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Agrément Certificate

18/5525

Product Sheet 1

IIGO ROOF WATERPROOFING MEMBRANES

EUROROOF SUPAGOLD ROOF WATERPROOFING SYSTEM

This Agrément Certificate Product Sheet⁽¹⁾ relates to the Eurorooft SupaGOLD Roof Waterproofing System, comprising polymer-modified bitumen waterproofing membranes, insulation boards and vapour control layers (VCLs), for use on flat or pitched roofs with limited access or under protection for pedestrian access.

(1) Hereinafter referred to as 'Certificate'.

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 system will resist the passage of moisture into the building (see section 6).

Thermal performance — the system can be used to improve the thermal performance of a roof (see section 7).

Condensation risk — roofs incorporating the system will adequately limit the risk of interstitial and surface condensation (see section 8).

Properties in relation to fire — the system, when used as part of a suitable specification, can enable a roof to be unrestricted under the national Building Regulations (see section 9).

Resistance to wind uplift — the system will enable a roof to be unrestricted under the national Building Regulations (see section 10).

Resistance to mechanical damage — the system will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 11).

Durability — under normal service conditions, the system will provide a durable waterproof covering with a service life in excess of 30 years (see section 13).



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 First issue: 26 April 2018

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
Chief Executive

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, the Eurorooft SupaGOLD Roof Waterproofing System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the 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(2) Comment:	External Fire Spread On a suitable substructure, the use of the system can enable a roof to be unrestricted under this Requirement. See section 9 of this Certificate.
Requirement: C2(b) Comment:	Resistance to moisture The system will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Requirement: C2(c) Comment:	Resistance to moisture The system can contribute to enabling a roof to satisfy this Requirement. See sections 8.1 and 8.2 of this Certificate.
Requirement: L1(a)(i) Comment:	Conservation of fuel and power The system can contribute to satisfying this Requirement. See sections 7.2 and 7.3 of this Certificate.
Regulation: 7 Comment:	Materials and workmanship The system is acceptable. See section 13.1 and the <i>Installation</i> part of this Certificate.
Regulation: 26 Regulation: 26A Regulation: 26A Regulation: 26B Comment:	CO₂ emission rates for new buildings Fabric energy efficiency rates for new dwellings (applicable to England only) Primary energy consumption rates for new buildings (applicable to Wales only) Fabric performance values for new dwellings (applicable to Wales only) The system can contribute to satisfying these Regulations; however, compensating fabric/services measures may be required. See sections 7.2 and 7.3 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)(2) Comment:	Durability, workmanship and fitness of materials The use of the system satisfies the requirements of this Regulation. See sections 12.1 and 13.1 and the <i>Installation</i> part of this Certificate.
Regulation: 9 Standard: 2.8 Comment:	Building Standards applicable to construction Spread from neighbouring buildings The system, when applied to a suitable substructure, can contribute to satisfying this Standard, with reference to clause 2.8.1 ⁽¹⁾⁽²⁾ . See sections 9.1, 9.2 and 9.4 of this Certificate.
Standard: 3.10 Comment:	Precipitation The system can 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 6.1 of this Certificate.
Standard: 3.15 Comment:	Condensation The system can contribute to enabling a roof to satisfy this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.3 ⁽¹⁾⁽²⁾ , 3.15.5 ⁽¹⁾⁽²⁾ and 3.15.6 ⁽¹⁾⁽²⁾ . See section 8 of this Certificate.

Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying the requirements of these Standards, with reference to clauses, or parts of, 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽¹⁾⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾⁽²⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ . See sections 7.2 and 7.3 of this Certificate.
Standard:	7.1(a)(b)	Statement of sustainability
Comment:		The system can contribute to meeting the relevant requirements of Regulation 9, Standards 1 to 6 and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the system can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾⁽²⁾]. See sections 7.2 and 7.3 of this Certificate.
Regulation:	12	Building standards applicable to conversions
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 ⁽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)(iii)(b)(i)	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 13.1 and the Installation part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather
Comment:		The system will enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	29	Condensation
Comment:		The system can contribute to enabling a roof to satisfy the requirements of this Regulation. See section 8.1 and 8.2 of this Certificate.
Regulation:	36(b)	External fire spread
Comment:		On suitable substructures, the use of the system can enable a roof to be unrestricted under the requirements of this Regulation. See section 9 of this Certificate.
Regulation:	39(a)(i)	Conservation measures
Regulation:	40(2)	Target carbon dioxide Emissions Rate
Comment:		The system can satisfy or contribute to satisfying these Regulations. See sections 7.2 and 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 (1.2) and 3 Delivery and site handling (3.4 and 3.5)* of this Certificate.

Additional Information

NHBC Standards 2018

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

CE marking

The Certificate holder has taken the responsibility of CE marking the system components in accordance with harmonised European Standard EN 13165 : 2012, EN 13707 : 2013 and EN 13970 : 2004. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Marketing

The system is imported and marketed in the U.K. exclusively by Alumasc Exterior Building Products Ltd

Technical Specification

1 Description

1.1 The Eurorooft SupaGOLD Roof Waterproofing System consists of:

- Eurorooft SupaGOLD 4.2 mm — a torch-applied, atactic polypropylene, modified bitumen sheet reinforced with glass/polyester, with a mineral surface, for use as a capsheet
- Eurorooft SupaGOLD XL 3.0 mm — a torch applied, atactic polypropylene, modified bitumen sheet reinforced with glass/polyester, with a sanded surface finish, for use as an underlay
- Eurorooft Self-Adhesive Vapour Control Layer 2.3 mm — a self-adhesive, atactic polypropylene, modified bitumen sheet reinforced with polyester/aluminium, with a fine slate surface finish, for use as a VCL
- Eurorooft Torchtite Vapour Barrier 3.0 mm — a torch-applied SBS, modified bitumen sheet reinforced with woven glass/aluminium, with a sanded finish surface, for use as a VCL
- Eurorooft Dual Bond Vapour Barrier 3.5 mm — a torch-applied SBS, modified bitumen sheet reinforced with glass and an aluminium core, with a polyethylene film on the underside and a sanded upper surface, for use as a VCL
- Alumasc BGT (PIR) Insulation — a rigid polyisocyanurate (PIR) foam board with a composite bitumen/glassfibre facing on both sides
- Eurorooft PU Insulation Adhesive — for use in bonding insulation
- Alumasc Bitumen Primer — for use in preparing substrates prior to installation of torch-applied membranes
- Alumasc Eurorooft SA Primer⁽¹⁾ — for use in preparing substrates prior to installation of self-adhesive membranes.

(1) Outside the scope of this Certificate.

1.2 The membranes are manufactured with the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of the membranes

Characteristic (unit)	Eurorooft SupaGOLD	Eurorooft SupaGOLD XL	Eurorooft Self- Adhesive Vapour Control Layer	Eurorooft Torchtite Vapour Barrier	Eurorooft Dual Bond Vapour Barrier
Standard CE marked against	EN 13707	EN 13707	EN 13970	EN 13970	EN 13970
Thickness* (mm)	4.2	3.0	2.3	3.0	3.5
Width* (m)	1.0	1.0	1.0	1.0	1.08
Length* (m)	8.0	10.0	15.0	10.0	8
Mass per unit area* (kg·m ⁻²)	4.6	4.1	2.5	4.0	3.8
Tensile strength* (N per 50 mm)					
longitudinal	1200	400	700	1400	450
transverse	1000	300	500	1400	350
Elongation* (%)		35			
longitudinal	40	35	35	4	2
transverse	40		35	4	2
Low temperature flexibility* (°C)	-30	-10	NPD ⁽¹⁾	-20	NPD ⁽¹⁾
Static indentation* (kg)	25	10	15	15	NPD ⁽¹⁾
Impact* (mm)	1750	700	900	900	NPD ⁽¹⁾
Watertightness* (kPa)	60	60	60	60	60
Shear resistance of joint* (N per 50 mm)	1200/900	300/200	NPD ⁽¹⁾	1300	NPD ⁽¹⁾
Nail tear strength* (N)	250/250	120/120	150/150	200	100/100
Dimensional stability* (%)	0.3	0.3	0.3	NPD ⁽¹⁾	NPD ⁽¹⁾
Reinforcement*	Glass/ polyester	Glass/ polyester	Polyester/ aluminium	Woven glass/ aluminium	Glass/ aluminium

(1) No Performance Determined (NPD).

1.3 The insulation boards are supplied to site with the nominal characteristics shown in Table 2.

Table 2 Nominal characteristics of the insulation boards

Parameter (units)	Alumasc BGT (PIR) Insulation⁽¹⁾⁽²⁾
Standard CE marked against	EN 13165
Length (mm)	1200
Width (mm)	600
Thickness (mm)	30 to 160 in 5 mm increments
Compressive strength at 10% compression (kPa)	150

(1) Board sizes other than those shown may be available on request.

(2) Thermal conductivity values (λ_b) are given in Table 3.

2 Manufacture

2.1 The membranes are manufactured using conventional continuous bitumen coating techniques.

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 : 2008 and BS EN ISO 14001 : 2004 by SGS (Certificates IT97/9497 and IT05/1121 respectively).

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls with either paper wrappers or tape bands bearing the product name and production code. The rolls are packed on pallets and shrink-wrapped in UV-protective (white) polythene.

3.2 The insulation boards are delivered to site packaged shrink-wrapped in plastic and must be stored on a firm, clean, level base, off the ground and under cover until required for use. Care must be taken when handling to avoid damage.

3.3 Rolls must be stored upright on a clean, level surface, away from excessive heat and under cover.

3.4 The insulation boards must be protected from prolonged exposure to sunlight, either by storing opened packs under cover or re-covering with opaque polythene sheeting. Care must be taken to avoid contact with solvents or materials containing volatile organic components. The boards must not be exposed to open flame or other ignition sources.

3.5 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 the Eurorooft SupaGOLD Roof Waterproofing System.

Design Considerations

4 Use

4.1 The Eurorooft SupaGOLD Roof Waterproofing System is satisfactory for use as a warm roof waterproofing system, incorporating VCLs and thermal insulation in:

- partially or fully adhered waterproofing specifications on flat or pitched roofs with limited access
- loose-laid and ballasted waterproofing on flat roofs with limited access
- protected roof specifications, eg covered by pavers or other suitable protection on flat roofs with limited access
- pedestrian access roofs with additional protection on flat roofs.

4.2 Limited access roofs are defined for the purpose of this Certificate as those 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 11).

4.3 Pedestrian access roofs are defined for the purposes of this Certificate as those not subjected to vehicular traffic.

4.4 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls greater than 1:6. When designing flat roofs, twice the minimum fall must be assumed, unless a detailed analysis of the roof is available, including overall and local deflection and direction of falls etc.

4.5 Structural decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2018, Chapter 7.1.

4.6 The structural decks to which the membranes are to be applied must be suitable to transmit the dead and imposed loads experienced in service.

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

4.8 When used on roofs with limited access, the mineral finished capsheets do not require further surface protection.

5 Practicability of installation

The system is designed to be installed by a competent roofing contractor experienced with this type of system.

6 Weathertightness



6.1 The system, 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.

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

7 Thermal performance

7.1 Calculations of thermal transmittance (U value) must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2006, using the declared thermal conductivity (λ_D value) of the insulation component as shown in Table 3.

Insulation thickness (mm)	Thermal conductivity ($W \cdot m^{-1} \cdot K^{-1}$)
< 80	0.026
80 to 119	0.025
≥ 120	0.024



7.2 The U value of a completed roof will depend on the thickness of insulation used, the number and type of fixings (if appropriate) and the insulating value of other roof components/layers. Example U values of roofs incorporating the system are shown in Table 4.

Table 4 Example U values for a fully adhered system

U value requirement ($W \cdot m^{-2} \cdot K^{-1}$)	Deck construction/insulation thickness ⁽¹⁾ (mm)		
	Concrete ⁽²⁾	Timber ⁽³⁾	Metal ⁽⁴⁾
0.13	— ⁽⁵⁾	— ⁽⁵⁾	— ⁽⁵⁾
0.15	150	145	155
0.16	140	135	145
0.28	125	120	125
0.20	115	110	120
0.25	95	85	95

(1) Nearest available thickness.

(2) 150 mm concrete deck — $1.33 W \cdot m^{-1} \cdot K^{-1}$, VCL, insulation, 3-layer bitumen felt waterproofing system.

(3) 12.5 mm plasterboard, 150 mm timber joists (12.5%)/air cavity (87.5%), 18 mm plywood decking, VCL, insulation, 3 layer bitumen reinforced membrane waterproofing system.

(4) Metal deck, VCL, insulation, 3-layer bitumen felt waterproofing system.

(5) For improved thermal/carbon emission performance, additional insulation thicknesses may be considered.

Junctions



7.3 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations.

8 Condensation risk

Interstitial condensation



8.1 The system will adequately reduce the risk of interstitial condensation when designed and constructed in accordance with BS 5250 : 2011, Appendix D, Appendix H Section H9, and BRE Report BR 262 : 2002, in England and Wales. When carrying out condensation risk analysis calculations to BS 5250 : 2011, the following vapour resistance values elements should be used:

- VCL 2460⁽¹⁾, 3604.5⁽²⁾, 3607.5⁽³⁾ MN·s·g⁻¹
- Bitumen/glass tissue-facing 6.6 MN·s·g⁻¹
- insulation core of the boards 300 MN·s·g⁻¹
- capsheet 1000 MN·s·g⁻¹.

(1) Eurorooft Dual Bond Vapour Barrier.

(2) Eurorooft Torchite Vapour Barrier.

(3) Eurorooft Self-Adhesive Vapour Control Layer.

Surface condensation



8.2 Roofs will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed 0.35 W·m⁻²·K⁻¹ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in section 6.



8.3 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) does not exceed 1.2 W·m⁻²·K⁻¹ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2011, Annex H. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6 of this Certificate.

9 Properties in relation to fire



9.1 When tested and classified in accordance with BS EN 13501-5 : 2005, a system comprising a 19 mm thick plywood, a Eurorooft Self-Adhesive Vapour Control Layer, an 120 mm thick PIR insulation board, a 3 mm thick layer of Eurorooft SupaGOLD XL, and topped with a 4.2 mm thick layer of Eurorooft SupaGOLD capsheet, achieved a classification of B_{ROOF}(t4).

9.2 The membranes, when used in protected specifications, including an inorganic covering listed in the Annex of Commission Decision 2000/553/EC, can be considered to be unrestricted under the national Building Regulations.



9.3 When used on flat roofs with the surface finishes (listed below) defined in part iii of Table 5 of Appendix A of Approved Document B of the Building Regulations, England and Wales, or Technical Booklet E, Table 4.6 of Part IV of the Building Regulations, Northern Ireland the roof is deemed to be of classification B_{ROOF} (t4):

- bitumen-bedded stone chipping covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand cement screed, or
- macadam.



9.4 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.

10 Resistance to wind uplift

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

10.2 For mechanically fastened insulation installations, the requirement for the number of fixings should be assessed in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. The minimum fixing patterns are given in section 15.9 of this Certificate.

10.3 The ballast requirements for loose-laid roof systems must be calculated 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 aggregate. In areas of high wind exposure, the Certificate holder's advice should be sought. Alternatively, concrete slabs on suitable supports can be used.

10.4 The ballast on inverted/protected roofs must not be of a type that will be removed or become delocalised owing to wind scour experienced on the roof.

11 Resistance to mechanical damage

11.1 The system can accept the limited foot traffic and light concentrated loads associated with installation and maintenance. Where traffic in excess of this is envisaged, such as for maintenance of lift equipment, a walkway must be provided (for example, using concrete slabs supported on bearing pads or manufacturer's walkway sheets). Reasonable care must be taken to avoid puncture of the membranes by sharp objects or concentrated loads.

11.2 For design purposes, the insulation boards may be assumed to have an allowable compressive strength of 150 kPa at 10% compression.

11.3 The insulation boards have not been assessed for use with permanent distributed or concentrated loads, such as air conditioning units, mechanical plants, water tanks, etc. Such loads must be supported directly on the roof construction or design support system.

11.4 When profiled decking is used, boards will need to span ribs. Maximum permissible spans between ribs for various board thicknesses are shown in Table 5.

Table 5 Maximum clear span

Maximum clear span (mm)	Minimum board thickness (mm)
< 75	25
> 75 ≤ 100	30
> 100 ≤ 125	35
> 125 ≤ 150	40
> 150 ≤ 175	45
> 175 ≤ 200	50
> 200 ≤ 225	55
> 225 ≤ 250	60

12 Maintenance



12.1 The system must be the subject of annual inspections and maintenance in accordance with BS 6229 : 2003, Annex B1-B5, to ensure continued performance. Maintenance should include checks and operations to ensure that, where applicable:

- adequate ballast is in place and evenly distributed over the membrane
- protection layers are in good condition
- any exposed membrane is free from the build-up of silt, and other debris and unwanted vegetation is cleared.

12.2 Where damage has occurred, it should be repaired in accordance with section 16 and the Certificate holder's instructions.

12.3 The other system components, once installed, do not require any regular maintenance provided the roof waterproofing layers are maintained as described above.

13 Durability



13.1 Under normal service conditions, the system will have a service life in excess of 30 years.

13.2 When using the mineral-surfaced capsheets, some localised loss of mineral surfacing may occur after some years in areas where complex detailing of the roof design is incorporated.

Installation

14 General

14.1 Installation of the Eurorooft SupaGOLD Roof Waterproofing System must be carried out by a competent roofing contractor experienced with this type of system in accordance with the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989, BS 8217 : 2005, the Certificate holder's instructions and this Certificate.

14.2 Substrates to which the system is to be applied must be firm, dry, clean, and free from sharp projections such as nail heads, concrete nibs etc. Wet boards must not be used. For the tapered boards to be effective in providing a uniform fall, it is essential that the structural deck is true and even. Any hollows, depressions or backfalls found in the roof deck must be rectified prior to laying the insulation.

14.3 Installation should not be carried out during inclement weather (eg rain, fog or snow). When the temperature is below 5°C, suitable precautions against surface condensation must be taken.

14.4 Detailing must be formed in accordance with the Certificate holder's instructions.

14.5 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must satisfy the requirements of BS 8217 : 2005, and to prevent damage to the roof covering one of the appropriate surface finishes referred to in Clause 6.12 of the Code of Practice must be used.

14.6 At falls in excess of 1:11, provision should be made for mechanical fixings, as required by BS 8217 : 2005.

14.7 The membranes may also have a surface finish applied in accordance with BS 8217 : 2005, Clause 8.19, including:

- stone aggregate in dressing compound
- precast concrete paving slabs
- proprietary tiles on bonding compound.

14.8 The insulation boards can be cut to fit around projections through the roof, using either a sharp knife or a fine-toothed saw.

15 Procedure

Vapour control layers

15.1 Before adhering the VCL, the deck may need be treated with Alumasc Bitumen Primer or Eurorof SA Primer⁽¹⁾.

(1) Outside the scope of this Certificate.

15.2 Eurorof Torchtite Vapour Barrier is fully bonded to a clean and dry substrate by torch application, extra care should be taken to ensure that the membrane is accurately aligned, including overlaps.

15.3 Eurorof Dual Bond Vapour Barrier is fully bonded to a clean and dry substrate by peel-back self-adhesive application, extra care should be taken to ensure that the membrane is accurately aligned, including overlaps, before removing the release film. The upper surface is then gently torched and the specified insulation boards firmly pressed onto the activated bituminous surface.

15.4 Eurorof Self-Adhesive Vapour Control Layer is fully bonded to a clean and dry substrate by peel-back self-adhesive application with 75 mm side laps and 150 mm end laps, extra care should be taken to ensure that the membrane is accurately located, including overlaps, before the release film is removed and pressure rolling the surface.

Insulation

15.5 The insulation boards are installed in a close-butted break-bonded pattern.

15.6 On metal decks, the boards are laid either with the long axis at right angles to the corrugations of the metal deck or diagonally across the corrugations of the deck, ensuring that all end joints and corners are sufficiently supported on the crown flats of the decking. The thickness of the board to be used is dependent on the width of the trough openings of the metal deck, as indicated in Table 5.

Fully bonded

15.7 The installed boards are bonded to the VCL using Eurorof PU Insulation Adhesive.

Mechanically fastened

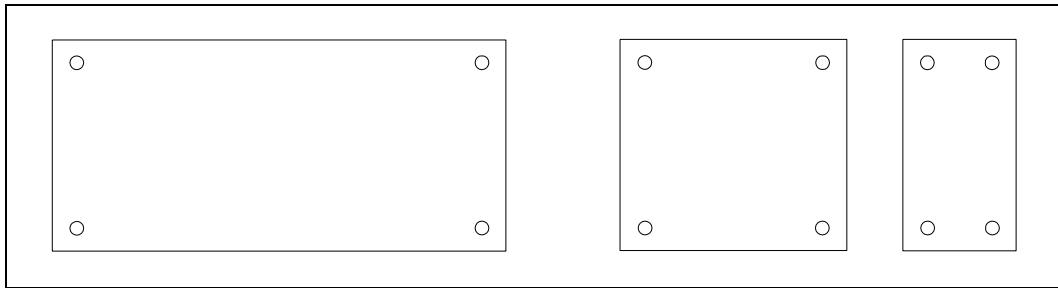
15.8 The boards are secured to the substrate by means of mechanical fastenings.

15.9 Each fixing must incorporate a minimum 50 by 50 mm square or 50 mm diameter circular plate with countersunk washer, which must not restrain more than one board. The minimum number of fixings for each board size is given in Table 6 and fixing layouts are shown in Figure 1, with the requirement for additional fixings assessed by a suitably competent and experienced individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. These are placed within the individual board area and sited more than 50 mm, but less than 150 mm, from the edges and corners of the board, giving a minimum fixing rate of 5.55 fixings per square metre for 1200 by 600 mm boards.

Table 7 Minimum number of fixings

Board dimensions (mm)	Minimum number of fixings
2400 x 1200	6
1200 x 1200	4
1200 x 600	4

Figure 1 Fixing layouts — minimum fixing numbers (for solely mechanically fixed specification)



Membrane

Fully bonded applications

15.10 When required for fully bonded applications, the substrate is primed using Alumasc Bitumen Primer at a rate of 6 to 12 square metres per litre for metal surfaces, 6 to 8 square metres per litre for concrete/plywood surfaces, and 3.5 to 5 square metres per litre for lightweight concrete screed surfaces, depending on the porosity of the substrate or for self-adhered membranes, with Eurorooft SA Primer at a rate of 4 to 10 square metres per litre.

15.11 Torch bonding is achieved by melting the lower surface, by torching and pressing the membrane down. Care must be taken not to overheat the coating.

Lap joints

15.12 Side and end laps should be a minimum of 100 and 150 mm respectively.

15.13 Joints are sealed by torching and consolidating, using a roller of suitable width and weight.

15.14 A bead of molten material must exude from all laps to indicate a satisfactory seal.

16 Repair

In the event of damage the cap sheets can be effectively repaired, after cleaning and priming the surrounding areas, with a patch of the appropriate cap sheet torch-bonded over the damaged area in accordance with the Certificate holder's instructions.

Technical Investigations

17 Tests

17.1 As assessment was made of test data for the membranes in relation to:

- thickness
- tensile strength and elongation
- resistance to tearing
- dimensional stability
- low temperature flexibility
- flow resistance at elevated temperature
- heat ageing following by low temperature flexibility
- static loading
- dynamic loading.

17.2 Tests were carried out on the Alumasc BGT (PIR) insulation boards and results assessed to determine:

- thermal conductivity
- compressive strength
- dimensional stability
- wind uplift
- tensile strength perpendicular to faces
- water vapour transmission.

18 Investigations

18.1 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.

18.2 Data on the fire performance of the system were evaluated.

18.3 U-value calculations were carried out.

Bibliography

BRE Report BR 262 : 2002 Thermal insulation : avoiding risks

BRE Report BR 443 : 2006 Conventions for U-value calculations

BS 5250 : 2011 + A1 : 2016 Code of practice for control of condensation in buildings

BS 6229 : 2003 Flat roofs with continuously supported centres — 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 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 — General actions — Wind actions

NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to Eurocode 1 — General actions — Wind actions

BS EN 13501-5 : 2005 + A1 : 2009 Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests

BS EN ISO 6946 : 2017 Building components and building elements — Thermal resistance and thermal transmittance — Calculation methods

BS EN ISO 9001 : 2008 Quality management systems — Requirements

BS EN ISO 14001 : 2004 Environmental management system — Requirements with guidance for use

EN 13165 : 2012 + A2 : 2016 Thermal insulation products for buildings — Factory made rigid polyurethane foam (PU) products — Specification

EN 13707 : 2013 Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics

EN 13970 : 2004 Flexible sheets for waterproofing — Bitumen water vapour control layers — Definitions and characteristics

19 Conditions

19.1 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 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.

19.2 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.

19.3 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.

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

19.5 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
- 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.

19.6 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.