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Agrément Certificate
90/2431
Product Sheet 3 Issue 2

HYDROTECH MONOLITHIC MEMBRANES

BLUROOF MONOLITHIC MEMBRANE 6125 SYSTEM

This Agrément Certificate Product Sheet(1) relates to the BluRoof Monolithic Membrane 6125 System, an inverted roof system for use in blue roof specifications on zero falls in combination with a storm water attenuation system(2).

(1) Hereinafter referred to as 'Certificate'.
(2) The 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 Second issue: 9 April 2025
Originally certified on 24 October 2018

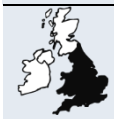
Hardy Giesler
Chief Executive Officer

SUMMARY OF ASSESSMENT AND COMPLIANCE

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

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that the BluRoof Monolithic Membrane 6125 System, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:



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

Requirement:	**A1**	**Loading**
Comment:		The system can contribute to satisfying this Requirement. See section 1 of this Certificate.
Requirement:	**B3(2)**	**Internal fire spread (structure)**
Comment:		The system may be restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		Roofs incorporating the system, when used with suitable surface protection, may enable a roof to be unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The system will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The system can contribute to enabling a roof to satisfy this Requirement. See section 3 of this Certificate.
Requirement:	**L1(a)(i)**	**Conservation of fuel and power**
Comment:		The system can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**25B**	**Nearly zero-energy requirements for new buildings**
Regulation:	**26**	**CO_2 emission rates for new buildings**
Regulation:	**26A**	**Fabric energy efficiency rates for new dwellings (applicable to England only)**
Regulation:	**26A**	**Primary energy rates for new buildings (applicable to Wales only)**
Regulation:	**26B**	**Fabric performance values for new dwellings (applicable to Wales only)**
Regulation:	**26C**	**Target primary energy rates for new buildings (applicable to England only)**
Regulation:	**26C**	**Energy efficiency rating (applicable to Wales only)**
Comment:		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Fitness and durability of materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.

Regulation:	**9**	**Building standards – construction**
Standard:	1.1(b)	Structure The system can contribute to satisfying this Standard, with reference to clause 1.1.1(1)(2). See section 1 of this Certificate.
Standard:	2.1	Compartmentation
Standard:	2.2	Separation
Comment:		The system may be restricted by these Standards, with reference to clauses 2.1.15(2), 2.2.7(2) and 2.2.10(1). See section 2 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		Roofs incorporating the system, when used with suitable surface protection, may enable a roof to be unrestricted by this Standard, with reference to clause 2.8.1(1)(2). See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The system will enable a roof to satisfy this Standard, with reference to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 3 of this Certificate.
Standard:	3.15	Condensation
Comment:		The system will enable 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 3 of this Certificate.
Standard:	6.1(b)(c)	Energy demand
Comment:		The system can contribute to satisfying this Standard, with references to clauses 6.1.1(1) and 6.1.2(2). See section 6 of this Certificate.
Standard:	6.2	Building insulation envelope
Comment:		The system can contribute to satisfying this Standard, with references to clauses, or parts of, 6.2.1(1)(2), 6.2.3(1), 6.2.4(2), 6.2.6(1), 6.2.7(1)(2) to 6.2.10(1)(2), 6.2.11(2) and 6.2.12(1). See section 6 of this Certificate.
Standard:	7.1(a)(b)	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 at least 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), 7.1.6(1)(2), 7.1.7(1), 7.1.9(2) and 7.1.10(2). See section 6 of this Certificate.
Regulation:	**12**	**Building standards – conversion**
Comment:		All comments given for 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(1)(a)(i) (iii)(b)(i)(ii)**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The system satisfies the requirements of this Regulation. See section 3 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The system can contribute to a roof satisfying this Regulation. See section 3 of this Certificate.

Regulation:	**30**	**Stability**
Comment:		The system can contribute to satisfying this Regulation. See section 1 of this Certificate.
Regulation:	**35(2)**	**Internal fire spread – structure**
Comment:		The system may be restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(b)**	**External Fire spread**
Comment:		Roofs incorporating the system, when used with suitable surface protection, may enable a roof to be unrestricted by this Regulation. See section 2 of this Certificate.
Regulation:	**39(a)(i)**	**Conservation measures**
Comment:		The system can contribute to satisfying this Regulation. See section 6 of this Certificate.
Regulation:	**40(2)**	**Target carbon dioxide emissions rate**
Regulation:	**43(1)(2)**	**Renovation of thermal elements**
Regulation:	**43B**	**Nearly zero-energy requirements for new buildings**
Comment:		The system can contribute to satisfying these Regulations. See section 6 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, the BluRoof Monolithic Membrane 6125 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*, 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 Standard for Conversions and Renovations*, taking account of other relevant guidance within the chapter and the suitability of the substrate to receive the system.

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

Fulfilment of Requirements

The BBA has judged the BluRoof Monolithic Membrane 6125 System to be satisfactory for use as described in this Certificate. The system has been assessed for use in blue roof specifications on zero falls in combination with a storm water attenuation system(1).

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

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the system under assessment. The BluRoof Monolithic Membrane 6125 System consists of:

- BluRoof Monolithic Membrane 6125 — a hot-applied, polymer-modified, rubberised bitumen-based membrane, including 40% recycled material content. The membrane is applied in two layers to provide a coating with a nominal thickness of 6 mm
- Flex Flash F — a spunbond polyester fabric reinforcement sheet, for use as a continuous reinforcement in BluRoof Monolithic Membrane 6125 applications, where minimal or no expansion or movement is anticipated

- Flex Flash UN — an uncured neoprene membrane used as heavy-duty reinforcing and exposed flashing membrane in conjunction with BluRoof Monolithic Membrane 6125
- Hydrogard 20 — an atactic polypropylene (APP) polymer modified-bitumen polyester-reinforced protection sheet, with a sanded finish to both sides
- Hydrogard 40 Mineral — an APP polymer modified-bitumen polyester-reinforced protection sheet with an underside surface finish made with a thermofusible polyethylene (PE) film and a top side surface finish protected by natural or coloured slate granules
- Derbigum Anti-Root — a root resistant APP polymer-modified bitumen membrane reinforced with a glass fibre mat (55 g·m^{-2}) and a non-woven polyester core (150 g·m^{-2}) protection sheet
- Derbigum GC — an APP polymer modified-bitumen reinforced with a glass fibre mat (55 g·m^{-2}) and a non-woven polyester core (250 g·m^{-2}), heavy-duty protection sheet
- Alumasc Bitumen Primer — a cold, spray-applied bituminous primer for use on horizontal, vertical and sloping surfaces
- SB Primer — alternative fast curing primer
- Alumasc Extruded Polystyrene — an extruded polystyrene (XPS) foam board, available in two standard sizes and rebated for lap jointing
- Alumasc LO-k WFRL — a water flow-reducing layer (WFRL) for use above thermal insulation.

The protection sheets have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics of the protection sheets

Characteristic (unit)	Membranes			
	Hydrogard 20	Hydrogard 40 Mineral	Derbigum Anti-Root	Derbigum GC
Thickness (mm)	2	3.5	4	5
Width (m)	1	1	1.1	1.10
Roll weight (kg)	27	35	37	44
Roll length (m)	15	10	8	7.27

Alumasc Extruded Polystyrene insulation has the nominal characteristics given in Table 2.

Table 2 Nominal characteristics of Alumasc Extruded Polystyrene

Characteristic (unit)	Value
Compressive stress at 10% deformation CS (10\Y)	300
Minimum density (kg·m^{-3})	34
Work size – length x width (mm)	1250 x 600
Overall size – length x width (mm)	1265 x 615
Available thicknesses (mm)	80, 100, 120, 130, 140, 160, 180, 200, 205
Edge detail	Rebated (15 mm x half board thickness)
Colour	Grey

Alumasc LO-k WFRL has the nominal characteristics given in Table 3.

Table 3 Nominal characteristics of Alumasc LO-k WFRL

Characteristic (unit)	Value
Thickness (mm)	0.15
Mass per unit area (g·m^{-2})	60
Roll weight (kg)	18
Roll length (m)	100
Roll width (m)	3
Colour	Light Grey

Ancillary Items

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

- BSS Pressed Concrete Paviour
- Monoscreed — for use in repairing concrete decks, screeding and levelling of deflections and backfalls
- Harmer AV (1) — high-capacity aluminium roof drainage outlets
- FC6 Drainage layer — a geo-composite unit, comprising a non-woven geotextile filtration layer that is bonded to a high-density polyethylene (HDPE) studded membrane core
- Derbigum/HiTen Universal/PIR or mineral wool insulation overlay for hybrid systems
- Alumasc Extruded Polystyrene Upstand Board — self-faced insulation board for use at upstands
- Alumasc C-Glass T3+ — non-combustible cellular glass underlayer insulation
- Alumasc C-Glass INV — non-combustible cellular glass (upper layer and upstand board) insulation
- Alumasc Non-combustible Upstand Board 56mm — high density mineral wool with a 6mm fibre cement facing
- Bluroof patented flow restrictor using Harmer AV400 outlet
- VF void former
- Overflow outlets
- ProEXP — expansion joint for structural decks
- Skyline — polyester powder coated aluminium coping, soffit and fascia systems
- Pedestal Pro — a fully engineered raised adjustable pedestal system (including non-combustible option) for paving and decking
- Blackdown Green Roofs — extensive, biodiverse and intensive green roof systems.

(1) Harmer AV is a registered trademark of The Alumasc Group PLC.

Applications

The system is intended for use as a waterproofing layer in blue roofs on zero falls, in combination with a storm water attenuation system(1), with the following specifications:

- inverted roofs ballasted with paving slabs on supports with limited or pedestrian access
- inverted green roofs with limited access
- roof gardens.

(1) The storm water attenuation system is outside the scope of the Certificate.

The system is intended for use on the following substrates:

- in-situ concrete
- precast concrete
- concrete block
- timber substrates (exterior grade plywood, OSB3, composite timber or sawn timber).

Definitions for products and applications inspected

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

- blue roofs — zero fall roofs which are designed to allow controlled attenuation of rainfall during heavy and storm events, as part of sustainable urban drainage systems (SuDS)
- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- zero fall roof — a roof having a minimum finished fall between 0 and 1:80(1)
- pedestrian access — a roof subjected only to foot traffic and gathering of people greater than required for maintenance
- green roof (extensive) — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wild flower species
- roof garden (intensive) — a roof with a substantial layer of growing medium with planting that can include shrubs and trees, generally accessible to pedestrians

- 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.

(1) *NHBC Standards* 2025 require a minimum fall of 1:60 for green roofs.

Product assessment – key factors

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

1 Mechanical resistance and stability

Data were assessed for the following characteristics.

1.1 Behaviour under loading

1.1.2 The results of the behaviour under loading tests are given in Table 4.

Table 4 Behaviour under loading

Product assessed	Assessment method	Requirement	Result
Alumasc Extruded Polystyrene	Compressive strength to EN 826 : 1996	≥ 300 kPa	Pass

1.1.3 On the basis of data assessed, the insulation product has adequate resistance to the loads associated with light maintenance traffic on roofs, and to pedestrian foot traffic on roof terraces.

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 under the national Building Regulations with respect of the proximity to a relevant boundary in the following circumstances:

- protected or inverted roof specifications, including 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. Further guidance is available in the Department for Communities and Local Government publications, *Fire Performance of Green Roof and Walls.*

2.2 Reaction to fire

2.2.1 The insulation was tested for reaction to fire and the classification is given in Table 5.

Table 5 Reaction to fire classification

Product assessed	Assessment method	Requirement	Result
Alumasc Extruded Polystyrene insulation	BS EN 13501-1 : 2018	Value achieved	E

2.2.2 Restrictions may apply where the system is laid over a compartment wall.

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 6.

Table 6 Weathertightness

Product assessed	Assessment method	Requirement	Result
BluRoof Monolithic Membrane 6125 reinforced with Flex Flash F	Head of water to EOTA TR - 003 : 2004	No leakage after 24 hours	Pass
BluRoof Monolithic Membrane 6125 reinforced with Flex Flash F	Water vapour resistance to BS 3177 : 1959	Value achieved	1140 $MN \cdot s \cdot g^{-1}$
Alumasc LO-k WFRL	Water vapour resistance to BS 3177 : 1959	Declared value	0.17 $MN \cdot s \cdot g^{-1}$

3.1.2 On the basis of data assessed, the system will resist the passage of water into the interior of a building and so satisfy the relevant requirements of the national Building Regulations.

3.1.3 The system, when used within a suitable specification, will adequately resist the effects of wind uplift likely to occur in practice.

3.2 Resistance to moisture

3.2.1 The result of a long-term water absorption by diffusion for Alumasc Extruded Polystyrene is given in Table 7.

Table 7 Long-term water absorption by diffusion

Product assessed	Assessment method	Requirement	Result
Alumasc Extruded Polystyrene ≥ 80 mm thickness	Long term water absorption by diffusion to EN 13164 : 2012	WD(V)1 ≤ 1%	Pass

3.2.2 The water absorption result is used to determine the design thermal conductivity value (λ_U) for the XPS insulation as given in Table 10.

3.3 Resistance to mechanical damage

3.3.1 Results of resistance to mechanical damage tests are given in Table 8.

Table 8 Resistance to mechanical damage

Product assessed	Assessment method	Requirement	Result
BluRoof Monolithic Membrane 6125 reinforced with Flex Flash F	Fatigue movement to EOTA TR-008 : 2004	Watertight and no visible damage, debonding or cracking after 1000 cycles	Pass

3.3.2 Dynamic and static indentation for the full system with protection were assessed based on data from a representative related product.

3.3.3 The system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance and the effects of minor structural movement likely to occur under normal service conditions while remaining weathertight.

3.3.4 Where traffic in excess of the examples given in section 3.3.3 is envisaged, such as for maintenance of lift equipment, suitable protection (for example, using concrete slabs supported on bearing pads) must be used. Reasonable care must be taken to avoid puncture of the system by sharp objects or concentrated loads.

3.4 Resistance to root penetration

3.4.1 The result of a resistance to root penetration test is given in Table 9.

Table 9 Resistance to root penetration

Product assessed	Assessment method	Requirement	Result
Derbigum Anti-Root	Resistance to root penetration to EN 13948 : 2000	No root penetration	Pass

3.4.2 On the basis of data assessed, the system incorporating Derbigum Anti-Root protection sheet, when used in roof garden applications, will resist penetration by plant roots and remain weathertight.

3.4.3 For green roofs in inverted roof specifications, when installed in accordance with this Certificate, the inverted roof insulation and 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*.

3.4.4 For roof gardens in inverted roof specifications, when installed in accordance with this Certificate, the inverted roof insulation and 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

Data were assessed for the following characteristics.

6.1 Thermal performance

6.1.1 Alumasc Extruded Polystyrene was tested for thermal conductivity and the result is given in Table 10.

Table 10 Thermal conductivity

Product assessed	Insulation thickness	Assessment method	Requirement	Result
Alumasc Extruded Polystyrene	80 to 205 mm	EN 13164 : 2012	Design value (moisture corrected) (λ_U)(1)	0.032 $m^{-1}\cdot K^{-1}$

(1) The design thermal conductivity value (λ_U) for the insulation is calculated using the water absorption result in Table 7.

6.2 Conservation of fuel and power

6.2.1 Calculations of thermal transmittance (U value) of a specific roof construction must be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019, using the design thermal conductivity value (λ_U) given in Table 10 of this Certificate.

6.2.2 Rainfall reaching the roof waterproofing membrane will temporarily affect the rate of heat loss from the roof and should be accounted for by adding a correction (ΔU_r) to the calculated roof U value in accordance with BS EN ISO 6946 : 2017, Annex F.4, as follows (see also *BBA Information Sheet No 4*):

$\Delta U_r = = pf\chi (R_1/R_T)^2$ where:

ΔU_r = correction to the calculated thermal transmittance of the roof element ($W\cdot m^{-2}\cdot K^{-1}$)
p = average rate of precipitation during the heating season ($mm\cdot day^{-1}$)

f = drainage factor giving the fraction of p reaching the waterproof membrane
χ = factor for increased heat loss caused by rainwater flowing on the membrane (0.04 $W \cdot day \cdot m^{-2} \cdot K^{-1} \cdot mm^{-1}$)
R_1 = thermal resistance of the layer of insulation above the waterproofing membrane ($m^2 \cdot K \cdot W^{-1}$)
R_T = total thermal resistance of the construction before application of the correction ($m^2 \cdot K \cdot W^{-1}$)
$f\chi$ = 0.001 (system incorporating the water-flow-reducing layer).

6.2.3 The U value of a completed roof will depend on the insulation thickness, type of substrate and internal finish. Example U-values are given in Table 11.

Table 11 Example U values(1)

Required U value ($W \cdot m^{-2} \cdot K^{-1}$)	Alumasc Extruded Polystyrene, thickness required(2) (mm)	
	p(3) = 3 ($mm \cdot day^{-1}$)	p(3) = 8 ($mm \cdot day^{-1}$)
0.13	120 + 120	140 + 120
0.15	205	120 + 100
0.16	200	205
0.18	180	180
0.20	160	160
0.25	140	140

(1) Deck taken as 200 mm dense reinforced concrete (λ = 2.5 $W \cdot m^{-1} \cdot K^{-1}$) with a 10 mm bitumen ($\lambda$ = 0.23 $W \cdot m^{-1} \cdot K^{-1}$) waterproofing layer.
(2) Thinnest available insulation thickness or thickness combination to achieve the required U value. Thickest board as bottom layer when double/triple layer used.
(3) Values for p taken as examples of best to worst case for all UK locations, with a $f \cdot \chi$ value of 0.001 $W \cdot day \cdot m^{-2} \cdot K^{-1} \cdot mm^{-1}$.

6.2.4 On the basis of data assessed, the system can contribute towards a construction satisfying the national Building Regulations in respect of energy economy and heat retention.

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 the system were assessed.

8.2 Specific test data were assessed as given in Table 12.

Table 12 Durability tests

Product assessed	Assessment method	Requirement	Result
BluRoof Monolithic Membrane 6125	Flexibility at low temperature to CAN/CGSB 37.50-M89 : 1989	Value achieved	- 25 °C
	Penetration (cone) to CAN/CGSB-27.50-M 89 : 1989/ ASTM D5329 : 1996 Control tested at 50°C	Value achieved	213 dmm
	Effect of prolonged heating – 232°C for 7 hours, tested at 50°C	No significant change	Pass
	Effect of remelting – 218°C for 5 hours, 5 cycles, tested at 50°C	No significant change	Pass
	Flow to ASTM D4329 : 1996 tested at 60°C	No flow	Pass
	Effect of prolonged heating – 232°C for 7 hours, tested at 60°C	No flow	Pass
	Effect of remelting – 218°C for 5 hours, 5 cycles, tested at 60°C	No flow	Pass

8.2.1 Dynamic and static indentation, after heat ageing and hot water ageing, for the full system with protection were assessed based on data from a representative related product.

8.3 Service life

8.3.1 Under normal service conditions, the waterproofing component of 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.

8.3.2 In situations where maintenance or repair of any of the components in the roof structure are necessary (eg protection layer or insulation), the durability of the membrane may be reduced. In these circumstances the Certificate holder must be consulted, but such advice is outside the scope of this Certificate.

8.3.3 The insulation board is rot resistant and, as long as the WFRL remains undamaged, will have a life of in excess of 25 years under normal circumstances. Under normal service conditions, the WFRL will have a life equivalent to that of the insulation in the inverted roof.

8.3.4 Care must be taken to ensure that the protection/ballast layer provides complete cover to the WFRL during the membrane service life to avoid UV degradation.

8.3.5 An estimate cannot be given for the life of a green roof owing to the nature of use; however, under normal circumstances, it should be significantly greater than for exposed waterproofing coverings.

8.3.6 The waterproofing membrane component is resistant to acidic and alkali conditions it is likely to encounter during its service life, as well as chemicals it may come into contact with, such as liquid fertiliser.

PROCESS ASSESSMENT

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

9 Design, installation, workmanship and maintenance

9.1 Design

9.1.1 The design process was assessed by the BBA, and the following requirements apply in order to satisfy the performance specified 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 BS 8217 : 2005, and, where appropriate, *NHBC Standards* 2025, Chapter 7.1.

9.1.3 The system is not suitable for direct application to metal decking, which must be overlaid with a suitable flat deck of exterior grade plywood or calcium silicate board. It is essential that all joints between the boards are tight, and no gaps exist where they meet rooflights, edge details and other services which perforate the roof deck.

9.1.4 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.

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

9.1.6 The attenuation system and drainage must be designed by a suitably competent and experienced individual to allow the short-term storage and discharge at a set flow rate of storm water to alleviate the risk of localised flooding.

9.1.7 The ballast requirements for the system 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 such advice is outside the scope of this Certificate. Alternatively, concrete slabs on suitable supports can be used.

9.1.8 The growing medium 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.

9.1.9 A paving finish ballast comprising a minimum 40 mm of standard pressed concrete paving slabs is suitable in sheltered regions and in buildings up to 15 storeys. For other exposure conditions or tall buildings, specialist advice must be sought, but such advice is outside the scope of this Certificate. Paving must be supported using spacer pads in accordance with the Certificate holder's recommendations, but such advice is outside the scope of this Certificate.

9.1.10 When the system is used in gravel-ballasted protected roof or inverted roof specifications, a suitable filter layer/WFRL must be used between the ballast and the rest of the specification.

9.1.11 The ballast on protected roofs or growing medium used in roof gardens must not be of a type that will be removed or become delocalised owing to wind scour experienced on the roof.

9.1.12 It must be recognised that the type of plants used in roof gardens could significantly affect the expected wind loads experienced in service. Appropriate mitigation measures must be taken; the advice of the Certificate holder and/or the Green Roof Organisation (GRO) may be sought, but such advice is outside the scope of this Certificate.

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

9.1.14 For roof garden finishes, to protect the roof waterproofing and any system components above the waterproofing, such as insulation or WFRL, 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 must be removed at early germination stage
- other woody plants which spread aggressively including rhododendron.

9.1.15 The Green Roof Organisation (GRO) can provide guidance on species not included in section 9.1.14 but such advice is outside the scope of this Certificate.

9.1.16 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 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 roofs can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

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 this Certificate, the Certificate holder's instructions, the relevant clauses of BS 6229 : 2018, BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005. A summary of additional instructions and guidance is provided in Annex A of this Certificate.

9.2.3 The system must be installed on a dry and frost-free substrate. After rain or snow, the substrate must be allowed to dry before installation can commence. The installer can aid drying by any suitable means approved by the Certificate holder, but such advice is outside the scope of this Certificate.

9.2.4 To assess the suitability of a substrate to receive the membrane, bond tests must be carried out. If bonding problems occur, advice must be sought from the Certificate holder, but such advice is outside the scope of this Certificate.

9.2.5 Substrates to which the system is to be applied must be sound, dry, clean and free from sharp projections such as nail heads and concrete nibs.

9.2.6 Adhesion checks must be carried out to ensure that the system is compatible with the existing surfaces. The Certificate holder must be consulted for details of suitable test methods and requirements before use, but such advice is outside the scope of this Certificate.

9.2.7 Prior to the application of the waterproofing membrane, defects in the substrate such as cracks, irregularities and other areas of potential weakness must be repaired using a suitable repair mortar, and the substrate cleaned in accordance with the Certificate holder's instructions. Additional membrane may be used to fill minor depressions in the substrate.

9.2.8 When used over construction joints or other minor cracks, the membrane must be reinforced with Flex Flash UN. The Certificate holder must be consulted for suitable details at expansion joints, but such advice is outside the scope of this Certificate.

9.2.9 The substrate must be primed with Alumasc Bitumen Primer or SB Primer and allowed to dry before application of the system. Alumasc Bitumen Primer must be applied by brush, roller or spray at a coverage rate of 8 to 16 $m^2 \cdot l^{-1}$. Alternatively, SB Primer is brush or roller applied at a coverage of 7 to 10 $m^2 \cdot l^{-1}$, dependent on the substrate.

9.2.10 Blocks of the membrane are heated in a mechanically agitated, air-jacketed melter, fitted with thermometers, to measure the melt temperature.

9.2.11 The nominal temperature range for the molten membrane is from 180 to 190°C. The temperature of the melt must never exceed 205°C.

9.2.12 The molten membrane is discharged from the melter into a suitable container and applied to the surface using three passes of a long-handled squeegee for horizontal surfaces and a suitable spreader for vertical surfaces.

9.2.13 The first layer of molten membrane must have a nominal thickness of 3 mm.

9.2.14 Flex Flash F polyester reinforcing sheet is embedded by lightly brushing it into the first layer of the membrane while still warm and tacky. The reinforcement overlaps must be at least 75 mm and fully sealed by the membrane.

9.2.15 The second layer of the membrane, applied over the top of the reinforcement, must have a nominal thickness of 3 mm.

9.2.16 The membrane must be protected immediately with the specified protection sheet in accordance with the Certificate holder's instructions. The overlaps in the protection sheets must be at least 75 mm and sealed with membrane, except for anti-root protection sheets which require torch-sealed overlaps.

9.2.17 Detailing must be carried out in accordance with the Certificate holder's instructions. The flashing upstand must be a minimum of 150 mm above the top of the ballast/protection layer being installed.

9.2.18 The completed membrane must be electronically tested for damage prior to the application of the covering layers. Any damage to the system assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain system performance.

9.2.19 The roof waterproofing must be clean and free from any extraneous matter.

9.2.20 The insulation product is laid in accordance with the Certificate holder's instructions.

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

9.2.22 Boards are laid in a brick bond pattern, and it is essential that all joints between the boards are tight and no gaps exist where they meet rooflights, edge details and other services which perforate the roof deck.

9.2.23 Alumasc Extruded Polystyrene must always be overlaid with Alumasc LO-k WFRL, which acts as a filter layer preventing fines and other debris from passing through and as a water-control layer minimising cold rainwater flowing between the insulation and the roof waterproofing with consequent heat loss. This membrane can be covered with either a gravel ballast or paving finish.

9.2.24 The WFRL must be loose laid over the insulation, at right angles to the slope, with 300 mm wide unsealed lap joints running down the slope. At upstands and penetrations, the WFRL must be turned up to finish above the surface of the ballast later and turned down at drainage outlets.

9.2.25 The ballast loading layer must be applied as work progresses to protect the insulation and the WFRL from the effects of wind uplift and solar degradation. The ballast must not be stacked in one place on the roof unless the roof is strong enough to support it.

9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information BS 8217 : 2005, and site visits to witness an installation in progress. 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 following requirements apply in order to satisfy the performance assessed in this Certificate:

9.4.2.1 The system must be the subject of visual six-monthly inspections and maintenance in accordance with the recommendations in BS 6229 : 2018, Chapter 7, and the Certificate holder's own maintenance requirements. For green roof, roof garden and drainage systems, these six-monthly inspections must be carried out by a suitably experienced and competent individual (with horticultural knowledge) to ensure continued satisfactory performance. This must include an examination of the overall condition of the roof, ensuring that drain outlets and gutters are kept clear and unblocked and, for green roofs and roof gardens, the removal of any self-propagated plants and invasive plant species found. See section 9.1 of this Certificate.

9.4.2.2 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*.

9.4.2.3 For green roofs, to protect the waterproofing and any system components above the waterproofing, such as insulation or WFRL, invasive plant species (see sections 9.1.14 and 9.1.15 of this Certificate) must be eliminated through maintenance.

9.2.2.4 The control and removal of invasive species must be 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 WFRL. The Certificate holder can advise on the suitability of a particular product, but such advice and products are outside 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.

9.4.2.5 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 WFRL. The Certificate holder can advise on the suitability of a particular product, but such advice and products are outside the scope of this Certificate.

9.4.2.6 If a leak occurs 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. 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.

9.4.2.7 Maintenance must include checks and operations to ensure that the system and drainage outlets are free from the build-up of silt and other debris, and that protection layers, eg walkways, are in good condition.

9.4.2.8 In the event of the system being contaminated by oil, grease or other chemicals, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

9.4.2.9 Any damage to the system must be repaired as soon as possible to ensure that the integrity of the waterproofing is maintained. The advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate.

9.4.2.10 Where maintenance or repair of any of the roof components above the waterproofing system is necessary, care must be taken to avoid damage to the membrane. If damage to the membrane occurs, then it must be repaired in accordance with the Certificate holder's instructions.

9.4.2.11 When damaged the insulation boards must be replaced.

9.4.2.12 Repair of the WFRL is carried out by replacement of the damaged length of the membrane.

9.4.2.13 In the event of contamination of the system by chemicals, oils or grease, 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 each 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 has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

11 Delivery and site handling

11.1 The Certificate holder stated that BluRoof Monolithic Membrane 6125 is delivered to site in the form of solid 18 kg blocks, wrapped in polythene film and in cardboard boxes bearing the product description, the BBA logo and the production batch number.

11.2 Reinforcement and protection sheets are delivered to site in rolls with labels bearing the product name.

11.3 The insulation boards are shrink wrapped in polythene and delivered to site on pallets or bearers. Each pack bears the manufacturer's name, grade, type marking and BBA logo, incorporating the number of this Certificate.

11.4 The WFRL is delivered to site in rolls wrapped in polythene bearing the Certificate holder's name, the product name and the BBA logo incorporating the number of this Certificate.

11.5 Alumasc Bitumen Primer and SB Primer are delivered to site in 25 litre drums.

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

11.6.1 BluRoof Monolithic Membrane 6125, reinforcement and protection sheets must be stored under cover, away from heat sources, and kept dry.

11.6.2 The insulation boards must be stored flat, off the ground on a clean, level surface and under cover to protect them from high winds. They must be protected from prolonged exposure to sunlight and must be stored under cover or protected with light-coloured opaque polythene sheets. They must not be exposed to open flame or other ignition sources. Care must be taken to avoid contact of the insulation boards with solvents and materials containing organic components.

11.6.3 The WFRL must be stored on its side, on a smooth, clean surface, under cover and protected from sunlight.

†ANNEX A – SUPPLEMENTARY INFORMATION

Supporting information in this Annex is relevant to the system but has not formed part of the material assessed for the Certificate.

Construction (Design and Management) Regulations 2015
Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

CLP Regulations

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

CE marking

The Certificate holder has taken the responsibility of CE marking the system in accordance with European Technical Assessment 20/0907 issued by ETA-Danmark A/S under EAD 030350-00-0402 for the waterproofing component and in accordance with harmonised European Standard BS EN 13164 : 2012 for the insulation component.

Additional information on installation

Condensation

A.1 Warm water trapped under the boards is likely to be replaced by colder water during rainfall. Therefore, during heavy or continuous rainfall the roof waterproofing and the deck will be cooled. If condensation does occur it will be short-term, disappearing when the rain stops.

A.2 Risk of interstitial condensation will be minimal with concrete decks but metal and timber decks will be subjected to short periods of moisture; therefore, timber must be treated with a suitable preservative in accordance with BS 8417 : 2011.

A.3 For systems using paving, a condensation risk analysis may be necessary using dynamic software in accordance with BS EN 15026 : 2007, depending on the climatic conditions existing in the location where it is installed.

A.4 To limit the risk of interstitial condensation, roofs must be designed and constructed in accordance with the relevant parts of BS 5250 : 2021.

A.5 In England and Wales, roofs will adequately limit the risk of surface condensation where the thermal transmittance (U value) does not exceed 0.35 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and the junctions with other elements are designed in accordance with section 6 of this Certificate.

A.6 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the roof does not exceed 1.2 $W \cdot m^{-2} \cdot K^{-1}$ at any point, and roofs are designed and constructed in accordance with the relevant parts of BS 5250 : 2021. Further guidance may be obtained from BRE Report BR 262 : 2002.

Design

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

A.8 Full details of the storm water attenuation system are given in the Certificate holder's publication *Bluroof Stormwater Management Systems*, and detailed specifications are available from the Certificate holder. The BBA has not assessed the storm water attenuation system and all aspects of the performance of this system are outside the scope of this Certificate.

Installation

A.9 Installation of the waterproofing must be carried out in accordance with the relevant clauses of Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Falls*.

A.10 The insulation is light and can be installed in any weather but, due to their size, care is needed in high winds. Installers must not carry the insulation near to parapets or apertures in the deck and, once placed, they must be restrained immediately.

Maintenance

A.11 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

ASTM D4329: 1996 *Standard Practice for Fluorescent UV Exposure of Plastics*
ASTM D5329 : 1996 *Standard Test Methods for Sealants and Fillers, Hot-Applied, For Joints and Cracks in Asphaltic and Portland Cement Concrete Pavements*

BR 262 : 2002 *Building Research Establishment, BRE. BR 262 Thermal Insulation: Avoiding Risks. Garston, Watford : Construction Research Communications Ltd, 2002*

BR 443 : 2019 *Building Research Establishment, BRE — Conventions for U-value Calculations*

BS 3177 : 1959 *Method for Determining the Permeability to Water Vapor of Flexible Sheet Materials Used for Packaging*

BS 5250 : 2021 *Code of practice for control of condensation in buildings*

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

BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*

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

BS 8417 : 2011 *Preservation of wood — Code of practice — Code of practice*

BS EN 1991-1-1 : 2002 *Eurocode 1: Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
BS EN 1991-1-3 : 2003 *Eurocode 1: actions on structures — General actions - Snow loads*
BS EN 1991-1-4 : 2005 *Eurocode 1: Actions on structures — General actions - Wind actions*

BS EN 13164 : 2012 *Thermal insulation products for buildings — Factory made extruded polystyrene foam (XPS) products. Specification*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*

BS EN 15026 : 2007 *Hygrothermal performance of building components and building elements — Assessment of moisture transfer by numerical simulation*

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

CAN/CGSB 37.50-M89 : 1989 *Hot applied Rubberized Asphalt for Roofing and Waterproofing*

EAD 030350-00-0402 *Liquid applied roof waterproofing kits*

EN 826 : 1996 *Thermal insulating products for building applications — Determination of compression behaviour*

EN 13164 : 2012 *Thermal insulation products for buildings — Factory made extruded polystyrene foam (XPS) products — Specification*

EN 13948 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to root penetration*

EOTA TR-003 : 2004 *Determination of the watertightness*
EOTA TR-008 : 2004 *Determination of the resistance to fatigue movement*

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
- 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
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales.
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

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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