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Agrément Certificate
10/4744
Product Sheet 1 Issue 8

BAUDER BITUMINOUS ROOFING SYSTEMS

BAUDER TOTAL ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet(1) relates to the Bauder Total Roof Waterproofing Systems, comprising atactic polypropylene (APP) and elastomer modified styrene-butadiene-styrene (SBS) bitumen waterproofing membranes and air and vapour control layers (AVCLs), for use fully bonded on pitched, flat or protected zero fall roofs with limited access, and blue roof specifications, in combination with a storm water attenuation system(2).

(1) Hereinafter referred to as 'Certificate'.
(2) The storm water attenuation system is outside the scope of this Certificate.

The assessment includes

Product factors:

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

Process factors:

- compliance with Scheme requirements
- installation, delivery, handling and storage
- production and quality controls
- maintenance and repair

Ongoing contractual Scheme elements†:

- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

Section 1. Mechanical resistance and stability
Section 2. Safety in case of fire
Section 3. Hygiene, health and the environment
Section 4. Safety and accessibility in use
Section 5. Protection against noise
Section 6. Energy economy and heat retention
Section 7. Sustainable use of natural resources
Section 8. Durability

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

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SUMMARY OF ASSESSMENT AND COMPLIANCE

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

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that the Bauder Total Roof Waterproofing Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations:

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

Requirement:	**B4(1)**	**External fire spread**
Comment:		The systems are restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the systems may enable a roof to be unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The systems, including joints, will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Requirement:	**C2(c)**	**Resistance to moisture**
Comment:		The systems can contribute satisfying this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The systems are acceptable. See sections 8 and 9 of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

Regulation:	**8(1)(2)**	**Fitness and durability of materials and workmanship**
Comment:		The use of the systems satisfies this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**9**	**Building standards – construction**
Standard:	2.8	Spread from neighbouring buildings
Comment:		The systems, when applied to a suitable substructure, 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 systems, including joints, 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 systems can contribute to satisfying this Standard, with reference to clauses 3.15.1$^{(1)}$, 3.15.3$^{(1)(2)}$, 3.15.5$^{(1)(2)}$ and 3.15.6$^{(1)(2)}$. See section 3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The systems can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.

Regulation:	**12**	**Building standards – conversion**
Comment:		Comments given for the systems under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1[(1)(2)] and Schedule 6[(1)(2)]. (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).

The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation:	**23(1)(a)(i) (iii)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The systems are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The systems, including joints, will enable a roof to satisfy this Regulation. See section 3 of this Certificate.
Regulation:	**29**	**Condensation**
Comment:		The systems can contribute to satisfying this Regulation. See section 3 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The systems are restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On a suitable substructure, the systems may enable a roof to be unrestricted by this Regulation. See section 2 of this Certificate.

Additional Information

NHBC Standards 2025

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

In addition, in the opinion of the BBA, the systems, when installed and used in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards for Conversions and Renovations*, taking account of other relevant guidance within the chapter and the suitability of the substrate to receive the systems.

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

The opinion of the BBA does not amount to any endorsement or approval by NHBC and does not in any way guarantee that NHBC will approve such product / system as compliant with the NHBC Technical Requirements and Standard.

Fulfilment of Requirements

The BBA has judged the Bauder Total Roof Waterproofing Systems to be satisfactory for use as described in this Certificate.

The systems have been assessed for use fully bonded on pitched, flat or protected zero fall roofs with limited access, and blue roof specifications, in combination with a storm water attenuation system[(1)].

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

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the systems under assessment. The Bauder Total Roof Waterproofing Systems comprise:

- BauderKARAT — a polymer modified bitumen capsheet with a mineral finish, incorporating a fire retardant, a glass/polyester composite reinforcement (300 g·m^{-2}), with an APP modified coating mass for upper face of membrane and an elastomer modified coating mass for the lower face of the membrane.
- Bauder K5K — an elastomer modified bitumen torch-on mineral finish capsheet, incorporating a fire retardant, and reinforced with 250 g·m^{-2} spunbond polyester fleece
- BauderFLEX K5E — an elastomer modified bitumen torch-on mica finish capsheet, reinforced with 250 g·m^{-2} spunbond polyester fleece, for use in protected specifications
- BauderTEC KSO SN — an elastomer modified bitumen heat activated self-adhesive, mineral finish detailing capsheet, reinforced with 200 g·m^{-2} glass fibre
- BauderTEC KSO-P SN — an elastomer modified bitumen heat activated self-adhesive, mineral finish detailing capsheet, reinforced with 215 g·m^{-2} polyester fleece
- BauderFLEX G4E — an elastomer modified bitumen torch-on underlay reinforced with 200 g·m^{-2} woven glass
- BauderTEC KSA DUO — an elastomer modified bitumen heat-activated, self-adhesive underlay, reinforced with 120 g·m^{-2} glass fibre
- BauderTEC KSA DUO 35 — an elastomer modified bitumen heat-activated, self-adhesive underlay reinforced with 200 g.m^{-2} glass fibre
- Bauder Super AL-E— an elastomer modified bitumen torch-on AVCL reinforced with 60 g·m^{-2} glass fleece and aluminium/polyester foil
- BauderTHERM DS1 DUO — an elastomer modified bitumen heat-activated, self-adhesive AVCL reinforced with 60 g·m^{-2} glass fibre and polyester coated aluminium
- BauderTEC KSD FBS — an elastomer modified bitumen cold self-adhesive AVCL reinforced with aluminium foil and 200 g·m^{-2} glass fleece

The nominal characteristics of the capsheets, underlay membranes and AVCLs are given in Tables 1, 2 and 3 respectively.

Table 1 Nominal characteristics of the capsheets

	BauderKARAT	Bauder K5K	BauderFLEX K5E	BauderTEC KSO-SN	BauderTEC KSO-P SN
Thickness (mm)	5.2	5.2	5.0	4.0	4.0
Roll width (m)	1.0	1.0	1.0	1.0	1.0
Roll length (m)	5.0	5.0	5.0	5.0	5.0
Mass per unit area (kg·m^{-2})	6.0	6.0	5.8	4.6	5.2
Upper surface finish	Mineral chippings	Mineral chippings	Mica	Grey slate	Charcoal grey
Lower surface finish	Thermofusible polyethylene	Thermofusible polyethylene	Thermofusible polyethylene	Peel-off film covering self-adhesive bitumen	Peel-off film covering self-adhesive bitumen

Table 2 Nominal characteristics of the underlays

	BauderFLEX G4E	BauderTEC KSA DUO	BauderTEC KSA DUO 35
Thickness (mm)	4.0	3.0	3.5
Roll width (m)	1.0	1.0	1.0
Roll length (m)	7.5	7.5	7.5
Mass per unit area (kg·m^{-2})	4.8	3.5	4.0
Upper surface finish	Mica	Foil	Foil
Lower surface finish	Thermofusible polyethylene	Peel-off film covering self-adhesive bitumen	Peel-off film covering self-adhesive bitumen

Table 3 Nominal characteristics of AVCLs

	Bauder Super AL-E	BauderTHERM DS1 DUO	BauderTEC KSD FBS
Thickness (mm)	3.5	4.0	2.5
Roll width (m)	1.00	1.08	1.08
Roll length (m)	7.5	7.5	10.0
Mass per unit area ($kg \cdot m^{-2}$)	4.5	4.5	2.5
Upper surface finish	Mica	Heat-activated bitumen strips with mica between	Mica and 80 mm width thermofusible strip
Lower surface finish	Thermofusible polyethylene	Peel-off film covering self-adhesive bitumen	Peel-off film covering self-adhesive bitumen and 80 mm width glass fleece strip

Ancillary Items

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

- bitumen grade 95/25 — for use in bonding insulation
- Bauder SA Bonding Primer — for use in preparing substrates prior to installation of self-adhesive membranes
- Bauder Quick Dry Bitumen Primer — for use in preparing substrates prior to installation of torch-applied membranes
- Bauder Activator-Primer — for use in preparing substrates prior to installation of torch-applied or self-adhesive membranes
- Bauder PU Insulation Adhesive — for use in bonding insulation
- BauderPIR Flatboard — a polyisocyanurate (PIR) insulation board, for use on flat roofs
- BauderPIR Tapered — a PIR insulation board, for use on flat roofs
- BauderPIR FA Tapered — a PIR insulation board, for partially bonding on flat roofs (only for use in conjunction with Bauder self-adhesive underlayers)
- BauderPIR KFS and BauderPIR GFS — for use in conjunction with BauderPIR FA Tapered insulation
- BauderPIR FA-TE — a PIR insulation board, for partially bonding on flat roofs (only for use in conjunction with Bauder self-adhesive underlayers)
- BauderVIP TE — a vacuum insulation/PIR composite panel for use on flat roofs
- BauderROCK — a mineral fibre insulation board, for use on flat roofs
- BauderGLAS — a cellular glass insulation, for use on flat roofs
- BauderJFRI — an expanded polystyrene insulation board for use in inverted roof specifications
- storm water attenuation systems — for use in conjunction with blue roof specifications.

Definitions for products and applications inspected

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

- limited access roofs — a roof subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc.
- flat roofs — a roof having a minimum finished fall of 1:80
- pitched roofs — a roof having a fall in excess of 1:6.
- zero fall roofs — a roof having a finished fall which can vary between 0 and 1:80
- blue roof — a flat roof designed to allow controlled attenuation of rain fall during heavy and storm events, as part of sustainable urban drainage systems (SUDS).

Product assessment – key factors

The systems were 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

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 External fire spread

2.1.1 When tested to DD CEN/TS 1187 : 2012, Test 4, and classified to BS EN 13501-5 : 2016, the constructions given in Table 4 achieved B_{ROOF}(t4) for slopes below 10°.

Table 4 Tested systems

Layer	System 1(1)	System 2(2)	System 3(3)	System 4(4)
Substrate(5)	18 mm OSB			
AVCL	2.5 mm BauderTEC KSD FBS (self-adhered)			
Adhesive(5)	Bauder PU Insulation Adhesive			
Insulation(5)	60 – 240 mm PIR insulation with an aluminium facing	80 mm polyurethane (PU) foam insulation	120 mm PIR insulation with an aluminium facing	30 – 225 mm mineral wool insulation
Underlay	3 mm BauderTEC KSA DUO (self-adhered)			4 mm BauderFLEX G4E (torch-applied)
Capsheet	5.2 mm Bauder K5K (torch-applied)		5.2 mm BauderKARAT, (torch-applied)	

(1) Fire Classification report, reference 18675C, conducted by Warrington Fire, Gent, copies available from the Certificate holder on request.
(2) Fire Classification report, reference 19775B, conducted by Warrington Fire, Gent, copies available from the Certificate holder on request.
(3) Fire Classification report, reference 18599C, conducted by Warrington Fire, Gent, copies available from the Certificate holder on request.
(4) Fire Classification report, reference 19441J, conducted by Warrington Fire, Gent, copies available from the Certificate holder on request.
(5) These components are outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the systems given in Table 4 will be unrestricted by the documents supporting the national Building Regulations with respect to proximity to a relevant boundary. Restrictions may apply at junctions with compartment walls.

2.1.3 When used in conjunction with one of the inorganic coverings listed in the Annex of Commission Decision 2000/553/EC, the systems can be considered to be unrestricted with respect to the proximity to a relevant boundary.

2.1.4 In Wales and Northern Ireland, when used on flat roofs using a substrate designated in the documents supporting the national Building Regulations with the surface finishes listed below, the roof is also deemed to be unrestricted with respect to a relevant boundary:

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

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

2.2 Reaction to fire

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

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

2.2.3 In England, the systems, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a relevant boundary, or on residential buildings more than 11 m in height or on other buildings more than 18 m in height. Restrictions apply on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.4 In Wales, the systems, when used in pitches greater than 70°, excluding upstands, must not be used less than 1 m from a relevant boundary, or on buildings more than 18 m in height or in some cases, on assembly and recreation buildings. These constructions must also be included in calculations of unprotected area.

2.2.5 In Northern Ireland, for systems used in pitches greater than 70°, excluding upstands, that do not achieve the minimum Class E reaction to fire classification to BS EN 13501-1 : 2018, designers must seek guidance from the relevant Building Control Body.

2.2.6 In Scotland, the use of the systems is unrestricted with respect to building height and proximity to a relevant boundary. However, restrictions on the overall construction may apply, depending on the reaction to fire classification achieved by the build-up, which must be established on a case-by-case basis.

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 5.

Table 5 Weathertightness

Product assessed	Assessment method	Requirement	Result
Bauder K5K	Watertightness under 60 kPa pressure to BS EN 1928 : 2000	No leakage	Pass
Bauder Super AL-E			Pass
BauderTHERM DS1 DUO			Pass
BauderKARAT	Peel resistance of joints to BS EN 12316-1 : 2000	≥ 40 N·(50 mm)$^{-1}$	Pass
Bauder K5K		≥ 100 N·(50 mm)$^{-1}$	Pass
BauderTHERM DS1 DUO - on concrete	Peel from support to MOAT 64 : 4.3.3 : 2001	≥ 25 N·(50 mm)$^{-1}$	Pass
BauderTEC KSA DUO - on concrete			Pass
BauderKARAT	Shear resistance of joints to BS EN 12317-1 : 2010	≥ 500 N·(50 mm)$^{-1}$	Pass
Bauder K5K			Pass
BauderTEC KSD FBS			Pass
Bauder K5K	Airtightness of joints to MOAT 27 : 5.2.1 : 1983	No leakage	Pass
Built-up construction: - 18 mm OSB deck(1) - BauderTHERM DS1 DUO AVCL - Bauder PIR foil faced board insulation(1) - BauderTEC KSA DUO underlay - Bauder K5K capsheet	Resistance to wind uplift to MOAT 64 : 4.3.2 : 2001	Value achieved	2.5 kPa
Built-up construction: - plywood deck -RoofPrime A8679 primer(1) - BauderTEC KSD FBS AVCL - Bauder PIR FA -TE Flatboard insulation(1), - BauderTEC KSA DUO, underlay -RoofPrime A8679 primer(1) -BauderTEC KSO SN capsheet	Resistance to wind uplift to EOTA TR-005 : 2003	Value achieved	6.0 kPa

(1) These components are outside the scope of this Certificate

3.1.2 The watertightness, peel and shear resistance of joints, peel from support, airtightness of joints, and resistance to wind uplift test of the other system components covered in the Certificate were assessed on the basis of test data from a representative related product and were satisfactory.

3.1.3 On the basis of data assessed, the systems, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the interior of a building and so satisfy the requirements of the national Building Regulations.

3.1.4 The adhesion of the systems is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice and remain watertight.

3.2 Condensation

3.2.1 Results of water vapour resistance tests are given in Table 6.

Table 6 Water vapour resistance

Product assessed	Assessment method	Requirement	Result
BauderKARAT	Water vapour diffusion– equivalent air layer thickness (S_d) to BS EN 1931 : 2000 , at 23˚C and 75% RH	Value achieved	231 m
Bauder Super AL-E			3.3 m
BauderTHERM DS1 DUO			2.3 m
Bauder K5K	Water vapour transmission rate to BS 3177 : 1959 , at 23˚C and 75% RH	value achieved	0.3 $g \cdot m^{-2} \cdot 24h^{-1}$
BauderFLEX K5E			0.2 $g \cdot m^{-2} \cdot 24h^{-1}$
BauderFLEX G4E			0.2 $g \cdot m^{-2} \cdot 24h^{-1}$
BauderTEC KSA DUO			0.3 $g \cdot m^{-2} \cdot 24h^{-1}$
Bauder Super AL-E			0.1 $g \cdot m^{-2} \cdot 24h^{-1}$
BauderTHERM DS1 DUO			< 0.1 $g \cdot m^{-2} \cdot 24h^{-1}$

3.2.2 On the basis of data assessed, the systems that are used as vapour barriers provide effective control to the passage of water vapour.

3.2.3 The systems will adequately reduce the risk of interstitial condensation when designed and constructed in accordance with BS 5250 : 2021 and BRE Report BR 262 : 2002 in England and Wales. When carrying out condensation risk analysis calculations to BS 5250 : 2021, the vapour resistance values in Table 6 must be used.

3.3 Resistance to mechanical damage

3.3.1 Results of resistance to mechanical damage tests are given in Table 7.

Table 7 Resistance to mechanical damage

Product assessed	Assessment method	Requirement	Result
BauderKARAT	Nail tear strength to BS EN 12310-1 : 2000	≥ 150 N	
	Longitudinal direction		Pass
	Transverse direction		Pass
Bauder K5K	Longitudinal direction		Pass
	Transverse direction		Pass
BauderFLEX K5E	Longitudinal direction		Pass
	Transverse direction		Pass
BauderFLEX G4E	Longitudinal direction		Pass
	Transverse direction		Pass
BauderTEC KSA DUO	Longitudinal direction		Pass
	Transverse direction		Pass
Bauder Super AL-E	Longitudinal direction		Pass
	Transverse direction		Pass
BauderTHERM DS1 DUO	Longitudinal direction		Pass
	Transverse direction		Pass
BauderKARAT	Tensile strength to BS EN 12311-1 : 2000	Declared value	
	Longitudinal direction	1450 ± 10% $N \cdot (50\ mm)^{-1}$	Pass
	Transverse direction	1450 ± 10% $N \cdot (50\ mm)^{-1}$	Pass
Bauder K5K	Longitudinal direction	1000 ± 10% $N \cdot (50\ mm)^{-1}$	Pass
	Transverse direction	1000 ± 10% $N \cdot (50\ mm)^{-1}$	Pass
BauderFLEX K5E	Longitudinal direction	≥ 800 $N \cdot (50\ mm)^{-1}$	Pass
	Transverse direction	≥ 800 $N \cdot (50\ mm)^{-1}$	Pass

BauderFLEX G4E	Longitudinal direction	≥ 1200 N·(50 mm)$^{-1}$	Pass
	Transverse direction	≥ 1200 N·(50 mm)$^{-1}$	Pass
BauderTEC KSA DUO	Longitudinal direction	≥ 1000 N·(50 mm)$^{-1}$	Pass
	Transverse direction	≥ 1000 N·(50 mm)$^{-1}$	Pass
Bauder Super AL-E	Longitudinal direction	≥ 400 N·(50 mm)$^{-1}$	Pass
	Transverse direction	≥ 300 N·(50 mm)$^{-1}$	Pass
BauderTHERM DS1 DUO	Longitudinal direction	≥ 400 N·(50 mm)$^{-1}$	Pass
	Transverse direction	≥ 300 N·(50 mm)$^{-1}$	Pass
	Elongation to BS EN 12311-1 : 2000	Declared value	
BauderKARAT	Longitudinal direction	23 (±3) %	Pass
	Transverse direction	23 (±3) %	Pass
Bauder K5K	Longitudinal direction	45 (±5) %	Pass
	Transverse direction	45 (±5) %	Pass
BauderFLEX K5E	Longitudinal direction	≥ 40 %	Pass
	Transverse direction	≥ 40 %	Pass
BauderFLEX G4E	Longitudinal direction	≥ 2 %	Pass
	Transverse direction	≥ 2 %	Pass
BauderTEC KSA DUO	Longitudinal direction	≥ 2 %	Pass
	Transverse direction	≥ 2 %	Pass
Bauder Super AL-E	Longitudinal direction	≥ 2 %	Pass
	Transverse direction	≥ 2 %	Pass
BauderTHERM DS1 DUO	Longitudinal direction	≥ 2 %	Pass
	Transverse direction	≥ 2 %	Pass
BauderTEC KSD FBS	Longitudinal direction	≥ 2 %	Pass
	Transverse direction	≥ 2 %	Pass
BauderKARAT	Resistance to static loading to	Value achieved	
- on concrete	BS EN 12730 : 2015		15 kg
- on EPS insulation			10 kg
Bauder K5K with Bauder TEC KSA DUO	Resistance to static loading to BS EN 12730 : 2001		
- on concrete			25 kg
- on EPS insulation			25 kg
BauderKARAT	Dynamic indentation	Value achieved	
- on aluminium	to EOTA TR-006 : 2004		I_3
- on EPS insulation			I_4
Bauder K5K with Bauder TEC KSA DUO	Resistance to impact to EN 12691 : 2001	Value achieved	
-on EPS insulation			I10
-on Perlite			I10
BauderTEC KSD FBS	Resistance to impact	Value achieved	
- on aluminium	to BS EN 12691 : 2006		900 m
- on EPS insulation			800 m
BauderTEC KSA DUO	Resistance to fatigue movement to MOAT 64 : 4.3.5 : 2001	No damage	Pass
BauderTHERM DS1 DUO			Pass

3.3.2 Nail tear strength, tensile properties, resistance to static loading, dynamic indentation, resistance to impact, and resistance to fatigue movement of the other system components covered in the Certificate were assessed on the basis of test data from a representative related product.

3.3.3 On the basis of data assessed, the systems can accept, without damage, the foot traffic and light concentrated loads associated with installation and maintenance and the effects of minor movement likely to occur in practice 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, a walkway must be provided (for example, using concrete slabs supported on bearing pads). Reasonable care must be taken to avoid puncture by sharp objects or concentrated loads.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

Not applicable.

8 Durability

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

8.2 Specific test data were assessed as given in Table 8.

Table 8 Durability

Products assessed	Assessment method	Requirement	Result
BauderKARAT	Low temperature flexibility to BS EN 1109 : 2013 Control	≤ –5°C	Pass
BauderTEC KSD FBS		≤ –15°C	Pass
Bauder K5K	Low temperature flexibility to BS EN 1109 : 2000 Control	≤ –15°C	Pass
BauderFLEX K5E			Pass
BauderFLEX G4E			Pass
Bauder TEC KSA DUO			Pass
Bauder Super AL-E			Pass
BauderTHERM DS1 DUO			Pass
BauderKARAT	Low temperature flexibility to BS EN 1109 : 2013 Heat aged for 120 days at 80°C	≤ 0°C and a maximum deviation of 15°C to the initial flexibility at low temperature	Pass
Bauder K5K	Low temperature flexibility to BS EN 1109 : 2000 Heat aged for 168 days at 70°C	≤ 0°C and a maximum deviation of 15°C to the initial flexibility at low temperature	Pass
	Water soak for 7 days at 23°C		Pass
BauderKARAT	Flow resistance to BS EN 1110 : 2010 Control	≥ 120°C	Pass
	Heat aged for 240 days at 70°C	≥ 110°C	Pass
Bauder K5K	Flow resistance to BS EN 1110 : 2001 Control	≥ 100°C	Pass
	Heat aged for 168 days at 70°C	≥ 90°C	Pass
Bauder K5K	Dimensional stability to BS EN 1107-2 : 2000	± 0.3%	
	Longitudinal direction		Pass
	Transverse direction		Pass
BauderKARAT	Peel resistance of joints to BS EN 12316-1 : 2000 Water soak for 60 days at 60°C	≥ 40 N·(50 mm)$^{-1}$	Pass
Bauder K5K	Water soak for 180 days at 60°C	≥ 100 N·(50 mm)$^{-1}$	Pass
BauderKARAT	Shear resistance of joints to BS EN 12317-1 : 2010 Water soak for 60 days at 60°C	≥ 500 N·(50 mm)$^{-1}$	Pass
Bauder K5K	Water soak for 180 days at 60°C		Pass
BauderTHERM DS1 DUO	Peel from support (concrete) to MOAT 64 : 4.3.3 : 2001 Heat aged for 28 days at 80°C	Aged samples to be within 50% of the control and ≥ 25 N·(50 mm)$^{-1}$	Pass
BauderTEC KSA DUO			Pass
Bauder K5K	Airtightness of joints to MOAT 27 : 5.2.1 : 1983 water exposure for 180 days at 60°C	No leakage	Pass
Bauder TEC KSA DUO	Resistance to slippage to MOAT 64 : 4.3.4 : 2001, at 45 degrees	< 2 mm	Pass

8.3 The low temperature flexibility at control and aged conditions, flow resistance, peel and shear resistance of joints, peel from support, airtightness of joints at aged conditions, dimensional stability, and resistance to slippage of the other system components covered in the certificate were assessed on the basis of test data from a representative related product and were satisfactory.

8.4 Service life

8.4.1 Under normal service conditions, the systems will have a life in excess of 35 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.4.2 Localised loss of the mineral surfacing may occur, after some years, in areas where complex detailing of the roof design is incorporated.

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 assessed in this Certificate.

9.1.2 Decks to which the systems are to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards* 2025, Chapter 7.1.

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

9.1.4 Structural decks to which the systems are to be applied must be suitable to transmit the dead and imposed loads experienced in service. Allowance must 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 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 At falls in excess of 5° (1:11), precautions against slippage, and requirements for mechanical fixing as required by BS 8217 : 2005, must be observed. For slopes above 10° (1:5.7), the Certificate holder's Technical Service Department must be contacted for advice, but such advice is outside the scope of this Certificate.

9.1.7 Bulk material must not be stored on one area of the roof prior to installation, to ensure that localised overloading does not occur.

9.1.8 The drainage systems for zero fall roofs must be correctly designed, and the following points must be addressed:

- provision made for access for maintenance purposes
- it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective.

9.1.9 The resistance to wind uplift for warm roofs will be dependent on the cohesive strength of the insulation and the method by which it is secured to the roof deck. This must be taken into account when selecting a suitable insulation material.

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

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

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

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 must be carried out in accordance with this Certificate, the Certificate holder's instructions and the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005. A summary of instructions and guidance is provided in Annex A.

9.2.3 Substrates to which the systems are to be applied must be sound, dry and clean, and free from sharp projections such as nail heads and concrete nibs.

9.2.4 The systems must be laid in conditions normal to roofing work and must not be laid in rain, snow or heavy fog. If the temperature is below 5°C, suitable precautions must be taken against the formation of condensation on the substrate.

9.2.5 The substrate must be prepared using a suitable primer prior to installation of the waterproofing systems. The Certificate holder can advise on suitable materials for this purpose, but such advice and products are outside the scope of this Certificate.

9.2.6 Underlays must be installed in accordance with the appropriate clauses of BS 8217 : 2005.

9.2.7 The systems must always be installed with end laps staggered by approximately a quarter of its length from the previous sheet and in such a manner that no counter-seams are made in the direction of outlets.

9.2.8 Bonding is achieved by melting the lower surface by torching and pressing the membrane down. Care must be taken not to overheat the membrane.

9.2.9 The AVCL is rolled out onto the primed substrate, positioned and cut to length. Where thermal break insulation is installed, the AVCL must extend up all upstands by a sufficient height to ensure that the insulation is encapsulated.

9.2.10 The AVCL must be installed in accordance with the appropriate method for the system, ie torch-bonding for Bauder Super AL-E and self-adhesion for BauderTHERM DS1 DUO and BauderTEC KSD FBS. BauderTEC KSD FBS has an 80 mm width glass fleece on the underside of one side lap and a thermofusible film on the upper surface of the other side lap. These laps are sealed together using hot air or gas torch to extrude a bituminous bead, to provide waterproofing integrity.

9.2.11 The underlays must be installed by torch bonding for BauderFLEX G4E and self-adhesive application for BauderTEC KSA DUO and BauderTEC KSA DUO 35. The BauderFLEX G4E membrane must be fully torch bonded for a distance of 500 mm at perimeters and at penetrations such as roof-lights, outlets and pipes.

9.2.12 End laps and side laps for the underlays must be 100 mm wide and fully bonded, ensuring that a continuous bead of bitumen exudes from the lap.

9.2.13 The underlay must be taken a sufficient distance up all upstands and protrusions to ensure a secure lap with the AVCL and must be a minimum height of 150 mm above the roof surface.

9.2.14 Bonding of both the Bauder K5K and BauderFLEX K5E capsheets is achieved by melting their lower surfaces by torching and pressing the membranes down. Care must be taken not to overheat the membranes.

9.2.15 BauderTEC KSO SN and KSO-P SN detailing capsheets must be installed using hot air welding equipment.

9.2.16 End laps and side laps for the capsheets must be 100 mm wide and fully bonded, ensuring that a continuous bead of bitumen exudes from the lap. Laps between the membrane and base sheets must be offset by a minimum of 300 mm.

9.2.17 The BauderFLEX K5E capsheet must be covered using one of the following protection upon completion:

- at least 50 mm of well-rounded gravel ballast
- pavers on suitable supports
- promenade tiles bonded to the surface with suitable adhesive.

9.2.18 Detailing must be carried out in accordance with the Certificate holder's instructions and following guidelines specified in the NFRC Safe2Torch Guidance document.

9.2.19 The NHBC requires that the systems, once installed, are inspected in accordance with *NHBC Standards* 2025 Chapter 7.1, Clause 7.1.11, including undergoing an appropriate integrity test, where required. Any damage to the systems assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected.

9.3 Workmanship

Practicability of installation was assessed on the basis of the Certificate holder's information and BS 8217 : 2005. To achieve the performance described in this Certificate, the systems must only be installed 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 systems in use requires that they are 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 meet the performance assessed in this Certificate:

9.4.2.1 The systems must be the subject of six-monthly inspections and maintenance in accordance with the recommendations in BS 6229 : 2018, Chapter 7, and the Certificate holder's own maintenance requirements, where relevant, to ensure continued satisfactory performance.

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

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

10 Manufacture

10.1 The production processes for the systems' components 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 system component 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 the system components are delivered to site in rolls with either paper wrappers or tape bands bearing the system component name and production code. The rolls are packed on pallets and shrink-wrapped in polythene.

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

11.2.1 Rolls must be stored upright on a clean, level surface, away from excessive heat and kept under cover. The self-adhesive system components must be stored out of direct sunlight.

†ANNEX A – SUPPLEMENTARY INFORMATION

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

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

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

CLP Regulations

The Certificate holder has taken the responsibility of classifying and labelling the system components under the *GB 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 Sheet(s).

UKCA marking

The Certificate holder has taken the responsibility of UKCA marking the waterproofing components in accordance with Designated Standard EN 13707 : 2013.

CE marking

The Certificate holder has taken the responsibility of CE marking the waterproofing membranes and AVCLs in accordance with harmonised European Standards EN 13707 : 2013 and EN 13970 : 2004 respectively.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of DIN EN ISO 9001 : 2015 by ESC Cert GmbH (Certificate 70499/03-21_a).

Additional information on installation

A.1 For zero fall roofs reference should be made to the appropriate clauses in Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Falls*

A.2 Guidance on the design of blue roofs is available in NFRC *Technical Guidance Note for the construction and design of Blue Roofs – Roofs and podiums with controlled temporary water attenuation*.

Bibliography

BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks — 3rd edition*

BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*

BS 5250 : 2021 *Management of moisture in buildings — Code of practice*

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 + A1 : 2024 *Workmanship on building sites — Code of practice for waterproofing*

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

BS EN 1107-2 : 2000 *Flexible sheets for waterproofing — Determination of dimensional stability — Plastic and rubber sheets for roof waterproofing*

BS EN 1109 : 2000 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flow resistance*
BS EN 1109 : 2013 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flow resistance*

BS EN 1110 : 2001 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flow resistance*
BS EN 1110 : 2010 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flow resistance*

BS EN 1928 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of watertightness*

BS EN 1931 : 2000 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing. Determination of water vapour transmission properties*

BS EN 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
NA to BS EN 1991-1-1 : 2002 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
BS EN 1991-1-3 : 2003 + A1 : 2015 *Eurocode 1 : Actions on structures — General actions — Snow loads*
NA + A2 : 18 to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Snow loads*
BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*

BS EN 12310-1 : 2000 *Flexible sheets for waterproofing — Determination of resistance to tearing (nail shank) — Bitumen sheets for roof waterproofing*

BS EN 12311-1 : 2000 *Flexible sheets for waterproofing — Determination of tensile properties — Bitumen sheets for roof waterproofing*

BS EN 12316-1 : 2000 *Flexible sheets for waterproofing — Determination of peel resistance of joints — Bitumen sheets for roof waterproofing*

BS EN 12317-1 : 2010 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of shear resistance of joints*

BS EN 12691 : 2006 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to impact*

BS EN 12730 : 2001 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to static loading*
BS EN 12730 : 2015 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to static loading*

BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*
BS EN 13501-5 : 2016 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests*

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

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

EN 12691 : 2001 *Flexible sheets for waterproofing — Bitumen, plastic and rubber sheets for roof waterproofing — Determination of resistance to impact*

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*

EOTA TR-005 : 2003 *Determination of the resistance to wind loads of partially bonded roof waterproofing membranes*
EOTA TR-006 : 2004 *Determination of the resistance to dynamic indentation*

MOAT 27 : 1983 *General Directive for the Assessment of Roof Waterproofing* Systems

MOAT 64 : 2001 *Technical guide for the assessment of roof waterproofing systems made of reinforced APP or SBS polymer modified bitumen sheets*

NFRC Safe2Torch Guidance: For the safe installation of reinforced bitumen membranes and use of gas torches in the workplace.

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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