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Agrément Certificate

91/2728

Product Sheet 1

HERTALAN ROOF WATERPROOFING SYSTEMS

HERTALAN EASY COVER AND EASY WELD EPDM ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet⁽¹⁾ relates to HERTALAN⁽²⁾ EASY COVER and EASY WELD EPDM Roof Waterproofing Systems, for use in loose-laid and ballasted, partially- or fully-adhered and mechanically-fastened applications on flat, pitched and protected zero fall roofs with limited access.

(1) Hereinafter referred to as 'Certificate'.

(2) HERTALAN 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

Weathertightness — the membranes, including joints, will resist the passage of moisture to the interior of the building (see section 6).

Properties in relation to fire — the systems may enable a roof to be unrestricted under the national Building Regulations (see section 7).

Resistance to wind uplift — when correctly specified, the systems will resist the effects of any wind suction likely to occur in practice (see section 8).

Resistance to mechanical damage — the systems will accept, without damage, the limited foot traffic and loads associated with installation and maintenance, and minor structural movements occurring in service (see section 9).

Durability — under normal service conditions, the systems will provide a durable waterproof covering with a service life of at least 25 years (see section 11).



The BBA has awarded this Certificate to the company named above for the systems described herein. These systems 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: 18 October 2021

Originally certificated on 26 November 1991

Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.

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, HERTALAN EASY COVER and EASY WELD EPDM Roof Waterproofing Systems, 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)

Requirement:	B4(1)	External fire spread
Comment:	The systems are restricted by this Requirement in some circumstances. See section 7.4 of this Certificate.	
Requirement:	B4(2)	External fire spread
Comment:	On a suitable substructure, the systems may enable a roof to be unrestricted under this Requirement. See sections 7.1, 7.2 and 7.3 of this Certificate.	
Requirement:	C2(b)	Resistance to moisture
Comment:	The membranes, including joints, will enable a roof to satisfy this Requirement. See section 6 of this Certificate.	
Regulation:	7(1)	Materials and workmanship
Comment:	The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.	



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:	The use of the systems satisfies the requirements of this Regulation. See sections 10.1 and 11 and the <i>Installation</i> part of this Certificate.	
Regulation:	9	Building standards applicable to construction
Standard:	2.6	Spread to neighbouring buildings
Comment:	The systems are restricted under clause 2.6.4 ⁽¹⁾⁽²⁾ of this Standard in some circumstances. See section 7.5 of this Certificate.	
Standard:	2.8	Spread from neighbouring buildings
Comment:	When applied to a suitable substructure, the systems may enable a roof to be unrestricted under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 7.1 to 7.3 of this Certificate.	
Standard:	3.10	Precipitation
Comment:	The membranes, 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⁾⁽²⁾ . See section 6 of this Certificate.	
Standard:	7.1(a)	Statement of sustainability
Comment:	The systems 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.	
Regulation:	12	Building standards applicable to conversions
Comment:	Comments in relation to the systems 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(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The membranes, including joints, will enable a roof to satisfy the requirements of this Regulation. See section 6 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		On suitable substructures, the use of the systems may enable a roof to be unrestricted under this Regulation. See sections 7.1 to 7.3 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: 1 *Description* (1.3) and 3 *Delivery and site handling* (3.3 and 3.4) of this Certificate.

Additional Information

NHBC Standards 2021

In the opinion of the BBA, HERTALAN EASY COVER and EASY WELD EPDM Roof Waterproofing Systems, 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 *Flat roofs, terraces and balconies*.

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

CE marking

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

Technical Specification

1 Description

1.1 HERTALAN EASY COVER and EASY WELD EPDM Roof Waterproofing Systems comprise a range of membranes, adhesives, sealant and flashing.

1.2 The membranes available for use in the systems are:

- HERTALAN EASY COVER — an unreinforced, vulcanised ethylene-propylene-diene-monomer (EPDM) membrane available in rolls. The membrane is also available prefabricated in sections
- HERTALAN EASY WELD BASIC — an unreinforced, vulcanised EPDM membrane with an alternating top and bottom thermoplastic elastomer (TPE) welding band along the edges of the membrane
- HERTALAN EASY WELD MF — an unreinforced, vulcanised EPDM membrane with an alternating top and bottom TPE welding band along the edges of the membrane. The TPE welding band is positioned specifically for mechanically-fixed applications.

1.3 The membranes are manufactured with the nominal characteristics shown in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Membrane type		
	EASY COVER	EASY WELD BASIC	EASY WELD MF
Thickness (mm)	1.2, 1.3, 1.5, 2.0	1.3, 1.5	1.3, 1.5
Width (m)	1.4	1.4	1.4, 0.7
Length ⁽¹⁾ (m)	20	20	20
Roll weight (kg)	41, 45, 52, 69	47, 55	47, 55, 24, 27
Watertightness	pass	pass	pass
Tensile strength (N·mm ⁻²)	≥ 8.0	≥ 7.0	≥ 7.0
Elongation (%)	≥ 400	≥ 400	≥ 400
Resistance to impact (mm)	≥ 300	≥ 300	≥ 300
Static loading (kg)	≥ 25	≥ 25	≥ 25
Tear resistance (N)	≥ 25	≥ 25	≥ 25
Low temperature foldability (°C)	≤ -45	≤ -45	≤ -45

(1) Other prefabricated membranes up to 300 m² are available to order.

1.4 Ancillary materials used with the membranes include:

- HERTALAN ks137 — an adhesive for lap jointing the membranes and/or flashing
- HERTALAN ks143 — for adhering the membranes to other substrates, eg concrete, wood, polyurethane insulation, polystyrene insulation (with suitable solvent-resistant facing) and bitumen sheeting
- HERTALAN RhinoBond System — the system consists of the RhinoBond plates coated to allow induction bonding with the HERTALAN EPDM membranes. The plates can be used in combination with the ThreadSafe tube fixing. Also available is a protective plate to be used between the RhinoBond plate and the substrate, if the substrate is adversely affected by heat. The system is for use with the HERTALAN EASY COVER membrane
- HERTALAN EPDM STRIPS — 200 mm wide EPDM strips for application over mechanical fixings
- HERTALAN COVERSTRIP — a weldable strip for covering mechanical fixings and butted joints
- HERTALAN ks205 — a sprayable contact adhesive for adhering the membranes to wood, insulation boards and bitumen felts
- HERTALAN ks96 — an adhesive for bonding the membranes to wood, concrete (non-porous), fibre cement and insulation boards and for sealing seams, sealing overlaps made at T-crossings, finishing difficult overlaps in corners and finishing splices
- HERTALAN FLASHING — a non-vulcanised EPDM strip material that can be moulded in place with hot air and bonded with HERTALAN ks137 adhesive for non-standard applications. The flashing cures slowly under atmospheric conditions.

2 Manufacture

2.1 The membranes are manufactured by blending EPDM, processing oils, fillers and other additives. The sheets are produced by feeding the mix through a roller-head extruder before vulcanisation.

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.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by LRQA (Certificate 10125470).

3 Delivery and site handling

3.1 The membranes are delivered to site either in rolls shrink-wrapped in polythene on a pallet, or as prefabricated sheets packed in polyester matting, stacked on a pallet, and shrink-wrapped in polythene. Rolls and sheets carry labels

bearing the product name, dimensions, Certificate holder's name and the BBA logo incorporating the number of this Certificate.

3.2 EPDM membranes do not require any particular storage conditions; however, HERTALAN FLASHING should be stored in a clean, dry area and in temperatures between 5°C and 20°C. It cures gradually and therefore should not be stored for more than nine months. With curing, the flexibility reduces and, though the waterproofing characteristics are retained, forming details becomes progressively more difficult.

3.3 Sealants and adhesives must be stored in a dry, ventilated area at temperatures between 5°C and 25°C and isolated from potential ignition sources. Site storage of these products should not exceed six months.

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

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on HERTALAN EASY COVER and EASY WELD EPDM Roof Waterproofing Systems.

Design Considerations

4 General

4.1 HERTALAN EASY COVER and EASY WELD EPDM Roof Waterproofing Systems are satisfactory for use as:

- a loose-laid and ballasted waterproofing layer, fully adhered at edges and upstands, on flat and zero fall roofs with limited access
- a partially-adhered or fully-adhered waterproofing layer, fully adhered at edges and upstands, on flat, pitched and protected zero fall roofs with limited access
- a loose-laid system to the inverted roof concept, fully adhered at edges and upstands, on flat and zero fall roofs with limited access
- a mechanically-fixed waterproof layer, fully adhered at edges and upstands, on flat and protected zero fall roofs with limited access.

4.2 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2021*, Chapter 7.1.

4.3 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, special precautions, such as additional protection to the membranes, must be taken.

4.4 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls, etc.

4.5 Pitched roofs are defined for the purpose of this Certificate as those having a fall greater than 1:6.

4.6 Zero fall roofs are defined for the purpose of this Certificate as those having a finished fall of between 0 and 1:80. Recommendations for the design of roof falls are available in the Single Ply Roofing Association (SPRA) *Single Ply : Design Guide*.

4.7 For ballasted installations, where the slope of the roof is over 3°, precautions must be taken to minimise the loss of ballast. The advice of the Certificate holder should be sought.

4.8 Structural decks to which the system is 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.

4.9 Imposed loads, dead loading and wind load specifications should 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.

4.10 The drainage system for inverted and zero fall roofs must be correctly designed, and the following points should be addressed:

- provision made for access for maintenance purposes
- for zero fall roofs, it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective
- additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections*.

4.11 Insulation system or materials used in conjunction with the system must be:

- as described in BS 6229 : 2018, or
- the subject of a current BBA Certificate and used in accordance with, and within the limitations of, that Certificate.

4.12 Contact between certain insulation materials and Hertalan ks143 or ks205 must be avoided and the Certificate holder consulted for advice.

4.13 Contact with low-grade bitumen and oil-based products should be avoided. If contact with such products is likely, a separating layer should be interposed before installing the waterproof sheet. If compatibility with other products is in doubt, the advice of the Certificate holder should be sought.

4.14 The NHBC requires that the roof membranes, once installed, be inspected in accordance with of *NHBC Standards* 2021, Chapter 7.1, Clause 7.1.12, including the use of an appropriate integrity test, where required. Any damage to the membrane is repaired in accordance with section 17 of this Certificate and reinspected.

5 Practicability of installation

Installation of the systems must only be carried out by contractors trained and approved by the Certificate holder.

6 Weathertightness



The membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations.

7 Properties in relation to fire



7.1 When tested to DD CEN/TS 1187 : 2012, Test 4, and classified to BS EN 13501-5 : 2016, the following specifications achieved a classification of $B_{ROOF}(t4)$ and so are unrestricted with respect to proximity to a boundary under the national Building Regulations:

- a 90 mm thick composite system comprising a 0.7 mm profiled steel deck, a 0.6 mm thick self-adhesive bitumen/aluminium air and vapour control layer, PIR insulation and 1.2 mm HERTALAN EASY COVER bonded using, HERTALAN ks143 adhesive, tested flat⁽¹⁾
- a 90 mm thick composite system comprising a 0.7 mm profiled steel deck, a 0.6 mm thick self-adhesive bitumen/aluminium air and vapour control layer, a mineral wool insulation layer and 1.3 mm HERTALAN EASY WELD, tested flat⁽²⁾.

(1) Fire test report reference 335493 issued by Exova Warringtonfire. A copy of the report is available from the Certificate holder.

(2) Fire test report reference 335494 issued by Exova Warringtonfire. A copy of the report is available from the Certificate holder.

7.2 The systems, when used in a loose-laid and ballasted specification, including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, are also unrestricted under the national Building Regulations.

7.3 The designation of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.



7.4 The systems, when used in pitches of greater than 70°, should not be used on buildings in England and Wales that have a storey at least 18 m above ground level and which contain one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals or dormitories in boarding schools.



7.5 The systems, when used in pitches of greater than 70°, excluding upstands, should not be used on buildings in Scotland that have a storey more than 11 m above ground level.

8 Resistance to wind uplift

8.1 When the membranes are fully or partially bonded, the adhesion of the membrane is sufficient to resist the effect of wind suction and minor structural movement likely to occur in practice. However, in areas of high wind exposure, consideration should be given regarding the use of additional protection.

8.2 When the membranes are 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 should be taken into account when the insulation material is selected.

8.3 The ballast requirements for loose-laid and ballasted and inverted roof systems must be calculated by a suitably experienced and competent individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex. When using gravel ballast, the system must always be loaded with a minimum depth of 50 mm of aggregate. In areas of high-wind exposure, the use of concrete slabs placed on suitable paving slabs should be considered. Advice on additional protection is available from the Certificate holder.

8.4 In mechanically fastened systems, the number of fixings and their position will depend on:

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

8.5 The number of fixings used must be established by reference to the wind uplift forces calculated by a suitably experienced and competent individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex, on the basis of the following maximum permissible loads per fixing:

HERTALAN EASY COVER (fixed through the membrane)	648
HERTALAN EASY COVER (fixed through prefabricated flap)	504
HERTALAN EASY WELD (fixed in the seam)	388
HERTALAN-RhinoBond System	400.

8.6 If the RhinoBond plates are used when mechanically fastening the insulation boards, these can be counted within the number of fixings required for wind resistance of the waterproofing membrane, reducing the overall number of fixings required.

9 Resistance to mechanical damage

9.1 Data indicate that the systems can withstand, without damage, the limited foot traffic and light concentrated loads associated with the installation and maintenance operations. However, care must be taken to avoid sharp objects or concentrated loads. Where regular traffic is envisaged, eg maintenance of lift equipment, a walkway should be provided using concrete slabs supported on bearing pads in accordance with the Certificate holder's instructions.

9.2 The systems are capable of accepting minor structural movement while remaining weathertight.

10 Maintenance



10.1 The roof systems should be the subject of six-monthly inspections and maintenance in accordance with BS 6229 : 2018, Chapter 7, to ensure continued satisfactory performance.

10.2 Any damage must be repaired in accordance with section 17 of this Certificate and the Certificate holder's instructions.

11 Durability



Under normal conditions, the systems will have a service life in excess of 25 years.

Installation

12 General

12.1 The installation of HERTALAN EASY COVER and EASY WELD EPDM Roof Waterproofing Systems must be carried out in accordance with the relevant clauses of BS 6229 : 2018, BS 8000-0 : 2014, BS 8000-4 : 1989, the Single Ply Roofing Association (SPRA) *Single Ply : Design Guide*, the Certificate holder's instructions and this Certificate.

12.2 Conditions for installation on site should be those for normal roof waterproofing work. Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs.

12.3 Installation should not be carried out during wet or damp weather conditions or at temperatures below 5°C. The fully-adhered system must not be installed at temperatures below 5°C, owing to the risk of condensation contaminating the bonding adhesive.

12.4 Where contact with coal tar or oil-based products is likely, an isolating layer must be interposed between the product and the substrate. Where contact with bituminous products is likely, consideration should be given to the use of an isolating layer, and the advice of the Certificate holder should be sought.

12.5 Where appropriate, sheets may be prefabricated prior to application to reduce the amount of on-site lap jointing.

12.6 In mechanically-fixed applications, only fasteners approved by the Certificate holder must be used.

12.7 All detailing and flashing must be carried out in accordance with the Certificate holder's instructions.

12.8 The membrane is applied at edges and at upstands and must be fully bonded using HERTALAN ks137 or HERTALAN ks205 adhesive.

12.9 The soundness of the seams must be confirmed using a blunt awl.

13 Procedure (loose-laid and ballasted application)

13.1 The membrane is unrolled onto the substrate and fully adhered at perimeters. Flashing and lap jointing must be carried out in the manner described in section 16.

13.2 Loose-laid applications must be covered by at least 50 mm of well-rounded gravel (15/30 grade minimum). When rounded gravel is used, all edges and corners should be ballasted with concrete tiles (minimum thickness 60 mm) on bearing pads, to a distance of two metres from the perimeter, to avoid damage to the membrane owing to wind uplift.

13.3 Alternatively, concrete paving (minimum thickness 40 mm) on bearing pads can be used as ballast.

13.4 When using a loose-laid application, normal account should be taken in the design of the deck of the extra dead loading owing to the weight of the aggregate and/or paving.

14 Procedure (bonded)

Partially-bonded application

14.1 HERTALAN ks143 and HERTALAN ks205 must not be applied directly onto insulation materials that will be adversely affected by the solvent in the adhesive. Where doubt arises about compatibility, the advice of the Certificate holder should be sought.

14.2 For partial bonding, HERTALAN ks143 is applied as parallel beads of approximately 8 mm diameter placed every 80 mm in a striped pattern, resulting in an application rate of between 200 g·m⁻² and 225 g·m⁻².

14.3 The adhesive should be allowed to dry for between 5 and 20 minutes (depending on ambient conditions) before the membrane is applied to the substrate by unrolling, ensuring good contact with the adhesive, and checking that it is free from wrinkles and trapped air.

14.4 For a satisfactory application, at least 50% of the total area of membrane must be bonded.

14.5 Laps must be sealed and flashing installed as described in section 16.

Fully-bonded application

14.6 For fully-bonded application using HERTALAN ks143, the adhesive is evenly applied to the substrate by roller at an application rate of between 300 g·m⁻² and 350 g·m⁻² and allowed to dry for between 5 and 20 minutes (depending on the ambient weather conditions) before application of the membrane.

14.7 For fully-bonded application using HERTALAN ks205, the adhesive is applied to both the substrate and the membrane at an application rate of 150 g·m⁻² on each surface and allowed to become touch dry.

14.8 The membrane is carefully positioned and applied to the substrate avoiding the formation of folds, wrinkles and air voids.

14.9 For a satisfactory application, at least 90% of the total area of the membrane must be bonded.

14.10 Laps must be sealed and flashing installed as described in section 16.

15 Procedure (mechanically-fixed application)

HERTALAN EASY COVER fixed through the membrane

15.1 The membrane is rolled out on the roof and, after orientation, allowed to condition for at least 45 minutes.

15.2 The membrane is fixed using mechanical fasteners approved by the Certificate holder, fixed through the membrane, sealed using HERTALAN EPDM STRIPS bonded with HERTALAN ks137 and sealed with HERTALAN ks96. Alternatively, the fasteners can be sealed by welding strips of HERTALAN EASY WELD at least 120 mm wide.

15.3 The number of fasteners must be determined by calculation, as described in section 8.5, and spaced at equal centres.

HERTALAN EASY COVER fixed through 'secret flaps'

15.4 In this application, the membrane is prefabricated with flaps that become apparent when the membrane is unrolled on the roof.

15.5 The membrane is unfolded, laid out on the roof and allowed to condition for at least 45 minutes.

15.6 Starting with the end to be fixed last, the membrane is rolled onto a pipe with a diameter between 50 and 70 mm.

15.7 The membrane is unrolled in the direction of the fall, revealing the fixing flaps.

15.8 The fasteners must be placed as near as possible to the hot-bonded joint.

15.9 Edges are fixed using HERTALAN ks137 or HERTALAN ks205 in accordance with the Certificate holder's instructions.

15.10 When it is necessary to join the membrane, the edges of the sheets to be joined are butted together and covered with either a 200 mm wide adhered HERTALAN EPDM STRIP or a 150 mm wide HERTALAN EASY WELD strip. The membrane can also be joined by making a lap joint using HERTALAN ks137 and sealed with HERTALAN ks96.

HERTALAN EASY WELD MF membrane

15.11 The first sheet of membrane is positioned and fastened in the seam area of the sheet using suitable fixings recommended by the Certificate holder.

15.12 The number of fasteners must be determined by calculation as described in section 8.5.

15.13 The next sheet of membrane is placed and held in position with spot welds.

15.14 At T-seams, a strip of TPE must be used to fill the void owing to level variations between the membrane sheets.

15.15 When correctly positioned, the seams must be fully sealed and edges fixed as described in section 15.9.

HERTALAN-Rhinobond System

15.16 The system cannot be used directly on metal layers, such as aluminium faced insulation boards. An addition layer of insulation, at least 40 mm thick, must be used between the metal layer and the RhinoBond plate.

15.17 If used on a substrate that is affected by heat, such as EPS insulation, a protective plate is used between the material and the RhinoBond plate to stop heat transfer.

15.18 The fixing pattern is based on the wind uplift calculations, as described in section 8.5, with a maximum distance between fasteners of 600 mm.

15.19 The fasteners with RhinoBond plates are installed prior to putting the membrane in place. The top of the plate must remain clean and dry in order to give the maximum bond to the membrane.

15.20 The induction machine is adjusted to site conditions by carrying out test welds prior to starting to bond the membrane to the RhinoBond plates.

15.21 The membrane is put in position and rolled out and fully folded out over the substrate.

15.22 The RhinoBond induction machine is placed on the EPDM membrane directly above the RhinoBond plate and activated. A signal will sound after 5 seconds, whereupon the machine is moved to the next plate and a cooling magnet placed directly onto the first plate.

15.23 The magnet is left in place for approximately one minute to hold the membrane in place while bonding to the plate. It is recommended that a minimum of six cooler magnets is used, to allow work to continue with a minimum of interruption.

15.24 The procedure must be repeated until all the RhinoBond plates are bonded to the membrane.

16 Seams and details

Standard seaming procedure

16.1 At laps, the top sheet is folded back by about 100 mm. Both surfaces of the lap must be clean and dry, and, if necessary, surfaces are cleaned using a suitable cleaning agent recommended by the Certificate holder. HERTALAN ks137 is applied by brush, to give an even coverage, to both sides over a width of 80 mm, leaving the outer 20 mm free, and allowed to dry to the touch (5 to 10 minutes). The top sheet is allowed to fall freely onto the bottom sheet, avoiding stretching and wrinkling. The width of the lap joint should be a minimum of 100 mm.

16.2 The lap is rolled with a steel roller parallel to the splice to consolidate the joint, then checked to ensure that a good seal has been achieved. The remaining 20 mm is filled with a continuous bead of HERTALAN ks96 and which is rolled down, making it flush with the lap joint so that the sealant is at least 1 mm thick.

16.3 Excess sealant is removed using a suitable cleaning agent.

Flashing

16.4 Concurrent with the installation of the membrane, the flashing is applied. This is first bonded to the horizontal membrane and lapped in the manner described in sections 16.1 and 16.2, with a minimum lap of 100 mm.

16.5 The flashing is bonded with HERTALAN ks137 to the vertical surface of the wall.

16.6 For specific flashing requirements HERTALAN FLASHING can be used. The flashing (non-vulcanised) can be moulded in place using hot air and bonded with HERTALAN ks137. The flashing cures slowly over a period of time under atmospheric conditions.

17 Repair

Any damage must be repaired immediately by cleaning the area around the damage and applying a patch of the membrane as described in sections 16.1 and 16.2.

Technical Investigations

18 Tests

Tests were carried out and the results assessed to determine:

- resistance to impact
- resistance to static loading
- resistance to root penetration
- hail resistance
- low-temperature foldability
- peel strength of joints
- shear strength of joints
- water absorption
- dimensional stability
- tensile strength and elongation
- effects on joints, static loading and impact resistance of 180 days water soak at 60°C.

19 Investigations

19.1 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.

19.2 Existing data on fire performance of the system components were assessed.

19.3 An evaluation was made of data for:

- resistance to wind loading of fully-bonded and partially-bonded systems using HERTALAN ks143, and mechanically-fixed systems
- peel adhesion of systems bonded with HERTALAN ks205
- effect of long-term water soak on joints.

Bibliography

BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*

BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

BS EN 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

NA to BS EN 1991-1-1 : 2002 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*

BS EN 1991-1-3 : 2003 + A1 : 2015 *Eurocode 1 : Actions on structures — General actions — Snow loads*

NA + A2 : 2018 to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Snow load*

BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*

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BS EN 13501-5 : 2016 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*

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

EN 13956 : 2012 *Flexible sheet for waterproofing — Plastic and rubber sheets for roof waterproofing — Definitions and characteristics*

DD CEN/TS 1187 : 2012 *Test methods for external fire exposure to roofs*

20 Conditions

20.1 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.

20.2 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.

20.3 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.

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

20.5 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:

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- 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.

20.6 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.