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Agrément Certificate
00/3684
Product Sheet 1

FLAG WATERPROOFING SYSTEMS

FLAGON SR1.2 AND SR1.5 ROOF WATERPROOFING SYSTEMS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Flagon SR1.2 and SR1.5 Roof Waterproofing Systems, a range of mechanically fastened reinforced pvc plastisol membranes for use on flat and pitched roofs with limited access in exposed, protected, inverted, roof garden and green roof specifications.

AGRÉMENT 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 will resist the passage of moisture into the building (see section 5).

Properties in relation to fire — the membranes will enable a roof to be unrestricted under the Building Regulations (see section 6).

Resistance to wind uplift — the systems will resist the effects of any likely wind suction acting on the roof (see section 7).

Resistance to foot traffic — the membranes will accept the limited foot traffic and loads associated with installation and maintenance (see section 8).

Resistance to penetration of roots — the Flagon SR1.5 membrane will adequately resist plant root penetration (see section 9).

Durability — under normal service conditions the systems will provide a durable roof waterproofing with a service life in excess of 35 years (see section 11).

The BBA has awarded this Agrément 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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 18 August 2011

Originally certificated on 1 March 2000.

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Flagon SR1.2 and SR1.5 Roof Waterproofing Systems, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales)

Requirement: B4(2)	External fire spread
Comment:	On suitable substructures the use of the systems will enable a roof to be unrestricted under the requirements of this Regulation. See sections 6.1 to 6.4 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The membranes, including joints, indicate that the systems meet this Requirement. See section 5.1 of this Certificate.
Requirement: Regulation 7	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)	Fitness and durability of materials and workmanship
Comment:	The use of the systems satisfies the requirement of this Regulation. See sections 10.1 to 10.3 and 11 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards – construction
Standard: 2.8	Spread from neighbouring buildings
Comment:	The membranes when applied to a suitable substructure, are regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 6.1 to 6.4 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 5.1 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
Comment:	The membranes 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 – conversions
Comment:	Comments made in relation to these 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) 2000 (as amended)

Regulation: B2	Fitness of materials and workmanship
Comment:	The systems are acceptable. See section 11 and the <i>Installation</i> part of this Certificate.
Regulation: B3(2)	Suitability of certain materials
Comment:	The systems are acceptable materials. See sections 10.1 to 10.3 of this Certificate.
Regulation: C4(b)	Resistance to ground moisture and weather
Comment:	The membranes, including joints, indicate that the use of the system can enable a roof to satisfy the requirements of this Regulation. See section 5.1 of this Certificate.
Regulation: E5(b)	External fire spread
Comment:	On suitable substructures the use of the systems will be unrestricted by the requirements of this Regulation. See sections 6.1 to 6.4 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 1 *Description* (1.3) and 2 *Delivery and site handling* (2.3) of this Certificate.

Non-regulatory Information

NHBC Standards 2011

NHBC accepts the use of Flagon SR1.2 and SR1.5 Roof Waterproofing Systems, when installed and used in accordance with this Certificate, in relation to *NHBC Standards, Chapter 7.1 Flat roofs and balconies*.

The systems are manufactured by Flag SpA, Via Industriale Dell'Isola, 1, 24040 Chignolo D'Isola (BG), Italy, tel: 00 39 035 494 0949 fax: 00 39 035 494 0649, e-mail: info@flag.it website: www.flag.it

Technical Specification

1 Description

1.1 Flagon SR1.2 and SR1.5 Roof Waterproofing Systems consist of polyester mesh reinforced roofing membranes with hot-air welded joints, mechanically fastened using approved fasteners and plates.

1.2 The membranes are manufactured by fusing the reinforcement between sheets of PVC plastisol, passed through a calender and gelled in a hot-air oven.

1.3 The membranes are available in a selection of RAL colours and are manufactured to the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristics (units)	Membrane	
	Flagon SR1.2	Flagon SR1.5
Thickness (mm)	1.2	1.5
Roll length ⁽¹⁾ (m)	20, 25	20
Roll width ⁽¹⁾ (m)	1.6 ⁽²⁾ , 2.1 ⁽³⁾	1.6, 2.1
Mass per unit area (kg·m ⁻²)	1.5	1.8
Standard roll weight (kg)	46.4	57.6
Tensile strength (N per 50 mm)	≥1100	≥1100
Elongation at break (%)	≥15	≥15
Dimensional stability (%)	≤0.5	≤0.5
Cold flexibility (°C)	≤-20	≤-20

(1) Other roll lengths and widths are available upon request.

(2) 20 m length membrane.

(3) 25 m length membrane.

1.4 Ancillary items for use with the membranes include:

- Flagon corners — preformed Flagon membrane internal and external corners
- Flagon Flagmetal sheet — Flagon PVC compound coated material sections for use at perimeter details and other such detailing areas
- Vaporflag — a 0.4 mm thick, black polyethylene membrane for use as a vapour control layer
- Flag Geotextile — a 200 g·m⁻² non-woven polyester for use as a separation layer
- Flagon Walkway — a PVC membrane with anti-slip surface for maintenance traffic
- Fasteners and plates — approved by Flag SpA for use with the systems
- Flag Bar — perforated fixing bars for use at perimeters of the roof in combination with a PVC retaining cord
- Flag Bar End Protectors — for use in capping the ends of Flag Bar
- Flag Butyl Tape — for use in sealing vapour control layers
- available also are outlets, scuppers, vents and pipe collars.

1.5 Quality control checks are carried out on incoming raw materials, during production and on the final product.

2 Delivery and site handling

2.1 The membranes are delivered to site in rolls wrapped in polythene on pallets. Labels bearing the manufacturer's name and address, product identification, batch number and the BBA identification mark incorporating the number of this Certificate.

2.2 Rolls should be stored on their end, on a clean, level surface, and kept under cover.

2.3 Flagon Solvent has a flashpoint of -17°C and is classified as 'highly flammable' and 'irritant' under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP4)/Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009* and should be stored in accordance with *The Dangerous Substances and Explosive Atmospheres Regulations 2002*.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Flagon SR1.2 and SR1.5 Waterproofing Systems.

Design Considerations

3 General

3.1 Flagon SR1.2 and SR1.5 Waterproofing Systems are satisfactory for use as mechanically fastened waterproofing membranes for:

- exposed flat and pitched roofs with limited access
- protected flat roofs with limited access
- inverted flat roofs with limited access
- green roofs and roof gardens (Flagon SR1.5 only).

3.2 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided (see section 8).

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

3.4 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards*, Chapter 7.1.

3.5 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 be used in accordance with the scope of that Certificate.

3.6 Contact with bituminous, coal tar and oil-based products must be avoided as the membrane is not compatible with lower grades of bitumen. If contact with such products is likely, a separating layer must be interposed before installing the waterproofing sheet. When doubt arises, the advice of the Certificate holder should be sought.

3.7 Recommendations for the design of green roofs and roof garden specifications are available within the latest edition of *Guidelines to Green Roofing*, The Green Roof Organisation (GRO).

3.8 For green and inverted roofs roof gardens structural decks to which the system is to be applied must be suitable to transmit the dead and imposed loads experienced in service.

3.9 Imposed loads, dead loading and wind loads specifications are calculated in accordance with BS EN 1991-1-1 : 2002, BS EN 1991-1-3 : 2003, BS EN 1991-1-4 : 2005 and their National Annexes respectively.

3.10 The drainage system for green roofs or roof gardens must be correctly designed, and provision is made for access for maintenance purposes. Dead loads for green roofs and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

3.11 In inverted roof specifications the ballast requirements should be calculated in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and the National Annex. Additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs — Drainage and U value corrections*.

4 Practicability of installation

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

5 Weathertightness



5.1 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:

England and Wales — Approved Document C, Requirement C2(b), Section 6

Scotland — Mandatory Standard 3.10, clauses 3.10.1 and 3.10.7

Northern Ireland — Regulation C4(b).

5.2 The membranes are impervious to water and will achieve a weathertight roof capable of accepting minor structural movement.

6 Properties in relation to fire



6.1 When tested in accordance with BS 476-3 : 1958, a system comprising a 19 mm thick exterior grade WBP plywood, a high-density polythene vapour barrier, a 50 mm polyurethane insulation board mechanically fixed, and a layer of Flagon SR1 .2 mechanically fixed achieved a rating of EXT.F.AB.

6.2 The membranes when used in protected or inverted roof specifications, including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can be considered to be unrestricted under the national Requirements.

6.3 The designation of other specifications should be confirmed by:

England and Wales — Test or assessment in accordance with Approved Document B, Appendix A, Clause 1

Scotland — Test to conform to Mandatory Standard 2.8, Clause 2.8.1

Northern Ireland — Test or assessment by a UKAS accredited laboratory, or an independent consultant with appropriate experience.

6.4 In the opinion of the BBA, when used in irrigated roof gardens or green roofs, the use of the membrane will be unrestricted under the national Requirements:

England and Wales — Requirement B4(2)

Scotland — Mandatory Standard 2.8, Clause 2.8.1

Northern Ireland — Regulation E5(b).

6.5 If allowed to dry, the plants used may allow flame spread across the roof. This should be taken into consideration when selecting suitable plants for the roof. Appropriate planting irrigation and/or protection should be applied to ensure the overall fire-rating of the roof is not compromised.

7 Resistance to wind uplift

7.1 The resistance to wind uplift of a mechanically-fastened waterproofing layer is provided by the fixing bar and fasteners passing through the membrane into the substrate. The number and position of fixings will depend on a number of factors including:

- wind uplift forces to be restrained
- pull-out strength of the fasteners
- tensile properties of the membrane
- appropriate calculation of safety factors.

7.2 The wind uplift forces are calculated in accordance with BS EN 1991-1-4 : 2005 and the UK National Annex. On this basis, the number of fixings required should be established using a maximum permissible load of 0.4 kN per fixing.

7.3 Wind uplift load results from testing on an installed system are:

Load per fixing (N)	1000
Corrected load per fixing (N)	461

7.4 The Certificate holder provides a design service which takes into account all the relevant information supplied and gives assistance for the preparation of drawings for the positioning of fastening bars or washers, and the number of fixings required. The Certificate holder takes the liability for the calculations of the design of the mechanically fastened system.

7.5 The ballast requirements for inverted roof systems should be calculated in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and the UK National Annex. When using gravel ballast the system should always be loaded with a minimum depth of 50 mm of aggregate. In areas of high-wind exposure, the Certificate holder's advice should be sought. Alternatively, concrete slabs on suitable supports can be used.

7.6 The soil used in roof gardens and ballast on inverted/protected roofs must not be of a type that will be removed, or become delocalised due to wind scour experienced on the roof.

7.7 It should be recognised that the type of plants used in roof gardens could significantly affect the expected wind loads experienced in service.

8 Resistance to foot traffic

Results of tests indicate that the systems can accept the limited foot traffic and light concentrated loads associated with the installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as maintenance of lift equipment, a walkway should be provided, for example, using concrete slabs supported on bearing pads or Flagon Walkway.

9 Resistance to penetration of roots

Results of tests on the Flagon SR1.5 membrane indicate it is resistant to root penetration and can be used in a roof waterproofing system for roof gardens and green roofs.

10 Maintenance



10.1 Systems must be the subject of annual inspections and maintenance to ensure continued performance. Exposed membrane must be free from the build-up of silt and other debris and unwanted vegetation must be cleared.

10.2 Where damage has occurred then it should be repaired in accordance with section 15 and the Certificate holder's instructions.

10.3 Green roofs and roof gardens must be the subject of regular inspections particularly in autumn after leaf fall and in the spring to ensure unwanted vegetation and other debris are cleared from the roof and drainage outlets. Guidance is available within the latest edition of *Guidelines to Green Roofing*, The Green Roof Organisation (GRO).

11 Durability



The systems have been used in the UK since 1985 and in mainland Europe since 1970. Accelerated weathering tests and evidence from existing installations confirm that satisfactory retention of physical properties is achieved. Under normal conditions, the system will have a service life in excess of 35 years.

Installation

12 General

12.1 Installation of Flagon SR1.2 and SR1.5 Roof Waterproofing Systems must be carried out by installers trained and approved by the Certificate holder in accordance with the relevant Clauses of BS 8000-4 : 1989 and BS 8217 : 2005, the Certificate holder's instructions and this Certificate.

12.2 Substrates to which the membranes are applied must be sound, dry, clean and free from sharp projections such as nail heads and concrete nibs. When used over a rough substrate, a suitable protection layer must be placed over the substrate.

12.3 Installation should not be carried out during inclement weather (eg rain, fog, snow). When the temperature is below 0°C suitable precautions against surface condensation must be taken.

12.4 In all cases, a vapour control layer should be used directly over the deck. When internal temperatures and humidity conditions will exceed 22°C/50% relative humidity, special precautions should be taken and Certificate holder should be consulted.

12.5 Insulation boards should be fixed to the substrate in such a way as not to impair the performance of the waterproofing membrane.

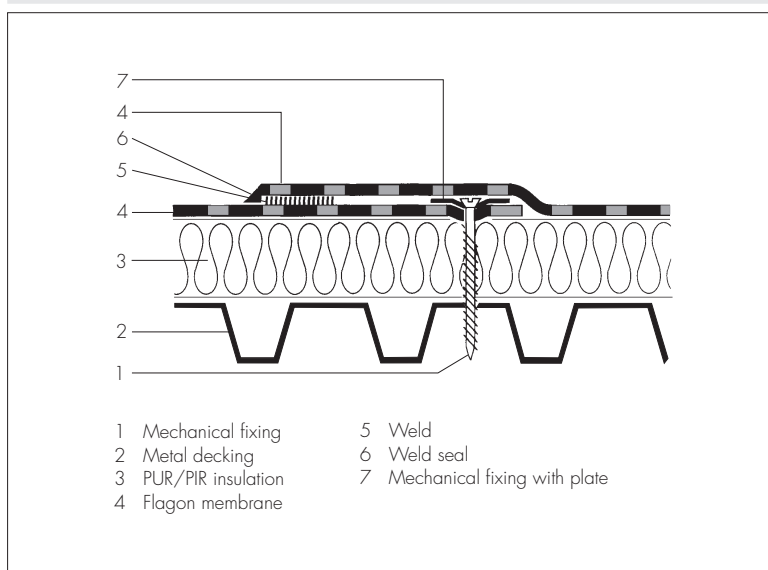
12.6 All flashings should be formed in accordance with the Certificate holder's instructions.

12.7 Soil or other bulk material should not be stored on one area of the roof prior to installation, to ensure localised overloading does not occur.

13 Procedure

13.1 The membrane should be laid flat onto the substrate without folds or ripples, and fixed to the deck by fasteners and plates through the overlap of the membrane (see Figure 1).

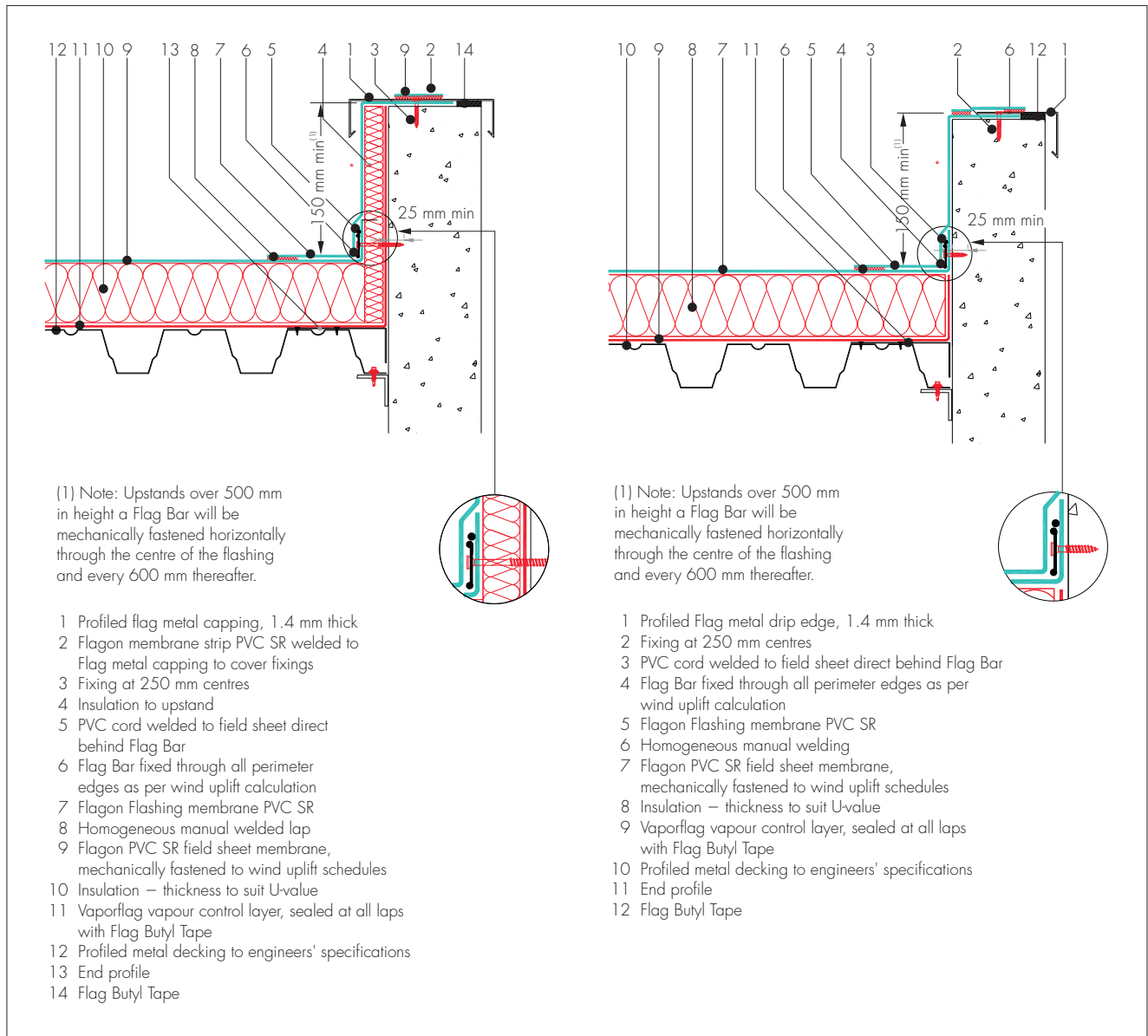
Figure 1 Application to steel decks



13.2 The position of the number of fasteners required must be in accordance with the fixing specifications provided by the Certificate holder.

13.3 At a vertical flashing, and penetration of the roof, the horizontal membrane requires additional fixing bars (see Figure 2). On the perimeter the membrane must be secured against tearing by welding a 4 mm diameter PVC retaining cord to the membrane beyond the Flag Bar.

Figure 2 Perimeter upstands



13.4 For continuous fixing, the fixing bars should be positioned with a 10 mm gap to allow for expansion. Ends of the bars should be fixed with screws and Flag Bar End Protectors.

Steel decks

13.5 Steel decks must be manufactured from galvanized steel with a minimum thickness of 0.7 mm.

13.6 Self-drilling and self-tapping screws should be selected in accordance with the Certificate holder's instructions.

Reinforced concrete decks

13.7 Concrete decks will require pre-drilling. The diameter of the holes should not be less than 6 mm and nylon dowels or self-drilling anchors are recommended.

13.8 When re-roofing on concrete decks, dowels must be anchored for their full length in solid concrete. This should be noted particularly when using cement screeds or intermediate layers.

Timber decks

13.9 Fixing bars should be positioned above and fixed to beams or joists. If this is not possible, fastening bars must be positioned across the direction of timber planks, provided the planks are sufficiently fastened to withstand the imposed wind loads.

13.10 Fixing bars must be fixed by screws (nails are not suitable for this purpose), acceptable loads on each screw and corresponding space between screws in each case are calculated before installation.

14 Jointing and flashing procedure

Hot-air welding (automatic welding machine)

14.1 The welding area should be dry and clean. If the membrane in the weld area has become contaminated, it must be cleaned in accordance with the Certificate holder's instructions.

14.2 The overlap width of the membranes must be a minimum of 120 mm and spot welded, using a hand-held welder, every 150 to 200 mm along the length of the joint.

14.3 The temperature for the automatic welding machine should be set in accordance with the Certificate holder's instructions, depending on the thickness of the membrane and the ambient temperature.

14.4 The joint is then welded using the machine. Care should be taken that overheating of the membrane does not occur; a possible impairment of the membrane may result.

14.5 The seam should be tested with a suitable metal probe and any weakness repaired immediately.

Hot-air welding (hand-held welder)

14.6 The welding area should be dry and clean. If the membrane in the weld area has become contaminated, it must be cleaned in accordance with the Certificate holder's instructions.

14.7 The overlap width of the membranes must be a minimum of 120 mm and spot welded at approximately every 400 mm along the length of the joint.

14.8 The temperature for the hand-held welder should be set in accordance with the Certificate holder's instructions, depending on the thickness of the membrane and the ambient temperature.

14.9 The joint is then pre-welded parallel to, and behind, the main welding line. The pre-weld is tested for delamination prior the main welding being carried out.

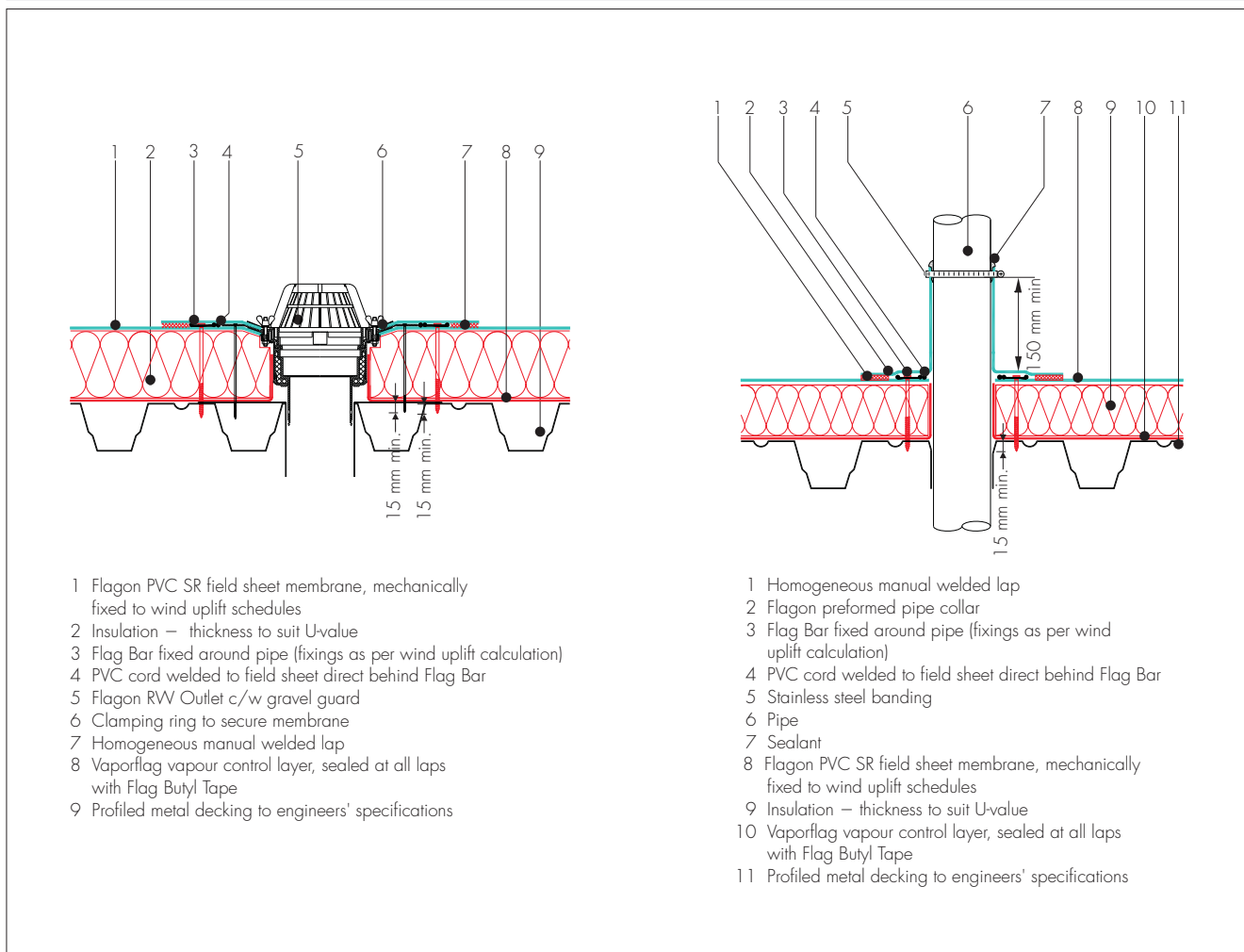
14.10 The main weld is then carried out. Care should be taken that overheating of the membrane does not occur; a possible impairment of the membrane may result.

14.11 The seam should be tested with a suitable metal probe and any weakness repaired immediately.

Flashing

14.12 Flashing and detailing should be formed in accordance with the Certificate holder's instructions (see Figure 3).

Figure 3 Roof details



15 Repair

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

Technical Investigations

16 Tests

16.1 An assessment was made of test data for Flagon SR1.2 and SR1.5 membranes to assess the following:

Tests on the reinforcement

- mass per unit area
- tensile strength and elongation
- mesh number

Tests on the membrane

- mass per unit area
- tensile strength and elongation at break
- nail tear resistance at 23°C, 40°C and -10°C
- dimensional stability
- low temperature foldability
- static indentation
- weight loss at elevated temperatures at 14 days, 28 days, 84 days and 168 days
- water absorption after 180 days water immersion
- wind uplift load per fixing
- water soak at 180 days immersion followed by dimensional stability
- 168 days heat ageing at 80°C followed by dimensional stability and low temperature foldability
- plasticiser content
- dehydrochlorination
- ash content
- ΔE colour change after UV exposure equal to 4500 MJ·m⁻² of radiation energy.

Tests on joints

- joint shear strength for hot-air welded joints and THF welded joints
- T-peel for hot-air welded joints and THF welded joints.

16.2 Samples were taken from an existing site over 20 years old. The following comparison testing was carried on new product from the factory, site samples and site samples following additional UV ageing and results assessed:

- thickness
- mass per unit area
- low temperature foldability
- resistance to dynamic impact.

16.3 Results of the root resistance tests on Flagon SR1.5 membranes, conducted by FLL, were assessed.

17 Investigations

17.1 Existing data on fire performance to BS 476-3 : 1958 of the reinforced membrane were evaluated.

17.2 The manufacturing processes were examined, including methods of quality control. Details were also obtained of the quality and composition of the materials used.

17.3 Wind uplift data on mechanically fixed systems from BDA Netherlands, tested in accordance with MOAT No 55 : 1991, were evaluated.

17.4 Corrosion resistance test data from SM Darmstadt on the fixing screws and plates were evaluated in connection with durability.

17.5 Fatigue resistance and creep stress data of the fixing screw's polyamide sleeve were examined in connection with durability.

17.6 An inspection visit to an existing site at least 20 years old was conducted.

Bibliography

- BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
- BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*
- BS 8004 : 1986 *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 *Eurocode 1 : Actions on structures — General actions — Snow loads*
- NA to BS EN 1991-1-3 : 2003 *UK National Annex to Eurocode 1 : Actions on structures — General actions — Snow loads*
- BS EN 1991-1-4 : 2005 *Eurocode 1 : Actions on structures — General actions — Wind actions*
- NA to BS EN 1991-1-4 : 2005 *UK National Annex to Eurocode 1 : Actions on structures — General actions — Wind actions*

Conditions of Certification

18 Conditions

18.1 This Certificate:

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

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

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

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

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

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

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual 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.

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

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