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Agrément Certificate

16/5371

Product Sheet 1

SINIAT BUILDING BOARDS

SINIAT MULTIPURPOSE PANELS

This Agrément Certificate Product Sheet⁽¹⁾ relates to Siniat Multipurpose Panels, fibre-reinforced, calcium silicate flat sheets for use as general-purpose building boards for internal and semi-exposed locations. The boards are non-combustible and can be used to provide up to 30 minutes' fire resistance, depending upon the application.

(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

Strength — the products have sufficient strength to resist the loads likely to be encountered in service (see section 6).

Performance in relation to fire — the products are non-combustible as described in the relevant national Building Regulations and achieve the requirements for a Class 0 or 'low risk' surface, and are therefore unrestricted by the various Regulations (see section 11).

Durability — under normal internal environmental conditions or in semi-exposed locations the products will provide a service life in excess of 30 years (see section 16).



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 First issue: 26 April 2017

John Albon – Head of Approvals
Construction Products

Claire Curtis-Thomas
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
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, Siniat Multipurpose Panels, 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: B1	Means of warning and escape
Comment:	The products can contribute to meeting this Requirement. See sections 4.2, 4.3 and 11.3 to 11.4 of this Certificate.
Requirement: B2(1)(2)	Internal fire spread (linings)
Comment:	The products are unrestricted by this Requirement. See sections 11.2 to 11.4 of this Certificate.
Requirement: B3(1)(2)(3)	Internal fire spread (structure)
Comment:	The products can contribute to meeting this Requirement. See sections 4.2, 4.3 and 11.4 of this Certificate.
Regulation: 7	Materials and workmanship
Comment:	The products are acceptable. See section 16.1 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 products can contribute to a construction meeting this Regulation. See sections 15.1 and 16.1 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards applicable to construction
Standard: 2.1	Compartmentation
Standard: 2.2	Separation
Comment:	The products can contribute to enabling a wall or floor to achieve a short duration of fire resistance and satisfy the relevant requirements of these Standards, with reference to clauses 2.1.2 ⁽²⁾ , 2.1.14 ⁽²⁾ , 2.1.15 ⁽²⁾ , 2.1.16 ⁽²⁾ , 2.2.1 ⁽²⁾ , 2.2.4 ⁽²⁾ , 2.2.5 ⁽²⁾ , 2.2.6 ⁽¹⁾⁽²⁾ and 2.2.7 ⁽¹⁾⁽²⁾ . See sections 4.2, 4.3 and 11.4 of this Certificate.
Standard: 2.3	Structural protection
Standard: 2.4	Cavities
Comment:	The products are 'low risk' but may be used in accordance with the exceptions permitted by these Standards, with reference to clauses 2.3.2 ⁽¹⁾⁽²⁾ , 2.3.3 ⁽¹⁾⁽²⁾ , 2.3.4 ⁽¹⁾⁽²⁾ , 2.3.5 ⁽¹⁾⁽²⁾ , 2.4.5 ⁽¹⁾⁽²⁾ , 2.4.6 ⁽¹⁾⁽²⁾ , and 2.4.9 ⁽¹⁾⁽²⁾ . See sections 4.3 and 11.2 to 11.4 of this Certificate.
Standard: 2.5	Internal linings
Comment:	The products are 'low risk' and are unrestricted by this Standard with reference to clause 2.5.1 ⁽¹⁾⁽²⁾ . See section 11.3 of this Certificate.
Standard: 2.9	Escape
Comment:	The products can contribute to enabling a wall or floor to achieve a short duration of fire resistance and satisfy the relevant requirements of this Standard, with reference to clauses 2.9.29 ⁽¹⁾⁽²⁾ , 2.9.30 ⁽¹⁾⁽²⁾ , 2.9.31 ⁽¹⁾⁽²⁾ and 2.9.32 ⁽¹⁾⁽²⁾ . See sections 4.2, 4.3 and 11.4 of this Certificate.

Standard: 7.1(a) **Statement of sustainability**
Comment: The products 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 products are acceptable. See section 16.1 and the *Installation* part of this Certificate.

Regulation: 33(c) **Means of escape**
Comment: The products can contribute to satisfying the deemed-to-satisfy provisions for means of escape as detailed in Regulation E3. See sections 4.2, 4.3 and 11.2 to 11.4 of this Certificate.

Regulation: 34(a)(b) **Internal fire spread - Linings**
Comment: The products are unrestricted by this Regulation. See section 11.2 of this Certificate.

Regulation: 35(1) **Internal fire spread - Structure**
Comment: The products will contribute to satisfying this Regulation. See sections 4.2, 4.3 and 11.2 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* (1.1), 3 *Delivery and site handling* (3.2) and 17 *Health and safety* of this Certificate.

Additional Information

NHBC Standards 2017

NHBC accepts the use of Siniat Multipurpose Panels, provided they are installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 9.2 *Wall and ceiling finishes*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products in accordance with European Technical Assessment ETA number 17/0171 issued by UBAtc under ETAG 018 : Parts 1 and 4. 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 Siniat Multipurpose Panels are fibre-reinforced calcium silicate boards, off-white in colour, available as undecorated flat sheets with an unsanded outward face and a lightly-textured reverse face. The products have the nominal characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Board type
	Standard
Thickness (mm) ⁽¹⁾	6.0, 9.0, 12.0
Width (mm) ⁽²⁾	1220
Length (mm) ⁽²⁾	2440
Dry density (kg·m ⁻³)	975 ±12.5%
Water impermeability*	Pass
Flexural strength* (MPa)	≥4.5
Dimensional stability*	Dimensionally stable
Resistance to deterioration by water*	Pass
Resistance to soak/dry*	Pass
Resistance to freeze/thaw*	Pass

1.2 The product may be decorated, if required, but the Certificate holder should be consulted regarding suitable coating systems, as these may affect the products' performance and are outside the scope of the Certificate. See also section 16.3.

2 Manufacture

2.1 The products are manufactured from silica, Portland cement, fillers, and selected cellulose fibres to provide reinforcement. Sheets are cured in steam autoclaves, dried to specified moisture content and trimmed to size.

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 the manufacturer has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by Bureau Veritas Certification (Certificate 300408-UK).

3 Delivery and site handling

3.1 The products should be stored on bearers, placed not more than one metre apart on a level base, in dry conditions and under cover, away from the possibility of damage and without sheets protruding from the stack.

3.2 Each sheet is marked on the reverse face with the products' name and batch date. The sheets are stacked and edge-protected, with the outward face upwards. A separate stack must be made for each length of sheet, and individual stacks must not exceed 450 mm in height.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Siniat Multipurpose Panels.

4 General

4.1 Siniat Multipurpose Panels are satisfactory for use as general-purpose building boards for internal and semi-exposed locations such as:

- ceilings to timber floors and suspended systems
- timber and metal-frame partitions
- soffits, canopy and porch linings.



4.2 The products are non-combustible and are suitable for use in internal and semi-exposed applications. They can be used to provide up to 30 minutes' fire protection in partition applications (timber and metal frame) and as ceilings to the underside of timber floors.

4.3 It is essential that the products are installed strictly in accordance with the Certificate holder's instructions and the recommendations in the relevant clauses and sections of the following documents, in such a manner that a specimen constructed to the same specification would, if exposed to test by fire in accordance with BS EN 13501-1 : 2007 and BS EN 13501-2 : 2003, satisfy the requirements of the test:

- BS 9999 : 2008
- *Guidelines for the construction of fire-resisting structural elements* (HMSO 1988)
- BS 5234-1 : 1992 and BS 5234-2 : 1992
- BRE Digest 208.

4.4 When designing an installation incorporating the products, consideration may also need to be given to any additional requirements contained in:

- Fire Precautions Act 1971 (HMSO): The Fire Precautions (Hotels and Boarding Houses) Order 1972
- The Fire Precautions (Factories, Offices, Shops and Railway Premises) Order 1989/76
- Fire Safety and Safety of Places of Sports Act 1987 (HMSO)
- Fire Services (Northern Ireland) Order of 1993 (HMSO)
- Health and Safety at Work etc Act 1974 (HMSO)
- Housing Act 2004 (HMSO)
- Fire Insurance requirements.

5 Practicability of installation

The products are designed to be installed by competent installers experienced with these types of products.

6 Strength

6.1 When tested in accordance with BS EN 12467: 2012, Siniat Multipurpose Panels have a minimum bending strength of 4.5 MPa.

6.2 The products are not recommended for use where they may be exposed to high levels of abrasion or where impacts may be frequent and/or severe.

7 Thermal conductivity

The λ value (thermal conductivity) of the products should be taken as $0.22 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

8 Thermal expansion

The products have a mean coefficient of linear thermal expansion from 0°C to 40°C of $9 \times 10^{-6} \text{ m/mK}$.

9 Moisture movement

The moisture movement, ambient (30% RH and 20°C) to saturated, should be taken as 0.12%.

10 Permeability

The products have a water vapour resistivity of 80 MN·s·g·m⁻¹. They are not, therefore, considered vapour control layers.

11 Performance in relation to fire

11.1 The products have an A1 classification in accordance with BS EN 13501-1 : 2007.



11.2 The products are non-combustible as described in the relevant national Building Regulations and achieve the requirements for a Class 0 or 'low risk' surface.

11.3 The products may be used in all situations as detailed in the national Building Regulations:

England and Wales – Approved Document B, Table D1, Appendix D

Scotland – Standard 2.5

Northern Ireland – Technical Booklet E, Table 2.1.

11.4 The constructions described in sections 11.7 to 11.8 achieved the required fire classification. A list of fire tests and assessments for these constructions is available on request from the Certificate holder.

11.5 For fire resistance, Siniat Multipurpose Panels (8.0 mm thickness), when fixed to the substrate with galvanized steel screws (gypsum board screws for use in wet rooms) with minimum dimensions of diameter 4.2 x 41 mm at ≤300 mm centres in the longest direction, distance from the edge approximately 50 mm and at ≤580 mm centres in the shortest direction, distance from the edge approximately 20 mm (with the boards having butt joints), have a K₁10 (for substrates with density ≥300 kg·m⁻³) and K₂10 (all substrates) classification in accordance with BS EN 13501-2 : 2003.

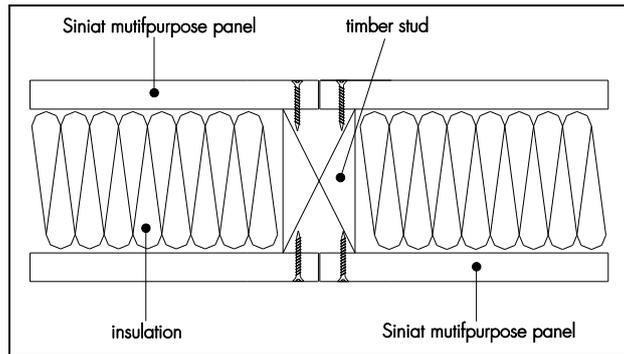
11.6 The products may be used in the constructions in sections 11.7 to 11.9, where fire resistance is required. Care is necessary to ensure that the construction is carried out strictly in accordance with the *Design Consideration* and *Installation* parts of this Certificate and the recommendations in the Certificate holder's technical literature. Refer to the Certificate holder's literature for further details.

Non-loadbearing timber stud partition (see Figure 1)

11.7 The following construction has a 30-minute fire resistance with respect to integrity and insulation. The products are suitable for use as the lining to this form of non-loadbearing timber stud partition:

- softwood timber frame — nominal dimensions of studwork 63 by 50 mm at maximum 610 mm centres and horizontal noggings at horizontal board joints
- mineral wool — 60 mm thick (23 kg·m⁻³) between studs
- Siniat Multipurpose Panels — 6 mm thick fixed to both sides using 38 mm long, round head nails or M4 x 38 mm long steel woodscrews at nominal 300 mm centres. Sheets are tightly butt-jointed together.

Figure 1 Non-loadbearing timber stud partition

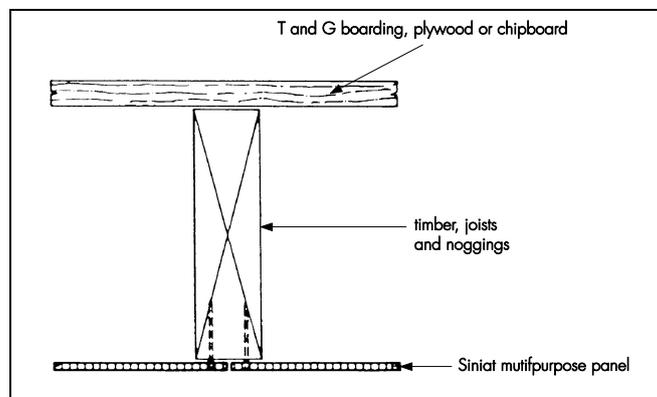


Protection to timber floors (see Figure 2)

11.8 The following construction has a 30-minute fire resistance with respect to loadbearing capacity (an imposed load of $1.208 \text{ kN}\cdot\text{m}^{-2}$ was supported by the floor), integrity and insulation. The different forms of floor decking have been assessed as capable of providing an equivalent performance as that tested. The products are suitable for use as the ceiling to this form of floor assembly:

- tongue-and-groove boarding, chipboard or plywood floor — minimum 19 mm thick tongue-and-groove boarding, square-edged chipboard or plywood, or tongue-and-groove chipboard; 4.8 mm hardboard secured over square-edged floor boards
- timber joists (GS grade) — minimum 38 mm thick, nominal depth 225 mm, at maximum 610 mm centres
- timber noggings — 38 by 225 mm noggings at centres required by BS 5268-2 : 1998 and at transverse joints, if required for decorative purposes
- Siniat Multipurpose Panels ceiling — 6 mm thick, butt-jointed and fixed to the joists using 50 mm long nails at 200 mm centres.

Figure 2 Protection to timber floors



Cavities

11.10 Fire must not spread between or within cavities and must not bypass elements required to have fire resistance. Any cavities formed by the use of the products may need to be enclosed and subdivided in accordance with the guidance/requirements in the national Building Regulations.

12 Resistance to water

12.1 When the products were tested in accordance with BS EN 12467 : 2012, no water droplets formed on the lower surface of Siniat Multipurpose Panels within 24 hours.

12.2 The products are not suitable for use where they may be in contact with water for prolonged periods and subjected to cyclic freezing and thawing.

12.3 The products lose approximately 50% of their strength on wetting, but full strength is recovered on drying.

12.4 Moisture will not cause leaching or efflorescence to occur under normal service conditions.

12.5 The products are absorbent and can contribute to surface condensation control.

13 Risk of mould growth

The recommendations in BS 5250 : 2011 should be followed when considering the products for use in humid areas. When such conditions exist, the Certificate holder should be consulted concerning suitable surface treatments.

14 Surface temperature

The performance of the products lining will not be affected when subjected to local heating caused by radiators and similar heating appliances.

15 Maintenance



15.1 The products will retain dirt in a similar manner to fibre-cement lining sheets. Normal dirt deposits may be removed using clean water and a stiff brush, but some change in appearance will result. The Certificate holder's advice should be sought concerning suitability of chemical cleaning agents to remove difficult stains.

15.2 Care is required when placing ladders against linings, in particular industrial linings. The practice of sliding or bouncing the top of the ladder along the wall surface to change position may cause damage to the sheets, either by scoring the surface or by impact, and should be avoided.

16 Durability



16.1 A life in excess of 30 years can be expected when the products are used in normal internal environmental conditions, in areas of high humidity or in semi-exposed locations as soffits.

16.2 In common with other cementitious materials, the matrix material will carbonate and embrittle with time.

16.3 If the products are to be decorated with a water vapour impermeable coating, differential moisture absorption may make the sheets more likely to bow than undecorated sheets; an appropriate backsealer should, therefore, be used. The Certificate holder should also be consulted regarding suitable primers, paint systems and decorative finishes, to avoid adversely affecting the fire performance properties of the products.

Installation

17 Health and safety

When using power saws and sanders, dust extraction equipment should be used to control dust levels. The Certificate holder's Safety Data Sheet must be consulted for further details.

18 General

Siniat Multipurpose Panels must be installed strictly in accordance with the Certificate holder's instructions and this Certificate (see sections 4.3 and 11).

19 Procedure

19.1 Sheets must be supported on all four edges and fixed at maximum 610 mm support centres to a secured framework which has been levelled to give a flat fixing surface. The products may be fixed to metal supports, but the advice of the Certificate holder should be sought regarding suitable materials, profiles and fixing methods.

19.2 In fire-resisting timber stud constructions where mineral wool is used, the products must fit tightly in the framework and completely fill the cavity between the lining sheets.

19.3 Perimeter fixings for the products should be at a minimum distance of 12 mm from sheet edges, and 40 mm from sheet corners.

19.4 For general use, sheets may be fixed using galvanized wire nails, driven flush or slightly below the surface of the board, or by using No 6 or No 8 wood-screws or self-tapping screws for 9 and 12 mm thick Siniat Multipurpose Panels. Siniat Multipurpose Panels 6 mm thick may also be fixed using 6 mm crown, 25 mm long corrosion-resistant staples. Where fire resistance is required, the Certificate holder's advice should be sought.

19.5 Adequate fixing is essential for fire protection, and the fixings must be well anchored into the supports. All supports must be in sound condition.

19.6 The products should be butt-jointed in fire-resistant applications, using a fire-resistant sealant to fill any small gaps. The Certificate holder can advise on suitable materials for this purpose. Alternatively, for non-fire-resistant applications, board edges can be left slightly apart and all joints and screw heads filled and sanded to a smooth flat surface.

19.7 Where water may be used for washing the floor, the joint between the Siniat Multipurpose Panels and the floor should prevent water penetrating the adjoining space. The lower edge of the boards should be protected to a height of at least 75 mm.

20 Cutting and drilling

20.1 The products may be cut using a fine-toothed saw, eg panel saw, padsaw, keyhole saw or coping saw, working with the outward face up and the board supported as the cut progresses. Rough cuts can be made by scoring the board and snapping over a straight-edge. Power sawing can be carried out using a tungsten carbide or diamond-tipped blade.

20.2 The products should be drilled using a high- or low-speed twist drill, and scrap material should be placed under the drilling location to ensure a clean hole.

21 Repair

Damaged components can be replaced using normal installation techniques. Any difference in appearance between new and existing sheets may mellow with age.

Technical Investigations

22 Tests

Tests were carried out and the results assessed to determine:

- geometric characteristics
- density
- watertightness
- water absorption
- effect of accelerated ageing on flexural strength
- behaviour in fire.

23 Investigations

23.1 Test data from independent laboratories in relation to the following were examined:

- BS EN 13501-1 : 2007
- coefficient of linear thermal expansion
- water vapour permeability
- moisture movement.

23.2 An examination was made of test data to evaluate:

- hard body impact resistance
- fixing strength
- effect of oven-drying on flexural strength.

23.3 Visits were made to sites to examine the performance in use.

23.4 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.

Bibliography

BRE Digest 208 *Increasing the fire resistance of existing timber floors*

BS 5234-1 : 1992 *Partitions (including matching linings) — Code of practice for design and installation*

BS 5234-2 : 1992 *Partitions (including matching linings) — Specification for performance requirements for strength and robustness including methods of test*

BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*

BS 5268-2 : 1998 *Structural use of timber — Code of practice for permissible stress design, materials and workmanship*

BS 9999 : 2008 *Code of practice for fire safety in the design, management and use of buildings*

BS EN 12467 : 2012 + A1 : 2016 *Fibre-cement flat sheets — Product specification and test methods*

BS EN 13501-1 : 2007 + A1 : 2009 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

BS EN 13501-2 : 2003 *Fire classification of construction products and building elements — Classification using data from fire resistance tests, excluding ventilation services*

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

24 Conditions

24.1 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 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.

24.2 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.

24.3 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.

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

24.5 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.

24.6 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.