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Agrément Certificate

23/6845

Product Sheet 1 Issue 1

THERMOFOAM SUCRASEAL 0.5 INSULATION

THERMOFOAM SUCRASEAL 0.5 FOR PITCHED ROOFS WITH LR UNDERLAYS

This Agrément Certificate Product Sheet⁽¹⁾ relates to ThermoFoam Sucraseal 0.5 for Pitched Roofs with LR underlays, an in-situ spray-applied thermal insulation for use in pitched roofs and lofts of new or 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†:

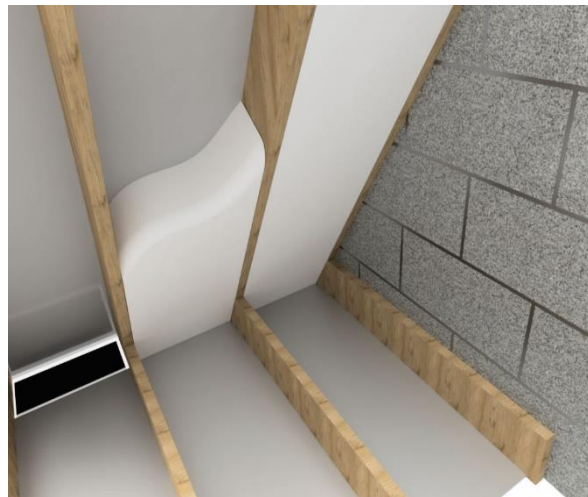
- regular assessment of production
- formal 3-yearly review

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: 6 April 2023

Hardy Giesler
Chief Executive Officer



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

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. 3537).

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 ThermoFoam Sucraseal 0.5 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)

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 consumption 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	Minimum 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 applicable to construction
Standard:	2.4	Cavities
Comment:		Use of the product is restricted by this Standard, with reference to clause 2.4.2 ⁽¹⁾ . See section 2 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.3 ⁽¹⁾ , 3.15.4 ⁽¹⁾ , 3.15.5 ⁽¹⁾ and 3.15.7 ⁽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⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽¹⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾ and 6.2.12 ⁽¹⁾ , however, compensating fabric measures may be required. See section 6 of this Certificate.
Standard:	7.1(a)	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 at least 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⁾ and 7.1.7 ⁽¹⁾ . See section 6 of this Certificate.
Regulation:	12	Building standards applicable to conversions
Comment:		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 ⁽¹⁾ and Schedule 6 ⁽¹⁾ .

(1) Technical Handbook (Domestic).



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

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

NHBC Standards 2023

In the opinion of the BBA, ThermoFoam Sucraseal 0.5 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 ThermoFoam Sucraseal 0.5 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 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. ThermoFoam Sucraseal 0.5 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 of ThermoFoam Sucraseal 0.5

Characteristic (unit)	Method	Value
Mixing ratio	—	1:1 by volume
Colour	—	Yellow
Maximum thickness (mm)	BS EN 823 : 2013	200
Density (kg·m ⁻³)	BS EN 1602 : 2013	12-24

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 a warm pitched roof— insulation at rafter level only, with counter battens
- between, or between and over, timber ceiling joists in a ventilated cold pitched roof (loft space) —insulation at ceiling level only

Product assessment – key factors

The product was assessed for the following key factors, and the outcome of the assessments are shown below. Conclusions relating to 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)
ThermoFoam Sucraseal 0.5	BS EN 14315 : 2013 Annex F	Breather membrane	34
		Softwood	39
		OSB	38

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

Data were assessed for the following characteristics.

2.1 Reaction to fire

2.1.1 The Certificate holder has not declared a reaction to fire classification for the product to BS EN 13501-1 : 2018.

2.1.2 The product is classified as Class 1 surface spread of flame to BS 476 : Part 7 : 1997⁽¹⁾

⁽¹⁾Warringtonfire, report ref 508786, dated 25th October 2021. Copies can be obtained from the Certificate holder.

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

2.1.4 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 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, noggins, or battens.

2.1.5 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.

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 to establish a water vapour resistance factor (μ). The results are given in Table 3.

Table 3 Water vapour resistance factor (μ)

Product assessed	Assessment method	Requirement	Result
ThermoFoam Sucraseal 0.5	BS EN 12086 : 2013, method A	Declared value	8.8

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 (μ) of 8.8. 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 results are given in Table 4

Product assessed	Thickness (mm)	Assessment method	Requirement	Result
ThermoFoam Sucraseal 0.5	< 100	BS EN 14315-1 : 2013	Declared conductivity (λ_D) values ($W \cdot m^{-1} \cdot K^{-1}$)	0.039
	100 to 200			0.040

6.2 Thermal performance

6.2.1 The U value of a completed roof will depend on the insulation thickness, its structure, and its internal finish. Example U-values are given in Tables 5 and 6 of this Certificate.

Design U value ($W \cdot m^{-2} \cdot K^{-1}$)	ThermoFoam Sucraseal 0.5 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 ($\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$), at 400 mm centres (12.8%); variable thickness of insulation; AVCL; and 12.5 mm plasterboard ($\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$).

(2) See section 6.2.3

Table 6 U values – cold pitched roofs (insulation at horizontal ceiling level)⁽¹⁾

Design U value (W·m ⁻² ·K ⁻¹)	ThermoFoam Sucraseal 0.5 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 + 35 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%), ventilated loft space

(2) See section 6.2.3

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

6.2.3 For improved energy or carbon savings, designers must consider appropriate 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 Data were assessed for the following characteristics:

Table 7 Dimensional stability and water absorption

Product assessed	Assessment method	Requirement	Result
ThermoFoam Sucraseal 0.5	Dimensional stability to BS EN 1604 : 2013 (70°C and 90-100% RH for 48 hours)	Length and width $\leq 4\%$ change Thickness $\leq 1\%$ change	PASS
ThermoFoam Sucraseal 0.5	Dimensional stability to BS EN 1604 : 2013 (-20°C for 48 hours)	Length and width $\leq 2\%$ change Thickness $\leq 1\%$ change	PASS
ThermoFoam Sucraseal 0.5 50 mm thickness	Water absorption to BS EN 1609 : 2013 (Method B)	Declared value	9.3 kg·m ²

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 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, 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 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 flue 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 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 should 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 are 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 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 *Thermoprotect Installer Training Manual* issued to trained installers).

9.2.8 The process for the installation of the product may produce a build-up of harmful vapours. The requirements of the *Thermoprotect Installer 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.

9.2.10 If vapour levels must 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 should never be left unattended
- the spray gun should only be pointed at the surface or, when not in use, at the floor
- the product should not be installed if wind is a concern; tarpaulins or other measures should 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 should be worn.

9.2.12 Whilst spraying, care should 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 should 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 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.

†10.1.6 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, company 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 10 and 26°C, and away from possible ignition sources.

11.2.2 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.

CE marking

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

Additional Guidance

The Certificate holder operates an Approved Installer Scheme for this product, under which the installers are approved, registered, and regularly reviewed by the Certificate holder to demonstrate that they are competent to carry out installation of the product in accordance with their instructions and this Certificate. Details of Approved Installers are available from the Certificate holder.

Additional information on installation

Procedure

- A.1 Access boards and lighting should be positioned in the roof void.
- A.2 The product should be stored, handled and applied in accordance with the Certificate holder's instructions and this Certificate.
- A.3 The product should be spray-applied to clean and dry substrates and built up in one or two layers, up to a total maximum thickness of 200 mm.
- A.4 Care must be taken not to apply the product to flue pipes or to electrical cables that are not contained within a suitable conduit or trunking.
- A.5 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.6 The product can be applied directly to a LR breathable roof underlay when a counter batten is fitted above the underlay.
- A.7 The product is sprayed into the cavity formed by the rafters, or rafters and counter battens
- A.8 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.

Cold pitched roof with insulation at ceiling level: loft application

A.9 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.10 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.11 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.12 The product should be installed from inside the roof space, after tiling or slating is completed.

A.13 The product is applied to the AVCL, between horizontal ceiling joists. The product may also be applied over joists up to a maximum thickness of 200 mm.

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 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*
- BS 8103-3 : 2009 *Structural design of low-rise buildings — Code of practice for timber floors and roofs for housing*
- BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*
- 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 823 : 2013 *Thermal insulating products for building applications — Determination of thickness*
- BS EN 1602 : 2013 *Thermal insulating products for building applications — Determination of the apparent density*
- BS EN 1604 : 2013 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*
- BS EN 1609 : 2013 *Thermal insulating products for building applications — Determination of short term water absorption by partial immersion*
- BS EN 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 12667 : 2001 *Thermal performance of building materials and products — Determination of thermal resistance by means of guarded hot plate and heat flow meter methods — Products of high and medium thermal resistance*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 14315-1 : 2013 *Thermal insulating products for buildings — In-situ formed sprayed rigid polyurethane (PUR) and polyisocyanurate (PIR) foam products — Specification for the rigid foam spray system before installation*
- BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BS EN ISO 13788 : 2012 *Hygrothermal performance of building components and building elements — Internal surface temperature to avoid critical surface humidity and interstitial condensation — Calculation methods*

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, UKNI or 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.

British Board of Agrément

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