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Agrément Certificate
08/4531
Product Sheet 1 Issue 6

SARNAFIL WATERPROOFING MEMBRANES

SARNAFIL ADHERED ROOF WATERPROOFING MEMBRANES

This Agrément Certificate Product Sheet(1) relates to Sarnafil Adhered Roof Waterproofing Membranes, comprising single-ply polymeric sheets, for use on flat and pitched roofs with limited access.

(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 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 Sixth issue: 28 September 2023
Originally certificated on 28 March 2008

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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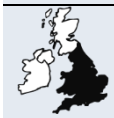
SUMMARY OF ASSESSMENT AND COMPLIANCE

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 Sarnafil Adhered Roof Waterproofing Membranes, 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:	**B4(1)**	**External fire spread**
Comment:		The products are restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On suitable substructures, the products may enable a roof to be unrestricted under this Requirement. See section 2 of this Certificate
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The products, including joints, will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The products are acceptable. See section 8 and 9 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Fitness and durability of materials and workmanship**
Comment:		The use of the products satisfies the requirements of this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards applicable to construction**
Standard:	2.6	Spread to neighbouring buildings
Standard:	2.7	Spread on external walls
Comment:		The products are restricted under clauses 2.6.4$^{(1)(2)}$ and 2.7.2$^{(1)(2)}$ of these Standards in some circumstances. See section 2 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The products, when applied to a suitable substructure, may enable a roof to be unrestricted under clause 2.8.1$^{(1)(2)}$ of this Standard. See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The use of the products, including joints, will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1$^{(1)(2)}$ and 3.10.7$^{(1)}$. See section 3 of this Certificate.
Standard:	7.1(a)	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 meeting a bronze level of sustainability as defined in this Standard.

Regulation:	**12**	**Building standards applicable to conversions**
Comment:		Comments in relation to the products 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) (iii)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The products are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The products, including joints, can satisfy the requirements of this Regulation. See section 3 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The products are restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On suitable substructures, the use of the products may enable a roof to be unrestricted under the requirements of this Regulation. See section 2 of this Certificate.

Additional Information

NHBC Standards 2023

In the opinion of the BBA, Sarnafil Adhered Roof Waterproofing Membranes, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs, terraces and balconies.*

In addition, in the opinion of the BBA, the products when installed and used in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards for Conversions and Renovations*, taking account of other relevant guidance within the chapter and the suitability of the substrate to receive the product.

The NHBC Standards do not cover the refurbishment of existing roofs.

Fulfilment of Requirements

The BBA has judged Sarnafil Adhered Roof Waterproofing Membranes to be satisfactory for use as described in this Certificate. The products have been assessed for use as adhered roof waterproofing applications on flat and pitched roofs with limited access.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the products under assessment. Sarnafil Adhered Roof Waterproofing Membranes consist of:

- Sarnafil G410-EL — a multi-layer roof waterproofing membrane based on plasticised PVC, incorporating stabilisers and non-woven glass fibre inlay. The product is available as standard (G410-EL), self-adhesive film with PP release liner (G410-EL SA), and fleece-backed (G410-ELF)
- Sarnafil TG76 Felt — a multi-layer synthetic roof waterproofing membrane based on flexible polyolefins (FPO), with a non-woven glass fibre inlay with a polyester fleece backing.

The products have the nominal characteristics given in Tables 1 to 3.

Table 1 Nominal characteristics

Characteristic (unit)	Sarnafil G410-EL			Sarnafil G410-ELF		
Thickness (mm)	1.5	1.8	2.0	1.5	1.8	2.0
Roll width (m)	2.0	2.0	2.0	2.0	2.0	2.0
Roll length (m)	20	20	20	20	20	15
Mass per unit area ($kg \cdot m^{-2}$)	2.0	2.3	2.6	2.3	2.7	2.8
Roll weight (kg)	64	80	69	69	81	81
Colour	A range of colours is available for the upper face Dark grey- lower face			Grey as standard upper face Dark grey- lower face		

Table 2 Nominal characteristics

Characteristic (unit)	Sarnafil G410-EL SA
Thickness (mm)	1.5
Roll width (m)	2
Roll length (m)	15
Mass per unit area ($kg \cdot m^{-2}$)	2
Roll weight (kg)	60
Colour	Light Grey -upper face Dark grey-lower face

Table 3 Nominal characteristics

Characteristic (unit)	Sarnafil TG76 Felt	
Thickness (mm)	1.2	1.5
Roll width (m)	2.0	2.0
Roll length (m)	20	15
Mass per unit area ($kg \cdot m^{-2}$)	1.5	1.8
Roll weight (kg)	60	54
Colour	Grey- upper face Black- lower face	

Ancillary Items

The following ancillary items are essential to use with the products and have been assessed with the products:

- Sarnacol 2170 — adhesive for bonding G410 membranes to the substrate
- Sarnacol 2142S — adhesive for bonding G410-ELF and TG76 Felt membranes to the substrate
- SikaRoof Adhesive 400 Spray — adhesive for bonding G410 membranes to the substrate

- Primer 600 — for use on PIR insulation boards, OSB and insulated metal sandwich panels
- Primer 610 — spray primer for use on PIR insulation boards, plywood, OSB and insulated metal sandwich panels.

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

- SikaRoof Adhesive 200 — a one-component polyurethane adhesive for bonding insulation boards
- Sarnafil T Clean — cleaning agent for TG76 Felt
- Sika C-250 Spray — adhesive for bonding insulation boards
- Sarnafil G445 — protection sheet for G410 membranes
- Sarnafil T Prep — a seam preparation for use prior to hot-air welding Sarnafil TG76 Felt and degreasing metal
- Sarnavap 500E, 1000E and 2000E — polyethylene vapour control layers (VCLs)
- Sarnavap 5000E SA and Sikashield VB E71 PE SA — self-adhered bituminous VCLs
- SarnaTred Walkway Pads — for roof maintenance/access
- Sikatherm — a range of thermal insulations comprising rigid urethane foam and mineral wool insulation.

Applications

The products are intended for use as a waterproofing on flat and pitched roofs with limited access. Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2018 and, where appropriate, *NHBC Standards* 2023, Chapter 7.1.

Definitions for products and applications inspected

- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- flat roof — a roof having a minimum finished fall of 1:80
- pitched roof – a roof having a fall in excess of 1:6.

Product assessment – key factors

The products were 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 External fire spread

2.1.1 When tested to CEN/TS 1187 : 2012, Test 4 and classified to EN 13501-5 : 2018(1), the systems given in Table 4 achieved B_{ROOF}(t4):

Table 4 Systems given B_{ROOF}(t4) classification

Substrate	AVCL (loose-laid)	Insulation (mechanically fastened or adhered)	Adhesive	Membrane (Adhered or Self-adhered)	Classification report numbers
Plywood (18 mm or more, 590 kg·m^{-3}) Non-combustible (A1) (8 mm or more, 960 kg·m^{-3} or more) OSB (18 mm or more: 640 kgm^{-3}) Steel deck (0.7 mm: 9529 kgm^{-3} or more)	Polyethylene or bituminous membrane: Reaction to fire classification E or better	Glass faced polyisocyanurate (PIR) board with a glass tissue facing on the underside. Thickness 50mm or more Density: 32 kgm^{-3} Facing/backing: Glass tissue 300 gm^{-2} Reaction to fire classification: F or better	PIR adhesive (Optional) Rubber/resin Primer (Optional) PU adhesive (Optional)	Sarnafil G410-15ELF/Sarnafil G410-EL/Sarnafil G410-SA Thickness: 1.2-2.0 mm Surface weight: 1500 - 2800 gm^{-2} Reinforcement: Glass mat 50 gm^{-2} or less Backing (optional): 300 gm^{-2} or less Colour: Any colour	22240B(2) and 22240C(2)

(1) The systems were tested in a flat position (0°).
(2) Fire test report references 22240B and 22240C, conducted by Warrington Fire. Copies are available from the Certificate holder.

2.1.2 When tested to BS 476-3 : 2004, the following systems(1)(2) given below achieved a classification of EXT.F.AC:

- an 18 mm thick plywood deck, one layer of bitumen VCL, one layer of 75 mm thick mineral wool insulation and one layer of polyester fleece-backed 1.2 mm Sarnafil TG76 Felt fully bonded using Sarnacol 2142S
- an 18 mm thick plywood deck, one layer of bitumen VCL, one layer of 100 mm thick PIR insulation and one layer of polyester fleece-backed 1.2mm Sarnafil TG76 Felt fully bonded using Sarnacol 2142S

(1) The systems were tested in a flat position (0°).
(2) Fire test report references 224654 and 224651, conducted by BRE Certification Ltd. Copies are available from the Certificate holder.

2.1.3 On the basis of the data assessed, the constructions described in sections 2.1.1 and 2.1.2, will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a boundary. Restrictions may apply at junctions with compartment walls.

2.1.4 The designation and permissible areas of use of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

2.2 Reaction to fire

2.2.1 When tested to BS EN ISO 11925-2 : 2020 and classified to EN 13501-1 : 2018, Sarnafil G410-EL 1.5 mm, 1.8 mm and Sarnafil G410-ELF 1.5 mm and 1.8 mm, had a reaction to fire classification of Class E(1).

(1) Classification reports reference EUI-2200312G, EUI-22-000312-M, EUI-22-000312-N and EUI-22-00312-D conducted by EFECTIS UK/Ireland Limited. Copies are available from the Certificate holder.

2.2.2 The Certificate holder has not declared a reaction to fire classification for Sarnafil G410-EL SA and Sarnafil TG76 Roof Waterproofing Membranes.

2.2.3 On the basis of data assessed, systems incorporating Sarnafil Adhered Roof Waterproofing Membranes will be restricted in use under the documents supporting the national Building Regulations in some cases.

2.2.4 In England, the products, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a boundary, or on residential buildings more than 11 m in height or on other buildings more than 18 m in height. Restrictions apply on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.5 In Wales, and in Northern Ireland for the products achieving Class E, when used in pitches greater than 70°, excluding upstands, the products must not be used less than 1 m from a boundary, or on buildings more than 18 m in height. Restrictions apply on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.6 In Scotland, the products achieving Class E, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a boundary, or on buildings more than 11 m in height. Restrictions apply on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.7 In Scotland and Northern Ireland, for systems incorporating the products used in pitches greater than 70°, excluding upstands, which do not achieve the minimum Class E reaction to fire classification to EN 13501-1 : 2018, designers should seek guidance on the proposed use of the products/system from the relevant Building Control Body. These constructions must also be included in calculations of unprotected area.

3 Hygiene, health and the environment

Data were assessed for the following characteristics.

3.1 Weathertigthness

Results of weathertightness tests are given in Table 5.

Table 5 Weathertightness

Product assessed	Assessment method	Requirement	Result
Sarnafil G- 410 Sarnafil TG76 Felt	Water vapour permeability to BS 3177 : 1959	Value achieved	2.5 $g \cdot m^{-2} \cdot 24h^{-1}$ 0.24 $g \cdot m^{-2} \cdot 24h^{-1}$
Sarnafil G-410 Sarnafil TG76 Felt	Water vapour resistance to BS 3177 : 1959		80 $MN \cdot s \cdot g^{-1}$ 848$MN \cdot s \cdot g^{-1}$
Sarnafil G-410	Water absorption to BS 2782-5 :502F : 1970	Value achieved	20 mg
	Water pressure (6m head) to MOAT 27: 1983(1) -control -on a 50mm weld joint	No leakage after 24 hr exposure to 6 metre head of water	 Pass Pass
Sarnafil G-410-EL Sarnacol 2170	Peel from substrate to MOAT 27:1983(1) Concrete Chipboard	≥25 $N \cdot 50mm^{-1}$	 Pass Pass
Sarnafil G-410-ELF Sarnacol 2170	Concrete		Pass
Sarnafil G-410-ELF Sarnacol 2142S	Concrete		Pass
Sarnafil TG76 Felt			
Sarnafil G-410	Peel resistance of weld joint to MOAT 29: 1984(1)	≥100 N	Pass
Sarnafil G-410	Tensile strength of weld joint to MOAT 27:1983(1) longitudinal direction transverse direction	 Value achieved	 562 N 552 N
Sarnafil G-410 Sarnafil TG76 Felt	Resistance to cyclic movement (500 cycles) To MOAT 27: 1983(1)	No damage	 Pass Pass
Sarnafil G-410	Air pressure of joints (10kPA) to MOAT 27:1983(1)	No leakage at 10 kPa	Pass
Sarnafil G-410 Sarnacol 2170 (chipboard)	Dynamic wind uplift to MOAT 27 : 1983(1)	Design value(2)	>8 kPa

(1) Test carried out before the publication of harmonised Standard BS EN 13956 : 2012.
(2) The value for a specific building should be calculated by a suitably competent and experienced individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex.

3.1.2 On the basis of data assessed, Sarnafil Adhered Roof Waterproofing Membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of a building and so satisfy the requirements of the national Building Regulations.

3.1.3 On the basis of data assessed, the products will sufficiently resist the effects of wind suction likely to be experienced in the UK.

3.2 Resistance to mechanical damage

Results of resistance to mechanical damage tests are given in Table 6.

Table 6 Mechanical damage results

Product assessed	Assessment method	Requirement	Result
Sarnafil G-410	Dynamic indentation to Moat 27: 1983[(1)]	Value achieved	
	(Chipboard)		I_3
	(EPS)		I_3
	(Perlite board)		I_2
Sarnafil G-410	Static indentation to MOAT 27:1983 [(1)]	Value achieved	
	(EPS)		L_4
	(Concrete)		L_4
	(Fibre board)		L_4
Sarnafil TG76 Felt	Dynamic indentation to Moat 27: 1983[(1)]	Value achieved	
	(Perlite cellulose)		I_3
	(EPS)		I_3
Sarnafil TG76 Felt	Static indentation to MOAT 27:1983[(1)]	Value achieved	
	(EPS)		L_4
	(Concrete)		L_4
Sarnafil G-410	Tensile strength to BS 2782 – Part 5 : Method 502F : 1970	Value achieved	
	longitudinal direction		12 $N \cdot mm^{-2}$
	transverse direction		11.2 $N \cdot mm^{-2}$
Sarnafil TG76 Felt	Tensile strength to BS 2782 – Part 3 : Method 320E : 1976 (1994)	Value achieved	
	longitudinal direction		948 $N \cdot 50mm^{-1}$
	transverse direction		728 $N \cdot 50mm^{-1}$
Sarnafil G-410	Elongation to BS 2782 – Part 5 : Method 520F: 1970	Value achieved	
	longitudinal direction		210%
	transverse direction		200%
Sarnafil TG76 Felt	Elongation to BS 2782 – Part 3 : Method 320E : 1976 (1994)	Value achieved	
	longitudinal direction		52%
	transverse direction		67%
Sarnafil G-410	Tear strength to BS 2782: Part 3: Method 308A: 1970	Value achieved	
	Longitudinal direction		57.6 $N \cdot mm^{-1}$
	Transverse direction		62 $N \cdot mm^{-1}$
Sarnafil TG76 Felt	Tear strength to MOAT 27: 1983[(1)]	>150 N	
	Longitudinal direction		Pass
	transverse direction		Pass

(1) Test carried out before the publication of harmonised Standard BS EN 13956 : 2012.

3.3.1 On the basis of data assessed, Sarnafil Adhered Roof Waterproofing Membranes can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Reasonable care must be taken to avoid puncture by sharp objects or concentrated loads.

3.3.2 Where regular traffic is envisaged, such as for maintenance of lift equipment, a walkway must be provided using concrete slabs supported on bearing pads or an anti-slip walkway with or without a protection sheet.

3.2.3 Systems incorporating the products are capable of accepting minor structural movement while remaining weathertight.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

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 these products were assessed and visits to existing sites were carried out to assess the long term performance of the products in use.

Specific test data were assessed as given in Table 7.

Table 7 Results of durability tests

Products assessed	Assessment method	Requirement	Result
Sarnafil G-410	Low temperature flexibility to MOAT 27:1983(1)	Value achieved	≤-30°C
Sarnafil G-410	Cold flex temperature to BS 2782-1: Method 150B : 1976	Value achieved	-50°C
Sarnafil G-410	Tensile strength to BS 2782 – Part 5 : Method 502F : 1970	No significant loss of properties after ageing	
	longitudinal direction		
	Heat aged 7 days at 80°C		Pass
	Heat aged 28 days at 80°C		Pass
	Heat aged 56days at 80°C		Pass
	SO_2 exposure for 14 days		Pass
	SO_2 exposure for 28 days		Pass
	SO_2 exposure for 56 days		Pass
	UV exposure for 500hrs		Pass
	transverse direction		
	Heat aged 7 days at 80°C		Pass
	Heat aged 28 days at 80°C		Pass
	Heat aged 56days at 80°C		Pass
	SO_2 exposure for 14 days		Pass
	SO_2 exposure for 28 days		Pass
	SO_2 exposure for 56 days		Pass
	UV exposure for 500hrs		Pass
Sarnafil G-410	Elongation to BS 2782 – Part 5 : Method 502F : 1970	No significant loss of properties after ageing	
	longitudinal direction		
	Heat aged 7 days at 80°C		Pass
	Heat aged 28 days at 80°C		Pass
	Heat aged 56days at 80°C		Pass
	SO_2 exposure for 14 days		Pass
	SO_2 exposure for 28 days		Pass
	SO_2 exposure for 56 days		Pass
	UV exposure for 500hrs		Pass
	transverse direction		
	Heat aged 7 days at 80°C		Pass
	Heat aged 28 days at 80°C		Pass
	Heat aged 56days at 80°C		Pass
	SO_2 exposure for 14 days		Pass
	SO_2 exposure for 28 days		Pass
	SO_2 exposure for 56 days		Pass
	UV exposure for 500hrs		Pass
Sarnafil G-410	Resistance to cyclic movement (500 cycles) to MOAT 27: 1983(1)	No damage	Pass (500 cycles)
Sarnafil TG76 Felt	Heat aged 28 days at 80°C		Pass (200 cycles)

Table 7 Results of durability tests (continued)

Products assessed	Assessment method	Requirement	Result
Sarnafil G-410-ELF Sarnacol 2170	Peel from substrate to MOAT 27:1983(1) Concrete	≥25 N·50mm^{-1}	
	Heat aged 56 days at 80°C		Pass
	Water soak 28 days at 20°C		Pass
Sarnafil G-410-ELF Sarnacol 2142S Sarnafil TG76 Felt	Heat aged 56 days at 80°C		Pass
	Water soak 28 days at 20°C		Pass
	Heat aged 56 days at 80°C		Pass
	Water soak 28 days at 20°C		Pass
Sarnafil G-410	Tensile strength of weld joint to MOAT 27:1983(1)	No significant loss of properties after ageing	
	Heat aged 28 days at 80°C		
	longitudinal direction		Pass
	transverse direction		Pass
	Water soak 7 days at 60°C		
	longitudinal direction		Pass
	transverse direction		Pass

(1) Test carried out before the publication of harmonised Standard BS EN 13956 : 2012.

8.3 Service life

8.3.1 Under normal service conditions, the Sarnafil G-410 and Sarnafil TG76 Felt Roof Waterproofing Membranes will have a life of at least 35 and 25 Years respectively, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.3.2 Provided the roof is covered by, and maintained in accordance with, the Certificate holder's maintenance scheme, the Sarnafil G-410 Roof Waterproofing Membranes will have a service life in excess of 40 years (see section 9.4).

PROCESS ASSESSMENT

Information provided by the Certificate holder was assessed for the following factors:

9 Design, installation, workmanship and maintenance

9.1 Design

The design process was assessed and the following requirements apply in order to satisfy the performance assessed in this Certificate.

9.1.1 Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2018 and, where appropriate, *NHBC Standards* 2023, Chapter 7.1.

9.1.2 For design purposes of flat roofs, twice the minimum finished fall must be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls.

9.1.3 Structural decks to which the products are to be applied must be suitable to transmit the dead and imposed loads experienced in service. Allowance needs to be made for loading deflections to ensure that the free drainage of water is maintained.

9.1.4 Imposed loads, dead loading and wind loads must be calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003 and BS EN 1991-1-4 : 2005, and their UK National Annexes.

9.1.5 Sarnafil G410 membranes can be adversely affected by contact with bituminous products and polystyrene insulation boards. In these cases, the G410 felt-backed version or a suitable separating layer such as SarnaFelt Type T must be used. Where doubt arises, the advice of the Certificate holder should be sought, but such advice is outside the scope of this Certificate.

9.1.6 The membranes must not be laid directly onto timber substrates impregnated with substances containing solvents or oil (eg oil-based preservatives). In these cases, Sarnafil G-410-ELF or a suitable separating layer must be used.

9.1.7 Insulation materials to be used in conjunction with the products must be in accordance with the Certificate holder's instructions and be either:

- as described in the relevant clauses of BS 6229 : 2018, or
- the subject of a current BBA Certificate and be used in accordance with, and within the limitations of, that Certificate or
- included in the Certificate holder's *Adhered Systems Insulation List*. The insulation must be attached independently to the substrate.

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 The products may be laid in conditions normal to roofing work but must not be laid in wet or damp weather, nor at temperatures below 5°C, unless suitable precautions are taken.

9.2.3 Deck surfaces must be clean, dry and free from sharp projections such as nail heads and concrete nibs. When used over a rough or bitumen substrate, a suitable protection layer must be laid first.

9.2.4 Installation must be carried out in accordance with this Certificate and the Certificate holder's instructions and must be carried out by trained and approved installers working in accordance with the relevant clauses of the Certificate holder's instructions, BS 8000-0 : 2014, BS 8000-4 : 1989 and the 2020 SPRA *Single Ply : Design Guide* (S1/2020). A summary of instructions and guidance are provided in Annex A.

9.2.5 The NHBC requires that the Sarnafil Adhered Roof Waterproofing Membranes, once installed, be inspected in accordance with *NHBC Standards* 2023 Chapter 7.1, Clause 7.1.11, including the use of an appropriate integrity test, where required. Any damage to the products assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain products performance.

9.3 Workmanship

Practicability of installation was assessed on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the products should only be carried out by installers who have been trained and approved by the Certificate holder. The records relating to this will be audited by the BBA as part of its programme of surveillance of the Certificate.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the products in use requires that they are suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate.

9.4.2 The following requirements apply in order to satisfy the performance assessed in this Certificate:

9.4.2.1 The products must be the subject of six-monthly inspections and maintenance in accordance with the recommendations of BS 6229 : 2018, Chapter 7, and the Certificate holder's own maintenance requirements, where relevant, to ensure continued satisfactory performance.

9.4.2.2 A planned maintenance cycle, including inspections by the Certificate holder at minimum intervals of five years, must be introduced if an extended service life is required (see section 8.3.2).

9.4.2.3 In the event of damage, repairs can be carried out by cleaning the affected area and applying a patch as described in the Certificate holder's instructions.

10 Manufacture

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

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

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

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

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

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

† 10.1.6 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 products are delivered to site in in rolls packaged in polythene bearing a label with the product identification, stock number, lot number, bulk roll number, area, date code and the BBA logo incorporating the number of this Certificate.

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

11.2.1 Rolls must be stored in a cool, dry area on a clean, level surface, and kept under cover. They must only be unwrapped from packaging at the time of installation, and unused membrane must be returned to its packaging until required.

ANNEX A – SUPPLEMENTARY INFORMATION †

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

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

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

CLP Regulations

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

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the product in accordance with Designated Standard EN 13956 : 2012.

CE marking

The Certificate holder has taken the responsibility of CE marking the product, in accordance with harmonised European Standard EN 13956 : 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 and BS EN ISO 14001 : 2015 by SQS (Certificate 31982).

Additional information on installation

General

A.1 The products are mechanically fixed at the perimeter and lap jointed.

Procedure

Sarnafil G410

A.2 Sarnacol 2170 is applied to the substrate and allowed to dry. The membrane is unrolled onto the surface and approximately one-third of its length folded back to expose the underside. Sarnacol 2170 is applied to the membrane at a coverage rate of 200 $g \cdot m^{-2}$, and substrate at a coverage rate of 300 to 800 $g \cdot m^{-2}$ depending on texture. When the adhesive has dried, the two adhesive-coated surfaces are brought into contact and the surface of the membrane is rolled with a water-filled roller. This is then repeated over the rest of the sheet.

A.3 When the products are used over insulation products, the resistance to wind uplift will be limited by the cohesive strength of the insulation, and the method of attachment. These factors should be taken into account when selecting the insulation material. Insulation boards can be either fully adhered, using Sarnacol 2142S or hot bitumen, or mechanically fastened. Sarnacol 2170 must not be used directly on polystyrene products.

A.4 Sarnafil G410-ELF can be fully adhered using Sarnacol 2170 or Sarnacol 2142S adhesives, depending upon the substrate as per the Certificate holder's instructions.

A.5 When using Sarnacol 2170 adhesive, a primer coat of the adhesive is applied to the substrate and allowed to dry. The product is unrolled onto the surface and approximately half of its length folded back to expose the underside. Sarnacol 2170 is applied to the previously primed area. The product is immediately unrolled directly onto the wet adhesive and the surface of the membrane is rolled with a water-filled roller. The other half of the membrane is folded back and the procedure is repeated.

A.6 When using Sarnacol 2142S, the product is unrolled onto the substrate and approximately half of its length is rolled back to expose the underside. A coat of Sarnacol 2142S is applied to the substrate, covering only the area where the product is to be laid. The product is immediately unrolled onto the wet adhesive, ensuring that the weld area is kept adhesive free, and the surface of the product is rolled with a water-filled roller. The other half of the product is folded back and the procedure repeated.

A.7 When using SikaRoof Adhesive 400 Spray, a primer coat of the adhesive is applied to the substrate and allowed to dry. The product is unrolled onto the surface and approximately half of its length folded back to expose the underside. SikaRoof Adhesive 400 Spray is applied to the underside of the product. Once the adhesive is tacky, the product is laid on the substrate and pressed down with a heavy roller. The other half of the product is folded back and the procedure repeated.

A.8 When using Sarnafil G410-EL SA, the substrate is cleaned if required and the product is unrolled and laid in position. The substrate may require preparing with Primer 600 or Primer 610. The protective liner is removed from the self-adhesive backing and the surface of the membrane is brushed with a broom for full contact with the substrate. The surface is then pressed down with a roller of approximately 50 kg in weight to ensure full surface bond to the substrate. Adjoining sheets are overlapped by 60 mm. Seam overlaps are welded by hot air.

Sarnafil TG76 Felt

A.9 Sarnafil TG76 -Felt is unrolled onto the substrate and approximately half its length rolled back to expose the underside.

A.10 A coat of Sarnacol 2142S is applied to the substrate, covering only one area where the product is to be laid.

A.11 The product is immediately unrolled onto the wet adhesive, ensuring that the weld area is kept adhesive free, and the surface of the product is rolled with a water-filled roller. The other half of the product is folded back and the procedure repeated.

Lap joints

A.12 Jointing is achieved by hot-air welding with the temperature set in accordance with the Certificate holder's instructions.

A.13 The welding area must be dry and clean. If the product in the welding area is oxidised, owing to prolonged outdoor exposure, or contaminated, it must be cleaned in the prescribed manner. When installing Sarnafil TG76-Felt only, Sarnafil T Prep should be allowed to totally flash off prior to welding.

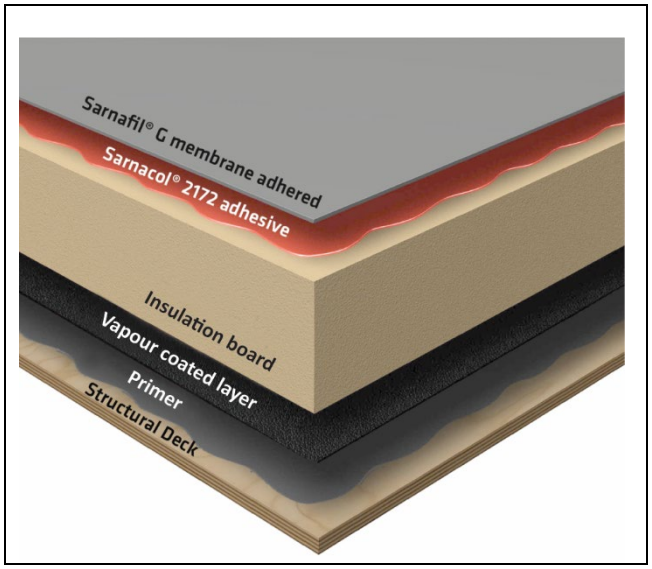
A.14 The welded width of the joint must be a minimum of 25 mm. Care must be taken to ensure that overheating of the product does not occur, as scorching and carbonisation of the membrane will result.

A.15 The seam must be tested with a suitable metal probe and any weakness immediately repaired.

Flashing

A.16 Flashing and detailing are formed in accordance with the Certificate holder's instructions.

Figure 1 Typical installation



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MOAT 65 : 2011 *UEAtc General Directive for the Assessment of Non-reinforced, Reinforced and/or Backed Roof Waterproofing Systems made of PVC*

Conditions

1 This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- is valid only within the UK
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English Law.

2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

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

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

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