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Agrément Certificate

23/6884

Product Sheet 4 Issue 1

UNILIN SAFE-R INSULATION

UNILIN SAFE-R FRAMING AND RAINSCREEN BOARD (SR/FB)

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Unilin Safe-R Framing and Rainscreen Board (SR/FB), comprising a rigid phenolic foam (PF) board with a perforated composite foil facing on both sides. The product is for use as thermal insulation either between internal studding and against the external face of a sheathing board, in conjunction with masonry, timber-frame or steel-frame substrates and either a masonry outer skin or a weathertight ventilated cladding system, in new and existing domestic and non-domestic buildings, with height restrictions.

(1) Hereinafter referred to as 'Certificate'.

The assessment includes

Product factors:

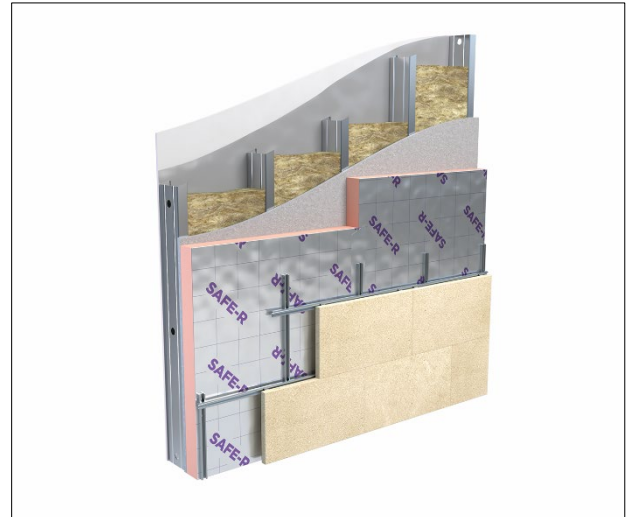
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

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 June 2024

Hardy Giesler
Chief Executive Officer

This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.

The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).

Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

The Certificate should be read in full as it may be misleading to read clauses in isolation.

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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SUMMARY OF ASSESSMENT AND COMPLIANCE

This section provides a summary of the assessment conclusions; readers should refer to the later sections of this Certificate for information about the assessments carried out.

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that the Unilin Safe-R Framing and Rainscreen Board (SR/FB), if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales) (as amended)

Requirement: B3(4)	Internal fire spread (structure)
Comment:	The product can contribute to satisfying this Requirement. See section 2 of this Certificate.
Requirement: B4(1)	External fire spread
Comment:	The product is restricted by this Requirement. See section 2 of this Certificate.
Requirement: C2(a)	Resistance to moisture
Comment:	The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The product can contribute to satisfying this Requirement. See section 9 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The product can contribute to satisfying this Requirement. See section 3 of this Certificate.
Requirement: L1(a)(i)	Conservation of fuel and power
Comment:	The product can contribute to satisfying this Requirement; 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: 7(2)	Materials and workmanship
Comment:	The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation: 25B	Nearly zero-energy requirements for new buildings
Regulation: 26	CO₂ emission rates for new buildings
Regulation: 26A	Fabric energy efficiency rates for new dwellings (applicable to England only)
Regulation: 26A	Primary energy rates for new buildings (applicable to Wales only)
Regulation: 26B	Fabric performance values for new dwellings (applicable to Wales only)
Regulation: 26C	Target primary energy rates for new buildings (applicable to England only)
Regulation: 26C	Energy efficiency rating (applicable to Wales only)
Comment:	The product can contribute to satisfying these Regulations; however, compensating fabric/service 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:	8(3)	Fitness and durability of materials and workmanship
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	9	Building standards – construction
Standard:	2.4	Cavities
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 2.4.2 ⁽¹⁾⁽²⁾ , 2.4.4 ⁽¹⁾ and 2.4.6 ⁽²⁾ . See section 2 of this Certificate.
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is restricted by this Standard, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 2 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ and 3.4.5 ⁽¹⁾⁽²⁾ . See section 3 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ , 3.10.3 ⁽¹⁾⁽²⁾ and 3.10.5 ⁽¹⁾⁽²⁾ . See section 9 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See section 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 6.1.1 ⁽¹⁾ and 6.1.2 ⁽²⁾ ; however, compensating fabric/service 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, or parts of clauses, 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾⁽²⁾ , 6.2.8 ⁽¹⁾⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾⁽²⁾ , 6.2.11 ⁽²⁾ and 6.2.12 ⁽¹⁾ ; however, compensating fabric measures may be required. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the product can, in some cases, contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ , 7.1.6 ⁽¹⁾⁽²⁾ , 7.1.7 ⁽¹⁾ , 7.1.9 ⁽²⁾ and 7.1.10 ⁽²⁾ . See section 6 of this Certificate.
Regulation:	12	Building standards – conversion
Comment:		All comments 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⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



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

Regulation:	23(1)(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)(ii)	The product is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	23(2)	Fitness of materials and workmanship
Comment:		The product is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	28(a)	Resistance to moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The product can contribute to satisfying this Regulation. See section 9 of this Certificate.
Regulation:	29	Condensation
Comment:		The product can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	35(4)	Internal fire spread – structure
Comment:		The product can contribute to satisfying this Regulation. See section 2 of this Certificate.
Regulation:	36(a)	External fire spread
Comment:		The product is restricted by this Regulation. See section 2 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/service measures may be required. See section 6 of this Certificate.

Additional Information

NHBC Standards 2024

In the opinion of the BBA, the Unilin Safe-R Framing and Rainscreen Board (SR/FB), if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapters 6.1 *External masonry walls*, 6.2 *External timber framed walls*, 6.9 *Curtain walling and cladding* and 6.10 *Light steel framed walls and floors*.

Fulfilment of Requirements

The BBA has judged the Unilin Safe-R Framing and Rainscreen Board (SR/FB) to be satisfactory for use as described in this Certificate. The product has been assessed for use as thermal insulation either between internal studding and against the external face of a sheathing board, in conjunction with masonry, timber-frame or steel-frame substrates and either a masonry outer skin or a weathertight ventilated cladding system, in new and existing domestic and non-domestic buildings, with height restrictions.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the product under assessment. The Unilin Safe-R Framing and Rainscreen Board (SR/FB) comprises a closed-cell rigid phenolic foam (PF) board with a perforated composite foil facing on both sides.

The product has the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of Unilin Safe-R Framing and Rainscreen Board (SR/FB)

Characteristic (unit)	Value
Length (mm)	2400
Width (mm)	1200
Thickness (mm)	50 to 150
Edge profile	Square

Ancillary Items

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

- air and vapour control layer (AVCL)
- gypsum plasterboard lining
- breather membrane
- insulation fasteners/fixings
- rainscreen cladding.

Applications

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

- between the inner leaf studs of conventional timber-frame cavity walls with a clear cavity and a masonry outer skin or a weathertight ventilated cladding system
- between the inner leaf studs of conventional steel-frame cavity walls with a clear cavity and a masonry outer skin or a weathertight ventilated cladding system
- as insulated sheathing over walls of conventional timber-frame or steel-frame buildings with a clear cavity and a masonry outer skin or a weathertight ventilated cladding system
- as rainscreen board on masonry walls (where masonry includes clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks), in conjunction with weathertight ventilated cladding systems.

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 ⁽¹⁾
Unilin Safe-R Framing and Rainscreen Board (SR/FB)	NF EN 13501-1 : 2013	Value achieved	C-s1, d0

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. 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 studs or battens.

2.1.3 In England, the product must not be used on residential buildings with a storey 11 m or more in height or on other buildings with a storey 18 m or more in height.

2.1.4 In Wales and Northern Ireland, the product must not be used on buildings with a storey 18 m or more in height.

2.1.5 In Scotland, the product must not be used on buildings that have a storey 11 m or more in height, or within 1 m of a relevant boundary.

2.1.6 Designers must refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity closers and barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction.

2.2 Resistance to fire

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

3 **Hygiene, health and the environment**

Data were assessed for the following characteristics.

3.1 Effectiveness against rising damp

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

Table 3 Short term water absorption by partial immersion

Product assessed	Assessment method	Requirement	Result
Unilin Safe-R Framing and Rainscreen Board (SR/FB)	BS EN 1609 : 1997	$\leq 1.25 \text{ kg}\cdot\text{m}^{-2}$	Pass

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

3.2 Water vapour permeability

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

Table 4 Water vapour resistivity/resistance

Product assessed	Assessment method	Requirement	Result
Phenolic foam insulation	BS EN 12086 : 1997	Value achieved	171 MN·s·g ⁻¹ ·m ⁻¹
Composite foil-facing perforated	PN EN 12086 : 2001 (Set C)		4.77 MN·s·g ⁻¹

3.2.2 For the purposes of assessing the risk of condensation, the water vapour resistivity/resistance values may be taken as stated in Table 4.

3.2.3 An AVCL must be used should the condensation risk analysis show that this is necessary.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable

6 Energy economy and heat retention

Data were assessed for the following characteristics.

6.1 Thermal conductivity

The product was tested for thermal conductivity and the results are given in Table 5.

Table 5 Thermal conductivity

Product assessed	Insulation thickness	Assessment method	Requirement	Result
Unilin Safe-R Framing and Rainscreen Board (SR/FB)	50 to 99 mm	BS EN 13166 : 2012	Declared value (λ _D)	0.021 W·m ⁻¹ ·K ⁻¹
	100 to 150 mm			0.020 W·m ⁻¹ ·K ⁻¹

6.2 Thermal performance

The unprinted side of the foil facing was tested for emissivity and the result is given in Table 6.

Table 6 Emissivity of the foil facing

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

6.3 Conservation of fuel and power

6.3.1 The U value of completed wall construction will depend on the insulation thickness, number and type of fixings, the insulating value of the substrate and its internal finish. Example U values are given in Tables 7 to 11 of this Certificate.

Table 7 Example U values — between timber studs⁽¹⁾

Target U value (W·m ⁻² ·K ⁻¹)	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (mm)
0.13	— ⁽²⁾
0.15	— ⁽²⁾
0.17	— ⁽²⁾
0.18	— ⁽²⁾
0.21	115
0.26	85
0.28	75
0.30	70

(1) Construction, external to internal: 102.5 mm brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); 50 mm slightly vented cavity (580 mm²·m⁻¹ opening area); breather membrane; 9 mm OSB (oriented strand board) sheathing board ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); SR/FB insulation within a 140 mm timber frame (15% fraction), and a residual low e airspace; AVCL; 15 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) See section 6.3.3.

Table 8 Example U values — between steel studs⁽¹⁾

Target U value (W·m ⁻² ·K ⁻¹)	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (mm)
0.13	— ⁽²⁾
0.15	— ⁽²⁾
0.17	— ⁽²⁾
0.18	— ⁽²⁾
0.21	— ⁽²⁾
0.26	— ⁽²⁾
0.28	— ⁽²⁾
0.30	— ⁽²⁾
0.35	65

(1) Construction, external to internal: 102.5 mm brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); 50 mm clear cavity; breather membrane; 9 mm OSB (oriented strand board) sheathing board ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); SR/FB insulation within a 90 mm light steel frame (0.2% fraction) and a residual low e airspace; AVCL; 15 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) See section 6.3.3.

Table 9 Example U values — timber frame sheathing⁽¹⁾⁽²⁾

Target U value (W·m ⁻² ·K ⁻¹)	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (clear 140 mm timber frame) (mm) ⁽³⁾	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (140 mm timber frame with insulation) (mm) ⁽⁴⁾
0.13	130	50
0.15	110	50
0.17	100	50
0.18	95	50
0.21	75	— ⁽⁵⁾
0.26	60	— ⁽⁵⁾
0.28	55	— ⁽⁵⁾
0.30	50	— ⁽⁵⁾

(1) Construction, external to internal: 102.5 mm brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); 50 mm slightly vented low e cavity (580 mm²·m⁻¹ opening area); SR/FB; breather membrane; 9 mm OSB (oriented strand board) sheathing board ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); 140 mm timber frame (15% fraction); AVCL; 15 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) Calculations based upon 4.4 stainless steel cavity wall ties per m² (6.6 mm² cross-sectional area, $\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(3) SR/FB insulation installed against the sheathing board with no insulation in the timber frame.

(4) SR/FB Insulation installed against the sheathing board with 135 mm of SR/FB insulation, and a residual low e airspace, in the timber frame with a 15% timber frame fraction.

(5) Achieves the target U value without SR/FB as insulated sheathing.

Table 10 Example U values — steel frame sheathing⁽¹⁾⁽²⁾

Target U value (W·m ⁻² ·K ⁻¹)	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (clear 90 mm steel frame) (mm) ⁽³⁾	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (90 mm steel frame with insulation) (mm) ⁽⁴⁾
0.13	125	85
0.15	105	65
0.17	95	50
0.18	90	50
0.21	75	50
0.26	55	50
0.28	50	50
0.30	50	50

(1) Construction, external to internal: 102.5 mm brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); 50 mm low e cavity, SR/FB; breather membrane; 9 mm OSB sheathing board ($\lambda = 0.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$); 90 mm light steel frame (0.2% fraction); AVCL; 15 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) Calculations based upon 4.4 stainless steel cavity wall ties per m² (6.6 mm² cross-sectional area, $\lambda = 17 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(3) SR/FB insulation installed against the sheathing board with no insulation in the steel frame.

(4) SR/FB insulation installed against the sheathing board with 85 mm of SR/FB insulation, and a residual low e airspace, in the steel frame with a 0.2% steel frame fraction.

Table 11 Example U values — masonry rainscreen application⁽¹⁾⁽²⁾

Target U Value (W·m ⁻² ·K ⁻¹)	Unilin Safe-R Framing and Rainscreen Board (SR/FB) thickness (mm)
0.13	— ⁽³⁾
0.15	— ⁽³⁾
0.17	— ⁽³⁾
0.18	— ⁽³⁾
0.21	— ⁽³⁾
0.26	110
0.28	100
0.30	95

(1) Construction, external to internal: 10 mm rainscreen cladding; 50 mm open fully ventilated cavity; SR/FB; 140 mm dense concrete block ($\lambda = 1.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$) bridged by mortar (6.7% fraction); 15 mm dot and dab adhesive cavity (20% adhesive bridge); 15 mm plasterboard ($\lambda = 0.25 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$).

(2) A fixing correction factor (ΔU_f) of $0.1 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ has been applied, to allow for the thermal bridging of the rainscreen brackets.

(3) See section 6.3.3.

6.3.2 On the basis of data assessed, the product can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

6.3.3 For improved energy or carbon savings, designers must consider appropriate compensating fabric/service 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 Specific test data were assessed, as shown in Table 12.

Table 12 Dimensional stability

Product assessed	Assessment method	Requirement	Result
Unilin Safe-R Framing and Rainscreen Board (SR/FB)	Dimensional stability to BS EN 1604 : 1996 (70°C and 90% RH for 48 hours)	Declared value	DS(70,90)
	Dimensional stability to BS EN 1604 : 1996 (-20°C for 48 hours)		DS(-20,-)

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 External framed cavity walls must be designed and constructed in accordance with the relevant recommendations of:

- BS 5250 : 2021
- BS 8000-3 : 2020
- BS EN 351-1 : 2023
- BS EN 845-1 : 2013
- BS EN 1993-1-2 : 2005 and its UK National Annex
- BS EN 1993-1-3 : 2006 and its UK National Annex
- BS EN 1995-1-1 : 2004 and its UK National Annex
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-1-2 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS EN 1996-3 : 2006 and its UK National Annex.

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

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

9.1.5 The designer must select a construction appropriate to the local wind-driven rain index to BS EN 1996-2 : 2006 and its UK National Annex, paying due regard to the design detailing, workmanship and materials to be used. It is essential that such walls are designed and constructed to incorporate normal precautions against moisture ingress.

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

- cavity trays and damp-proof courses (DPCs)
- cavity barriers and fire dampers

- resistance to the ingress of precipitation, moisture and dangerous gases from the ground
- resistance to sound transmission when flanking separating walls and floors.

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

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

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

9.1.10 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration, and the detailed guidance found in the documents supporting the national Building Regulations must be followed.

Interstitial condensation

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

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

Surface condensation

9.1.13 In England and Wales, walls will adequately 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 9.1.10 of this Certificate.

9.1.14 For buildings in Scotland, wall constructions will be acceptable where the thermal transmittance (U value) of the wall does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point, and walls 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 and section 9.1.10 of this Certificate.

When installed on the external face of a sheathing board

Buildings up to 18 metres high (see also section 2 of this Certificate)

9.1.15 The residual cavity width to be maintained during construction is 50 mm. This may reduce to 25 mm in isolated areas due to individual construction features (a minimum of 50 mm residual cavity width is required by the NHBC⁽¹⁾). This may be achieved by designing a cavity width which takes into account the dimensional tolerances of the components which make up the wall (by reference to the British Standards relating to the bricks, blocks and boards, or by using the data from the respective manufacturers). Allowances may need to be made for the quality of building operatives and the degree of site supervision or control available. The limitations in respect of exposure of the proposed building as set out in Table 13 must also be observed.

(1) The NHBC requirement for a residual cavity width is increased to 75 mm in areas of very severe exposure where the outer leaf is fair-faced masonry.

Table 13 Maximum allowable exposure index $E^{(1)}$

Construction	Maximum allowable exposure index $E^{(1)}$
All external masonry walls protected by: rendering (to BS EN 13914-1 : 2016), tile hanging, slate hanging, or timber, plastic or metal weatherboarding or cladding	No restriction
One or more external masonry walls constructed from facing clay brickwork or natural stone, the porosity of which exceeds 20% by volume. Mortar joints must be flush pointed or weatherstruck	100
One or more external masonry walls constructed from calcium silicate bricks, concrete blocks, reconstituted stone, or natural stone, the porosity of which is less than 20% by volume, or any material with raked mortar joints	88

(1) To BS 5618 : 1985.

9.1.16 From ground level, the maximum height of continuous cavity walls must not exceed 12 m; above 12 m, the maximum height of continuous cavity walls must not exceed 7 m. In both cases, breaks should be in the form of continuous horizontal cavity trays and weepholes discharging to the outside.

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

9.1.18 Certain rainscreen systems, such as those with open joints, may require the addition of a breather membrane incorporated into the system. The requirement for a membrane must be determined by the system designer and is outside the scope of this Certificate.

9.1.19 The air gap between the face of the insulation and the back of the rainscreen panels must be of sufficient width to allow any water passing the joints to run down the back of the rainscreen panels and be discharged externally without wetting the insulation or the backing wall. The minimum width for air gaps required by NHBC is:

- 50 mm for panels with open joints
- 38 mm for panels with baffled or labyrinth (rebated) joints.

9.1.20 Although the product will not be directly exposed to wind, each installation must be designed to withstand, without damage or permanent deformation, the pressures imposed by wind forces. The product will experience substrate movement which must be considered in the structural design of the construction.

9.1.21 Wind loads must be calculated by a suitably experienced and competent individual in accordance with the principles of BS EN 1991-1-4 : 2005 and its UK National Annex. The higher-pressure coefficients applicable to corners of buildings must be used.

9.1.22 The wall to which the product is fixed, must be structurally sound and constructed in accordance with section 9.1.2 of this Certificate.

9.1.23 The adequacy of fixing to the masonry substrate for specific installations is outside the scope of this Certificate and must be verified by a suitably experienced and competent individual. Particular care is required around window and door openings to ensure that the structure is capable of sustaining additional weight owing to reveal/frame details.

When installed between the studs

9.1.24 An AVCL, of a minimum thickness of 0.125 mm (500 gauge) polyethylene, must be provided behind the internal fire-resistant lining board

9.1.25 Services which penetrate the dry lining (eg light switches, power outlets) must be kept to a minimum to limit damage to the AVCL.

9.1.26 As with other insulation products, it may be necessary in some cases to de-rate electrical cables buried in the products. BS 7671 : 2018 recommends that where wiring is completely surrounded by insulation it may need to be de-rated to as low as half its free air-current-carrying capacity. Guidance must be sought from a qualified electrician.

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

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

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

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

9.2.7 The product must be kept dry until the outer leaf/cladding is completed.

9.2.8 The construction must be made weathertight as soon as is practically possible to ensure maximum protection of the product.

9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the product must be carried out by a competent general builder, or a contractor, experienced with this type of product.

9.4 Maintenance and repair

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

10 Manufacture

10.1 The production processes for the product have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

11 Delivery and site handling

11.1 The Certificate holder stated that the product is delivered to site in packaging bearing the product name and characteristics, Certificate holder's name, batch number, year of manufacture and the BBA logo incorporating the number of this Certificate.

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

11.2.1 The product must be protected from prolonged exposure to sunlight and must be stored either under cover or protected with opaque polythene sheeting. Where possible, packs should be stored inside. If outside, the product must be stacked flat, and raised above ground level, away from contact with ground moisture.

11.2.2 The product must not be exposed to open flame or other ignition sources, or to solvents or other chemicals.

Supporting information in this Annex is relevant to the product but has not formed part of the material assessed for the Certificate.

Construction (Design and Management) Regulations 2015

Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13166 : 2012.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015, BS EN ISO 14001 : 2015 and BS ISO 45001 : 2018 by BRE Global Ltd (Certificates 718 QMS, 718 EMS and 718 HS respectively).

Additional information on installation

Installation must be in accordance with the Certificate holder's instructions and this Certificate.

A.1 The product can be cut using a fine-toothed saw or sharp knife, but care must be taken to prevent damage, particularly to edges.

A.2 It is important to ensure a tight fit between boards. Trimming must be accurate, to achieve close-butt joints and continuity of insulation.

Procedure

On the external face of masonry walls

A.3 The product is installed fully restrained against the wall in a brick bond pattern with suitable proprietary insulation fasteners⁽¹⁾ (see Figure 1).

(1) Outside the scope of this Certificate.

Figure 1 Example installation



Between studs and on the external face of sheathing/studs — external to internal

A.4 The product is fixed to the outside of the sheathing board or to the outside face of steel studs using suitable proprietary insulation fasteners⁽¹⁾.

(1) Outside the scope of this Certificate.

A.5 Rainscreen cladding tape should be applied to the external joints of insulation board to provide a weathertight finish.

A.6 The product should be cut to fit tightly between the timber/steel studding and positioned against the inner face of the sheathing board or level with the external face of steel studs or timber battens. Any gaps should be filled with expanding insulation foam.

A.7 The void created by the space between the inner surface of the product and the dry lining can be utilised as an insulated service duct. It is recommended that services which penetrate the AVCL (eg light switches, power outlets) are kept to a minimum to limit damage to the AVCL. In addition, any penetrations should be adequately sealed to preserve the integrity of the AVCL.

A.8 A sealed polyethylene AVCL with lapped and sealed joints is placed over the stud face before applying the internal finish.

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 5618 : 1985 *Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems*
- BS 7671 : 2018 + A2 : 2022 *Requirements for Electrical Installations — IET Wiring Regulations*
- BS 8000-3 : 2020 *Workmanship on construction sites — Masonry — Code of practice*
- BS EN 351-1 : 2023 *Durability of wood and wood-based products — Preservative-treated solid wood — Classification of preservative penetration and retention*
- BS EN 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 845-1 : 2013 + A1 : 2016 *Specification for ancillary components for masonry — Wall ties, tension straps, hangers and brackets*
- BS EN 1604 : 1996 *Thermal insulating products for building applications — Determination of dimensional stability under specified temperature and humidity conditions*
- BS EN 1609 : 1997 *Thermal insulating products for building applications — Determination of short term water absorption by partial immersion*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions*
- BS EN 1993-1-2 : 2005 *Eurocode 3 — Design of steel structures — General rules*
NA to BS EN 1993-1-2 : 2005 *UK National Annex to Eurocode 3 — Design of steel structures — General rules*
- BS EN 1993-1-3 : 2006 *Eurocode 3 — Design of steel structures — General rules — Supplementary rules for cold-formed members and sheeting*
NA to BS EN 1993-1-3 : 2006 *UK National Annex to Eurocode 3 — Design of steel structures — General rules — Supplementary rules for cold-formed members and sheeting*
- 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 + A2 : 2014 *UK National Annex to Eurocode 5 — Design of timber structures — General — Common rules and rules for buildings*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-1-2 : 2005 *Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 — Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
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- BS EN 1996-3 : 2006 *Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
NA + A1 : 2014 to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 — Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- BS EN 12086 : 1997 *Thermal insulating products for building applications — Determination of water vapour transmission properties*
- BS EN 13166 : 2012 + A2 : 2016 *Thermal insulation products for buildings — Factory made phenolic foam (PF) products — Specification*

BS EN 13914-1 : 2016 *Design, preparation and application of external rendering and internal plastering — External rendering*

BS EN 16012 : 2012 + A1 : 2015 *Thermal insulation for buildings — Reflective insulation products — Determination of the declared thermal performance*

BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

BS EN ISO 9001 : 2015 *Quality management systems — Requirements*

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

BS ISO 45001 : 2018 *Occupational health and safety management systems — Requirements with guidance for use*

NF EN 13501-1 : 2013 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

PN EN 12086 : 2001 *Thermal insulating products for building applications — Determination of water vapour transmission properties*

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.