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Agrément Certificate
22/5988
Product Sheet 1 Issue 2

EUROROOF CALTECH LIQUID APPLIED WATERPROOFING

CALTECH FCP

This Agrément Certificate Product Sheet(1) relates to Caltech FCP, a liquid-applied roof waterproofing system for use on limited access roofs and, where appropriate, pedestrian access roofs, on warm and cold exposed roofs (flat and pitched), on green roofs (flat, zero fall and pitched) and blue roofs(2), on protected warm and cold roofs, on inverted roofs (flat and zero fall) and on terraces and balconies, and walkaways across roofing.

(1) Hereinafter referred to as 'Certificate'.
(2) Stormwater attenuation systems are outside the scope of this Certificate.

The assessment includes

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

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

Ongoing contractual Scheme elements†:
- regular assessment of production
- formal 3-yearly review

KEY FACTORS ASSESSED

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

The BBA has awarded this Certificate to the company named above for the system described herein. This system has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Date of Second issue: 26 February 2025
Originally certified on 28 February 2022

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.

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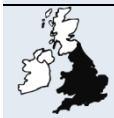
SUMMARY OF ASSESSMENT AND COMPLIANCE

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

Compliance with Regulations

Having assessed the key factors, the opinion of the BBA is that Caltech FCP, 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 system is restricted by this Requirement in some circumstances. See section 2 of this Certificate.
Requirement:	**B4(2)**	**External fire spread**
Comment:		On a suitable substructure, the system may enable a roof to be unrestricted by this Requirement. See section 2 of this Certificate.
Requirement:	**C2(b)**	**Resistance to moisture**
Comment:		The system will enable a roof to satisfy this Requirement. See section 3 of this Certificate.
Regulation:	**7(1)**	**Materials and workmanship**
Comment:		The system is 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 system satisfies 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 system on balconies is restricted by this Regulation in some circumstances. 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 system on balconies is restricted by this Standard, 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 system, when applied to a suitable substructure, may enable a roof to be unrestricted by this Standard, with reference to clause 2.8.1(1)(2). See section 2 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The system will enable a roof to satisfy this Standard, with reference to clauses 3.10.1(1)(2) and 3.10.7(1)(2). See section 3 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The system can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard.

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

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

Regulation:	**23(1)(a)(i)(ii) (iii)(iv)(b)(i)**	**Fitness of materials and workmanship**
Comment:		The system is acceptable. See sections 8 and 9 of this Certificate.
Regulation:	**28(b)**	**Resistance to moisture and weather**
Comment:		The system will enable a roof to satisfy this Regulation. See section 3 of this Certificate.
Regulation:	**36(a)**	**External fire spread**
Comment:		The system is restricted by this Regulation in some circumstances. See section 2 of this Certificate.
Regulation:	**36(b)**	**External fire spread**
Comment:		On a suitable substructure, the system 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, Caltech FCP, 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 system, when installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards for Conversions and Renovations*, taking into account other relevant guidance within the chapter and the suitability of the substrate to receive the system.

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

Fulfilment of Requirements

The BBA has judged Caltech FCP to be satisfactory for use as described in this Certificate. The system has been assessed as a waterproofing system on limited access roofs and, where appropriate, pedestrian access roofs, on warm and cold exposed roofs (flat and pitched), on green roofs (flat, zero fall and pitched) and blue roofs, on protected warm and cold roofs, on inverted roofs (flat and zero fall) and on terraces and balconies, and walkways across roofing.

ASSESSMENT

Product description and intended use

The Certificate holder provided the following description for the system under assessment. Caltech FCP is a liquid-applied, glass-reinforced flexible modified polyester system.

The system consists of:

- Caltech FCP — a pigmented, flexible modified polyester resin
- Caltech FCP Catalyst — a 50% dibenzoyl powder
- Caltech FCP 225 GFM — a 225 $g \cdot m^{-2}$ glass reinforcement
- Caltech FCP Universal Primer — a primer for preparing bituminous, wood, concrete and other substrates
- Caltech FCP Metal Primer — a two-part primer for preparing metal substrates and other substrates
- Caltech FCP Finish — sealer coat for pedestrian access specification, available in clear, pigmented and unpigmented
- Caltech FCP anti-slip Additive — an optional surface finish to provide an anti-slip surface if required
- Caltech Quartz 0.7 to 1.2 mm — an alternative grit for walkways and balconies
- Caltech METPrime Detail — a single pack primer for minor detail work

Ancillary Items

The following ancillary items are essential to use with the system and have been assessed with the system:

- Caltech FCP Accelerator — an additive to allow application of Caltech FCP at lower temperatures
- Caltech FCP Inhibitor — an additive to enable longer pot-life and working time in high temperatures
- Caltech FCP Universal Primer Accelerator — an additive to allow application at lower temperatures
- Caltech FCP Joint Tape — a reinforcing tape for use at points of weakness such as detailing, protrusions and over cracks
- Mordant solution — a pre-treatment for new galvanized steel or zinc substrates
- Caltech FCP GRP trims — a range of factory-manufactured GRP trims, including upstand fixing trim, drip trim, fillet trim and flat trim
- Euroroof Solvent — for use in cleaning tools.

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

- Euroroof Charcoal Mineral — an alternative grit for walkways and balconies
- Caltech FCP Detail — for detailing, inaccessible areas, levelling and minor repairs
- Euroroof PVC Primer — a primer for preparing single ply substrates.

Applications

The system is suitable for use on the following substrates:

- concrete
- concrete screeds
- asphalt
- plywood(1)
- orientated strand board (OSB) OSB3 TG4(1)
- reinforced bitumen membranes (including sanded and mineral surfaced)
- glass reinforced plastic (GRP)
- single-ply membranes(1)
- previously coated surfaces(1)
- small areas of metal incidental to the roof, eg pipe upstands
- small areas of plastic-coated metal incidental to the roof(1).

(1) The advice of the Certificate holder may be consulted on compatibility with the system, but such advice is outside the scope of this Certificate.

The system is intended for use in the following situations:

As a liquid-applied roof waterproofing system on new or existing roofs with limited(1) or pedestrian access(1) in the following specifications:

- exposed warm and cold flat and pitched roofs(1)
- protected warm and cold flat and zero fall roofs (ie covered by pavers or other suitable protection)(1)
- green (extensive) flat, zero fall and pitched roofs(1)
- inverted flat and zero fall roofs(1)(2).
- blue roofs(1)
- terraces with an anti-slip layer(1)
- walkways across roof areas with an anti-slip layer(1)
- balconies(1).

(1) The advice of the Certificate holder may be sought on compatibility with the system, but such advice is outside the scope of this Certificate.

Definitions for products and applications inspected

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

- limited access roof — a roof subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc
- flat roof — a roof having a minimum finished fall of 1:80(1)
- zero fall roof — a roof having a finished fall which can vary between 0 and 1:80(1)
- pitched roof — a roof having a fall in excess of 1:6
- pedestrian access roof – a roof that is not subjected to vehicular traffic
- green roof (extensive) — a roof with a shallow layer of growing medium planted with low-maintenance plants such as mosses, sedums, grasses and some wild flower species
- blue roof — a flat roof designed to allow controlled attenuation of rainfall during storm events as part of a SUDS good practice policy(2).

(1) *NHBC Standards* 2025 require a minimum fall of 1:60 for green roofs and roof gardens.
(2) Storm water attenuation systems are outside the scope of this Certificate.

Product assessment – key factors

The system was 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 : 2016, the constructions given in Table 1 of this Certificate achieved B_{ROOF}(t4) for roof pitches below 10°.

Table 1 External fire exposure classifications

Systems	System 1	System 2	System 3
Substrate	9 mm calcium silicate board	18 mm OSB3	18 mm OSB3
Primer	Caltech FCP Universal Primer applied at 0.22 kg·m^{-2}	Polymeric adhesive primer(1) applied at 0.15 l·m^{-2}	—
Primer/Air and Vapour Control Layer (AVCL)(1)	—	0.6 mm self-adhesive AVCL	300 µm polyethylene AVCL
Insulation layer(s)(1)	—	150 mm tissue faced polyisocyanurate (PIR) (adhesively fixed)	150 mm aluminium foil faced PIR (mechanically fixed)
Primer + Carrier Membrane(1)	—	Polymeric adhesive primer applied at 0.15 l·m^{-2} and then 2 mm self-adhesive carrier layer	—
Additional layer(1)	—	—	18 mm OSB3
Waterproofing	Caltech FCP at 1.22 kg·m^{-2}, 225 g·m^{-2} Caltech FCP 225 GFM reinforcement, Caltech FCP at 0.71 kg·m^{-2}	Caltech FCP at 1 l·m^{-2}, 225 g·m^{-2} Caltech FCP 225 GFM reinforcement, Caltech FCP at 0.5 l·m^{-2}	Caltech FCP at 1 l·m^{-2}, 225 g·m^{-2} Caltech FCP 225 GFM reinforcement, Caltech FCP at 0.5 l·m^{-2}

Systems	System 4	System 5
Substrate	18 mm OSB3	18 mm OSB3
Primer(1)	Polymeric adhesive primer applied at 0.15 l·m^{-2}	—
AVCL(1)	0.6 mm self-adhesive AVCL	300 µm 1200 Gauge Vapour Barrier
Insulation layer(s)(1)	120 mm glass tissue-faced PIR + 53 mm bitumen-faced PIR (both bonded with polyurethane adhesive)	150 mm aluminium foil faced PIR (mechanically fixed)
Primer + Carrier Membrane	—	—
Additional layer(1)	—	18 mm OSB3
Waterproofing	Caltech FCP at 1 l·m^{-2}, 225 g·m^{-2} Caltech FCP 225 GFM reinforcement, Caltech FCP at 0.50 kg·m^{-2}	1 mm Caltech FCP base coat, 225 g·m^{-2} Caltech FCP 225 GFM mat, 0.5 mm Caltech FCP topcoat
Anti-Slip layer(1)	Caltech FCP at 0.5 l·m^{-2}, 0.7 to 1.2 mm Caltech Quartz 0.7 to 1.2 mm at 2.5 kg·m^{-2}, Caltech FCP Finish coat at 0.60 l·m^{-2}	—

(1) This component is outside the scope of this Certificate.

2.1.2 On the basis of data assessed, the constructions 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 incorporating the system will also be unrestricted under the national Building Regulations with respect to proximity to a relevant boundary in the following circumstances:

- a roof garden covered with a drainage layer of gravel 100 mm thick and a soil layer 300 mm thick
- when protected by an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 2000/553/EC
- when used in an irrigated green roof.

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. This must be taken into consideration when selecting suitable plants for the roof. Appropriate planting, irrigation and/or protection must be applied to ensure the overall fire-rating of the roof is not compromised.

2.2 Reaction to fire

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

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

2.2.3 In England, the system, 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 system, 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 a system used in pitches greater than 70°, excluding upstands, that does 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, with the exception of use on balconies (see section 2.2.10), the use of the system 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 system must not be used on balconies of residential buildings with a storey 11 m or more in height or 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 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 system 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 system 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 system 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

Product assessed	Assessment method	Requirement	Result
Caltech FCP	Watertightness under 60 kPa pressure to BS EN 1928 : 2000	No leakage	Pass

3.1.2 Water vapour resistance and delamination from the substrate were assessed using data from a representative related system.

3.1.3 On the basis of data assessed, the system 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 system is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice and remain weathertight.

3.1.5 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.

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

Product assessed	Assessment method	Requirement	Results
	Dynamic indentation to EOTA TR-006 : 2004	Value achieved	
Caltech FCP on steel	Control, tested at -20°C		I_4
Caltech FCP on PIR insulation	Control, tested at -20°C		I_2
	Static indentation to EOTA TR-007 : 2003	Value achieved	
Caltech FCP on steel	Control, tested at 23°C		L_4
Caltech FCP on PIR insulation	Control, tested at 23°C		L_4

3.2.2 Fatigue cycling, tensile strength and elongation on control were assessed using data from a representative related system.

3.2.3 On the basis of data assessed, the system can accept, without damage, the foot traffic and light concentrated loads associated with installation, maintenance and the effects of minor movement likely to occur in practice while remaining weathertight.

3.2.4 Where traffic in excess of the examples given in section 3.2.3 is envisaged, such as for maintenance of lift equipment, a walkway must be provided (for example, using concrete slabs supported on bearing pads). Reasonable care must be taken to avoid puncture by sharp objects or concentrated loads.

3.2.5 The system is capable of accepting minor structural movement while remaining weathertight.

3.3 Resistance to root penetration

3.3.1 The system will resist penetration by plants that do not have invasive root systems, such as mosses, sedums and some wild flower species and can be used as a waterproofing system in green roof specifications (see section 9.4).

3.4 Skid resistance

3.4.1 Slip resistance testing for Euroroof charcoal mineral, Caltech FCP finish coat and Caltech Quartz 0.7 to 1.2 mm was assessed using data for representative related systems.

3.4.2 On the basis of data assessed, the system, when installed as given in section 3.2.3, has a satisfactory slip resistance in dry and wet conditions to allow it to be used in areas of pedestrian access.

4 Safety and accessibility in use

Not applicable.

5 Protection against noise

Not applicable.

6 Energy economy and heat retention

Not applicable.

7 Sustainable use of natural resources

Not applicable.

8 Durability

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

8.2 Specific test data were assessed as given in Table 4.

Table 4 Durability

Product assessed	Assessment method	Requirement	Results
Caltech FCP - on steel	Dynamic indentation to EOTA TR-006 : 2004 Heat aged for 100 days at 80°C tested at -20°C	Value achieved	I_4
Caltech FCP - on steel	Static indentation to EOTA TR-007 : 2003 Exposure to water at 60°C for 180 days tested at 90°C	Value achieved	L_4

8.3 Fatigue cycling after heat ageing, tensile strength and elongation after heat ageing and UV ageing, dynamic indentation after UV ageing and delamination after water exposure were assessed using data from a representative related system.

8.4 Service life

8.4.1 Under normal service conditions, the system will have a life in excess of 30 years provided it is designed, installed and maintained in accordance with this Certificate and the Certificate holder's instructions.

8.4.2 When fully protected and subjected to normal service conditions in an inverted roof specification with an open covering (eg aggregate pavers), the system will provide an effective barrier to the transmission of liquid water and water vapour for the design life of the roof in which it is incorporated.

8.4.3 An estimation cannot be given for the life of green roof specifications owing to the nature of use; however, under normal circumstances, it will 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 system is 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, and direction of falls.

9.1.4 Terraces and balconies to which the system is to be applied, must be designed in accordance with BS 8579 : 2020.

9.1.5 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.

9.1.6 Imposed loads, dead loads 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.

9.1.7 For green roofs, blue roofs and inverted roofs, structural decks to which the system is to be applied must be capable of transmitting the dead and imposed loads experienced in service.

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

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

9.1.10 For green roof finishes, to protect the roof 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.

9.1.11 The Green Roof Organisation (GRO) can provide guidance on species not included in section 9.1.10 but such advice is outside the scope of this Certificate.

9.1.12 The drainage systems for zero fall roofs, green roofs, blue roofs or roof gardens must be correctly designed, and the following points must be addressed:

- provision made for access for maintenance purposes
- dead loads for green roofs, blue roofs imposed and roof gardens can increase if the drains become partially or completely blocked causing waterlogging of the drainage layer

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

- as described in the relevant clauses of BS 6229 : 2018 and BS 8217 : 2005, or
- the subject of a current BBA Certificate and used in accordance with, and within the limitations of, that Certificate.

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

9.2 Installation

9.2.1 Installation instructions provided by the Certificate holder were assessed and judged to be appropriate and adequate and visits were carried out to sites in progress to assess the practicability of installation.

9.2.2 Installation of the system must be carried out in accordance with the relevant clauses of BS 8000-0 : 2014 and BS 8000-4 : 1989, the Certificate holder's instructions and this Certificate. Additional instructions and guidance are provided in Annex A of this Certificate.

9.2.3 Application of the system must be carried out at a minimum substrate temperature and air temperature of 5°C stable (1°C with the use of Caltech FCP Accelerator), rising to a maximum air temperature of 30°C and a substrate temperature of 40°C. The system must not be installed in rain, snow, fog or misty conditions, or when the relative humidity is above 95%.

9.2.4 Substrates to which the system is applied must be properly prepared in accordance with the Certificate holder's instructions.

9.2.5 Adhesion to substrates depends on the condition and cleanliness of the substrate. Substrates must be visibly dry and, when measured, have a maximum moisture content of 20% wood moisture equivalent (WME), be sound and free from loose materials or contamination (eg moss or algae). In cases of doubt, the advice of the Certificate holder's Technical Department must be sought.

9.2.6 Any areas of fungal growth or moss must be treated with a Health and Safety Executive approved proprietary anti-fungal solution to ensure that all spores are destroyed, but the performance of such products is outside the scope of this Certificate.

9.2.7 High-pressure sand-blasting or water-jetting may be used to remove loose or flaking materials and residues following treatment with the anti-fungal wash, but the substrate must be visibly dry before application of the system.

9.2.8 Damaged areas of the substrate (eg broken fibre-cement sheets or blistered reinforced bituminous membranes) must be removed, replaced or repaired.

9.2.9 Deck surfaces must be free from sharp projections, such as protruding fixing bolts or concrete nibs.

9.2.10 Gutters and outlets must be checked to ensure that they are, and remain, clear of all debris.

9.2.11 The Caltech FCP Catalyst addition requirements are given in Table 5 for different air temperatures.

Table 5 Caltech FCP Catalyst for Caltech FCP Universal Primer

Temperature (°C)	Catalyst addition (level scoops per litre of primer)(1)
5–10	4
11–17	3
18–30	2

(1) Scoop provided with the catalyst.

9.2.12 The system is mixed on site by adding the catalyst, and accelerator if required, to the resin in the correct proportions. The catalyst is added in the proportions given in Table 6, depending on the air temperature, and stirred in accordance with the Certificate holder's mixing instructions.

Table 6 Catalyst addition

Air temperature range	1 to 4°C	5 to 10°C	11 to 17°C	18 to 30°C
Caltech FCP Accelerator	must be used		not required	
Resin volume in litres	Number of catalyst level scoops(1)			
1	4	4	3	2
2	8	8	6	4
3	12	12	9	6
4	16	16	12	8
5	20	20	15	10
6	24	24	18	12
7	28	28	21	14

(1) Scoop provided with the catalyst.

9.2.13 Caltech FCP GRP trims are installed where required in accordance with the Certificate holder's instructions.

9.2.14 Small areas of new galvanized steel and zinc substrates must be treated with a mordant solution at the recommended coverage rate, but such treatments are outside the scope of this Certificate. The wash is allowed to react; the surface conversion is indicated by a black deposit. The surface residue must be washed off with water and dried prior to the application of the primer.

9.2.15 Metal substrates must be primed using Caltech FCP Metal Primer at a coverage rate of 5 $m^2 \cdot l^{-1}$; rough or porous surfaces will significantly reduce the coverage rate. The primer must be left to dry for a minimum of 8 hours to maximize adhesion. The maximum overcoating period is 28 days; after this period, it will be necessary to rub down and/or re-prime the surface.

9.2.16 Other substrates may be primed, using Caltech FCP Universal Primer at a coverage rate of 4 to 6 $m^2 \cdot l^{-1}$, depending on surface roughness, in dry conditions between 5°C (1°C when accelerator used) and 30°C ambient air temperature. Porous surfaces must be visually checked to ensure an adequate seal and any suspect areas re-primed as necessary.

9.2.17 The primer must be allowed to dry for at least one hour before overcoating.

9.2.18 If the primed surface is left for longer than seven days before application of the system, it is necessary to solvent wipe the surface with acetone and may require re-priming prior to the installation of the waterproofing. Advice on the necessity of re-priming must be sought from the Certificate holder, but such advice is outside the scope of this Certificate.

9.2.19 The application is normally in two coats. Depending on the substrate, the first coat of resin is applied at the rates given in Table 7 and Caltech FCP 225 GFM rolled out and laid with 50 mm side and end laps and ensuring the mat is correctly oriented, so the cut edge is overlapped by the feathered edge of the next strip of reinforcement. Extra resin is immediately applied to achieve a closed, pinhole-free surface.

Table 7 First coat coverage rate(1)

Substrate	Coverage rate ($l \cdot m^{-2}$)
Concrete screed	1.0
OSB 3 TG4	0.85
Asphalt	
– smooth	0.85
– medium	1.0
– rough	1.4
Sanded reinforced bituminous membranes	0.85
Mineral reinforced bituminous membranes	1.15
Single ply	0.85
GRP	0.85

(1) The rates given in this Table are minimum values and it is the contractor's responsibility to ascertain the rate used on the specific site.

9.2.20 The second coat of resin is applied as soon as it is practical to do so at a coverage rate of 0.5 $l \cdot m^{-2}$.

9.2.21 The topcoat is checked for uniformity of colour, any signs of pin-holing and uniformity of dispersion of grit for the non-slip finish. Any sub-standard areas should receive a further thin application of topcoat before the top layer of resin is cured.

9.2.22 All upstands, internal outlets, protrusions, cracks/splits and other points of weakness must be locally reinforced using Caltech FCP reinforced with Caltech FCP Joint Tape prior to the application of the main system.

9.2.23 The NHBC requires that the system, once installed, is inspected in accordance with *NHBC Standards* 2025, Chapter 7.1, Clause 7.1.11, and undergoes an appropriate integrity test, where required. Any damage to the system assessed in this Certificate must be repaired in accordance with section 9.4 of this Certificate and reinspected, in order to maintain system performance.

9.3 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 system must only be installed by contractors who have been trained and approved by the Certificate holder.

9.4 Maintenance and repair

9.4.1 Ongoing satisfactory performance of the system in use requires that it is suitably maintained. The guidance provided by the Certificate holder was assessed by the BBA and found to be appropriate and adequate.

9.4.2 The following requirements apply in order to satisfy the performance assessed in this Certificate:

9.4.2.1 The system must be the subject of visual six-monthly inspections and maintenance in accordance with the recommendations in BS 6229 : 2018, Chapter 7, and the Certificate holder's own maintenance requirements. For green roof and drainage systems, these six-monthly inspections must be carried out by a suitably experienced and competent individual (with horticultural knowledge) to ensure continued satisfactory performance. This must include an examination of the overall condition of the roof, ensuring that drain outlets and gutters are kept clear and unblocked and, for green roofs and roof gardens, the removal of any self-propagated plants and invasive plant species found. See sections 9.1.10 and 9.1.11.

9.4.2.3 Green roofs 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 and drainage outlets. Guidance is available within the latest edition of The Green Roof Organisation (GRO) Code of Best Practice.

9.4.2.4 For green roofs, to protect the waterproofing, invasive plant species (see sections 9.1.10 and 9.1.11 of this Certificate) must be eliminated through maintenance.

9.4.2.5 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 waterproofing 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 or roof garden, rainwater outlets may need to be disconnected from the main drainage system to prevent contamination of the local water system and/or harm to flora and fauna.

9.4.2.6 The chemical fertiliser used on green roofs must be checked for compatibility with the roof waterproofing layer. The Certificate holder can advise on the suitability of a particular product, but such advice is outside the scope of this Certificate.

9.4.2.7 If a leak occurs in the roof waterproof membrane in a protected specification, it must be repaired following removal of any system components above the waterproofing.

9.4.2.8 If minor damage occurs, it can be rectified by cleaning back to unweathered material, reactivating the surface and reapplying the system to the damaged area at the total application rate stated in section 9.2.

9.4.2.9 The anti-slip layer may require maintenance and repair for either cosmetic or anti-slip performance. In most situations a visual inspection will reveal if the Caltech FCP Finish has worn away. A further application of the Caltech FCP Finish is then required, at the coverage rate given in section 9.2. Preparation before coating includes a thorough clean and, if any of the original Caltech FCP finish remains, a solvent wipe. A small quantity of extra Caltech Quartz 0.7 to 1.2 mm may be required to be broadcast onto the wet Caltech FCP finish and rolled in to maintain anti-slip properties.

9.4.2.10 If more severe wear of the anti-slip layer has occurred, with a significant loss of the Caltech Quartz 0.7 to 1.2 mm, the full anti-slip layer specification should be applied (see section 9.2) following appropriate surface preparation in accordance with the Certificate holder's instructions.

10 Manufacture

10.1 The production processes for the system have been assessed, and provide assurance that the quality controls are satisfactory according to the following factors:

10.1.1 The manufacturer has provided documented information on the materials, processes, testing and control factors.

10.1.2 The quality control operated over batches of incoming materials has been assessed and deemed appropriate and adequate.

10.1.3 The quality control procedures and product testing to be undertaken have been assessed and deemed appropriate and adequate.

10.1.4 The process for management of non-conformities has been assessed and deemed appropriate and adequate.

10.1.5 An audit of each production location was undertaken, and it was confirmed that the production process was in accordance with the documented process, and that equipment has been properly tested and calibrated.

† 10.2 The BBA has undertaken to review the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control operated by the manufacturer are being maintained.

11 Delivery and site handling

11.1 The Certificate holder stated that Caltech FCP is delivered to site in tins bearing the Certificate holder's name, logo, system name, batch number, health and safety data and the BBA logo incorporating the number of this Certificate.

11.2 The system packaging type and sizes are given in Table 8.

Table 8 Packaging

Component/item	Package type	Weight/quality
Caltech FCP	Tins	15 l
Caltech FCP Catalyst	Packs	1 kg
Caltech FCP 225 GFM	Rolls	15 to 120 m^2
Caltech FCP Universal Primer	Tins	5 l
Caltech FCP Metal Primer	Packs	4 l
Euroroof Solvent	Cans	1 and 5 l

†ANNEX A – SUPPLEMENTARY INFORMATION

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

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

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

CLP Regulations

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

Additional information on installation

A.1 Detailing (eg upstands) is carried out in accordance with the Certificate holder's instructions.

A.2 Where applicable, the Certificate holder must be consulted for advice on suitable protection (eg pavers) depending on the use of the roof, but such advice is outside the scope of this Certificate.

A.3 Installation should also be in accordance with the relevant clauses of Liquid Roofing and Waterproofing Association (LRWA) Note 7 - *Specifier Guidance for Flat Roof Falls.*

A.5 Guidance on the design of blue roofs is available in *NFRC Technical Guidance Note for the construction and design of Blue Roofs – Roofs and podiums with controlled temporary water attenuation.*

A.4 Recommendations for the design of green roof 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.5 Green roofs should be of a suitable design. In cases of doubt the Certificate holder's advice should be sought, but such advice is outside the scope of this Certificate.

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

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

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

EOTA TR006 : 2004 *Determination of the resistance to dynamic indentation*
EOTA TR007 : 2003 *Determination of the resistance to static indentation*

Conditions

1 This Certificate:

- relates only to the product that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- has to be read, considered and used as a whole document – it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- and any matter arising out of or in connection with it or its subject matter (including non-contractual disputes or claims) is governed by and construed in accordance with the law of England and Wales
- the courts of England and Wales shall have exclusive jurisdiction to settle any matter arising out of or in connection with this Certificate or its subject matter (including non-contractual disputes or claims).

2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

3 This Certificate will be displayed on the BBA website, and the Certificate Holder is entitled to use the Certificate and Certificate logo, provided that the product and its manufacture and/or fabrication, including all related and relevant parts and processes thereof:

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product or any other product
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product
- actual installations of the product, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to UKCA marking and CE marking.

6 Any information relating to the manufacture, supply, installation, use, maintenance and removal of this product which is contained or referred to in this Certificate is the minimum required to be met when the product is manufactured, supplied, installed, used, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care.

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