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Agrément Certificate

23/7059

Product Sheet 1 Issue 1

UNILIN CAVITY WALL INSULATION

UNILIN CAVITYTHERM

This Agrément Certificate Product Sheet⁽¹⁾ relates to Unilin CavityTherm, a rigid polyisocyanurate (PIR) board with a composite foil-facing on both sides, bonded to profiled high-impact polystyrene (HIPS) on the exposed face, for use as full fill thermal insulation in new external masonry cavity walls up to 25 metres in height in domestic and non-domestic buildings; additional requirements apply for buildings above 12 metres in height and further restrictions may apply based on the reaction to fire performance.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

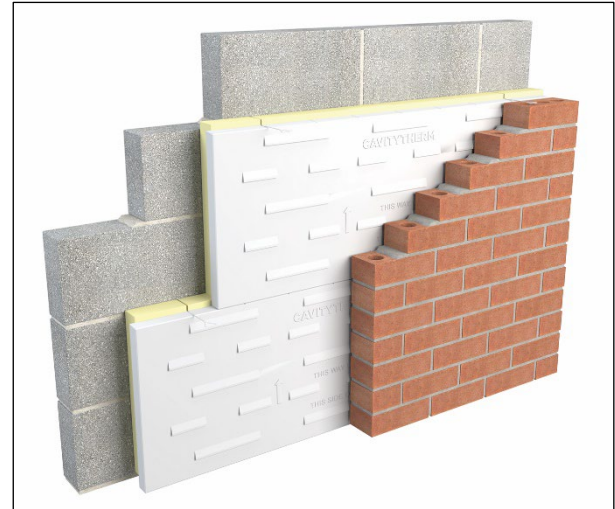
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

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 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 issue: 16 May 2024

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 Unilin CavityTherm, 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:	B3(4)	Internal fire spread (structure)
Comment:		The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement:	B4(1)	External fire spread
Comment:		The product is restricted by this Requirement in some cases. See section 2 of this Certificate.
Requirement:	C2(a)	Resistance to moisture
Comment:		The product can contribute to satisfying the Requirement. See section 3 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 9 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		This product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The product is restricted 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 product can contribute to satisfying these Regulations. See section 6 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 2.4.4 ⁽¹⁾ and 2.4.6 ⁽²⁾ . See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is restricted by this Standard in some cases, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 2 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ and 3.4.5 ⁽¹⁾⁽²⁾ . See section 3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.3 ⁽¹⁾⁽²⁾ . See section 3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product 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
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.1.1 ⁽¹⁾ and 6.1.2 ⁽²⁾ . See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.8 ⁽¹⁾ , 6.2.9 ⁽²⁾ and 6.2.12 ⁽¹⁾ . See section 6 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 the bronze level of sustainability as defined in this Standard. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ , 7.1.6 ⁽¹⁾⁽²⁾ , 7.1.7 ⁽¹⁾ , 7.1.9 ⁽²⁾ and 7.1.10 ⁽²⁾ . See section 6 of this Certificate.
Regulation:	12	Building standards – conversion
Comment:		All comments given for the 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(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)(ii)	The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	23(2)	Fitness of materials and workmanship
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	35(4)	Internal fire spread – structure
Comment:		The product can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The product is restricted by this Regulation in some cases. See section 2 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Comment:		The product can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	40(2)	Target carbon dioxide emission rate
Regulation:	43(b)	Nearly zero-energy requirements of new buildings
Comment:		The product can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, Unilin CavityTherm, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

Fulfilment of Requirements

The BBA has judged Unilin CavityTherm to be satisfactory for use as described in this Certificate. The product has been assessed as full-fill thermal insulation in new external masonry cavity walls up to 25 metres in height in domestic and non-domestic buildings; additional requirements apply for buildings above 12 metres in height and further restrictions may apply based on the reaction to fire performance.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. Unilin CavityTherm comprises rigid thermoset polyisocyanurate (PIR) foam boards with a composite foil-facing on both sides, bonded to profiled high impact polystyrene (HIPS) on the exposed face.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

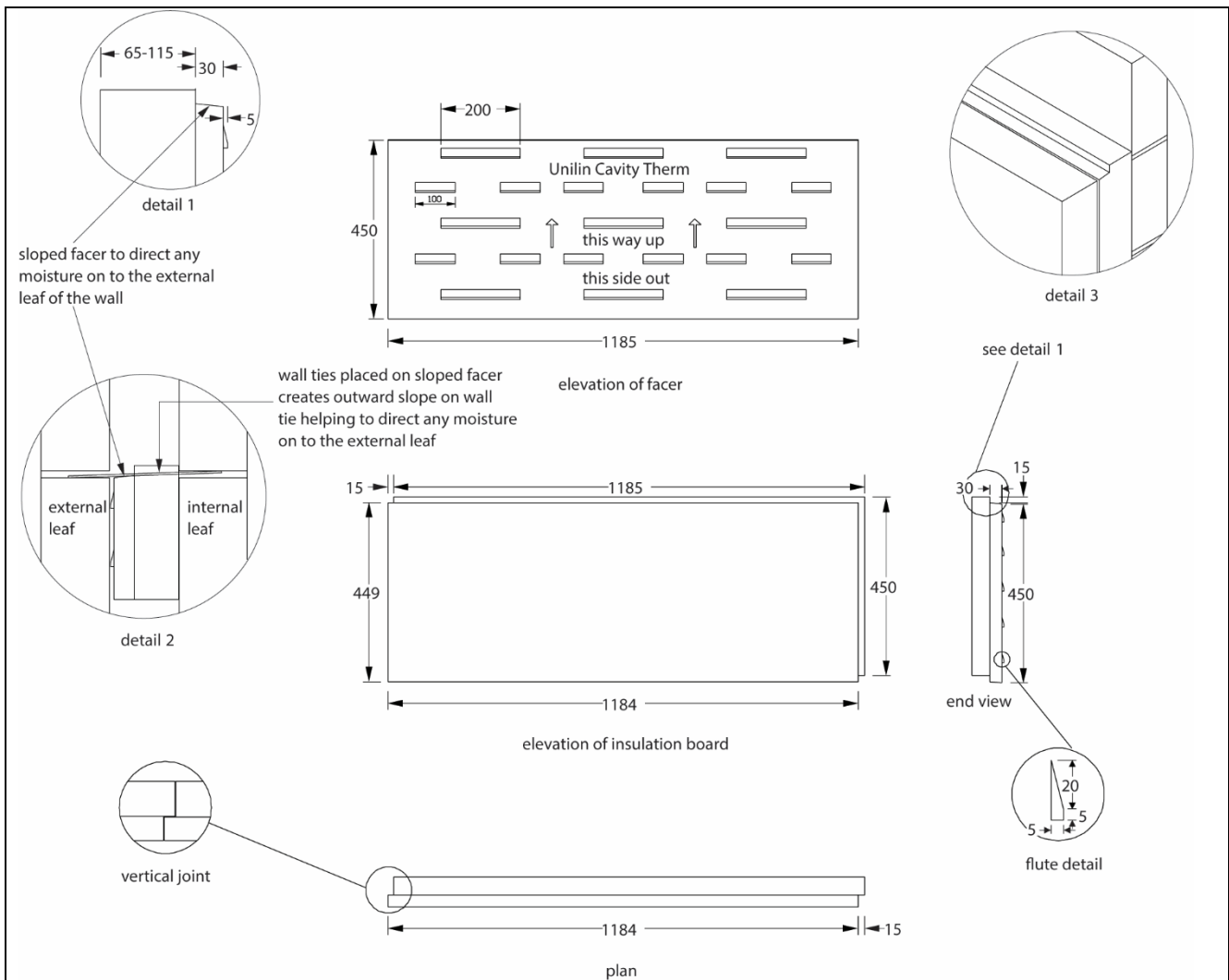
Characteristic (unit)	Value
Length (mm)	1200
Width (mm)	450
Thickness (mm) ⁽¹⁾	100, 110, 125 and 150
Edge profile	Rebated

(1) Projecting tapered HIPS flutes measuring 5 mm contribute to the overall board thickness (see Figure 1).

Each board incorporates a rebated edging on all four sides, enabling the boards to interlock when installed.

The external face of the board incorporates a vacuum-formed HIPS sheet with tapered flutes to provide a drainage plane and shed water away from the internal leaf, and to act as a guide for the construction of the outer leaf. Each board is marked to identify the correct orientation for installation (see Figure 1).

Figure 1 Unilin CavityTherm (all dimensions in mm)



Application

The product is intended for use as full fill cavity wall insulation:

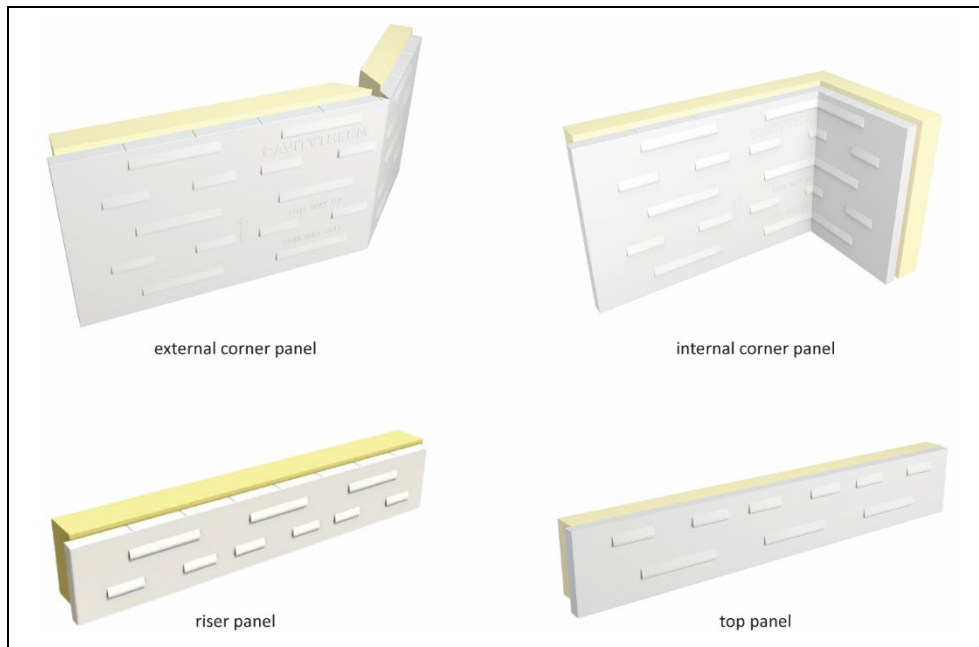
- in external cavity walls with masonry inner and outer leaves (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks).

Ancillary Items

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

- preformed corner panels — a preformed CavityTherm panel (1200 mm x 450 mm) that folds to provide a 90° corner, either external or internal (see Figure 2)
- riser panels — a CavityTherm half-board (1200 mm x 225 mm) that is positioned below the damp proof course (DPC) at floor level and allows for the recommended overlap between wall and floor insulation (see Figure 2)
- top panels — a CavityTherm half-board (1200 mm x 225 mm) that is used to finish wall insulation heights when a full board is not required (see Figure 2)
- cavity wall ties with insulation-retaining fixings to BS EN 845-1 : 2013 and PD 6697 : 2019
- insulated cavity tray channel — an insulated channel to allow for insulation continuity around stepped cavity trays at gable junctions
- service void panels — a preformed panel that creates an insulated service void for periscopic floor vents in suspended floor situations
- meter box panels — a preformed meter box accessory which allows a recess space for placement of a meter box, leaving the insulation to run in a continuous plane
- hockey stick insulation — allows for access to the cable that supplies the meter box and is preformed to fit the insulation
- jointing strip — for the protection of board joints.

Figure 2 Unilin CavityTherm ancillary items – corner, riser and top panels



Product assessment – key factors

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

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The product was tested for reaction to fire and the classification is given in Table 2.

Table 2 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result ⁽¹⁾⁽²⁾
Unilin CavityTherm	NF EN 13501-1 : 2018	Value achieved	F

(1) Test report DO-24-5696\A-R2 (Issue No. 1, dated 16 February 2024), issued by CREPIM, available from the Certificate holder on request.

(2) This classification is valid for thicknesses of 25 to 150 mm.

2.1.2 On the basis of data assessed, the product will be restricted in use under the documents supporting the national Building Regulations, in some cases.

2.1.3 In England, Wales and Northern Ireland, the product must not be used on buildings with a storey 18 m or more above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house in Wales and Northern Ireland only), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools and, additionally in Northern Ireland, nursing homes and places of lawful detention.

2.1.4 In England, Wales and Northern Ireland, the product is unrestricted in terms of proximity to a relevant boundary and, for constructions comprising two leaves of brick or concrete each at least 75 mm thick and with cavities closed around openings and at the top of the wall (with cavity barriers in Northern Ireland), is also unrestricted in terms of height, except for those constructions described in section 2.1.3.

2.1.5 In England, Wales and Northern Ireland, for constructions other than those described in section 2.1.4, the product must not be used on buildings with a storey 18 m or more above ground level and, in England only, on residential buildings with a storey 11 m or more in height.

2.1.7 In Scotland, the product may be used without restriction on height or proximity to a relevant boundary, provided it is installed in a cavity that is between two leaves of masonry at least 75 mm thick and which has a cavity barrier around all openings in the wall and at the top of the wall head. For other constructions, the product must not be used on buildings with a storey 11 m or more above ground level or within 1 m of a relevant boundary.

2.1.8 Designers must refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, 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

Data were assessed for the following characteristics.

3.1 Effectiveness against rising damp

3.1.1 The product was tested for short term water absorption by partial immersion and the results are given in Table 3.

Table 3 Short term water absorption by partial immersion

Product assessed	Assessment method	Requirement	Result
Unilin CavityTherm	BS EN 1609 : 2013 Method A	$\leq 1.25 \text{ kg}\cdot\text{m}^{-2}$	Pass

3.1.2 The product may be used in situations where it bridges the damp proof course (DPC) in walls; dampness from the ground will not pass through to the inner leaf provided the wall is detailed in accordance with the requirements and provisions of the national Building Regulations.

3.2 Weathertightness

3.2.1 A rain penetration test was carried out and the results are given in Table 4.

Table 4 Rain penetration test

Product assessed	Assessment method	Requirement	Result
Unilin CavityTherm	BBA wet wall test method	No water transfer to inner skin	Pass

3.2.2 On the basis of the data assessed, constructions incorporating the product, and built in accordance with the Standards and requirements listed in section 9 of this Certificate, will resist the transfer of precipitation to the inner leaf and satisfy the requirements of the national Building Regulations.

3.3 Water vapour permeability

The product was tested for water vapour permeability and the results are given in Table 5.

Table 5 Water vapour resistance/resistivity

Product assessed	Assessment method	Requirement	Result
PIR insulation	Water vapour resistivity to BS EN ISO 10456 : 2007	Value achieved	$300 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$
HIPS sheet	Water vapour resistance to BS 3177 : 1959		$110 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$
Foil facing	Water vapour resistance to BS 5250 : 2021		$1000 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The product was tested for thermal conductivity and the results are given in Table 6.

Table 6 Declared thermal conductivity

Product assessed	Insulation thickness	Assessment method	Requirement	Result
Unilin CavityTherm	All	Thermal conductivity to BS EN 13165 : 2012	Declared value (λ_D)	0.021 W·m ⁻¹ ·K ⁻¹

6.2 Conservation of fuel and power

6.2.1 Example U values are given in Table 7.

Table 7 Example U values – full fill insulation⁽¹⁾

Design U value (W·m ⁻² ·K ⁻¹)	Insulation thickness (mm)	
	100 mm dense block with 13 mm dense plaster ⁽²⁾	100 mm AAC block Plasterboard on dabs ⁽³⁾
0.13	150	150
0.15	150	125
0.17	125	100
0.18	110	100
0.21	100	100
0.26	100	100
0.28	100	100

(1) The U value calculations are based on the following:

- wall ties: stainless steel ($\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), 2.5 per m², 12.5 mm² cross-section
 - 102.5 mm brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).
- (2) 100 mm dense block ($\lambda = 1.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) bridged by mortar (6.6%, $\lambda = 0.88 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) and 13 mm dense plaster ($\lambda = 0.57 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).
- (3) 100 mm AAC block ($\lambda = 0.12 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) bridged by mortar (6.6%, $\lambda = 0.88 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), 15 mm cavity ($R = 0.17 \text{ m}^2\cdot\text{K}\cdot\text{W}^{-1}$) bridged by adhesive dabs (20%, $\lambda = 0.43 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), and 12.5 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

6.2.2 The U value of a completed wall will depend on the insulation thickness, its structure, and its internal finish.

6.2.3 The product can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

7 Sustainable use of natural resources

Not applicable.

8 Durability

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

8.2 The product was tested for dimensional stability and the results are given in Table 8.

Table 8 Dimensional stability

Product assessed	Assessment method	Requirement	Result
Unilin CavityTherm	Dimensional stability to BS EN 1604 : 1997 (70°C and 90 % RH for 48 hours)	Length and width ≤ 1 % change Thickness ≤ 4 % change	Pass

8.3 Service life

Under normal service conditions, the product will have a life of at least equivalent to the structure in which it is incorporated, provided it is 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 External masonry cavity walls must be designed and constructed in accordance with the relevant recommendations of :

- BS 5250 : 2021
- BS 8000-3 : 2020
- BS EN 845-1 : 2013
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-1-2 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS EN 1996-3 : 2006 and its UK National Annex.

9.1.3 As with other forms of cavity wall insulation, where buildings need to comply with the *NHBC Standards 2024*, specifiers must observe the requirements of that document.

9.1.4 Cavity wall ties with insulation-retaining fixings and, if required, additional ties to BS EN 845-1 : 2013 must be used for structural stability in accordance with BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, and their UK National Annexes.

9.1.5 Care must be taken in the overall design and construction of walls incorporating the product to ensure the provision of appropriate:

- cavity trays and DPCs
- cavity barriers and fire stopping
- resistance to the ingress of precipitation, moisture and dangerous gases from the ground
- resistance to sound transmission when flanking separating walls and floors.

9.1.6 The insulation thickness must remain constant where possible. Should any change in vertical thickness occur, a horizontal damp-proof cavity tray should separate each thickness change.

9.1.7 Where the walls of a building are between 12 m and 25 m high, the following requirements also apply (see also section 2 of this Certificate):

- From ground level, the maximum height of continuous cavity walls must not exceed 12 metres; above 12 metres, the maximum height of continuous cavity walls must not exceed 7 metres. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside
- The Certificate holder, in association with the architect, must carry out a detailed programme of assessment of the project, including an examination of the quality of installation as work progresses. Above average site supervision is recommended during installation.

9.1.8 Provided that external masonry cavity walls are designed and constructed to incorporate the precautions in this Certificate to prevent moisture penetration, the product will resist the transfer of precipitation to the inner leaf.

9.1.9 This Certificate covers the use of the product for full fill in any exposure zone. However, use of the product does not preclude the need to apply any external render coat or other suitable finish in severe exposure zones where such applications would be normal practice.

9.1.10 Window and door opening reveals must be constructed incorporating a cavity barrier/closer/DPC, as required.

9.1.11 The detailed provisions given in the documents supporting the national Building Regulations for when the product is installed in close proximity to certain flue pipes and/or heat-producing appliances must be followed.

9.1.12 Calculations of the thermal transmittance (U value) of a wall must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019.

9.1.13 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

9.1.14 Walls will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2021.

9.1.15 If the product is to be used in the external wall of rooms expected to have high humidity, care must be taken to provide adequate permanent ventilation to avoid possible problems from the formation of interstitial condensation.

Surface condensation

9.1.16 In England and Wales, walls 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 the guidance referred to in section 9.1.13 of this Certificate.

9.1.17 For buildings in Scotland, wall constructions will be acceptable when the 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 9.1.13 of this Certificate.

9.1.18 An external render coat or other suitable finish must be applied in locations where such applications would be normal practice; care must be taken to ensure that the residual cavity is not bridged by mortar.

9.2 Installation

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

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

9.2.3 It is recommended that the inner leaf is constructed ahead of the outer leaf so that any mortar protruding into the cavity space from the back of the internal leaf can be cleaned off before installing the product. Boards must not be pushed into a completed cavity.

9.2.4 Vertical joints in the boards must be staggered and all joints tightly butted. Where protrusions occur in the cavity, the boards should be carefully cut to fit.

9.2.5 If installation of the boards is terminated below the highest level of the wall, the top edge of the insulation must be protected by a cavity tray and alternate perpend joints raked out to provide adequate drainage of water from the tray.

9.2.6 In all situations, it is particularly important to ensure during installation that:

- installation is carried out to the highest level on each wall, or the top edge of the insulation is protected by a cavity tray
- cavity trays are used with appropriate stop ends and weepholes at lintel level
- cavity battens and/or boards are used during construction to prevent bridging by mortar droppings
- wall ties are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the leading leaf and any debris removed from the cavity
- mortar droppings are cleaned from the exposed edges of installed boards
- insulation boards are properly installed and either butt jointed, or interlocked using the rebated edges
- the DPC at ground level does not project into the cavity as it can form a trap for mortar bridging
- raked or recessed mortar joints are avoided in very severe exposure areas.

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 product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

As the product is contained within the wall cavity and has suitable durability, maintenance is not required.

10 Manufacture

10.1 The production processes for the product 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 the 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 product is delivered to site in packs, shrink-wrapped in polythene, containing a label with the manufacturer's name, board dimensions, and the BBA logo incorporating the number of this Certificate.

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

11.2.1 The boards must be protected from prolonged exposure to sunlight, and stored dry, flat and raised above ground level (to avoid contact with ground moisture). Where possible, packs should be stored inside. If stored outside, they should be under cover, or protected with opaque polythene sheeting.

11.2.2 Care must be exercised to avoid crushing the edges or corners. If damaged, the product must be discarded.

11.2.3 The boards must not be exposed to a naked flame or other ignition sources, or to solvents or other chemicals.

Supporting information in this Annex is relevant to the product 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.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13165 : 2012.

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, BS EN ISO 14001 : 2015 and BS ISO 45001 : 2018, by BRE (Certificates 718 QMS, 718 EMS and 718 HS respectively).

Additional information on installation

Installation must be in accordance with the Certificate holder's instructions and this Certificate. A summary of precautions and the procedure is provided below:

A.1 The Certificate holder will provide on-site demonstrations on request, to ensure correct installation from the outset.

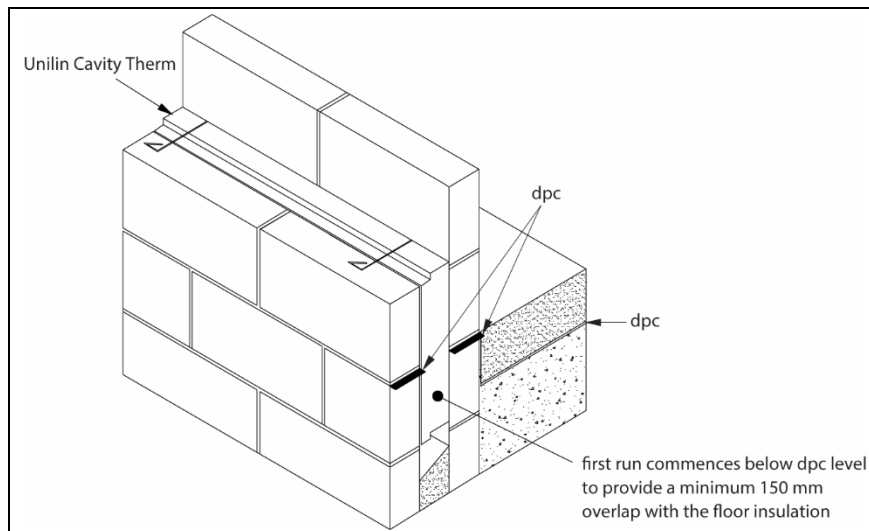
A.2 Adequate supervision of the installation must be maintained, and the Certificate holder's specialists must have right of access to site to ensure correct installation.

A.3 Wall corners must be constructed in accordance with section A.19 and must incorporate a vertical DPC as shown in Figures 8 to 11.

Procedure

A.4 A section of the internal leaf is built in the conventional manner, with the first row of wall ties, at approximately 600 mm horizontal spacing, where the insulation is to begin. The wall ties should not be placed directly on the DPC. The first run of boards should commence at least 150 mm below the DPC level, to provide some edge insulation for the floor (see Figure 3). Riser Panels can also be used to achieve this overlap.

Figure 3 First run of boards at DPC level



A.5 The internal leaf is then built up to a course above the next row of wall ties, which are placed at a vertical spacing of 450 mm and not more than 900⁽¹⁾ mm horizontally to ensure that each board is secured at a minimum of three points (see BS EN 1996-1-2 : 2005). Excess mortar should be cleaned from the cavity face of the internal leaf.

(1) Where buildings need to comply with *NHBC Standards 2024*, the spacing should be no more than 600 mm.

A.6 Boards are placed between the upper and lower wall ties to form a closely butt-jointed run. It is essential that all wall ties slope downwards towards the external leaf, with the drip positioned in the centre of the boards pointing downwards to shed water away from the internal leaf.

A.7 The boards incorporate a specially designed rebated edging and are faced on one side with a HIPS sheet, with projecting tapered flutes. It is essential that the boards are positioned (orientated) according to the installation guidelines on the moulded HIPS sheet (see Figure 1).

A.8 The corresponding edges of the two interlocking boards are cut with a sharp knife or fine-tooth saw to allow insertion of the wall ties so that they are sloping downwards to the external leaf. Care must be taken to ensure that damage is minimised during this process.

A.9 The external leaf is built up to the same level as the boards, with its inner face in contact with the boards. Due to building tolerances, contact may not be made with all boards.

A.10 Where required, a suitable retaining-clip may be used to ensure boards are kept secure to the inner leaf.

A.11 Successive sections of wall, incorporating wall ties, are constructed and the boards installed, as work proceeds up to the required height.

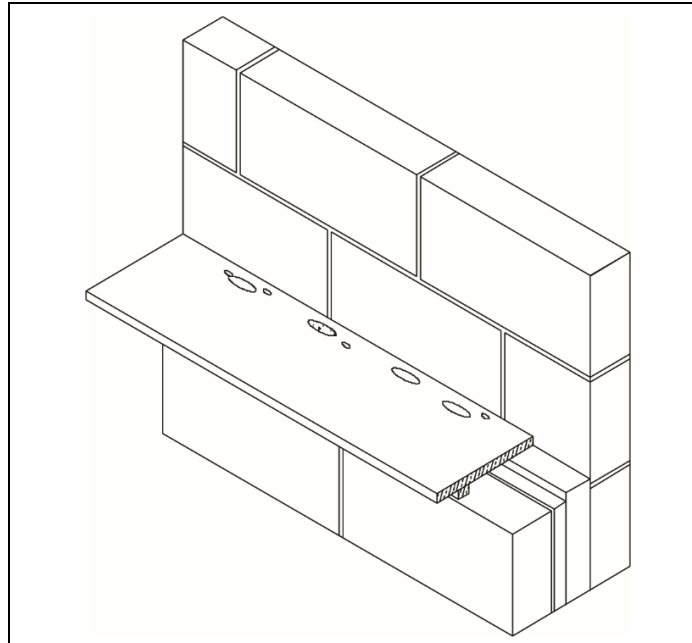
A.12 Additional ties may be required to satisfy the structural requirements of BS EN 845-1 : 2013, BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 to ensure adequate retention of boards or cut pieces.

A.13 All boards should be close-butted together, with vertical joints staggered. Wall ties must be staggered and carried up to the highest level of the wall, except where protected by a cavity tray.

Mortar droppings

A.14 After each section of the leading leaf is built, excess mortar must be removed from the cavity face, and mortar droppings cleaned from exposed edges of the installed board before installation of the next run of boards. Use of a cavity board or a cavity batten will protect the installed board edges and help to keep the cavity clean as the following leaf is built (see Figure 4).

Figure 4 Use of cavity board when cleaning off excess mortar



A.15 The boards can be cut, using a sharp knife or fine-toothed saw, to fit openings, eg around windows, doors and airbricks. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured.

Wall openings

A.16 Where openings such as doors and windows are in close proximity, it is recommended that a continuous lintel or cavity tray is used. Individual lintels or cavity trays should have stopends and be adequately drained. Insulation boards must be cut to butt tightly against the cavity barrier/closer/DPC.

9

A.17 Where the boards are required to be fitted around openings, the rebated edge should be trimmed using a sharp blade. It is important that the rebated edge is cut accurately so that a tight butt edge is formed at the opening interfaces. It must be ensured that proprietary cavity barriers/closers are correctly installed at window and door reveals (see Figures 5 and 6). Care should be taken when fitting the extra wall ties around openings into the rebated edge.

Figure 5 Reveal detail with cavity closure (all dimensions in mm)

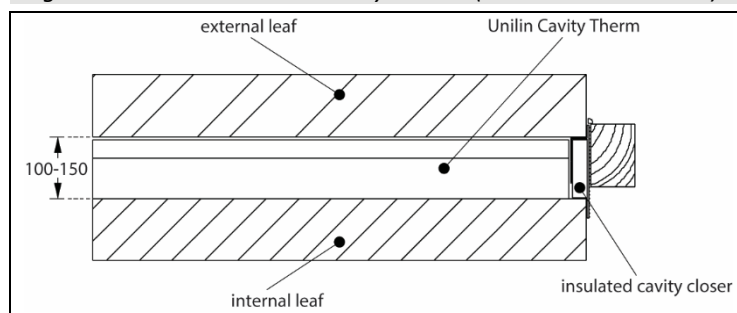
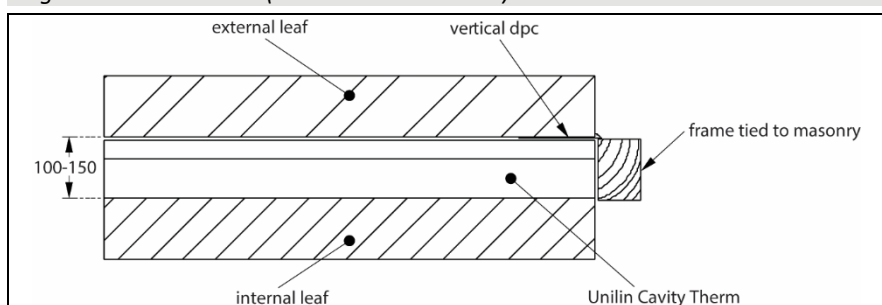
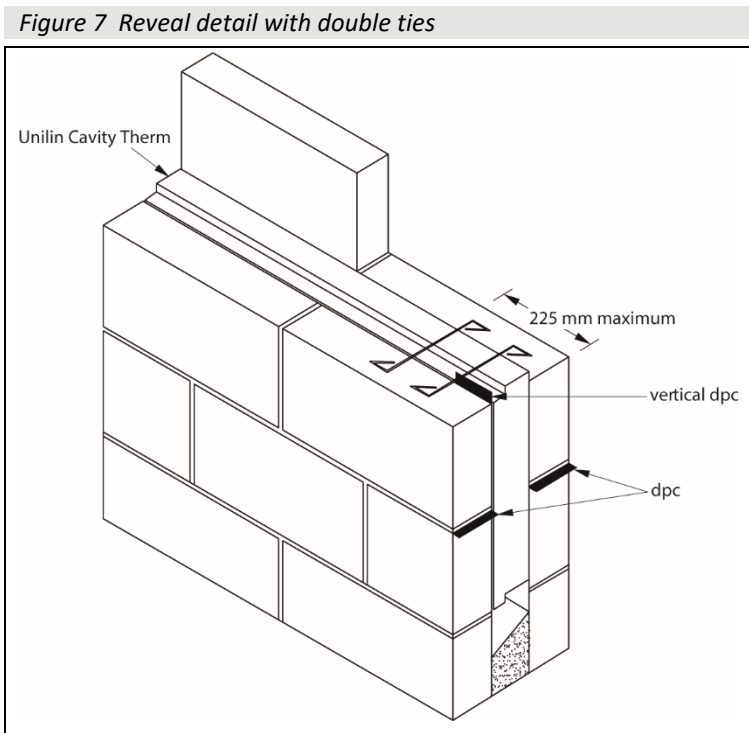


Figure 6 Reveal detail (all dimensions in mm)



A.18 Additional wall ties at 300 mm vertical centres within 225 mm of all openings are recommended in BS EN 1996-1-1 : 2005 and BS EN 1996-1-2 : 2005. For this product, this would involve piercing the boards and may introduce an unacceptable risk of water penetration. Therefore, it is recommended that an additional wall tie is included within 225 mm of the opening on each board course level to satisfy the structural requirements of the wall (see Figure 7).



Corners

A.19 Preformed Corner Panels are recommended for use in forming both internal and external corner joints. Where Preformed Corner Panels are not used, wall corners must incorporate a vertical DPC as shown in Figures 8 to 11. Alternate corner pieces must be used to achieve staggered vertical joints.

A.20 Alternatively, corner details are formed by closely butting the boards, either by carefully removing the rebated edge to create square edges, or by cutting the boards at a 45° angle to create a mitred joint, so that all board interfaces are uninterrupted. All alternate corner details incorporate a vertical DPC (see Figures 8 to 11).

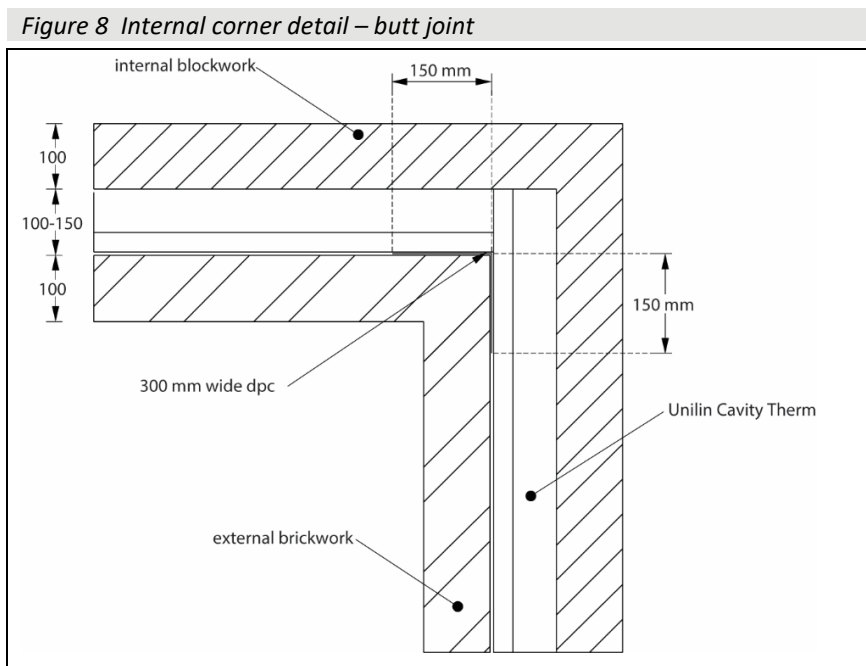


Figure 9 External corner detail – butt joint

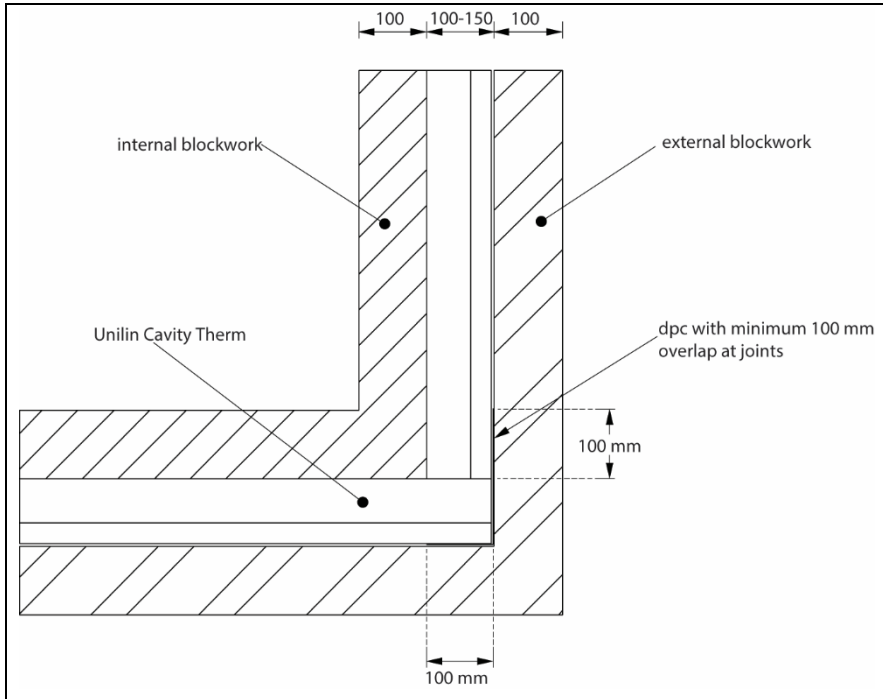


Figure 10 Internal corner detail – mitred

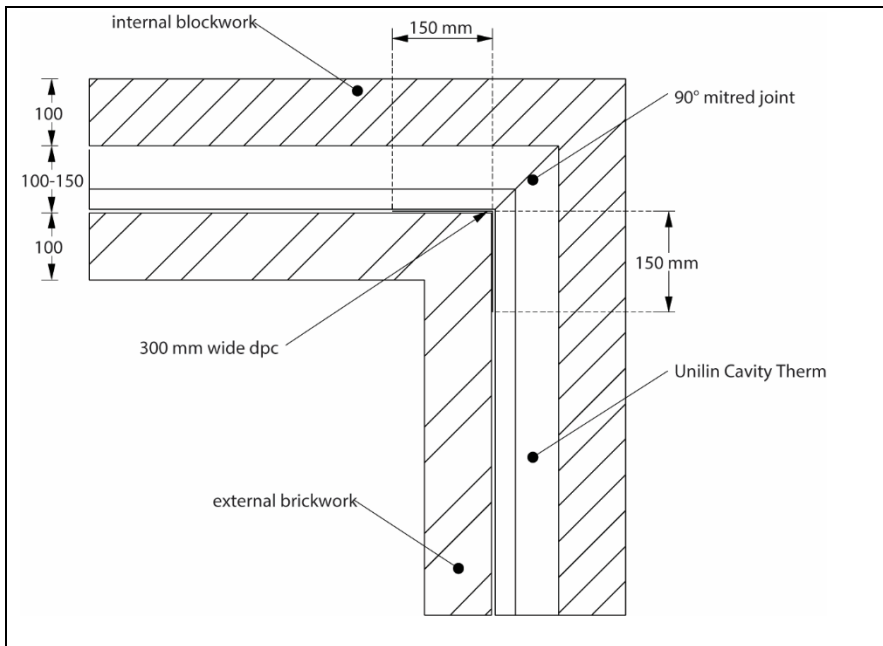
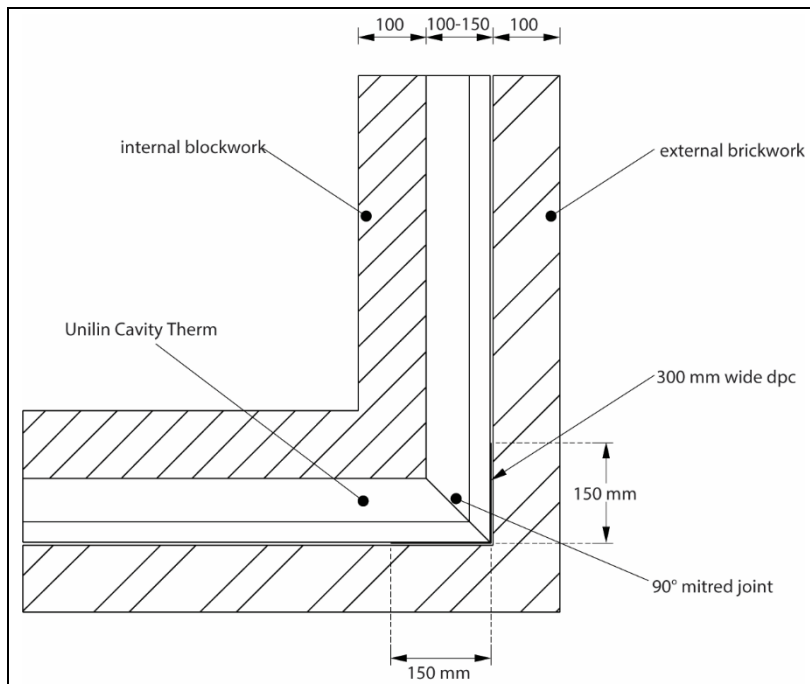


Figure 11 External corner detail – mitred



Detailing

A.21 Top Panels can be used to complete wall insulation heights when a full board is not required, reducing both the need to cut boards and wastage.

A.22 The ancillary items, which are outside the scope of this Certificate, can also be used to incorporate features such as cavity trays, service voids, meter boxes and cables, without the need to cut boards, while maintaining continuity of insulation. Further details on the use of these accessories can be obtained from the Certificate holder.

Protection

A.23 Exposed areas of boards must always be covered at the end of a day's work or during rainfall.

A.24 All building involving the product, particularly interrupted work, must conform to the relevant sections of BS EN 1996-2 : 2006.

Bibliography

- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- BRE Report BR 443 : 2019 *Conventions for U-value calculations*
- BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*
- BS 5250 : 2021 *Management of moisture in buildings — Code of practice*
- BS 8000-3 : 2020 *Workmanship on construction sites — Masonry — Code of practice for masonry*
- BS EN 845-1 : 2013 + A1 : 2016 *Specification for ancillary components for masonry — Wall ties, tension straps, hangers and brackets*
- BS EN 1604 : 1997 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*
- BS EN 1609 : 2013 *Thermal insulating products for building applications — Determination of short term water absorption by partial immersion*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-1-2 : 2005 *Eurocode 6. Design of masonry structures — General rules — Structural fire design*
- NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
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- BS EN 13165 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance. Calculation method*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- BS EN ISO 10456 : 2007 *Building materials and products — Hygrothermal properties — Tabulated design values and procedures for determining declared and design thermal values*
- BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*
- BS ISO 45001 : 2018 *Occupational health and safety management systems — Requirements with guidance for use*
- NF EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- PD 6697 : 2019 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

Conditions of Certificate

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
- 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
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- is subject to English Law.

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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:

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- 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 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.

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