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Agrément Certificate
91/2638
Product Sheet 1

CATNIC LINTELS

CATNIC COUGAR RANGE (CG) OF CAVITY WALL LINTELS

This Agrément Certificate Product Sheet (1) relates to the Catnic Cougar Range (CG) of Cavity Wall Lintels comprising coated galvanized steel profiles and cavity thermal insulation inserts for use in external masonry cavity walls to provide support to walls, floors or roofs 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 product is suitable for use in walls with openings between 450 and 3300 mm (clear spans) (see section 6).

Behaviour in relation to fire — in a conventional brick/block construction, the product can have a fire resistance of up to one hour (see section 7).

Thermal performance — opening head junctions incorporating the product can adequately limit heat loss (see section 8).

Condensation risk — the risk of local surface condensation is acceptable in opening head junctions incorporating the product (see section 9).

Corrosion protection — the product will have adequate protection against corrosion (see section 10).

Durability — provided that the product is designed, installed and used in accordance with the Certificate, it will have a service life of at least 60 years (see section 12).

The BBA has awarded this Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 30 September 2019

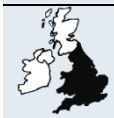
Originally certificated on 28 March 1991

Paul Valentine
Technical Excellence Director

Claire Curtis-Thomas
Chief Executive

Regulations

In the opinion of the BBA, Catnic Cougar Range (CG) of Cavity Wall 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 product can contribute to satisfying this Requirement. See sections 6.2 to 6.5 of this Certificate.
Requirement:	**B3(1)**	**Internal fire spread (structure)**
Comment:		The product can be incorporated in a construction satisfying this Requirement. See sections 7.1 to 7.3 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The product incorporated in external masonry cavity walls will not adversely affect the ability of the wall to satisfy the stated requirements, provided correct construction details are adopted. See section 9.2 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The product can contribute to satisfying this Requirement. See section 9.4 of this Certificate.
Requirement:	**L1(a)(b)**	**Conservation of fuel and power**
Comment:		The product incorporated in junctions can adequately limit heat loss and the risk of condensation. See sections 8.1, 8.2 and 9.2 of this Certificate.
Regulation:	**7**	**Materials and workmanship (applicable to Wales only)**
Regulation:	**7(1)**	**Materials and workmanship (applicable to England only)**
Comment:		The product is acceptable. See section 12.1 and the *Installation* part of this Certificate.
Regulation:	**7(2)**	**Materials and workmanship (applicable to England only)**
Comment:		The product is unrestricted by this Regulation. See sections 7.1 and 7.2 of this Certificate.
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy consumption rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Comment:		The product incorporated in junctions can adequately limit heat loss and the risk of condensation. See sections 8.1, 8.2, 9.2 and 9.4 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Durability, workmanship and fitness of materials**
Comment:		The product is acceptable. See section 12.1 and the *Installation* part of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	1.1(a)(b)	Structure
Comment:		The product is acceptable, with reference to clauses 1.1.1$^{(1)(2)}$ and 1.1.2$^{(1)(2)}$. See sections 6.2 to 6.5 of this Certificate.
Standard:	2.3	Structural protection
Comment:		The product can be incorporated in a construction satisfying this Standard, with reference to clauses 2.3.1$^{(1)(2)}$ and 2.3.3$^{(1)(2)}$. See sections 7.1 to 7.3 of this Certificate.

Standard:	3.15	Condensation
Comment:		The product will not adversely affect the ability of the wall to satisfy this Standard, with reference to clauses 3.15.1(1)(2), 3.15.4(1)(2) and 3.15.5(1)(2). See sections 9.2 and 9.4 of this Certificate.
Standard:	6.1	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product incorporated in heads of openings in external walls can limit heat loss and the risk of condensation with reference to clauses 6.1.2(1), 6.1.6(1), 6.2.3(1), 6.2.4(1), 6.2.5(2), 6.2.6(2), 6.2.10(1), 6.2.11(1)(2), 6.2.12(2) and 6.2.13(2). See sections 8.1, 8.2, 9.2 and 9.4 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product 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. See section 8.1 of this Certificate.
Regulation:	**12**	**Building standards applicable to conversions**
Comment:		All comments given for this product 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) (ii)(iii)(b)**	**Fitness of materials and workmanship**
Comment:		The product is acceptable. See section 12.1 and the *Installation* part of this Certificate.
Regulation:	**28**	**Resistance to moisture and weather**
Comment:		The product can be incorporated in a construction satisfying this Regulation. See section 9.4 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The product can contribute to satisfying this Regulation. See section 9.4 of this Certificate.
Regulation:	**30**	**Stability**
Comment:		The product is acceptable. See sections 6.2 to 6.5 of this Certificate.
Regulation:	**35**	**Internal fire spread — Structure**
Comment:		The product can be incorporated in a construction satisfying this Regulation. See sections 7.1 to 7.3 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Regulation:	**40**	**Target carbon dioxide emission rate**
Comment:		The product incorporated in heads of openings in external masonry cavity walls can limit heat loss and the risk of condensation. See sections 8.1, 8.2 and 9.4 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: 3 *Delivery and site handling* (3.4) and 14 *General* (14.2) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, the Catnic Cougar Range (CG) of Cavity Wall 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.*

CE marking

The Certificate holder has taken the responsibility of CE marking the Catnic Cougar Range (CG) of Cavity Wall Lintels in accordance with harmonised European Standard BS EN 845-2 : 2013.

Technical Specification

1 Description

1.1 The Catnic Cougar Range (CG) of Cavity Wall Lintels is manufactured from the following components:

- profiles of hot-dipped galvanized steel to BS EN 10346 : 2015 with 275 $g \cdot m^{-2}$ zinc coating finished with a black polyester-powder coating 3.5 µm ± 0.5 µm thick (NN104E – Interpon 610), or profiles of stainless steel to BS EN 10088-2 : 2014, with the details shown in Table 1, below.
- thermal insulation (expanded polystyrene bead, density 18 $kg \cdot m^{-3}$) that fully fills the lintel. The beads are moulded into the lintel and form a ribbed finish on the underside face to provide a key for plastering.

Table 1 Lintel specification

Material	Manufacturing Standard	Grade	Coating type
Hot-dipped galvanized steel(1)	BS EN 10346	DX51D DX51D S250GD	Z275 Z600 Z600
Stainless steel (304 S15)	BS EN 10088-2	1.4301	–

(1) Minimum yield stress 250 $N \cdot mm^{-2}$.

1.2 The lintels are a flush type (see Figures 1 to 3), with a black polyester-based powder coating. They are for use in standard cavity wall constructions and provide a key for plastering by incorporating perforations on the inner flange, and castellations on the appropriate insulation systems.

1.3 The lintels are manufactured in lengths from 750 to 3600 mm, in 150 mm increments, for 50 to 165 mm cavity widths and 100 to 115 mm inner leaves. Additionally, for lintel lengths up to 3000 mm, the inner leaves can be 125 to 140 mm. The lintel profiles are shown in Table 2.

Table 2 Catnic Cougar Range (CG) of Cavity Wall Lintels[1]

Lintel profiles (dimensions in mm)		Lintel type[2]	Sheet thickness (mm)	Nominal weight (kg·m^{-1})	Overall height (mm)	Manufactured length (mm)	Clear span (mm)	Minimum end bearing (mm)	Safe working load[3] (kN)
Outer brick/block width Cavity width Inner block width	100 50–65 100–115	CG 50/ CG 100	1.6	5.8	140	750–1500	450–1200	150	15
			2	7.6	140	1650–1800	1350–1500		18
			2	8	160	1950–2100	1650–1800		20
			2	8.7	180	2250–2400	1950–2100		22
			2	10	220	2550–2700	2250–2400		26
			2.5	12.5	220	2850–3600	2550–3300		26
Outer brick/block width Cavity width Inner block width	100 70–85 100–115	CG 70/ CG 100	1.6	6	140	750–1500	450–1200	150	15
			2	7.5	140	1650–1800	1350–1500		18
			2	8.1	160	1950–2100	1650–1800		20
			2	8.7	180	2250–2400	1950–2100		22
			2	10	220	2550–2700	2250–2400		26
			2.5	12.5	220	2850–3600	2550-3300		26
Outer brick/block width Cavity width Inner block width	100 90–105 100–115	CG 90/ CG 100	1.6	6.1	140	750–1500	450–1200	150	15
			2	7.6	140	1650–1800	1350–1500		18
			2	8.3	160	1950–2100	1650–1800		20
			2	8.9	180	2250–2400	1950–2100		22
			2	10.2	220	2550–2700	2250–2400		26
			2.5	13	220	2850–3600	2550–3300		26
Outer brick/block width Cavity width Inner block width	100 50–65 125–140	CG 50/ CG 125	1.6	6.4	140	750–1200	450–900	150	12
			2	7.8	140	1350–1800	1050–1500		17
			2	9	180	1950–2400	1650–2100		20
			2.5	12.9	220	2550–3000	2250–2700		26
Outer brick/block width Cavity width Inner block width	100 70–85 125–140	CG 70/ CG 125	1.6	6.3	140	750–1200	450–900	150	12
			2	8	140	1350–1800	1050–1500		17
			2	9.2	180	1950–2400	1650–2100		20
			2.5	13.1	220	2550–3000	2250–2700		26
Outer brick/block width Cavity width Inner block width	100 90–105 125–140	CG 90/ CG 125	1.6	6.5	140	750–1200	450–900	150	12
			2	8	140	1350–1800	1050–1500		17
			2	9.4	180	1950–2400	1650–2100		20
			2.5	13.3	220	2550–3000	2250–2700		26
Outer brick/block width Cavity width Inner block width	100 100–125 100–115	CG 110/ CG 100	1.6	6.4	140	750–1500	450–1200	150	15
			2	8.7	160	1650–1800	1350–1500		18
			2	8.7	160	1950–2100	1650–1800		20
			2	10.5	220	2250-2400	1950-2100		22
			2.5	13.1	220	2550–3600	2250–3300		26
Outer brick/block width Cavity width Inner block width	100 130–145 100–115	CG 130/ CG 100	1.6	6.6	140	750–1500	450–1200	150	15
			2	8.9	160	1650–1800	1350–1500		18
			2	8.9	160	1950–2100	1650–1800		20
			2	10.7	220	2250-2400	1950-2100		22
			2.5	13.3	220	2550–3600	2250–3300		26
Outer brick/block width Cavity width Inner block width	100 150–165 100–115	CG 150/ CG 100	1.6	6.9	140	750–1500	450–1200	150	15
			2	9.2	160	1650–1800	1350–1500		18
			2	9.2	160	1950–2100	1650–1800		20
			2	11	220	2250-2400	1950-2100		22
			2.5	13.8	220	2550–3600	2250–3300		26

Table 2 Catnic Cougar Range (CG) of Cavity Wall Lintels (continued)

Lintel profiles (dimensions in mm)		Lintel type[2]	Sheet thickness (mm)	Nominal weight (kg·m^{-1})	Overall height (mm)	Manufactured length (mm)	Clear span (mm)	Minimum end bearing (mm)	Safe working load[3] (kN)
Outer brick/block width Cavity width Inner block width	100 110–125 100–140	CG 110/ CG 125	1.6	6.8	140	750–1200	450–900	150	12
			2	9.6	180	1350–1800	1050–1500		17
			2.5	13.7	220	1950–2400	1650–2100		20
			2.5	13.7	220	2550–3000	2250–2700		26
Outer brick/block width Cavity width Inner block width	100 130–145 100–140	CG 130/ CG 125	1.6	6.9	140	750–1200	450–900	150	12
			2	9.9	180	1350–1800	1050–1500		17
			2.5	13.7	220	1950–2400	1650–2100		20
			2.5	13.7	220	2550–3000	2250–2700		26
Outer brick/block width Cavity width Inner block width	100 150–165 100–140	CG 150/ CG 125	1.6	7.1	140	750–1200	450–900	150	12
			2	10.1	180	1350–1800	1050–1500		17
			2.5	14.2	220	1950–2400	1650–2100		20
			2.5	14.2	220	2550–3000	2250–2700		26

(1) The lintels covered by this Certificate have a current BSI Kitemark Licence No KM 07234 to BS EN 845-2 : 2013.
(2) The Certificate holder can give details of lintel type references and availability.
(3) Load ratio from 1:1 to 1:3 (outer : inner).

1.4 Other items or components[1] which may be used with the product, but outside the scope of this Certificate, are:

- brick or block masonry units, to Parts 1 to 6 of BS EN 771 : 2011
- bricklaying mortar, to BS EN 998-2 : 2016
- gypsum plasterboard to BS EN 520 : 2004
- gypsum plaster – thistle board finish to BS EN 13279-1 : 2008.

(1) Details on the above products' specifications can be obtained from the Certificate holder.

2 Manufacture

2.1 The product is manufactured from galvanized or stainless steel coil which is slit, perforated if necessary, straightened and cut to length to provide blanks. The lintel components are formed from these blanks by press-braking or roll-forming. The components are then assembled by spot-welding or press-joining to form the lintel profile, which is finally fully filled with expandable insulation beads.

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 the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM14913).

3 Delivery and site handling

3.1 The lintels are delivered in bundles or separately, depending on their size and shape, and strapped together with protective wooden supports between each layer. Each product carries a bar coded label with the manufacturer's name,

website details and logo; lintel type, length and weight; and date of manufacture.

3.2 Reasonable care must be taken during unloading, stacking and storage to avoid damage to the lintels. Any lintels that have suffered deformation or damage to their protective coating must not be used. Minor damage to the coating must be repaired by using the same anti-corrosive paint or compatible polyester-resin coating used for treating cut edges, or zinc-rich paint. Cutting is not recommended on site.

3.3 The lintels must be stored off the ground to avoid the risk of either mechanical damage or contamination by corrosive substances.

3.4 The lintels may be handled by site personnel or mechanical lifting devices, depending on the size and weight of the lintel (see the Certificate holder's brochure). Care must be taken to ensure that any forks, slings or chains do not damage the protective coating.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Catnic Cougar Range (CG) of Cavity Wall Lintels.

Design Considerations

4 General

4.1 The Catnic Cougar Range (CG) of Cavity Wall Lintels is satisfactory for use in external masonry cavity walls of brickwork and / or blockwork to support wall, roof or floor loads (or a combination of these), above window or door 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 The lintels are lighter than conventional concrete lintels and can be positioned by one or two operatives.

4.4 Where relevant, the perforated steel lintel and insulated surfaces provide a suitable substrate for plastering.

4.5 In England and Wales, for full-, retro- and partial-fill cavity insulation (eg with a 50 mm partial-fill and 50 mm cavity, as shown in Figure 2), the galvanized polyester-coated steel lintels obviate the need for a separate damp-proof tray at the lintel position for exposure categories up to 'severe'. Above exposure category 'severe', a cavity tray over the lintel must be provided and installed in accordance with BS EN 845-2 : 2013.

4.6 In Scotland, all lintels should have a damp proof course (dpc) built into the inner leaf.

4.7 In Scotland and Northern Ireland, or in areas where the exposure to driving rain is 'very severe', the upstand part of the damp-proof protection should be returned into the inner leaf of masonry, and a separate cavity tray must be used.

4.8 The installation of the lintels must incorporate appropriate weep-holes and stop-ends to the lintels to direct moisture out of the cavity, as recommended in PD 6697 : 2010.

5 Practicability of installation

The product is designed to be installed by a competent general builder or a contractor experienced with this type of product.

6 Structural performance

6.1 The lintels(1) have adequate strength and stiffness to sustain the safe working loads given in Table 2, when uniformly distributed, subject to the following conditions:

- the defined cavity width and size of standard masonry units is not exceeded and a minimum of 150 mm bearing is provided at each end
- no more than half of the total load on the lintel is supported at the outer leaf position
- where part of the loading is applied as a concentrated load, each concentrated load must be applied on a length of at least 200 mm. In such cases, the total applied loading must not produce bending moments, shear forces or reactions greater than those produced by the safe working loads (UDLs) specified in Table 2 of this Certificate.

(1) the specified loads given 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

6.2 The load ratio between the inner and outer flanges of the lintels should be a minimum of 1:1 and must not exceed 3:1.

6.3 The load-span data shown in Table 2 is valid only for the safe working loads and the lintel clear spans given. The loads have been derived from tests according to BS EN 846-9 : 2016, supported by calculations, and relate to a maximum allowable deflection of span/325. For other loading conditions, or spans outside this range, the Certificate holder should be consulted.

6.4 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 on the outer leaf.

6.5 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 or BS EN 1996-3 : 2006 and their UK National Annexes, PD 6697 : 2010, and the following technical specifications of the national Building Regulations as appropriate:

- ***England and Wales*** — Approved Document A1/2, Part C, Section 1
- ***Scotland*** — Section 1, Small Building Guide
- ***Northern Ireland*** — Technical Booklet D *Structure*, Section 3.

6.6 Guidance for the assessment of loads on lintels in masonry is given in BS EN 845-2 : 2013. It is the responsibility of the designer to ensure that the applied loads do not exceed the safe working loads given in Table 2 of this Certificate.

7 Behaviour in relation to fire

7.1 Galvanized and stainless steel profiles are non-combustible and are classified as Class A1 in accordance with the national Building Regulations.

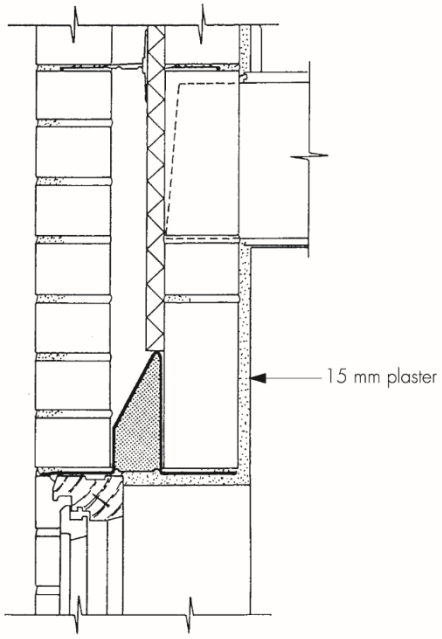
7.2 The product contains EPS, which is not classified as non-combustible or of limited combustibility.

7.3 When used in conventional brick/block construction and with protection provided by gypsum boards and plaster, as shown in the assessed construction details in Figures 1 to 3 of this Certificate, the construction may be regarded as having a fire resistance in relation to the national Building Regulations of 'one hour'(1) (England, Wales and Northern Ireland) and of 'medium' duration (Scotland). Construction should be in accordance with the requirements of BS EN 1996-1-2 : 2005.

(1) Tested in fire conditions based on the method set out in BS 476-21 : 1987, with the lintel protected by 13 mm plaster and finish (data available from the Certificate holder – TRADA Technology Ltd, test report RF94015).

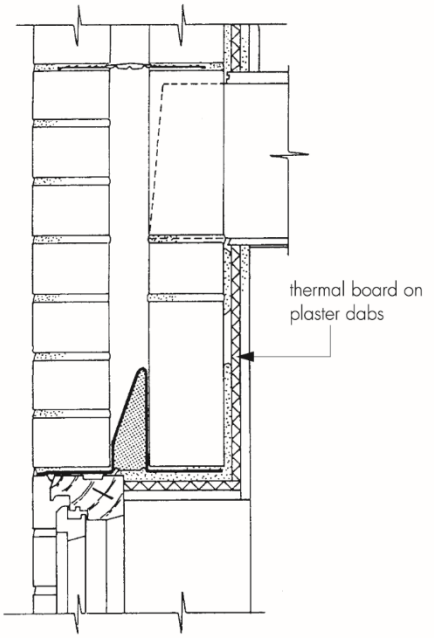
7.4 Where any other form of wall construction (different from that defined in section 7.3) incorporating Catnic lintels is subject to fire resistance requirements, an appropriate assessment or test must be carried out by a United Kingdom Accreditation Service (UKAS) accredited laboratory (accredited for the test concerned).

Figure 1 Typical installation details for Catnic Cougar Range (CG) of Cavity Wall Lintels



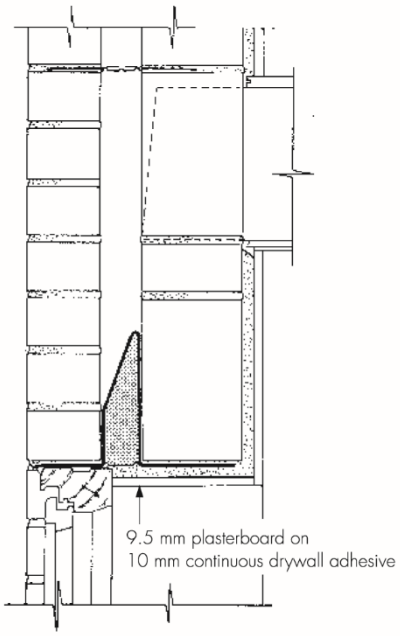
To suit normal Scottish practice, frames must be set so that their outer face does not project beyond the line of the inner face of the outer leaf of the cavity wall.

Figure 2 Alternative details for Catnic Cougar Range (CG) of Cavity Wall Lintels



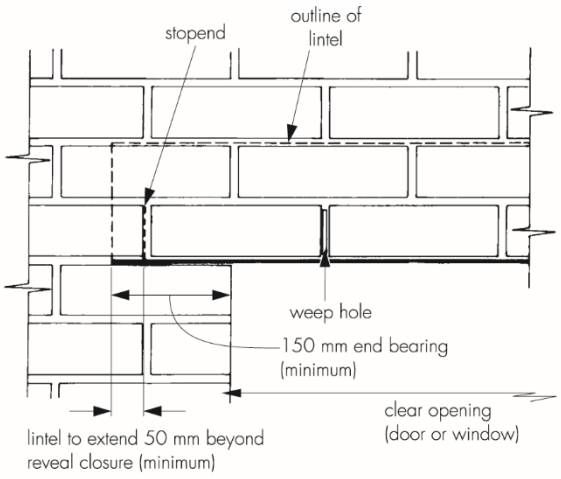
To suit normal Scottish practice, frames must be set so that their outer face does not project beyond the line of the inner face of the outer leaf of the cavity wall.

Figure 3 Alternative details for Catnic Cougar Range (CG) of Cavity Wall Lintels



To suit normal Scottish practice, frames must be set so that their outer face does not project beyond the line of the inner face of the outer leaf of the cavity wall.

Figure 4 Detail showing minimum end bearing, stop-ends and weep holes



To suit normal Scottish practice, frames must be set so that their outer face does not project beyond the line of the inner face of the outer leaf of the cavity wall.

8 Thermal performance

8.1 Typical example details containing the range of Catnic lintels, based on the construction details shown in Figures 1 to 4, were analysed numerically to determine their likely hygrothermal performance.

8.2 The lintels can adequately limit excessive heat loss and allow use of the psi values shown in Table 3 in carbon emission rate calculations. Detailed guidance on this and on limiting heat loss by air infiltration can be found in the document referred to in section 9.2.

Table 3 Junction values

Lintel product[(1)]	Example psi-value[(1)] ($W \cdot m^{-1} \cdot K^{-1}$)	Approved psi-value[(2)] ($W \cdot m^{-1} \cdot K^{-1}$)	Default psi-value[(3)] ($W \cdot m^{-1} \cdot K^{-1}$)
CG	0.29	0.30	1.0

(1) Assumes 50 mm window frame, 30 mm frame overlap with cavity, wall construction: 100 mm brickwork, 50 mm vented cavity, 100 mm PIR insulation (λ = 0.023 $W \cdot m^{-1} \cdot K^{-1}$), 100 mm concrete blockwork (λ = 0.11 $W \cdot m^{-1} \cdot K^{-1}$), 15 mm plaster ($\lambda$ = 0.57 $W \cdot m^{-1} \cdot K^{-1}$)
(2) Accredited value may be claimed when there is a 30 mm overlap of the window frame over the cavity
(3) Where a junction detail has not been calculated in accordance with BS EN 10211 and BR 497 and the construction deviates from that described in footnote (1), above, the default psi-value should be used.

8.3 For junction details/constructions not described in Table 3, the linear thermal transmittance and temperature factor should be calculated in accordance with BS EN 10211 : 2017, following the guidance in BR 497 : 2016. The Certificate holder can provide a detailed Ψ value calculation if required.

9 Condensation risk

9.1 To limit the risk of condensation, it is essential that the thermal insulation and vapour check continuity is achieved effectively during installation.

Surface condensation

9.2 Constructions described in Table 3, footnote (1), can achieve a surface temperature factor, f_{Rsi}, in excess of 0.75 with a plaster finish and a 30 mm window/door frame setback over the cavity, and should adequately limit the risk of surface condensation in dwellings, as described in BRE Information Paper IP 1/06. The surface condensation risk of other constructions should be established by numerical modelling in accordance with BRE Information Paper IP 1/06.

9.3 Further guidance on limiting the risk of surface condensation can be found in:

England and Wales *– Limiting thermal bridging and air leakage: Robust construction details for dwellings and similar buildings TSO 2002 or Accredited Construction Details (version 1.0)*
Scotland *– Accredited Construction Details (Scotland)*
Northern Ireland *– Accredited Construction Details (version 1.0).*

Interstitial condensation

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

10 Corrosion protection

The galvanized steel lintels have adequate protection against corrosion, providing:

- the polyester coating protection remains undamaged or minor blemishes are repaired
- mortar complies with the requirements of BS EN 998-2 : 2016.

11 Maintenance

Maintenance is not required, but the exposed toe of the lintel may be re-painted to improve its appearance using finishes that are compatible with a polyester coating.

12 Durability

12.1 Providing the lintels are designed and installed in accordance with this Certificate, they will have a service life of at least 60 years, subject to the following conditions:

- the lintels should be installed and used in accordance with the temperature and humidity conditions described in section 9 of this Certificate, and
- the galvanized steel profile of the lintel should be protected as described in section 10 of this Certificate.

12.2 The durability of the lintels will not be impaired by contact with conventional cavity insulation material or mortar admixtures.

12.3 Buildings located in exposed conditions, such as those in coastal areas and those above three storeys, are at greater risk of suffering water ingress. In these situations, it is recommended that separate dpc and stop-ends are installed.

13 Reuse and recyclability

The steel component of the product can be recycled.

Installation

14 General

14.1 Typical installation details of the product are shown in Figures 1 to 3.

14.2 Except for the longer span lintels, the product can generally be lifted and handled by a single operative. Protective gloves should be worn when handling the lintels.

14.3 The product must be installed with at least 150 mm end bearing, and be fully bedded on bricklaying mortar.

15 Procedure

15.1 The inner and outer leaves supported by the lintels must be raised together to avoid excessive eccentricity of loading.

15.2 Weep holes should be provided in the outer leaf above the lintel 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 4).

15.3 Stop ends should be used on cavity trays and lintels and are required under all exposure conditions, particularly in areas of severe exposure and where full-fill cavity insulation is specified (see Figure 4). The stop-ends should be applied as recommended in PD 6697 : 2010 (outside the scope of the Certificate).

15.4 Damp-proof protection or cavity trays must be provided in accordance with sections 4.5 to 4.8 of this Certificate.

15.5 The durability assessment assumes that water does not collect on the lintel: weep holes should, therefore, be kept clear of slurry or debris. Moreover, precautions must be taken to prevent mortar dropping through the cavity onto the lintel and obstructing the weep holes.

15.6 Mortar joints in exposed masonry should be weatherstruck in severe exposure zones.

15.7 Operations likely to damage the protective coatings or impair the strength of the lintels (for example, cutting, welding or drilling) must not be undertaken. Cleaning of excess mortar must be carried out with a soft material to avoid damaging the coating.

Technical Investigations

The following is a summary of the technical investigations carried out on the Catnic Cougar Range (CG) of Cavity Wall Lintels.

16 Tests

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

- load-deflection characteristics to BS EN 845-2 : 2013
- fire resistance of selected lintel profiles to BS 476-1 : 1953 and BS 476-8 : 1972
- thickness and quality of galvanized and polyester resin coatings
- resistance to damage of the polyester resin coatings
- the flexural and shear strength of the lintel in accordance with BS EN 846-9 : 2016.

17 Investigations

17.1 The following investigations were carried out:

- Calculations and review of the results of the load-deflection tests to establish structural performance
- Suitability of the corrosion protection, including review of results of long-term exposure tests on galvanized steel
- Effectiveness of the lintels as damp-proof trays and their effect on the weathertightness of cavity walls
- Risk of condensation and thermal transmittance / heat loss through junctions
- Thermal performance and analysis of the product
- Behaviour in fire and practicability of installation
- Suitability of the corrosion resistance of the stainless steel.

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

Bibliography

BS 476-1 : 1953 *Fire tests on building materials and structures*
BS 476-8 : 1972 *Fire tests on building materials and structures — Test methods and criteria for the fire resistance of elements of building construction*
BS 476-21 : 1987 *Fire tests on building materials and structures – Methods for determination of the fire resistance of loadbearing elements of construction*

BS EN 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*

BS EN 771-1 : 2011 + A1 : 2015 *Specification for masonry units — Clay masonry units*
BS EN 771-2 : 2011 + A1 : 2015 *Specification for masonry units — Calcium silicate masonry units*
BS EN 771-3 : 2011 + A1 : 2015 *Specification for masonry units — Aggregate concrete masonry units (Dense and lightweight aggregates)*
BS EN 771-4 : 2011 + A1 : 2015 *Specification for masonry units — Autoclaved aerated concrete masonry units*
BS EN 771-5 : 2011 + A1 : 2015 *Specification for masonry units — Manufactured stone masonry units*
BS EN 771-6 : 2011 + A1 : 2015 *Specification for masonry units — Natural stone masonry units*

BS EN 845-2 : 2013 *Specification for ancillary components for masonry – Lintels*
delivery conditions

BS EN 846-9 : 2016 *Methods of test for ancillary components for masonry – Determination of flexural resistance and shear resistance of lintels*

BS EN 998-2 : 2016 *Specification for mortar for masonry. Masonry mortar*

BS EN 1996-1-1 : 2005 *Eurocode 6 – Design of masonry structures – General rules for reinforced and unreinforced structures*
NA to BS EN 1996-1-1 : 2005 *Eurocode 6 – Design of masonry structures – General rules for reinforced and unreinforced structures*
BS EN 1996-1-2 : 2005 *Eurocode 6 – Design of masonry structures – General rules – Structural fire design*
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BS EN 1996-2 : 2006 *Eurocode 6 – Design of masonry structures – Design considerations, selection of materials and execution of masonry*
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BS EN 1996-3 : 2006 *Eurocode 6 – Design of masonry structures – Simplified calculation methods for unreinforced masonry structures*
NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 – Design of masonry structures – Simplified calculation methods for unreinforced masonry structures*

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

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

BS EN 10346 : 2015 *Continuously hot-dip coated steel flat products for cold forming – Technical*

BS EN 13279-1 : 2008 *Gypsum binders and gypsum plasters. Definitions and requirements*

BS EN ISO 9001 : 2015 *Quality management systems – Requirements*

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

BRE Report BR 497 : 2016 *Conventions for calculating linear thermal transmittance and temperature factors*

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

18.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

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

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

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

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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