

## Boulder Developments Ltd

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**Agrément Certificate**

**18/5575**

Product Sheet 2

### BOULDER DEVELOPMENTS REFLECTIVE INSULATIONS

### SUPERFOIL SF19, SF19+, SF40 AND SF60 FOR ROOFS

This Agrément Certificate Product Sheet <sup>(1)</sup> relates to SuperFoil<sup>(2)</sup> SF19, SF19+, SF40 and SF60 for Roofs, consisting of separate, multilayer elements, for use as an insulation and a reflective vapour control layer (VCL) in pitched and flat roofs under the rafters in new and existing dwellings in conjunction with plasterboard.

- (1) Hereinafter referred to as 'Certificate'.  
(2) SuperFoil is a registered trademark.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



#### KEY FACTORS ASSESSED

**Thermal performance** — the products have an emissivity of 0.05 for the outer foil and thermal resistances of 1.24 m<sup>2</sup>·K·W<sup>-1</sup> for SF19, 1.63 m<sup>2</sup>·K·W<sup>-1</sup> for SF19+, 2.57 m<sup>2</sup>·K·W<sup>-1</sup> for SF40 and 3.58 m<sup>2</sup>·K·W<sup>-1</sup> for SF60 (see section 6).

**Condensation risk** — the products can provide effective control to the passage of water vapour (see section 7).

**Behaviour in relation to fire** — the products are combustible but may be used in suitably designed roofs (see section 9).

**Durability** — under normal conditions, the products will have a life equivalent to that of the building in which they are incorporated (see section 13).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 9 October 2018

John Albon – Head of Approvals  
Construction Products

Claire Curtis-Thomas  
Chief Executive

*The BBA is a UKAS accredited certification body – Number 113.*

*The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk  
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.*

*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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## Regulations

In the opinion of the BBA, SuperFoil SF19, SF19+, SF40 and SF60 for Roofs, 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 presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



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

<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:		The products can contribute to satisfying this Requirement. See sections 7.1 and 7.6 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
Comment:		The products can contribute to satisfying this Requirement. See section 6 of this Certificate.
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship</b>
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<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 consumption 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>
Comment:		The products can contribute to satisfying these Regulations; however, compensating fabric/services measures will be required. See section 6.2 of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	3.15	Condensation
Comment:		The products 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 sections 7.1 and 7.7 of this Certificate.
Standard:	6.1(a)(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to a roof satisfying clauses (or parts of) 6.1.1 <sup>(1)</sup> , 6.1.6 <sup>(1)</sup> , 6.2.1 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> to 6.2.7 <sup>(1)</sup> , 6.2.9 <sup>(1)</sup> , 6.2.10 <sup>(1)</sup> , 6.2.11 <sup>(1)</sup> and 6.2.13 <sup>(1)</sup> of these Standards. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction achieving a bronze level of sustainability as defined in this Standard. In addition, the products can contribute to a construction achieving a higher level of sustainability as defined in this standard, with reference to clauses 7.1.4 <sup>(1)</sup> [Aspects 1 <sup>(1)</sup> and 2 <sup>(1)</sup> ], 7.1.6 <sup>(1)</sup> [Aspects 1 <sup>(1)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)</sup> [Aspect 1 <sup>(1)</sup> ]. See section 6.3 of this Certificate.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		All comments given for the products 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)

<b>Regulation:</b>	<b>23</b>	<b>Fitness of materials and workmanship</b>
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>29</b>	<b>Condensation</b>
Comment:		The products can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
<b>Regulation:</b>	<b>39(a)(i)</b>	<b>Conservation measures</b>
<b>Regulation:</b>	<b>40(2)</b>	<b>Target carbon dioxide emission rate</b>
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this 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.

See sections: 3 *Delivery and site handling* (3.3) and 9 *Behaviour in relation to fire* (9.6) of this Certificate.

## Additional Information

### NHBC Standards 2018

In the opinion of the BBA, SuperFoil SF19, SF19+, SF40 and SF60 for Roofs, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of *NHBC Standards*, Chapters 7.1 *Flat roofs and balconies* and 7.2 *Pitched roofs*.

### CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13984 : 2013 for its VCL property. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance (DoP).

## Technical Specification

### 1 Description

1.1 SuperFoil SF19, SF19+, SF40 and SF60 for Roofs are multilayer foil insulations. The products consist of multiple layers of the four separate elements: MPET woven fabric outer foil, MPET inner foil, foam film and fibre wadding.

1.2 The nominal characteristics of the products are shown in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	SuperFoil SF19	SuperFoil SF19+	SuperFoil SF40	SuperFoil SF60
Thickness (mm)	40	45	65	100
Number of layers	19	11	37	55
Weight (kg·m <sup>-2</sup> )	0.87	0.87	1.17	1.48
Roll length (m)	10	10	10	8
Width (mm)	1500	1500	1500	1500
Area (m <sup>2</sup> )	15	15	15	12

1.3 Ancillary items for use with the products, but outside the scope of this Certificate, are:

- timber battens — pre-treated and installed at maximum 600 mm centres
- plasterboard
- staples — galvanized or stainless steel, 14 mm (SF19), 20 mm (SF19+), 30 mm (SF40) and 40 mm (SF60), installed at maximum 100 mm centres
- additional insulation materials
- reflective foil tape — 100 mm self-adhesive reflective foil tape used at joints and for sealing openings such as windows and ventilation pipes.

## 2 Manufacture

2.1 The layers of the four separate elements (MPET woven fabric outer foil, MPET inner foil, foam film and fibre wadding) are assembled in the required format and the edges over-stitched before being packaged for distribution.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out 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.

## 3 Delivery and site handling

3.1 The products are wrapped in plastic packaging and delivered to site as rolls on pallets. Each roll is labelled with the product name, weight and dimensions.

3.2 The products should be stored in clean, dry conditions, preferably under cover, and not in direct sunlight. Care must be taken to store the products away from solvents. The products must not be used if allowed to get wet or if damaged.

3.3 The products must not come into contact with naked flames or other ignition sources.

3.4 On site, to ensure maximum performance of the products when installed, precautions must be taken to protect them from mud and dirt.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SuperFoil SF19, SF19+, SF40 and SF60 for Roofs.

## Design Considerations

### 4 Use

4.1 SuperFoil SF19, SF19+, SF40 and SF60 for Roofs are multilayer foil insulations used with plasterboard and in conjunction with other insulation materials to reduce the thermal transmittance (U value) of flat and pitched roofs of new and existing dwellings.

4.2 When installed under the rafters, before the plasterboard is installed the products can perform as a VCL in the roof system (see section 7.3).

4.3 The products should not be installed where they are likely to come into contact with heat sources greater than 80°C.

4.4 The plasterboard must be manufactured in accordance with BS EN 520 : 2004 and installed in accordance with BS 8212 : 1995.

4.5 Penetration of the products by services should be kept to a minimum, to limit the possible ingress of water vapour. Guidance from the manufacturer must be sort when down lighters are used in conjunction with the products.

4.6 Roof tiles or slates are installed on pitched roofs in accordance with BS 5534 : 2014.

## 5 Practicability of installation

The products are designed to be installed by a competent builder, or a contractor, experienced with these types of products.

## 6 Thermal performance



6.1 Calculations of thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2006, using the following core thermal resistance values:

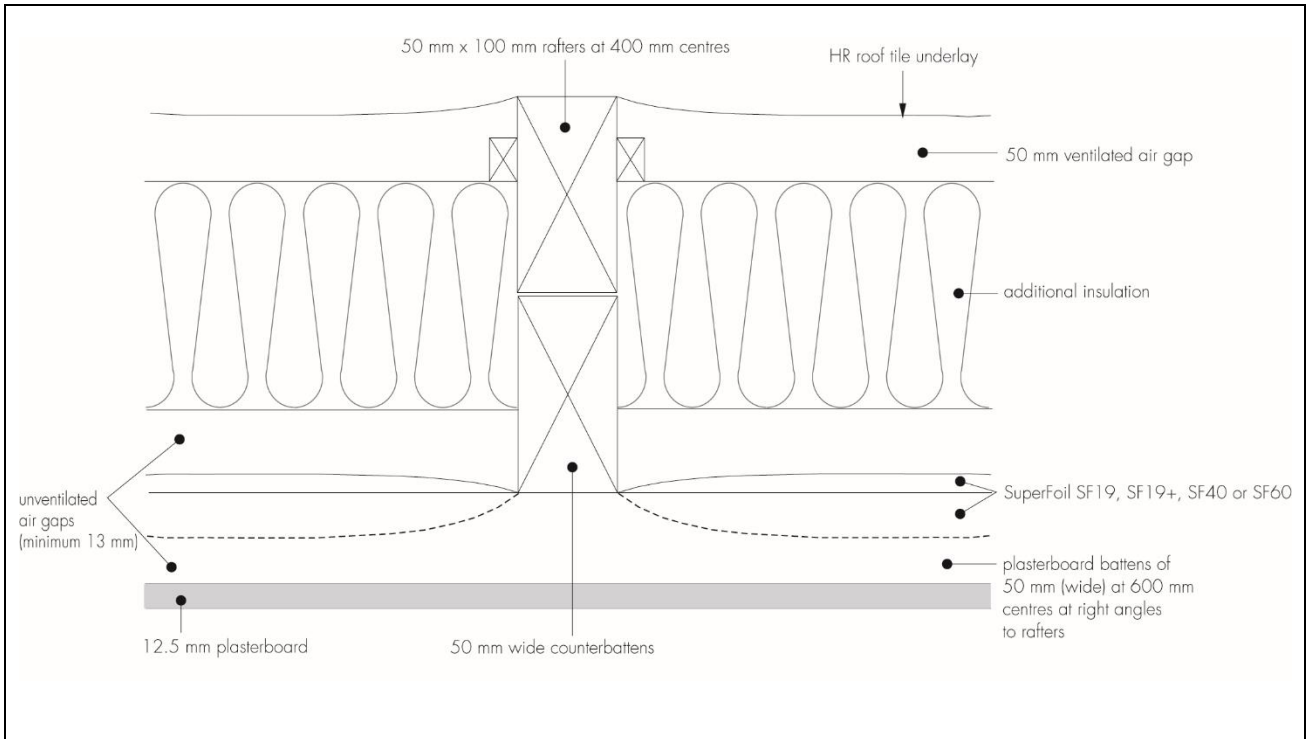
- $1.24 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$  R value for SuperFoil SF19 (41.9 mm thick) with no air gaps either side
- $1.63 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$  R value for SuperFoil SF19+ (49.9 mm thick) with no air gaps either side
- $2.57 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$  R value for SuperFoil SF40 (86.1 mm thick) with no air gaps either side
- $3.58 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$  R value for SuperFoil SF60 (116.7 mm thick) with no air gaps either side
- 0.05 outer surface emissivity
- $0.45^{(1)} \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$  R value of a non vented air cavity adjacent to the product  $\geq 13$  mm thick (heat flow upwards)
- $0.00 \text{ m}^2 \cdot \text{K} \cdot \text{W}^{-1}$   $R^{(2)}$  value of product when compressed between studs and battens.

(1) Unventilated cavity with a width and length at least 10 times the thickness and one high emissivity surface.

(2) This value has not been assessed. For guidance on U value calculations, refer to BBA Information Bulletin No 3.6.2 The U value of a completed element will depend largely on the thickness and conductivity of the additional insulation used and the extent and arrangement of timber bridging. Example pitched roof constructions are shown in Figures 1 and 2, and the resulting U values are given in Table 2.

6.2 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.

**Figure 1 Example pitched roof constructions — existing roof — refurbishment**



**Figure 2 Example pitched roof constructions — new build**

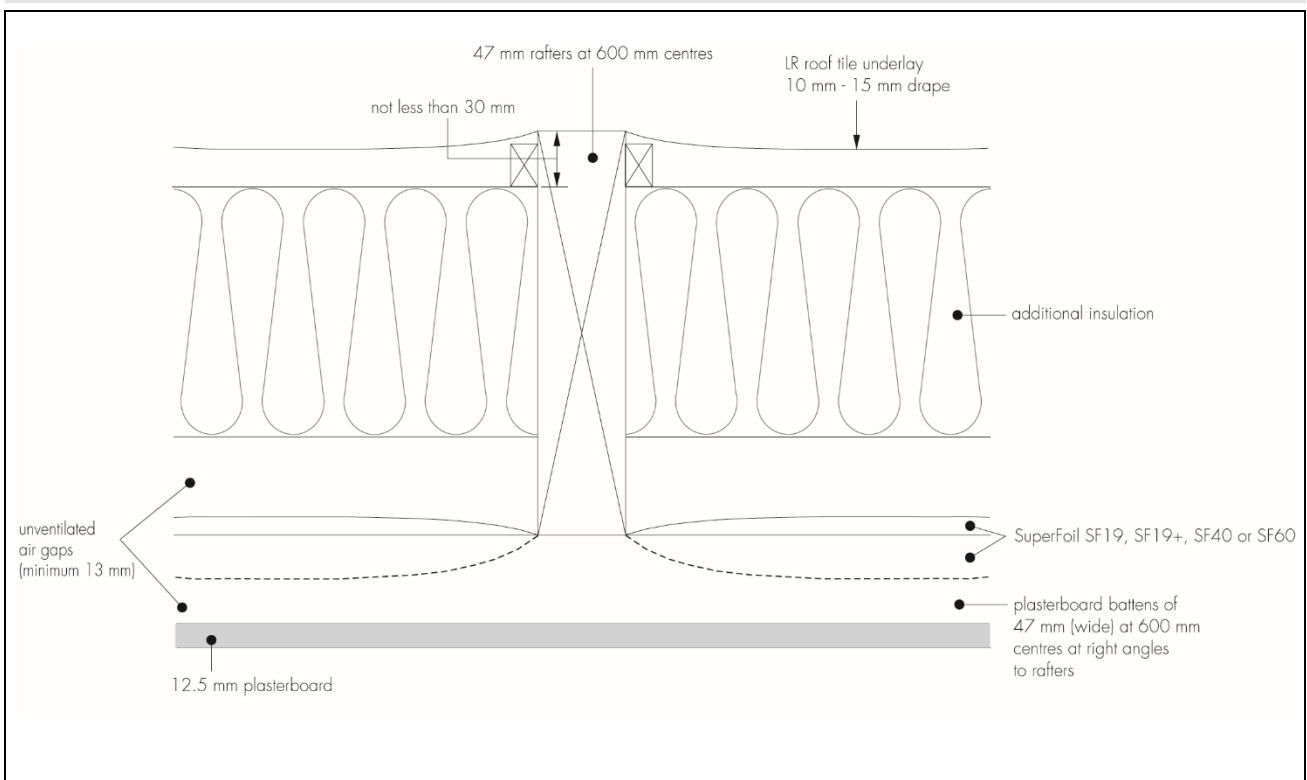


Table 2 U values for pitched roof constructions

Construction	U value (W·m <sup>-2</sup> ·K <sup>-1</sup> )	Additional insulation thickness <sup>(1)</sup> (mm)			
		SF19	SF19+	SF40	SF60
Existing roof (Figure 1)	0.18	100 <sup>(2)(6)</sup>	90 <sup>(2)(6)</sup>	65 <sup>(3)(7)</sup>	45 <sup>(3)(8)</sup>
New build (Figure 2)	0.13	130 <sup>(4)(6)</sup>	120 <sup>(4)(6)</sup>	100 <sup>(4)(7)</sup>	75 <sup>(5)(8)</sup>

(1) Phenolic insulation (thickness  $\geq 25$ mm to  $< 45$ mm, thermal conductivity =  $0.021 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ , thickness  $> 45$  mm, thermal conductivity =  $0.020 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$  and emissivity 0.2 of the foil-face, thickness rounded to nearest 5 mm).

(2) 175 x 50 mm at 400 mm centres - extended rafters.

(3) 150 x 50 mm at 400 mm centres - extended rafters.

(4) 185 x 47 mm at 600 mm centres - extended rafters.

(5) 160 x 47 mm at 600 mm centres - extended rafters.

(6) 47 mm timber battens.

(7) 60 mm timber battens.

(8) 85 mm timber battens.

## 7 Condensation risk

### Interstitial condensation



7.1 Roofs incorporating the products will contribute to limiting the risk of interstitial condensation when designed and constructed in accordance with BS 5250 : 2011 (Annexes D and H) and BRE Report BR 262 : 2002.

7.2 The products act as a VCL and have a typical water vapour resistance of  $1200 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$  in accordance with BS EN 1931 : 2000.

7.3 The products have a high water vapour resistance ( $\mu$ ) factor and will, therefore, provide significant resistance to the passage of water vapour and would be considered a VCL as defined in BS 5250 : 2011, provided all laps and joints are sealed. When the products are installed in conjunction with other insulation materials, the water vapour resistance and installation instructions of the additional insulation should be taken into account.

7.4 The use of the products does not preclude the normal precautions against formation of condensation, especially in rooms expected to have high humidity.

7.5 When using these types of products, due consideration must be taken of the overall installation to minimise perforations by services (eg light switches and power outlets), and the joints at ceiling level must be well sealed.

### Surface condensation



7.6 Roofs incorporating the products will adequately limit the risk of surface condensation when 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 walls are designed in accordance with the guidance referred to in section 6.3.



7.7 Roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point. Guidance may be obtained from BS 5250 : 2011, Annex H. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

## 8 Infestation

The use of the products does not in itself promote infestation. The creation of voids may provide habitation for insects or rodents in areas already infested. Care should be taken to ensure that, wherever possible, all voids are sealed as any infestation may be difficult to eradicate. There is no food value in the materials used.

## 9 Behaviour in relation to fire

9.1 The products have reaction to fire classification in accordance with BS EN 13501-1 : 2007 of:

- SuperFoil SF19, SF40 and SF60                      Class E\*
- SuperFoil SF19+    Class F\*.

9.2 The insulation must not be carried over junctions between roofs and walls required to provide a minimum period of fire resistance. The continuity of fire resistance must be maintained, for example as described in:

**England and Wales** — Approved Document B, Volume 1, sections 5.11 and 5.12

**Scotland** — Mandatory Standard 2.2, clause 2.2.10<sup>(1)</sup>

(1) *Technical Handbook (Domestic)*.

**Northern Ireland** — Technical Booklet E, paragraph 4.21.

9.3 When the products are installed with an internal lining board, eg 12.5 mm thick plasterboard, the insulation will be contained between the roof and internal lining board, until one is destroyed; therefore, the insulation will not contribute to the development stage of a fire.

9.4 The use of the products will not affect the fire rating achieved by tiled or slated roofs.

9.5 When the products are installed with other additional insulation materials, the fire properties of these materials must also be taken into consideration.

9.6 The products will melt and shrink away from heat, but will burn in the presence of a naked flame.

9.7 When the products are used unsupported, there is a risk that fire can spread if they are accidentally ignited during maintenance works, eg by a roofer's or plumber's torch. Care should be taken during building and maintenance to avoid the material being ignited.

## 10 De-rating of electrical cables

As with other insulation products, it may be necessary in some cases to de-rate electrical cables buried in insulation. BS 7671 : 2018 suggests 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 should be sought from a qualified electrician.

## 11 Proximity of flues and appliances

When installing the products in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are acceptable:

**England and Wales** — Approved Document J, paragraph 2.15

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)</sup> and 3.19.4<sup>(1)</sup>

(1) *Technical Handbook (Domestic)*.

**Northern Ireland** — Technical Booklet L, paragraph 3.9.

## 12 Maintenance

As the products are confined within a roof structure and have suitable durability (see section 13), maintenance is not required.



## 13 Durability



The products will have a life equivalent to that of the roof structure in which they are incorporated.

## Installation

### 14 General

14.1 The design data given in this Certificate are based on the assumption that the construction and fastening methods and other details given in this Certificate are followed, as well as the Certificate holder's installation instructions.

14.2 All joints should have an overlap of at least 50 mm and be covered with 100 mm self-adhesive reflective foil tape.

14.3 The sealing of the joints around openings such as windows and ventilation pipes should be completed with self-adhesive reflective foil tape to maximise the vapour tightness. Particular attention should be paid to the fastening of any penetrations through the products.

14.4 The staples must be manufactured from galvanized or stainless steel. See Table 3 for correct sizes.

*Table 3 Staple size*

Product	Minimum depth of staple (mm)
SF19	14
SF19+	20
SF40	30
SF60	40

### 15 Procedure

#### Pitched roof application — under rafters

15.1 The products are installed tight under the pitched roof timber rafters, from the ridge to the eaves, using the correct size galvanized or stainless steel staples at maximum intervals of 100 mm. Care should be taken to ensure overlaps are at least 50 mm and taped over with 100 mm reflective foil tape.

15.2 At eaves, the products should be trimmed around the timber rafters, stapled and then then sealed with 100 mm reflective foil tape to the timber wall plate.

15.3 The products are then further held in place by the correct size timber battens installed horizontally at no greater than 600 mm centres. Additional timber battens are installed around windows or sky lights. Where necessary, 100 mm reflective foil tape should be applied to any tears, cuts or joints before fixing the plasterboard to the battens.

15.4 Plasterboard is then fixed to the timber battens. The products should be installed with two unventilated air gaps as shown in Figures 1 and 2.

#### Flat roof application

15.5 The products are installed tight under the flat roof timber rafters, using the correct size galvanized or stainless steel staples at maximum intervals of 100 mm. Care should be taken to ensure overlaps are at least 50 mm and taped over with 100 mm reflective foil tape.

15.6 The products are then further held in place by the correct size timber battens, secured to the timber rafters at no greater than 600 mm centres. Additional timber battens are installed around windows or sky lights. Where necessary, 100 mm reflective foil tape is applied to any tears, cuts or joints before fixing the plasterboard to the battens.

15.7 Plasterboard is then fixed to the timber battens. The products should be installed with two unventilated air gaps as shown in Figures 1 and 2.

## Technical Investigations

### 16 Tests

Tests were carried out by the BBA to determine core thermal resistance.

### 17 Investigations

17.1 The following investigations were carried out on the products,

- thickness
- mass per unit area
- dimensional stability
- watertightness
- water vapour resistance with tape before and after ageing
- core thermal resistance
- emissivity before and after ageing
- tensile strength
- resistance to tearing before and after ageing
- peel strength before and after ageing
- reaction to fire classification
- corrosion development capacity
- durability after ageing
- calculation of thermal resistance of air cavities adjacent to the products
- U value calculations
- condensation risk analysis.

17.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

## Bibliography

- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- BRE Report BR 443 : 2006 *Conventions for U-value calculations*
- BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 5534 : 2014 + A2 : 2018 *Slating and tiling for pitched roofs and vertical cladding. Code of practice*
- BS 7671 : 2018 *Requirements for electrical installations — IEE Wiring Regulations*
- BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*
- BS EN 520 : 2004 + A1 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1931 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of water vapour transmission properties*
- BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN 13984 : 2013 *Flexible sheets for waterproofing — Plastic and rubber vapour control layers — Definitions and characteristics*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BBA Information Bulletin No 3 *Reflective foil insulation — Conventions for U-Value calculations*

### 18 Conditions

18.1 This Certificate:

- relates only to the product/system 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.

18.2 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.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system 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.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 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/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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**Agrément Certificate**

**18/5575**

Product Sheet 1

### BOULDER DEVELOPMENTS REFLECTIVE INSULATIONS

### SUPERFOIL SF19, SF19+, SF40 AND SF60 FOR WALLS

This Agrément Certificate Product Sheet <sup>(1)</sup> relates to SuperFoil<sup>(2)</sup> SF19, SF19+, SF40 and SF60 for Walls, for use as an insulation and a reflective vapour control layer (VCL) in walls of new and existing dwellings for timber framed and masonry walls in conjunction with plasterboard.

(1) Hereinafter referred to as 'Certificate'.

(2) SuperFoil is a registered trademark.

#### CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
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- regular surveillance of production
- formal three-yearly review.

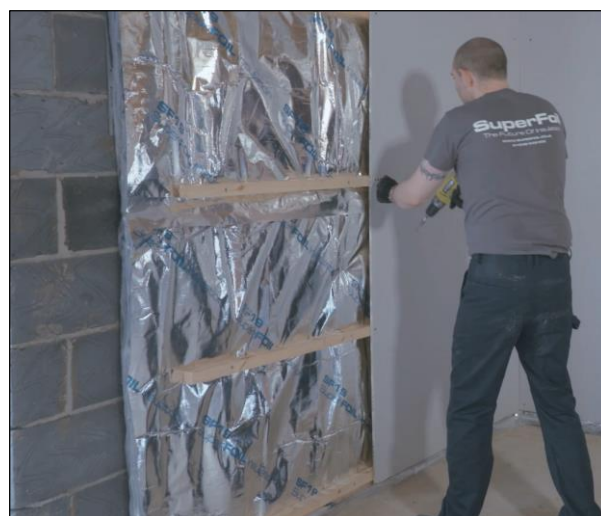
#### KEY FACTORS ASSESSED

**Thermal performance** — the products have an emissivity of 0.05 for the outer foil and a thermal resistance of 1.24 m<sup>2</sup>·K·W<sup>-1</sup> for SF19, 1.63 m<sup>2</sup>·K·W<sup>-1</sup> for SF19+, 2.57 m<sup>2</sup>·K·W<sup>-1</sup> for SF40 and 3.58 m<sup>2</sup>·K·W<sup>-1</sup> for SF60 (see section 6).

**Condensation risk** — the products can provide effective control to the passage of water vapour (see section 7).

**Behaviour in relation to fire** — the products are combustible but may be used in suitably designed walls (see section 9).

**Durability** — under normal conditions, the products will have a life equivalent to that of the building in which they are incorporated (see section 13).



The BBA has awarded this Certificate to the company named above for the products described herein. These products have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of First issue: 26 September 2018

John Albon – Head of Approvals  
Construction Products

Claire Curtis-Thomas  
Chief Executive

The BBA is a UKAS accredited certification body – Number 113.

The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at [www.bbacerts.co.uk](http://www.bbacerts.co.uk)  
Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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

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## Regulations

In the opinion of the BBA, SuperFoil SF19, SF19+, SF40 and SF60 for Walls, 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 presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



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

<b>Requirement:</b>	<b>C2(c)</b>	<b>Resistance to moisture</b>
Comment:		The products can contribute to satisfying this Requirement. See sections 7.1 and 7.7 of this Certificate.
<b>Requirement:</b>	<b>L1(a)(i)</b>	<b>Conservation of fuel and power</b>
Comment:		The products can contribute to satisfying this Requirement. See section 6 of this Certificate.
<b>Regulation:</b>	<b>7</b>	<b>Materials and workmanship</b>
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<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 consumption 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>
Comment:		The products can contribute to satisfying these Regulations; however, compensating fabric/services measures will be required. See section 6.2 of this Certificate.



### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)</b>	<b>Durability, workmanship and fitness of materials</b>
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	3.15	Condensation
Comment:		The products can contribute to satisfying this Standard, with reference to clauses 3.15.1 <sup>(1)</sup> , 3.15.4 <sup>(1)</sup> and 3.15.5 <sup>(1)</sup> . See sections 7.1 and 7.8 of this Certificate.
Standard:	6.1(a)(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The products can contribute to a wall satisfying clauses (or parts of) 6.1.1 <sup>(1)</sup> , 6.1.2 <sup>(1)</sup> , 6.1.3 <sup>(1)</sup> and 6.1.6 <sup>(1)</sup> , 6.2.1 <sup>(1)</sup> , 6.2.3 <sup>(1)</sup> to 6.2.7 <sup>(1)</sup> , 6.2.9 <sup>(1)</sup> , 6.2.11 <sup>(1)</sup> and 6.2.13 <sup>(1)</sup> of these Standards. See section 6 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The products can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction achieving a bronze level of sustainability as defined in this Standard. In addition, the products can contribute to a construction achieving a higher level of sustainability as defined in this standard, with reference to clauses 7.1.4 <sup>(1)</sup> [Aspects 1 <sup>(1)</sup> and 2 <sup>(1)</sup> ], 7.1.6 <sup>(1)</sup> [Aspects 1 <sup>(1)</sup> and 2 <sup>(1)</sup> ] and 7.1.7 <sup>(1)</sup> [Aspect 1 <sup>(1)</sup> ]. See section 6.1 of this Certificate.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		All comments given for the products 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)

<b>Regulation:</b>	<b>23</b>	<b>Fitness of materials and workmanship</b>
Comment:		The products are acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b>	<b>29</b>	<b>Condensation</b>
Comment:		The products can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
<b>Regulation:</b>	<b>39(a)(i)</b>	<b>Conservation measures</b>
<b>Regulation:</b>	<b>40(2)</b>	<b>Target carbon dioxide emission rate</b>
Comment:		The products can contribute to satisfying these Regulations. See section 6 of this 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.

See sections: 3 *Delivery and site handling* (3.3) and 9 *Behaviour in relation to fire* (9.6) of this Certificate.

## Additional Information

### NHBC Standards 2018

In the opinion of the BBA, SuperFoil SF19, SF19+, SF40 and SF60 for Walls, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of *NHBC Standards*, Chapters 6.1 *External masonry walls* and 6.2 *External timber framed walls*.

### CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13984 : 2013 for its VCL property. An asterisk (\*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance (DoP).

## Technical Specification

### 1 Description

1.1 SuperFoil SF19, SF19+, SF40 and SF60 for Walls are multilayer foil insulations with a core thermal resistance that can enhance the thermal resistance of the unventilated air gap adjacent to it and also act as a reflective VCL. The products consist of many different layers of the four separate elements: MPET woven fabric outer foil, MPET inner foil, foam film and fibre wadding.

1.2 The nominal characteristics of the products are shown in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	SuperFoil SF19	SuperFoil SF19+	SuperFoil SF40	SuperFoil SF60
Thickness (mm)	40	45	65	100
Number of layers	19	11	37	55
Weight (kg·m <sup>-2</sup> )	0.87	0.87	1.17	1.48
Roll length (m)	10	10	10	8
Width (mm)	1500	1500	1500	1500
Area (m <sup>2</sup> )	15	15	15	12

1.3 Ancillary items for use with the products, but outside the scope of this Certificate, are:

- pre-treated timber battens
- galvanized or stainless steel staples
- additional insulation materials
- reflective foil tape.

## 2 Manufacture

2.1 The layers of the four separate elements (MPET woven fabric outer foil, MPET inner foil, foam film and fibre wadding) are assembled in the required format and the edges over-stitched before being packaged for distribution.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out 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.

## 3 Delivery and site handling

3.1 The products are wrapped in plastic packaging and delivered to site as rolls on pallets. Each roll is labelled with the product name, weight and dimensions.

3.2 The products should be stored in clean, dry conditions, preferably under cover, and not in direct sunlight. Care must be taken to store the products away from solvents. The product must not be used if allowed to get wet or if damaged.

3.3 The products must not come into contact with naked flames or other ignition sources.

3.4 On site, to ensure maximum performance of the products when installed, precautions must be taken to protect them from mud and dirt.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on SuperFoil SF19, SF19+, SF40 and SF60 for Walls



### 4 Use

4.1 SuperFoil SF19, SF19+, SF40 and SF60 for Walls are multilayer foil insulation materials used in conjunction with other insulation materials to reduce the thermal transmittance (U value) of timber framed and masonry walls of new and existing dwellings.

4.2 The products are installed on top of the studs/battens before plasterboard is installed, and hence can perform as a VCL (see section 7).

4.3 The products should not be installed where they are likely to come into contact with heat sources greater than 80°C.

4.4 The plasterboard must be manufactured in accordance with BS EN 520 : 2004 and installed in accordance with BS 8212 : 1995.

4.5 Penetration of the products by services should be kept to a minimum, to limit the possible ingress of water vapour.

#### Masonry and timber frame walls

4.6 The wall or sub-frame should be structurally sound and designed and constructed in accordance with the following standards:

- masonry — BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2006 and BS EN 1996-2 : 2006 and their UK National Annexes
- timber — BS EN 1995-1-1 : 2004 and its UK National Annex, and BS EN 351-1 : 2007.

4.7 The installation requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. In new work, the construction must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads and sills.

4.8 In timber frame constructions, services can be incorporated behind the dry lining, making chasing of the wall unnecessary.

### 5 Practicability of installation

The products are designed to be installed by a competent builder, or a contractor, experienced with these type of product.

### 6 Thermal performance



6.1 Calculations of thermal transmittance (U value)<sup>(1)</sup> should be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2006, using the following core thermal resistance values:

- 1.24 m<sup>2</sup>·K·W<sup>-1</sup> R value for SuperFoil SF19 (41.9 mm thick) with no air gaps either side
- 1.63 m<sup>2</sup>·K·W<sup>-1</sup> R value for SuperFoil SF19+ (49.9 mm thick) with no air gaps either side
- 2.57 m<sup>2</sup>·K·W<sup>-1</sup> R value for SuperFoil SF40 (86.1 mm thick) with no air gaps either side
- 3.58 m<sup>2</sup>·K·W<sup>-1</sup> R value for SuperFoil SF60 (116.7 mm thick) with no air gaps either side
- 0.05 outer surface emissivity
- 0.67<sup>(2)</sup> m<sup>2</sup>·K·W<sup>-1</sup> R value of an air cavity adjacent to the product ≥ 20 mm thick (horizontal heat flow)
- 0.00 m<sup>2</sup>·K·W<sup>-1</sup> R<sup>(3)</sup> value of product when compressed between studs and battens.

(1) For guidance on U value calculations, refer to BBA Information Bulletin No 3.

(2) Unventilated cavity with a width and length at least 10 times the thickness and one high emissivity surface.

(3) This value has not been assessed.

6.2 The U value of a completed element will depend largely on the thickness and conductivity of the additional insulation used and the extent and arrangement of timber bridging. Example wall constructions are shown in Figures 1 and 2 and the resulting U values given in Table 2.

Figure 1 Example wall constructions — solid masonry wall

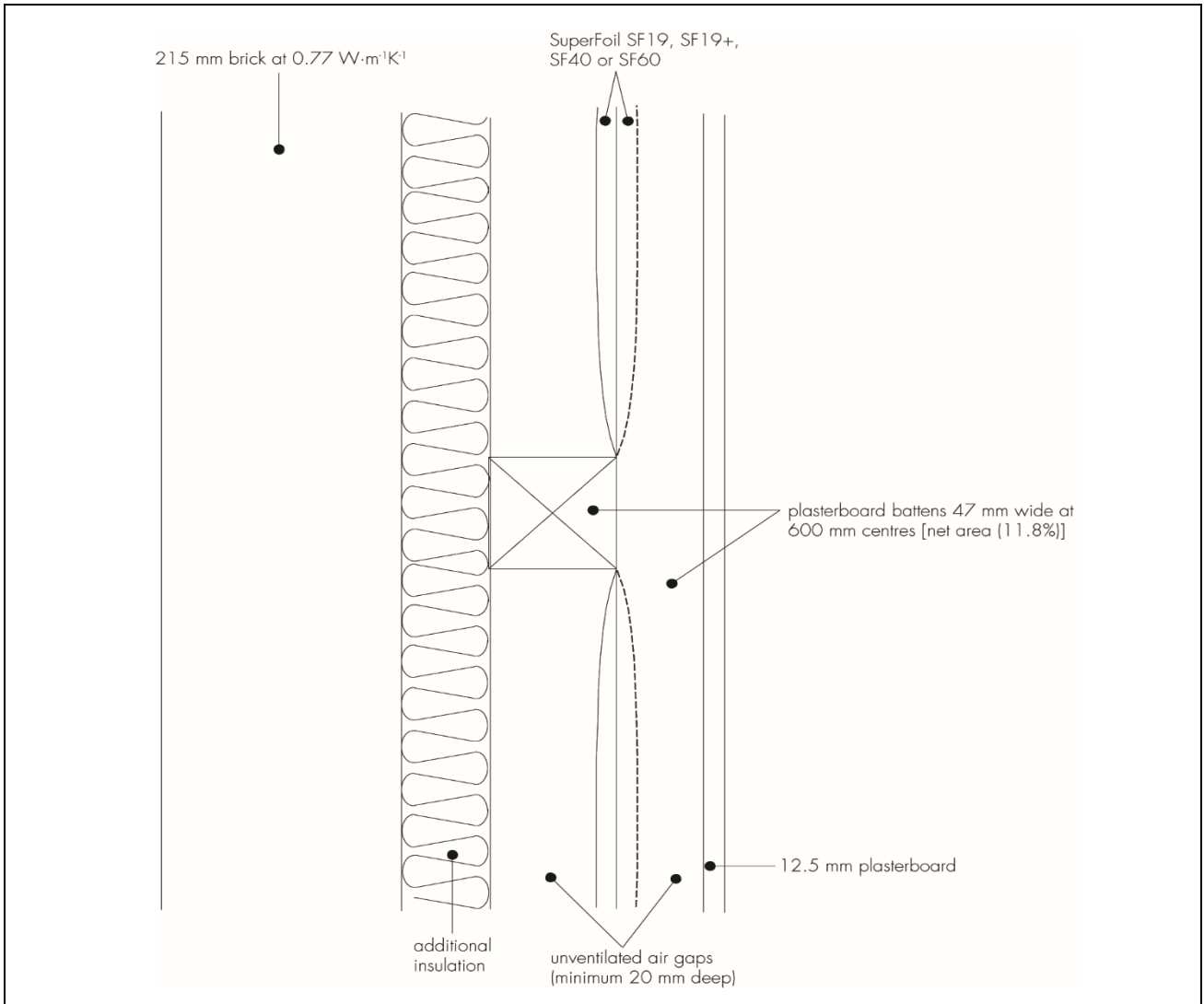


Figure 2 Example wall constructions — timber frame wall

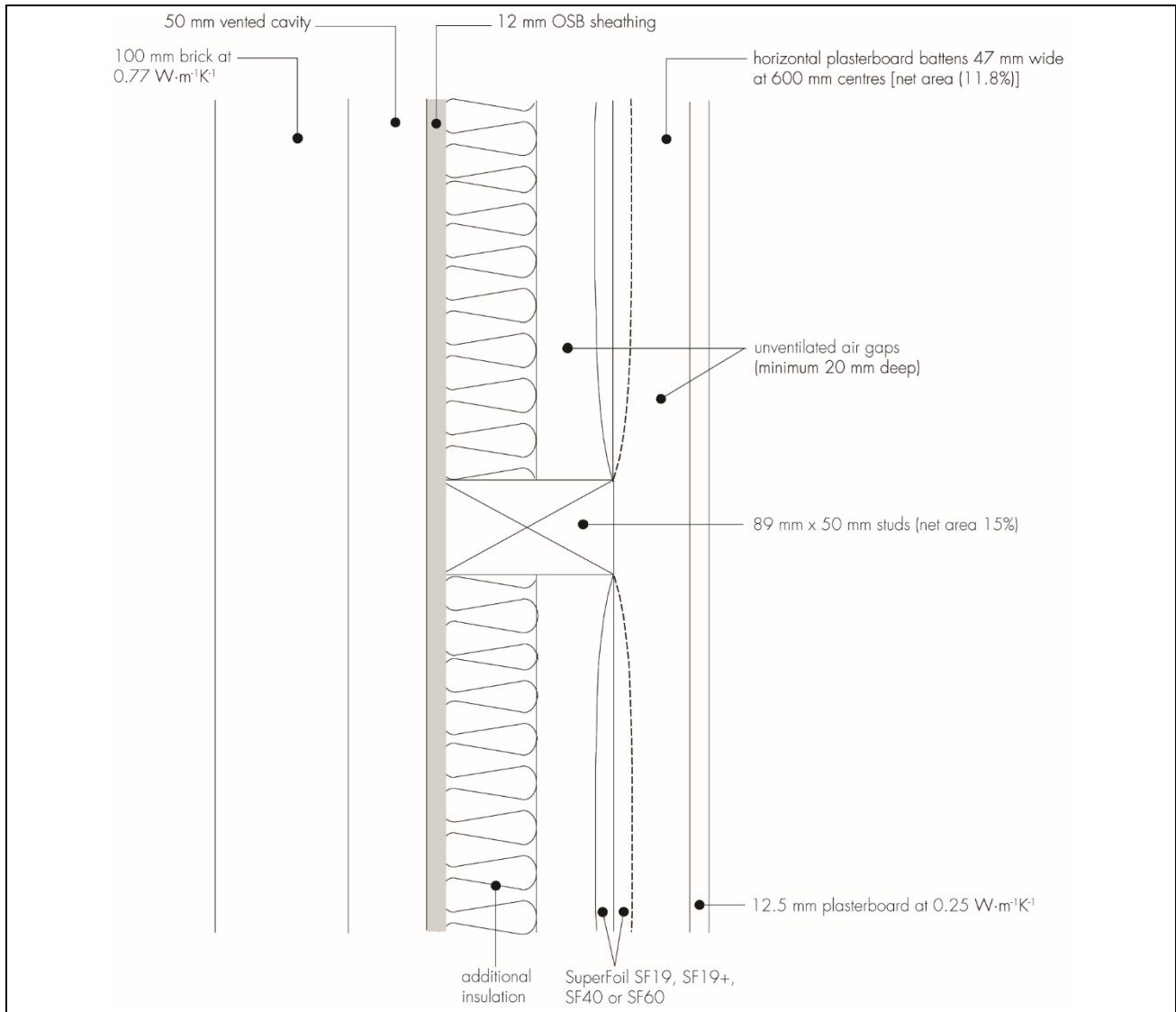


Table 2 U values for wall constructions

Construction	U value ( $W \cdot m^{-2} \cdot K^{-1}$ )	Additional insulation thickness <sup>(1)</sup> (mm)			
		SF19	SF19+	SF40	SF60
Brick wall <sup>(2)</sup> Figure 1	0.28	25	20	15	0 <sup>(4)</sup>
	0.19	55	50	35	25
	0.18	60	55	45	35
Timber frame wall <sup>(3)</sup> Figure 2	0.28	25 <sup>(5)</sup>	20 <sup>(5)</sup>	0 <sup>(4)(5)(6)</sup>	0 <sup>(4)(5)(6)</sup>
	0.19	75 <sup>(6)</sup>	70 <sup>(6)</sup>	45 <sup>(6)</sup>	20 <sup>(6)</sup>
	0.18	80 <sup>(6)</sup>	75 <sup>(6)</sup>	50 <sup>(6)</sup>	30 <sup>(6)</sup>

(1) Phenolic insulation (thickness < 45 mm, thermal conductivity =  $0.021 W \cdot m^{-1} \cdot K^{-1}$ , thickness > 45 mm, thermal conductivity =  $0.020 W \cdot m^{-1} \cdot K^{-1}$  and emissivity 0.2 of the foil-face, thickness rounded to nearest 5 mm).

(2) Solid wall of 215 mm brick  $\lambda = 0.77 W \cdot m^{-1} \cdot K^{-1}$ , additional insulation, timber battens over additional insulation  $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$  (net area of 11.8%), SuperFoil insulation with a foil emissivity of 0.05, timber battens over SuperFoil insulation  $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$  (net area of 11.8%) and 12.5 mm of plasterboard as internal finish  $\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$ .

(3) 102.5 mm solid brick wall, 50 mm clear cavity, breathable membrane, 12 mm OSB sheathing  $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$ , additional insulation between the timber studs  $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$  (net area of 15%), SuperFoil insulation with a foil emissivity of 0.05, timber battens over SuperFoil insulation  $\lambda = 0.13 W \cdot m^{-1} \cdot K^{-1}$  (net area of 11.8%) and 12.5 mm of plasterboard as internal finish  $\lambda = 0.25 W \cdot m^{-1} \cdot K^{-1}$ .

(4) No additional insulation required.

(5) 89 mm deep timber frame.

(6) 140 mm deep timber frame.



6.3 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.

## 7 Condensation risk

### Interstitial condensation



7.1 Walls incorporating the products will contribute to limiting the risk of interstitial condensation when designed and constructed in accordance with BS 5250 : 2011 (Annexes D and G).

7.2 The products act as a VCL and have a typical water vapour resistance of  $1200 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$  in accordance with BS EN 1931 : 2000.

7.3 The products have a high water vapour resistance ( $\mu$ ) factor and will, therefore, provide significant resistance to the passage of water vapour and would be considered a VCL as defined in BS 5250 : 2011 provided all laps and joints are sealed. When the products are installed in conjunction with other insulation materials, the water vapour resistance and installation instructions of the additional insulation should be taken into account.

7.4 The use of the products does not preclude the normal precautions against formation of condensation, especially in rooms expected to have high humidity.

7.5 When using these types of products, due consideration must be taken of the overall installation to minimise perforations by services (eg light switches and power outlets), and the joints at ceiling and skirting level must be well sealed.

7.6 As with any other insulation applied to the inside of a wall, there may be risk of thermal bridging from the floor or ceiling, particularly in concrete slab construction. It has been demonstrated that the use of coving at the wall ceiling point will significantly reduce the problem.

### Surface condensation



7.7 Walls incorporating the products will adequately limit the risk of surface condensation when 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 walls are designed in accordance with the guidance referred to in section 6.3.



7.8 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed  $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$  at any point. Guidance may be obtained from BS 5250 : 2011, Annex G. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.3 of this Certificate.

## 8 Infestation

The use of these products does not in itself promote infestation. The creation of voids may provide habitation for insects or rodents in areas already infested. Care should be taken to ensure that, wherever possible, all voids are sealed as any infestation may be difficult to eradicate. There is no food value in the materials used.

## 9 Behaviour in relation to fire

9.1 SuperFoil SF19, SF40 and SF60 have a reaction to fire classification of class E\*, in accordance with BS EN 13501-1 : 2007. SuperFoil SF19+ has a reaction to fire classification of class F\*, in accordance with BS EN 13501-1 : 2007.

9.2 When installed with an internal lining board, eg 12.5 mm thick (or greater) plasterboard, the products will be contained between the wall and internal lining board, until one is destroyed; therefore, the insulation will not contribute to the development stages of a fire.

9.3 When installed with other additional insulation materials, their fire properties must be taken into consideration.

9.4 Construction elements must incorporate cavity barriers at edges, around openings and at junctions with fire-resisting elements, in accordance with the relevant provisions of the national Building Regulations. The design and installation of cavity barriers must take into account any anticipated differential movement.

9.5 The products will melt and shrink away from heat, but will burn in the presence of a naked flame.

9.6 There is a risk that fire can spread if the products are accidentally ignited during maintenance works, eg by a plumber's torch. Care should be taken during building and maintenance to avoid the material being ignited.

## 10 De-rating of electrical cables

As with other insulation products, it may be necessary in some cases to de-rate electrical cables buried in insulation. BS 7671 : 2008 suggests 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 should be sought from a qualified electrician.

## 11 Proximity of flues and appliances

When installing the products in close proximity to certain flue pipes and/or heat-producing appliances, the following provisions to the national Building Regulations are acceptable:

**England and Wales** — Approved Document J, paragraph 2.15

**Scotland** — Mandatory Standard 3.19, clauses 3.19.1<sup>(1)</sup> and 3.19.4<sup>(1)</sup>  
(1) Technical Handbook (Domestic).

**Northern Ireland** — Technical Booklet L, paragraph 3.9.

## 12 Maintenance

As the products are confined within a wall structure and have suitable durability (see section 13), maintenance is not required.

## 13 Durability



The products will have a life equivalent to that of the wall structure in which they are incorporated.

## Installation

### 14 General

14.1 The design data given in this Certificate are based on the assumption that the construction and fastening methods and other details given in this Certificate are followed, as well as the Certificate holder's installation instructions.

14.2 All VCL joints should have an overlap of at least 50 mm and be covered with 100 mm self-adhesive reflective foil tape.

14.3 The sealing of the joints around openings such as windows and ventilation pipes should be completed with self-adhesive reflective foil tape to maximise the vapour tightness of the VCL. Particular attention should be paid to the fastening of any penetrations through the products.

14.4 The staples must be manufactured from galvanized or stainless steel. See Table 3 for sizes.

Table 3 Staple size

Product	Minimum depth of staple (mm)
SF19	14
SF19+	20
SF40	30
SF60	40

## 15 Procedure

### Solid masonry wall applications

15.1 Treated timber battens are secured to the interior face of the wall. The products are installed over the timber battens using galvanized or stainless steel staples at a maximum interval of 100 mm. Care should be taken to ensure that any overlaps are at least 50 mm and are taped over with 100 mm reflective foil tape. The products are held in place by further timber battens. Plasterboard is then fixed to the timber battens. The products should be installed with two unventilated air gaps as shown in Figure 1.

### Timber frame wall applications

15.2 The products are installed over the timber wall studs using galvanized or stainless steel staples at a maximum interval of 100 mm. Care should be taken to ensure that any overlaps are at least 50 mm and are taped over with 100 mm reflective foil tape. The products are held in place by further timber battens. Plasterboard is then fixed to the battens. The products should be installed with two unventilated air gaps as shown in Figure 2.

## Technical Investigations

## 16 Tests

Tests were carried out by the BBA to determine core thermal resistance.

## 17 Investigations

17.1 The following investigations were carried out on the products.

- thickness
- mass per unit area
- dimensional stability
- watertightness
- water vapour resistance with tape before and after ageing
- core thermal resistance
- emissivity before and after ageing
- tensile strength
- resistance to tearing before and after ageing
- peel strength before and after ageing
- reaction to fire classification
- corrosion development capacity
- durability after ageing
- calculation of thermal resistance of air cavities adjacent to the products
- U value calculations
- condensation risk analysis.

17.2 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

## Bibliography

- BS 5250 : 2011 *Code of practice for control of condensation in buildings*
- BS 7671 : 2008 + A3 : 2015 *Requirements for electrical installations — IET Wiring Regulations*
- 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 : 2009 *Gypsum plasterboards — Definitions, requirements and test methods*
- BS EN 1931 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of water vapour transmission properties*
- 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 *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 *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 *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*
- NA to BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 13984 : 2013 *Flexible sheets for waterproofing — Plastic and rubber vapour control layers — Definitions and characteristics*
- BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- BRE Report BR 443 : 2006 *Conventions for U-value calculations*

### 18 Conditions

#### 18.1 This Certificate:

- relates only to the product/system 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 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.

18.2 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.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system 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.

18.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

18.5 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/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

18.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system 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.