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t/a IG Masonry Support part of the Keystone Group

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Agrément Certificate

15/5250

Product Sheet 7 Issue 1

IG MASONRY SUPPORT SYSTEMS

IG WELDED MASONRY SUPPORT SYSTEMS

This Agrément Certificate Product Sheet⁽¹⁾ relates to IG Welded Masonry Support Systems, comprising stainless steel welded brackets and angles, and, folded angles for use as structural masonry support units in external and internal masonry walls.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

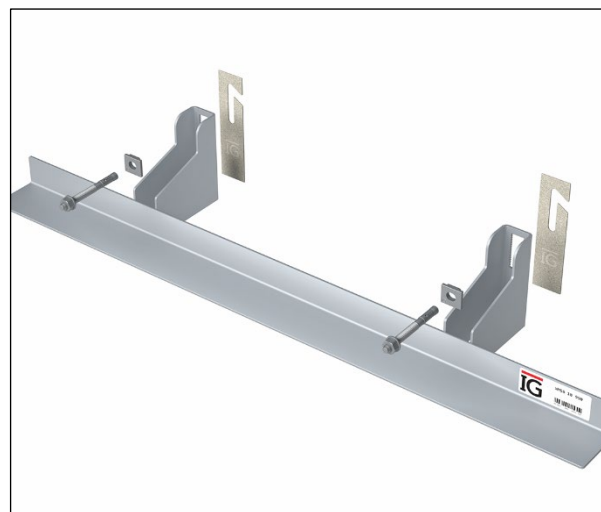
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

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 systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of issue: 27 October 2025

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 IG Welded Masonry Support Systems, 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 systems can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	B3(2)	Internal fire spread (structure)
Comment:		The systems can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The systems are unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The systems can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The systems can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The systems are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The systems 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 systems 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 systems are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	8(3)	Fitness and durability of materials and workmanship
Comment:		The systems are unrestricted by this Regulation. See section 2 of this Certificate.

Regulation:	9	Building standards - construction
Standard:	1.1(a)(b)	Structure
Comment:		The systems can contribute to satisfying this Standard, with reference to clauses 1.1.1 ⁽¹⁾⁽²⁾ , 1.1.2 ⁽¹⁾⁽²⁾ and 1.1.3 ⁽¹⁾⁽²⁾ . See section 1 of this Certificate.
Standard:	2.3	Structural protection
Comment:		The systems are unrestricted by this Standard, with reference to clause 2.3.2 ⁽¹⁾⁽²⁾ . See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The systems are unrestricted by this Standard with respect to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 2 of this Certificate.
Standard:	2.7	Spread on external walls
Comment:		The systems are unrestricted by this Standard with respect to clause 2.7.1 ⁽¹⁾⁽²⁾ . See section 2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The systems 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:	6.1(b)(c)	Energy demand
Standard:	6.2	Building insulation envelope
Comment:		The systems 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:	7.1(a)(b)	Statement of sustainability
Comment:		The systems can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.
Regulation:	12	Building standards - conversion
Comment:		All comments given for the systems under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



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

Regulation:	23(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The systems are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	23(2)	Fitness of materials and workmanship
Comment:		The systems are unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	30	Stability
Comment:		The systems can contribute to satisfying this Regulation. See section 1 of this Certificate.
Regulation:	35(1)	Internal fire spread - Structure
Comment:		The systems can be incorporated in a construction satisfying this Regulation. See section 2 of this Certificate.
Regulation:	35(4)	Internal fire spread - Structure
Comment:		The systems can contribute to satisfying this Regulation. See section 2 of this Certificate.

Regulation:	36(a)	External fire spread
Comment:		The systems are unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide emissions rate
Regulation:	43B	Nearly zero-energy requirements for new buildings
Comment:		The systems can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, IG Welded Masonry Support Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Part 6 *Superstructure (excluding roofs)*, Chapters 6.1 *External Masonry Walls* and 6.9 *Curtain walling and cladding*.

The opinion of the BBA does not amount to any endorsement or approval by NHBC and does not in any way guarantee that NHBC will approve such product / system as compliant with the NHBC Technical Requirements and Standards.

Fulfilment of Requirements

The BBA has judged IG Welded Masonry Support Systems to be satisfactory for use as described in this Certificate. The systems have been assessed for use as structural masonry support units for use in external and internal masonry wall constructions.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the systems under assessment. IG Welded Masonry Support Systems consist of:

- a prefabricated masonry support system — comprising stainless steel welded brackets and angles, and, folded angles manufactured using austenitic stainless steel to BS EN 10088-2 : 2024, Grades 1.4301/1.4307 or Grades 1.4301/1.4307 HR (previously known as 304 2B) or Grades 1.4401/1.4404 (previously Grade 316) based on the design specifications for non-aggressive or aggressive environments, respectively. Grades 1.4301 (304) and 1.4404 (316) are equivalent to R3 and R1 classifications respectively to PD 6697 : 2019
- stainless steel serrated lock washers — manufactured using austenitic stainless steel to BS EN 10088-2 : 2024, Grades 1.4301/1.4307 or Grades 1.4301/1.4307 HR (304 2B) or Grades 1.4401/1.4404 (316)
- IG Thermal Shim — a 2 mm thick shim manufactured from mica material
- IG Stainless Steel Packing Shims — manufactured using austenitic stainless steel to BS EN 10088-2 : 2024, Grades 1.4301/1.4307 or Grades 1.4301/1.4307 HR (304 2B) or Grades 1.4401/1.4404 (316).

The systems are available in eight standard configurations (see Figures 1 to 8 and Table 1):

- WMS Standard — for applications where the support level aligns with, or is above, the base of the structural frame (see Figure 1)
- WMS Dropper — suitable for applications where the support level is below the line of the base of the structural frame (see Figure 2)
- WMS Cavity Closer — suitable for applications where a cover is required to the underside of the angle support shelf to conceal the cavity in the building (see Figure 3)
- WMS Inverted — suitable for applications where the support level is in line with, or above, the top of the structural frame (see Figure 4)
- WMS Plaster Key — suitable for applications where a render finish is required to the underside of the angle support shelf (see Figure 5)

- WMS Notched — suitable for applications where brackets require a notch to avoid a clash with another element within the building (see Figure 6)
- WMS Folded Angle — for applications without a cavity or a cavity width less than 49 mm (see Figure 7)
- WMS Inverted Folded Angle — for applications without a cavity or a cavity width less than 49 mm (see Figure 8).

Figure 1 WMS Standard

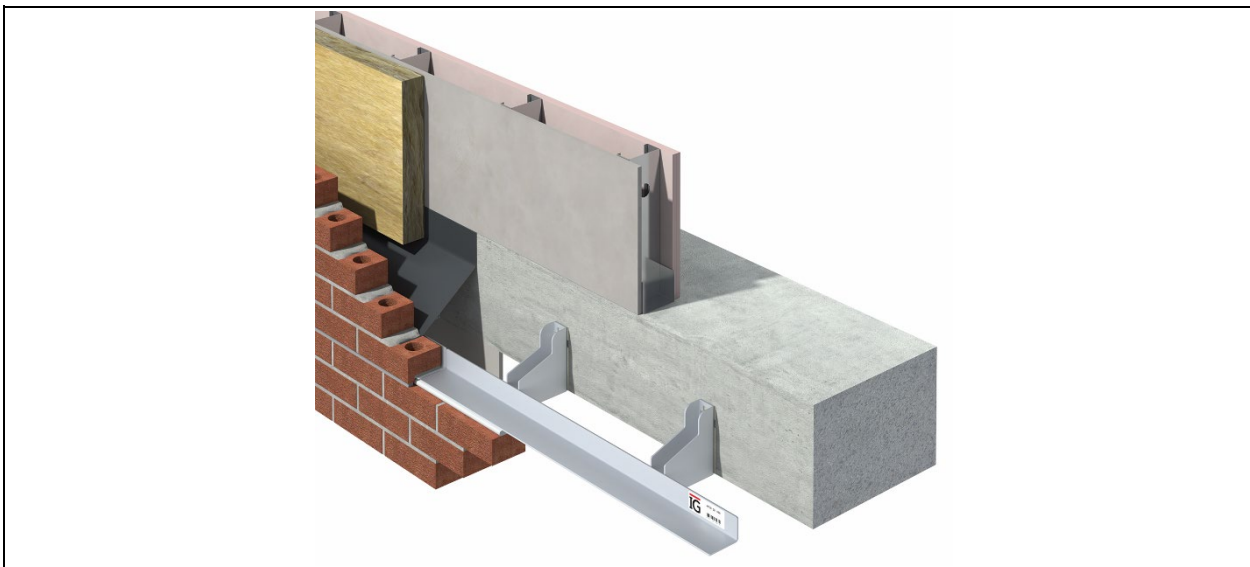


Figure 2 WMS Dropper

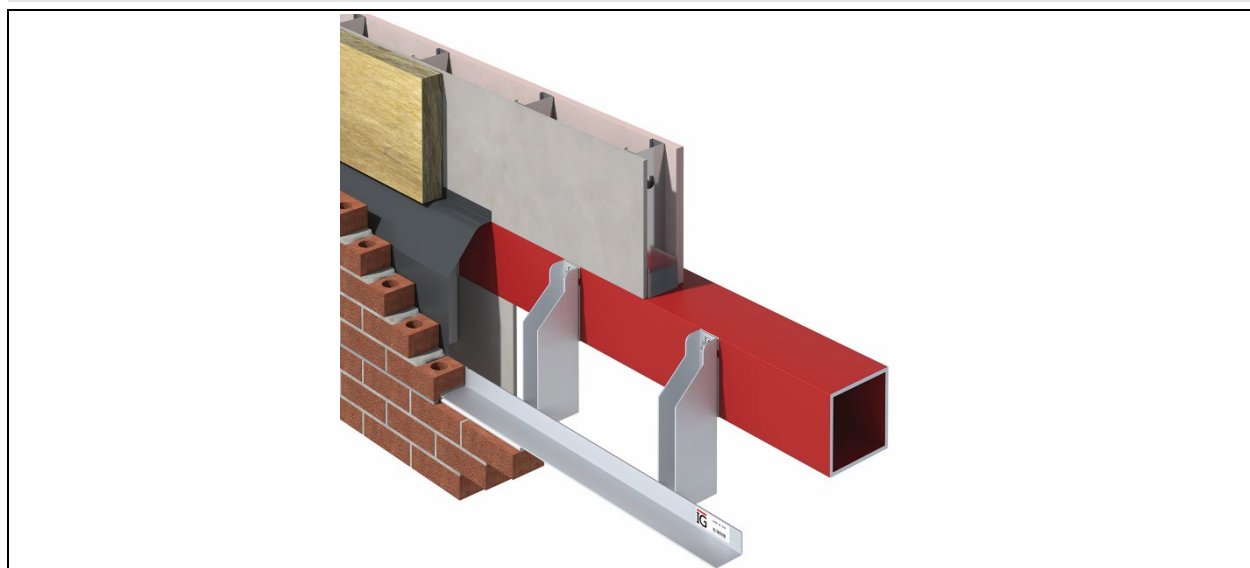


Figure 3 WMS Cavity Closer

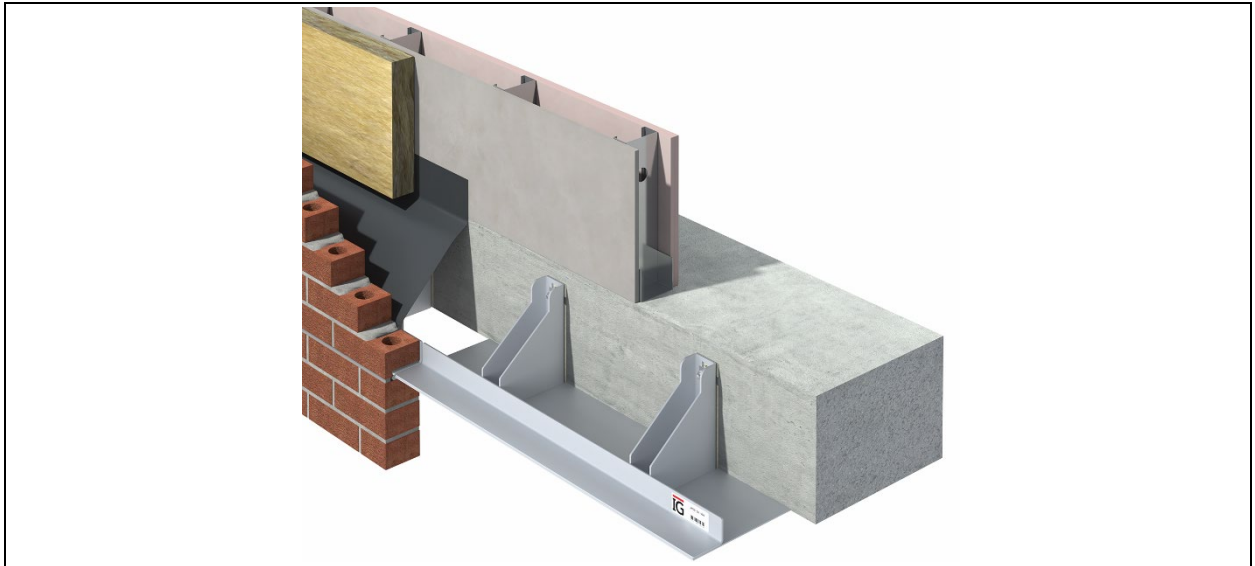


Figure 4 WMS Inverted

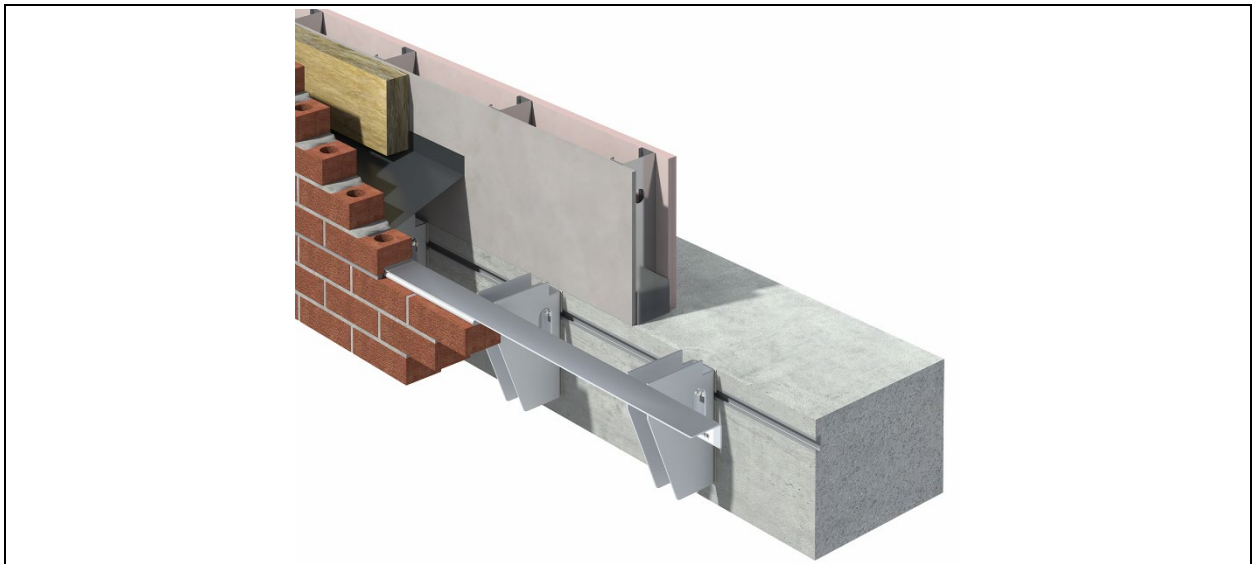


Figure 5 WMS Plaster Key

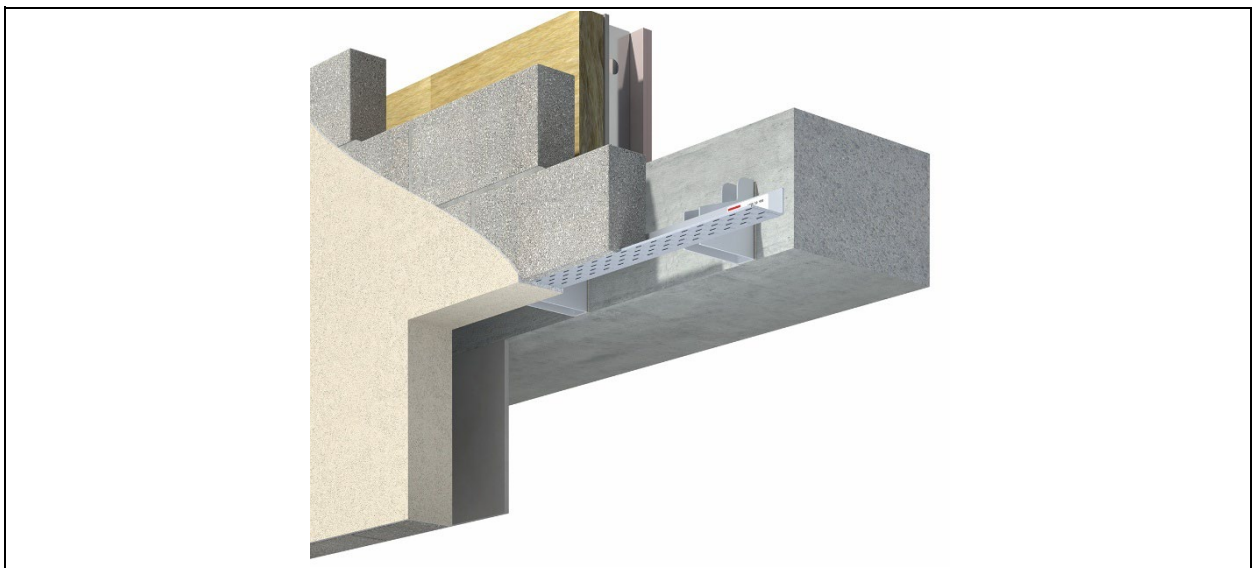


Figure 6 WMS Notched

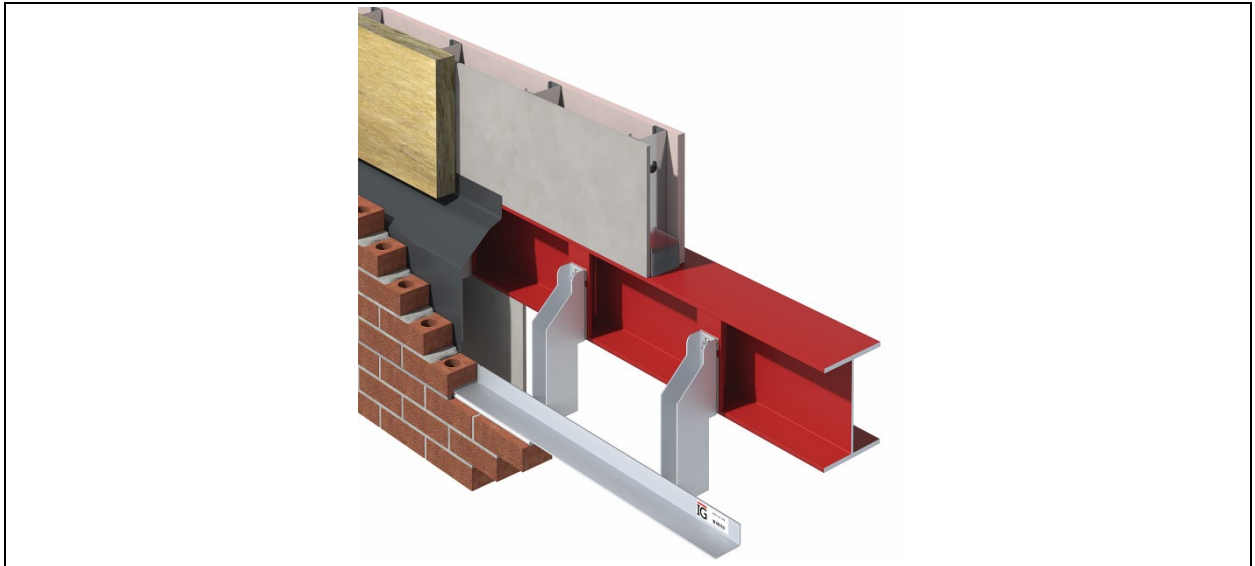


Figure 7 WMS Folded Angle

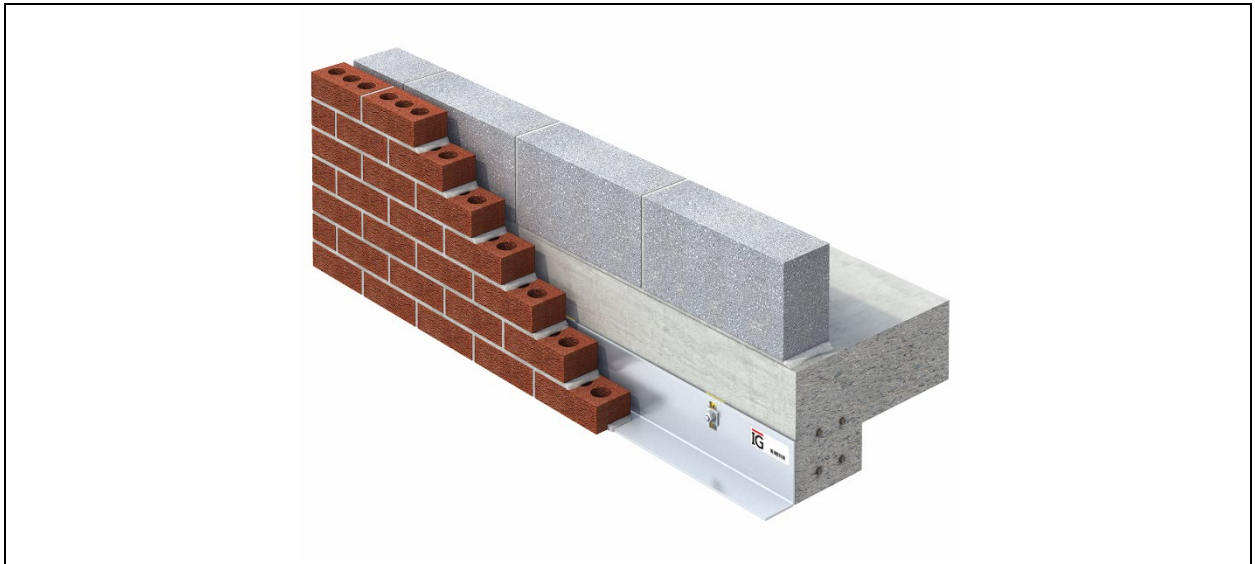


Figure 8 WMS Inverted Folded Angle

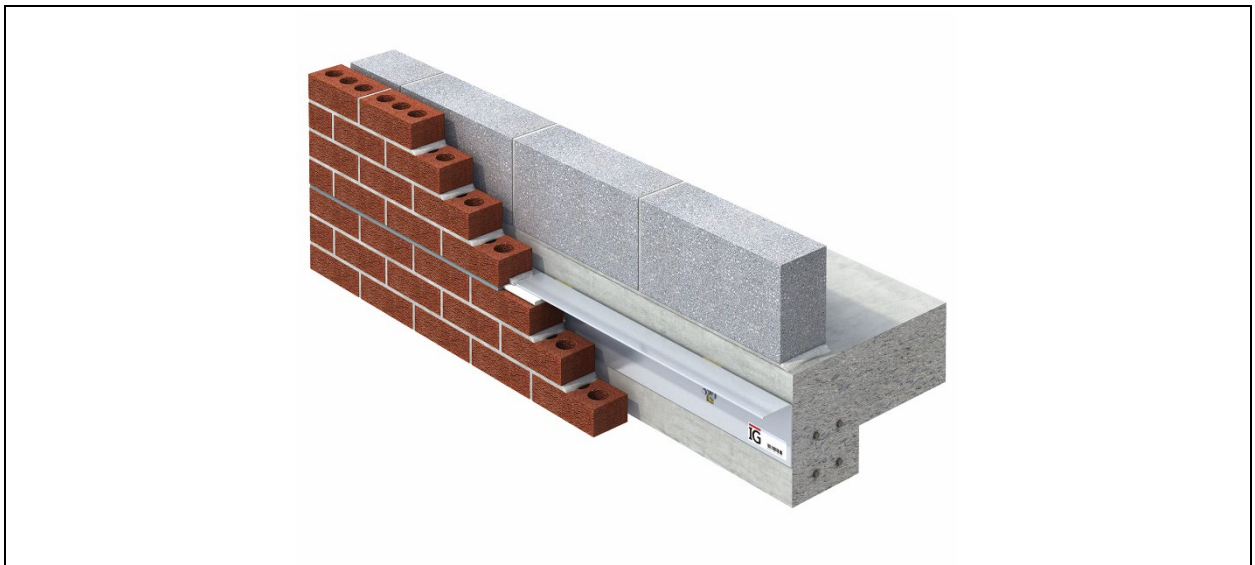


Table 1 Range of characteristics of IG Welded Masonry Support Systems (WMS)

Characteristic (unit)	Value
Angle thickness (mm)	4, 5, 6, 8, 10 and 12
Maximum angle height (mm)	280
Bracket thicknesses (mm)	3, 4 and 5
Bracket width (mm)	45 - 75
Maximum bracket drop (mm)	1200
Number of brackets per shelf	2 - 6
Minimum bracket centres (mm)	112
Cavity width (mm)	0 - 287
Maximum shelf length (mm)	2025

Ancillary Items

The Certificate holder recommends the following ancillary items for use with the systems, 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 : 2011, Parts 1 to 6
- bricklaying mortar to BS EN 998-2 : 2016
- cavity trays
- weepholes
- external render
- wall insulation
- damp proof course (DPC)
- stop ends
- wall ties.

Applications

The systems are intended for use the following situations:

- supported by concrete floor slabs or walls, with cast-in-place anchor channels (stainless steel to BS EN 10088-2 : 2024, Grade 304 2B (Grade 1.4301/1.4307 or Grade 1.4301/1.4307 HR) or Grade 316 (Grade 1.4401/1.4404)
- supported by concrete structure, with expansion bolts, T-Head bolts or resin anchors
- supported by steel beams or columns, with set screws or blind bolts
- supported by Cross Laminated Timber (CLT), with Coach Bolts.

Product assessment – key factors

The systems 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 Each system installation is individually designed to accommodate the applied axial, bending and shear stresses induced by the supported masonry. Masonry Support Systems Ltd use proprietary software (IG Solver) to achieve the design aims. The design is undertaken in accordance with BS EN 1993-1-1 : 2005 and its UK National Annex, BS EN 1996-1-1 : 2022 and the relevant EADs for the fixings concerned. The design process is informed by and calibrated to test results on a range of sample units in accordance with BS EN 846-10 : 2000. The results of calibration tests are given in Table 2 of this Certificate.

Table 2 Deflection at design load

System assessed	Assessment method	Requirement	Result
WMS Standard	BS EN 846-10 : 2000	Deflection at 8 kN design load	Pass
WMS Dropper		< 3 mm;	
WMS Inverted		Deflection at ultimate load < 10 mm	
WMS Notched			
WMS Folded Angle			
WMS Inverted Folded Angle			

1.1.2 The design process has been assessed and the values obtained from testing in Table 2 have been compared to design output to confirm the alignment of the design process with tested products. The correlation between design values and the outcome of testing is within 0.75 mm of predicted deflection. The design process allows for interpolation of test results only. Each instance of design is a combination of bracket size and thickness, shelf size and thickness, fixing centres and specifications and weld configurations, which are a function of the building layout, cavity size and applied structural actions.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 Stainless steel profiles have a reaction to fire classification of A1 to BS EN 13501-1 : 2018.

2.1.2 The overall reaction to fire classification of a cladding system will depend on the performance of the individual component materials. The classification and permissible areas of use of specific constructions including the systems must be established in accordance with the documents supporting the national Building Regulations on a case-by-case basis.

2.2 Resistance to fire

2.2.1 Where fire resistance is required by the documents supporting the national Building Regulations, the performance of constructions should be confirmed by a suitably experienced and competent individual or by a test from a suitably accredited laboratory.

2.2.2 Designers must refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for fire resistance, cavity closers and barriers, fire stopping of service penetrations, and combustibility limitations for other materials and components used in the overall wall construction.

3 Hygiene, health and the environment

3.1 Condensation

3.1.1 The minimum surface temperature factor (f_{Rsi}) was assessed for an example junction and the result is given in Table 3.

Table 3 Minimum surface temperature factor, f_{Rsi} – an example junction incorporating a WMS Standard

Product assessed	Assessment method	Requirement	Result
		f_{CRsi}	f_{Rsi}
WMS Standard ⁽¹⁾⁽²⁾ — 4 mm thick stainless steel brackets, 170 mm high by 50 mm wide, to suit 140 mm cavity width. L-rail formed from 5 mm thick stainless steel, 55 mm high by 82 mm wide	BS EN ISO 10211 : 2017, BRE Report BR 497 : 2016 and BRE Information Paper IP 1/06	$\geq 0.80^{(3)}$	> 0.90

(1) Brackets at 500 mm centres with 2 mm IG thermal shims (where this is omitted, results will differ), fixed back to a reinforced concrete intermediate floor slab with single 12 mm diameter x 160 mm long stainless-steel bolts ($\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) Example wall construction; 100 mm blockwork ($\lambda = 0.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) with 15 mm dense plaster ($\lambda = 0.57 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) above and below a 200 mm dense reinforced concrete intermediate floor slab ($\lambda = 2.3 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) with a 65 mm floor screed ($\lambda = 1.15 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), partial fill cavity wall insulation (also fitted between brackets) comprising 90 mm PIR ($\lambda_D = 0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, $\epsilon = 0.05$), a 50 mm vented cavity ($R = 0.67 \text{ m}^2\cdot\text{K}\cdot\text{W}^{-1}$) and 102.5 mm brickwork ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(3) For mould growth resistance the minimum surface temperature factor is 0.75.

3.1.2 On the basis of data assessed, example junctions incorporating the systems can contribute to limiting the risk of surface condensation and to satisfying the requirements of use under the documents supporting the national Building Regulations.

3.1.3 The minimum surface temperature factor, is a relative value and completely dependent on the design of the thermal bridge (see Figures 1 to 8), and not on the applied internal and external temperatures.

3.1.4 The risk and permissible areas of use of other systems and junctions must be established by numerical modelling in accordance with BS EN ISO 10211 : 2017, BRE Report BR 497 : 2016 and BRE Information Paper IP 1/06 and confirmed by reference to the requirements of the documents supporting the national Building Regulations.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

6.1 Thermal conductivity

6.1.1 The thermal conductivity of the systems' components was assessed, and the result is given in Table 4.

Table 4 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
Stainless steel	BS EN ISO 10456 : 2007	Reference value	$17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$

6.1.2 The Certificate holder has not declared a thermal conductivity for the IG Thermal Shim. A nominal design value of $0.5 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ has been adopted for this assessment.

6.2 Thermal performance

6.2.1 A linear thermal transmittance (Ψ value) was assessed for an example junction and the result is given in Table 5.

Table 5 Linear thermal transmittance, ψ -value – an example junction incorporating a WMS Standard masonry support system

Product assessed	Assessment method	Requirement	Result
WMS Standard ⁽¹⁾⁽²⁾ — 4 mm thick stainless steel brackets, 170 mm high by 50 mm wide, to suit 140 mm cavity width. L-rail formed from 5 mm thick stainless steel, 55 mm high by 82 mm wide	BS EN ISO 10211 : 2017 and BRE Report BR 497 : 2016	Value achieved	0.193 W·m ⁻¹ ·K ⁻¹

(1) Brackets at 500 mm centres with 2 mm IG Thermal shims (where this is omitted, results will differ), fixed back to a reinforced intermediate concrete floor slab with single Ø 12 x 160 mm long stainless-steel bolts ($\lambda = 17 \text{ W·m}^{-1}\cdot\text{K}^{-1}$).

(2) Example wall construction; 100 mm blockwork ($\lambda = 0.15 \text{ W·m}^{-1}\cdot\text{K}^{-1}$) with 15 mm dense plaster ($\lambda = 0.57 \text{ W·m}^{-1}\cdot\text{K}^{-1}$) above and below a 200 mm dense reinforced concrete intermediate floor slab ($\lambda = 2.3 \text{ W·m}^{-1}\cdot\text{K}^{-1}$) with a 65 mm floor screed ($\lambda = 1.15 \text{ W·m}^{-1}\cdot\text{K}^{-1}$), partial fill cavity wall insulation (also fitted between brackets) comprising 90 mm PIR ($\lambda_D = 0.022 \text{ W·m}^{-1}\cdot\text{K}^{-1}$, $\varepsilon = 0.05$), a 50 mm vented cavity ($R = 0.67 \text{ m}^2\cdot\text{K}\cdot\text{W}^{-1}$) and 102.5 mm brickwork ($\lambda = 0.77 \text{ W·m}^{-1}\cdot\text{K}^{-1}$).

6.2.2 On the basis of the data assessed, junctions incorporating the systems in Table 5 can contribute to limiting excessive heat loss.

6.2.3 The performance of other systems and junctions must be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

7 Sustainable use of natural resources

The stainless-steel components can be recycled

8 Durability

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

8.2 Service life

Under normal service conditions, the systems will have a life in excess of 60 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

PROCESS ASSESSMENT

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 An assessment of the structural performance for the specific building must be carried out to confirm that the proposed system designed by the Certificate holder provides adequate resistance to design actions. Due consideration must be given to the effects of load funnelling around openings, eccentricity of masonry and the specific requirements of brittle finishes.

9.1.3 Design actions must be calculated in accordance with BS EN 1991-1-1 : 2005 and BS EN 1991-1-4: 2005, and their UK National Annex.

9.1.4 In addition to the requirements specifically referred to in this Certificate, structures of brickwork or blockwork in which the systems are incorporated must be designed and constructed in accordance with BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their UK National Annexes. Reference must also be made to PD 6697: 2019 and the technical specifications of the Approved Documents to the national Building Regulations, as appropriate.

9.1.5 The resistance of the supporting structure must be assessed in accordance with BS EN 1992-1-1 : 2004 for concrete structures, or BS EN 1993-1-1 : 2005 for steel structures. Due consideration must be given to local stresses induced by fixings.

9.1.6 As with any form of cavity wall construction, where buildings need to comply with *NHBC Standards 2025*, specifiers must observe the requirements of these Standards and include cavity trays and weepholes.

9.1.7 The linear thermal transmittance and temperature factor for systems and junctions, other than those in Tables 3 and 5 of this Certificate, must be calculated in accordance with BS EN ISO 10211 : 2017, following the guidance in BRE Report BR 497 : 2016 and BRE Information Paper IP 1/06, and confirmed by reference to the requirements of the documents supporting the national Building Regulations.

9.1.8 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

Interstitial condensation

9.1.9 The condensation risk associated with a particular construction must be assessed in accordance with BS 5250 : 2021.

Surface condensation

9.1.10 In England and Wales, wall constructions will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 \text{ W} \cdot \text{m}^{-2} \cdot \text{K}^{-1}$ at any point and the junctions with other elements are designed in accordance with section 9.1.8 of this Certificate.

9.1.11 In Scotland, wall constructions will be acceptable when thermal transmittance (U value) does not exceed $1.2 \text{ W} \cdot \text{m}^{-2} \cdot \text{K}^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 9.1.8 of this Certificate.

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.

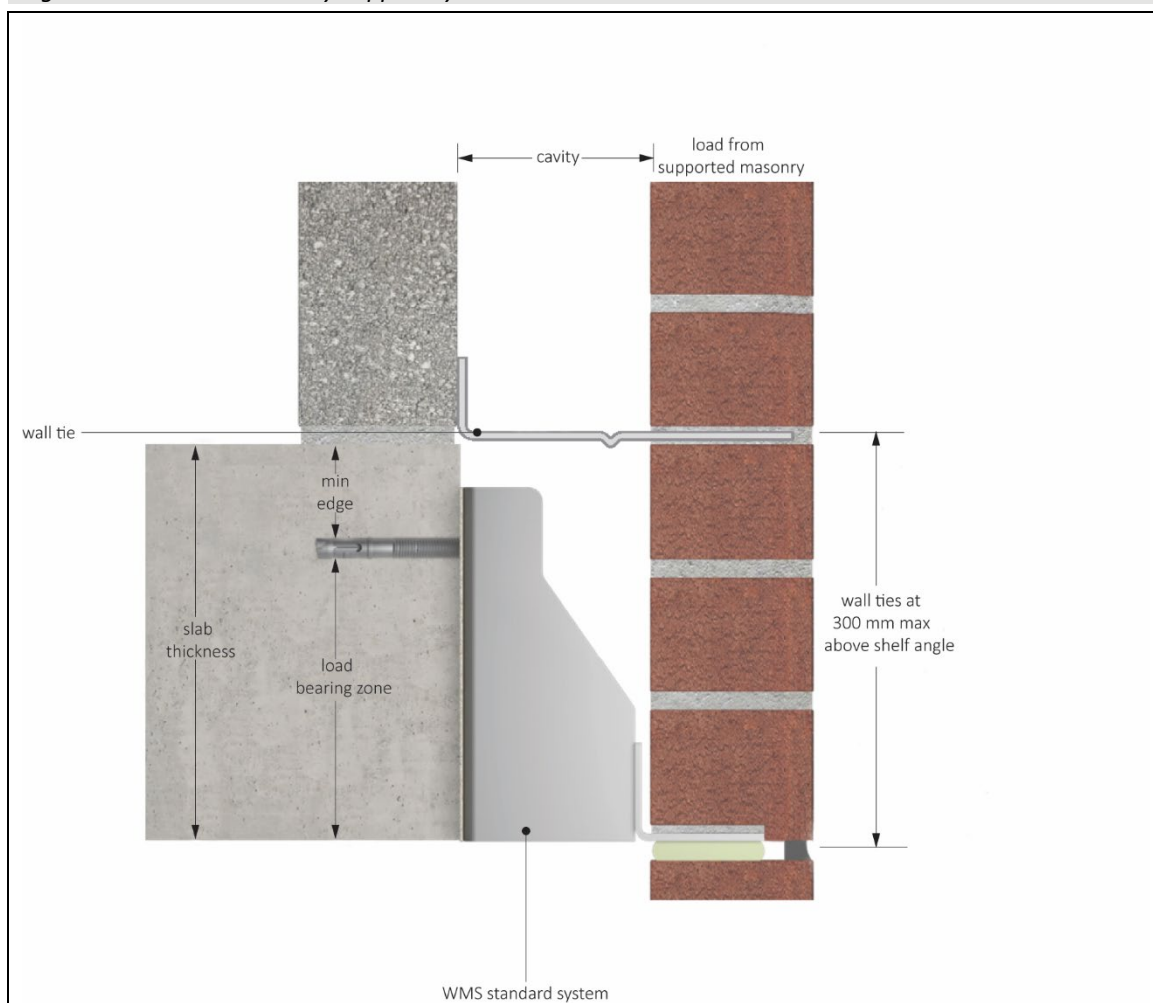
9.2.3 The systems must be installed as per the installation instructions and manufacturer's drawings in the manufacturer's detailed guidelines. The specification of the bolt will be determined by the Certificate holder. The systems can also be fixed into a cast in channel in a concrete slab.

9.2.4 Particular attention must be paid to the load bearing zone for each bracket (see Figure 5). The load bearing zone is the area of the bracket that is in contact with the support structure and will be marked on the manufacturer's drawings. Adhering to these dimensions on site is critical to the performance of the systems.

9.2.5 The maximum shimming of the systems must not exceed three shims or 12 mm or the outside diameter of the bolt, whichever is less. For the installation of the systems, only IG Thermal Shims or IG Stainless Steel Packing Shims can be used.

9.2.6 The serrated lock washer, and fixing must be installed to fix the systems in place. Vertical adjustment of +/-15 mm is catered for by the serrated areas at the back of the bracket. The bolt must not be fully fastened until the system is level and in the correct location. The Certificate holder's instructions must be followed for the correct torque setting for the bolt, and a calibrated torque wrench must be used.

Figure 9 IG Welded Masonry Support Systems



9.2.7 Surrounding brickwork is completed with the inclusion of weepholes, wall ties and a DPC.

9.2.8 Once the systems are installed, brickwork is continued above the system. Ideally a pistol or lipped brick should be installed above the system to ensure mortar joints are maintained at the same width. Brickwork overhang must not exceed 1/3 of the brick width. The joint between the system and the brickwork below should be sealed with colour-matched mastic sealant. A minimum masonry bearing of 2/3 on the shelf must be maintained unless otherwise stated by the manufacturer.

9.2.9 The installation of wall ties is crucial to the performance of the systems and must be in accordance with BS EN 1996-1-1 : 2005 and PD 6697 : 2019.

9.2.10 Wall ties must be positioned at a maximum horizontal spacing of 450 mm and must be placed within 300 mm above the shelf angle.

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 systems must be carried out by a competent general builder, or a contractor, experienced with these types of systems.

9.4 Maintenance and repair

As the systems are confined within the structure and have suitable durability, maintenance is not required.

10 Manufacture

10.1 The production processes for the systems 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 systems' components are delivered to site in specified sizes, each carrying a label bearing the Certificate holder's name. The BBA logo incorporating the number of this Certificate is marked on each system.

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 system. A system that has suffered deformation or damage must not be used. Any damages to the systems must be assessed by the Certificate holder.

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

11.2.3 Suitable personal protective equipment must be worn at all times during handling and installation.

† ANNEX A – SUPPLEMENTARY INFORMATION

Supporting information in this Annex is relevant to the systems 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.

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 by the British Board of Agrément (Certificate 23/Q6326).

Bibliography

BRE Report BR 262 : 2002 *Thermal insulation : avoiding risks*

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

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

BS 5250 : 2021 *Management of moisture in buildings — Code of practice*

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 846-10 : 2000 *Methods of test for ancillary components for masonry — Determination of load capacity and load deflection characteristics of brackets*

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

BS EN 1991-1-1 : 2002 *Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

NA to BS EN 1991-1-1 : 2002 UK National Annex to *Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 — Actions on structures — General actions — Wind actions*

BS EN 1993-1-1 : 2005 + A1 : 2014 *Eurocode 3 — Design of steel structures — General rules and rules for buildings*

NA to BS EN 1993-1-1 : 2005 + A1 : 2014 UK National Annex to *Eurocode 3 — Design of steel structures — General rules and rules for buildings*

BS EN 1996-1-1 : 2022 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2022 UK National Annex to *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*

NA to BS EN 1996-1-2 : 2005 UK National Annex to *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*

BS EN 1996-2 : 2005 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*

NA to BS EN 1996-2 : 2005 UK National Annex to *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*

BS EN 1996-3 : 2005 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

NA to BS EN 1996-3 : 2005 UK National Annex to *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*

BS EN 10088-2 : 2024 *Stainless steels — Technical delivery conditions for sheet/plate and strip corrosion resisting steels for general purposes*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

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

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

BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*

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

Conditions

1 This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales.
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

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.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

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

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

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

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

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product 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.