Triflex (UK) Ltd
Whitebridge Way
Stone
Staffordshire ST15 8JS

Tel: 01785 819119
e-mail: info@triflex.co.uk
website: www.triflex.co.uk

Agrément Certificate
13/5051
Product Sheet 3 Issue 3

TRIFLEX COLD LIQUID APPLIED WATERPROOFING AND SURFACING SYSTEMS

TRIFLEX PROTERRA SOLVENT-FREE WALKWAY, BALCONY AND TERRACE WATERPROOFING AND SURFACING SYSTEMS

This Agrément Certificate Product Sheet(1) relates to the Triflex ProTerra Solvent-Free Walkway, Balcony and Terrace Waterproofing and Surfacing Systems, a range of liquid-applied systems for use as waterproofing and surfacing for walkways, balconies and terraces, including inverted roof terrace, green roof terrace, brown roof terrace, roof garden and protected zero fall roof specifications.

(1) Hereinafter referred to as '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 Third issue: 10 December 2025
Originally certified on 20 November 2013

Hardy Giesler
Chief Executive Officer

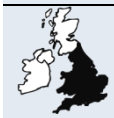
British Board of Agrément
1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG
tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

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 Triflex ProTerra Solvent-Free Walkway, Balcony and Terrace Waterproofing and Surfacing 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 use of the systems on balconies is restricted by this Requirement. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the systems may be unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The use of the systems will satisfy 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 the requirements of this Regulation. See sections 8 and 9 of this Certificate.
Regulation:	**8(3)**	**Fitness and durability of materials and workmanship**
Comment:		The use of the systems on balconies is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**9**	**Building standards – construction**
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(1) and 2.7.2(1)(2). See section 2 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The systems, when applied to a suitable substructure, may 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 will 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:	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 in relation to 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)(ii)**	**Fitness of materials and workmanship**
Comment:	**(iii)(iv)(b)(i)**	The systems are acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**23(2)**	**Fitness of materials and workmanship**
Comment:		The use of the systems on balconies is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**28(b)**	**Resistance of moisture and weather**
Comment:		The use of the systems will satisfy this Regulation. See section 3 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The use of the systems on balconies is restricted by this Regulation. See section 2 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On a suitable substructure, the systems may be unrestricted by this Regulation. See section 2 of this Certificate.

Additional Information

NHBC Standards 2025

In the opinion of the BBA, the Triflex ProTerra Solvent-Free Walkway, Balcony and Terrace Waterproofing and Surfacing 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 system.

The *NHBC Standards* do not cover the refurbishment of existing roofs, terraces and balconies.

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 Triflex ProTerra Solvent-Free Walkway, Balcony and Terrace Waterproofing and Surfacing Systems to be satisfactory for use as described in this Certificate. The systems have been assessed for use as waterproofing and surfacing for walkways, balconies and terraces, including inverted roof terrace, green roof terrace, brown roof terrace, roof garden and protected zero fall roof specifications.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the systems under assessment. The Triflex ProTerra Solvent-Free Walkway, Balcony and Terrace Waterproofing and Surfacing Systems are reinforced waterproofing and surfacing systems comprising a waterproofing membrane, wearing course and finish based on liquid-applied polymethylmethacrylate resin. The systems consist of:

- Triflex ProTerra — Triflex Cryl Primer 222 or Triflex Cryl Primer 276, Triflex 110 g Reinforcement, Triflex ProTerra Waterproofing Layer, Triflex ProTerra Wearing Layer and a wearing layer finish. The system is available with various surfacing options
- Triflex ProTerra Buried — Triflex Cryl Primer 222 or Triflex Cryl Primer 276, Triflex 110 g Reinforcement, Triflex ProTerra Waterproofing Layer and optional Triflex ProTerra Wearing Layer and/or Triflex Cryl Finish 205. The system is for use in buried/protected locations.

Details of individual components used with the systems are:

- Triflex ProTerra Waterproofing Layer — a liquid-applied, two-component polymethylmethacrylate based waterproofing membrane
- Triflex Catalyst — a benzoyl peroxide catalyst
- Triflex 110 g Reinforcement — a polyester reinforcement fleece with a nominal mass per unit area of 110 $g \cdot m^{-2}$
- Triflex ProFloor — a liquid-applied, three-component polymethylmethacrylate based coating for use in the wearing layer build-ups, comprising Triflex ProFloor R resin, Triflex ProFloor S filler and Triflex Catalyst
- Graded aggregates for incorporating into Triflex ProFloor to produce a wearing layer, including dried quartz (0.7 to 1.2 mm) and emery (1.0 to 3.0 mm)
- Triflex Cryl Primer 222 — a primer for use on asphalt
- Triflex Cryl Primer 276 — a primer for use on porous substrates such as concrete and cementitious screeds
- Triflex Cryl Finish 205 — a two-component polymethylmethacrylate based finish available in a range of colours
- Graded aggregates for incorporating into Triflex Cryl Finish 205 to produce a wearing layer, including dried quartz (0.3 to 0.6 mm or 0.4 to 0.8 mm)
- MicroChips — chips for broadcasting into Triflex Cryl Finish 205 to produce a decorative wearcoat surface
- Triflex ProDetail — for use at details and for repairs, and the subject of Product Sheet 4 of this Certificate
- Triflex Cleaner — a cleaner used for cleaning tools, cleaning substrates and the reactivation of the cured Triflex ProTerra membrane prior to overcoating when work is interrupted for periods in excess of 12 hours.

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:

- primers for use on damp concrete surfaces
- primers and pre-treatments for open textured and porous cementitious substrates
- anti-corrosion and etch primers for metals
- compounds for small and large scale filling, levelling and repair
- fibre reinforced detailing resin for complex, less critical and difficult-to-access details.

Applications

The systems, when applied to a concrete or asphalt surface of a concrete deck designed in accordance with BS EN 1992-1-1 : 2004 and its UK National Annex or equivalent, are satisfactory for use as a combined waterproof/wearing surface for:

- walkways
- balconies
- terraces, including inverted roof, green roof, brown roof, roof garden and protected zero fall specifications.

Definitions for products and applications inspected

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

- zero fall roof – a roof having a minimum finished fall between 0 and 1:80(1)
- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- pedestrian access roof — a roof subjected only to foot traffic and gathering of people greater than required for maintenance
- roof garden (intensive) – a roof with a substantial layer of growing medium with planting that can include shrubs and trees, and generally accessible to pedestrians
- green roof (extensive) – a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wildflower species
- brown roof – a roof with a growing medium selected to allow indigenous plant species to inhabit the roof over time; no deliberate planting is undertaken
- invasive plant species – vegetation species having vigorous and/or invasive root systems likely to cause damage to components of the inverted roof insulation system and roof waterproofing
- balcony – an accessible external amenity platform which is not over an internal space, and which is above ground level and exterior to, and with direct access from, a building(2)
- terrace – an external accessible surface above an internal space which is above ground level and exterior to, and with direct access from, a building for occupants for purposes other than exclusively maintenance(2).

(1) *NHBC Standards* 2025 require a minimum fall of 1:60 for green roofs and roof gardens.
(2) *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 assessments is shown below. Conclusions relating to the Building Regulations apply to the whole of the UK unless otherwise stated.

1 Mechanical resistance and stability

Not applicable.

2 Safety in case of fire

Data were assessed for the following characteristics.

2.1 External fire spread

2.1.1 When tested to CEN/TS 1187 : 2012, Test 4, and classified to BS EN 13501-5 : 2005, the constructions given in Table 1 of this Certificate achieved a B_{ROOF}(t4) classification for slopes below 10°.

Table 1 Results of external fire spread tests

Layer	System 1(1)	System 2(2)
Substrate	19 mm plywood(3)	18 mm plywood(3)
Primer	Triflex FastPrime(3)	Triflex Cryl Primer 276
AVCL	0.6 mm Triflex SA Vapour Control Layer(3)	-
Adhesive	Triflex Insulation Adhesive(3)	-
Insulation	120 mm Triflex Insulation(3)	-
Primer	-	-
Carrier membrane	0.6 mm Triflex SA Carrier Membrane(3)	-
Waterproofing membrane	2.0 mm Triflex ProTerra	1.8 mm Triflex ProTerra with 110 g reinforcement
Wearing layer	-	2.5 mm Triflex ProFloor
Aggregate	-	Triflex Quartz 0.4 to 1.2 mm
Finish	-	Triflex Cryl Finish 205

(1) Test and classification reports 321301 and 316530, issued by Exova Warringtonfire, respectively, are available from the Certificate holder on request.
(2) Classification report 19445K, issued by Warringtonfire, is available from the Certificate holder on request.
(3) This component is outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the construction listed in Table 1 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 terrace incorporating the systems will be similarly unrestricted under the national Building Regulations with respect to proximity to a relevant boundary in the following circumstances:

- when used in protected or inverted roof terrace specifications, including an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 2000/553/EEC
- a roof terrace garden covered with a drainage layer of gravel 100 mm thick and a soil layer 300 mm thick
- irrigated roof terrace gardens, green roof terraces and brown roof terraces.

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

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

2.2 Reaction to fire

2.2.1 The Certificate holder has declared a reaction to fire classification of Class E to EN 13501-1 : 2018 for the systems.

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, 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, or materials which form the top horizontal floor layer which are A1fl or A2fl-s1 – provided that the entire layer has an imperforate substrate under it), 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.

2.2.4 In Wales, unless covered with a protection with a reaction to fire of class A1 or A2-s1, d0, for example 40 mm thick cast stone slabs, or materials which form the top horizontal floor layer which are A1fl or A2fl-s1 (provided that the entire layer has an imperforate substrate under it) 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.

2.2.5 In Northern Ireland, unless covered with a protection with a reaction to fire of class A1 or A2-s1, d0 (for example, 40 mm thick cast stone slabs, or materials which form the top horizontal floor layer which are A1fl or A2fl-s1 – provided that the entire layer has an imperforate substrate under it), 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.

2.2.6 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 2.

Table 2 Weathertightness

System assessed	Assessment method	Requirement	Result
Triflex ProTerra	Water vapour transmission rate to prEN 495-4 : 1991	Value achieved	1.44 $g \cdot m^{-2} \cdot day^{-1}$
Triflex ProTerra	Watertightness under 10 kPa pressure of water to EOTA TR-003 : 2004	No leakage	Pass
Triflex ProTerra	Resistance to delamination to EOTA TR-004 : 2004	≥ 50 kPa	
- on concrete	Tested at 23°C		Pass
	Tested at 40°C		Pass
- on steel	Tested at 23°C		Pass
	Tested at 40°C		Pass
- on polyurethane	Tested at 23°C		Pass
(PU) foam insulation	Tested at 40°C		Pass

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

3.1.3 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 weathertight.

3.2 Resistance to mechanical damage

3.2.1 Results of resistance to mechanical damage tests are given in Table 3.

Table 3 Resistance to mechanical damage

System assessed	Assessment method	Requirement	Result
Triflex ProTerra	Resistance to dynamic indentation to EOTA TR-006 : 2004	Value achieved	
- on concrete	Tested at 23°C		I_4
	Tested at –30°C		I_4
- on steel	Tested at 23°C		I_4
	Tested at –30°C		I_4
- on PU foam insulation	Tested at 23°C		I_4
	Tested at –30°C		I_4
Triflex ProTerra	Resistance to static indentation to EOTA TR-007 : 2004	Value achieved	
- on concrete	Tested at 23°C		L_4
	Tested at 90°C		L_4
- on steel	Tested at 23°C		L_4
	Tested at 90°C		L_4
- on PU foam insulation	Tested at 23°C		L_4
	Tested at 90°C		L_4
Triflex ProTerra	Resistance to fatigue movement to EOTA TR-008 : 2004 (1000 cycles at –10°C)	Watertight and less than 75 mm delamination from substrate	Pass

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 the effects of minor structural movement likely to occur in practice while remaining weathertight.

3.2.3 Where continuous heavy point loading is envisaged additional protection must be considered. The Certificate holder must be consulted, but such advice is outside the scope of this Certificate.

3.2.4 Where the systems must bridge construction or movement joints, the Certificate holder must be consulted for detail specifications, but such advice is outside the scope of this Certificate.

3.3 Resistance to root penetration

3.3.1 Results of a resistance to root penetration test is given in Table 4.

Table 4 Resistance to root penetration

System assessed	Assessment method	Requirement	Result
Triflex ProTerra	Root resistance to FLL Method (1999)	No penetrated roots or rhizomes after 2 years	Pass

3.3.2 On the basis of data assessed, the systems will resist the penetration by plant roots and rhizomes and can be used as a waterproofing system in green roof terrace and roof garden terrace specifications.

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

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

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

Not applicable.

8 Durability

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

8.2 Specific test data were assessed as given in Table 5.

Table 5 Durability

System assessed	Assessment method	Requirement	Result
Triflex ProTerra	Resistance to fatigue movement to EOTA TR-008 : 2004 after heat ageing for 200 days at 80°C to EOTA TR-011 : 2004 (500 cycles at –10°C)	Watertight and less than 75 mm delamination from substrate	Pass
Triflex ProTerra - on concrete	Resistance to delamination to EOTA TR-004 : 2004 after exposure to water for 180 days at 60°C to EOTA TR-012 : 2004	≥ 50 kPa	Pass
Triflex ProTerra	Dynamic indentation to EOTA TR-006 : 2004	Value achieved	
- on concrete	after heat ageing for 200 days at 80°C to EOTA TR-011 : 2004 (tested at –30°C)		I_4
- on steel			I_4
- on PU foam insulation			I_4
- on concrete	after UV ageing for 1000 MJ·m^{-2} at 60°C to EOTA TR-010 : 2004 (tested at –10°C)		I_4
- on steel			I_4
- on PU foam insulation			I_4
Triflex ProTerra	Static indentation to EOTA TR-007 : 2004	Value achieved	
- on concrete	after exposure to water for 180 days at 60°C to EOTA TR-012 : 2004 (tested at 90°C)		L_4
- on steel			L_4
- on PU foam insulation			L_4
Triflex ProTerra	Tensile strength to EN ISO 527-1 : 1993	No significant change against control	
	after heat ageing for 200 days at 80°C to EOTA TR-011 : 2004		
	Longitudinal direction		Pass
	Transverse direction		Pass
	after UV ageing for 1000 MJ·m^{-2} at 60°C to EOTA TR-010 : 2004		
	Longitudinal direction		Pass
	Transverse direction		Pass
Triflex ProTerra	Elongation to EN ISO 527-1 : 1993	No significant change against control	
	after heat ageing for 200 days at 80°C to EOTA TR-011 : 2004		
	Longitudinal direction		Pass
	Transverse direction		Pass
	after UV ageing for 1000 MJ·m^{-2} at 60°C to EOTA TR-010 : 2004		
	Longitudinal direction		Pass
	Transverse direction		Pass

8.3 Service life

8.3.1 Under normal service conditions, the systems will have a life in excess of 15 years, provided they are designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.3.2 Some colour change to the finish coat may be expected when exposed to UV radiation. The degree of colour change likely to occur will depend on the colour. The Certificate holder should be consulted for more information, but such advice is outside the scope of this Certificate.

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

8.3.4 An estimation cannot be given for the life of green roof specifications owing to the nature of use; however, under normal circumstances, it should be significantly greater than for exposed waterproof coverings.

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 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, direction of falls, etc.

9.1.4 Terraces and balconies to which the systems are to be applied must be designed in accordance with BS 8579 : 2020.

9.1.5 Concrete structures must be designed and built in accordance with BS EN 1992-1-1 : 2004 and its UK National Annex or equivalent.

9.1.6 Concrete surfaces must have a minimum compressive strength of 25 $N \cdot mm^{-2}$ and be mechanically prepared, eg using enclosed shot blasting, to be free from laitance and other contamination. All residues must be removed by vacuuming.

9.1.7 New concrete must be well compacted and finished to a dense, smooth finish without excess laitance, and allowed to cure for a minimum period of 28 days.

9.1.8 Structural decks to which the systems are 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.

9.1.9 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.

9.1.10 The growing medium used in green roof terraces, roof gardens and brown roof terraces must not be of a type that will be removed or become delocalised owing to wind scour experienced on the roof terrace.

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

9.1.12 For green roof terrace, roof garden and brown roof terraces, invasive non - native alien plant species as defined by UK Government guidance must not be used.

9.1.13 For green roof terrace, roof garden and brown roof terrace finishes, to protect the roof terrace waterproofing, invasive plant species must not be used. In particular, the following species must be excluded:

- invasive weeds including buddleia
- plants and grasses with aggressive rhizomes such as bamboo
- self-setting woody weeds such as sycamore and ash seedlings – must be removed at early germination stage
- other woody plants which spread aggressively including rhododendron.

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

9.1.15 The drainage systems for inverted roof terrace, protected zero fall roofs, green roof terraces, brown roof terraces or roof garden terraces must be correctly designed, and the following points should be addressed:

- provision made for access for maintenance purposes
- for protected zero fall roofs, it is particularly important to identify the correct drainage points, to ensure that drainage is sufficient and effective
- dead loads for green roof terraces, brown roof terraces and roof garden terraces can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer.

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

- as described in the relevant clauses of BS 6229 : 2018, or
- the subject of a current BBA Certificate and 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 the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 6229 : 2018, the Certificate holder's instructions and this Certificate. A summary of instructions and guidance are provided in Annex A of this Certificate.

9.2.3 Installation must not be carried out during inclement weather, eg rain, fog or snow, and the ambient temperature at the time of laying must be between 0 and 35°C.

9.2.4 Substrates to which the systems are to be applied must be sound, clean, frost-free, dry and free from sharp projections. The Certificate holder's advice must be sought with regard to the suitability of the substrate to receive the systems, suitable cleaning procedures and the use of a proprietary surface cleaner/HSE approved fungicidal wash where required, but such advice is outside the scope of this Certificate.

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

9.2.6 Previously coated areas must be checked for integrity and adequate adhesion to the substrate. Defects such as cracks and blisters must be repaired prior to application of the systems in accordance with the Certificate holder's instructions.

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

9.2.8 Detailing, such as at upstands, penetrations and joints, must be carried out using Triflex ProDetail in accordance with the Certificate holder's instructions. Where use of Triflex ProDetail is not practicable owing to the complexity of detail, the Certificate holder must be consulted for an alternative solution, but such advice is outside the scope of this Certificate.

9.2.9 All equipment must be cleaned with Triflex Cleaner.

9.2.10 The Triflex ProTerra base component is mixed thoroughly using a slow speed agitator fitted with a suitable mixing paddle. The required quantity of catalyst is added and stirring is continued until the mixture is lump-free, and in any event for at least two minutes. The amount of catalyst required will depend on the ambient temperature, and the Certificate holder's technical data sheet/product label must be consulted for the required amount.

9.2.11 A layer of the mixed Triflex ProTerra resin is applied with a roller to the clean, prepared and, if required, primed substrate at a minimum application rate of 2.0 $kg \cdot m^{-2}$.

9.2.12 Triflex 110 g Reinforcement is rolled and embedded into the wet coating, avoiding creasing and trapped air. Adjacent lengths of the reinforcement must overlap by a minimum of 50 mm (100 mm if left over 12 hours), ensuring that there is sufficient coating to fully encapsulate it. Additional coating is applied if required.

9.2.13 A second coat of mixed Triflex ProTerra resin is applied, wet on wet, by roller at a minimum application rate of 1.0 $kg \cdot m^{-2}$.

9.2.14 A number of options are available for the build-up of the wearing/finish layer, depending on the specified system and the end use. The Certificate holder must be consulted for specifications relating to the options under the various systems, but such advice is outside the scope of this Certificate.

9.2.15 At each stage the system must be checked to ensure that it has been applied to achieve the minimum consumption. If a localised area has been applied below the minimum consumption, the affected area must be removed and reinstated to specification.

9.2.16 If work is interrupted for periods in excess of 12 hours, the cured membrane must be reactivated by wiping with Triflex Cleaner. Overcoating must proceed after evaporation of the cleaner has occurred (approximately 20 minutes), but within 60 minutes, otherwise the process must be repeated.

9.2.17 The NHBC requires that the systems, once installed, are inspected in accordance with *NHBC Standards* 2025, Chapter 7, 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 system performance.

9.3 Workmanship

Practicability of installation was assessed by the BBA on the basis of the Certificate holder's information. To achieve the performance described in this Certificate, installation of the systems must be carried out by installers who have been trained and authorised 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 For balcony, walkway and terrace installations, the systems must be subject to a planned maintenance programme to ensure that accumulated debris is cleared and drainage outlets are kept clear, and to check for contamination and damage to the systems.

9.4.2.2 Green roof terraces, brown roof terraces and roof garden terraces must be the subject of regular inspections, particularly in autumn after leaf fall and in spring, to ensure unwanted vegetation and other debris are cleared from the roof terrace and drainage outlets. Guidance is available within the latest edition of *The GRO Green Roof Code - Green Roof Code of Best Practice for the UK*.

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

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

9.4.2.5 The chemical fertiliser used on green roof and roof garden terraces must be checked for compatibility with the roof waterproofing layer and any system components above the waterproofing, such as insulation or water flow

reducing layer. The Certificate holder can advise on the suitability of a particular product, but such advice is outside the scope of this Certificate.

9.4.2.6 Any damage to the system must be repaired as soon as possible to ensure that the integrity of the waterproofing is maintained. Repairs must be carried out to reinstate the damaged area to the original specification in accordance with the Certificate holder's instructions.

9.4.2.7 If a leak occurs in the walkway, balcony or terrace waterproof membrane, it must be repaired following removal of the gravel ballast, paving ballast, green roof or roof garden terrace layer, water-flow-reducing layer and the insulation boards.

9.4.2.8 Where damage has occurred, the systems must be repaired at the earliest opportunity in accordance with the Certificate holder's instructions and the following:

- areas of damaged system must be cut back to sound, well-adhering material and cleaned with Triflex Cleaner
- after the cleaner has evaporated, the system is installed as described in section 9.2, ensuring that there is at least a 100 mm overlap over the existing sound material.

9.4.2.9 Cleaning of the systems may be carried out using water and a mild detergent. Strong alkalis, acids or bleach must not be used. The Certificate holder must be consulted for advice on suitable cleaning products.

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 are delivered to site in packs consisting of liquid base resin and powder catalyst components. The packs bear a label that includes the component's name, health and safety information, and batch number. The components are available in the pack sizes detailed in Table 6.

Table 6 Pack sizes

Component	Pack sizes
Triflex ProTerra	10 kg, 999 kg
Triflex ProDetail	5 kg, 10 kg, 15 kg
Triflex ProFloor R resin	10 kg, 910 kg
Triflex ProFloor S Filler	23 kg
Triflex Catalyst	100 g, 1 kg (bags), 25 kg (box)
Triflex Cryl Primer 276	10 kg, 910 kg
Triflex Cryl Primer 222	10 kg, 910 kg
Triflex Cleaner	9 litre, 27 litre
Triflex Cryl Finish 205	10 kg, 980 kg
Triflex 110 g Reinforcement	50 m (length) x 15, 20, 26.25, 35, 52.5, 70 or 105 cm (widths) rolls.

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

11.2.1 The system components must be stored in a cool, dry location and protected from freezing temperatures and direct sunlight.

11.2.2 Rolls of Triflex 110 g Reinforcement must be stored vertically in a dry, clean environment and protected from moisture.

11.2.3 Triflex Catalyst must be stored at a temperature below 30°C in closed containers, away from sources of ignition and protected from 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 system in accordance with UKAD 030350-00-0402.

CE marking

The Certificate holder has taken the responsibility of CE marking the systems in accordance with EAD 030350-00-0402.

Management Systems Certification for production

The management system of the manufacturer has been assessed and registered as meeting the requirements of EN ISO 9001 : 2015, EN ISO 14001 : 2015 and EN ISO 50001 : 2011 by DEKRA (Certificates 80408283/4, 170408038/3 and 1800414009 respectively).

Additional information on installation

Design

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

A.2 Recommendations for the design of green roofs, brown roofs and roof garden specifications are available within the latest edition of *The GRO Green Roof Code - Green Roof Code of Best Practice for the UK*.

A.3 Additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections.*

Installation

A.4 Installation should also be in accordance with the relevant clauses of the Liquid Roofing and Waterproofing Association (LRWA) Note 7 – *Specifier Guidance for Flat Roof Fall*

Bibliography

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

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

BS 8579 : 2020 *Guide to the design of balconies and terraces*

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 + A1 : 15 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 1992-1-1 : 2004 + A1 : 2014 *Eurocode 2: Design of concrete structures — General rules and rules for buildings*
NA + A2 : 14 to BS EN 1992-1-1 : 2004 + A1 : 2014 *UK National Annex to Eurocode 2 — Design of concrete structures — General rules and rules for buildings*

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

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

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

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

EN ISO 527-1 : 1993 *Plastics — Determination of tensile properties — General principles*

EN ISO 9001 : 2015 *Quality managements systems — Requirements*

EN ISO 14001 : 2015 *Environmental management systems — Requirements*

EN ISO 50001 : 2011 *Energy management systems — Requirements with guidance for use*

EOTA TR-003 : 2004 *Determination of the watertightness*
EOTA TR-004 : 2004 *Determination of the resistance to delamination*
EOTA TR-006 : 2004 *Determination of the resistance to dynamic indentation*
EOTA TR-007 : 2004 *Determination of the resistance of static indentation*
EOTA TR-008 : 2004 *Determination of the resistance of fatigue movement*
EOTA TR-010 : 2004 *Exposure procedure for artificial weathering*
EOTA TR-011 : 2004 *Exposure procedure for accelerated ageing by heat*
EOTA TR-012 : 2004 *Exposure procedure for accelerated ageing by hot water*

FLL Method (1999) *Forschungsgesellschaft Landschaftsentwicklung und Landschaftsbau Method for testing root penetration resistant materials*

prEN 495-4 : 1991 *Thermoplastic and elastomeric roofing and sealing sheets — Determination of water vapour transmission properties*

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

Conditions of Certificate

Conditions

1 This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

British Board of Agrément
1st Floor, Building 3, Hatters Lane
Croxley Park, Watford
Herts WD18 8YG
tel: 01923 665300
clientservices@bbacerts.co.uk
www.bbacerts.co.uk