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## Agrément Certificate

23/6654

Product Sheet 1 Issue 1

### PROTEUS LIQUID-APPLIED MEMBRANE ROOF WATERPROOFING SYSTEMS

#### COLD MELT

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to Cold Melt<sup>(2)</sup>, a polyurethane-based system for use as a protected waterproofing layer in inverted roofs, flat roofs, podium decks, balconies, warm roofs, blue roofs<sup>(3)</sup>, green roofs and roof gardens, including zero fall roofs, with limited or pedestrian access.

(1) Hereinafter referred to as 'Certificate'.

(2) Cold Melt is a registered trademark.

(3) The water attenuation system is outside the scope of this Certificate.

#### The assessment includes

##### Product factors:

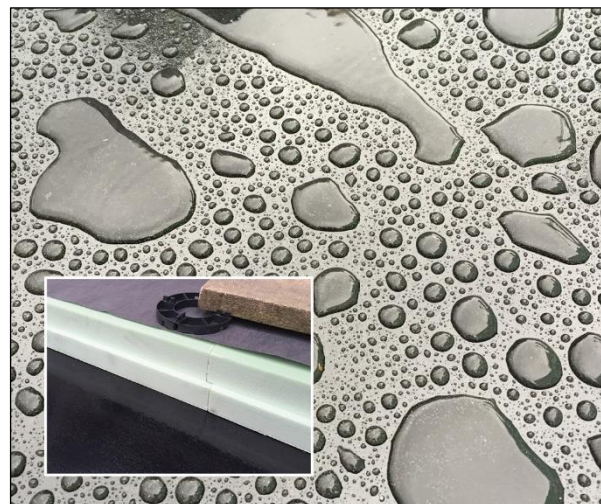
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

##### 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: 1 November 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.*

#### British Board of Agrément

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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 Cold Melt, 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(1)</b> | <b>External fire spread</b>                                                                                                            |
| Comment:            |              | The use of the system on balconies is restricted by this Requirement in some circumstances. See section 2 of this Certificate.         |
| <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 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>8(3)</b>    | <b>Fitness and durability of materials and workmanship</b>                                                                                                                                   |
| Comment:           |                | The use of the system on balconies is restricted by this Regulation. See section 2 of this Certificate.                                                                                      |
| <b>Regulation:</b> | <b>9</b>       | <b>Building standards – construction</b>                                                                                                                                                     |
| Standard:          | 2.2            | Separation                                                                                                                                                                                   |
| Comment:           |                | The use of the system on balconies is restricted by this Standard in some circumstances, with reference to clause 2.2.7 <sup>(1)</sup> . See section 2 of this Certificate.                  |
| Standard:          | 2.7            | Spread on external walls                                                                                                                                                                     |
| Comment:           |                | The use of the system on balconies is restricted by this Standard in some circumstances, with reference to clause 2.7.2 <sup>(1)(2)</sup> . See section 2 of this Certificate.               |
| Standard:          | 2.8            | Spread from neighbouring buildings                                                                                                                                                           |
| Comment:           |                | When applied to suitable substructures, the system may enable a roof to be unrestricted under clause 2.8.1 <sup>(1)(2)</sup> of this Standard. See section 2 of this Certificate.            |
| Standard:          | 3.10           | Precipitation                                                                                                                                                                                |
| Comment:           |                | The system will enable a roof satisfying requirements of this Standard, with reference 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 satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. |
| Regulation: | 12     | <b>Building standards – conversion</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)

|             |                 |                                                                                                                                                                     |
|-------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Regulation: | 23(1)(a)(i)(ii) | <b>Fitness of materials and workmanship</b>                                                                                                                         |
| Comment:    | (iii)(iv)(b)(i) | The system is acceptable. See sections 8 and 9 of this Certificate.                                                                                                 |
| Regulation: | 28(b)           | <b>Resistance to moisture and weather</b>                                                                                                                           |
| Comment:    |                 | The system will enable a roof to satisfy the requirements of this Regulation. See section 3 of this Certificate.                                                    |
| Regulation: | 36(a)           | <b>External fire spread</b>                                                                                                                                         |
| Comment:    |                 | The use of the system on balconies is restricted by this Regulation in some cases. See section 2 of this Certificate.                                               |
| Regulation: | 36(b)           | <b>External fire spread</b>                                                                                                                                         |
| Comment:    |                 | On suitable substructures, the use of the system may enable a roof to be unrestricted under the requirements of this Regulation. See section 2 of this Certificate. |

## Additional Information

### NHBC Standards 2024

In the opinion of the BBA, Cold Melt, 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 Cold Melt to be satisfactory for use as a protected waterproofing layer in inverted roofs, flat roofs, podium decks, balconies, warm roofs, blue roofs, green roofs and roof gardens, including zero fall roofs, with limited or pedestrian access, as described in this Certificate.

## ASSESSMENT

### Product description and intended use

The Certificate holder provided the following description for the system under assessment. Cold Melt consists of:

- Cold Melt Membrane — a two-part, liquid-applied polyurethane consisting of a resin component and a hardener
- Cold Melt DPM Primer — a two-part primer consisting of a resin component and a hardener, for use in preparing concrete substrates and polymer-modified sand/cement screeds with a moisture content of between 75% and 98%, prior to application of Pro-Vapour Control/Carrier Membrane SA
- Pro-Prime<sup>(1)</sup> SA — a single-component primer for use in preparing timber and concrete substrates and polymer-modified sand/cement screeds with a moisture content of less than 75%, prior to application of Pro-Vapour Control/Carrier Membrane SA
- Pro-Vapour Control/Carrier Membrane SA — a 0.6 mm thick, self-adhesive carrier membrane for use over primed substrates prior to application of Cold Melt Membrane
- Pro-Grit 0.7-1.2 mm — a kiln-dried quartz sand broadcast into wet Cold Melt DPM Primer, to produce a mechanical key for sand/cement screeds and bedding mortars when used as an alkali protection layer.

(1) Pro-Prime is a registered trademark.

#### Ancillary Items

The Certificate holder recommends the following ancillary item for use with the system, but this material has not been assessed by the BBA and is outside the scope of this Certificate:

- Pro Tool/Surface Cleaner — used to clean substrates and to improve bonding of subsequent coats after a working break of more than 36 hours, and as a solvent to clean tools post-work
- Pro-Aggregate EM — a natural mineral aggregate broadcast into wet Cold Melt DPM Primer to produce a mechanical key for subsequent layers.

#### Applications

Cold Melt is suitable for application on the following substrates:

- precast concrete
- concrete block
- timber decks
- rigid insulation boards.

#### Definitions for products and applications inspected

The following terms have been determined for the purpose of this Certificate as:

- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- pedestrian access roof — a roof subjected to increased access to that defined for a limited access roof, but not open to vehicular traffic
- flat roof — a roof having a minimum finished fall of 1:80<sup>(1)</sup>
- pitched roof — a roof having a fall in excess of 1:6
- zero fall roof — a roof having a minimum finished fall between 0 and 1:80<sup>(1)</sup>
- roof garden (intensive) — a roof with a substantial layer of growing medium with planting that can include shrubs and trees, and generally accessible to pedestrians
- green roof (extensive) — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wildflower species
- invasive plant species — vegetation species having vigorous and/or invasive root systems likely to cause damage to components of the inverted roof insulation system and roof waterproofing

- blue roof<sup>(2)</sup> — a flat roof designed to allow controlled attenuation of rain fall during heavy and storm events, as part of sustainable urban drainage systems (SUDS).

(1) *NHBC Standards 2024* require a minimum fall of 1:60 for green roofs and roof gardens.

(2) The water attenuation system is outside the scope of this Certificate.

## 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 A roof incorporating the system will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a relevant boundary in the following circumstances:

- when protected by an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 2000/553/EC
- a roof garden covered with a drainage layer of gravel 100 mm thick and a soil layer 300 mm thick
- irrigated green roofs and roof gardens.

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

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

#### 2.2 Reaction to fire

2.2.1 The Certificate holder has not declared a reaction to fire classification to BS EN 13501-1 : 2018 for the system.

2.2.2 On the basis of data assessed, the system will be restricted in use under the documents supporting the national Building Regulations in some cases.

2.2.3 In England, unless covered with a protection with a reaction to fire of class A1 or A2-s1, d0, for example 40 mm thick cast stone slabs, the system must not be used on balconies of residential buildings with a storey 11 m or more in height or balconies of buildings that have a storey at least 18 m above ground level and contain one or more dwellings, an institution, a room for residential purposes, student accommodation, care homes, sheltered housing, hospitals, dormitories in boarding schools, hotels, hostels or boarding houses.

2.2.4 In Wales, unless covered with a protection with a reaction to fire of class A1 or A2-s1, d0, for example 40 mm thick cast stone slabs, the system must not be used on balconies of buildings that have a storey at least 18 m above ground level and contain one or more dwellings, an institution, a room for residential purposes, student accommodation, care homes, sheltered housing, hospitals, dormitories or boarding schools.

2.2.5 In Northern Ireland, unless covered with a protection with a reaction to fire of class A1 or A2-s1, d0, for example 40 mm thick cast stone slabs, the system must not be used on balconies of buildings that have a storey at least 18 m above ground level and 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, dormitories in boarding schools, nursing homes and places of lawful detention.

2.2.6 In Scotland, the system must not be used on balconies of buildings with a storey at a height of 11 m or more above the ground.

### 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 1.

| <i>Table 1 Weathertightness</i>                                                   |                                                                                                   |                                   |        |
|-----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-----------------------------------|--------|
| Product assessed                                                                  | Assessment method                                                                                 | Requirement                       | Result |
| Cold Melt Membrane                                                                | Watertightness under 60 kPa pressure for 24 h to BS EN 1928 : 2000                                | No leakage                        | Pass   |
| Cold Melt Membrane                                                                | Water vapour diffusion - equivalent air layer thickness ( $s_d$ ) to BS EN 1931 : 2000 (Method B) | Value achieved                    | 55 m   |
| Cold Melt (bonded with Pro-Prime SA)<br>- on plywood                              | Resistance to delamination to EOTA TR 004 : 2004                                                  | $\geq 50$ kPa                     | Pass   |
| Pro-Vapour Control/Carrier Membrane SA (bonded with Pro-Prime SA)<br>- on plywood | Resistance to peel from the support to MOAT 64 : 4.3.3 : 2001                                     | $\geq 25$ N·(50 mm) <sup>-1</sup> | Pass   |

3.1.2 On the basis of data assessed, the system will adequately resist the passage of moisture to the interior of a building and enable a roof to comply with the requirements of the national Building Regulations.

3.1.3 The adhesion of the system is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice.

#### 3.2 Resistance to mechanical damage

3.2.1 Results of resistance to mechanical damage tests are given in Table 2.

**Table 2 Resistance to mechanical damage**

| Product assessed                        | Assessment method                                       | Requirement                                                          | Result         |
|-----------------------------------------|---------------------------------------------------------|----------------------------------------------------------------------|----------------|
| Cold Melt Membrane                      | Tensile strength to BS EN ISO 527-4 : 1997              | Value achieved                                                       |                |
|                                         | Tested at 23°C                                          |                                                                      | 3.1 MPa        |
|                                         | Cured at 5°C, tested at 23°C                            |                                                                      | 2.9 MPa        |
|                                         | Cured at 30°C, tested at 23°C                           |                                                                      | 3.4 MPa        |
| Cold Melt Membrane                      | Elongation to BS EN ISO 527-4 : 1997                    | Value achieved                                                       |                |
|                                         | Tested at 23°C:                                         |                                                                      | 76%            |
|                                         | Cured at 5°C, tested at 23°C                            |                                                                      | 77%            |
|                                         | Cured at 30°C, tested at 23°C                           |                                                                      | 86%            |
| Cold Melt Membrane<br>- on steel        | Dynamic indentation to EOTA TR-006 : 2004               | Value achieved                                                       |                |
|                                         | Tested at 23°C                                          |                                                                      | I <sub>4</sub> |
|                                         | Tested at -10°C                                         |                                                                      | I <sub>4</sub> |
|                                         | Cured at 5°C, tested at 23°C                            |                                                                      | I <sub>4</sub> |
|                                         | Cured at 30°C, tested at 23°C                           |                                                                      | I <sub>4</sub> |
| Cold Melt Membrane<br>- on steel        | Static indentation to EOTA TR-007 : 2004                | Value achieved                                                       | L <sub>4</sub> |
|                                         | Tested at 23°C                                          |                                                                      |                |
| Cold Melt (bonded<br>with Pro-Prime SA) | Fatigue movement to EOTA TR-008 : 2004<br>(1000 cycles) | Watertight and less than<br>75 mm delamination<br>from the substrate | Pass           |

3.2.2 On the basis of data assessed, the system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance and the effects of minor movement likely to occur in practice, while remaining watertight. Where traffic in excess of this is envisaged, special precautions such as additional protection to the membrane must be taken. Reasonable care must be taken to avoid puncture by sharp objects or concentrated loads.

### 3.3 Resistance to root penetration

3.3.1 The results of a resistance to root penetration test are given in Table 3.

**Table 3 Resistance to root penetration**

| Product assessed | Assessment method                                    | Requirement                       | Result |
|------------------|------------------------------------------------------|-----------------------------------|--------|
| Cold Melt        | Resistance to root penetration to<br>EN 13948 : 2007 | No root penetration after 2 years | Pass   |

3.3.2 On the basis of data assessed, the system, when used in green roof and roof garden applications, will resist penetration by plant roots and remain weathertight.

3.3.3 For green roofs in inverted roof specifications, when installed in accordance with this Certificate, the inverted roof insulation and water-flow-reducing layer (WFRL) will be adequately protected against root damage, subject to routine maintenance being carried out in accordance with this Certificate and as recommended by the Green Roof Organisation (GRO) *Code of Best Practice*.

3.3.4 For roof gardens in inverted roof specifications, when installed in accordance with this Certificate, the inverted roof insulation and water-flow-reducing layer (WFRL) must be protected from damage from invasive plant roots, for example, by using root resistant planter boxed or tree pits lined with an effective root barrier.

## 4 Safety and accessibility in use

Not applicable.

## 5 Protection against noise

Not applicable.



## 6 Energy economy and heat retention

Not applicable.

## 7 Sustainable use of natural resources

Not applicable.

## 8 Durability

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

8.2 Results of durability tests are given in Table 4.

*Table 4 Durability*

| Product assessed                                                                     | Assessment method                                                                                          | Requirement                                                    | Result         |
|--------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------|----------------|
| Cold Melt (bonded with Pro-Prime SA)<br>- on plywood                                 | Resistance to delamination to EOTA TR-004 : 2004<br>after exposure to water at 60°C for 180 days           | ≥ 50 kPa                                                       | Pass           |
| Pro-Vapour/Control Carrier Membrane SA<br>(bonded with Pro-Prime SA)<br>- on plywood | Resistance to peel from the support to MOAT 64 : 4.3.3 : 2001 after exposure to water at 23°C for 28 days  | ≥ 25 N·(50 mm) <sup>-1</sup>                                   | Pass           |
| Cold Melt Membrane                                                                   | Tensile properties to BS EN ISO 527-4 : 1997<br>after heat ageing at 70°C for 200 days, tested at 23°C     | Value achieved                                                 | 3.1 MPa        |
| Cold Melt Membrane                                                                   | Elongation properties to BS EN ISO 527-4 : 1997<br>after heat ageing at 70°C for 200 days tested at 23°C   | Value achieved                                                 | 72%            |
| Cold Melt Membrane<br>- on steel                                                     | Dynamic indentation to EOTA TR-006 : 2004<br>after heat ageing at 70°C for 200 days<br>tested at -10°C     | Value achieved                                                 | I <sub>4</sub> |
| Cold Melt Membrane<br>- on steel                                                     | Static indentation to EOTA TR-007 : 2004<br>after exposure to water at 60°C for 180 days<br>tested at 60°C | Value achieved                                                 | L <sub>1</sub> |
| Cold Melt (bonded with Pro-Prime SA)                                                 | Fatigue movement to EOTA TR-008 : 2004<br>after heat ageing at 70°C for 200 days (50 cycles)               | Watertight and less than 75 mm delamination from the substrate | Pass           |

### 8.3 Service life

8.3.1 Under normal service conditions and where exposed, the system will have a life of at least 25 years, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.3.2 When fully protected and under normal service conditions, the system will have a life equivalent to the structure in which it is incorporated, provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.



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 to meet 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 and, where appropriate, *NHBC Standards 2024*, Chapter 7.1.

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

9.1.4 Balconies to which the system is to be applied must be designed in accordance with BS 8579 : 2020.

9.1.5 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.

9.1.6 Imposed loads, wind loading and dead 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 The ballast requirements for inverted specifications must be calculated by a suitably experienced and competent individual in accordance with the principles of BS EN 1991-1-4 : 2005 and its UK National Annex. The system must be ballasted with a minimum depth of 50 mm of aggregate. In areas of high wind exposure, the Certificate holder's advice must be sought, but this is outside the scope of this Certificate. Alternatively, concrete slabs on suitable supports can be used.

9.1.8 The system is not suitable for direct application to metal decking, which must be overlaid with a suitable flat deck of exterior grade plywood.

9.1.9 The growing medium used in roof gardens must not be of a type that will be removed or become delocalised owing to wind scour.

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

9.1.11 For green roofs and roof gardens, invasive non-native alien plant species as defined by UK Government guidance must not be used.

9.1.12 For green roof and roof garden finishes, to protect the roof waterproofing and any system components above the waterproofing, such as insulation or water flow reducing layer, invasive plant species must not be used. In particular, the following species must be excluded:

- invasive weeds including Buddleia
- plants and grasses with aggressive rhizomes such as Bamboo
- self-setting woody weeds such as Sycamore and Ash seedlings should be removed at early germination stage
- other woody plants which spread aggressively including Rhododendron.

9.1.13 The Green Roof Organisation (GRO) can provide guidance on species not included in section 9.1.12 but such advice is outside of the scope of this Certificate.

9.1.14 The drainage systems for inverted roofs, protected zero fall roofs, green roofs or roof gardens must be correctly designed, and the following points must be addressed:

- provision made for access for maintenance purposes
- for protected zero fall roofs, it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective
- dead loads for green roof and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer
- additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections*.

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

- as described in the relevant clauses of BS 6229 : 2018 and approved by the Certificate holder, or
- the subject of a current BBA Certificate and be used in accordance with, and within the limitations of, that Certificate
- and must either be suitable for use in inverted roofs or protected warm roofs.

## 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 out in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, the Certificate holder's instructions and this Certificate. Additional instructions and guidance are provided in Annex A of this Certificate.

9.2.3 Adhesion to substrates will depend on the condition and cleanliness of the substrate. Substrates must be visibly dry (ie free from rainwater and surface condensation), smooth, even, sound and free from loose materials or contamination (such as moss, algae, bitumen or oil). In cases of doubt the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

9.2.4 Prior to application, checks must be made to ensure that the prevailing weather and site conditions are correct. The following normal limitations apply:

- the resin components are stored for at least 24 hours at a temperature of between 10 and 25°C, to ensure that the mixed resin has the correct application characteristics
- installation is not carried out if rain is imminent, and uncured layers must be kept dry. The ambient relative humidity must be below 85%
- installation must not take place if the wind speed is above 7 m·s<sup>-1</sup>, unless adequate wind breaks are in place
- the system must not be applied when air or substrate temperatures are outside those recommended by the Certificate holder, unless suitable measures are taken following consultation with the Certificate holder
- the air above the system must be maintained at least 3°C above the dewpoint during application and curing.

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

9.2.6 For application to concrete and polymer modified sand/cement screed substrates, damaged areas of the substrate, blow holes and low spots must be repaired with a suitable repair compound. The Certificate holder can advise on suitable materials for this purpose, but such advice and products are outside the scope of this Certificate.

9.2.7 High spots on the substrate must be removed by grinding.

9.2.8 Any laitance, surface sealer or curing membrane on the concrete must be removed by a suitable method, such as shot-blasting or grinding.

9.2.9 For substrates with a relative humidity between 75 and 98%, priming is carried out using Cold Melt DPM Primer, at a minimum rate of  $0.4 \text{ kg}\cdot\text{m}^{-2}$  using a squeegee, and back rolled evenly with a medium-pile roller, avoiding pooling. The primer is allowed to cure prior to installation of the system.

9.2.10 The resin component of Cold Melt DPM Primer is mixed, prior to addition of hardener, to ensure even distribution, as there is settlement of the resin during storage. The entire contents of the hardener pack are added to the resin and mixed in, using mixing equipment in accordance with the Certificate holder's specification. The resin and hardener must be thoroughly blended to prevent uncured areas in the primer coat.

9.2.11 For substrates with a relative humidity less than 75%, priming is carried out using Pro-Prime SA, applied evenly at a minimum rate of  $5 \text{ to } 10 \text{ m}^2\cdot\text{l}^{-1}$  using a medium-pile roller avoiding pooling. The primer is allowed to dry to a tacky film for 40 to 90 minutes, depending on site conditions prior to application of the system.

9.2.12 For application to timber substrates, old or contaminated timber substrates must be sanded thoroughly to expose clean wood and must be dry with a moisture content of less than 5%. If any doubt exists on the quality of the timber or surface preparation, an adhesion test must be carried out.

9.2.13 The timber is primed using Pro-Prime SA, applied evenly at a minimum rate of  $5 \text{ to } 10 \text{ m}^2\cdot\text{l}^{-1}$  using a medium-pile roller, avoiding pooling. The primer is allowed to dry to a tacky film for 40 to 90 minutes, depending on site conditions prior to application of the system.

9.2.14 Pro-Vapour Control/Carrier Membrane SA is applied to the primed substrate and pressed down firmly to ensure even contact between the self-adhesive membrane and the primed surface, avoiding air entrapment. The side laps must be a minimum of 100 mm and end laps a minimum of 150 mm.

9.2.15 The resin component of Cold Melt Membrane is mixed, prior to the addition of the hardener, to ensure even distribution, as there is settlement of the resin during storage. The entire contents of the hardener pack are added to the resin and mixed in, using mixing equipment in accordance with the Certificate holder's recommended specification. The resin and hardener must be thoroughly blended to prevent uncured areas in the final system.

9.2.16 The membrane is applied on horizontal areas at a minimum rate of  $2.5 \text{ kg}\cdot\text{m}^{-2}$  to give a minimum thickness of 2.5 mm using either a steel float or squeegee. Additional material may be required on rough or uneven substrates. The coating thickness must be checked regularly during the installation with a wet film gauge.

9.2.17 The membrane is applied on vertical areas in two layers of  $1.25 \text{ kg}\cdot\text{m}^{-2}$ , using the same tools as the horizontal areas, to give a minimum thickness of 2.5 mm. The Certificate holder's guidance on minimum and maximum overcoating times, which are dependent upon substrate and air temperature, must be followed, but such guidance is outside the scope of this Certificate. If the maximum time is exceeded, the surface of the first coat is lightly abraded using abrasive paper, removing any dust created, to provide a mechanical key for the second coat.

9.2.18 Where day joints occur, the overlap area must be cleaned thoroughly using Pro Tool/Surface Cleaner, prior to coating.

9.2.19 Once the system has cured, a suitable protection layer or inverted roof system is installed over the system in accordance with the Certificate holder's instructions.

9.2.20 Where the system is to be protected by cement-based products, such as a sand/cement screed or mortar bed for pavers, an alkali protection layer is applied. The layer is formed by applying a coat of Cold Melt DPM Primer at a rate of between  $0.4 \text{ and } 0.6 \text{ kg}\cdot\text{m}^{-2}$ , and fully blinding with Pro-Grit 0.7-1.2 mm. Excess sand is removed, prior to installation of the cementitious material following the required curing time.

9.2.21 The NHBC requires that the system, once installed, is inspected in accordance with *NHBC Standards 2024*, Chapter 7, Clause 7.1.11, and undergoes 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

Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the system must be carried out by contractors who have been 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 system must be the subject of six-monthly inspections and maintenance in accordance with BS 6229 : 2018, and the Certificate holder's recommendations, where relevant, to ensure continued satisfactory performance. These inspections must be carried out by a suitably competent and experienced individual to ensure continued satisfactory performance. This must include an examination of the condition of the roof finishes and ensure that drain outlets and gutters are kept clear and unblocked.

9.4.3 Green roofs and roof gardens must be the subject of regular inspections, particularly in autumn after leaf fall and in spring, to ensure unwanted vegetation and other debris is cleared from the roof and drainage outlets. Guidance is available within the latest edition of *The GRO Green Roof Code of Best Practice*.

9.4.4 For green roofs, to protect the roof waterproofing and any system components above the waterproofing, such as insulation or water flow reducing layer, invasive plant species (see sections 9.1.12 and 9.1.13 of this Certificate) must be eliminated through maintenance.

9.4.5 The control and removal of invasive plant species is carried out by hand. Where this is not possible, any chemicals used must be checked for compatibility with the roof waterproofing layer and any system components above the waterproofing, such as insulation or water flow reducing layer. The Certificate holder can advise on the suitability of a particular product, but such advice is outside of the scope of this Certificate. Note, if using chemicals on a green roof or roof garden rainwater outlets may need to be disconnected from the main drainage system to prevent contamination of the local water system and/or harm to flora and fauna.

9.4.6 The chemical fertiliser used on green roofs and roof gardens must be checked for compatibility with the roof waterproofing layer and any system components above the waterproofing, such as insulation or water flow reducing layer. The Certificate holder can advise on the suitability of a particular product, but such advice is outside the scope of this Certificate.

9.4.7 Should a leak occur in the roof waterproof membrane, it must be repaired following removal of the gravel ballast, paving ballast, green roof or roof garden layer, water-flow-reducing layer and the insulation boards.

9.4.8 Minor damage to the system can be repaired by cleaning back, as described in section 9.2.8, and recoating the damaged area.

9.4.9 In instances of a leak occurring in the roof waterproofing, it must be repaired following the removal of the protection/ballast layer, water flow-reducing layer and insulation boards. Correct reinstatement of these layers must be carried out with particular care and the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

## 10 **Manufacture**

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

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

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

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

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

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

† 10.2 The BBA will review the above activities on a regular basis, through a surveillance process, to verify and re-assure 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 system components are delivered to site in packaging bearing the component name, size, Certificate holder's name, batch number, hazard labelling information, and the BBA logo incorporating the number of this Certificate, where applicable.

11.2 The system components are packaged as given in Table 5.

*Table 5 Component packaging and dimensions*

| Component                              | Packaging       | Packaging size        |
|----------------------------------------|-----------------|-----------------------|
| Cold Melt Membrane                     |                 |                       |
| 5 kg unit:                             |                 |                       |
| – resin                                | plastic pails   | 5 litres              |
| – hardener                             | plastic bottles | 1 litre               |
| 10 kg unit:                            |                 |                       |
| – resin                                | plastic pails   | 10 litres             |
| – hardener                             | plastic bottles | 3 litres              |
| 15 kg unit:                            |                 |                       |
| – resin                                | plastic pails   | 20 litres             |
| – hardener                             | plastic bottles | 3 litres              |
| Cold Melt DPM Primer                   |                 |                       |
| 5 kg unit:                             |                 |                       |
| – resin                                | metal pails     | 5 litres              |
| – hardener                             | plastic bottles | 2.5 litres            |
| 10 kg unit:                            |                 |                       |
| – resin                                | metal pails     | 10 litres             |
| – hardener                             | plastic bottles | 5 litres              |
| 20 kg unit:                            |                 |                       |
| – resin                                | metal pails     | 20 litres             |
| – hardener                             | plastic bottles | 10 litres             |
| Pro-Prime SA                           | metal cans      | 5 litres<br>25 litres |
| Pro-Vapour Control/Carrier Membrane SA | rolls           | 20 m x 1080 mm        |
| Pro-Grit 0.7-1.2 mm                    | bags            | 25 kg                 |
| Pro Tool/Surface Cleaner               | metal cans      | 5 litres              |
| Pro-Aggregate EM                       | bags            | 25 kg                 |

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

11.3.1 The system components must be stored in a dry area, under cover, above freezing and protected from heat sources.

11.3.2 Pro-Vapour Control/Carrier Membrane SA must be stored vertically on a flat, even surface if not stored on the delivery pallet.

## ANNEX A – SUPPLEMENTARY INFORMATION †

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

### Additional information on installation

#### Design

A.1 Recommendations for the design of green roofs, brown roofs and roof garden specifications are available within the latest edition of *The GRO Green Roof Code - Green Roof Code of Best Practice for the UK*.

A.2 Reference relating to zero fall roofs must also be made to the appropriate clauses in Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Falls*.

#### Maintenance

A.3 Additional guidance on maintenance for green roofs is available within the latest edition of the GRO Green Roof code – *Green Roof Code of Best Practice for the UK*.



## 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 8579 : 2020 *Guide to design of balconies and terraces*
- BS EN 1928 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of watertightness*
- BS EN 1931 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of water vapour transmission properties*
- 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 to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Snow loads*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*
- NA to BS EN 1991-1-4 : 2005 +A1:2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*
- BS EN ISO 527-4 : 1997 *Plastics — Determination of tensile properties — Test conditions for isotropic and orthotropic fibre-reinforced plastic composites*
- EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*
- EN 13948 : 2007 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to root penetration*
- EOTA TR 004 : 2004 *Determination of the resistance to delamination*
- EOTA TR 006 : 2004 *Determination of the resistance to dynamic indentation*
- EOTA TR 007 : 2004 *Determination of the resistance to static indentation*
- EOTA TR 008 : 2004 *Determination of the resistance to fatigue movement*
- MOAT 64 : 2001 UEAtc *Technical Guide for the Assessment of Roof Waterproofing Systems made of Reinforced APP or SBS Polymer Modified Bitumen Sheets*

## Conditions of Certificate

### Conditions

1 This Certificate:

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

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

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

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

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

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

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

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

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