phenolic insulation ( $\lambda = 0.021 W \cdot m^{-1} \cdot K^{-1}$ ) and 300 mm dense reinforced concrete slab ( $\lambda = 2.5 W \cdot m^{-1} \cdot K^{-1}$ ).
- (3) Assumed insulated soffit construction: 10 mm brick slips ( $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$ ), 230 mm mineral wool insulation ( $\lambda = 0.037 W \cdot m^{-1} \cdot K^{-1}$ ) and 300 mm dense reinforced concrete slab ( $\lambda = 2.5 W \cdot m^{-1} \cdot K^{-1}$ ).
- (4) Loose-fill insulation within soffit unit ( $\lambda = 0.040 W \cdot m^{-1} \cdot K^{-1}$ ).
- (5) 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 column 3 of this Table must be used.

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 in some building types. For other constructions, the  $f_{Rsi}$  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 having an air vapour control layer (AVCL) on the warm side of the insulated soffit 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 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.

10.3 Damaged areas must be repaired using the appropriate components and procedures detailed in the Certificate holder's installation instructions. Direct jet cleaning of the brick slips should be avoided.

## 11 Durability



Provided that ACS Azure II 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.

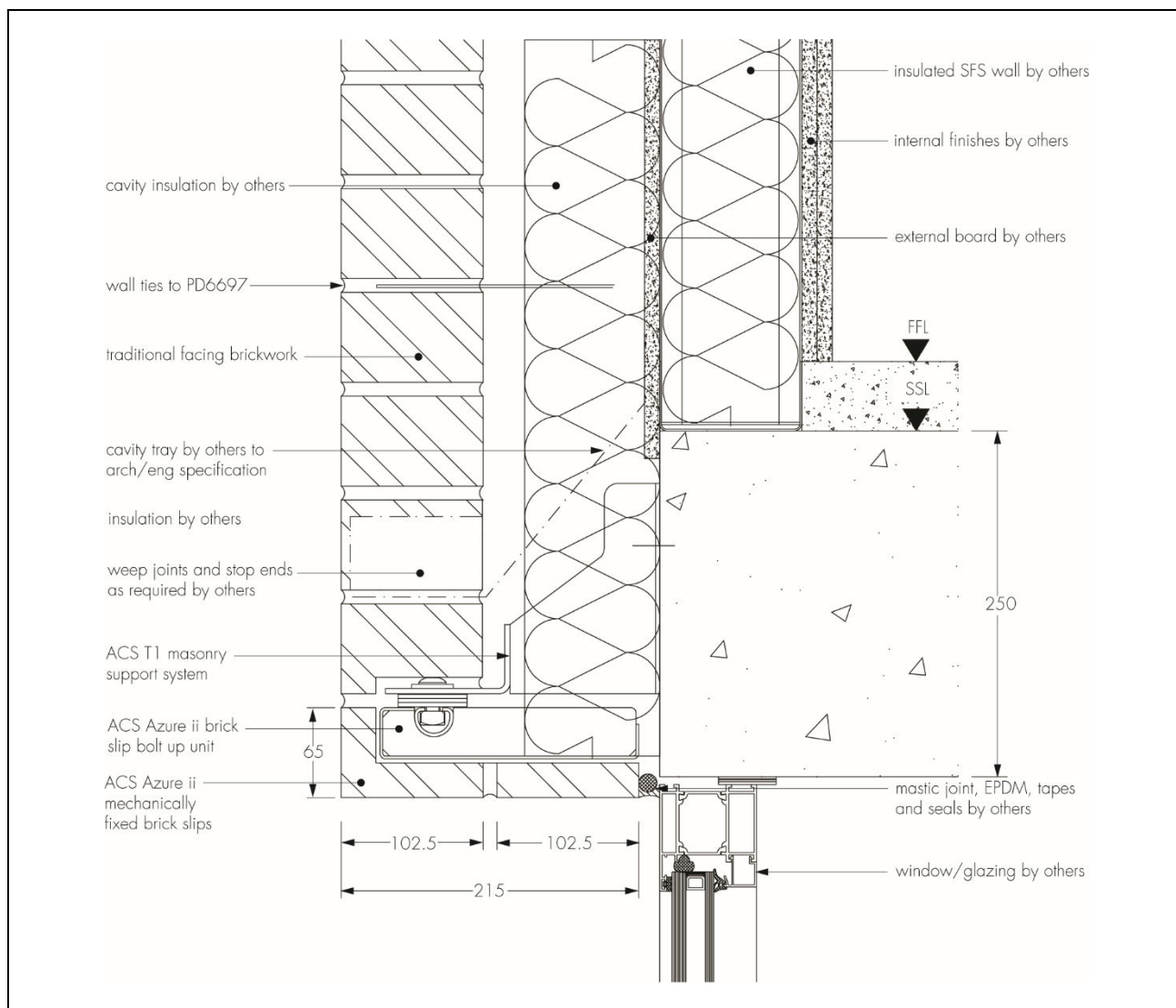
## 12 Reuse and recyclability

The stainless steel profiles, connecting rails and the brick slips (which contain fired clay) can be recycled.

### 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 unit. For fair-faced masonry, weep-holes should be provided at centres not greater than 450 mm. (See Figure 9)

Figure 9 Typical details for cavity trays above the soffit units (section view)



13.2 Brick slips should be pointed using the same mortar as the rest of the brickwork. Pointing of soffit units should be conducted using a pointing gun. Pointing should not take place in wet weather or in temperatures below 3°C.

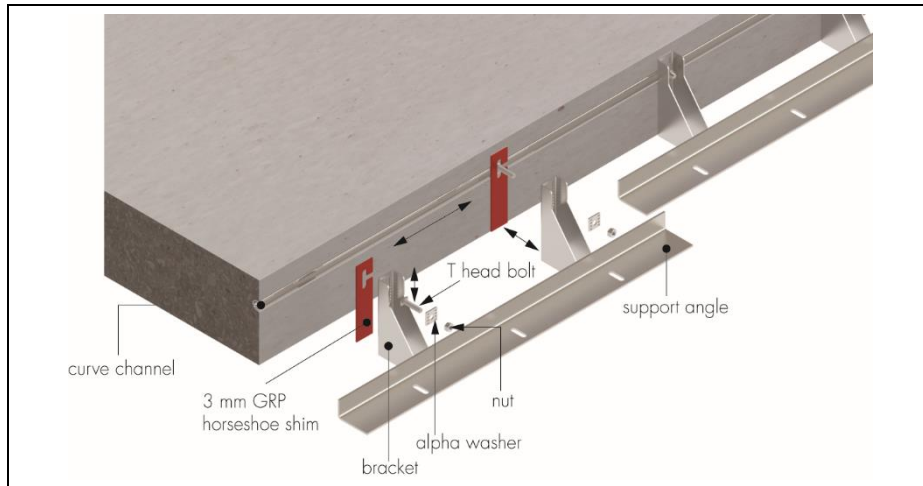
### 14 Procedure

14.1 ACS Azure II Brick Faced Soffit Units must be used in conjunction with ACS T1 and T2 Masonry Support Systems. The soffit units are typically fixed to the underside of a masonry support shelf angle. Slots are provided in the horizontal projecting member of the masonry support system to allow fixings to be installed through the angle and into the integrated ACS 31/21 curve channel in the bolt-up carrier. Fixings will either be the ACS 31/21 T-headed bolt or the ACS button-head socket screw and square nut (304 (1.4301) A2, Class 70), as required. A minimum of two fixings per channel should be used, at a maximum spacing of 500 mm. Fixings should be tightened using a calibrated torque wrench to a setting of 25 Nm. The system is a bespoke item; fixing type, number and spacing may vary dependent upon the specific project details. Specific connection details are provided with each system, as necessary.

## Installation of ACS T1 and T2 Masonry Support Systems (outside the scope of this Certificate)

14.2 ACS T1 and T2 Masonry Support Systems should be fixed to the primary structure. T-head bolts are installed into the channel and turned clockwise through 90 degrees to engage and anchor into the channel. The thermal shim, bracket, serrated Alpha washer and nut are positioned and loosely hand-tightened. The cast-in channel provides horizontal adjustment. Cavity deviations can be accommodated for by using ACS thermal or stainless-steel shims up to a maximum of 12 mm. Vertical adjustments are achieved using the castellated Alpha feature in the back of the bracket to accommodate +/- 30mm of adjustment. The system is then levelled, and bolts are tightened using a calibrated torque wrench (see Figures 10 and 11). To ensure the correct function of the masonry support system, wall ties must be installed in the masonry above the support angle within 300 mm vertically and at a maximum of 450 mm horizontal centres. A minimum of two-thirds masonry bearing must be achieved on the shelf angle, and the bracket bearing area must be fully bearing against the structure.

Figure 10 Installation of ACS T1 and T2 Masonry Support Systems



## Installation of soffits

14.3 The soffits can be installed once the correct levelling is accomplished. This can be done by setting a string or laser line that corresponds to the transition edge between the face and soffit of the brick, checking the line and level against a known datum or to the facing brickwork adjacent to the soffit opening where relevant.

14.4 The soffit unit's square nuts should be installed into the ends of the channel and be positioned so as to generally correspond to the slots in the masonry support angle. At least two fixings must be installed in each length of channel.

14.5 The soffit unit can then be lifted into position to the underside of the masonry support angle; hand clamps can be used to help the installers keep the unit in place while installing the screws. Care must be taken not to damage the brick slips of the soffit units during handling and clamping.

14.6 Once positioned, the M12 x 25 mm button-head screws with a Form B washer are used to fix (hand-tighten at this point) through the slots in the angle, into the square nuts located in the channel.

14.7 The hand clamps can be released at this point. The levelling line should be adjusted, and the soffit unit should be gauged to the string or laser line and required coursing. A spirit level can be used to continually check the level. If the angle is correctly levelled, there should be no need to add shims between the soffit unit and the angle. If, however, shims are required, they should be added at this time to ensure that any gaps between the underside of the shelf angle and top of the soffit unit system are sufficiently packed before tightening. The final check for levelling the soffit unit correctly is to measure front to back using a spirit level. Packing shims can be used where necessary to level the soffit front to back.

14.8 Once the units are set and shimmed as appropriate, a calibrated torque wrench with an 8 mm hexagon socket should be used to torque the screw up to a minimum of 15 and a maximum of 25 Nm. The specific torque setting is to ensure that the soffit unit is firmly clamped to the underside of the angle.



14.9 The installation can progress with the subsequent units by repeating sections 14.3 to 14.8 and by always referring to the layout drawings provided and checking the line level, gauge and coursing.

14.10 Brickwork should continue on the masonry support system in line with normal bricklaying practice.

Figure 11 Installation of soffits



## Technical Investigations

### 15 Tests

Tests were carried out and the results assessed to determine:

- load-deflection characteristic
- bond strength
- integrity of the bond at maximum design deflection
- fire resistance performance.

### 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
- 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 4320 : 1968 *Specification for metal washers for general engineering purposes — Metric series*
- 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 845-2 : 2013 + A1 : 2016 *Specification for ancillary components for masonry — Lintels*
- 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 : 2012 *Fire resistance tests — General requirements*
- 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*
- 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 : 2016 *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 - Part 1: Classification using data from reaction to fire tests*
- BS EN ISO 3506-1 : 2020 *Fasteners — Mechanical properties of corrosion-resistant stainless steel fasteners — Bolts, screws and studs with specified grades and property classes*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- BS EN ISO 10211 : 2017 *Thermal bridges in building construction — Heat flows and surface temperatures — Detailed calculations*
- PD 6697 : 2019 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

## Conditions of Certificate

### Conditions

1. This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
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3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

5. In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

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