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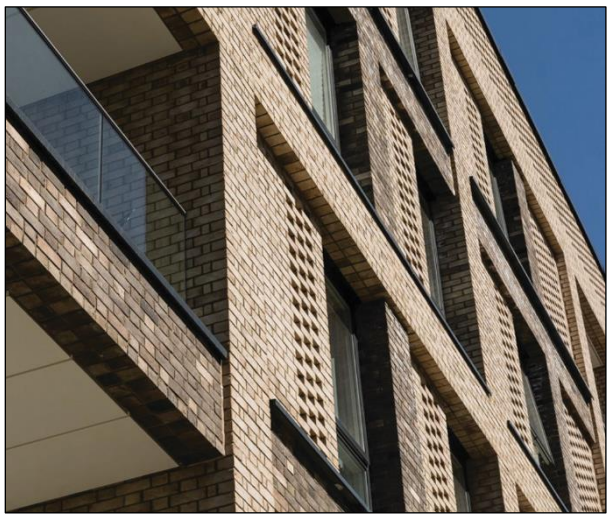
Agrément Certificate
19/5650
Product Sheet 3

ACS AZURE BRICK SLIP MASONRY SUPPORT SYSTEMS

ACS AZURE II BRICK FACED LINTELS

This Agrément Certificate Product Sheet(1) relates to ACS Azure II Brick Faced Lintels, comprising a stainless steel profile with a mechanically fixed brick slip façade, for use in the external leaf of masonry cavity walls of brickwork and/or blockwork masonry construction to provide support to walls above window or door openings.
(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 suitable for use in the external leaf of masonry cavity walls with clear openings of up to 4300 mm (see Tables 1 and 2, and section 6).

Behaviour in relation to fire — 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 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: 10 August 2020

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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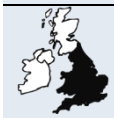
Regulations

In the opinion of the BBA, ACS Azure II Brick Faced Lintels, 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 systems are acceptable for use as set out in sections 6.2 to 6.6 of this Certificate.
Requirement:	**B3(1)**	**Internal fire spread (structure)**
Comment:		The systems are unrestricted by this Requirement. See section 7 of this Certificate.
Requirement:	**B4(1)**	**External fire spread**
Comment:		The systems are unrestricted by this Requirement. See section 7 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The systems are acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship**
Comment:		The systems are unrestricted by this Regulation. See section 7.1 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)**	**Durability, workmanship and fitness of materials**
Comment:		The systems are acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1(a)(b)	Structure
Comment:		The systems are acceptable, with reference to clauses 1.1.1$^{(1)(2)}$ and 1.1.2$^{(1)(2)}$ of this Standard. See sections 6.2 to 6.6 of this Certificate.
Standard:	2.3	Structural protection
Comment:		The systems are unrestricted, with reference to clauses 2.3.1$^{(1)(2)}$ and 2.3.3$^{(1)(2)}$ of this Standard. See section 7.2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The systems are unrestricted, with reference to clauses 2.6.5$^{(1)}$ and 2.6.6$^{(2)}$ of this Standard. See section 7.2 of this Certificate
Standard:	2.7	Spread on external walls
Comment:		The systems are unrestricted by the requirements of this Standard, with reference to clauses 2.7.1$^{(1)(2)}$ and 2.7.2$^{(2)}$. 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.

Regulation:	**12**	**Building standards applicable to conversions**
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[(1)(2)] and Schedule 6[(1)(2)]. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

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

Regulation:	**23(a)(i) (iii)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The systems are acceptable. See section 11 and the *Installation* part of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The systems are acceptable as set out in sections 6.2 to 6.6 of this Certificate.
Regulation:	**35(1)**	**Internal fire spread — structure**
Comment:		The systems are unrestricted by this Regulation. See section 7 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		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 Lintels, 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 6.1 *External masonry walls.*

Technical Specification

1 Description

1.1 ACS Azure II Brick Faced Lintels are one-piece external wall lintels, prefabricated from stainless steel profiles with a mechanically fixed brick slip façade using a connecting rail (fixed to the profile by welding, riveting or mechanical fixing), see Figures 1 to 8. The systems are used in the external loadbearing leaf of cavity walls of brickwork and/or blockwork masonry construction to provide support to walls (external leaf loads only) above window or door openings and also to provide a brick finish to the face of openings. The internal leaf of the cavity wall will be supported by a separate lintel, which is outside the scope of the Certificate.

1.2 The systems comprise:

Lightweight stainless steel profiles

- the lintels are prefabricated lightweight profiles manufactured using grade 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, produced in four standard profiles as detailed in section 1.3 of this Certificate. Grades 304 (1.4301) and 316 (1.4404) are equivalent to R3 and R1 classifications to PD 6697 : 2019 respectively. The steel sections of the lintels 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.

1.3 The systems are available in four standard profiles (L1, C1, C2 and CS section) with three different brick slip bonds (stretcher, header and soldier). Further details are given in Table 1:

- Lintel ACS L1 — standard duty (65 x 215 mm) with stretcher bond (see Figure 1)
- Lintel ACS C1 HD — heavy duty (65 x 215 mm) with stretcher bond (see Figure 2)
- Lintel ACS C2 XHD — extra heavy duty (65 x 215 mm) with stretcher bond (see Figure 3)
- Lintel ACS L1 — standard duty (65 x 215 mm) with header bond (see Figure 4)
- Lintel ACS C1 HD — heavy duty (65 x 215 mm) with header bond (see Figure 5)
- Lintel ACS C2 XHD — extra heavy duty (65 x 215 mm) with header bond (see Figure 6)
- Lintel ACS CS Section — (215 x 215 mm) with soldier bond (see Figure 7)
- Lintel ACS CS Section — (215 x 215 mm) with soldier bond (see Figure 8).

Figure 1 ACS *L1 Standard duty lintel with stretcher bond*

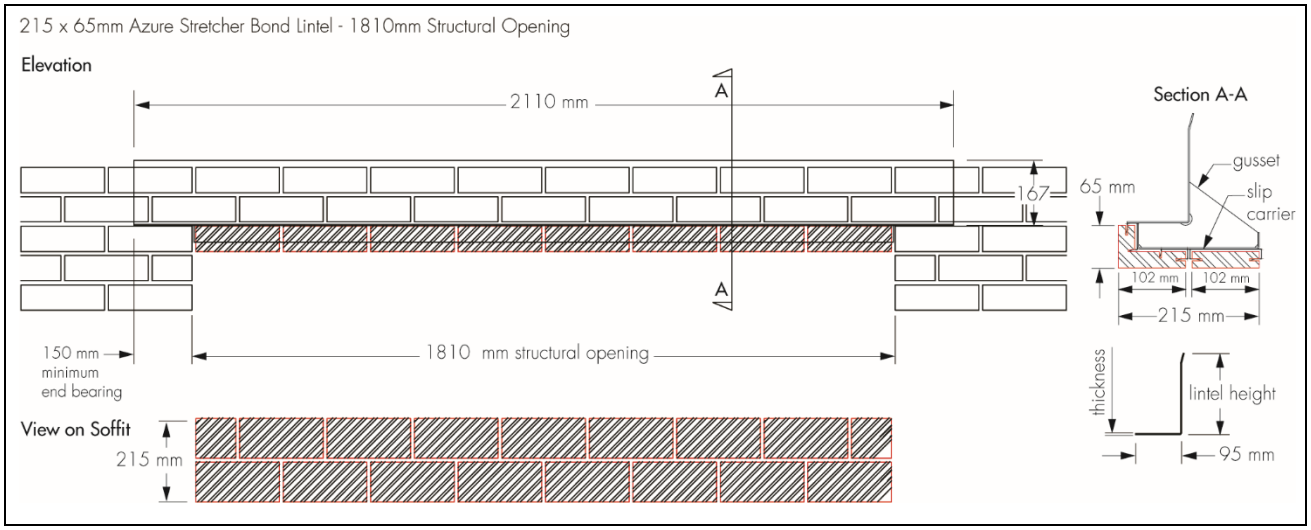


Figure 2 ACS *C1 heavy duty lintel with stretcher bond*

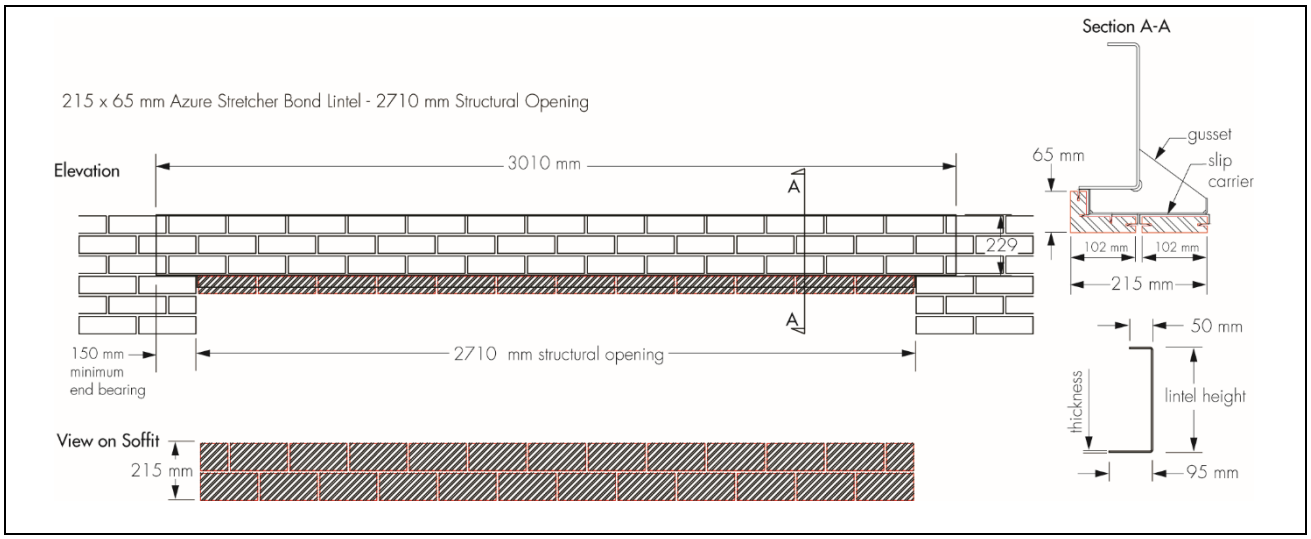


Figure 3 ACS *C2 XHD lintel with stretcher bond*

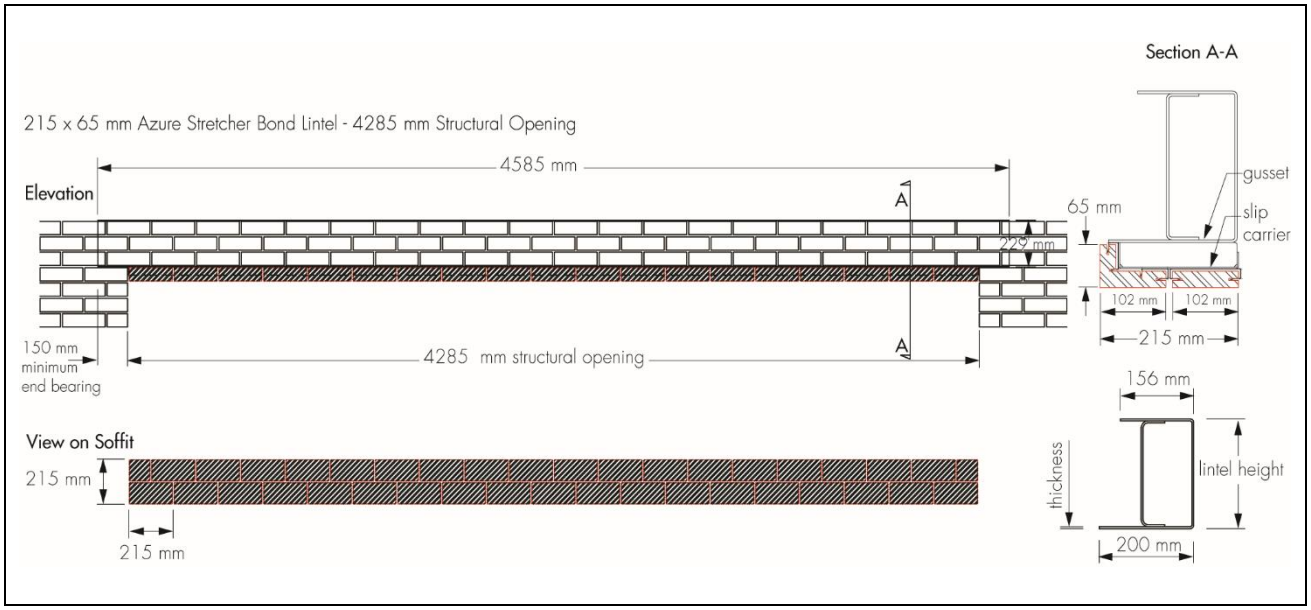


Figure 4 ACS *L1 standard duty lintel with header bond*

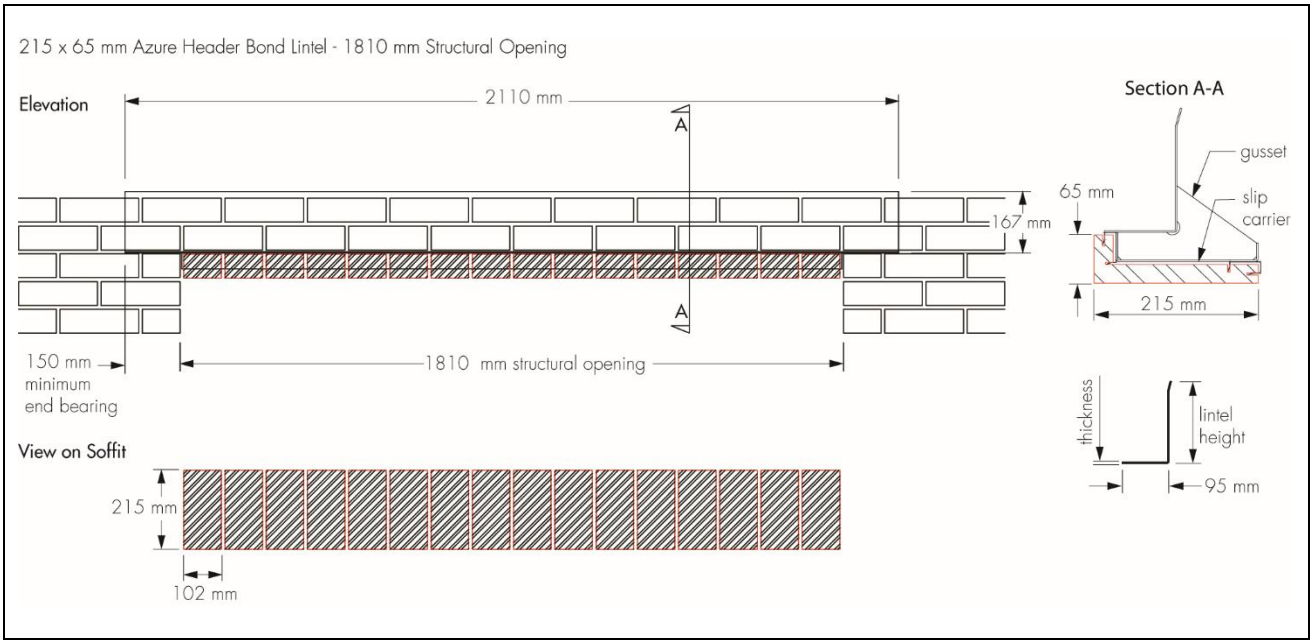


Figure 5 ACS *C1 heavy duty lintel with header bond*

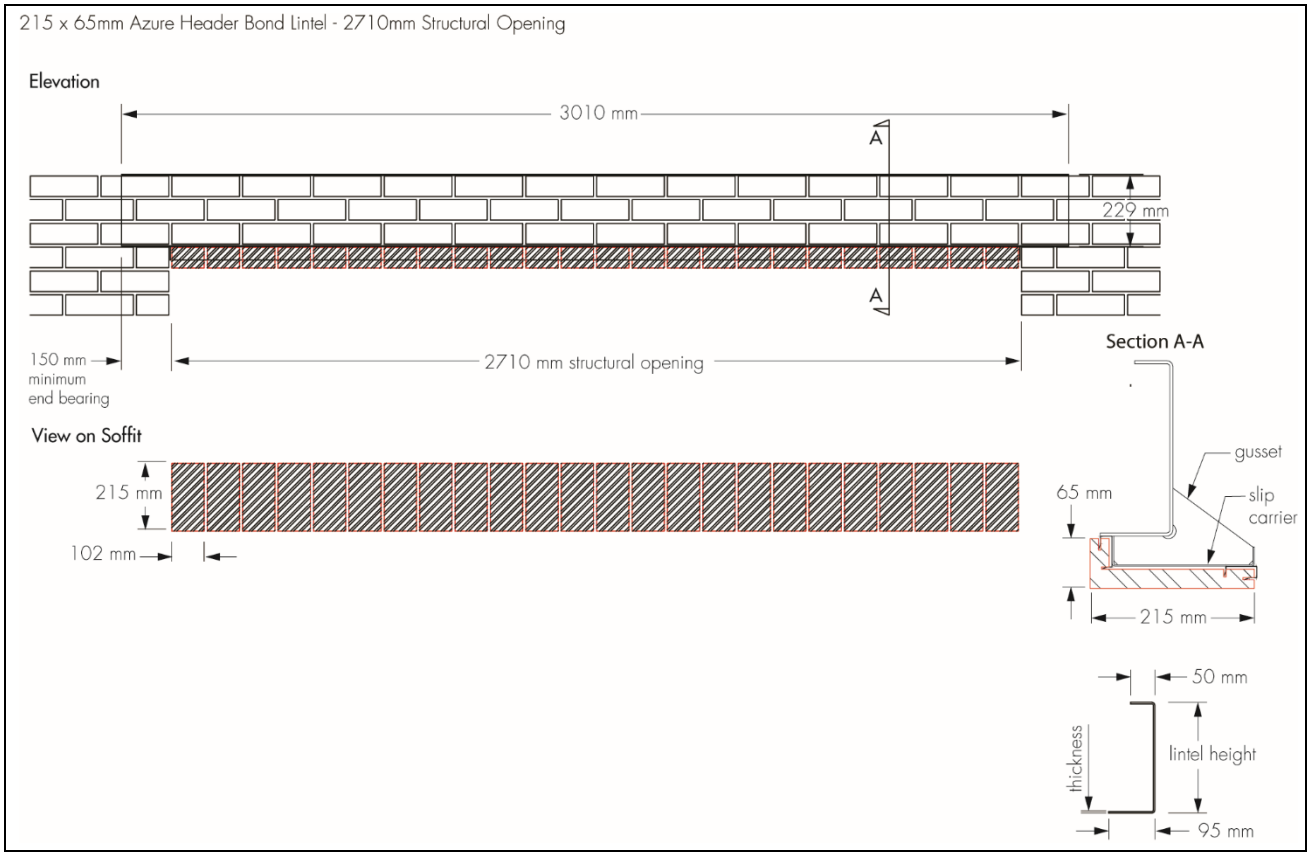


Figure 6 ACS *C2 XHD lintel with header bond*

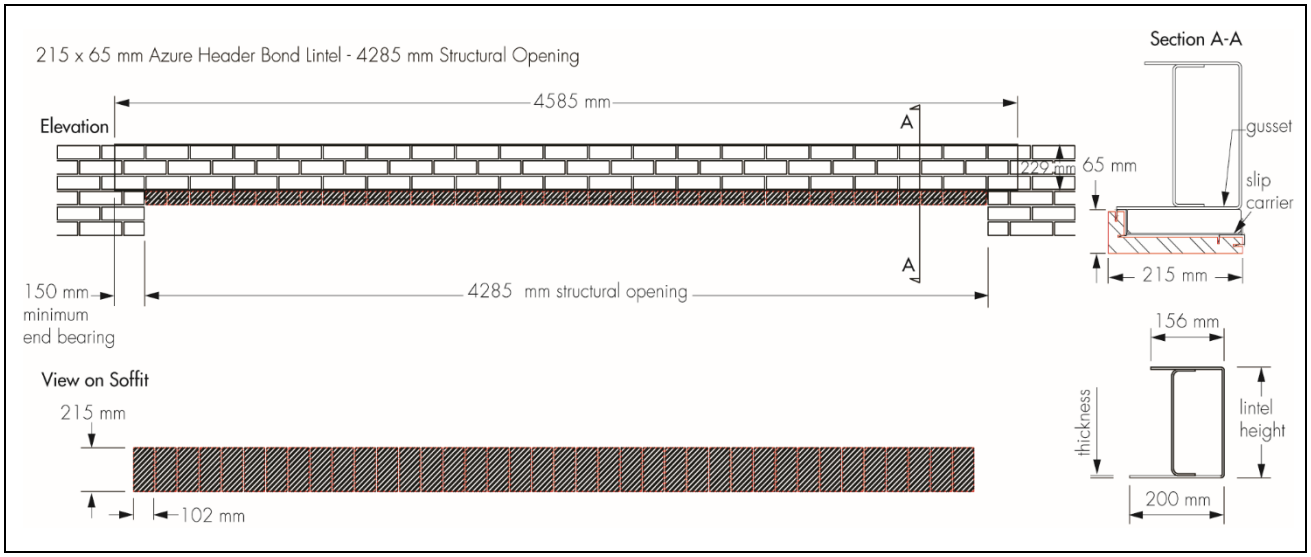


Figure 7 ACS *CS Section lintel with soldier bond*

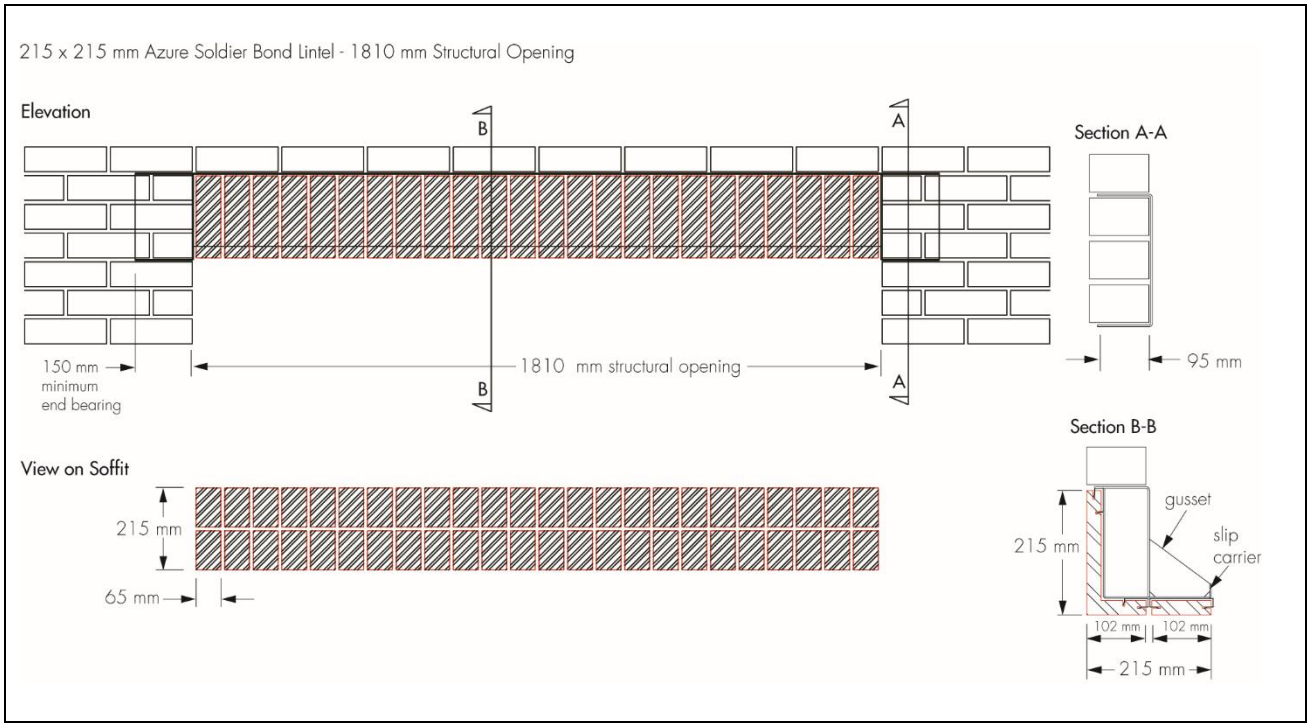


Figure 8 ACS *CS Section lintel with soldier bond*

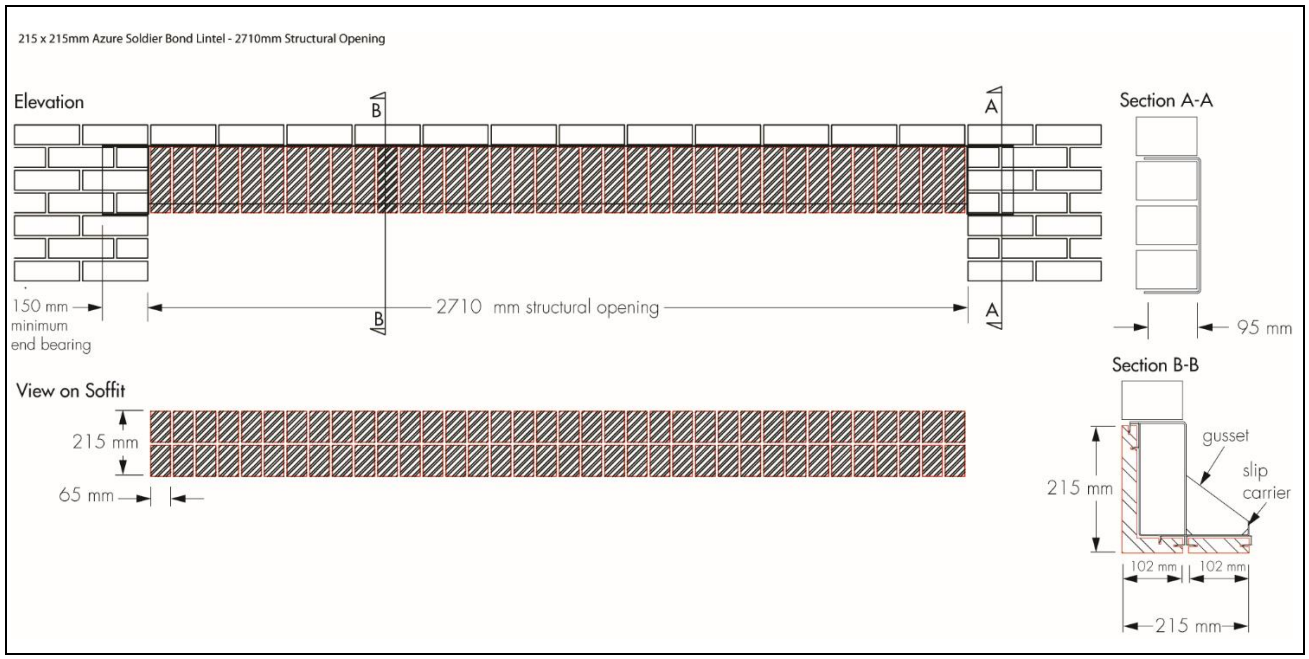


Table 1 L1, C1, C2 and C Lintels range(1) *— characteristics and safe working loads (SWLs)*

Lintel types	Overall length(2) of lintel (mm)	Clear span (mm)	Length of brick slip zone (mm)	Height of lintel profile (mm)	Width of lintel (mm)	Thickness of steel profile (mm)	Mass ($kg.m^{-1}$)	Mass with brick slip ($kg{\cdot}m^{-1}$)	Total uniformly distributed SWL(3) (kN)
L1(4) – Standard Duty (SD) (65 x 215 mm) Figures 1 and 4	600 - 2100	300 - 1800	up to 1800	167	95	2	10.63	20.54	6.20
C1(4) – Heavy Duty (HD) (65 x 215 mm) Figures 2 and 5	600 - 3000	300 - 2700	Up to 2700	229	95	3	15.93	26.35	16.00
C2(4) – Extra Heavy Duty (XHD) (65 x 215 mm) (XHD / 170) Figures 3 and 6	3001 - 4600	2701 - 4300	Up to 4300	229	170	4	31.14	41.79	64.97
C2(4) – Extra Heavy Duty (XHD) (65 x 215 mm) (XHD / 200) Figures 3 and 6	3001 - 4600	2701 - 4300	Up to 4300	229	200	4	32.10	42.90	74.33
CS(5) Section Figures 7 and 8	600 - 2100	300 - 1800	Up to 1800	229	95	3	14.40	32.46	12.00
CS(5) Section Figures 7 and 8	600 - 3000	300 - 2700	Up to 2700	229	95	4	16.25	47.36	9.00

Notes:
(1) For ranges, please refer to Figures 1 to 8.
(2) All standard lengths are in 150 mm increments.
(3) SWL stands for Safe Working Load. For definition of SWL, refer to BS EN 845-2 : 2013.
(4) For L1, C1 and C2, stretcher and header bonds are available.
(5) For CS Section brick slip lintels, only soldier bond is available.

2 Manufacture

2.1 The brick faced lintels comprise stainless steel profiles, connecting rails and fixed brick-faced units. The 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 lintels 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 lintel.

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

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

3.4 The lintels must be stored off the ground on dry, well-drained hardstanding. The lintels 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 Lintels.

Design Considerations

4 Use

4.1 ACS Azure II Brick Faced Lintels are satisfactory for use in the external loadbearing leaf of cavity walls of brickwork and/or blockwork masonry construction to provide support to the external leafs of walls above window or door openings and also to provide a brick finish to the face of these openings.

4.2 Designers, planners, contractors and/or installers must ensure that the installation of the lintels 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.

4.4 In Scotland and Northern Ireland, a separate cavity tray must be used. In Exposure Category 'very severe' the following applies:

- in Scotland, all lintels should have a damp-proof course (dpc) built into the inner leaf
- in Scotland, Northern Ireland and areas of 'very severe' exposure to driving-rain, the upstand part of the dpc should be returned into the inner leaf of masonry.

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 Lintels have adequate strength and stiffness to sustain the maximum SWL[(1)] loads as shown in Table 1, subject to the following conditions:

- the size of standard masonry units and clear span must not be exceeded
- no requirements for composite action with, or restraint by, adjacent elements of construction including the supported masonry should be considered. The specified loads given in Table 1 are related to simply supported lintels, laterally and torsionally unrestrained
- where part of the loading is applied as concentrated loads, each concentrated load must be spread over a length of lintel of not less than 200 mm. In such cases, a case-specific design by an appropriately experienced and competent individual must be undertaken.

6.2 The total uniformly distributed SWL for different spans (clear opening) are shown in Table 1 of this Certificate. The loads have been derived from tests (carried out in accordance with BS EN 846-9 : 2016) supported by guidance in accordance with BS EN 845-2 : 2013 and with calculations in accordance with BS EN 1993-1-1 : 2005, BS EN 1993-1-3 : 2006, BS EN 1993-1-4 : 2006 and BS EN 1993-1-5 : 2006, and their UK National Annexes, and PD 6697 : 2019. In order to obtain the SWL values given in Table 1 of this Certificate, the following modes of failure have been considered:

- flexural resistance
- shear resistance
- maximum deflection limited to span/360
- lateral-torsional buckling resistance
- local buckling resistance
- shear buckling resistance
- bearing resistance.

6.3 The following limitations apply:

- the load is from the external leaf only; a separate lintel is used to support inner leaf loads
- the end support bearing length should be a minimum of 150 mm.

6.4 The supporting masonry must be checked for bearing stresses. In addition to the requirements specifically referred to in this Certificate, structures of brickwork or blockwork in which the lintels 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.

6.5 The load-span data shown in Table 1 is valid up to the maximum SWLs and corresponding clear spans given.

6.6 To avoid excessive eccentricities of loading, the lintels must only be used with standard masonry units, ie bricks or blocks with 100 to 102.5 mm widths. Cavity walls with separate inner and outer lintels must incorporate wall ties above the lintels (<300 mm above the soffit) to tie the masonry leafs together.

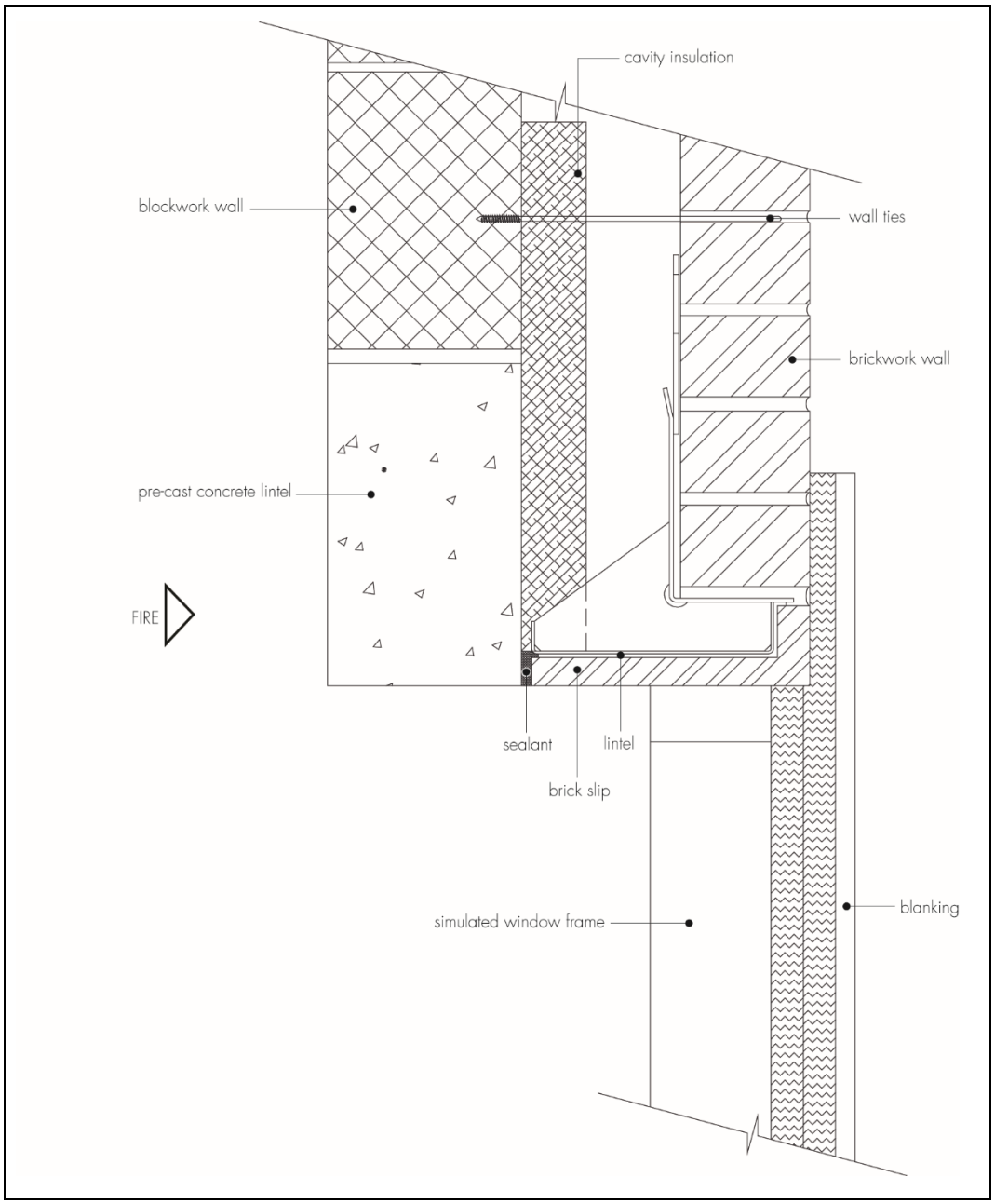
6.7 Guidance for the assessment of loads on lintels in masonry is given in BS EN 845-2 : 2013 and PD 6697 : 2019. If arch action introduced in BS EN 845-2 : 2013 and PD 6697 : 2019 is considered, the lintels must be designed by an appropriately experienced and competent design engineer. This is, however, outside the scope of this Certificate.

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. The systems are not subject to any restriction on proximity to boundaries and height.

7.2 ACS Azure II Brick Faced Lintels 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 9) utilising heating conditions under safe working load in accordance with BS EN 1363-1 : 2012, and no debonding was recorded for 104 minutes. Therefore, the lintels 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).

Figure 9 Fire resistance test construction



8 Thermal performance

8.1 Typical example details containing the systems, based on the construction details shown in Figures 1 to 8, were analysed numerically to determine their likely hygrothermal performance.

8.2 If designed appropriately, head details incorporating the lintels (eg exposed floor junctions with insulated lintels) will adequately limit excessive heat loss and allow use of the following psi (ψ) values in carbon emission rate calculations (see Table 2).

Table 2 Linear thermal transmittance, ψ-values, for lintel junctions

Lintel	Example ψ-value (1)(2)(3) ($W \cdot m^{-1} \cdot K^{-1}$)	Approved ψ-value (4)	Default ψ-value (5) ($W \cdot m^{-1} \cdot K^{-1}$)
ACS L1 – 1810 mm opening	0.043		
ACS C1 HD -2710 mm opening	0.043		
ACS C2 XHD – 4285 mm opening	0.11	0.3	1.0
ACS CS Section – 1810 mm opening	0.043		
ACS CS Section – 2710 mm opening	0.043		

(1) Assumes 50 mm window frame which overlaps the cavity by 37.5 mm. Wall construction: 102.5 mm brickwork (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$), 50 mm low-E vented cavity – see note (2), PIR – see notes (2) and (3), insulation (λ = 0.021 $W \cdot m^{-1} \cdot K^{-1}$), 100 mm blockwork ($\lambda$ = 0.162 $W \cdot m^{-1} \cdot K^{-1}$), 15 mm plaster ($\lambda$ = 0.57 $W \cdot m^{-1} \cdot K^{-1}$).
(2) 150 mm cavity width, comprising 50 mm vented cavity adjacent (R = 0.66 $m^2 \cdot K \cdot W$), 100 mm PIR insulation.
(3) (Internal lintel assumed to be 100 x 220 mm dense concrete with 2% reinforcement, λ = 2.5 $W \cdot m^{-1} \cdot K^{-1}$.
(4) Approved value may be claimed when the gauge of the steel lintel is less than, or equal to, 3 mm and there is a 30 mm overlap of the window frame over the cavity.
(5) Where a junction detail has not been calculated in accordance with BS EN ISO 10211 : 2017 and BRE Report BR 497 : 2007, and the construction deviates from the case described in note (4), the default value from column 4 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 0.90, 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}. For other constructions, the f_{Rsi} must be established by numerical modelling (see section 8.3).

9.2 Under normal domestic conditions, the level of interstitial condensation associated with the systems will be low and the risk of any resultant damage minimal.

10 Maintenance

The lintels do not require maintenance. If the brick finish becomes damaged or stained, the advice of the Certificate holder should be sought.

11 Durability

Provided that ACS Azure II Brick Faced Lintels 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.

Installation

13 General

13.1 Masonry should be laid on a full mortar bed and all perpendicular joints fully filled. The mortar must be allowed to cure before applying floor or roof loads.

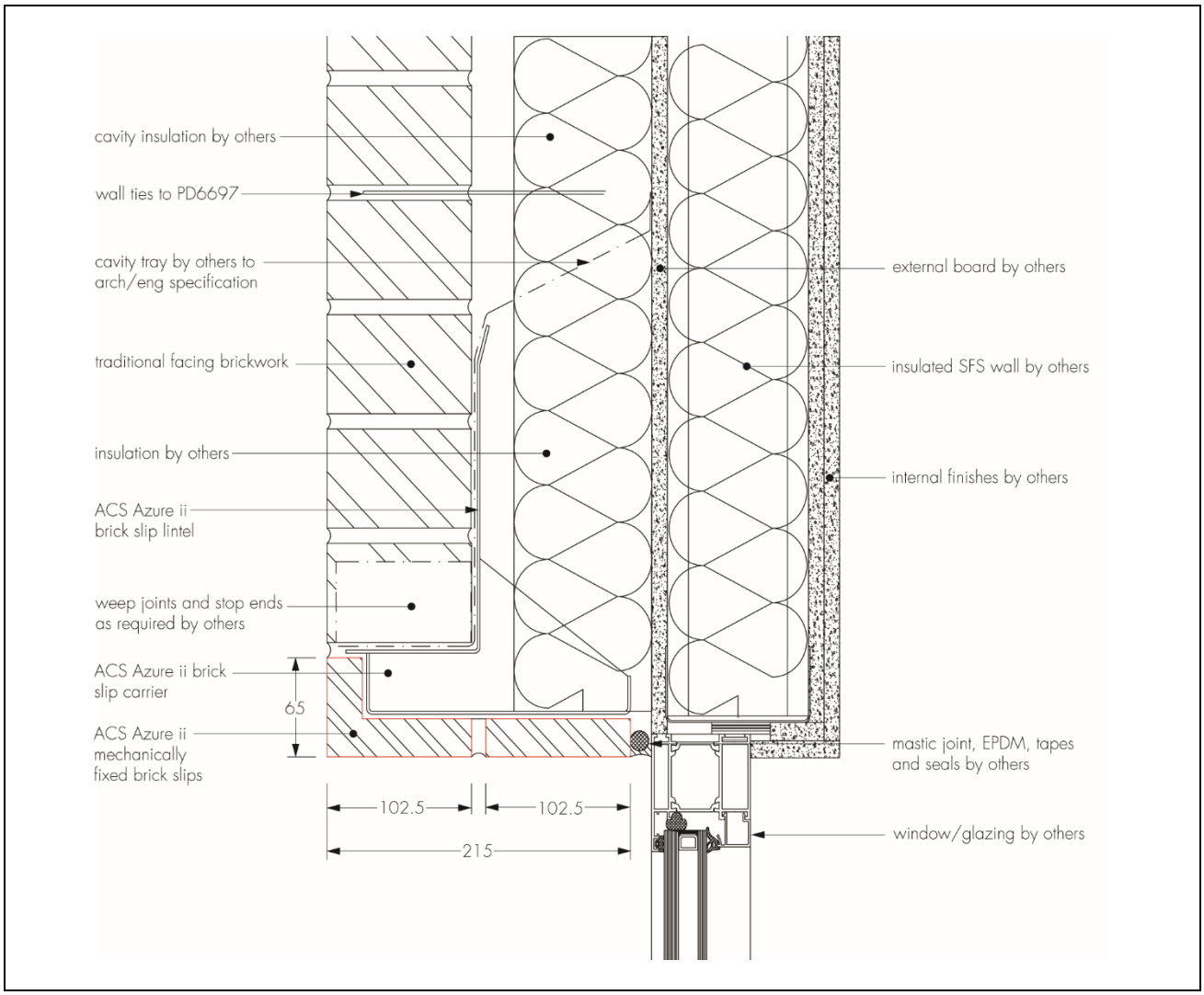
13.2 In accordance with the Certificate holder's recommendations, lintels over 1000 mm of clear span must be suitably propped during construction using a central prop. A board should be used between the lintel and prop to protect the finished surface and spread the load evenly.

13.3 Lintels must be installed with at least 150 mm end bearing, and be fully bedded on mortar. Lintels must be level along length and width and should be positioned centrally over the opening such that the minimum bearing is achieved on both sides.

13.4 A cavity tray must be installed above the lintel over all openings in external cavity walls.

13.5 Cavity tray weep-holes must be provided in the outer leaf above the lintels to drain moisture from the cavity. A minimum of two weep-holes should be provided per lintel. For fair-faced masonry, weep-holes should be provided at centres not greater than 450 mm. (See Figure 10)

Figure 10 Typical details for cavity trays above lintels (section view)



13.6 Precautions must be taken to prevent mortar dropping through the cavity onto the lintels and obstructing the weep-holes.

13.7 Brick slips should be pointed using the same mortar as the rest of the brickwork, but only after removal of the temporary propping and after the full load has been applied to the lintel. Pointing lintel soffits should be conducted using a pointing gun. Pointing should not take place in wet weather or in temperatures below 3°C.

14 Tests

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

- load-deflection characteristics
- bond strength after accelerated ageing
- fire performance.

15 Investigations

15.1 An assessment was made of data relating to:

- calculations to establish the load-span table for lintels
- calculations to establish minimum temperature factors and the Ψ values of typical constructions incorporating the systems
- durability
- practicability of installation.

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

Bibliography

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

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 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 846-9 : 2016 *Methods of test for ancillary components for masonry – Determination of flexural resistance and shear resistance of 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 1993-1-1 : 2005 + A1 : 2014 *Eurocode 3: Design of steel structures — General rules and rules for buildings*
NA + A1 : 2014 to BS EN 1993-1-1 : 2005 + A1 : 2014 UK National Annex to *Eurocode 3: Design of steel structures — General rules and rules for buildings*
BS EN 1993-1-3 : 2006 *Eurocode 3: Design of steel structures — General rules — Supplementary rules for cold-formed members and sheeting*
NA to BS EN 1993-1-3 : 2006 UK National Annex to *Eurocode 3 — Design of steel structures — General rules — Supplementary rules for cold-formed members and sheeting*
BS EN 1993-1-4 : 2006 + A1 : 2015 *Eurocode 3 Design of steel structures — General rules — Supplementary rules for stainless steels*
NA + A1 : 2015 to BS EN 1993-1-4 : 2006 + A1 : 2015 UK National Annex to *Eurocode 3: Design of steel structures — General rules — Supplementary rules for stainless steels*
BS EN 1993-1-5 : 2006 *Eurocode 3: Design of steel structures — Plated structural elements*
NA + A1 : 2016 to BS EN 1993-1-5 : 2006 UK National Annex to *Eurocode 3: Design of steel structures — Plated structural elements*

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 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*

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