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Agrément Certificate

10/4744

Product Sheet 1

BAUDER BITUMINOUS ROOFING SYSTEMS

BAUDER TOTAL ROOF WATERPROOFING SYSTEMS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Bauder Total Roof Waterproofing Systems, elastomer modified bitumen waterproofing membranes and vapour control layers, for use on pitched, flat and zero fall roofs.

(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

Weathertightness — the systems will resist the passage of moisture to the interior of the building (see section 6).

Condensation risk — the systems incorporate a vapour control layer which adequately limits the risk of internal surface condensation (see section 7).

Properties in relation to fire — in the opinion of the BBA, the systems, when used in a suitable specification, will enable a roof to be unrestricted under the Building Regulations (see section 8).

Resistance to wind uplift — results of tests indicate that the systems will enable a roof to be unrestricted under Building Regulations (see section 9).

Resistance to foot traffic — the systems will accept, without damage, the limited foot traffic and loads associated with installation and maintenance (see section 10).

Durability — under normal service conditions the systems will provide a durable waterproof covering with a service life in excess of 35 years (see section 12).

The BBA has awarded this Certificate to the company named above for the systems described herein. These systems have been assessed by the BBA as being fit for their intended use provided they are installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Simon Wroe
Head of Approvals — Materials

Claire Curtis-Thomas
Chief Executive

Date of Third issue: 23 October 2014

Originally certificated on 26 March 2010

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, Bauder Total Roof Waterproofing Systems, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the 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:	Test data indicate that on suitable non-combustible substructures the systems will enable a roof to be unrestricted under this Requirement. See section 8 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	Data for water resistance on the systems, including joints, indicate that the systems meet this Requirement. See section 6.1 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The vapour control layer component of the systems can contribute to enabling a roof to satisfy this Requirement. See section 7 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The systems are acceptable. See section 12.1 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 systems satisfy the requirements of this Regulation. See sections 11 and 12.1 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 2.8	Spread from neighbouring buildings
Comment:	Test data indicate that on suitable non-combustible substructures the systems will be regarded as having low vulnerability under clause 2.8.1 ⁽¹⁾⁽²⁾ of this Standard. See sections 8.1, 8.2 and 8.4 of this Certificate.
Standard: 3.10	Precipitation
Comment:	Data for water resistance of the systems indicate that their use will enable a roof to satisfy the requirements of this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.3 ⁽¹⁾ , 3.15.5 ⁽¹⁾ and 3.15.8 ⁽¹⁾ . See section 7 of this Certificate.
Standard: 3.15	Condensation
Comment:	The vapour control layer component of the systems can contribute to enabling a roof to satisfy this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.3 ⁽¹⁾ , 3.15.5 ⁽¹⁾ and 3.15.6 ⁽¹⁾ . See section 7 of this Certificate.
Standard: 7.1(a)	Statement of sustainability
Comment:	The systems 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:	All comments given for these systems under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012

Regulation: 23(a)(i)(iii)(b)(i)	Fitness of materials and workmanship
Comment:	The systems are acceptable. See section 12.1 and the <i>Installation</i> part of this Certificate.
Regulation: 28(b)	Resistance to moisture and weather
Comment:	Data for water resistance on the systems indicate that their use will enable a roof to satisfy the requirements of this Regulation. See section 6.1 of this Certificate.
Regulation: 29	Condensation
Comment:	The vapour control layer component of the systems can contribute to enabling a roof to satisfy the requirements of this Regulation. See section 7 of this Certificate.
Regulation: 36(b)	External fire spread
Comment:	Test data indicate that on suitable non-combustible substructures the use of these systems will be unrestricted by the requirements of this Regulation. See section 8 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* (1.2) and 3 *Delivery and site handling* (3.3) of this Certificate.

Additional Information

NHBC Standards 2014

NHBC accepts the use of Bauder Total Roof Waterproofing Systems provided they are installed, used and maintained in accordance with this Certificate, 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 waterproofing membranes and water vapour control layers in accordance with harmonised European Standards BS EN 13707 : 2013 and BS EN 13970 : 2004, respectively. 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 Bauder Total Roof Waterproofing Systems comprise the following waterproofing membranes and vapour control layers:

- Bauder K5K — an elastomer modified bitumen, torch-on mineral finish cap sheet incorporating expandable graphite fire retardant, and reinforced with 250 g·m⁻² spunbond polyester fleece
- Bauder K5E — an elastomer modified bitumen, torch-on mica finish cap sheet reinforced with 250 g·m⁻² spunbond polyester fleece, for use in protected specifications
- Bauder G4E — an elastomer modified bitumen, torch-on underlay reinforced with 200 g·m⁻² woven glass
- BauderTEC KSA DUO — an elastomer modified bitumen, heat-activated, self-adhesive underlay reinforced with 200 g·m⁻² glassfibre/polyester-coated aluminium
- BauderTHERM DS1 DUO — an elastomer modified bitumen, heat-activated, self-adhesive vapour control layer reinforced with 125 g·m⁻² glassfibre/polyester coated aluminium
- Bauder VB4-Expal — an elastomer modified bitumen, torch-on vapour control layer reinforced with 60 g·m⁻² glass fleece and aluminium/polyester foil
- BauderTEC KSD mica — an elastomer modified bitumen, cold self-adhesive vapour control layer reinforced with aluminium foil and 60 g·m⁻² glass fleece.

1.2 The nominal characteristics of the waterproofing and water vapour control layers are shown in Tables 1 and 2 respectively.

Table 1 Nominal characteristics — waterproofing membranes

Characteristic (unit)	Waterproofing membrane			
	Bauder K5K	Bauder K5E	Bauder G4E	BauderTEC KSA DUO
Thickness (mm)	5.0	5.0	4.0	3.0
Roll width (m)	1.0	1.0	1.0	1.0
Roll length (m)	5.0	5.0	7.5	7.5
Mass per unit area (kg·m ⁻²)	6.0	5.8	4.8	3.5
Roll weight (kg)	30.0	29.0	36.0	26.25
Tensile strength* (N·50 mm ⁻¹)				
longitudinal	≥ 1000	≥ 800	≥ 1200	≥ 1000
transverse	≥ 1000	≥ 800	≥ 1200	≥ 1000
Elongation* (%)				
longitudinal	≥ 45	≥ 40	≥ 2	≥ 2
transverse	≥ 45	≥ 40	≥ 2	≥ 2
Watertightness*	pass	pass	pass	pass
Low temperature flexibility* (°C)	≤ -36	≤ -30	≤ -30	≤ -30
Flow resistance (°C)	≥ 120	≥ 110	≥ 110	≥ 100
Upper surface finish	mineral chippings	mica	mica	foil
Lower surface finish	thermofusible polyethylene	thermofusible polyethylene	thermofusible polyethylene	peel-off film covering self-adhesive bitumen

Table 2 Nominal characteristics — water vapour control layers

Characteristic (unit)	Water vapour control layer		
	BauderTHERM DS1 DUO	Bauder VB4 Expal	BauderTEC KSD mica
Thickness (mm)	3.5	3.5	2.5
Roll width (m)	1.0	1.0	1.08
Roll length (m)	7.5	7.5	10.0
Roll weight (kg)	36.5	33.8	32.4
Mass per unit area (kg·m ⁻²)	4.5	4.5	3.0
Tensile strength* (N·50 mm ⁻¹)			
longitudinal	≥ 400	≥ 400	≥ 400
transverse	≥ 300	≥ 400	≥ 300
Elongation* (%)			
longitudinal	≥ 2	≥ 2	≥ 4
transverse	≥ 2	≥ 2	≥ 4
Watertightness*	pass	pass	pass
Low temperature flexibility* (°C)	≤ -25	≤ -20	≤ -30
Water vapour diffusion-equivalent air layer thickness* (m)	≥ 1500	≥ 1500	≥ 1500
Upper surface finish	mica and heat-activated adhesive strip	mica	mica and 80 mm width thermofusible strip
Lower surface finish	perforated peel-off film covering heat-activated self-adhesive bitumen	thermofusible polyethylene	peel-off film covering self-adhesive bitumen and 80 mm width glass fleece strip

1.3 Other materials for use with the systems, but which are outside the scope of this Certificate, are:

- Bitumen grade 95/25 — for use in bonding insulation
- Bauder insulation adhesive — for use in bonding insulation
- Bauder SA Bonding Primer — for use in preparing substrates prior to installation of self-adhesive membranes
- Bitumen Primer and Fast Drying Bitumen Primer — for use in preparing substrates prior to installation of torch-applied membranes
- BauderPIR Flatboard — a polyisocyanurate insulation board, manufactured to BS EN 13165 : 2012, for fully bonding on flat roofs
- BauderPIR Tapered — a polyisocyanurate insulation board, manufactured to BS EN 13165 : 2012, for fully bonding on flat roofs
- BauderPIR FA-TE — a polyisocyanurate insulation board, manufactured to BS EN 13165 : 2012, for partially bonding in conjunction with BauderTHERM DS1 DUO vapour control layer on flat roofs (only for use in conjunction with BauderTEC KSA DUO underlay).

2 Manufacture

2.1 The waterproofing membranes and water vapour control layers are manufactured by saturating and coating the reinforcement with SBS modified bitumen, then calendaring to the correct thickness. The lower and upper surfaces are applied as appropriate and the sheets are cooled, trimmed and rolled for packaging.

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 Paul Bauder GmbH has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by DQS (Certificate 002735 QM).

3 Delivery and site handling

3.1 The membranes are delivered to site in rolls with either paper wrappers or tape bands bearing the product name and production code. The rolls are packed on pallets and shrink-wrapped in polythene.

3.2 Rolls should be stored upright on a clean, level surface, away from excessive heat and kept under cover. The self-adhesive products should be stored out of direct sunlight.

3.3 Bauder SA Bonding Primer, Bitumen Primer and Fast Drying Bitumen Primer are classified as 'flammable', 'harmful' and 'toxic to aquatic organisms' under *The Chemical (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP4)/Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009* and should be handled accordingly. The primer must be stored away from ignition sources, and extremes of temperature must be avoided.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Bauder Total Roof Waterproofing Systems.

Design Considerations

4 Use

4.1 Bauder Total Roof Waterproofing Systems are satisfactory for use as fully-bonded roof waterproofing systems including vapour control layer on pitched, flat or zero fall roofs with limited access.

4.2 Pitched roofs are defined for the purpose of this Certificate as those having a fall greater than 1:6.

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

4.4 Zero fall roofs (also known as completely flat) are defined for the purposes of this Certificate as those having a finished fall which can vary between 0° and 0.7°.

4.5 Limited access roofs are defined for the purposes of this Certificate as those subjected only to pedestrian traffic for maintenance of the roof covering, cleaning of gutters, etc. Where traffic in excess of this is envisaged, additional protection to the membrane must be provided (see section 10).

4.6 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.

4.7 On completely flat roofs it is particularly important to identify the correct drainage points to ensure that the drainage provided is effective.

4.8 Insulation materials to be used in conjunction with the system must be in accordance with the Certificate holder's instructions and be 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 scope of, that Certificate

4.9 Decks to which the membranes are to be applied must comply with the relevant requirements of BS 6229 : 2003, BS 8217 : 2005 and, where appropriate, *NHBC Standards 2014 Chapter 7.1 Flat roofs and balconies* and Chapter 7.2 *Pitched roofs*. Additional guidance for inverted roof specifications is given in BBA Information Bulletin No 4 *Inverted roofs – Drainage and U value corrections*.

5 Practicability of installation

The systems must be installed by contractors who have been trained and approved by the Certificate holder.

6 Weathertightness



6.1 The waterproofing membranes and joints in the membranes, 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

Scotland — Mandatory Standard 3.10, clauses 3.10.1⁽¹⁾⁽²⁾ and 3.10.7⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic)

(2) Technical Handbook (Non-Domestic)

Northern Ireland — Regulation 28(b).

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

7 Condensation risk



The vapour control layers provide effective control to the passage of liquid water and water vapour.

8 Properties in relation to fire



8.1 Results of tests indicate that a system comprising a 19 mm exterior plywood substrate, a fully-bonded layer of BauderTHERM DS1 DUO, a 30 mm thick BauderPIR FA-TE insulation board bitumen-bonded, a fully-bonded layer of BauderTEC KSA DUO, and a fully-bonded layer of K5K, will be unrestricted.

8.2 The systems, when protected by an inorganic covering (eg gravel or paving slabs) listed in the Annex of Commission Decision 200/553/EC, can be considered to be unrestricted under the national Requirements.



8.3 When used on flat roofs with one of the surface finishes defined in Part iii of table A5 of Appendix A of the Building Regulations (England and Wales), or Technical Booklet E Table 4.6. Part IV of the Building Regulations (Northern Ireland) (and listed below), the roof is deemed to be unrestricted.

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
- macadam.



8.4 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 1

Scotland — tests to confirm compliance with Mandatory Standard 2.8, with reference to clause 2.8.1⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic)

(2) Technical Handbook (Non-Domestic)

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

9 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.

10 Resistance to foot traffic

Results of tests indicate that the systems can accept, without damage, the limited foot traffic associated with installation and maintenance operations. 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.

11 Maintenance



The systems should be the subject of regular annual inspections and roof drains kept clear, as is good practice on all flat roofs.

12 Durability



12.1 Accelerated weathering tests confirm that satisfactory retention of physical properties is achieved. The systems, when subjected to normal conditions of use in a roof, will retain their integrity for a period in excess of 35 years.

12.2 Localised loss of the mineral surfacing may occur, after some years, in areas where complex detailing of the roof design is incorporated.

13 Reuse and recyclability

The membranes are made from bitumen and polyester, which can be recycled.

Installation

14 General

14.1 Installation of Bauder Total Roof Waterproofing Systems is carried out in accordance with the Certificate holder's instructions and the relevant clauses of BS 8000-4 : 1989 and BS 8217 : 2005.

14.2 Deck surfaces must be dry, clean and free from sharp projections such as nail heads and concrete nibs. The substrate should be prepared using Bauder SA Bonding Primer, Bitumen Primer or Fast Drying Bitumen Primer as specified and at the recommended rate, prior to the installation of the vapour control layer.

14.3 Systems may be laid in conditions normal to roofing work and must not be laid in rain, snow or heavy fog. If the temperature is below 5°C, suitable precautions must be taken against the formation of condensation on the substrate.

14.4 The waterproofing layers must always be installed with staggered overlaps and in such a manner that no counter-seams in the direction of the outlets are made.

14.5 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. For slopes above 10° (1:5.7) the Certificate holder's Technical Service Department should be contacted for advice.

14.6 Installation of the insulation boards must be carried out in accordance with the insulation manufacturer's instructions.

15 Procedure

15.1 The vapour control layer is rolled out onto the primed substrate, positioned and cut to length. Where thermal break insulation is installed, the vapour control layer must extend up all upstands by a sufficient height to ensure that the insulation is encapsulated.

15.2 The vapour control layer is installed in accordance with the appropriate method for the product, ie torch-bonding for Bauder VB4-Expal and self-adhesion for BauderTHERM DS1 DUO and BauderTEC KSD mica. BauderTEC KSD mica has an 80 mm width glass fleece on the underside of one side lap and a thermo-fusible film on the upper surface of the other side lap. These laps are sealed together using hot air or gas torch to extrude a bituminous bead, to provide waterproofing integrity.

15.3 The underlays are installed by torch bonding for Bauder G4E and self-adhesive application for BauderTEC KSA DUO. The Bauder G4E membrane should be fully torch bonded for a distance of 400 mm at perimeters and at penetrations such as rooflights, outlets and pipes.

15.4 Head and side laps for the underlays are 100 mm wide and fully bonded, ensuring that a continuous bead of bitumen exudes from the lap.

15.5 The underlay must be taken a sufficient distance up all upstands and protrusions to ensure a secure lap with the vapour control layer, and should be a minimum height of 150 mm above the roof surface.

15.6 Bonding of both the K5K and K5E cap sheets is achieved by melting their lower surfaces by torching and pressing the membranes down. Care must be taken not to overheat the membranes.

15.7 Head and side laps for the cap sheet are 100 mm wide and fully bonded, ensuring that a continuous bead of bitumen exudes from the lap. Laps between the membrane and base sheets should be offset by a minimum of 300 mm.

15.8 The Bauder K5E cap sheet must be covered using one of the following protection upon completion:

- at least 50 mm of well-rounded gravel ballast
- pavers on suitable supports
- promenade tiles bonded to the surface with suitable adhesive.

15.9 Detailing should be carried out in accordance with the Certificate holder's instructions.

16 Repair

In the event of damage the cap sheets can be effectively repaired, after cleaning the surrounding areas, with a patch of the appropriate cap sheet torch-bonded over the damaged area in accordance with the Certificate holder's instructions.

Technical Investigations

17 Tests

Tests were conducted on the membranes used in the Bauder Total Roof Waterproofing Systems and the results assessed to determine:

- thickness
- mass per unit area
- width
- heat resistance
- slippage
- tensile strength and elongation
- nail test
- dimensional stability
- low temperature flexibility
- fatigue cycling
- watertightness
- water vapour transmission
- wind uplift
- static indentation
- dynamic impact
- shear resistance of joints
- peel strength
- effects of heat ageing
- effects of water.

18 Investigations

18.1 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.

18.2 Data on fire performance were assessed.

18.3 Visits were carried out to sites installed in 1983, 1985 and 1986 to assess the durability of the systems.

Bibliography

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 13165 : 2012 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PUR) products — Specification*

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

BS EN 13970 : 2004 *Flexible sheets for waterproofing — Bitumen water vapour control layers — Definitions and characteristics*

BS EN ISO 9001 : 2008 *Quality management systems — Requirements*

19 Conditions

19.1 This Certificate:

- relates only to the product/system 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.

19.2 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.

19.3 This Certificate will remain valid for an unlimited period provided that the product/system 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.

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

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

19.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, 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.