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Agrément Certificate
04/4079
Product Sheet 1

FATRA ROOF COVERING SYSTEMS

FATRAFOL FF807 AND FATRAFOL FF807/V ROOF COVERING SYSTEMS

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Fatrafol FF807 and Fatrafol FF807/V Roof Covering Systems, a PVC roof waterproofing membrane with a non-woven fabric fleece backing, for use as a fully-bonded waterproof covering on pitched or flat roofs with limited access.

AGRÉMENT 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

Weathertightness — the membranes will resist the passage of moisture to the into the building (see section 5).

Resistance to wind uplift — the systems will resist the effects of any likely wind suction acting on the roof (see section 6).

Resistance to foot traffic — the systems will accept the limited foot traffic and loads associated with installation and maintenance (see section 7).

Properties in relation to fire — the systems will enable a roof to be unrestricted under Building Regulations (see section 8).

Durability — under normal service conditions the systems will provide a durable waterproofing with a service life in excess of 30 years (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the systems described herein. The 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

A handwritten signature in black ink, appearing to read 'Simon Wroe'.

Simon Wroe
Head of Approvals — Materials

A handwritten signature in black ink, appearing to read 'Greg Cooper'.

Greg Cooper
Chief Executive

Date of Second issue: 20 April 2011

Originally certificated on 10 June 2004

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Fatrafol FF807 and Fatrafol FF807/V Roof Covering Systems if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales)

Requirement: B4(2)	External fire spread
Comment:	On a suitable substructure the use of the systems will enable a roof to be unrestricted under the requirements of these Regulations. See sections 8.1 and 8.2 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	The membranes, including joints, will enable a roof to meet this Requirement. See section 5.1 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The systems are acceptable. See section 10 and the <i>Installation</i> part 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 9.1, 10 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards – construction
Standard: 2.8	Fire spread from an adjoining building
Comment:	The systems when applied to a suitable substrate can be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 8.1 and 8.2 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The use of the membranes, including joints, will enable a roof to satisfy the requirements of this Standard, with references to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.7 ⁽¹⁾⁽²⁾ . See section 5.1 of this Certificate.
Regulation: 12	Building standards – conversions
Comment:	All comments given for these systems under Regulation 9, 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) 2000 (as amended)

Regulation: B2	Fitness of materials and workmanship
Comment:	The systems are acceptable. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: B3(2)	Suitability of certain materials
Comment:	The systems are acceptable. See section 9.1 of this Certificate.
Regulation: C4(b)	Resistance to ground moisture and weather
Comment:	The membranes, including joints, will enable a roof to meet the requirements of this Regulation. See section 5.1 of this Certificate.
Regulation: E5(b)	External fire spread
Comment:	On a suitable substructure the use of these systems will enable a roof to be unrestricted under the requirements of this Regulation. See sections 8.1 and 8.2 of this Certificate.

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 1 *Description* (1.3) and 2 *Delivery and site handling* (2.3).

Non-regulatory Information

NHBC Standards 2011

NHBC accepts the use of Fatrafol FF807 and Fatrafol FF807/V Roof Covering Systems, when installed and used in accordance with this Certificate, as meeting R3 Material requirement in relation to *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

General

The membranes are manufactured in the Czech Republic by Fatra as.

1 Description

1.1 Fatrafol FF807 and Fatrafol FF807/V Roof Covering Systems consist of a PVC roofing sheet with a non-woven polyester-fleece backing. Fatrafol FF807/V is not suitable for direct laying over bituminous products such as roof felts or asphalt.

1.2 The PVC membranes comprise upper, middle and lower layers manufactured by a calender-mould process. The bottom surface has a 1.5 mm non-woven, polyester-fleece layer.

1.3 The membranes are manufactured with the parameters given in Table 1.

Table 1 Nominal characteristics

	FF807	FF807/V
Thickness excluding fleece (mm)	1.5	1.5
Roll length (m)	15.4	16.0
Roll width (m)	1.30	2.05
Mass per unit area (kg·m ⁻²)	2.30	2.04
Colours ⁽¹⁾	grey, red, orange, green and blue	

(1) Other colours available at customer's request.

1.4 Other materials used with the systems include:

- Composite Gutter System — two, gutter shaped, galvanized steel skins with insulation in between and finished inside with Fatrafol FF807 compound to give a continuous roof line
- Fatrafol FF859 membrane adhesive — moisture-curing polyurethane adhesive for use with the membranes
- Fatrafol FF899 primer — for use on porous substrates
- Shaped PVC reinforcements — for internal and external corners
- PVC-coated, galvanized steel profiles — for parapets, edge details and upstands
- Fatrafol FF812 membrane — a textured, slip-resistant walkway membrane
- Fatrafol FF804 membrane — a non-fleece backed version of Fatrafol FF807, for use at detailing and upstands
- Fatrafol FF816 Self Adhesive Vapour Barrier — a self-adhesive vapour control layer consisting of a bituminous adhesive, a layer of glass-fibre and a polyester reinforced aluminium film
- Fatrafol FF817 Vapour Barrier Primer — a bituminous solution for preparation of substrates prior to the installation of bituminous vapour control layers
- Fatrafol FF818 Polythene Vapour Control Layer — a 250 µm (1000 gauge) polyethylene membrane
- Fatrafol FF819 Torch-on Vapour Barrier — a glass reinforced, APP modified bitumen vapour control layer, installed by torch bonding
- Fatrafol FF820 Torch-on Vapour Barrier — a polyester reinforced, SBS modified bitumen vapour control layer, installed by torch bonding
- Fatrafol FF821 Torch-on Vapour Barrier — a SBS modified bitumen membrane with an aluminium core for use as a vapour control layer, installed by torch bonding
- Fatrafol FO Rainwater Outlets — a range of outlets compatible with Fatra PVC membranes.

1.5 Quality control checks carried out during production and on the finished membrane include checks on:

- appearance
- thickness
- roll width
- breaking load
- tensile strength and elongations
- dimensional stability
- tear resistance.

2 Delivery and site handling

2.1 The membranes are delivered to site in rolls wrapped in paper bearing the Certificate holder's name, batch number, product name, surface colour, and the BBA identification mark incorporating the number of this Certificate.

2.2 Rolls should be stored horizontally on a clean, dry, level surface and kept under cover until required.

2.3 Materials classified under *The Chemicals (Hazard Information and Packaging for Supply) Regulations 2009* (CHIP4) along with their flashpoints are given in Table 2. These products bear the appropriate hazard warning.

Table 2 Flashpoint and hazard classification

Material	Flashpoint (°C)	Classification
Fatrafol FF859 membrane adhesive	-61	Highly flammable, Irritant
Fatrafol FF899 primer	-17	Highly flammable, Irritant
Fatrafol FF817	40	Harmful, Flammable, Dangerous to the environment

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Fatrafol FF807 and Fatrafol FF807/V Roof Covering Systems.

Design Considerations

3 General

3.1 Fatrafol FF807 and Fatrafol FF807/V Roof Covering Systems are satisfactory for use as fully-bonded roof waterproofing layers on pitched or flat roofs with limited access.

3.2 Limited access roofs are defined for the purpose of this Certificate as those roofs subjected only to pedestrian traffic for maintenance of the roof covering and cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided.

3.3 Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. For design purposes, twice the minimum finished fall should be assumed, unless a detailed analysis of the roof is available, including overall and local deflection, direction of falls etc. Pitched roofs are defined as those having falls greater than 1:6

3.4 Decks to which this system is to be applied must comply with the relevant requirements of either BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards*, Chapter 7.1 *Flat roofs and balconies*.

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

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

4 Practicability of installation

The systems are designed to be installed by a competent roofing contractor experienced with this type of material.

5 Weathertightness



5.1 The membranes, including joints, when completely sealed and consolidated, will adequately resist the passage of moisture into the building and enable a roof to comply with the requirements of the national Building Regulations:

England and Wales — Approved Document C, Requirement C2(b), Section 6

Scotland — Mandatory Standard 3.10, clauses 3.10.1 and 3.10.7

Northern Ireland — Regulation C4(b).

5.2 The systems are impervious to water and will achieve a weathertight roof capable of accepting minor structural movement.

6 Resistance to wind uplift

Results of tests indicate that the adhesion of bonded systems is sufficient to resist the effects of wind suction, thermal cycling or other minor structural movements likely to occur in service (see section 16, Table for *Physical properties — general*).

7 Resistance to foot traffic

Results of tests indicate that the systems can accept the limited foot traffic and light concentrated loads associated with the installation and maintenance. Reasonable care should be taken to avoid puncture by sharp objects or concentrated loads. Where traffic in excess of this is envisaged, such as maintenance of lift equipment, a walkway must be provided, for example, using concrete slabs supported on bearing pads, or a protective layer such as Fatrafol FF812 membrane. Where a mineral fibre board has been used, a protective sheet must be laid between the roof covering and the protective layer to spread the loading.

8 Properties in relation to fire



8.1 When tested in accordance with BS 476-3 : 1958, a system comprising one layer of loose-laid polyethylene vapour barrier on a galvanized profiled deck, with a 125 mm mineral fibre board, mechanically fixed through the vapour barrier using Buildex HRG screws, with the Fatrafol FF807 membrane fully bonded using Fatrafol membrane adhesive, achieved an EXT.F.AB rating.

8.2 The designation of other specifications, should be confirmed by:

England and Wales — Test or assessment in accordance with Approved Document B, Appendix A, Clause A1

Scotland — To conform to Mandatory Standard 2.8, clause 2.8.1

Northern Ireland — Test or assessment by a UKAS accredited laboratory, or an independent consultant with appropriate experience.

9 Maintenance



9.1 Maintenance should include checks and operations to ensure the following where applicable:

- protection layers are in good condition
- exposed membrane is free from the build-up of silt and other debris and unwanted vegetation are cleared.

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

10 Durability



Accelerated weathering tests and performance in service, confirm that satisfactory retention of physical properties is achieved. Under normal conditions, the Fatrafol FF807 and Fatrafol FF807/V waterproofing membranes will provide durable roof waterproofing with a service life in excess of 30 years.

Installation

11 General

11.1 Installation of Fatrafol FF807 and Fatrafol FF807/V must be in strict accordance with the Certificate holder's fixing instructions, and the relevant recommendation of BS 8000-4 : 1989.

11.2 The membranes may be applied over tissue-faced insulation materials and fixed to the substructure in such a way as not to impair the performance of the waterproofing membrane. Foamglas or polystyrene-based insulation products may also be used. Fatrafol FF807/V is not suitable for direct laying over bituminous substrates.

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

11.4 Installation should not be carried out during inclement weather (eg rain, fog, snow). When the temperature is below 5°C suitable precautions against surface condensation must be taken.

12 Procedure

12.1 Where required, Fatrafol FF899 primer is applied to the substrate using a roller and allowed to dry to provide a primer coat.

12.2 Fatrafol FF859 adhesive is then applied to the substrate by roller or brush.

12.3 The membrane should be laid into the wet adhesive within 5 to 15 minutes depending on the ambient conditions, and rolled within 10 to 20 minutes, misting with a water vapour spray to accelerate setting.

13 Jointing

13.1 To ensure a watertight bond, lap joints in the membrane should be a minimum of 50 mm wide at sheet ends and details. Edge overlaps with adjacent sheets should be a minimum of 50 mm, welded over the last 50 mm as described in section 13.2.

13.2 When hot-air welding a lap joint, a minimum of 50 mm of the lap width must be welded. During this process, a continuous bead of molten material must exude as a visible indication of a satisfactory weld.

13.3 After completion of the jointing process the lap should be tested for complete weathertightness.

14 Details

The Certificate holder supplies a range of prefabricated external or internal PVC corners for the treatment of details, flashing.

15 Repair

In the event of damage, repair should be carried out by applying a patch of the membrane extending at least 50 mm beyond the defect. The joint should be cleaned back to unweathered material and solvent or hot-air welded and finally sealed using Fatra PVC liquid sealant.

Technical Investigations

16 Tests

A sample of Fatrafol FF807 was obtained from the manufacturer for the purpose of testing. Tests performed by the BBA, which give typical results for the material are summarised in Tables 3 and 4.

Table 3 Physical properties — directional

Test (units)	Mean result		Method
	Longitudinal	Transverse	
Dimensional stability (%)	-0.05	-0.05	BS EN 1107-2
Tensile strength (N per 50 mm) unaged	1001	1096	BS EN 12311-2
Elongation (%) unaged	125	76	BS EN 12311-2
Nail tear strength (N) ⁽¹⁾ 23°C	352	431	MOAT 55
Cold blend (°C) ⁽¹⁾ unaged heat aged ⁽²⁾ UV aged ⁽³⁾	-30 -30 -30	-30 -30 -30	BS EN 495-5

(1) Material tested by the BBA is Fatrafol 810 subject of BBA Certificate 02/3921.

(2) Heat aged 24 weeks at 80°C.

(3) UV aged UVB 4.5 GJm⁻² condensation 50°C/UV light.

Table 4 Physical properties — general

Test (units)	Mean result	Method
Cyclic movement unaged — 1000 cycles heat aged ⁽¹⁾ — 200 cycles	pass pass	EOTA TR 008
Peel strength (N per 50 mm) unaged heat aged ⁽¹⁾ water soaked ⁽²⁾	102 210 40	MOAT 27 : 5.1.3
Water vapour permeability ⁽³⁾ (g·m ⁻² ·day ⁻¹)	1.20	BS 3177 (25°C/75% RH)
Water vapour resistance ⁽³⁾ (MN·s·g ⁻¹)	171	BS 3177 (25°C/75% RH)
Static indentation ⁽³⁾ rigid compressive	L ₄ L ₄	MOAT 27 : 5.1.9
Dynamic indentation ⁽³⁾ perlite EPS	I ₃ I ₄	MOAT 27 : 5.1.10

(1) Heat aged 28 days at 80°C.

(2) Water soaked 7 days at 60°C.

(3) Material tested by BBA is Fatrafol 810 subject of BBA Certificate 02/3921.

17 Investigations

17.1 Existing data on the fire performance of the membrane were examined.

17.2 Assessment of the durability of the membranes was based on the data from Certificate 02/3921, Fatrafol 810, which is a material of the same composition.

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

17.4 A reassessment of the *Durability* statement was based on a visit to an existing site in the Czech Republic and on results of tests conducted on unaged and natural-aged material.

Bibliography

- BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
- BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*
- BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*
- 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 495-5 : 2001 *Flexible sheets for waterproofing — Determination of foldability at low temperature — Plastic and rubbers sheets for roof waterproofing*
- BS EN 1107-2 : 2001 *Flexible sheets for waterproofing — Determination of dimension stability — Plastic and rubber sheets for roof waterproofing*
- BS EN 12311-2 : 2000 *Flexible sheets for waterproofing — Determination of tensile properties — Part 2 — Plastic and rubber sheets for roof waterproofing*
- MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*
- MOAT No 55 : 1991 *UEAtc Supplementary guide for the assessment of mechanically fastened roof waterproofing*
- EOTA Technical Report TR 008 (May 1999), *Liquid Applied Roof Waterproofing Kits (LARVK) — Determination of the resistance to fatigue movement*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

18.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

18.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.

18.4 In granting this Certificate, the BBA is not responsible for:

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

18.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.