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Agrément Certificate

07/4409

Product Sheet 1 Issue 3

ICOPAL HIGH PERFORMANCE TORCH-ON ROOF WATERPROOFING MEMBRANES

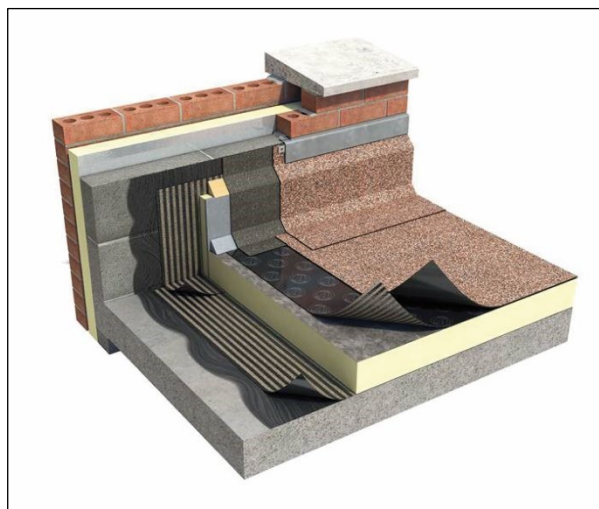
ICOPAL FIRESMART MEMBRANES

This Agrément Certificate Product Sheet⁽¹⁾ relates to Icopal FireSmart Membranes, a range of polyester-reinforced, styrene-butadiene-styrene (SBS) modified bitumen membranes with enhanced fire resistance for use on flat and pitched roofs with limited access.

(1) Hereinafter referred to as 'Certificate'.

CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production†
- formal three-yearly review†.



KEY FACTORS ASSESSED

Weather-tightness — the membranes will resist the passage of moisture to the interior of a building (see section 6).

Properties in relation to fire — the membranes, can enable a roof to be unrestricted under the national Building Regulations (see section 7).

Resistance to wind uplift — the membranes will resist the effects of any likely wind suction acting on the roof (see section 8).

Resistance to mechanical damage — the membranes will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 9).

Durability — under normal service conditions, the membranes, when used in a waterproof system, will have a service life of at least 35 years (see section 11).

The BBA has awarded this Certificate to the company named above for the products described herein. These products 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: 19 September 2019

John Albon
Chief Scientific Officer

Claire Curtis-Thomas
Chief Executive

Originally certificated on 23 May 2007

Certificate amended on 20 July 2023 to change company name and website address.

The BBA is a UKAS accredited Inspection Body (No.4345).

This certificate has been amended on 20 July 2023 as part of a transition of The BBA Agrément Certificate scheme delivered under the BBA's ISO/IEC 17020 accreditation. Sections marked with the symbol † are not issued under accreditation.

Readers MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly. Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

British Board of Agrément

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Regulations

In the opinion of the BBA, Icopal FireSmart Membranes, 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 presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



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

Requirement:	B4(2)	External fire spread
Comment:		On a suitable substructure, the membranes can enable a roof to be unrestricted under this Requirement. See section 7 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The membranes, including joints, will enable a roof to satisfy this Requirement. See section 6.1 of this Certificate.
Regulation:	7	Materials and workmanship (applicable to Wales only)
Regulation:	7(1)	Materials and workmanship (applicable to England only)
Comment:		The products are acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Durability, workmanship and fitness of materials
Comment:		The use of the membranes satisfies the requirements of this Regulation. See sections 10.1 and 11.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.8	Spread from neighbouring buildings
Comment:		The membranes, when applied to a suitable structure, can be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See section 7 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The membranes, including joints, will enable a roof to satisfy the requirements of this Standard with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See section 6.1 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The membranes can contribute to meeting 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 applicable to conversions
Comment:		Comments in relation to the products 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(a)(i)	Fitness of materials and workmanship
Comment:	(iii)(b)(i)	The membranes are acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.
Regulation:	28(b)	Resistance to moisture and weather

Comment:	The membranes, including joints, can enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation:	36(b) External fire spread
Comment:	On suitable substructures, the use of the membranes can enable a roof to be unrestricted under this Regulation. See section 7 of this 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.

See sections: 1 *Description* (1.3) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2019

In the opinion of the BBA, Icopal FireSmart Membranes, 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 and balconies*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with harmonised European Standard BS EN 13707 : 2013. An asterisk (*) appearing in this Certificate indicates that data shown are given in the manufacturer's Declaration of Performance.

Technical Specification

1 Description

1.1 Icopal FireSmart Membranes are polyester-reinforced, SBS modified bitumen membranes with enhanced fire performance. The products included under the scope of this Certificate are:

- Tecnatorch FireSmart Mineral Capsheet — incorporating a 195 g·m⁻² polyester reinforcement. The membrane has a mineral finished upper surface with a 75 mm wide, mineral-free selvedge finished with a thermofusible polyethylene film, and a grooved lower surface finished with a thermofusible polyethylene film
- Profiles XL FireSmart Mineral Capsheet — incorporating a 250 g·m⁻² polyester reinforcement. The membrane has a mineral finished upper surface with a 75 mm wide, mineral-free selvedge finished with a thermofusible polyethylene film, and a grooved lower surface finished with a thermofusible polyethylene film
- Thermaweld FireSmart Mineral Capsheet — incorporating a 250 g·m⁻² polyester reinforcement. The membrane has a mineral finished upper surface with a 75 mm wide mineral-free selvedge finished with a thermofusible polyethylene film, and a grooved lower surface finished with a thermofusible polyethylene film.

1.2 The mineral finish is available in green, blue/grey, brown and charcoal colours.

1.3 The membranes are manufactured to the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Membrane type		
	Tecnatorch FireSmart	Profiles XL FireSmart	Thermaweld FireSmart
Width (m)	1	1	1
Length (m)	8	7	7
Mass per unit area* (kg·m ⁻²)	5.0	5.3	6.0
Watertightness*	pass	pass	pass
Tensile strength* (N per 50 mm)			
longitudinal	900	900	900
transverse	900	900	900
Elongation at break* (%)			
longitudinal	35	35	35
transverse	35	35	35
Low temperature flexibility* (°C)	≤-15	≤-10	≤-20

1.4 Other materials for use with the products include:

- vapour dispersion membranes, vapour control layers and underlays covered under Product Sheets 2 and 3 of this Certificate
- Siplast Primer and Icopal SF Bitumen Primer — used, when required, to prepare non-membrane roof substrates prior to application of the membranes. The primer is supplied in 25 litre containers
- Thermazone Torch-on PIR Insulation — covered under BBA Certificate 15/5253, Product Sheet 2.

2 Manufacture

2.1 The membranes are manufactured using conventional continuous bitumen coating techniques.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out 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.

2.3 The management system of Icopal Limited has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 and BS EN ISO 14001 : 2015 by BSI (Certificates Q05556 and EMS 535978 respectively).

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls secured with three printed banding tapes bearing the product name, type of surface finish, roll length, colour coding, batch sticker and the BBA logo incorporating the number of this Certificate.

3.2 Rolls must be stored upright on a clean, dry, level surface, under cover and protected from excessive heat and mechanical damage.

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

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Icopal FireSmart Membranes.

4 General

4.1 Icopal FireSmart Membranes are satisfactory for use in fully or partially bonded built-up roof waterproofing specifications on flat or pitched roofs with limited access.

4.2 Decks to which the products are to be applied must comply with the relevant requirements of BS 6229 : 2018, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2019*, Chapter 7.1.

4.3 Flat roofs are defined for the purpose of this Certificate as those having a minimum finished fall of 1:80.

4.4 Pitched roofs are defined for the purpose of this Certificate as those having falls greater than 1:6.

4.5 When designing flat roofs, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection and direction of falls.

4.6 Limited access roofs are defined for the purpose of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof waterproofing, cleaning of gutters, etc. Where traffic in excess of this is envisaged, special precautions such as additional protection to the membranes must be taken.

4.7 Insulation systems or materials used in conjunction with the products must be approved by the Certificate holder and must be either:

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

5 Practicability of installation

The membranes are designed to be installed only by competent roofing contractors experienced with these types of products.

6 Weathertightness



6.1 The membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture to the interior of a building and so satisfy the requirements of the national Building Regulations.

6.2 The membranes are impervious to water and, when used as described, will provide a weathertight roofing capable of accepting minor structural movements without damage.

7 Properties in relation to fire



7.1 When tested to DD CEN/TS 1187 : 2012, Test 4, and classified in accordance with BS EN 13501-5 : 2016, a system comprising an 18 mm thick plywood primed with Icopal SA Bitumen Primer, a fully bonded layer of Icopal TorchSafe TA VCL Stripes, 120 mm thick Thermazone Torch-On polyisocyanurate insulation board, a partially bonded layer of Total Torch Vapour Dispersion Layer and fully bonded layer of Thermaweld FireSmart Mineral Capsheet⁽¹⁾, achieved B_{ROOF}(t4).

(1) Fire test and classification reports, reference 19673A and 19673C respectively, conducted by Warrington Fire, Gent. Report available from the Certificate holder.

7.2 When tested, a system comprising 19 mm thick exterior grade plywood, Total Torch Vapour Control Layer, 50 mm thick polyisocyanurate insulation board (facings glass tissue and bituminised glass tissue/polypropylene fleece), a venting layer, Icopal Premium Torch-on Underlay and Icopal Tecnatorch FireSmart Mineral Capsheet⁽¹⁾ was designated as unrestricted under the national Building Regulations.

(1) Fire test report reference 161437, conducted by Bodycote Warringtonfire. Report available from the Certificate holder.

7.3 The designation of other specifications should be confirmed by reference to the requirements of the documents supporting the national Building Regulations.

8 Resistance to wind uplift

The adhesion of the bonded membranes is sufficient to resist the effects of wind suction, elevated temperature and thermal shock conditions likely to occur in practice.

9 Resistance to mechanical damage

The membranes can accept the limited foot traffic associated with installation and maintenance. Reasonable care should be taken to avoid sharp objects or concentrated loads. Where regular traffic is envisaged, eg for maintenance of lift equipment, a walkway should be provided using concrete slabs supported on bearing pads.

10 Maintenance



10.1 The roof systems should be the subject of six monthly inspections and maintenance in accordance with BS 6229 : 2018, Chapter 7.

10.2 Where damage has occurred it should be repaired in accordance with section 14 and the Certificate holder's instructions.

11 Durability



11.1 Under normal service conditions, the membranes will have a service life of at least 35 years.

11.2 It is possible that some localised loss of the mineral surfacing may occur, after some years, in areas where complex detailing of the roof design is incorporated.

Installation

12 General

12.1 Installation of Icopal FireSmart Membranes is carried out using traditional methods for laying reinforced bitumen membranes in accordance with the Certificate holder's instructions and the relevant clauses of BS 8000-0 : 2014, BS 8000-4 : 1989 and BS 8217 : 2005.

12.2 Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs.

12.3 Vapour control layers, venting layers and underlays, as specified, must be installed in accordance with the manufacturer's instructions.

12.4 Where required, substrates should be primed with Siplast Primer or Icopal SF Bitumen Primer at the rates specified by the Certificate holder.

12.5 The membranes may be laid in conditions normal to roofing work and must not be laid in rain, snow or heavy fog, nor if the temperature falls below 5°C. At low temperatures, precautions must be taken against the formation of condensation on the substrate.

12.6 At falls in excess of 5° (1:11) precautions against slippage and requirements for mechanical fixing as required by BS 8217 : 2005, should be observed.

12.7 If the roof is likely to be subjected to uncontrolled pedestrian access, additional surface protection must be used in accordance with BS 8217 : 2005, Clauses 6.12 and 6.13, applied as described in the relevant parts of Clause 8.19 of the code and the manufacturer's instructions.

13 Procedure

13.1 Bonding is achieved by melting the lower surface of the membranes using a standard roofer's torch.

13.2 The membranes must be heated carefully, ensuring that the thermofusible film is completely removed as work proceeds, and the membrane pressed down onto the prepared substrate, ensuring that a continuous 5 mm bead of bitumen is extruded from all edges and fully bonded.

13.3 Side laps must follow the manufactured mineral-free 75 mm wide selvedge and end laps must be a minimum of 150 mm.

13.4 The membrane edges, including end laps, must be offset by at least 300 mm from the underlay edges to avoid a build-up of overlaps.

14 Repair

In the event of damage, the membranes can be effectively repaired, after cleaning, using traditional methods for bonding reinforced bituminous membranes. The Certificate holder should be consulted for details.

Technical Investigations

15 Tests

Tests were carried out and the results assessed to determine:

- thickness
- width
- mass per unit area
- tensile strength and elongation (unaged and heat aged)
- resistance to nail tear
- low temperature flexibility
- water vapour transmission
- dimensional stability
- watertightness
- resistance to static indentation
- resistance to dynamic impact
- peel adhesion.

16 Investigations

16.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

16.2 An evaluation was made of existing test data on roof fire exposure.

16.3 Relevant performance test data relating to the products covered under Product Sheet 4 of this Certificate were assessed.

16.4 An evaluation of durability was made using data for existing sites for products using the same coating mass formulation.

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

BS EN 13707 : 2013 *Flexible sheets for waterproofing — Reinforced bitumen sheets for roof waterproofing — Definitions and characteristics*

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

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

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

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
- is valid only within the UK
- 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
- is subject to English Law.

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, UKNI or 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.