

## Tata Steel UK Ltd

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**Agrement Certificate**

**91/2638**

Product Sheet 5

### CATNIC LINTELS

### CATNIC CH AND CX RANGE OF CAVITY WALL LINTELS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Catnic CH and CX Range of Cavity Wall Lintels comprising a range of extra heavy duty lintels fabricated from galvanized or stainless steel, for use in external and internal cavity walls of brickwork and/or blockwork 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 products are suitable for use in walls with openings between 600 and 4500 mm (clear spans) (see section 6).

**Behaviour in relation to fire** — in a conventional brick/block construction, the products can have a fire resistance of up to one hour. The products are not subject to restriction on building height or proximity to boundaries (see section 7).

**Thermal performance** — junctions incorporating the products can adequately limit heat loss (see section 8).

**Condensation risk** — the risk of local surface condensation in junctions incorporating the products is acceptable (see section 9).

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

**Durability** — provided that the products are designed, installed and used in accordance with this Certificate, they will have a service life of at least 60 years taking into account the restrictions based on the materials used (see section 12).



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: 3 September 2020

Originally certificated on 5 October 2004

Hardy Giesler  
Chief Executive Officer

*The BBA is a UKAS accredited certification body – Number 113.*

*The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)*

*Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

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

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## Regulations

In the opinion of the BBA, the Catnic CH and CX Range 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)

<b>Requirement:</b>	<b>A1</b>	<b>Loading</b>
Comment:		The products can contribute to satisfying this Requirement. See sections 6.2 to 6.6 of this Certificate.
<b>Requirement:</b>	<b>B3(1)</b>	<b>Internal fire spread (structure)</b>
Comment:		The products can be incorporated in a construction satisfying this Requirement. See sections 7.1 to 7.3 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The products, when 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 sections 4.6 and 9.2 of this Certificate.
<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:		The products can contribute to satisfying this Requirement. See section 9.3 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(b)</b>	<b>Conservation of fuel and power</b>
Comment:		Junctions incorporating the products can adequately limit heat loss and the risk of condensation. See sections 8.1, 8.2 and 9.2 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The products are acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>7(2)</b>	<b>Materials and workmanship</b>
Comment:		The products are unrestricted by this Regulation. See sections 7.1, 7.3, 7.4 and 7.5 of this Certificate.
<b>Regulation:</b>	<b>26</b>	<b>CO<sub>2</sub> emission rates for new buildings</b>
<b>Regulation:</b>	<b>26A</b>	<b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>
<b>Regulation:</b>	<b>26A</b>	<b>Primary energy consumption rates for new buildings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26B</b>	<b>Fabric performance values for new dwellings (applicable to Wales only)</b>
Comment:		Junctions incorporating the products can adequately limit heat loss. See sections 8.1 and 9.2 of this Certificate.



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

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The products are acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	1.1(a)(b)	Structure
Comment:		The products are acceptable, with reference to clauses 1.1.1 <sup>(1)(2)</sup> and 1.1.2 <sup>(1)(2)</sup> of this Standard. See sections 6.2 to 6.6 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 <sup>(1)(2)</sup> and 2.3.3 <sup>(1)(2)</sup> . See sections 7.1, 7.2, 7.4 and 7.5 of this Certificate.
Standard: Comment:	3.10	Precipitation The products can be incorporated in a construction satisfying this Standard, with reference to clause 3.10.1 <sup>(1)</sup> . See sections 4.5 and 4.6 of this Certificate.
Standard: Comment:	3.15	Condensation Constructions incorporating the products can satisfy this Standard, with reference to clauses 3.15.1 <sup>(1)(2)</sup> , 3.15.4 <sup>(1)(2)</sup> and 3.15.5 <sup>(1)(2)</sup> . See sections 9.2 and 9.3 of this Certificate.
Standard: Standard: Comment:	6.1 6.2	Carbon dioxide emissions Building insulation envelope Junctions incorporating the products can adequately limit heat loss, with reference to clauses 6.1.2 <sup>(1)</sup> , 6.1.6 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.4 <sup>(1)</sup> , 6.2.5 <sup>(2)</sup> , 6.2.6 <sup>(2)</sup> , 6.2.10 <sup>(1)</sup> , 6.2.11 <sup>(1)(2)</sup> , 6.2.12 <sup>(2)</sup> and 6.2.13 <sup>(2)</sup> of these Standards. See sections 8.1 and 8.2 of this Certificate.
Standard: Comment:	7.1(a)(b)	Statement of sustainability Junctions incorporating 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. See sections 8.1 and 8.2 of this Certificate.
<b>Regulation:</b> Comment:	<b>12</b>	<b>Building standards applicable to conversions</b> 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 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b> Comment:	<b>23(a)(i)</b> <b>(iii)(b)(i)</b>	<b>Fitness of materials and workmanship</b> The products are acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> Comment:	<b>28(b)</b>	<b>Resistance to moisture and weather</b> The products can be incorporated in a construction satisfying this Regulation. See section 4.6 of this Certificate.
<b>Regulation:</b> Comment:	<b>29</b>	<b>Condensation</b> The products can contribute to satisfying this Regulation. See section 9.3 of this Certificate.
<b>Regulation:</b> Comment:	<b>30</b>	<b>Stability</b> The products are acceptable. See sections 6.2 to 6.6 of this Certificate.
<b>Regulation:</b> Comment:	<b>35(1)</b>	<b>Internal fire spread — Structure</b> The products can be incorporated in a construction satisfying this Regulation. See sections 7.1, 7.2, 7.4 and 7.5 of this Certificate.
<b>Regulation:</b> <b>Regulation:</b> Comment:	<b>39(a)(i)</b> <b>40</b>	<b>Conservation measures</b> <b>Target carbon dioxide emissions rate</b> Junctions incorporating the products can adequately limit heat loss. See sections 8.1 and 8.2 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* (3.1 and 3.4) and 14 *General* (14.2) of this Certificate.

### Additional Information

#### NHBC Standards 2020

In the opinion of the BBA, the Catnic CH and CX Range 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 products in accordance with harmonised European Standard BS EN 845-2 : 2013.

### Technical Specification

#### 1 Description

1.1 Catnic CH and CX Range of Cavity Wall Lintels are manufactured from:

- profiles of hot-dipped galvanized steel to BS EN 10346 : 2015 with 275 g·m<sup>-2</sup> zinc coating finished with a black polyester-powder coating 3.5 ± 0.5 µm thick (NN104E – Interpon 610), or stainless steel to BS EN 10088-2 : 2014, with the details shown in Table 1 of this Certificate
- thermal insulation [expanded polystyrene (EPS) bead, density 18 kg·m<sup>-3</sup>] 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 <sup>(1)</sup>	BS EN 10346	DX51D	Z275
		DX51D	Z600
		S250GD	Z600
Stainless steel (304 S15)	BS EN 10088-2	1.4301	–

(1) Minimum yield stress 250 N·mm<sup>-2</sup>.

1.2 The lintels are a flush type (see Figures 1 and 2). They are for use in standard cavity wall constructions and provide a key for plastering by incorporating perforations on the inner flange, and a perforated base plate.

*Figure 1 CH Cavity Wall Lintels (heavy duty)*



*Figure 2 CX Cavity Wall Lintels (extra heavy duty)*



1.3 The lintels are manufactured in lengths from 900 to 4800 mm, in 150 mm increments, for 50 to 165 mm cavity widths and 100 to 115 mm inner leaves. Additionally, the range includes inner leaves 125 to 140 mm, for all lengths. The lintel profiles are shown in Tables 2 and 3.

**Table 2 CH Cavity Wall Lintels (heavy duty wall lintels)**

Lintel profiles		Lintel type <sup>(1)</sup>	Base steel thickness (mm)	Back/front steel thickness (mm)	Mass per unit length (kg·m <sup>-1</sup> )	Overall height (mm)	Manufactured length (mm)	Clear span (mm)	Minimum end bearing (mm)	Safe working load <sup>(2)</sup> (kN)
Outer brick/block width	100	CH50/100	1.6	2	10.47	157	900–1800	600–1500	150	32
Cavity width	50–65		2	2.5	13.09	157	1950–2100	1650–1800		48
Inner block width	100–115		2250–2400	1950–2100	45					
Outer brick/block width	100	CH70/100	1.6	2	10.90	157	900–1800	600–1500	150	32
Cavity width	70–85		2	2.5	13.62	157	1950–2100	1650–1800		48
Inner block width	100–115		2250–2400	1950–2100	15					
Outer brick/block width	100	CH90/100	1.6	2	11.24	157	900–1800	600–1500	150	32
Cavity width	90–125		2	2.5	14.05	157	1950–2100	1650–1800		48
Inner block width	100–115		2250–2400	1950–2100	45					
Outer brick/block width	100	CH110/100	2	2	12.13	157	900–1800	600–1500	150	32
Cavity width	110–105		2	2.5	14.55	157	1950–2100	1650–1800		48
Inner block width	100–115		2250–2400	1950–2100	45					
Outer brick/block width	100	CH130/100	2	2	12.13	157	900–1800	600–1500	150	32
Cavity width	130–145		2	2.5	14.55	157	1950–2100	1650–1800		48
Inner block width	100–115		2250–2400	1950–2100	45					
Outer brick/block width	100	CH150/100	2	2	12.13	157	900–1800	600–1500	150	32
Cavity width	150–165		2	2.5	14.55	157	1950–2100	1650–1800		48
Inner block width	100–115		2250–2400	1950–2100	45					
Outer brick/block width	100	CH50/125	1.6	2	10.69	157	900–1800	600–1500	150	32
Cavity width	50–65		2	2.5	13.36	157	1950–2100	1650–1800		48
Inner block width	125–140		2250–2400	1950–2100	45					
Outer brick/block width	100	CH70/125	1.6	2	11.12	157	900–1800	600–1500	150	32
Cavity width	70–85		2	2.5	13.90	157	1950–2100	1650–1800		48
Inner block width	125–140		2250–2400	1950–2100	45					
Outer brick/block width	100	CH90/125	1.6	2	11.46	157	900–1800	600–1500	150	32
Cavity width	90–105		2	2.5	14.32	157	1950–2100	1650–1800		48
Inner block width	125–140		2250–2400	1950–2100	45					
Outer brick/block width	100	CH110/125	2	2	12.35	157	900–1800	600–1500	150	32
Cavity width	110–125		2	2.5	14.83	157	1950–2100	1650–1800		48
Inner block width	125–140		2250–2400	1950–2100	45					
Outer brick/block width	100	CH130/125	2	2	12.82	157	900–1800	600–1500	150	32
Cavity width	130–145		2	2.5	15.33	157	1950–2100	1650–1800		48
Inner block width	125–140		2250–2400	1950–2100	45					
Outer brick/block width	100	CH150/125	2	2	13.31	157	900–1800	600–1500	150	32
Cavity width	150–165		2	2.5	15.90	157	1950–2100	1650–1800		48
Inner block width	125–140		2250–2400	1950–2100	45					

(1) The Certificate holder can give details of lintel type references and availability.

(2) Load ratio from 1:1 to 1:19 (outer : inner).

**Table 3 CX Cavity Wall Lintels (extra heavy duty wall lintels)**

Lintel profiles		Lintel type <sup>(1)</sup>	Base steel thickness (mm)	Back/front steel thickness (mm)	Mass per unit length (kg·m <sup>-1</sup> )	Overall height (mm)	Manufactured length (mm)	Clear span (mm)	Minimum end bearing (mm)	Safe working load <sup>(2)</sup> (kN)
Outer brick/block width Cavity width Inner block width	100 50–65 100–115	CX50/100	2	2.5	15.95	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	19.40	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	19.40	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	19.40	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 70–85 100–115	CX70/100	2	2.5	16.42	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	19.91	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	19.91	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	19.91	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 90–105 100–115	CX90/100	2	2.5	16.93	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	20.48	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	20.48	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	20.48	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 110–125 100–115	CX110/100	2	2.5	17.24	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	20.80	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	20.80	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	20.80	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 130–145 100–115	CX130/100	2	2.5	17.82	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	21.44	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	21.44	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	21.44	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 150–165 100–115	CX150/100	2	2.5	18.21	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	21.88	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	21.88	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	21.88	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 50–65 125–140	CX50/125	2	2.5	16.24	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	19.76	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	19.76	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	19.76	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 70–85 125–140	CX70/125	2	2.5	16.71	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	20.27	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	20.27	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	20.27	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 90–105 125–140	CX90/125	2	2.5	17.22	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	20.85	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	20.85	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	20.85	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 110–125 125–140	CX110/125	2	2.5	17.53	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	21.16	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	21.16	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	21.16	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 130–145 125–140	CX130/125	2	2.5	18.11	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	3.1	21.80	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	3.1	21.80	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	3.1	21.80	232	3300–3900 4200–4800	3000–3600 3900–4500		32
Outer brick/block width Cavity width Inner block width	100 150–165 125–140	CX150/125	2	2.5	18.50	232	900–2700 2850–3000	600–2400 2550–2700	150	60
			2	2.5	22.24	232	3300–3900 4200–4800	3000–3600 3900–4500		55
			2	2.5	22.24	232	3300–3900 4200–4800	3000–3600 3900–4500		50
			2	2.5	22.24	232	3300–3900 4200–4800	3000–3600 3900–4500		32

(1) The Certificate holder can give details of lintel type references and availability.

(2) Load ratio from 1:1 to 1:19 (outer : inner).

1.4 Other items or components<sup>(1)</sup> which may be used with the products, but which are outside the scope of this Certificate, are:

- brick or block masonry units to BS EN 771-1 : 2011, BS EN 771-2 : 2011, BS EN 771-3 : 2011, BS EN 771-4 : 2011, BS EN 771-5 : 2011 and BS EN 771-6 : 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
- stop-ends and cavity trays to PD 6697: 2019.

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

## 2 Manufacture

2.1 The products are 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 lintel 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 damaging 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 must not be undertaken 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 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 CH and CX Range of Cavity Wall Lintels.



### 4 Use

4.1 The Catnic CH and CX Range of Cavity Wall Lintels are satisfactory for use in external masonry cavity walls of brickwork and/or blockwork to provide support to 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 A cavity tray over the lintel must be provided and installed in accordance with BS 8215 : 1991, PD 6697 : 2019 and *NHBC Standards 2020*, Chapter 6.1. The installation must incorporate appropriate weep-holes and stop-ends to the lintels, in order to direct moisture out of the cavity.



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



4.6 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.

### 5 Practicability of installation

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

### 6 Structural performance

6.1 The lintels<sup>(1)</sup> 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 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 (uniformly distributed loads) specified in Table 2.

(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 19:1.

6.3 The load-span data shown in Tables 2 and 3 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 : 2019, and the relevant technical specifications of the national Building Regulations.

6.6 The shear forces on the lintels must not exceed the shear forces which would be derived using the safe working loads (which are assumed to be uniformly distributed loads) in Tables 2 and 3.

6.7 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 Tables 2 and 3 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 products contains EPS, which is not classified as 'non-combustible' or 'of limited combustibility'.



7.3 The EPS included in the lintels is considered to be a thermal break in accordance with Regulation 7(3). Thus, the lintels are not subject to any restriction on height or proximity to boundaries for buildings covered by Regulation 7(2).



7.4 When the lintels are used in a conventional brick/block construction with protection provided by gypsum plaster as shown in Figure 2, the lintel construction can have a fire resistance of 'one hour' in relation to the national Building Regulations (England, Wales and Northern Ireland) and of 'medium' duration (Scotland)<sup>(1)</sup>. Construction should be in accordance with the requirements of BS EN 1996-1-2 : 2005.

(1) Designers should refer to the TRADA fire Test Report No. FR254 (available from the Certificate holder).



7.5 For any other construction containing the lintels, the fire resistance of the wall incorporating the lintels must satisfy the national Regulations and should be evaluated by reference to the requirements of the documents supporting the national Building Regulations. An appropriate assessment or test must be carried out by a United Kingdom Accreditation Service (UKAS) accredited laboratory (accredited for the test concerned).

## 8 Thermal performance



8.1 Typical junctions incorporating the products, based on the construction details shown in Figures 2 to 4, were analysed numerically to determine their likely thermal performance.

8.2 The lintels can adequately limit excessive heat loss and allow use of the  $\Psi$  (psi) values shown in Table 4 in carbon emission rate calculations. Detailed guidance on this and on limiting heat loss by air infiltration can be found in the documents referred to in section 9.2.

Table 4 Linear thermal transmittance  $\Psi$  values ( $W \cdot m^{-1} \cdot K^{-1}$ )

Lintel product <sup>(1)</sup>	Example psi-value <sup>(1)</sup>	Approved psi-value <sup>(2)</sup> ( $W \cdot m^{-1} \cdot K^{-1}$ )	Default psi-value <sup>(3)</sup>
CX	0.61	0.50	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 ( $\lambda = 0.023 W \cdot m^{-1} \cdot K^{-1}$ ), 100 mm concrete blockwork ( $\lambda = 0.11 W \cdot m^{-1} \cdot K^{-1}$ ), 15 mm plaster ( $\lambda = 0.57 W \cdot m^{-1} \cdot K^{-1}$ ).

(2) Approved value may be used 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 ISO 10211 : 2017 and BRE Report BR 497 : 2016 and the construction deviates from that described in Table 4, the default value should be used.

8.3 For junction details/constructions not described in Table 4, 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 : 2016. The Certificate holder can provide a detailed  $\Psi$  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.



9.2 Constructions described in section 8.2 can achieve a surface temperature factor ( $f_{Rsi}$ ) in excess of 0.75 with a plaster finish and 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 Under normal domestic conditions, the level of interstitial condensation associated with the products will be low and the risk of any resultant damage minimal.

9.4 Further guidance on limiting the risk of surface condensation can be found in the documents supporting the national Building Regulations.

## 10 Corrosion protection

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

- the polyester coating protection remains undamaged or minor blemishes are repaired
- the 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:

- lintels comprising zinc-coated steel profiles are limited for use in buildings up to three storeys in height located in areas with non-aggressive environments only, in accordance with PD 6697 : 2019, Table 2, Note 3
- lintels comprising stainless steel profiles grade 304 are limited for use in buildings located in areas with non-aggressive environments only, in accordance with PD 6697 : 2019, Table 2, Note 4
- lintels comprising stainless steel profiles grade 316 are not limited for use in any areas, in accordance with PD 6697 : 2019, Table 2, Note 4
- 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 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 important that a separate dpc and stop-ends are installed.

## 13 Reuse and recyclability

The steel component can be recycled.

### 14 General

14.1 Typical installation details are shown in Figures 3 and 4.

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

14.3 The products must be installed with a minimum 150 mm end bearing, and must be fully bedded on bricklaying mortar.

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

14.5 Weep holes should 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.

14.6 Stop-ends (outside the scope of this Certificate) should be provided on cavity trays and lintels.

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

14.8 Precautions must be taken to prevent mortar dropping through the cavity onto the lintel and obstructing the weep holes.

Figure 3 Typical installation details

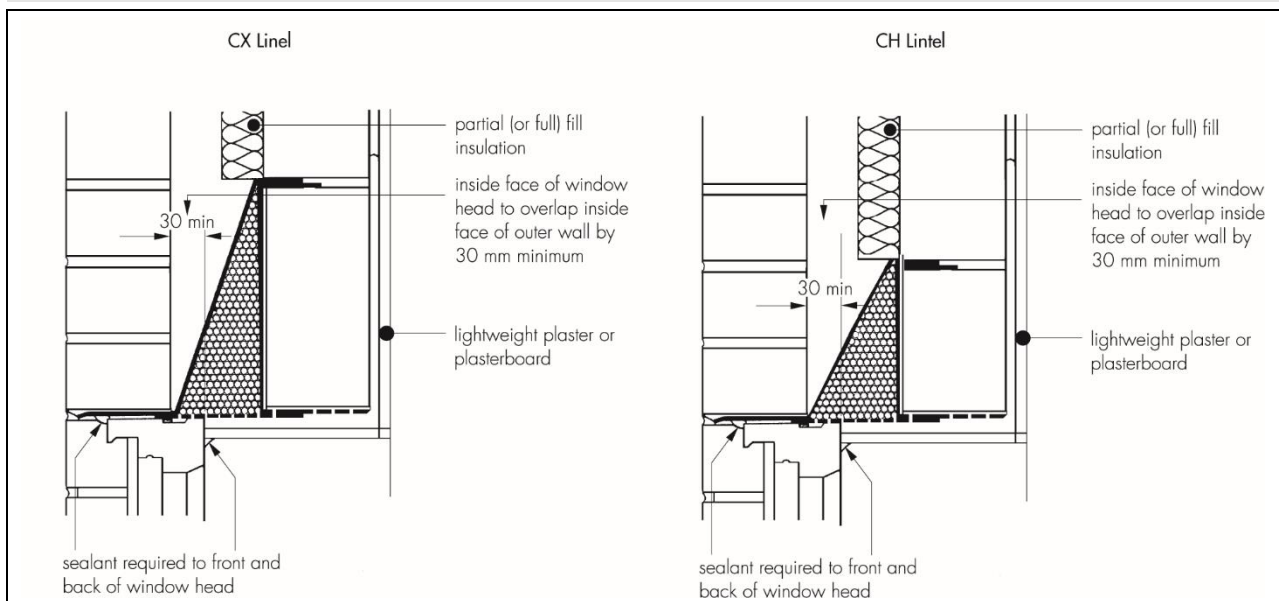
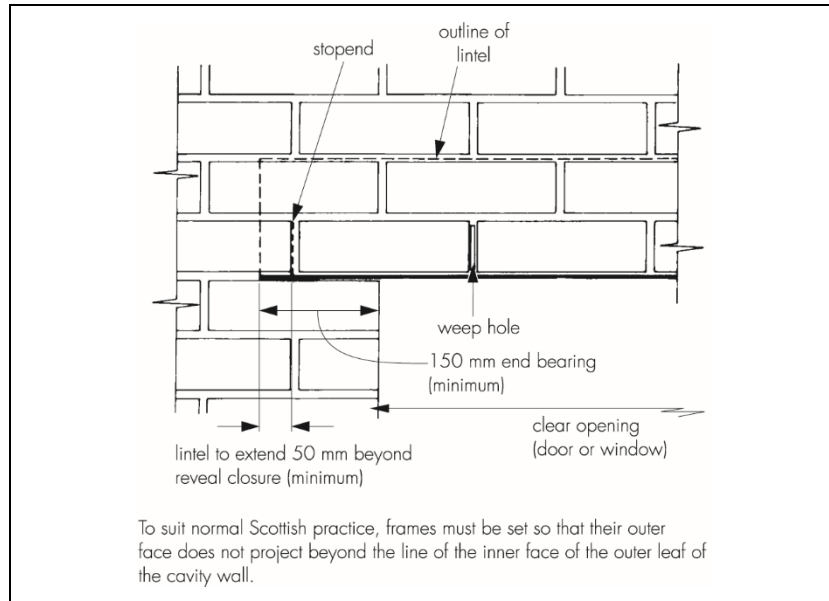


Figure 4 Detail showing minimum end bearing, stop-ends and weep holes



## Technical Investigations

### 15 Tests

Tests were carried out on the Catnic CH and CX Range of Cavity Wall Lintels and the results assessed to determine:

- the flexural and shear strength of the lintel in accordance with BS EN 846-9 : 2016
- load-deflection characteristics to BS EN 845-2 : 2013
- thickness and quality of galvanized and polyester resin coatings
- resistance to damage of the polyester resin coatings
- the quality of the spot welding and its effect on the galvanizing.

### 16 Investigations

16.1 The following investigations were carried out on the products:

- 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
- Risk of condensation and thermal transmittance/heat loss through junctions
- Behaviour in fire and practicability of installation
- Suitability of the corrosion resistance of the stainless steel.

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

## Bibliography

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

BR 497 : 2016 *Conventions for Calculating Linear Thermal Transmittance and Temperature Factors*

BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry 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 light-weight 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 + A1 : 2016 *Specification for ancillary components for masonry — Lintels*

BS EN 846-9 : 2016 *Methods of test for ancillary components for masonry — Part 9: 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 + A1 : 2012 *Eurocode 6 — Design on masonry structures — General rules for reinforced and unreinforced masonry*  
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 on 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 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*  
NA + A1 : 2014 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 10346 : 2015 *Continuously hot-dip coated steel flat products for cold forming – Technical delivery conditions*

BS EN 13279-1 : 2008 *Gypsum binders and gypsum plasters — Definition and requirements*

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

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

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

### 17 Conditions

#### 17.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim 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.

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

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

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

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

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

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

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