

## Axter Ltd

Harbour Landing  
Fox's Marina  
The Strand, Wherstead  
Ipswich IP2 8NJ

Tel: 01473 724056

e-mail: [info@axterltd.co.uk](mailto:info@axterltd.co.uk)

website: [www.axter.co.uk](http://www.axter.co.uk)



## Agrément Certificate

94/3037

Product Sheet 2 Issue 1

### AXTER BITUMEN ROOF WATERPROOFING SYSTEMS

### AXTER FORCE SOLO ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Axter Force Solo Roof Waterproofing Systems, comprising Alpa<sup>(2)</sup> polymer-modified self-finished bitumen waterproofing membranes and styrene-butadiene-styrene (SBS) polymer-modified underlays, for use as fully or partially bonded, in flame free hot air welded, mechanically fixed or torch-applied applications, on flat and pitched roofs, terraces, balconies and podia, including protected zero fall specifications, and specifications in combination with a Solar PV system<sup>(3)</sup>.

(1) Hereinafter referred to as 'Certificate'.

(2) Alpa is a registered trademark.

(3) The Solar PV system is outside the scope of this Certificate.

#### The assessment includes

##### Product factors:

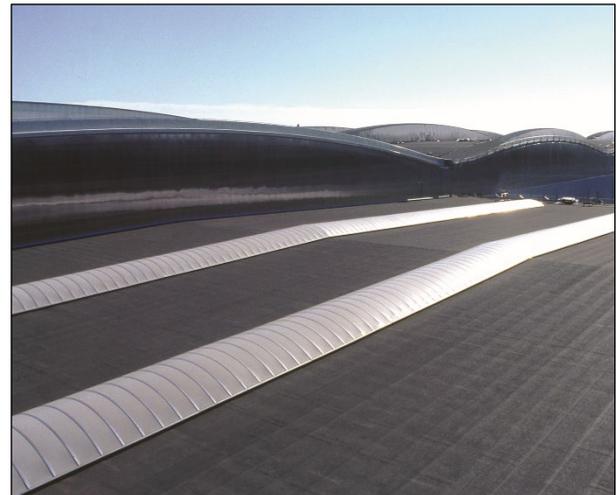
- compliance with Building Regulations
- compliance with additional regulatory or non-regulatory information where applicable
- evaluation against technical specifications
- assessment criteria and technical investigations
- uses and design considerations

##### 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

Date of issue: 25 September 2025

Hardy Giesler  
Chief Executive Officer

*This BBA Agrément Certificate is issued under the BBA's Inspection Body accreditation to ISO/IEC 17020. Sections marked with † are not issued under accreditation.*

*The BBA is a UKAS accredited Inspection Body (No. 4345), Certification Body (No. 0113) and Testing Laboratory (No. 0357).*

*Readers MUST check that this is the latest issue of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

*The Certificate should be read in full as it may be misleading to read clauses in isolation.*

*Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.*

#### British Board of Agrément

1<sup>st</sup> Floor, Building 3, Hatters Lane  
Croxley Park, Watford  
Herts WD18 8YG

©2025

tel: 01923 665300  
[clientservices@bbacerts.co.uk](mailto:clientservices@bbacerts.co.uk)  
[www.bbacerts.co.uk](http://www.bbacerts.co.uk)

## 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 Axter Force Solo 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)

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



#### The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b>	<b>8(1)(2)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The use of the systems satisfies this Regulation. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>8(3)</b>	<b>Fitness and durability of materials and workmanship</b>
Comment:		The use of the systems on balconies is restricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>9</b>	<b>Building standards – construction</b>
Standard:	2.2	Separation
Standard:	2.7	Spread on external walls
Comment:		The use of the systems on balconies is restricted by these Standards, with reference to clauses 2.2.7 <sup>(1)</sup> and 2.7.2 <sup>(1)(2)</sup> . See section 2 of this Certificate.
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 <sup>(1)(2)</sup> . 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 <sup>(1)(2)</sup> and 3.10.7 <sup>(1)(2)</sup> . See section 3 of this Certificate.

<b>Standard:</b>	7.1(a)	Statement of sustainability
<b>Comment:</b>		The systems 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.
<b>Regulation:</b>	12	<b>Building standards – conversion</b>
<b>Comment:</b>		Comments given for the systems under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



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

<b>Regulation:</b>	<b>23(1)(a)(i)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	<b>(iii)(b)(i)</b>	The systems are acceptable. See sections 8 and 9 of this Certificate.
<b>Regulation:</b>	<b>23(2)</b>	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>		The use of the systems on balconies is restricted by this Regulation. See section 2 of this Certificate.
<b>Regulation:</b>	<b>28(b)</b>	<b>Resistance to moisture and weather</b>
<b>Comment:</b>		The systems, including joints, will enable a roof to satisfy this Regulation. See section 3 of this Certificate.
<b>Regulation:</b>	<b>36(a)</b>	<b>External fire spread</b>
<b>Comment:</b>		The systems are restricted by this Regulation in some circumstances. See section 2 of this Certificate.
<b>Regulation:</b>	<b>36(b)</b>	<b>External fire spread</b>
<b>Comment:</b>		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 Axter Force Solo 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 Standards.

## Fulfilment of Requirements

The BBA has judged the Axter Force Solo Roof Waterproofing Systems to be satisfactory for use as described in this Certificate. The systems have been assessed as fully or partially bonded, in flame free hot air welded, mechanically fixed or torch-applied applications, on flat and pitched roofs, terraces, balconies and podia, including protected zero fall specifications, and specifications in combination with a Solar PV system<sup>(1)</sup>.

(1) The Solar PV 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 Axter Force Solo Roof Waterproofing Systems consist of:

- Axter Force Solo — an Alpa polymer-modified bitumen capsheet, with a polyester reinforcement (nominal 180 g·m<sup>-2</sup>), torch-applied or flame free hot air welded, finished with ceramic granule or mineral slate on the upper face and a thermofusible film on the lower face
- Axter Excel — an Alpa polymer-modified bitumen capsheet, with a polyester reinforcement (nominal 180 g·m<sup>-2</sup>), torch-applied or flame free hot air welded, finished with ceramic granule or mineral slate on the upper face and a thermofusible film on the lower face
- Axter Excel FM — an Alpa polymer-modified bitumen capsheet, with a polyester reinforcement (nominal 180 g·m<sup>-2</sup>), mechanically fixed, finished with ceramic granule or mineral slate on the upper face and a thermofusible film on the lower face
- Axter TS CPV — a torch-applied SBS modified bitumen underlay, with a polyester reinforcement (nominal 120 g·m<sup>-2</sup>), with a macroperforated film and sand finish on the upper face and a thermofusible film on the lower face
- Axter SPOT ADH — a heat activated self-adhesive SBS modified bitumen underlay, with a polyester reinforcement (nominal 120 g·m<sup>-2</sup>), with a macroperforated film and sand finish on the upper face, and a silicone release film on the lower face
- Axter TS PY — a torch-on SBS modified bitumen intermediate layer, with a polyester reinforcement (nominal 180 g·m<sup>-2</sup>), with sand finished upper face and a thermofusible film on the lower face
- Axter Excel Solar — an Alpa polymer-modified bitumen top layer with a polyester reinforcement (nominal 180 g·m<sup>-2</sup>), mechanically fixed, torch-applied or flame free hot air welded. Finished with a peel-off silicone film on the upper face designed for the attachment of flexible solar cells, and with a thermofusible film on the lower face.

The membranes have the nominal characteristics given in Table 1.

*Table 1 Nominal characteristics*

Characteristic (unit)	Axter Excel and Excel FM	Axter Force Solo	Axter TS CPV	Axter SPOT ADH	Axter TS PY	Axter Excel Solar
Thickness (mm)	4 <sup>(1)</sup>	4.5 <sup>(1)</sup>	2.65 <sup>(2)</sup>	2.65 <sup>(2)</sup>	2.65 <sup>(2)</sup>	4 <sup>(2)</sup>
Roll width (m)	1	1	1	1	1	1
Roll length (m)	8	8	7	10	7	8
Roll weight (kg)	41.1	47.1	24.7	31.6	22.7	42.1

(1) On the selvedge.

(2) On the finished product.

#### 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:

- Proofcoat Emulsion — a solvent-free primer for use in preparing substrates prior to installation of torch-applied bitumen membranes and air and vapour control layers (AVCLs)
- Vernis Antac — a solvent-based bitumen primer for use in preparing substrates prior to installation of torch-applied bitumen membranes and AVCLs
- Vernis SA — a synthetic rubber-based primer for use in preparing substrates prior to installation of Axter NEO-Bitumen<sup>(1)</sup> flame free self-adhesive membranes and AVCLs
- Vernis Seal — a synthetic resin-based pigmented primer for use in preparing substrates prior to installation of bitumen membranes and AVCLs
- Bitumseal — a cold-applied polymer-modified bitumen adhesive and sealant
- Mastic Hyrene — a cold-applied bitumen bonding compound
- Hyrastick EVO — a cold-applied polyurethane adhesive
- ADH Adhesive — a cold-applied adhesive for bonding bitumen and synthetic membranes
- Hytherm insulation products — a range of thermal insulation products

- Axter Water Flow Reducing Layer (WFRL) — a spun bonded polyethylene geotextile installed above inverted roof insulation to minimise heat loss caused by rainwater cooling
- 35 PY Angle Reinforcement — a polyester reinforced elastomeric SBS membrane for details reinforcement
- Stickflex PY Angle Reinforcement — Axter NEO-Bitumen flame free polyester reinforced elastomeric SBS membrane for detail reinforcement
- Stickflex PY Peel Stop — Axter NEO-Bitumen flame free polyester reinforced elastomeric SBS membrane installed at perimeter and corner zones in conjunction with Excel FM membrane
- Force 4000 Flame Free — a polymer-modified Axter NEO-Bitumen flame free hot air welded ceramic granule or mineral slate finished capsheet, reinforced with 180 g·m<sup>-2</sup> stabilised polyester
- Starcoat R — a cold liquid applied single component bitumen resin for waterproofing complex details
- Axter MTP/C carbon steel/stainless steel self-drilling fasteners and insulated tube washers — for use in mechanically fixed Excel FM and Excel Solar specifications
- Axter Excel 25 Solar — an Alpa polymer modified bitumen, torch-applied or flame free hot air welded top layer.
- Flexible thin-film photovoltaic (PV) modules for bonding to Axter Excel 25 Solar and Excel Solar capsheets, reinforced with 50 g·m<sup>-2</sup> glass fibre
- Stickflex — an Axter NEO-Bitumen flame free reinforced elastomeric SBS underlayer membrane with a sand finish surface, and a silicone release film on the under surface
- Stickflex Sanded — an Axter NEO-Bitumen flame free reinforced elastomeric SBS underlayer membrane with a sand finish surface, and a silicone release film on the under surface
- VAP ALU ADH — an Axter AVCL
- Axter bitumen membrane AVCLs — a range of AVCL products.

(1) Axter NEO-Bitumen is a registered trademark.

#### Definitions for products and applications inspected

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

- limited access roofs — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- pedestrian access roofs — a roof that is not subjected to vehicular traffic
- 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
- balcony — an accessible external amenity platform above ground level exterior to, and with direct access from, a building<sup>(1)</sup>
- terrace — an external accessible surface above an internal space above ground level exterior to and with direct access from a building to occupants for purposes other than exclusively maintenance<sup>(1)</sup>.

(1) See also Figure 1 of BS 8579 : 2020.

## 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 CEN/TS 1187 : 2012, Test 4 and classified to EN 13501-5 : 2016, the systems given in Table 2 of this Certificate achieved B<sub>ROOF</sub>(t4) for slopes below 10°.

**Table 2 Tested systems**

Layer	System 1 <sup>(1)</sup>	System 2 <sup>(2)</sup>	System 3 <sup>(3)</sup>
Substrate	18 mm OSB board	18 mm OSB board	18 mm OSB board
AVCL	2.2 mm self-adhesive VAP ALU ADH <sup>(4)</sup>	2.2 mm self-adhesive VAP ALU ADH <sup>(4)</sup>	1.2 mm self-adhesive SK VAP <sup>(4)</sup>
Insulation	Hytherm (PIR) insulation board <sup>(4)</sup> (50 mm or greater thickness) adhered with Hyrastik EVO <sup>(4)</sup>	Hytherm (PIR) insulation board <sup>(4)</sup> (50 mm or greater thickness) adhered with Hyrastik EVO <sup>(4)</sup>	Hytherm (PIR) insulation board <sup>(4)</sup> (50 mm or greater thickness) adhered with Hyrastik EVO <sup>(4)</sup>
Underlayer	2.6 mm self-adhesive Axter SPOT ADH (optional)	2.6 mm self-adhesive Axter SPOT ADH	2.6 mm self-adhesive Axter SPOT ADH (optional)
Capsheet	4 mm Axter Excel/Excel FM/Force Solo, mechanically/hot air/torch fixed	4 mm Axter Excel/Excel FM/Excel Solar/Force Solo, mechanically/hot air/torch fixed	4 mm Excel/Excel FM/Force Solo, mechanically/hot air/torch fixed
Protection	—	2.5 mm self-adhesive Solar PV Flex modules <sup>(4)</sup>	—

(1) Fire classification report 20295D, issued by Warringtonfire, is available from the Certificate holder, on request.

(2) Fire classification report 20295J, issued by Warringtonfire, is available from the Certificate holder, on request.

(3) Fire classification report 20295P, issued by Warringtonfire, is available from the Certificate holder, on request.

(4) These components are outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the systems listed in Table 2 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 A roof incorporating the systems will be similarly unrestricted when protected by an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 2000/553/EC.

2.1.4 In Wales and Northern Ireland, when used on flat roofs using a substrate designated in the supporting documents with the surface finishes listed below, the roof is also deemed to be unrestricted with respect to proximity 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 confirmed 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. Restrictions apply 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 on walls or on roofs with 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 on the proposed use of the system 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.

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

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

2.2.9 In Northern Ireland, unless covered with a protection with a reaction to fire of class A1 or A2-s1, d0, for example 40 mm thick cast stone slabs, the systems must not be used on balconies of buildings that have a storey at least 18 m above ground level and which contain: one or more dwellings, an institution, a room for residential purposes (excluding any room in a hostel, hotel or boarding house), student accommodation, care homes, sheltered housing, hospitals, dormitories in boarding schools, nursing homes and places of lawful detention.

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

### 3 Hygiene, health and the environment

Data were assessed for the following characteristics.

#### 3.1 Weathertightness

3.1.1 Results of weathertightness tests are given in Table 3.

<i>Table 3 Weathertightness</i>			
Product assessed	Assessment method	Requirement	Result
Axter Excel - on mineral wool insulation	Resistance to peel from substrate to MOAT 27 : 5.1.3 : 1983	$\geq 25 \text{ N} \cdot (50 \text{ mm})^{-1}$	Pass
Axter Excel	Peel resistance of joints to BS EN 12316-1 : 2000	$\geq 40 \text{ N} \cdot (50 \text{ mm})^{-1}$	Pass
Axter Excel	Shear resistance of joints to BS EN 12317-1 : 2000	$\geq 500 \text{ N} \cdot (50 \text{ mm})^{-1}$	Pass
Axter Excel	Resistance to air leakage of joints to MOAT 27 : 5.2.1 : 1983	No leakage	Pass
Axter Excel FM - mechanically fastened	Resistance to dynamical wind loads to EN 16002 : 2010	Value achieved	$\Delta W_{\text{char}} = 1000 \text{ N}$ $W_{\text{adm}} = 666 \text{ N}^{(1)}$

(1) The value for a specific building should be calculated by a suitably competent and experienced individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex.

3.1.2 On the basis of data assessed, when mechanically fastened, Axter Excel FM and Axter Excel Solar will sufficiently resist the effects of wind suction likely to be experienced in the UK.

3.1.3 The systems, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside 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.

### 3.2 Resistance to mechanical damage

3.2.1 Results of resistance to mechanical damage tests are given in Table 4.

Product assessed	Assessment method	Requirement	Result
Axter Excel	Tensile strength to MOAT 31 : 6C : 1984 Longitudinal direction Transverse direction	Declared value $600 \text{ N} \cdot (50 \text{ mm})^{-1} \pm 20\%$	Pass Pass
Axter Excel	Elongation at break to MOAT 31 : 6C : 1984 Longitudinal direction Transverse direction	Declared value $35\% \pm 15\%$	Pass Pass
Axter Excel	Static indentation to NFP 84-352 : 1988	Value achieved	
- on perlite substrate			28 kg <sup>(1)</sup>
- EPS substrate			25 kg <sup>(1)</sup>
Axter Excel - EPS substrate	Dynamic indentation to MOAT 27 : 5.1.10 : 1983	Value achieved	I <sub>4</sub>
Axter Excel	Fatigue cycling to MOAT 31 : 6K : 1984	No cracking	Pass

(1) Result equivalent to MOAT 27 : 5.1.10 : 1983 rating of L4.

3.2.2 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.

3.2.3 Where traffic in excess of the examples given in section 3.2.2 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

The systems comprise bituminous compounds, mineral aggregates and glass/polyester, which can be recycled.

## 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 durability test data were assessed as given in Table 5.

**Table 5 Durability**

Products assessed	Assessment method	Requirement	Result
Axter Excel	Dimensional stability to MOAT 27 : 5.1.6 : 1983 Longitudinal direction Transverse direction	≤ 0.3%	Pass Pass
Axter Excel	Resistance to slippage to MOAT 27 : 5.1.7 : 1983	≤ 2 mm	Pass
Axter Excel	Fatigue cycling to MOAT 31 : 6K : 1984 Heat aged for 28 days at 80°C (200 cycles, tested at -20°C)	No cracking	Pass
Axter Excel	Tensile joint strength to MOAT 27 : 5.2.2 : 1983 Heat aged for 28 days at 80°C	Declared value ≥ 500 N	Pass
Axter Excel - on mineral wool insulation	Resistance to peel from substrate to MOAT 27 : 5.1.3 : 1983 Heat aged for 28 days at 80°C	≥ 50% of the initial value and ≥ 25 N·(50 mm) <sup>-1</sup>	Pass
	Water soak for 7 days at 60°C	Change ≤ 20%	Pass
Axter Excel	Low temperature flexibility to BS EN 1109 : 2013 Control Heat aged for 240 days at 70°C	No visible cracking at 0°C	Pass Pass
Axter Excel	Heat resistance to BS EN 1110 : 2010 (tested at 110°C) Control Heat aged for 240 days at 70°C	≤ 2 mm	Pass Pass
Axter Excel	Peel resistance of joints to BS EN 12316-1 : 2000 Water soak for 216 days at 60°C	No significant deterioration against control	Pass
Axter Excel	Shear resistance of joints to BS EN 12317-1 : 2000 Water ageing for 216 days at 60°C	No significant deterioration against control	Pass
Axter Excel	Resistance to air leakage of joints to MOAT 27 : 5.2.1 : 1983 Water ageing for 216 days at 60°C	No leakage	Pass

8.2.1 Test data were examined for the coating mass of Axter Excel, on samples aged for six months at 70°C for ring and ball, low temperature flexibility and elasticity recovery tests.

### 8.3 Service life

8.3.1 Under normal service conditions, the systems will have a life in excess of 30 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

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

9.1.7 Balconies and terraces, to which the systems are to be applied, must be designed in accordance with BS 8579 : 2020.

9.1.8 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.

9.1.9 The ballast requirements for loose-laid specifications must be calculated by a suitably experienced and competent individual in accordance with the relevant parts of BS EN 1991-1-4 : 2005 and its UK National Annex. The systems must always be ballasted with a minimum depth of 50 mm of aggregate (20 to 40 mm grade gravel). In areas of high wind exposure, the advice of the Certificate holder must be sought, but such advice is outside the scope of this Certificate. Alternatively, concrete slabs on suitable supports can be used.

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 If the roof is likely to be subjected to uncontrolled pedestrian access, the substructure must satisfy the requirements of the relevant clauses of BS 8217 : 2005, and one of the surface finishes described in clause 6.12 of the Code of Practice must be used.

9.1.12 The wind uplift forces must be calculated by a suitably competent and experienced individual in accordance with BS EN 1991-1-4 : 2005 and its UK National Annex. On this basis, the number of fixings required for the systems must be established using a maximum permissible load of 0.666 kN per fixing for the systems fixed using Axter MTP/C fasteners and insulated tube washers.

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

- wind uplift forces to be resisted
- pull-out strength of fasteners
- tensile properties of membranes
- appropriate calculation of safety factors.

9.1.14 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
- the correct drainage points must be identified, to ensure that drainage is sufficient and effective in accordance with the relevant clauses of BS 6229 : 2018.

9.1.15 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 and 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 guidance is provided in Annex A.

9.2.3 Deck surfaces 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 At falls in excess of 5° (1:11), precautions against slippage, and requirements for mechanical fixings as required by BS 8217 : 2005, must be observed. For slopes above 1:6 (10°), the Certificate holder's technical department must be consulted to ensure correct precautions are undertaken, but such advice is outside the scope of this Certificate.

9.2.6 In fully bonded single and multi-layer applications, bonding is achieved by melting the lower surface by torching method and pressing the membrane down. Care must be taken not to overheat the membrane.

9.2.7 Side laps must be a minimum of 75 mm with end and head laps a minimum of 100 mm. A bead of molten material must exude from all laps to indicate a satisfactory seal.

9.2.8 The underlayer must be installed to a sufficient height (minimum 150 mm above roof surface) on all upstands, skirtings and protrusions to ensure a secure bonded lap with the AVCL is achieved.

9.2.9 In partially bonded applications, the torching lines on the underside of the membrane must be heated to a molten state by torching method and the membrane pressed down in order to achieve a partial bond.

9.2.10 In mechanically fixed applications, the membrane is unrolled onto the substrate, avoiding folds or ripples, with 95 mm overlaps and secured using Axter MTP/C fasteners and insulated tube washers recommended and supplied only by the Certificate holder.

9.2.11 The membrane is fixed to the deck (through insulation boards, where appropriate) in the joint overlaps positioned 45 mm from the edge, prior to welding the joint. The fixings must be installed at centres calculated from the average wind force in that location.

9.2.12 Overlap joints must be sealed using flame free automatic hot air welding techniques or torched as described in sections 9.2.6 and 9.2.7.

9.2.13 At perimeters, corner zones and all penetrations the membrane must be fully bonded using flame free handheld hot air welding techniques or torched as described in sections 9.2.6 and 9.2.7 to an appropriate corner detail.

9.2.14 Detailing must be completed in accordance with the Certificate holder's instructions and in compliance with the NFRC Safe2Torch guidance document.

9.2.15 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, in order to maintain the systems' performance.

### 9.3 Workmanship

Practicability of installation was assessed by the BBA, on the basis of the Certificate holder's information and a site visit to witness an installation in progress. To achieve the performance described in this Certificate, installation of the systems must be carried out by installers 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 satisfy 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 of 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 the systems 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.

9.4.2.3 Damage is repaired by cleaning the affected area, locally heating the ceramic granule or mineral slate finish to ensure a black to black bitumen bond is achieved and installing a patch of the appropriate capsheet by torch or hot air welding technique over the damaged area, all in accordance with the Certificate holder's instructions.

## **10 Manufacture**

10.1 The production processes for the systems 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 the systems' components are delivered to site in on pallets wrapped in polythene and bearing the systems' name and production code, with tape bands.

11.2 Delivery and site handling 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 and kept dry, away from excessive heat and under cover.

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 systems 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).

### CE marking

The Certificate holder has taken the responsibility of CE marking the systems, in accordance with harmonised European Standard EN 13707 : 2013.

### Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of ISO 9001 : 2015 and ISO 14001 : 2015 by AFAQ (Certificates 1996/5190.12 and 2011/40665.4 respectively).

### Additional information on installation

On completion of the roof, additional surface protection is not required where the systems are self-protected and have either a ceramic granule or mineral slate finish and used on roofs with limited access.

## Bibliography

- BS 6229 : 2018 *Flat roofs with continuously supported flexible waterproof coverings — Code of practice*
- BS 8000-0 : 2014 *Workmanship on construction sites — Introduction and general principles*  
BS 8000-4 : 1989 *Workmanship on building sites — Code of practice for waterproofing*
- BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*
- BS 8579 : 2020 *Guide to the design of balconies and terraces*
- BS EN 1109 : 2013 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flexibility at low temperature*
- BS EN 1110 : 2010 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of flow resistance at elevated temperature*
- BS EN 1991-1-1 : 2002 *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*  
NA to BS EN 1991-1-1 : 2002 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
- BS EN 1991-1-3 : 2003 + A1 : 2015 *Eurocode 1 : Actions on structures — General actions — Snow loads*  
NA to BS EN 1991-1-3 : 2003 + A1 : 2015 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Snow loads*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 : Actions on structures — General actions — Wind actions*  
NA to BS EN 1991-1-4 : 2005 + A1 : 2010 UK National Annex to *Eurocode 1 : Actions on structures — General actions — Wind actions*
- BS EN 12316-1 : 2000 *Flexible sheets for waterproofing — Determination of peel resistance of joints — Bitumen sheets for roof waterproofing*
- BS EN 12317-1 : 2000 *Flexible sheets for waterproofing — Bitumen sheets for roof waterproofing — Determination of shear resistance of joints*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements — Classification using data from reaction to fire tests*
- CEN/TS 1187 : 2012 *Test methods for external fire exposure to roofs*
- EN 13501-5 : 2016 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roofs tests*
- EN 13707 : 2013 *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*
- EN 16002 : 2010 *Flexible sheets for waterproofing — Determination of the resistance to wind load of mechanically fastened flexible sheets for roof waterproofing*
- ISO 9001 : 2015 *Quality management systems — Requirements*
- ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*
- MOAT 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*

MOAT 31 : 1984 *Special Directives for the assessment of Reinforced Homogeneous Waterproofing Coverings of Styrene-Butadiene-Styrene (SBS) Elastomer Bitumen*

NFP 84-352 : 1988 *Waterproofing — Sheeting for roofing and damp proofing — Determination of the resistance to static indentation*

NFRC Safe2Torch guidance document *for the safe installation of torch-on 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.