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Agrément Certificate

18/5499

Product Sheet 1 Issue 2

KEYSTONE LINTELS

KEYSTONE HI-THERM+ LINTELS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Keystone Hi-therm+⁽²⁾ Lintels, galvanized steel and polymer lintels for use in external masonry walls to provide support to walls, floors and roofs above window or door openings.

(1) Hereinafter referred to as 'Certificate'.

(2) Hi-therm+ is a registered trademark.

The assessment includes

Product factors:

- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review



KEY FACTORS ASSESSED

- Section 1. Mechanical resistance and stability
- Section 2. Safety in case of fire
- Section 3. Hygiene, health and the environment
- Section 4. Safety and accessibility in use
- Section 5. Protection against noise
- Section 6. Energy economy and heat retention
- Section 7. Sustainable use of natural resources
- Section 8. Durability

The BBA has awarded this Certificate to the company named above for the products described herein. These products 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 Second issue: 5 June 2025

Originally certified on 20 August 2018



Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

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

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SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Keystone Hi-therm+ 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 Building Regulations 2010 (England and Wales) (as amended)

Requirement:	A1	Loading
Comment:		The products can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	B3(1)(4)	Internal fire spread (structure)
Comment:		The products can be incorporated in a construction satisfying this Requirement. See section 2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The products can be incorporated in a construction satisfying this Requirement. See section 3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The products can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The products are unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	25B	Nearly zero-energy requirements for new buildings
Regulation:	26	CO₂ emission rates for new buildings
Regulation:	26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation:	26A	Primary energy rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Regulation:	26C	Target primary energy rates for new buildings (applicable to England only)
Regulation:	26C	Energy efficiency rating (applicable to Wales only)
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	8(3)	Fitness and durability of materials and workmanship
Comment:		The products are unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	9	Building standards - construction
Standard:	1.1(a)(b)	Structure
Comment:		The products are acceptable, with reference to clauses 1.1.1 ⁽¹⁾⁽²⁾ and 1.1.2 ⁽¹⁾⁽²⁾ of this Standard. See section 1 of this Certificate.

Standard: Comment:	2.3	Structural protection The products can be incorporated in a construction satisfying this Standard, with reference to clauses 2.3.1 ⁽¹⁾⁽²⁾ and 2.3.3 ⁽¹⁾⁽²⁾ and Annexes 2A ⁽¹⁾ , 2B ⁽¹⁾ , 2D ⁽²⁾ and 2E ⁽²⁾ . See section 2 of this Certificate.
Standard: Comment:	2.4	Cavities The products can be incorporated in a construction satisfying this Standard, with reference to clause 2.4.1 ⁽¹⁾⁽²⁾ . See section 2 of this Certificate.
Standard: Comment:	3.15	Condensation The external wall incorporating the products can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See section 3 of this Certificate.
Standard: Standard: Comment:	6.1(b)(c)(d) 6.2	Energy demand and carbon dioxide emissions Building insulation envelope The products can contribute to satisfying these Standards, with reference to clauses 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾⁽²⁾ and 6.2.11 ⁽²⁾ . See section 6 of this Certificate.
Standard: Comment:	7.1(a)(b)	Statement of sustainability The products 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. In addition, the products can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ , 7.1.6 ⁽¹⁾⁽²⁾ , 7.1.7 ⁽¹⁾ , 7.1.9 ⁽²⁾ and 7.1.10 ⁽²⁾ .
Regulation: Comment:	12	Building standards - conversions All comments given for the products 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: Comment:	23(1)(a)(i) (iii)(b)(i)(ii)	Fitness of materials and workmanship The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation: Comment:	23(2)	Fitness of materials and workmanship The products are unrestricted by this Regulation. See section 2 of this Certificate.
Regulation: Comment:	30	Stability The products are acceptable. See sections 1 and 9 of this Certificate.
Regulation: Comment:	35(1)	Internal fire spread — Structure The products can be incorporated in a construction satisfying this Regulation. See section 2 of this Certificate.
Regulation: Comment:	35(4)	Internal fire spread — Structure The products can be incorporated in a construction satisfying this Regulation. See section 2 of this Certificate.

Regulation:	39(a)(i)	Conservation measures
Regulation:	41	Consequential improvements
Regulation:	42	Change of energy status
Regulation:	40(2)	Target carbon dioxide emissions rate
Regulation:	43(2)	Renovation of thermal elements
Regulation:	43B	Nearly zero-energy requirements for new buildings
Comment:	The products can contribute to satisfying these Regulations. See section 6 of this Certificate.	

Additional Information

NHBC Standards 2025

In the opinion of the BBA, Keystone Hi-therm+ 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*, Chapter 6.1 *External masonry walls*.

Fulfilment of Requirements

The BBA has judged Keystone Hi-therm+ Lintels to be satisfactory for use as described in this Certificate. The products have been assessed as galvanized steel lintels for use in external masonry walls to provide support to walls, floors and roofs above window or door openings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. Keystone Hi-therm+ Lintels consists of:

- steel coil or sheet — cut to length to provide blanks from which the lintels are formed by press-braking
- cold formed galvanized steel - grade DX51D + Z600 zinc coating to BS EN 10346 : 2015
- cavity insulation inserts made from expanded polystyrene or mineral wool
- a uPVC spacer to join the inner and outer steel profiles
- a galvanized steel tab, attached to the soffit of the inner and outer steel profiles
- cut edges, fillet welds and rivets - treated with an anti-corrosion paint system.

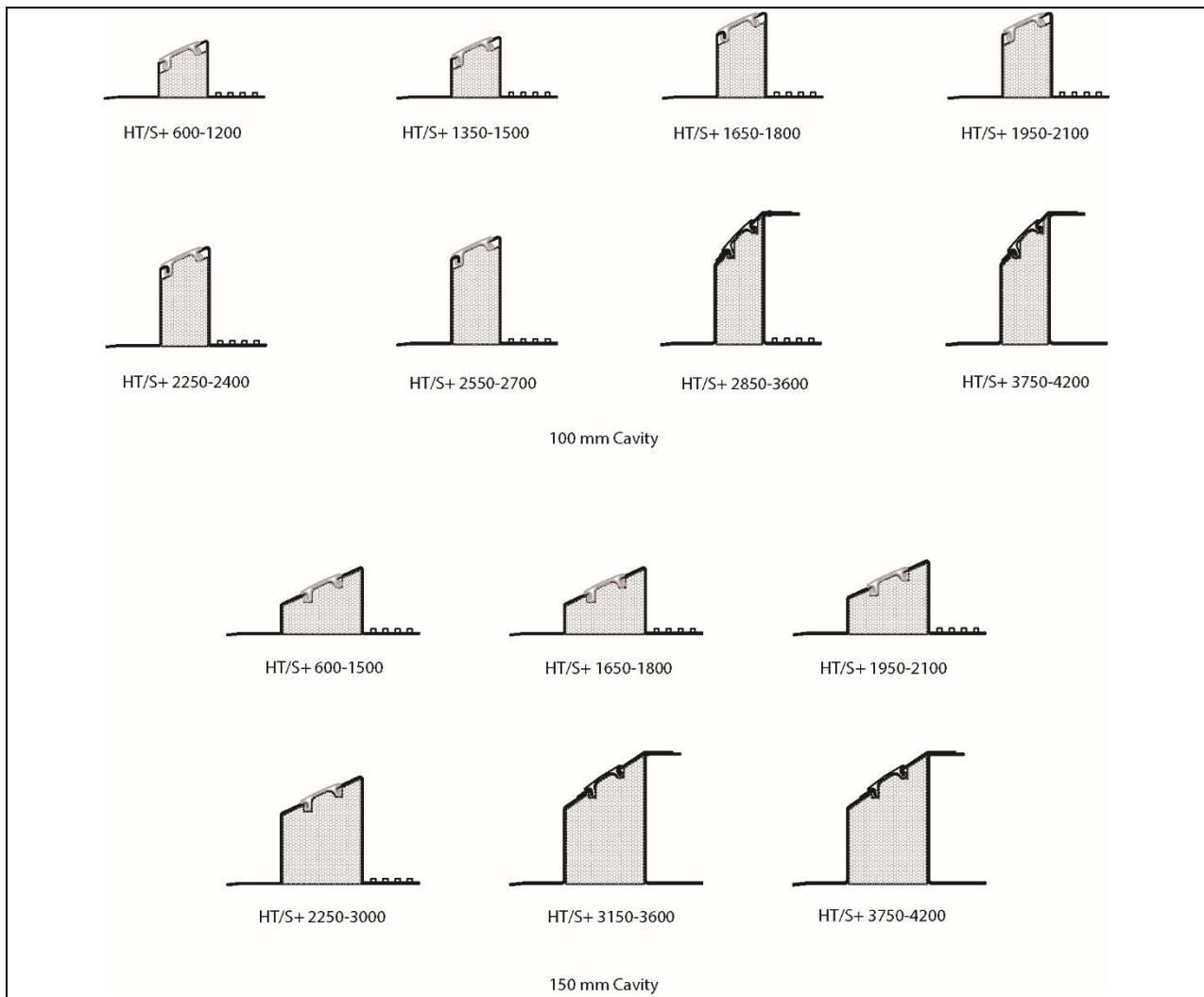
The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of Keystone Hi-therm+ Lintels

Characteristic (unit)	Version	
	HT/S+ 100	HT/S+ 150
Cavity width (mm)	90-105	150-165
Available lengths (mm)	600 to 4200 in 150 mm increments	

The lintels are available in a range of profiles, corresponding to the length and cavity width, as shown in Figure 1.

Figure 1 Typical cross section of HT/S+ 100 and HT/S+ 150 lintels



The lintels incorporate plaster keys on the soffit of the inner leaf side, therefore providing a suitable substrate for plastering, and preserve the continuity of masonry, therefore allowing the fixing of curtain tracks above the opening.

Ancillary Items

The Certificate holder recommends the following ancillary items for use with the products, but these materials have not been assessed by the BBA and are outside the scope of this Certificate:

- brick or block masonry units to BS EN 771 : 2006, Parts 1 to 6
- bricklaying mortar to BS EN 998-2 : 2016
- cavity trays
- plasterwork
- gypsum plasterboard to BS EN 520 : 2004
- wall insulation
- damp proof courses (DPCs)
- stop ends
- wall ties
- Weep vents
- Zinc-rich paint.

Product assessment – key factors

The products were assessed for the following key factors, and the outcome of the assessment is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Data were assessed for the following characteristics.

1.1 Behaviour under loading

1.1.1 The tabulated safe working loads in Tables 2 and 3 of this Certificate have been determined from tests to BS EN 845-2 : 2013 and BS EN 846-9 : 2016 and are the lesser of:

- test failure load divided by 1.6
- test load causing a vertical or horizontal deflection of 1/325 times the effective span.

Table 2 Load-span data for HT/S+ 100 lintels (Cavity widths: 90 to 105 mm)

Characteristic	Lintel length (mm)							
	600-1200	1350-1500	1650-1800	1950-2100	2250-2400	2550-2700	2850-3600	3750-4200
Overall height of lintel (mm)	100	107	150	150	175	190	234	234
Thickness of steel component (outer/inner leaf) (mm)	1.6	2.0	2.0	2.0/2.5	2.0/2.5	2.5	2.9	3.2
UDL at 3:1 distribution (kN)	12	16	19	21	23	27	27	27
UDL at 19:1 distribution (kN)	10	13	16	17	18	22	20	22
Mass (kg·m ⁻¹)	6.05	7.50	8.77	9.85	10.78	12.31	18.13	19.66

Table 3 Load-span data for HT/S+ 150 lintels (Cavity widths: 150 to 165 mm)

Characteristic	Lintel length (mm)					
	600-1500	1650-1800	1950-2100	2250-3000	3150-3600	3750-4200
Overall height of lintel (mm)	118	118	130	190	234	234
Thickness of steel component (outer/inner leaf) (mm)	2.0	2.0/2.5	2.5	2.5/2.9	2.9	3.2
UDL at 3:1 distribution (kN)	16	22	21	27	27	27
UDL at 19:1 distribution (kN)	13	18	17	22	20	22
Mass (kg·m ⁻¹)	8.41	9.52	10.72	14.06	19.00	20.56

1.1.2 The following limitations apply to the data in Tables 2 and 3:

- the load ratio between the inner and outer flanges should be a minimum of 3:1 and not exceed 19:1

$$\text{Load ratio} = \frac{w_1}{w_1 + w_2}$$

where:

w_1 = total load on inner leaf

w_2 = total load on outer leaf

$w_1 + w_2$ = total load on lintel

- end support bearing length should be a minimum of 150 mm.

1.1.3 On the basis of data assessed, Keystone Hi-therm+ Lintels have adequate strength and stiffness to sustain the uniformly distributed working loads and lintel lengths given in Tables 2 and 3, subject to the following conditions:

- to avoid excessive eccentricities of loading, the lintels must only be used with standard masonry units 90 to 110 mm wide, which must be installed with adequate workmanship
- the specified loads given in Tables 2 and 3 relate to simply supported lintels laterally and torsionally unrestrained. Therefore, there are no requirements for composite action with, or restraint by, adjacent elements of construction
- the applied loads are assumed to act uniformly distributed along the length of the lintel
- where part of the loading is applied as concentrated loads, each concentrated load must be supported over a length of lintel of not less than 200 mm. In such cases, the total applied loading must not produce bending moments, shear forces or reactions greater than those produced by the uniformly distributed loads specified in Tables 2 and 3.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 Galvanized steel profiles and mineral wool insulation have a reaction to fire classification of A1 to BS EN 13501-1 : 2018. The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1 : 2018 for the uPVC or expanded polystyrene used in the insulated profiles.

2.1.2 On the basis of data assessed, Keystone Hi-therm+ Lintels will be unrestricted under the documents supporting the national Building Regulations.

2.2 Resistance to fire

2.2.1 A construction incorporating the products as shown in Figure 2 achieved the period of fire resistance in terms of load bearing capacity in Table 4.

Figure 2 Wall construction incorporating Hi-therm+ Lintels as tested for resistance to fire

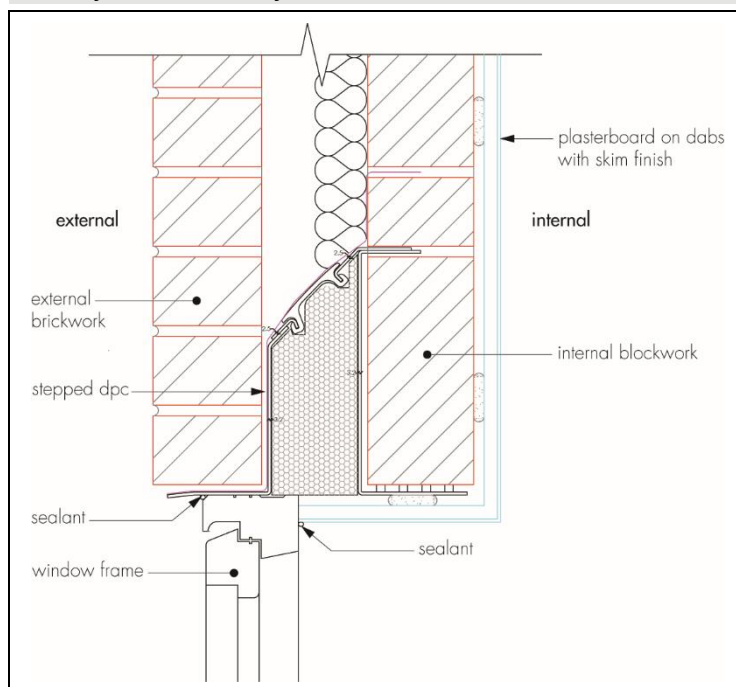


Table 4 Fire resistance in terms of load bearing capacity

Product	Construction	Method / Report Reference	Result
HT/S+ 100 ⁽¹⁾⁽²⁾	2400 mm opening to brickwork piers. 100 mm single skin external brick leaf. 100 mm cavity, partially filled with 50 mm mineral fibre slab. 100 mm single skin aerated concrete block. 10 mm fully filled mortar joints. Damp-proof course Plasterboard on dabs and skim finish	BS EN 1363-1 : 2012 ⁽³⁾	Minimum 1 hr fire resistance in terms of load bearing capacity

(1) 175 mm high, 2.5 mm thick, 2700 mm long, HT/S+ 100 lintel with white polystyrene insulation core.

(2) Supporting an applied load at a 3:1 ratio of 27 kN (20.25 kN to inner leaf, 6.75 kN to outer leaf). 150 mm bearing at each end.

(3) Warringtonfire test report WF Report No. 380220, available from the Certificate holder.

2.2.2 Where a wall incorporating the products, other than the construction shown in Table 4, is required to achieve a period of fire resistance, it's performance should be confirmed by a suitably experienced and competent individual or by a test from a suitably accredited laboratory.

3 Hygiene, health and the environment

Data were assessed for the following characteristic.

3.1 Condensation

3.1.1 Example constructions shown in Table 5 of this Certificate, were analysed numerically to BS EN ISO 10211 : 2017, BRE IP 1/06 : 2006 and BRE Report BR 497 : 2016, and achieved minimum temperature factors in excess of 0.75.

3.1.2 On the basis of the data assessed, the constructions in Table 5 will adequately limit the risk of surface condensation in buildings of all humidity classes except 'Special Buildings', eg buildings such as laundries, breweries and swimming pools as defined in BS 5250 : 2021.

3.1.3 For other constructions, the risk of surface condensation will be minimal when the minimum temperature factors are not less than the relevant values in BRE IP 1/06.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

6.1.1 The lintels are fully insulated with expanded polystyrene or mineral wool to a defined density and worst-case declared thermal conductivity (λ_D) of $0.039 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, which is inserted into the upstand. The upstand can optionally be fully insulated with a grey expanded polystyrene with a declared thermal conductivity (λ_D) of $0.030 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

6.1.2 The galvanized steel can be taken to have a thermal conductivity, λ , of $50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ in accordance with BS EN ISO 10456 : 2007.

6.2 Thermal performance

6.2.1 Example constructions shown in Table 5 and Figure 2 of this Certificate were analysed numerically to BS EN ISO 10211 : 2017 and BRE Report BR 497 : 2016 to determine the linear thermal transmittance, ψ value.

Table 5 Calculated Ψ values to BS EN ISO 10211 : 2017 and BRE Report BR 497 : 2016 ($W \cdot m^{-1} \cdot K^{-1}$)

Product assessed	Assessment method	Requirement	Result
HT/S+ 100 (spans 600-1200 mm)	Ψ values to	Value achieved	0.065 ⁽¹⁾
Figure 2	BS EN ISO 10211 : 2017 and		0.081 ⁽²⁾⁽³⁾
HT/S+ 100 (spans 3750-4200 mm)	BRE Report BR 497 : 2016		
HT/S+ 150 (spans 3750-4200 mm)			0.108 ⁽²⁾⁽⁴⁾

(1) 102.5 mm brickwork ($\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$), 90 mm cavity fully filled with mineral wool insulation chamfered to fit the lintel profile ($\lambda = 0.038 W \cdot m^{-1} \cdot K^{-1}$, 100 mm blockwork ($\lambda = 0.162 W \cdot m^{-1} \cdot K^{-1}$), 15 mm plaster dabs/cavity ($R = 0.18 m^2 \cdot K \cdot W^{-1}$) and 12.5 mm plasterboard ($\lambda = 0.21 W \cdot m^{-1} \cdot K^{-1}$), 70 mm window frame which overlaps the cavity by 30 mm.

(2) Note, this Ψ value will not be exceeded for lesser lintel gauges and/or heights.

(3) 90 mm cavity width, comprising 50 mm vented cavity adjacent to low emissivity ($\epsilon=0.05$) foil ($R=0.664 m^2 \cdot K \cdot W^{-1}$), 40 mm PIR insulation.

(4) 165 mm cavity width, comprising 50 mm vented cavity ($R=0.183 m^2 \cdot K \cdot W^{-1}$), 115 mm PIR insulation.

(5) Approved value may be claimed when the gauge of the steel lintel is less than or equal to 3.2 mm and there is a 30 mm overlap of the window frame over the cavity.

6.2.2 On the basis of data assessed, the calculated values in Table 5 can be used in energy and carbon emission rate calculations. The performance of other constructions must be in accordance with the documents supporting the relevant national Building Regulations.

7 Sustainable use of natural resources

The steel, insulation and uPVC components are recyclable.

8 Durability

8.1 The potential mechanisms for degradation and the known performance characteristics of the materials in the products were assessed.

8.2 The products are suitable for contact with conventional cavity insulation materials and mortar additives, and have adequate protection against corrosion provided that:

8.2.1 The protective zinc is undamaged or minor damage repaired.

8.2.2 The mortar complies with the requirements of BS EN 1996-1-1 : 2022.

8.2.3 The timber door or window frames in contact with the lintels are treated with boron compounds or organic solvent-type preservatives. The risks of corrosion associated with other forms of preservative treatment and with treatment with inorganic flame-retardant salts are described in BRE Digest 301 : 1985.

8.2.4 Contact with, or contamination from, copper, copper-bearing materials or aqueous run-off from copper-bearing materials (including copper, brass or bronze wall ties), is avoided.

8.2.5 Sands from marine sources used in mortars are washed in fresh water to reduce the sodium chloride content to a value of less than 0.1% by weight of dry material.

8.3 Service life

Under normal service conditions, the products will have a life equivalent to the building in which it is incorporated, with a minimum period of 60 years, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 Structures of brickwork or blockwork in which the lintels are incorporated must be designed and constructed to comply with BS EN 1996-1-1 : 2022, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their UK National Annexes, and the national Building Regulations.

9.1.3 Guidance on the assessment of loads on lintels in masonry is given in BS EN 845-2 : 2013 and PD 6697 : 2019. It is the responsibility of the designer to ensure that the applied loads do not exceed the safe working loads given in Tables 2 and 3 of this Certificate.

9.1.4 For junction details other than those shown in Table 5 of this Certificate, the linear thermal transmittance and temperature factor should be calculated following the guidance given in BRE Report BR 497 : 2016, or a 'conservative default' psi value of $1.0 \text{ W} \cdot \text{m}^{-1} \cdot \text{K}^{-1}$ may be used.

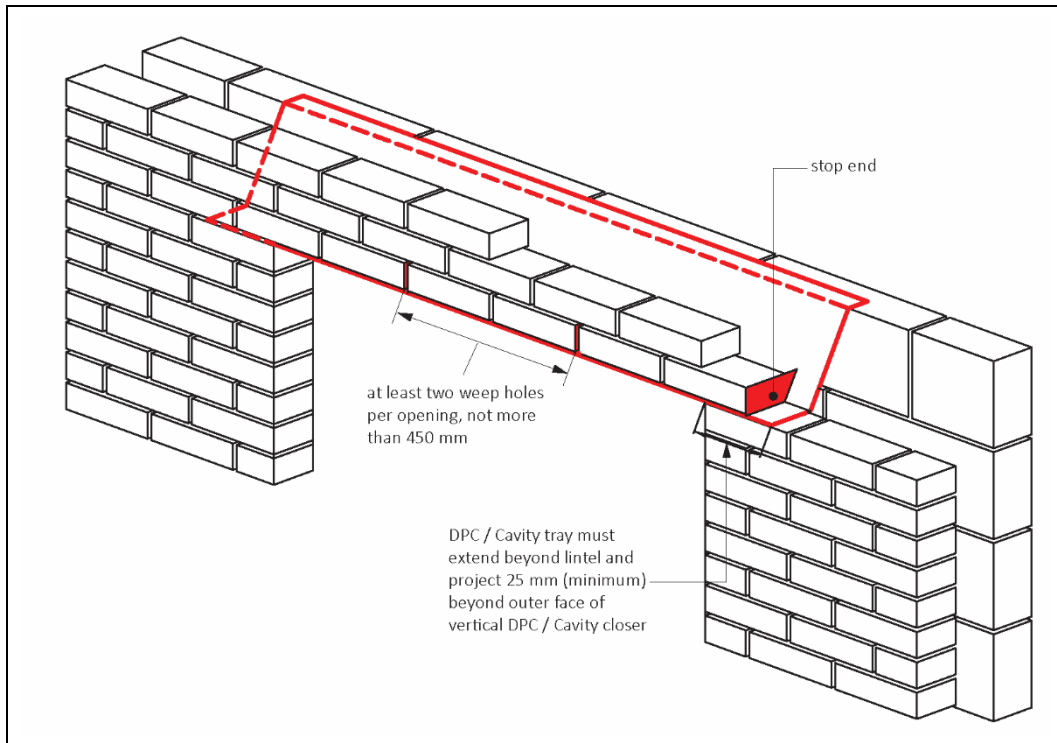
9.1.5 It is essential that walls incorporating the products are rain resistant and show no sign of water ingress. Careful attention must be paid to joints and junctions in and between components and elements.

9.1.6 To comply with *NHBC Standards 2024* in Scotland, Northern Ireland, Isle of Man, and areas of severe and very severe exposure to driving rain as detailed in BRE Report BR 262 : 2002, separate damp-proof course (DPC) protection must be provided over the lintels and stop ends and must project sufficiently beyond the lintel ends.

9.1.7 A cavity tray over the lintel must be provided under all exposure conditions and installed in accordance with BS 8215 : 1991 and the *NHBC Standards 2024*, Chapter 6.1 *External masonry walls*. The installation must incorporate appropriate stop ends to direct moisture out of the cavity.

9.1.8 Weep-holes must be provided in the outer leaf above the lintel to drain moisture from the cavity. A minimum of two weep-holes must be provided per lintel. For fair-faced masonry, weep-holes must be provided at centres not greater than 450 mm. The use of stop ends to the lintel must be considered; where required by the *NHBC Standards 2024*, and particularly in areas of severe and very severe exposure, and where full-fill cavity insulation is specified (see Figure 3). Weep holes are also required in severe or very severe exposure zones where rendering is returned into the window or door head - weep holes are not required where the render is not returned.

Figure 3 Typical installation detail — DPC and weep-holes



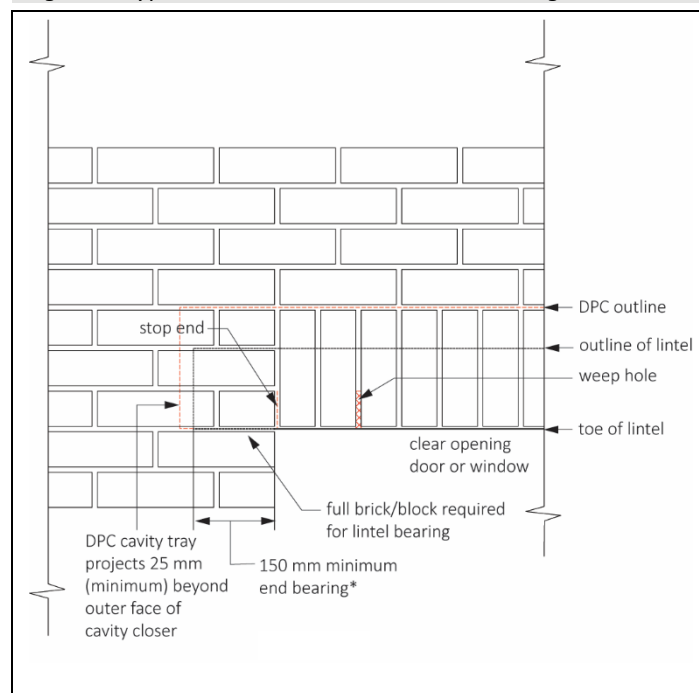
9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 Lintels must be installed with at least 150 mm end bearing as illustrated in Figure 4, and be fully bedded on bricklaying mortar on a full-size masonry unit.

Figure 4 Typical installation detail — end bearings



9.2.4 Point loads must not be applied directly onto lintel flanges. Lintels must have a minimum of 150 mm masonry between the flange and the application level of any form of loading. The Certificate holder must be contacted for guidance if a point load is to be applied above the lintel.

9.2.5 The external lintel flange must project beyond the window/door frame, and it is recommended that a flexible sealing compound is used between the underside of the lintel flange and the frame.

9.2.6 Masonry must not project beyond any lintel flange by more than 25mm.

9.3 Workmanship

Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the products must be carried out by a competent general builder, or a contractor, experienced with these types of products.

9.4 Maintenance and repair

The Certificate holder has stated maintenance is not required, but the exposed toe of a lintel may be painted to improve appearance using finishes compatible with the zinc coating. The Certificate holder must be consulted for details of suitable coatings, but such advice is outside the scope of this Certificate.

10 Manufacture

10.1 The production processes for the products have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review 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.

11 Delivery and site handling

11.1 The Certificate holder stated that the products are delivered to site or to builders' merchants in bundles, each carrying a label bearing the Certificate holder's name. The BBA logo incorporating the number of this Certificate is marked on each lintel.

11.2 Delivery and site handling must be performed in accordance with the Certificate holder's instructions and this Certificate, including:

11.2.1 Reasonable care must be taken during unloading, stacking and storage to avoid damage to the protective coating. Lintels that have suffered deformation or major damage to the protective coatings must not be used. Minor damage to the galvanized steel coating can be repaired by using the same anti-corrosive paint used for treating cut edges, or zinc-rich paint.

11.2.2 The lintels must be stored off the ground in such a manner as to avoid the risk of either mechanical damage or contamination by corrosive substances.

11.2.3 The lintels may be handled by site personnel or mechanical lifting devices – care must be taken to ensure any forks, slings or chains do not damage any coating or finishes.

11.2.4 Except for the longer span lintels, the lintels can generally be lifted and handled by a single operative. Protective gloves must be worn when handling the products.

Supporting information in this Annex is relevant to the products but has not formed part of the material assessed for the 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.

UKCA/UKNI marking

The Certificate holder has taken the responsibility of UKCA / UKNI marking the products in accordance with designated Standard EN 845-2 : 2013.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard EN 845-2 : 2013.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by the British Board of Agrément (Certificates 18/Q059 and 18/E019 respectively).

Additional information on installation

A.1 Typical installation details of Keystone Hi-therm+ Lintels are shown in Figures 2 to 4.

A.2 The inner and outer masonry leaves supported by the lintel must be raised simultaneously to avoid excessive eccentricity of loading, with a maximum height difference of 225 mm (masonry should be laid on a mortar bed and all perpendicular joints should be filled).

A.3 Mortar must be allowed to cure before applying floor or roof loads. Temporary propping beneath a steel lintel is sometimes practised to facilitate speed of construction.

A.4 When installing concrete floor units or other heavy components above a lintel, care should be taken to avoid shock loading, and floor units should not be dragged into position.

A.5 The durability assessment assumes that water does not collect on the lintel; precautions, therefore, must be taken in cavity wall construction to prevent mortar dropping through the cavity and onto the lintels and obstructing the weep holes.

A.6 Installation must be in accordance with the Certificate holder's instructions and this Certificate.

A.7 Detailed guidance on limiting heat loss by air infiltration can be found in BRE Report BR 262 : 2002.

A.8 The risk of interstitial condensation in both the external walling and roofing is greatest when the building is drying out after construction. Guidance on limiting condensation is given in BRE Report BR 262 : 2002.

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