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**Agrément Certificate
23/7060**
Product Sheet 3 Issue 1

INDITHERM INSULATION

INDITHERM FOR SUSPENDED TIMBER INTERMEDIATE AND GROUND FLOORS

This Agrément Certificate Product Sheet⁽¹⁾ relates to IndiTherm for suspended timber intermediate and ground floors, a hemp fibre insulation slab for use between the timber joists of intermediate floors and suspended timber ground floors of new and existing domestic buildings.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

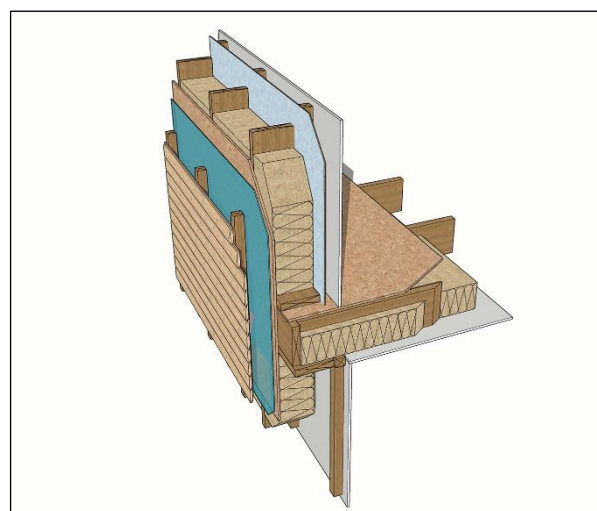
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

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: 21 December 2023

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 IndiTherm for suspended timber intermediate and ground floors, 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:	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; however, compensating fabric measures may be required. 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:	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; however, compensating fabric/services measures may be required. 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:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand and carbon dioxide emissions
Comment:	(d)	The product can contribute to satisfying this Standard, with reference to clause 6.1.1 ⁽¹⁾ ; however, compensating fabric/services measures may be required. 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⁾ , 6.2.3 ⁽¹⁾ , 6.2.6 ⁽¹⁾ , 6.2.8 ⁽¹⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾ and 6.2.12 ⁽¹⁾ ; however, compensating fabric measures may be required. See section 6 of this Certificate.

Standard: Comment:	7.1(a)(b)	Statement of sustainability 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.
Regulation: Comment:	12	Building standards – conversions Comments made in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ .
(1) Technical Handbook (Domestic).		



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

Regulation: Comment:	23(1)(a)(i) (iii)(b)(i)(ii)	Fitness of materials and workmanship The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation: Comment:	29	Condensation The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation: Comment:	39(a)(i)	Conservation measures The product can contribute to satisfying this Regulation; however, compensating fabric measures may be required. See section 6 of this Certificate.
Regulation: Regulation: Regulation: Comment:	40(2) 43(1)(2) 43(b)	Target carbon dioxide emission rate Renovation of thermal elements Nearly zero-energy requirements for new buildings The product can contribute to satisfying these Regulations; however, compensating fabric/services measures may be required. See section 6 of this Certificate.

Additional Information

NHBC Standards 2023

In the opinion of the BBA, IndiTherm for suspended timber intermediate and ground floors, 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 5.2 *Suspended ground floors*.

Fulfilment of Requirements

The BBA has judged IndiTherm for suspended timber intermediate and ground floors to be satisfactory for use as described in this Certificate. The product has been assessed for installation between the joists of timber intermediate and suspended ground floors in new and existing domestic buildings.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. IndiTherm for suspended floors consists of a thermal insulation batt made from UK crops.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Length (mm)	1200
Width (mm)	370, 440, 570
Thickness (mm)	30, 50, 70
Edge profile	Square
Colour	Beige
Nominal density	45 kg·m ⁻³

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 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
IndiTherm Flexible batt insulation	BS EN 13501-1 : 2018	Value achieved	E ⁽¹⁾

(1) System Laboratories UK, report no 466 issue B, 18 October 2023. Copies are available from the Certificate holder on request.

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

2.1.3 Designers must refer to the relevant national Building Regulations and guidance for alternative approaches and detailed conditions of use, particularly in respect of requirements for fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall construction.

2.1.4 The product must be protected from naked flames and other ignition sources during and after installation.

2.2 Resistance to fire

2.2.1 The product must be contained by a fire-resistant lining board manufactured in accordance with BS EN 520 : 2004, with joints fully sealed and supported by timber joists or battens.

2.2.2 Where the product is incorporated in a floor construction where fire resistance is required by the documents supporting the national Building Regulations, the fire resistance should be confirmed by a suitably experienced and competent individual.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Water vapour permeability

The product was tested for water vapour permeability and the result is given in Table 3.

Table 3 Water vapour resistivity

Material	Assessment method	Declared value	Result
IndiTherm flexible batt insulation	BS EN 12086 : 2013	10 MN·s·g ⁻¹ ·m ⁻¹	Pass

3.2 Biological resistance

The product was tested for resistance to the growth of mould fungus and the result is given in Table 4.

Table 4 Resistance to the growth of mould fungus

Material	Assessment method	Requirement	Result
IndiTherm Flexible batt insulation	UKAD 040005-00-1201 : 2015, Annex B and BS EN ISO 846 : 1997 (23°C and 95% RH for 4 weeks)	Evaluation level ≤ 1	Pass

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 result is given in Table 5.

Table 5 Thermal conductivity

Product assessed	Assessment method	Requirement	Result
IndiTherm flexible batt insulation	UKAD 040005-00-1201: 2015	Declared value (λ_D)	0.040 W·m ⁻¹ ·K ⁻¹

6.2 Conservation of fuel and power

6.2.1 Example U values are given in Table 6 of this Certificate.

Table 6 U values — suspended timber ground floors⁽¹⁾⁽²⁾⁽³⁾⁽⁴⁾⁽⁵⁾⁽⁶⁾⁽⁷⁾

U value (W·m ⁻² ·K ⁻¹)	IndiTherm insulation thickness (mm)				
	P/A ratio (m·m ²)				
	0.2	0.4	0.6	0.8	1.0
0.11	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾
0.12	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾
0.13	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾
0.15	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾
0.18	70 + 70 + 30	70 + 70 + 50	— ⁽⁸⁾	— ⁽⁸⁾	— ⁽⁸⁾
0.22	70 + 30	70 + 70	70 + 70 + 30	70 + 70 + 30	70 + 70 + 30
0.25	70	70 + 50	70 + 70	70 + 70	70 + 70

- (1) Floor construction — 22 mm thick chipboard floor finish ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$), on timber floor joists ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) (11%)
 (2) The depth of the joists = 100 to 200 mm depending on the depth of insulation between floor joists (11%) based on BRE Report BR 443 : 2019 (nogging every 3 m at 38 mm wide).
 (3) Edge insulation not included.
 (4) Ground conductivity $1.5 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.
 (5) Wall thickness at the floor perimeter (w) = 0.3 m.
 (6) Supporting wall (U_w) $1.5 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$.
 (7) Ventilation area (e) $0.0015 \text{ m}^2\cdot\text{m}^{-1}$.
 (8) See section 6.2.4.

6.2.2 The U value of a completed floor will depend on the insulation thickness, the perimeter/area ratio and the floor type.

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

6.2.4 For improved energy or carbon savings, designers must consider appropriate compensating fabric and/or services measures.

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 result is given in Table 7.

Table 7 Dimensional stability

Product assessed	Assessment method	Requirement	Result
IndiTherm flexible batt insulation	BS EN 1604 : 2013 (70°C and 90% RH for 48 hours)	Length, width and reduction in thickness $\leq 3\%$ change	Pass

8.3 Service life

Under normal service conditions, the product will have a life 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.

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, and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.2 Timber floor constructions must be designed and constructed in accordance with the relevant recommendations of:

- BS 5250 : 2021
- BS EN 351-1 : 2007
- BS EN 1995-1-1 : 2004 and its UK National Annex.

9.1.3 Construction elements must be designed and constructed to incorporate the normal precautions against moisture ingress before application of the product.

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

9.1.5 In England and Wales, floors will limit the risk of surface condensation adequately where 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 6 of this Certificate.

9.1.6 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the floor does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point, and the floor is designed and constructed in accordance with the relevant parts of BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6 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. A summary of instructions and guidance is provided in Annex A of this Certificate.

9.2.3 Existing constructions must be in a good state of repair, with no evidence of rain penetration or damp. Defects must be made good prior to installation.

9.2.4 De-rating of electric cables must be considered in areas where the product restricts the flow of air. The use of suitable conduit or trunking is recommended.

9.2.5 Any mould or fungal growth found to be present must be treated.

9.2.6 Installation must not be carried out until the moisture content of any timber is less than 20% by mass.

9.2.7 The installer must wear appropriate personal protective equipment when installing overhead or in closed spaces with poor ventilation.

9.2.8 Where multiple layers of batts are required to make up the thicknesses needed to meet specific U-value requirements (see table 6), joints should be offset by a minimum of 100 mm.

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

The product, once installed, does not require any maintenance, and has suitable durability provided the floor structure is maintained in good condition, and the void below the floor is ventilated in accordance with BS 5250 : 2021.

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 shrink-wrapped in polythene packs containing a label with the product description and characteristics, the manufacturer's name, 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 Where possible, packs should be stored inside. If stored outside, the product must be raised above ground level out of contact with ground moisture and protected from rain.

11.2.2 Packs are to be stacked on pallets on their sides when shipping and storing to avoid compression of the batt thicknesses. Pallets of products must not be stacked.

11.2.3 The product must not be exposed to naked flame or other ignition sources. Care must be taken to avoid contact with solvents and with materials containing volatile organic compounds. If damaged, the product must be discarded.

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 UKAD 040005-00-1201 : 2015.

Additional information on installation

- A.1 Installation must be in accordance with the Certificate holder's instructions and this Certificate.
- A.2 The batts are light to handle and can be cut easily with a 'wavy-bladed' insulation saw. For large volume work, a straight-knife textile bandsaw may be used.
- A.3 The product is self-supporting by friction fitting between the timber joists.
- A.4 An OSB board may be used as a cutting surface to provide grip; a pre-cut slit in the middle of the board as a saw guide is useful.
- A.5 For cutting narrow strips off, it can be helpful to place a piece of OSB board on top to compress slightly and use as a saw guide.
- A.6 Care must be taken not to apply the product to flue pipes or electrical cables that are not contained within a suitable conduit or trunking.
- A.7 After completion, a survey should be performed to check that electrical cables and flues are not obstructed. Corrective measures must be taken to clear any such obstruction.
- A.8 The product should be cut to fit tightly between the timber joists. Typical installation details are shown in Figures 1 to 4.

Figure 1 Typical suspended floor detail

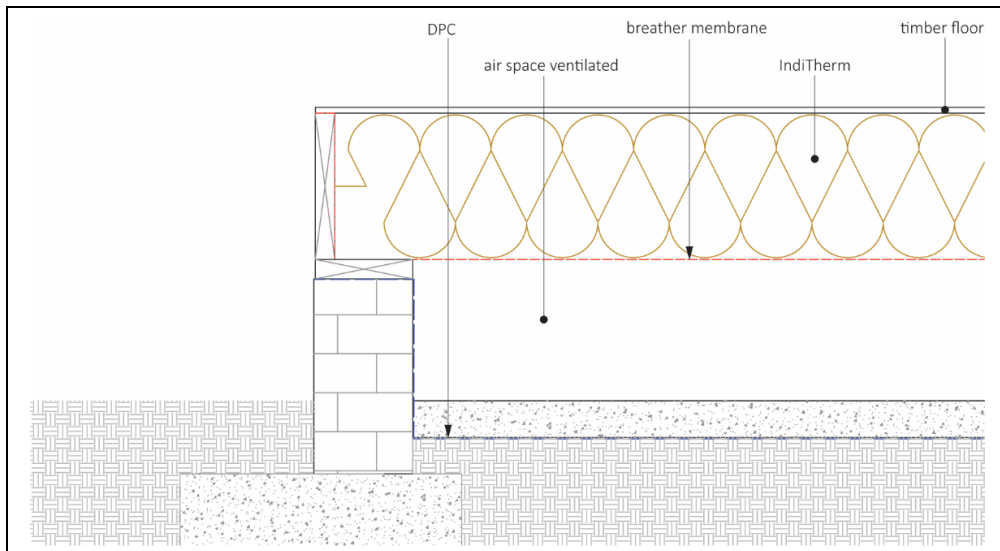
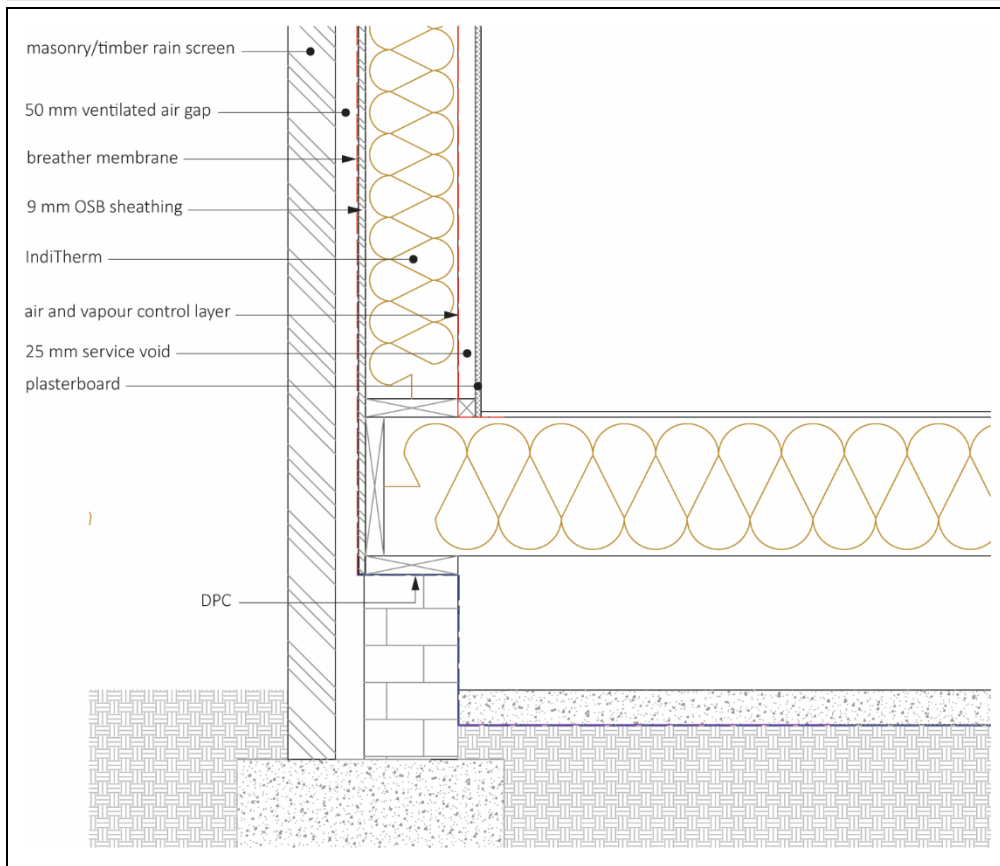
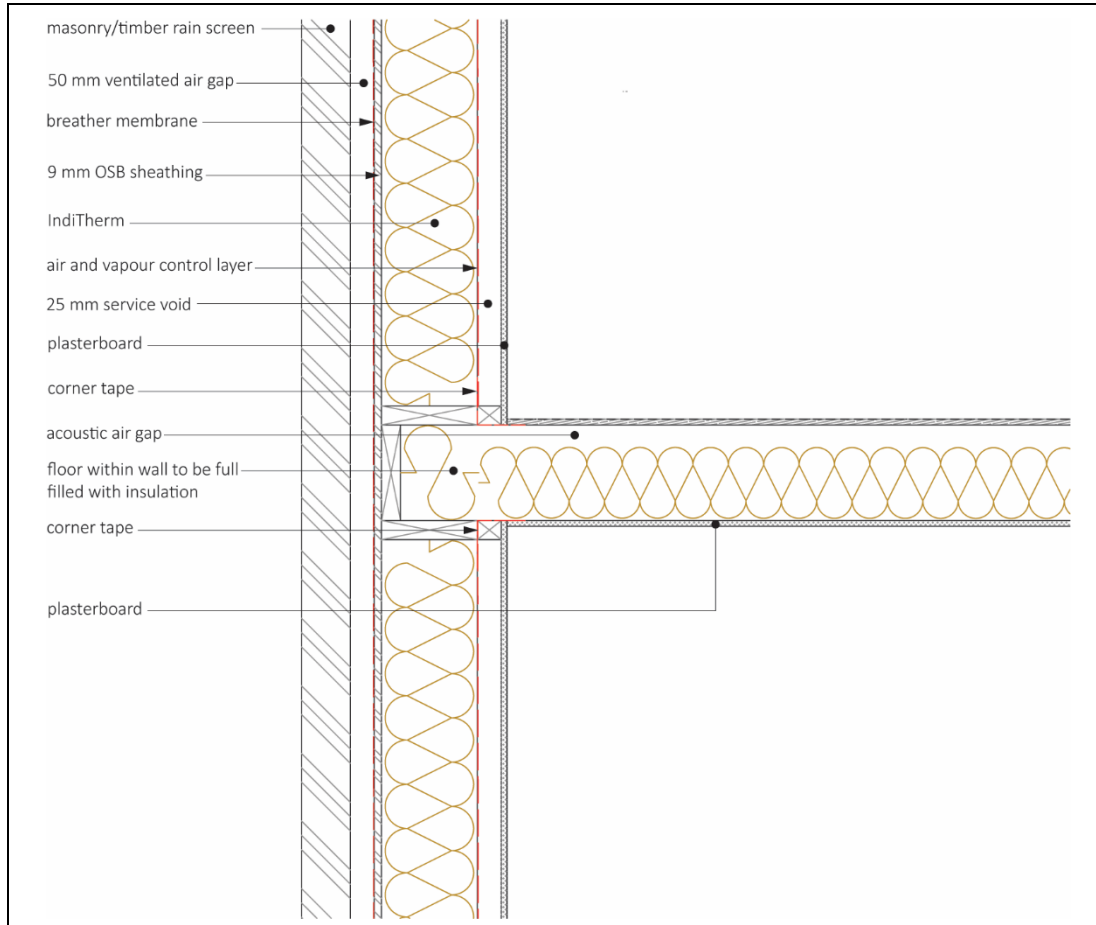


Figure 2 Wall to suspended floor junction detail



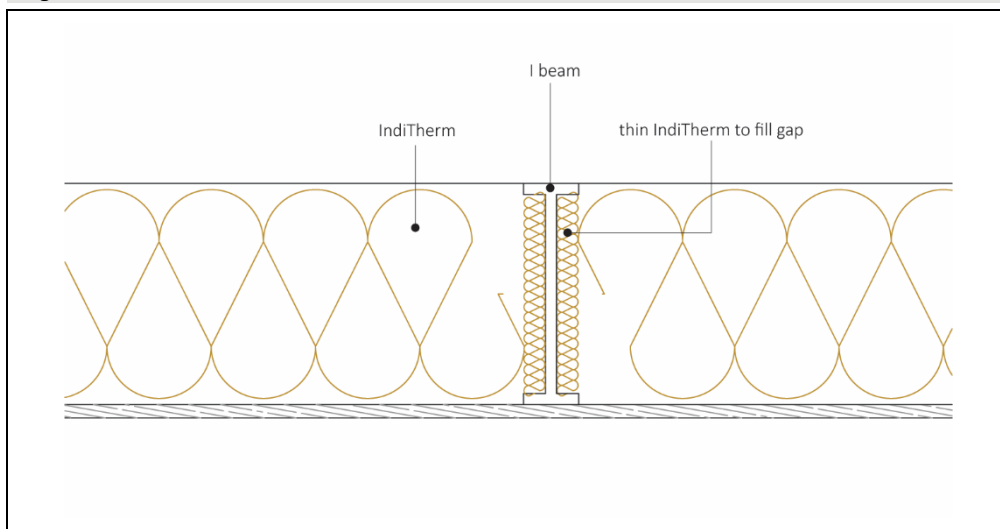
A.9 When installing in intermediate floors, it is best practice to not fill the void to the full height and leave an air gap in order to optimise acoustic dampening (see figure 3).

Figure 3 Wall to intermediate floor junction detail



A.10 When installing between engineered I beams, a thin piece of IndiTherm should be placed at the end before filling the remaining void with a full batt as in Figure 4.

Figure 4 I beam section detail



Bibliography

- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- BRE Report BR 443 : 2019 *Conventions for U-value calculations*
- BS 5250 : 2021 *Management of moisture in buildings — Code of practice*
- BS EN 351-1 : 2007 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*
- BS EN 520 : 2004 + A1 : 2014 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1604 : 2013 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*
- BS EN 1995-1-1 : 2004 + A2 : 2014 *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
- NA to BS EN 1995-1-1 : 2004 + A1 : 2008 UK National Annex to *Eurocode 5 : Design of timber structures — General — Common rules and rules for buildings*
- BS EN 12086 : 2013 *Thermal insulating products for building applications — Determination of water vapour transmission properties*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*
- BS EN ISO 846 : 1997 *Plastics — Evaluation of the action of microorganisms*
- UKAD 040005-00-1201 : 2015 *Factory-made thermal and/or acoustic insulation products made of vegetable or animal fibres*

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
- is copyright of the BBA
- is subject to English Law.

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.

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