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**Agrément Certificate**

**23/7062**

Product Sheet 1 Issue 1

## H<sub>2</sub> FOAM LITE E (LD-C-50 v8E) INSULATION

### H<sub>2</sub> FOAM LITE E (LD-C-50 v8E) FOR PITCHED ROOFS WITH LR UNDERLAYS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to H<sub>2</sub> Foam Lite E (LD-C-50 v8E) for pitched Roofs with LR underlays, an in-situ spray-applied thermal insulation for use in pitched roofs and lofts of new and existing domestic buildings. It is installed between and under timber rafters of tiled/slatted warm pitched roofs with low vapour resistance (LR) roof tile underlays, or between and over horizontal ceiling joists with a ventilated loft space.

(1) Hereinafter referred to as 'Certificate'.

#### The assessment includes

##### Product factors:

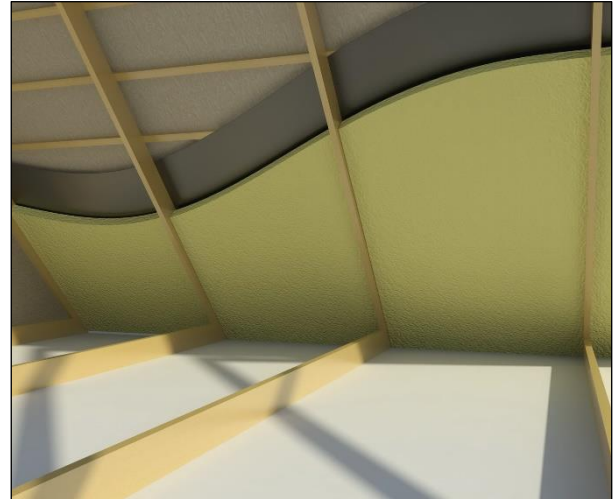
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

##### 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: 2 January 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.*

#### British Board of Agrément

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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 H<sub>2</sub> Foam Lite E (LD-C-50 v8E) for pitched roofs with LR underlays, 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)

<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
<b>Comment:</b>		The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
<b>Comment:</b>		The product can contribute to satisfying this Requirement; however, compensating fabric measures may be required See section 6 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
<b>Comment:</b>		The product is acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>25B</b>	<b>Nearly zero-energy requirements for new buildings</b>
<b>Regulation:</b>	<b>26</b>	<b>CO<sub>2</sub> emission rates for new buildings</b>
<b>Regulation:</b>	<b>26A</b>	<b>Fabric energy efficiency rates for new dwellings (applicable to England only)</b>
<b>Regulation:</b>	<b>26A</b>	<b>Primary energy rates for new buildings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26B</b>	<b>Fabric performance values for new dwellings (applicable to Wales only)</b>
<b>Regulation:</b>	<b>26C</b>	<b>Target primary energy rates for new buildings (applicable to England only)</b>
<b>Regulation:</b>	<b>26C</b>	<b>Energy efficiency rating (applicable to Wales only)</b>
<b>Comment:</b>		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)

<b>Regulation:</b>	<b>8(1)</b>	<b>Fitness and durability of materials and workmanship</b>
<b>Comment:</b>		The product is acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards – construction</b>
<b>Standard:</b>	<b>3.15</b>	<b>Condensation</b>
<b>Comment:</b>		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> , 3.15.3 <sup>(1)</sup> , 3.15.4 <sup>(1)</sup> , 3.15.5 <sup>(1)</sup> and 3.15.7 <sup>(1)</sup> . See section 3 of this Certificate.
<b>Standard:</b>	<b>6.1(b)(c)</b>	<b>Energy demand and carbon dioxide emissions</b>
<b>Comment:</b>	<b>(d)</b>	The product can contribute to satisfying this Standard, with reference to clause 6.1.1 <sup>(1)</sup> however, compensating fabric/services measures may be required. See section 6 of this Certificate.

Standard: Comment:	6.2	Building insulation envelope The product can contribute to satisfying this Standard, with reference to clauses, 6.2.1 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> , 6.2.6 <sup>(1)</sup> , 6.2.7 <sup>(1)</sup> , 6.2.8 <sup>(1)</sup> , 6.2.9 <sup>(1)</sup> , 6.2.10 <sup>(1)</sup> , 6.2.11 <sup>(1)</sup> and 6.2.12 <sup>(1)</sup> ; however, compensating fabric measures may be required. See section 6 of this Certificate.
Standard: Comment:	7.1(a)	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 at least a bronze level of sustainability as defined in this Standard. See section 6 of this Certificate.
Regulation: Comment:	12	<b>Building standards – conversions</b> Comments in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)</sup> and Schedule 6 <sup>(1)</sup> .

(1) Technical Handbook (Domestic).



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

Regulation: Comment:	23(1)(a) (i)(iii)(b) (i)(ii)	<b>Fitness of materials and workmanship</b> The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation: Comment:	29	<b>Condensation</b> The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation: Comment:	39(a)(i)	<b>Conservation measures</b> 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)	<b>Target carbon dioxide emission rate</b> <b>Renovation of thermal elements</b> <b>Nearly zero-energy requirements for new buildings</b> 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, H<sub>2</sub> Foam Lite E (LD-C-50 v8E) for pitched roofs with LR underlays, 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 7.2 *Pitched roofs*.

## Fulfilment of Requirements

The BBA has judged H<sub>2</sub> Foam Lite E (LD-C-50 v8E) for pitched roofs with LR underlays to be satisfactory for use as described in this Certificate. The product has been assessed for installation between and under timber rafters, in warm tiled and slated pitched roofs with a pitch of between 10 and 70° and a low vapour resistance roof tile underlay, and between and over horizontal ceiling joists with a ventilated loft space.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the product under assessment. H<sub>2</sub> Foam Lite E (LD-C-50 v8E) for pitched roofs with LR underlays is an in-situ formed, spray-applied, open-cell, water-blown, low-density, semi-rigid polyurethane foam insulation, consisting of:

- component A — isocyanate
- component B — resin.

The product has the nominal characteristics given in Table 1.

*Table 1 Nominal characteristics*

Characteristic (unit)	Method	Value
Mixing ratio	—	1:1 by volume
Colour	—	Yellow
Maximum thickness (mm)	BS EN 823 : 2013	200
Density (kg·m <sup>-3</sup> )	BS EN 1602 : 2013	7 - 9

#### Applications

The product is intended for use as insulation in the following applications, on new and existing domestic buildings:

- on tiled or slated pitched roofs, with a roof pitch of between 10 and 70°
- between, or between and under, timber rafters in warm pitched roof with a roof pitch of between 10 and 70° — insulation at rafter level only, with or without counter battens
- between, or between and over, timber ceiling joists in a ventilated cold pitched roof (loft space) with a roof pitch of between 10 and 70° — insulation at ceiling level only
- between, or between and under, timber rafters, where the purlin and ridge may be steel (including open web types).

### 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

Data were assessed for the following characteristics.

1.1 The product was tested for adhesion to the substrates given in Table 2.

*Table 2 Adhesion to substrates*

Product assessed	Assessment method	Substrate	Result (kPa)
H <sub>2</sub> Foam Lite E (LD-C-50 v8E)	BS EN 14315-1 : 2013 Annex F	Breather membrane	9
		Softwood	25
		OSB	33

1.2 On the basis of data assessed, the product has adequate adhesion to the substrates intended for use in this Certificate, provided they are clean and dry prior to application. See also Section 9 of this Certificate.

## 2 Safety in case of fire

### 2.1 Reaction to fire

2.1.1 The product was tested for reaction to fire and the classification is given in Table 3.

*Table 3 Reaction to fire classification<sup>(1)</sup>*

Product assessed	Assessment method	Requirement	Result
H <sub>2</sub> Foam Lite E (LD-C-50 v8E)	ČSN EN 13501-1 : 2019	Value achieved	E

(1) CSI. Report no: PK-23-136. 18 August 2023. Copies can be obtained from the Certificate holder.

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. Once installed, except for in a non-habitable loft application, 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 rafters, noggings, or battens.

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 cavity closers and barriers, 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.

## 3 Hygiene, health and the environment

### 3.1 Water vapour permeability

The product was tested for water vapour permeability to establish a water vapour resistance factor ( $\mu$ ). The result is given in Table 4.

*Table 4 Water vapour resistance factor ( $\mu$ )*

Product assessed	Assessment method	Requirement	Result
H <sub>2</sub> Foam Lite E (LD-C-50 v8E)	ČSN EN 12086 : 2013 (Method A)	Value achieved	4.4

### 3.2 Condensation

3.2.1 The BBA has assessed the product for the risk of interstitial condensation and the following factors must be implemented.

3.2.2 An assessment of the risk of interstitial condensation for the specific construction must be carried out in accordance with BS EN ISO 13788 : 2012, using a declared water vapour resistance factor ( $\mu$ ) of 4.4. If a risk of condensation is identified, then an assessment must also be carried out to BS EN 15026 : 2007.

3.2.3 To limit the risk of interstitial condensation, roofs must be designed and constructed in accordance with the relevant parts of BS 5250 : 2021, including the requirement for a well-sealed ceiling.

3.2.4 Adequate ventilation must be provided, particularly in rooms expected to experience high humidity, and to ensure the integrity of air and vapour control layers (AVCLs) and linings against vapour ingress.

3.2.5 Roof design, construction, and maintenance must limit opportunities for vapour migration by diffusion and by convection through gaps, cracks, and laps in AVCLs (where required) and through penetrations.

### Warm pitched roof — insulation at rafter level only

3.2.6 The insulation is sprayed to the underside of the LR breathable underlay, between, or between and under, the timber rafters (no insulation at horizontal ceiling level). An AVCL must be applied to the underside of the insulation (warm side), behind the fire-resistant lining board, where used.

### Cold pitched roof — insulation at horizontal ceiling level only

3.2.7 Existing service penetrations in the ceiling must be sealed and draught proofing provided to any loft hatches to reduce inflow of warm air and moisture. Any new loft insulation must be kept sufficiently clear of the eaves so that any adventitious ventilation is not reduced. The guidance given in BRE Report BR 262 : 2002 must be followed.

3.2.8 Insulation material placed at ceiling level will considerably reduce the temperature of an unheated roof structure and, if moist air passes into the roof space, condensation on cold surfaces is likely to increase. Roof structures incorporating the insulation at ceiling level must have provision for adequate permanent ventilation of the space above the insulation to minimise the formation of condensation in the roof space.

3.2.9 Permanent ventilation of the roof structure must be provided by continuous openings or regularly spaced vents of equivalent area situated along two opposite sides of the roof at eaves level, and at a high level when required. The size and position of ventilation openings for pitched roofs must be in accordance with the relevant recommendations of BS 5250 : 2021 and BRE Report BR 262 : 2002.

3.2.10 Ventilation openings must be arranged to prevent the ingress of rain, snow, birds and small mammals, and the risk of blockage by other building operations.

## 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
H <sub>2</sub> Foam Lite E (LD-C-50 v8E)	BS EN 14315-1 : 2013	Declared conductivity value ( $\lambda_D$ )	0.039 W·m <sup>-1</sup> ·K <sup>-1</sup>

### 6.2 Conservation of fuel and power

6.2.1 Example U-values are given in Tables 6 and 7 of this Certificate.

**Table 6 U values — warm pitched roofs (insulation at rafter level only, with sloping ceiling)<sup>(1)</sup>**

Design U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	H <sub>2</sub> Foam Lite E (LD-C-50 v8E) thickness
0.09	— (2)
0.11	— (2)
0.12	— (2)
0.13	— (2)
0.15	— (2)
0.16	— (2)
0.18	— (2)
0.20	— (2)
0.25	150 mm between rafters + 30 mm between additional battens

(1) Pitched roof construction — tiles on 25 mm timber tile battens on low-resistance (LR) breathable tile underlay on 47 by 150 mm timber rafters, with additional battens as required ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), at 400 mm centres (13.5%); variable thickness of insulation; AVCL; and 12.5 mm plasterboard ( $\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ )

(2) See section 6.2.4.

**Table 7 U values – cold pitched roofs (non-habitable loft space) – insulation at horizontal ceiling level)<sup>(1)</sup>**

Design U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	H <sub>2</sub> Foam Lite E (LD-C-50 v8E) thickness
0.09	— (2)
0.11	— (2)
0.12	— (2)
0.13	— (2)
0.15	— (2)
0.16	— (2)
0.18	— (2)
0.20	— (2)
0.25	150 mm between joists + 30 mm over joists

(1) Ceiling construction — 12.5 mm plasterboard ( $\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ); AVCL; variable thickness of insulation between and over 50 by 150 mm ceiling joists ( $\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ ), at 400 mm centres (13.5%)

(2) See section 6.2.4.

6.2.2 The U value of a completed roof 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.

6.2.4 For improved energy or carbon savings, designers must consider appropriate fabric/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 Data were assessed for the characteristics given in Table 8:

**Table 8 Dimensional stability and water absorption**

Product assessed	Assessment method	Requirement	Result
H <sub>2</sub> Foam Lite E (LD-C-50 v8E)	Dimensional stability to BS EN 1604 : 2013 (70°C and 90-100% RH for 48 hours)	Value achieved	Length, width and thickness ≤ 1.5 % change
H <sub>2</sub> Foam Lite E (LD-C-50 v8E)	Dimensional stability to BS EN 1604 : 2013 (-20°C for 48 hours)	Value achieved	Length, width and thickness ≤ 1.5 % change
H <sub>2</sub> Foam Lite E (LD-C-50 v8E) 50 mm thickness	Short-term water absorption by partial immersion to ČSN EN ISO 29767 : 2020 (Method B)	Value achieved	0.3 kg·m <sup>-2</sup>

### 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.

## 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 Roofs must be designed and constructed in accordance with the relevant clauses of BS 5250 : 2021, BS 5534 : 2014, BS 8103-3 : 2009, BS 8212 : 1995, BS EN 351-1 : 2007, the principles of BS EN 1995-1-1 : 2004 and its UK National Annex, and this Certificate.

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 product forms a strong bond with clean, dry substrates. This must be considered when specifying the product or anticipating future alterations.

9.1.5 To satisfy the requirements of NHBC, an AVCL of a type specified in the *NHBC Standards 2023* must be applied behind the fire-resistant lining board, and the product must only be applied to a roof construction incorporating a breathable roof underlay.

9.1.6 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.

9.1.7 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.

9.1.8 Where recessed lighting is used, provision must be made to prevent the fitting overheating.

9.1.9 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.



9.1.10 In England and Wales, roofs and loft spaces will limit the risk of surface condensation adequately where the thermal transmittance (U value) does not exceed  $0.35 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point and the junctions with other elements are designed in accordance with section 6 of this Certificate.

9.1.11 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the roof does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point, and roofs are designed and constructed in accordance with the relevant parts of BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002.

9.1.12 To comply with the requirements of the *Health and Safety at Work etc. Act 1974*, Section 4, it is essential that there is an exchange of information between the client and the installer before spray operations commence on any site. Existing health hazards and those brought into the premises by the installer must be discussed, and measures agreed to deal with them effectively.

## 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.

9.2.3 A pre-installation survey must be carried out and documented to ensure that the construction is suitable for the application of the product. This must include a condensation risk assessment to BS EN ISO 13788 : 2012, and if a risk of condensation is identified, then an assessment must also be carried out to BS EN 15026 : 2007 (see section 3 of this Certificate).

9.2.4 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.

9.2.5 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 roof timber is less than 20% by mass.

9.2.7 When spraying the product, care must be taken to ensure the integrity of the roof tile underlay drape (refer to the *HBS European Technical Training Manual* issued to installers).

9.2.8 The process for the installation of the product may produce a build-up of harmful vapours. The requirements of the *HBS European Technical Training Manual* and the product safety data sheets issued to installers, must be followed at all times.

9.2.9 The building must be well-ventilated during the spraying process as some vapours may sink to lower parts of the building.

9.2.10 If vapour levels need to be measured, methods must be those recommended by the Health and Safety Executive. Certain applications (eg, confined roofs) require the use of extractor fans as recommended by the Certificate holder.

9.2.11 To minimise the hazards of spraying, the following points must be observed:

- the installer must wear appropriate protective gear, including a full-face NIOSH-approved fresh air respirator, protective overalls, gloves and boots
- other than the installer, individuals must be kept away from the application area. No unprotected individuals should be in the structure where the application is being conducted
- the spray gun must never be left unattended
- the spray gun must only be pointed at the surface or, when not in use, at the floor
- the product must not be installed if wind is a concern – tarpaulins or other measures must be used to block it
- cleaning the spray gun requires use of a solvent to break down and/or remove the reacted components; therefore, to prevent exposure to the components and the solvent, proper protection must be worn.

9.2.12 Whilst spraying, care must be taken to minimise the degree of overspray, a fine mist of particles that can travel considerable distances and adhere strongly to surfaces it lands on.

9.2.13 To prevent the product from entering an occupied space, the loft hatch/cover must be kept sealed as much as is practicably possible during the spraying process. Protective covers must be placed over water tanks to prevent contamination and blockage during application, which must not be removed until sufficient time has elapsed for potentially harmful vapours to be ventilated from the roof space.

### 9.3 Workmanship

Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information and a site visit to witness an installation in progress. To achieve the performance described in this Certificate, the product must only be installed by Installers who have been trained and approved by the Certificate holder. Details of Approved Installers are available from the Certificate holder.

### 9.4 Maintenance and repair

Once installed, provided that the roof tiles/slates are maintained in a weathertight condition, 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 will 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 drums of up to 250 kg capacity, bearing the product name, Certificate holder's name, batch number 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 Drums must be stored in a well-ventilated area, between 15 and 32°C, and away from possible ignition sources.

11.2.2 The drums must be protected from frost.

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.

### CLP Regulations

The Certificate holder has taken the responsibility of classifying and labelling the product under the *GB CLP Regulation* and the *CLP Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheets.

### UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 14315-1 : 2013.

### Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by BSI (Certificate FM 82460).

### Additional information on installation

#### Procedure

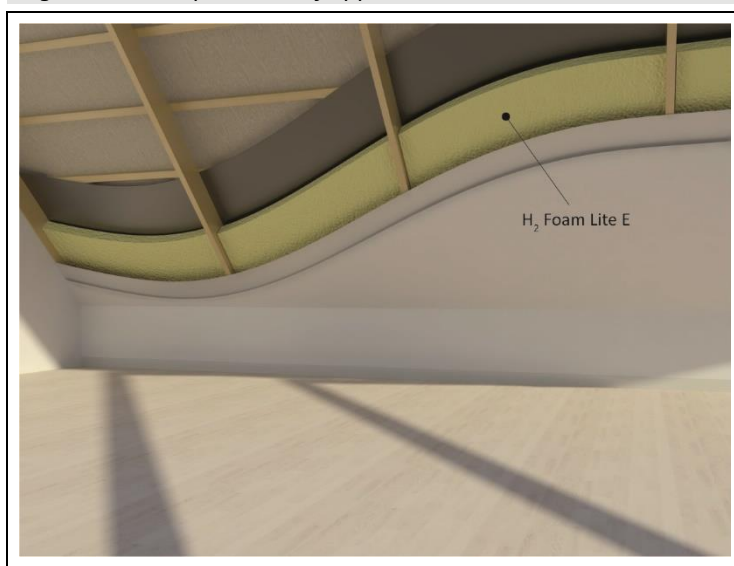
- A.1 Building elements to be insulated must be assessed for suitability, and any necessary repairs carried out. Elements must be weathertight before application of the product. The positioning and access to services should also be considered.
- A.2 Access boards and lighting should be positioned in the roof void.
- A.3 The product should be stored, handled and applied in accordance with the Certificate holder's instructions and this Certificate.
- A.4 The product should be spray-applied to clean and dry substrates, and built up in layers, up to a maximum thickness of 200 mm.
- A.5 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.6 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.

#### **Warm pitched roof — insulation between, or between and under, rafters only**

- A.7 The product can be applied directly to a LR breathable roof underlay when a counter batten is fitted above the underlay.
- A.8 When spraying LR breathable roof tile underlays without counter battens, the product must be applied in accordance with the Certificate holder's installation instructions, to ensure the integrity of the roof tile drape.

A.9 When cured, if required, the excess foam may be trimmed flush with the rafters, with care, and an AVCL with lapped and sealed joints installed followed by a fire-resistant lining board (see Figure 1).

*Figure 1 Warm pitched roof application*



#### **Cold pitched roof with insulation at ceiling level: loft application**

A.10 All removable obstructions should first be cleared from the loft space and any holes in the ceiling, such as around pipes, should be sealed. Water tanks should be covered and any sources of moisture (eg, vent pipes for central heating) arranged to avoid water vapour entering the loft space.

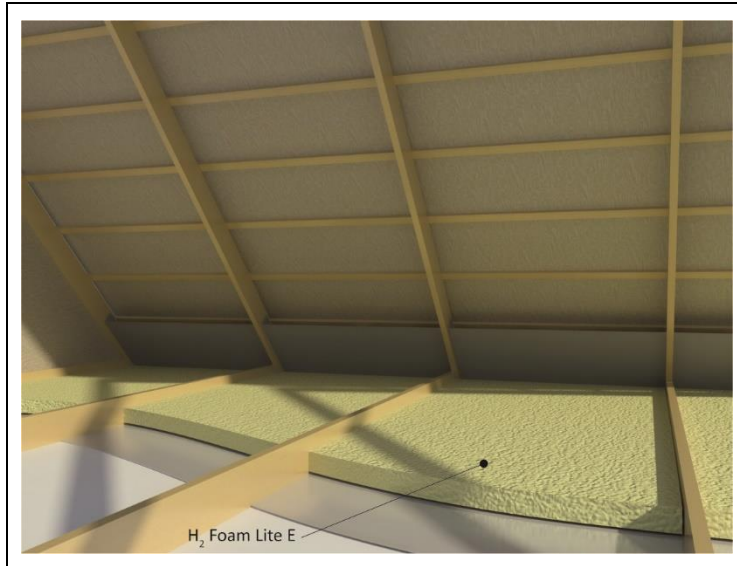
A.11 To reduce the risk of frost damage, the pipes and tank in the loft space should be lagged before installing the product. The area directly below cold-water tanks when resting at joist level must not be insulated to avoid the risk of the stored water freezing in cold weather.

A.12 During installation, it is essential that all ventilation points (for example, eaves gaps and air bricks at gable ends) are kept clear of insulant so that the airflow is maintained. Suitable proprietary eaves ventilators must be used.

A.13 The product should be installed from inside the roof space, after tiling or slating is completed.

A.14 The product is applied to the AVCL, between ceiling joists (see Figure 2). The product may also be applied over joists up to a maximum thickness of 200 mm.

Figure 2 Cold pitched roof application



## Bibliography

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