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Agrément Certificate
24/7213
Product Sheet 1 Issue 1

IKO ENERTHERM INSULATION

IKO ENERTHERM ALU FF

This Agrément Certificate Product Sheet(1) relates to IKO enertherm ALU FF, comprising a rigid polyisocyanurate (PIR) board faced with a composite foil-facing on both sides. The product is for use as full fill thermal insulation (with a 10 mm residual cavity) 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 First issue: 5 August 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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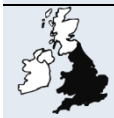
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 IKO enertherm ALU FF, 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 this 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 3 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:		The 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**	**CO_2 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 can contribute to a construction satisfying this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**8(3)**	**Fitness and durability of materials and workmanship**
Comment:		The product is restricted by this Regulation. See section 2 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 2.4.2(1)(2) and 2.4.4(1)(2). See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product can contribute to satisfying this Standard, 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 a 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)(iii) (b)(i)(ii)**	**Fitness of materials and workmanship**
Comment:		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**
Regulation:	**40(2)**	**Target carbon dioxide emission rate**
Regulation:	**43(b)**	**Nearly zero-energy requirements for 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, IKO enertherm ALU FF, 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 IKO enertherm ALU FF to be satisfactory for use as described in this Certificate. The product has been assessed for use as a full fill thermal insulation (with a 10 mm residual cavity) 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. IKO enertherm ALU FF comprises a rigid PIR board, faced with a composite foil-facing on both sides.

The product has the nominal characteristics given in Table 1.

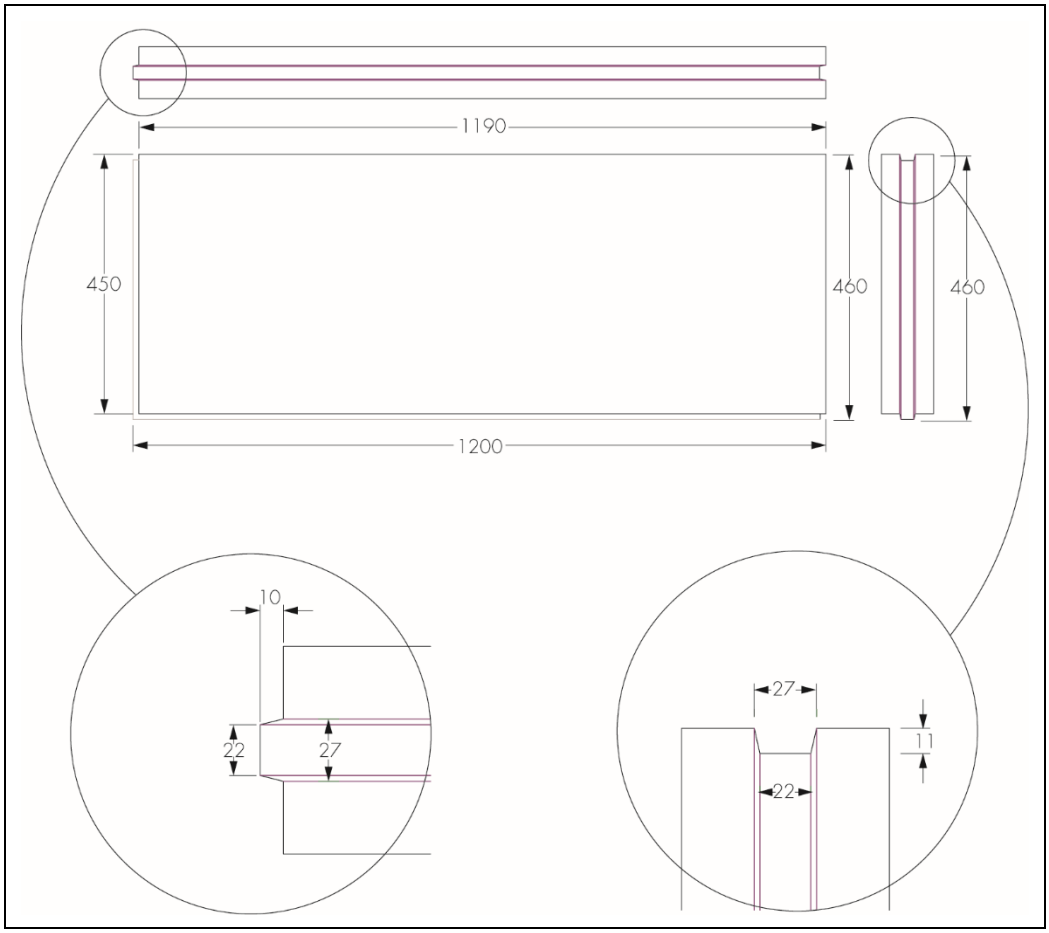
Table 1 Nominal characteristics

Characteristic (unit)	Value
Length (mm)	1190
Width (mm)	450
Thickness (mm)	50 – 150(1)
Edge profile	Tongue-and-groove

(1) 90 , 115 and 140 mm are standard thicknesses.

The boards are available with a tongue-and-groove edging on all four sides, enabling the boards to interlock when installed (see Figure 1).

Figure 1 IKO enertherm ALU FF — tongue-and-groove edge profile (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 cavity wall ties with insulation-retaining fixings to BS EN 845-1 : 2013 for use with the product, but these materials have not been assessed by the BBA and are outside the scope of this Certificate.

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 the 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 Certificate holder has declared a reaction to fire classification for the product of Class F to BS EN 13501-1 : 2018.

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

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 that contains 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, hospitals, sheltered housing or dormitories in boarding schools, and additionally in Northern Ireland, nursing homes and places of lawful detention.

2.1.4 In England and Wales, the product is unrestricted in terms of proximity to a relevant boundary and, other than on those buildings described in section 2.1.3 of this Certificate, 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, is also unrestricted in terms of height.

2.1.5 In Northern Ireland, the product is unrestricted in terms of proximity to a relevant boundary and, other than on those buildings described in section 2.1.3 of this Certificate, for constructions comprising two leaves of brick, block or concrete each at least 75 mm thick, and with cavity barriers around openings and at the top of the wall (maximum 300 mm cavity width), is also unrestricted in terms of height.

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

2.1.7 In Scotland, the product must not be used on buildings that have a storey 11 m or more above ground level and which contain a dwelling; a building used as a place of assembly or as a place of entertainment or recreation; a hospital; a residential care building or sheltered housing complex; or a shared multi-occupancy residential building.

2.1.8 In Scotland, the product may be used without restriction on height or proximity to a relevant boundary, other than for buildings described in section 2.1.7 of this Certificate, provided it is installed in a cavity that is between two leaves of masonry or concrete 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 at a height of 11 m or more above the ground or within 1 m of a relevant boundary.

2.1.9 Designers must refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for construction fire performance, cavity closers and barriers, meter cupboards, 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 Weathertightness

3.1.1 A rain penetration test was carried out and the results are given in Table 2.

Table 2 Rain penetration test

Product assessed	Assessment method	Requirement	Result
45 mm IKO enertherm ALU FF	BBA wet wall test method	No water transfer to inner skin	Pass

3.1.2 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.

3.2 Effectiveness against rising damp

3.2.1 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
IKO enertherm ALU FF	BS EN 1609 : 2013	≤ 1.25 $kg \cdot m^{-2}$	Pass

3.2.2 The product can 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.

3.3 Water vapour permeability

The product was tested for water vapour resistivity and resistance, and the results are given in Table 4.

Table 4 Water vapour resistivity/resistance

Material	Assessment method	Requirement	Result
PIR insulation core	BS EN 12086 : 2013	Declared value	52 $MN \cdot s \cdot g^{-1} \cdot m^{-1}$
Composite foil facing			111 $MN \cdot s \cdot g^{-1}$

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 5.

Table 5 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
IKO enertherm ALU FF	BS EN 13165 : 2012	Declared value (λ_D)	0.022 $W \cdot m^{-1} \cdot K^{-1}$

6.2 Thermal performance

The facing was tested for emissivity and the result is given in Table 6.

Table 6 Emissivity of the foil facing

Product assessed	Assessment method	Requirement	Result
Composite foil facing (Unprinted)	BS EN 16012 : 2012	Declared value	0.05

6.3 Conservation of fuel and power

6.3.1 Example U-values are given in Table 7.

Table 7 Example U values(1) – full fill insulation (10 mm residual cavity)

U value ($W \cdot m^{-2} \cdot K^{-1}$)	IKO enertherm ALU FF insulation thickness (mm)	
	13 mm dense plaster 100 mm dense block(2)	Plasterboard on dabs 100 mm AAC blocks(3)
0.13	150	130
0.15	125	110
0.17	110	95
0.18	105	90
0.21	90	70
0.26	70	50
0.28	65	50
0.30	60	50

(1) The U value calculations are based on the following:
- wall ties: stainless steel (λ = 17 $W \cdot m^{-1} \cdot K^{-1}$), 2.5 per m^2, 12.5 mm^2 cross-section
- 102.5 mm brick (λ = 0.77 $W \cdot m^{-1} \cdot K^{-1}$)
- 10 mm low e cavity.

(2) 100 mm dense block (λ = 1.13 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar (6.6%, λ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$) and 13 mm dense plaster (λ = 0.57 $W \cdot m^{-1} \cdot K^{-1}$).

(3) 100 mm AAC block (λ = 0.12 $W \cdot m^{-1} \cdot K^{-1}$) bridged by mortar (6.6%, λ = 0.88 $W \cdot m^{-1} \cdot K^{-1}$) and 12.5 mm plasterboard (λ = 0.25 $W \cdot m^{-1} \cdot K^{-1}$) on 15 mm dabs (20%, λ = 0.43 $W \cdot m^{-1} \cdot K^{-1}$).

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

6.3.3 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 the 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
IKO enertherm ALU FF	Dimensional stability to EN 1604 : 2013 (70°C and 90-100% RH for 48 hours)	Length and width ≤ 2 % change Thickness ≤ 6 % change	Pass
IKO enertherm ALU FF	Dimensional stability to EN 1604 : 2013 (-20°C for 48 hours)	Length and width ≤ 0.5 % change Thickness ≤ 2 % change	Pass

8.3 Service life

Under normal service conditions, the product will have a life equivalent to the building 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, any 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
- 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 following design conditions must be ensured:

- the insulation thickness remains constant where possible. Should any change in vertical thickness occur, a cavity tray should separate each thickness change
- a minimum insulation thickness of 50 mm is maintained where possible. Where, for structural reasons, the insulation thickness is reduced (eg by the intrusion of ring beams), the manufacturer's advice should be sought.

9.1.7 Where the walls of a building are between 12 and 25 metres 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 area to be insulated must not be in an infill panel in a framed structure
- 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 Window and door opening reveals must be constructed incorporating a cavity barrier/closer/DPC, as required.

9.1.10 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.

9.1.11 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.

9.1.12 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

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

9.1.14 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

9.1.15 In England and Wales, walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.7 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in section 9.1.12 of this Certificate.

9.1.16 For buildings in Scotland, wall constructions will be acceptable when the thermal transmittance (U value) does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ 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 9.1.12 of this Certificate.

9.1.17 An external render coat or other suitable finish must be applied in locations where such application 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 The internal leaf must be 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 interlocked using the tongue and groove
- 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 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 product is delivered to site in polythene-wrapped packs. Each pack contains a label bearing the Certificate holder's name, board dimensions and the BBA logo incorporating the number of this Certificate.

11.2 Delivery and site handing 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. Where possible, packs should be stored inside. If stored outside, they must be under cover, or protected with opaque polythene sheeting.

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

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

ANNEX A – SUPPLEMENTARY INFORMATION †

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.

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 13165 : 2012.

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 and BS EN ISO 14001 : 2015 by CIBSE Certification Limited (Certificates 0001QMS-0 and 0001EMS-0 respectively for the Pembridge site, and Certificates 0001QMS-1 and 0001EMS-1 respectively for the Selby site).

Additional information on installation

Preparation

A.1 The Certificate holder will provide on-site demonstrations on request, to ensure correct installation from the outset, but such advice is outside the scope of this Certificate.

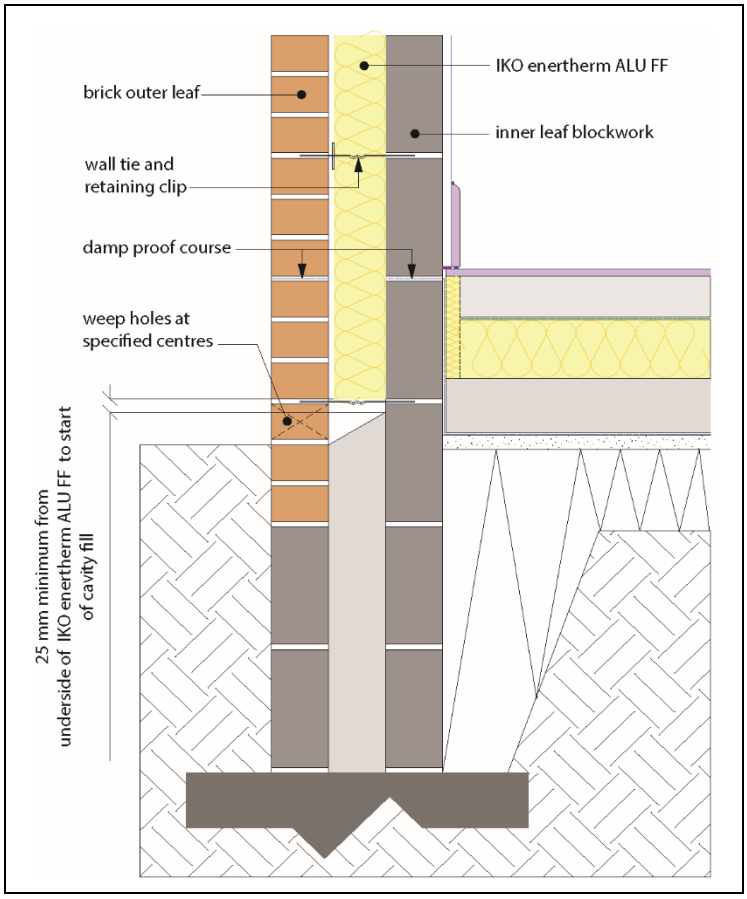
A.2 Adequate supervision of the installation must be maintained, and the Certificate holder must have right of access to the site to ensure correct installation.

A.3 Wall corners must be constructed in accordance with section A.18 and must incorporate a vertical DPC as shown in Figure 7.

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 must not be placed directly on to the DPC. The first run of boards must commence at least 150 mm below the DPC level, to provide some edge insulation for the floor (see Figure 2).

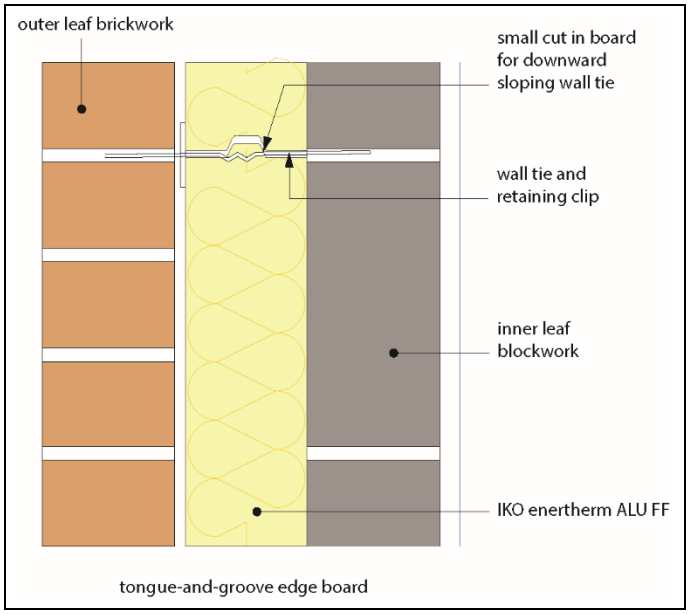
Figure 2 First row of boards at DPC level



A.5 The internal leaf is then built up to a course above the next row of wall ties, which are placed at spacings of 450 mm vertically and (not more than) 900 mm horizontally (see BS EN 1996-1-2 : 2005). Excess mortar must be cleaned from the cavity face of the internal leaf.

A.6 Boards are placed between the upper and lower wall ties, behind the retaining clips, with the tongue-and-groove edged boards tightly interlocked to form a closely 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 (see Figure 3). Wall ties must not be placed at centres exceeding 900 mm to ensure that each board is secured at a minimum of three points. The first row of boards must not be in contact with the ground; at least 25 mm must be left between the bottom edge of the insulation and the cavity fill.

Figure 3 Wall tie drips positioned in centre of boards



A.7 The corresponding edges of the two interlocking boards are cut with a sharp knife or fine-toothed saw to allow insertion of the wall ties so that they are sloping downwards to the outer leaf. Care must be taken to ensure that damage is minimised during this process.

A.8 The external leaf is built up to the same level as the boards, maintaining a minimum 10 mm cavity to help resist moisture penetration, aid installation and accommodate mortar squeeze(1).

(1) In the event that the residual cavity is less than 10 mm due to building tolerances and/or mortar squeeze, the product remains fit for purpose with regards to water resistance as the boards have been successfully tested without a cavity.

A.9 Successive sections of wall, incorporating wall ties, are constructed and the boards installed as work proceeds up to the required height.

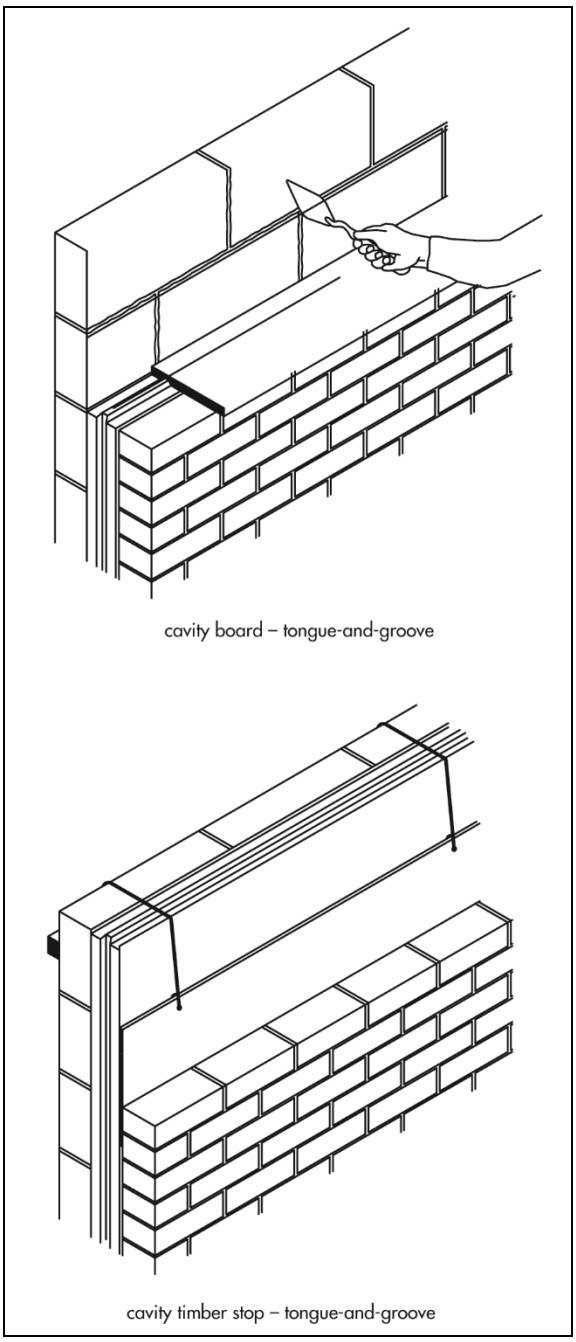
A.10 Additional ties may be required to satisfy the structural requirements of BS EN 845-1 : 2013, BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006, to ensure adequate retention of boards or cut pieces.

A.11 All boards must be butted with vertical joints staggered. Insulation boards and wall ties should be staggered as construction proceeds and carried up to the highest level of the wall, or where protected by a cavity tray.

Mortar droppings

A.12 After each section of the wall 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 section. Use of a cavity board and cavity timber stop is recommended to protect 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/timber stop when cleaning off excess mortar



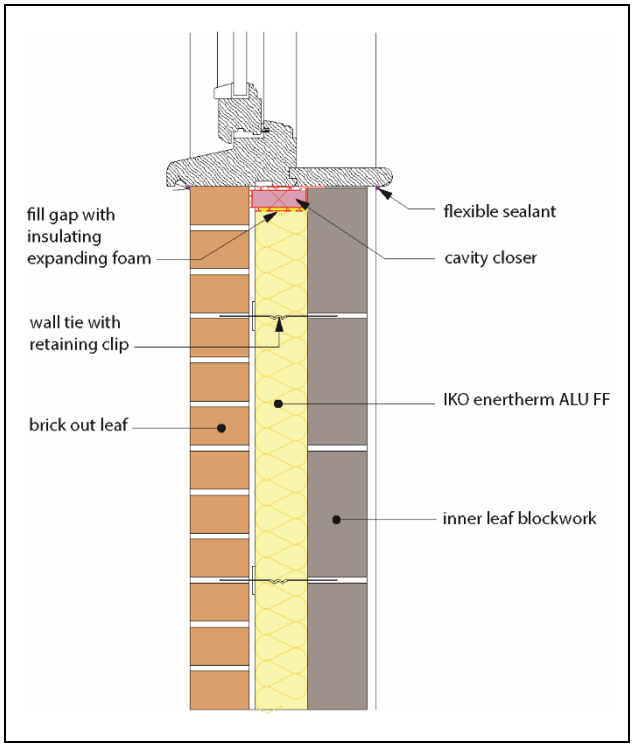
A.13 The boards can be cut using a sharp knife or fine-toothed saw to fit openings, eg around windows, doors and airbricks. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured.

Wall openings

A.14 Where openings such as doors and windows are in close proximity, a continuous lintel or cavity tray should be used. Individual lintels or cavity trays must have stopends and be adequately drained.

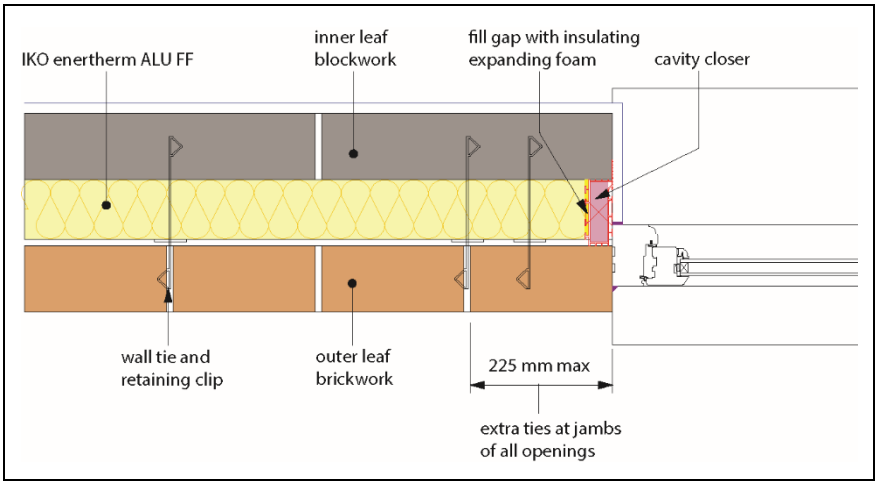
A.15 Where the boards are required to be fitted around openings, the tongue-and-groove edge must be trimmed using a sharp blade. It is important that the tongue-and-groove edge is cut accurately so that a tight butt edge is formed at the opening interfaces. Proprietary cavity barriers/closers must be correctly installed at window and door reveals (see Figure 5), but such products are outside the scope of this Certificate. Care must be taken when fitting the extra wall ties around openings into the tongue-and-groove edge.

Figure 5 Reveal detail – cavity closer



A.16 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 the product, this would involve piercing the boards and may introduce an unacceptable risk of water penetration. Therefore, an additional wall tie should be included within 225 mm of the opening on each board course level to satisfy the structural requirements of the wall (see Figure 6).

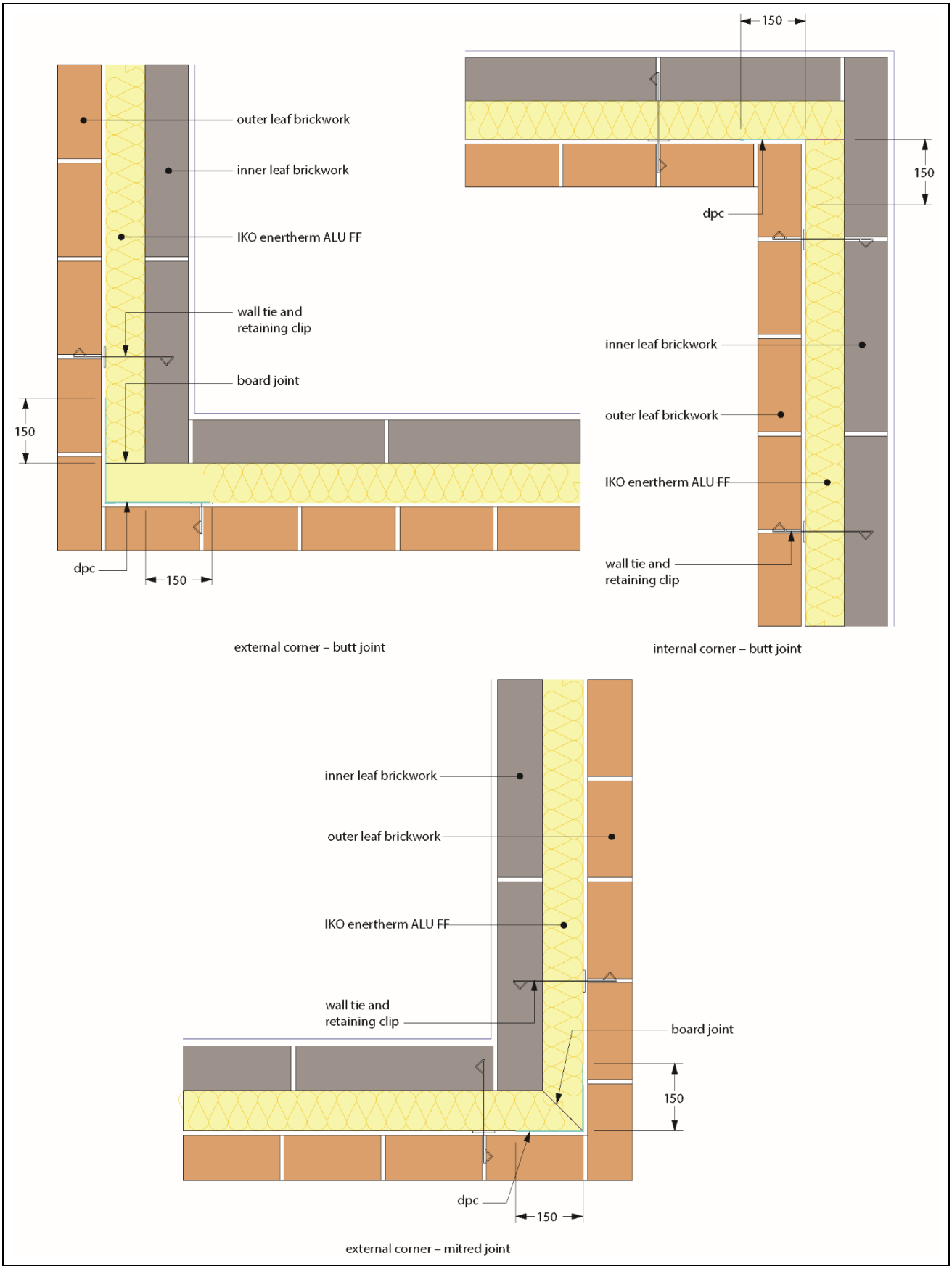
Figure 6 Reveal detail with double ties



Corners

A.17 Corner details are formed by closely butting the boards, either by carefully removing the tongue-and-groove 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 corner details must incorporate a vertical DPC (see Figure 7).

Figure 7 Corner details



Protection

A.18 Exposed areas of board must always be covered at the end of a day's work or in driving rain.

A.19 All building involving the product, particularly interrupted work, must conform to BS EN 1996-2 : 2006.

Bibliography

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BS EN 845-1 : 2013 + A1 : 2016 *Specification for ancillary components for masonry — Wall ties, tension straps, hangers and brackets*

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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*
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BS EN ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*

EN 1604 : 2013 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*

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