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Agrément Certificate

**88/2047**

Product Sheet 1

## TREMCO ROOF WATERPROOFING SYSTEMS

### TREMCO HI-THERM ELASTOMERIC ROOF WATERPROOFING SYSTEM

#### PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to the Tremco HI-THERM Elastomeric Roof Waterproofing System, comprising Elastomeric Underlay, Elastomeric Felt Capsheet and Elastomeric THERMastic Adhesive (Agrément Certificate 89/2210), for use in new and remedial applications on flat and pitched 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 system will resist the passage of moisture to the interior of the building (see section 5).

**Properties in relation to fire** — results of tests indicate that the system will enable a roof to be unrestricted under the Building Regulations (see section 6).

**Resistance to wind uplift** — when correctly specified, the system will resist the effects of any wind suction likely to occur in practice (see section 8).

**Resistance to foot traffic** — the system will accept the limited foot traffic and loads associated with installation and maintenance of the system without damage (see section 9).

**Durability** — under normal service conditions the system will provide a durable waterproof covering with a service life of at least 20 years (see section 11).

The BBA has awarded this Agrément 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.

Date of First issue: 24 September 2009

Originally certificated on 25 May 1988

Simon Wroe

Head of Approvals — Materials

Greg Cooper

Chief Executive

*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](http://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, the Tremco HI-THERM Elastomeric Roof Waterproofing System, 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 2000 (as amended) (England and Wales)

<b>Requirement:</b> B4(2)	<b>External fire spread</b>
<b>Comment:</b>	Test data to BS 476-3 : 2004 indicate that on suitable substructures the use of the system will be unrestricted under this Requirement. See sections 6.1 to 6.3 of this Certificate.
<b>Requirement:</b> C2(b)	<b>Resistance to moisture</b>
<b>Comment:</b>	Data for water resistance on the membrane indicate that the system meets this Requirement. See section 5.1 of this Certificate.
<b>Requirement:</b> C2(c)	<b>Condensation</b>
<b>Comment:</b>	The system, when used as a vapour control layer, can contribute towards enabling a roof to satisfy this Requirement. See section 7 of this Certificate.
<b>Requirement:</b> Regulation 7	<b>Materials and workmanship</b>
<b>Comment:</b>	The system is acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.



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

<b>Regulation:</b> 8(1)(2)	<b>Fitness and durability of materials and workmanship</b>
<b>Comment:</b>	The system can contribute to a construction satisfying this Regulation. See sections 10, 11.1 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 9	<b>Building standards — construction</b>
<b>Standard:</b> 2.8	<b>Spread from neighbouring buildings</b>
<b>Comment:</b>	Data obtained from test to BS 476-3 : 2004 indicate that on suitable substructures the use of the system will enable a roof to be unrestricted under this Standard, with reference to clause 2.8.1 <sup>(1)(2)</sup> . See sections 6.1 and 6.3 of this Certificate.
<b>Standard:</b> 3.10	<b>Precipitation</b>
<b>Comment:</b>	Tests for water resistance of the membrane, including joints, indicate that the use of the system will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.10.1 <sup>(1)(2)</sup> , 3.10.6 <sup>(1)(2)</sup> and 3.10.7 <sup>(1)(2)</sup> . See section 5.1 of this Certificate.
<b>Standard:</b> 3.15	<b>Condensation</b>
<b>Comment:</b>	The system can enable a roof to satisfy this Standard. See section 7 of this Certificate.
<b>Regulation:</b> 12	<b>Building standards — conversions</b>
<b>Comment:</b>	All comments given for this system under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2000 (as amended)

<b>Regulation:</b> B2	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	The system is acceptable. See section 11.1 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> B3(2)	<b>Suitability of certain materials</b>
<b>Comment:</b>	The system is acceptable. See section 10 of this Certificate.
<b>Regulation:</b> C4(b)	<b>Resistance to ground moisture and weather</b>
<b>Comment:</b>	Data for water resistance of the membrane indicate that the use of the system can enable a roof to satisfy the requirements of this Regulation. See section 5.1 of this Certificate.
<b>Regulation:</b> C5	<b>Condensation</b>
<b>Comment:</b>	The system, when used as a vapour control layer, can contribute to enabling the roof to satisfy the requirements of this Regulation. See section 7 of this Certificate.
<b>Regulation:</b> E5(b)	<b>External fire spread</b>
<b>Comment:</b>	Data obtained from tests to BS 476-3 : 1958 indicate that on suitable substructures the use of the system will enable a roof to be unrestricted under the requirements of this Regulation. See sections 6.1 to 6.3 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* (1.4), 2 *Delivery and site handling* (2.2 and 2.3).

# Non-regulatory Information

## NHBC Standards 2008

NHBC accepts the use of the Tremco HI-THERM Elastomeric Roof Waterproofing System, when installed and used in accordance with this Certificate, in relation to *NHBC Standards, Chapter 7.1 Flat Roofs and balconies*.

## Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, the Tremco HI-THERM Elastomeric Roof Waterproofing System, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual, Section, 4 Superstructure, Sub-section Flat roofs*.

# Technical Specification

## 1 Description

1.1 The Tremco Elastomeric Underlay is manufactured by impregnating with bitumen and coating a non-woven polyester base (nominal weight 160 gm<sup>-2</sup>) with polymer-modified bitumen. A sand finish is applied to both sides of the membrane.

1.2 Tremco Elastomeric Felt is manufactured in the same way as the underlay except with a non-woven polyester core (nominal weight 175 gm<sup>-2</sup>). The mineral surfaced version receives a mineral finish on the upper face instead of sand. A number of different coloured mineral surfaced finishes are available.

1.3 Tremco THERMastic elastomeric bitumen adhesive is manufactured by blending a mixture of bitumen, polymer and processing oils.

1.4 The nominal characteristics of the Tremco Elastomeric membrane range are detailed in Table 1.

Table 1 Nominal characteristics

	Underlay	Sand finish	Mineral finish
Thickness (mm)	2.0	2.8	4.0
Roll width (m)	1	1	1 <sup>(1)</sup>
Roll length (m)	15	10	10
Weight per unit surface area (kgm <sup>-2</sup> )	2.2	3.0	4.0
Roll weight (kg)	33	30	40

(1) Including 75 mm selvedge.

1.5 Other products used with the HI-THERM system include:

- Tremcoveral — a cold-applied, polymer-modified bitumen for sealing exposed felt edges
- Bitumen impregnated, glass-tissue faced, rigid polyisocyanurate insulation boards — these conform to BS 4841-3 : 1987
- Venting layer
- QD Bitumen Primer — for substrate preparation.

1.6 Quality control checks are carried out during production and on the finished products. Checks on the final products include weight, dimensions, tensile strength, elongation, heat resistance and low-temperature flexibility.

## 2 Delivery and site handling

2.1 Rolls are delivered to site in colour-coded paper by wrapping tape and bearing the product name, batch number, manufacturer's name and the BBA identification mark incorporating the number of this Certificate.

2.2 THERMastic is delivered to site in 25 kg silicone-treated cardboard kegs. The kegs are split into three with internal dividers, for ease of site handling.

2.3 Rolls and kegs should be stored in a dry location, under cover and off the ground. Rolls are stored on end, kegs should not be stacked more than two high.

# Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Tremco HI-THERM Elastomeric Roof Waterproofing System.

## 3 Use

3.1 The Tremco HI-THERM Elastomeric Roof Waterproofing System is satisfactory for use on flat and pitched roofs with limited access. It is for use as a two-layer system, comprising one layer of Tremco Elastomeric Underlay and one layer of Tremco Elastomeric Felt with a suitable surface finish, bonded using THERMastic bitumen adhesive.

3.2 The mineral finished version of Tremco Elastomeric Felt is for use in detail work and, where appropriate, as the exposed cap sheet in conjunction with Tremco Elastomeric Underlay. The underlay, where appropriate, may also be used as a vapour control layer.

3.3 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, special precautions such as additional protection to the membrane must be taken.

3.4 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, direction of falls, etc. Flat roofs are defined for the purpose of this Certificate as those roofs having a minimum finished fall of 1:80. Pitched roofs are defined as those having falls in excess of 1:6.

3.5 Decks to which the system is to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards*, Chapter 7.1 or the *Zurich Building Guarantee Technical Manual* Section 4 *Superstructure*, Sub-section *Flat roofs*, (pages 260–270).

3.6 Insulation materials used in conjunction with the system must be approved by Tremco 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.

3.7 The requirement for a vapour control layer below the insulation must be assessed in accordance with Appendix A of BS 6229 : 2003.

## 4 Practicability of installation

The system must only be installed by specialist roofing contractors, registered by the Certificate holder.

## 5 Weathertightness



5.1 Data confirm that the membrane, when completely sealed and consolidated, will adequately resist the passage of moisture to the inside of the building and so meet the requirements of the national Building Regulations:

**England and Wales** — Approved Document C, Requirement C2(b), Section 6.0

**Scotland** — Mandatory Standard 3.10, clauses 3.10.1, 3.10.6 and 3.10.7

**Northern Ireland** — Regulation C4(b)

5.2 The membranes are impervious to water and, when used in the systems described, will give a weathertight roofing capable of accepting minor structural movements without damage.

## 6 Properties in relation to fire



6.1 When tested in accordance with BS 476-3 : 2004, a system comprising non-combustible board, one layer of Tremco Elastomeric Underlay, one layer of 50 mm thick polyurethane rigid insulation board, one layer loose-laid 3G Venting layer, one layer of Tremco Elastomeric Underlay and one layer of Tremco Elastomeric Capsheet (mineral surface), bonded between layers with THERMastic bitumen adhesive, achieved an EXT.F.AA rating.



6.2 When used for flat roofs with one of the surface finishes (listed below) defined in the Building Regulations (and listed in this section), the roof is deemed to be of designation AA:

**England and Wales** — Approved Document B, Appendix A, Table A5, Part iii

**Northern Ireland** — Technical Booklet E, Table 4.6 of Part IV

### Surface finishes

- bitumen-bedded stone chippings covering the whole surface to a depth of not less than 12.5 mm
- bitumen-bedded tiles of a non-combustible material
- sand and cement screed, or
- macadam.



6.3 The designation of other specifications (eg on combustible substrates) should be confirmed by:

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

**Scotland** — test to conform with Mandatory Standard 2.8, clauses 2.8.1

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

6.4 A system comprising Tremco Elastomeric over 50 mm Tremco Tremtherm MT insulation on a non-combustible deck, when tested to ENV 1187 : 2002 achieved Classification B<sub>ROOF</sub>(t4) in accordance with EN 13501-5 : 2005.

## 7 Resistance to water and water vapour



Tremco Elastomeric Underlay, when used as a vapour control layer, provides an effective barrier to the passage of liquid water and water vapour to the insulation layer.

## 8 Resistance to wind uplift

Tests on the adhesion of the system to the decking, or to bitumen-based felt, indicate that it is adequate to resist the effect of wind suction, elevated temperature and thermal shock conditions likely to occur in practice. The elastomeric properties of the THERMastic bitumen adhesive will enable the system to resist minor structural movement likely to occur in practice.

## 9 Resistance to foot traffic

Tests indicate that the system can accept, without damage, the limited foot traffic and light concentrated loads associated with installation and maintenance operations. However, reasonable care should be taken to avoid puncture by sharp objects or concentrated loads.

## 10 Maintenance



The system should be subjected to regular annual inspections and roof drains kept clear as is good practice with all roofing membranes.

## 11 Durability



11.1 Accelerated weathering tests confirm that satisfactory retention of physical properties is achieved. All available evidence indicates that the HI-THERM system should have a life of at least 20 years.

11.2 With the mineral surfaced product 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 When installing the Tremco HI-THERM Elastomeric Roof Waterproofing System, deck surfaces must be dry, clean, and free from sharp projections such as nail heads, concrete nibs. Porous substrates must be primed using QD Bitumen Primer.

12.2 Installation of the system must be in accordance with the Certificate holder's instructions, the relevant Clauses of BS 6229 : 2003, BS 8000-4 : 1989 and BS 8217 : 2005.

12.3 When used for remedial work, existing waterproofing layers must be made sound and existing surface finishes (eg surface dressing) must be removed and then primed.

12.4 THERMastic bitumen adhesive has an operative temperature region of between 150°C and 260°C. The optimum temperature for use is 220°C.

12.5 At falls in excess of 5° (1:11) the normal precautions against slippage and the provision for mechanical fixings as required by BS 8217 : 2005 should be observed.

## 13 Procedure

13.1 The system is installed using traditional bitumen bonding techniques as described in BS 8217 : 2005, using THERMastic bitumen adhesive instead of traditional grades of oxidised bitumen adhesive.

13.2 Where applicable, details are to be worked in accordance with traditional methods.

13.3 Exposed felt edges may be sealed using Tremcoveral.

13.4 On completion of the roof, the sand-faced cap sheet should have a surface finish applied in accordance with BS 8217 : 2005, Clause 6.12. *Surface finishes* in the Code of practice include:

- stone aggregate in dressing compound
- precast concrete paving flags
- proprietary tiles in bonding compound.

13.5 The mineral-faced cap sheet requires no further surface protection.

## 14 Repairs

In the event of damage the system can be effectively repaired after cleaning, using the appropriate HI-THERM materials, by traditional techniques for bonding bituminous felts.

## 15 Tests

15.1 Samples of the HI-THERM membranes and THERMastic bitumen adhesive were obtained from the Certificate holder for testing. The results of tests carried out by the BBA, which show typical results for the material, are summarised in Tables 2 to 9.

*Table 2 Physical properties of reinforcing polyesters*

Test (units)	Mean results		Method <sup>(1)</sup>
	Underlay	Felt	
Weight per unit surface area (gm <sup>-2</sup> )	162	186	MOAT 31 : 6B
Tensile strength (N per 50 mm)			MOAT 31 : 6C
longitudinal	620	466	
transverse	357	437	
Elongation (%)			MOAT 31 : 6C
longitudinal	32	39	
transverse	36	24	

(1) The test document is detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the document.

*Table 3 Physical properties of coating mass*

Test (units)	Mean result	Method <sup>(1)</sup>
Fines content (%)	22.8	MOAT 31 : 6F
Ring and ball softening point (°C)		BS 2000-58
unaged	108	
180 days heat aged at 70°C	108	
Low-temperature flexibility (°C)		MOAT 31 : 6D2
unaged	-25	
180 days heat aged at 70°C <sup>(2)</sup>	-15	

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to sections/parts of the various documents.

(2) Sample aged as free film.

*Table 4 General physical properties of THERMastic*

Test (units)	Mean result	Method <sup>(1)</sup>
Fines content (%)	0.55	MOAT 31 : 6F
Ring and ball softening point (°C)		BS 2000-58
unaged	82	
180 days heat aged at 70°C	79	
pot life — 3 cycles <sup>(2)</sup>	73	
excess temperature — 2 cycles <sup>(3)</sup>	67.3	
Viscosity at 150°C (centipoise)		ANSI/ASTM D 2669-77 (50 rpm type RV4 spindle)
unaged	1696	
56 days heat aged at 70°C	1732	
pot life — 3 cycles <sup>(2)</sup>	1688	
excess temperature — 2 cycles <sup>(3)</sup>	976	
Penetration at 60°C (d mm)	147	BS 2000-49
Penetration at 25°C (d mm)		BS 2000-49
unaged	32.9	
pot life — 3 cycles <sup>(2)</sup>	24.8	
excess temperature — 2 cycles <sup>(3)</sup>	20.4	
Low-temperature flexibility (°C)		MOAT 31 : 6.D.2
unaged	-20	
28 days heat aged at 70°C <sup>(4)</sup>	-15	

(1) Test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the various documents.

(2) Pot life, 1 cycle = 6 hours at 220°C and 18 hours at ambient (20°C).

(3) Excess pot life, 1 cycle = 6 hours at 340°C in an enclosed environment and 18 hours at ambient (20°C) (see section 12.4).

(4) Sample heat aged as free film.

**Table 5** General physical properties of membranes

Test (units)	Mean results			Method <sup>(1)</sup>
	Underlay	Sand finish	Mineral finish	
Weight per unit surface area (kgm <sup>-2</sup> )	2.28	3.01	4.23	MOAT 31 : 6B
Water vapour permeability (gm <sup>-2</sup> day <sup>-1</sup> )	0.48	0.38	—	BS 3177 (75% RH/25°C)
Water vapour resistance (MNsg <sup>-1</sup> )	335	650	—	BS 3177 (75% RH/25°C)
Heat resistance (°C)				MOAT 31 : 6E
unaged	115	105	110	
180 days heat aged at 70°C	95	110	105	
Low-temperature flexibility (°C)				MOAT 31 : 6D2
unaged	-25	-20	-25	
180 days heat aged at 70°C	-25	-20	-15	
7 days water immersion at 23°C	-25	-20	-25	

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the various documents.  
 — = not tested.

**Table 6** Physical properties of membranes — directional

Test (units)	Mean results						Method <sup>(1)</sup>
	Underlay		Sand finish		Mineral finish		
	Longitudinal	Transverse	Longitudinal	Transverse	Longitudinal	Transverse	
Tensile strength (N per 50 mm)	830	470	664	566	703	521	MOAT 31 : 6C
Elongation (%)	42	52	58	58	50	52	MOAT 31 : 6C
Dimensional stability (%) — free	<-0.2	<+0.1	-0.2	<+0.1	—	—	MOAT 27 : 5.1.6.1

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the various documents.  
 — = not tested.

**Table 7** Physical properties — sheets

Test (units)	Mean results			Method <sup>(1)</sup>
	Underlay	Sand finish	Mineral finish	
Resistance to water pressure (6 m)	NP	NP	—	MOAT 27 : 5.1.4
Unrolling at low temperature (0°C)	S	S	S	MOAT 27 : 5.4.3
Dynamic indentation				MOAT 27 : 5.1.10
expanded polystyrene substrate	I <sub>3</sub>	I <sub>3</sub>	I <sub>3</sub>	
perlite substrate	I <sub>3</sub>	I <sub>3</sub>	I <sub>3</sub>	
Static indentation				MOAT 27 : 5.1.9
expanded polystyrene substrate	L <sub>4</sub>	L <sub>3</sub>	L <sub>4</sub>	
concrete substrate	L <sub>4</sub>	L <sub>4</sub>	L <sub>4</sub>	

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the various documents.

NP = no penetration

S = satisfactory

— = not tested.

Table 8 General properties — system

Test (units)	Mean result	Method <sup>(1)</sup>
Peel resistance (N) unaged		MOAT 31 : 6.1 (100 mm min <sup>-1</sup> )
underlay on concrete <sup>(2)</sup>	161	
underlay on chipboard <sup>(2)</sup>	134	
sand finished on underlay <sup>(2)</sup>	144	
28 days heat aged at 70°C		
underlay on chipboard <sup>(2)</sup>	140	
7 days water immersion at 30°C		
underlay on concrete <sup>(2)</sup>	131	
Slip resistance (mm) <sup>(2)</sup>	6.5 movement	MOAT 27 : 5.1.7
Resistance to wind uplift (kPa)		MOAT 27 : 5.1.2
system <sup>(3)</sup>	satisfactory at 10	Brerwulf test
system <sup>(4)</sup>	satisfactory at -6.25	
Thermal shock (kPa)	satisfactory at 10	MOAT 27 : 5.1.5
system <sup>(3)</sup>		

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the various documents.

(2) Membranes bonded with THERMastic bitumen adhesive.

(3) System tested was; a vapour barrier (Tremco elastomeric underlay) bonded to a chipboard deck, followed by a 35 mm thick layer of glasstissue faced rigid polyisocyanurate insulation conforming to BS 4841-3 : 1987 covered by one layer of Tremco elastomeric underlay and finished with one layer of Tremco elastomeric felt. Each layer was fully bonded with THERMastic.

(4) System tested was; a vapour barrier (Tremco elastomeric underlay) bonded to a primed galvanized steel decking, followed by a 50 mm standard density cork, covered by one layer of Tremco elastomeric underlay and finished with one layer of Tremco elastomeric cap sheet. Each layer was fully bonded with THERMastic (BRE Report TCR 12/99 refers).

Table 9 Comparative tests

Test (units)	Mean results		Method <sup>(1)</sup>
	THERMastic 95/25 grade bitumen		
Peel resistance — unaged (N)			MOAT 31 : 6.1 (100 mm min <sup>-1</sup> )
sand finished on underlay	144	79	
underlay on concrete substrate	161	81	
Fatigue at -10°C			MOAT 31 : 6K
unaged	satisfactory	(2)	
28 days heat aged at 70°C	satisfactory	(2)	

(1) The test documents are detailed in the *Bibliography*. Numbers in the table refer to the sections/parts of the various documents.

(2) Within 200 cycles, bitumen had cracked near the joint area. The felt and bond at the joint remained intact.

15.2 A series of tests was carried out to compare the adhesive properties of THERMastic with traditional 95/25 grade oxidised bitumen adhesive when used as a bonding agent with the HI-THERM membranes (see Table 9).

## 16 Investigations

16.1 Existing data on the fire performance of the product were examined.

16.2 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.

16.3 A site visit was performed to examine the practicability of installation.

16.4 Existing data in relation to wind loading tests (BRE Test Report TCR 12/99 — Brerwulf test) was examined and found to be satisfactory.

## Bibliography

- BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*
- BS 476-3 : 2004 *Fire tests on building materials and structures — Classification and method of test for external fire exposure to roofs*
- BS 2000-49 : 1993 *Methods of test for petroleum and its products — Determination of needle penetration of bituminous material*
- BS 2000-58 : 1993 *Methods of test for petroleum and its products — Determination of softening point of bitumen — Ring and ball method*
- BS 3177 : 1959 *Method for determining the permeability to water vapour of flexible sheet materials used for packaging*
- BS 4841-3 : 1987 *Rigid polyurethane (PUR) and polyisocyanurate (PIR) foam for building applications — Specification for two types of laminated board (roofboards) with auto-adhesively bonded reinforcing facings for use as roofboard thermal insulation for built-up roofs*
- 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*
- MOAT No 27 : 1983 *General Directive for the Assessment of Roof Waterproofing Systems*
- MOAT No 31 : 1984 *Special Directives for the Assessment of Reinforced Homogeneous Waterproof Coverings of Styrene-Butadiene-Styrene (SBS) Elastomer Bitumen*
- ASTM D 2669 : 1977 *Standard test method for apparent viscosity of petroleum waxes compounded with additives (hot melts)*
- ENV 1187 : 2002 *Test methods for external fire exposure to roofs*
- EN 13501-5 : 2005 *Fire classification of construction products and building elements — Classification using data from external fire exposure to roof tests*

## 17 Conditions

17.1 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.

17.2 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.

17.3 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.

17.4 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.

17.5 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.

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