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**Agrément Certificate**

**02/3922**

Product Sheet 2 Issue 1

### RHEPANOL

#### RHEPANOL HFK ROOF COVERING SYSTEM

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Rhepanol HFK Roof Covering System, a polyisobutylene membrane laminated with a polyester fleece backing, for use as a mechanically fixed, loose laid and ballasted or adhered waterproofing on flat roofs with limited access, at a pitch of no greater than 20°.

(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 system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of issue: 16 May 2024

Hardy Giesler  
Chief Executive Officer

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

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

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

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

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

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## SUMMARY OF ASSESSMENT AND COMPLIANCE

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

### Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that the Rhepanol HFK Roof Covering System, if installed, used, and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



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

<b>Requirement:</b>	<b>B4(2)</b>	<b>External fire spread</b>
Comment:		On a suitable substructure, the system may enable a roof to be unrestricted under this Requirement. See section 2 of this Certificate.
<b>Requirement:</b>	<b>C2(b)</b>	<b>Resistance to moisture</b>
Comment:		The system, including joints, will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
<b>Regulation:</b>	<b>7(1)</b>	<b>Materials and workmanship</b>
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.



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

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The use of the system satisfies the requirements of this Regulation. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards applicable to construction</b>
Standard:	2.8	Spread from neighbouring buildings
Comment:		The system, when used with a suitable surface protection, may enable a roof to be unrestricted by clause 2.8.1 <sup>(1)(2)</sup> of this Standard. See section 2 of this Certificate.
Standard:	3.1	Precipitation
Comment:		The system, including joints, will enable a roof to satisfy the requirements of this Standard with references to clauses 3.10.1 <sup>(1)(2)</sup> and 3.10.7 <sup>(1)(2)</sup> . See section 3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system can contribute to meeting 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.
<b>Regulation:</b>	<b>12</b>	<b>Building standards applicable to conversions</b>
Comment:		Comments in relation to the system under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .

(1) Technical Handbook (Domestic).  
(2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(1)(a)(i)</b>	<b>Fitness of material workmanship</b>
Comment:	<b>(iii)(b)(i)</b>	The system is acceptable. See sections 8 and 9 of this Certificate

<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
Comment:		The system, including joints, can enable a roof to satisfy the requirements of this Regulation. See section 3 of this Certificate.
<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
Comment:		The system, when used with a suitable surface protection, can enable a roof to be unrestricted under this Requirement. See sections 8 and 9 of this Certificate.

## Additional Information

### NHBC Standards 2024

In the opinion of the BBA, the Rhepanol HFK Roof Covering System, 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 system 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 system.

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

## Fulfilment of Requirements

The BBA has judged the Rhepanol HFK Roof Covering System to be satisfactory for use as described in this Certificate. The system has been assessed as a roof waterproofing system as described in this Certificate. The system has been assessed for use as a mechanically fixed, loose laid and ballasted or adhered waterproofing on flat roofs with limited access at a pitch of no greater than 20°.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the system under assessment. The Rhepanol HFK Roof Covering System consists of polyisobutylene membranes, with polyester fleece backing, in roll form with a 50 mm welding edge.

The membranes have the nominal characteristics given in Table 1.

*Table 1 Nominal characteristics of the Rhepanol HFK Roof Covering System*

Characteristic (unit)	Values
Thickness (mm)	2.3 (comprising 1.5 mm PIB membrane and 0.8 mm thick fleece)
Width (m)	0.5, 1.0 and 1.5
Roll length (m)	15
Mass per unit area (kg·m <sup>-2</sup> )	1.95

### Ancillary Items

The following ancillary items are of essential use and have been assessed with the system:

- Rhepanol h-Intensive Seam Cleaner 50 — used to clean weathered seams prior to hot air welding
- Rhepanol Adhesive 50 — for bonding the membrane to wall and parapet surfaces
- Vapour Control Layer Rhepanol — a 0.4mm polyethylene (PE) layer, with a surface weight of 330 g·m<sup>-2</sup>.

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

- Rheponal hsg connection strips for Rheponal hfk — the connection strips are manufactured from PIB with a glass fleece inlay and for use as a connecting membrane and surface cover strips suitable for forming connections with walls and attics
- Rheponal h — manufactured from PIB and used to detail around areas such as pipe bushings where the material must be heated and stretched
- velcro fixing strips and approved fixing.
- adhesive — for bonding the membrane to plywood, chipboard, bitumen membranes (without PE foil), covering, timber, aerated concrete and concrete
- copper and aluminium coatings — to mimic long strip metal roofs
- decorative profiles — applied to create architectural features in the details of the membrane
- stainless steel gravel stop system
- decorative copper, aluminium and other decorative coloured Rheponal based coatings
- FDT raw glass fleece with a surface weight of  $120 \text{ g}\cdot\text{m}^{-2}$  — for use as a separating layer
- FDT variogully system — a flat roof rainwater outlet system
- Rheponal h paving slabs
- Rheponal flashing — to prevent water penetrating roof junctions
- FDT vapour barrier alu-gv-sk — a fabric reinforced aluminium composite self adhesive foil for use as a vapour barrier
- FDT gargoyle a plastic horizontal drainage system
- FDT emergency overflow — a horizontal emergency drainage overflow
- FDT extractor hood — a PVC hood including the FDT extraction system
- FDT fastening profile — for securement of flashings and trims
- FDT wall connection profile — for fixing roofing membranes to vertical surfaces
- FDT Plastic fleece  $300 \text{ g}\cdot\text{m}^{-2}$  — for use as a protective layer
- FDT protective membrane — plastic sheet for use as a protective layer
- Paving slab adhesive

#### Applications

The Rheponal HFK Roof Covering System is intended for use as a roof waterproofing covering in the following specifications:

- mechanically fastened on flat roofs with limited access
- loose laid and ballasted on parapeted flat roofs with limited access
- adhered on flat roofs with limited access and pitched roofs with a pitch  $\leq 20^\circ$ .

#### Definitions for products and applications inspected

The following have been defined for the purpose of this Certificate:

- 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 system was assessed for the following key factors, and the outcome of the assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

## **1 Mechanical resistance and stability**

Not applicable.

## 2 Safety in case of fire

Data were assessed for the following characteristics.

### 2.1 External fire spread

2.1.1 When tested to DD CEN/TS 1187 : 2012, Test 4 and classified to EN 13501-5 : 2016<sup>(1)</sup>, the system given in Table 2 of this Certificate achieved B<sub>ROOF</sub>(t4).

*Table 2 Tested systems*

Layer	System
Substrate	Trapezoidal steel deck greater or equal to 0.75 mm thick <sup>(2)</sup>
AVCL	0.25 or 0.4 mm thick polyethylene AVCL, FDT Dampfsperre <sup>(2)</sup>
Insulation	Mechanically fastened, double layer of a minimum thickness of 100 and 160 mm (total 260 mm) mineral wool boards, Durock 040 <sup>(2)</sup>
Waterproofing	1.5 mm Rhepanol HFK, mechanically fastened

(1) Test, classification and extended application reports reference 20684A, 20684B and 20684E respectively, issued by Warringtonfire. Reports available from the Certificate holder on request.

(2) Outside the scope of this Certificate

2.1.2 On the basis of data assessed, the system listed in Table 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.

2.1.3 When used in conjunction with one of the inorganic coverings listed in the Annex of Commission Decision 2000/553/EC, the system will also be unrestricted with respect to proximity to a boundary under the documents supporting the national Building Regulations.

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

## 3 Hygiene, health and the environment

Data were assessed for the following characteristics.

### 3.1 Weathertightness

3.1.1 Results of weathertightness tests are given in Table 3.

**Table 3 Weathertightness tests**

Product assessed	Assessment method	Requirement	Result
Rhepanol HFK (1.5 m width)	Watertightness to DIN EN 1928 : 2000	No leakage at a 1 m head of water	Pass
Representative related product	Resistance to air leakage at joints to MOAT 27 : 1983	No leakage at 10 kPa	Pass
Rhepanol HFK (1.5 m width)	Resistance to wind loads to EN 16002 : 2018 Mechanically fastened system	Value achieved	800 N per fastener <sup>(1)</sup>
Rhepanol HFK (1.5 m width)	Peel resistance of joints to EN 12316-2 : 2013	$\geq 25 \text{ N} \cdot (50\text{mm})^{-1}$	Pass
Rhepanol HFK (1.5 m width)	Joint shear resistance to DIN EN 12317-2 : 2010	$\geq 200 \text{ N} \cdot (50\text{mm})^{-1}$	Pass
Representative related product	Resistance to peel to MOAT 64: 2001	$\geq 25 \text{ N} \cdot (50\text{mm})^{-1}$	Pass

(1) Fastener design values used for wind load calculations are given in section 9 of this Certificate

3.1.2 On the basis of data assessed, the Rhepanol HFK Roof Covering System, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the interior of a building and will enable a roof to comply with the requirements of the national Building Regulations.

3.1.3 On the basis of data assessed, the Rhepanol HFK Roof Covering System will sufficiently resist the effects of wind suction likely to be experienced in the UK (see sections 9.1.5 to 9.1.7).

### 3.2 Resistance to mechanical damage

3.2.1 Results of resistance to mechanical damage tests are given in Table 4.

**Table 4 Mechanical damage tests**

System assessed	Assessment method	Requirement	Result
Rhepanol HFK (1.5 m width)	Tensile strength to DIN EN 12311-2 : 2013	Certificate holder's Limiting Value	
	Longitudinal direction	$\geq 400 \text{ N} \cdot (50\text{mm})^{-1}$	Pass
	Transverse direction	$\geq 400 \text{ N} \cdot (50\text{mm})^{-1}$	Pass
Rhepanol HFK (1.5 m width)	Elongation to DIN EN 12311-2 : 2013	Certificate holder's Limiting Value	
	Longitudinal direction	$\geq 50\%$	Pass
	Transverse direction	$\geq 50\%$	Pass
Rhepanol HFK (1.5 m width)	Resistance to dynamic impact to DIN EN 12691 : 2006 Method A	Certificate holder's Limiting Value No leakage at 700 mm	Pass
Rhepanol HFK (1.5 m width)	Resistance to dynamic impact to DIN EN 12691 : 2006 Method B	Certificate holder's Limiting Value No leakage at 3500 mm	Pass
Rhepanol HFK (1.5 m width)	Resistance to static loading to DIN EN 12730 : 2015 Concrete substrate	Certificate holder's Limiting Value No leakage at 20 kg	Pass
Rhepanol HFK (1.5 m width)	Tear propagation force to DIN EN 12310-2 : 2001	Certificate holder's Limiting Value	
	Longitudinal direction	$\geq 150 \text{ N}$	Pass
	Transverse direction	$\geq 150 \text{ N}$	Pass
Rhepanol HFK (1.5 m width)	Resistance to tearing (nail shank) to DIN EN 12310-1 : 2000	Certificate holder's Limiting Value	
	Longitudinal	$\geq 300 \text{ N}$	Pass
	Transversal	$\geq 300 \text{ N}$	Pass

3.2.2 On the basis of data assessed, the Rhepanol HFK Roof Covering System 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.

3.2.3 Where regular traffic is envisaged, such as for maintenance of lift equipment, a walkway must be provided,

eg, using concrete slabs supported on bearing pads. The advice of the Certificate holder must be sought on the most appropriate method to be used with the amount of traffic involved, but such advice is outside of the scope of this Certificate.

3.2.4 Constructions incorporating the system 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**

The system contains polyisobutylene and polyester, which can be recycled.

#### **8 Durability**

8.1 The potential mechanisms for degradation and the known performance characteristics of the components of this system were assessed.

8.2 Specific test data were assessed, as given in Table 5.

Table 5 Results of durability tests

Product assessed	Assessment method	Requirement	Result
Rhepanol HFK (1.5 m width)	Dimensional stability to EN 1107-2 : 2001		
	Longitudinal direction	≤ 1%	Pass
	Transverse direction	≤ 1%	Pass
Rhepanol HFK (1.5 m width)	Low temperature foldability to EN 495-5 : 2001	-40°C	Pass
Rhepanol HFK (1.5 m width)	Tensile strength to BS EN 12311-2 : 2000	Values achieved	
	Heat aged at 80°C for 42 days Nominal machine direction		167 N·(50 mm) <sup>-1</sup>
Rhepanol HFK (1.5 m width)	Elongation at break to BS EN 12311-2 : 2000 <sup>2)</sup>	Values achieved	
	Heat aged at 80°C for 42 days Nominal machine direction		38.7%
Rhepanol HFK (1.5 m width)	Peel resistance of joints to EN 12316-2 : 2013	≤ 20% change on control	Pass
Rhepanol HFK (1.5 m width)	Resistance to dynamic impact to BS EN 12691 : 2001 Method A	Values achieved	l <sub>15</sub>
	Heat aged at 80°C for 42 days UV aged – UVA lamp 200 MJ·m <sup>-2</sup>		l <sub>15</sub>
Rhepanol HFK (1.5 m width)	Resistance to peel to MOAT 64 : 2001	≥ 25 N·(50 mm) <sup>-1</sup>	Pass
Rhepanol HFK (1.5 m width)	Resistance to UV to DIN EN 1297 : 2004	Visual assessment	
	Long-term exposure to UV 1000 light hours cycle – 5 hours UV (at 60°C)/1 hour condensation (at 25°C)	No cracks or visible defects	Pass

8.3 Visits to existing sites were carried out and samples taken for testing after additional accelerated ageing of a representative related product to assess the long-term performance in use. The conclusion of the visits was that the product retained sufficient physical characteristics to maintain their intended function.

#### 8.4 Service life

8.4.1 Under normal service conditions, the system will have a life of at least 35 years, provided it is designed, installed, and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.4.2 Provided the roof is covered by a maintenance scheme, the system will have a service life in excess of 40 years (see section 9.4 of this Certificate).

## PROCESS ASSESSMENT

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

### 9 Design, installation, workmanship and maintenance

#### 9.1 Design

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

9.1.2 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2023*, Chapter 7.1.

9.1.3 For design purposes twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available that includes overall and local deflection and direction of falls.



9.1.4 The system is compatible with bitumen and resistant to a wide range of chemicals including hydrocarbons. However, where doubt arises the Certificate holder must be consulted during the design stage, but such advice is outside of the scope of this Certificate.

9.1.5 Resistance to wind uplift of the system, mechanically fixed using velcro fixing strips, is provided by attachment of the membrane to the strip, which is secured to the deck by approved fixings. The number and position of the strips and the number of fixings will depend on a number of factors, including:

- wind uplift forces to be resisted
- pull-out strength of fixing
- elastic limit of the membrane
- appropriate safety factors.

9.1.6 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.

9.1.7 Where the system is bonded to insulation boards, the resistance to wind uplift will be dependent on the cohesive strength of the insulation and the method by which it is secured to the roof deck. This must be considered when the insulation material is selected. On substrates with high cohesive strength, the adhesion of the system is sufficient to resist the effects of wind suction, thermal cycling or minor structural movements occurring in practice.

9.1.8 A minimum distance of 200 mm between fasteners must be observed at all times. This may require the use of narrower membranes to obtain the correct number of fasteners per square metre.

9.1.9 The Certificate holder provides a design service which takes into account all the relevant information supplied and the specification for the positioning of fastening bars or washers, and the number of fixings required, but such advice is outside the scope of this Certificate.

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

- as described in the relevant Clauses of BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with, and within the limitations of, that Certificate.

9.1.11 For ballasted installations, the roof slope must be less than 3° to minimise loss of ballast.

9.1.12 When used in a loose-laid and ballasted system the precise ballast requirements must be calculated by a suitably experienced and competent individual in accordance with the relevant parts of EN 1991-1-4 : 2005 and its UK National Annex, but must be a minimum of 50 mm thick layer of 20 to 40 mm graded gravel. The use of concrete slabs on suitable supports must be considered in areas of high wind exposure and the advice of the manufacturer should be sought, but such advice is outside of the scope of this Certificate.

## 9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate.

9.2.2 Installation of the system must be carried in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, the Certificate holder's instructions and this Certificate.

9.2.3 Deck surfaces must be clean, dry and free from sharp projections such as nail heads and concrete nibs. In all cases, AVCL must be used directly over the deck.

9.2.4 The system may be laid in conditions normal to roofing work. To prevent the entrapment of moisture under the membrane, it must not be laid in wet or damp weather conditions, or at temperatures below 5°C.

9.2.5 The system may be applied over glass tissue-faced insulation materials and fixed to the substructure in such a way as not to impair the performance of the waterproofing membrane. Other insulation materials suitable for use with the membrane are polystyrene, polyisocyanurate and mineral fibre.

9.2.6 Where an extended service life is required, the Certificate holder or their agent must carry out inspections at the beginning and end of installation, and, if required, during it, to ensure that both the necessary preparatory work and the installation have been carried out in accordance with the specification for the work.

9.2.7 The NHBC requires that the system, once installed, are inspected in accordance with *NHBC Standards 2023*, Chapter 7.1, Clause 7.1.11, and undergo an appropriate integrity test, where required. Any damage to the system must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain system performance.

### 9.3 Workmanship

The practicability of installation was assessed by the BBA on the basis of the Certificate holder's instructions and BS 8217 : 2005. To achieve the performance described in this Certificate, installation of the system must be carried out by installers trained and approved by the Certificate holder.

### 9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the system in use requires that it is 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 achieve the performance assessed in this Certificate:

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

9.4.2.2 Where an extended service life is required, a planned maintenance cycle, including inspections at minimum intervals of five years, must be introduced.

9.4.2.3 The roof, including the drains, must be cleared of debris and any damage to the waterproofing membrane repaired in accordance with the Certificate holder's instructions.

9.4.2.4 In the event of damage, repair must be carried out in accordance with the Certificate holder's instructions. The damaged area is cut back to sound membrane, and the area to be bonded is cleaned back to unweathered material and patched using a Rheponal hsg connection strip, extending at least 50 mm beyond the defect.

## **10 Manufacture**

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

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

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

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

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

10.1.5 An audit of 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.

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

## **11 Delivery and site handling**

11.1 The Certificate holder stated that the membranes are delivered to site in rolls, wrapped in polythene bags and placed on pallets. Each roll bears a label indicating length, width, weight, and the BBA logo incorporating the number of this Certificate. The sheets are marked on one edge to show the date, shift and production batch number.

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

11.2.1 All components of the system must be stored under cover on a smooth substrate. Rolls must be stacked horizontally, not more than three high and parallel to each other.

11.2.2 Accessories must be stored away from heat and the liquids must be kept away from naked flames.

Supporting information in this Annex is relevant to the system 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 system under the *GB CLP Regulation* and the *CLP Regulation (EC) No 1272/2008 - classification, labelling and packaging of substances and mixtures*. Users must refer to the relevant Safety Data Sheet(s).

### CE marking

The Certificate holder has taken the responsibility of CE marking the system, in accordance with harmonised European Standard EN 13956 : 2012.

### Management Systems Certification for production

The management system of Flachdach Technologie GmbH has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015 by TÜV SUD Management Services (Certificate 12 100 22279 TMS).

### Additional information on installation

Procedure

#### Mechanically attached to the covered edge of the membrane

- A.1 Rheponal hfk should be laid loosely for profiled steel sheets or timber boarding.
- A.2 Fixings should be used to secure the hem for the covered edge with a minimum 10 mm seam overlap.
- A.3 For retention plates with a diameter of 50 mm the seam overlap must be 110mm or for oval washers of 40 by 82 mm, the seam overlap must be 100 mm.
- A.4 There must be a minimum distance of 10 mm between the retention plate and the edge of the membrane.
- A.5 The retention plates must lie flat against the waterproofing membrane and must not indent the insulation.
- A.6 The spacing and position of the fixings is determined by the wind load calculation.
- A.7 Oval retention plates should be fixed parallel to the edge of the membrane.

#### Mechanically fixed applications using a Velcro fixing strip system

- A.8 Velcro fixings strips should run perpendicular to the direction of Rhepanol HFK membranes and perpendicular to the span direction of the corrugated steel decking or timber boarding.
- A.9 The strips are rolled out and laid flat, avoiding undue rippling, at the designed spacing. The maximum distance between strips must not exceed 1.2 m.

A.10 Fixings with a maximum 50 mm diameter circular washer or 40 by 82 mm oval washer, selected in accordance with the Certificate holder's instructions, are installed flush with the insulation at fixing centres in accordance with the wind uplift calculations.

A.11 Rhepanol HFK membrane is rolled out over the strips. To assist laying the roofing membrane more accurately, the first few strips may be temporarily covered, eg, with unbacked membrane or sheet metal. When correctly aligned, the covers can be removed, and the membrane fixed in position by pushing the fleece on the back of the membrane onto the velco strips using the FDT universal roll.

A.12 Adjacent membranes are overlapped by at least 50 mm

A.13 Side laps are prepared as described in Jointing and flashing procedure section below.

#### Loose laid

A.14 Two rolls of Rhepanol HFK are rolled out, with the welding edge overlapping the next roll. Side laps are prepared as described in the Jointing and flashing procedure section below. End laps are sealed using Rhepanol hsg connection strips.

A.15 The loading medium should be laid onto the protected roof covering as soon as possible to avoid damage to the sheets or joints owing to wind uplift. A protective layer such as the FDT synthetic fleece (300g·m<sup>-2</sup>) or the FDT protective membrane, as advised by the Certificate holder, should be laid prior to the addition of the loading medium.

#### Partially bonded

A.16 The deck is prepared and underlayers applied, using traditional techniques. Rhepanol HFK is laid partially bonded using FDT Adhesive, following normal procedures, ensuring that the adhesive is kept well away from the lap joint. The lap joint is then sealed as described in the *Jointing and flashing procedure* part of this Certificate. On timber, the adhesive is used and is applied in strips. For full surface bonding advice must be obtained from the Certificate holder.

A.17 On inclined surfaces, FDT adhesive is used in accordance with the Certificate holder's instructions.

#### General

A.18 The solvent materials used in the system have a low flashpoint and care must be taken to avoid naked flames.

A.19 After completion of the jointing process the lap must be tested for complete watertightness.

#### **Jointing and flashing procedure**

##### Hot-air welding (automatic welding machine)

A.20 The welding area must be dry and clean. The roof membrane must always be cleaned with the Rhepanol h seam cleaner as recommended by the Certificate holder prior to hot air welding.

A.21 The overlap width of the membranes must be a minimum of 100 mm for mechanically fixed systems. The overlap width must be a minimum of 50mm for adhered or ballasted systems.

A.22 The temperature for the automatic welding machine must be set in accordance with the Certificate holder's instructions, depending on the ambient temperature.

A.23 The joint is welded using the machine. Care must be taken to ensure that overheating of the membrane does not occur, as damage to the membrane may result.

### Hot-air welding (hand-held welder)

A.24 The welding area must be dry and clean. The roof membrane must always be cleaned with Rhepenol h seam cleaner as recommended by the Certificate holder prior to hot air welding.

A.25 The overlap width of the membranes must be a minimum of 100 mm when mechanically fixed and 50mm for adhered or ballasted systems.

A.26 The temperature for the hand-held welder must be set in accordance with the Certificate holder's instructions, depending on the ambient temperature.

A.27 The joint weld is consolidated using a hand-held roller. Care must be taken to ensure that overheating of the membrane does not occur, as damage to the membrane may result.

### **Details**

A.28 The area of roofing sheets where flashing is to be jointed must be clean, dust-free, and dry. It is essential that a full, even support is provided under the area for jointing and that the joint is correctly consolidated.

A.29 When using the loose-laid specification, rainwater outlets should be fitted with guards to prevent blockage by ballast material and to stop any local loss of depth to the ballasting.

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