

Quinn Therm Ltd

Scotchtown
Ballyconnell
Co Cavan
Ireland

Tel: 00 353 49 9525600 Fax: 00 353 49 9525601
e-mail: info@quinn-therm.com
website: www.quinn-therm.com



Agrément Certificate
07/4444
Product Sheet 2

QUINN THERM

QUINN THERM QW INSULATED DRY LINING

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Quinn Therm QW Insulated Dry Lining, comprising rigid polyisocyanurate foam board with a composite foil facing on both sides, for use as an insulating dry lining in solid or cavity masonry walls, in existing and new dwellings and buildings of similar occupancy.

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

Thermal performance — the product can contribute to limiting heat loss through walls and the U values achieved will depend on the overall construction and insulation thickness (see section 5).

Condensation — the product can limit the risk of surface condensation and the risk of interstitial condensation should be assessed for each case (see section 6).

Behaviour in relation to fire — when properly installed, the product will not contribute to the development of a fire (see section 8).

Durability — the product is durable, rot-proof and sufficiently stable to remain effective as an insulating material for the life of the building (see section 13).

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

On behalf of the British Board of Agrément

Handwritten signature of Sean Moriarty in black ink.

Date of First issue: 18 November 2011

Sean Moriarty
Head of Approvals — Physics

Handwritten signature of Greg Cooper in black ink.

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

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.

British Board of Agrément
Bucknalls Lane
Garston, Watford
Herts WD25 9BA

tel: 01923 665300
fax: 01923 665301
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

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Regulations

In the opinion of the BBA, Quinn Therm QW Insulated Dry Lining, 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:	B3(4)	Internal fire spread (structure)
Comment:		The product can contribute to a construction satisfying this Requirement. See section 8.1 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to meeting this Requirement. See sections 6.1 and 6.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to a building meeting this requirement. See sections 5.1 and 5.2 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See section 13 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The product is acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Regulation:	2.4	Internal fire spread – Structure
Comment:		The product can contribute to a construction satisfying this Standard, with reference to clause 2.4.2 ⁽¹⁾ . See section 8.1 of this Certificate.
Standard:	3.15	Condensation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾ , 3.15.4 ⁽¹⁾ and 3.15.5 ⁽¹⁾ . See sections 6.1 and 6.4 of this Certificate.
Standard:	6.1(b)	Carbon dioxide emissions
Standard:	6.2	Building insulation envelope
Comment:		The product can contribute to satisfying clauses or parts of 6.1.1 ⁽¹⁾ , 6.1.2 ⁽¹⁾ , 6.1.3 ⁽¹⁾ , 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽¹⁾ , 6.2.9 ⁽¹⁾ , 6.2.11 ⁽¹⁾ of these Standards. See sections 5.1 and 5.2 of this Certificate.
Standard:	7.1(a)	Statement of sustainability
Comment:		The product 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. In addition the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾ Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾ , 7.1.6 ⁽¹⁾ Aspects 1 ⁽¹⁾ and 2 ⁽¹⁾ and 7.1.7 ⁽¹⁾ Aspect 1 ⁽¹⁾ . See section 5.1 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		Comments made in relation to the product under Regulation 9, Standards 1 to 6 also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ . (1) Technical Handbook (Domestic).



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

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is acceptable. See section 13 and the <i>Installation</i> part of this Certificate.
Regulation:	C5	Condensation
Comment:		The product can contribute to satisfying this Regulation. See section 6.1 of this Certificate.
Regulation:	E4(4)	Internal fire spread – Structure
Comment:		The product can contribute to a construction satisfying this Regulation. See section 8.1 of this Certificate.
Regulation:	F2(a)(i)	Conservation measures
Regulation:	F3(2)	Target carbon dioxide Emissions Rate
Comment:		The product can contribute to a building meeting this requirement. See sections 5.1 and 5.2 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 section: 2 *Delivery, storage and site handling* (2.3) of this Certificate.

Additional Information

NHBC Standards 2011

NHBC accepts the use of Quinn Therm QW Insulated Dry Lining, when installed and used in accordance with this Certificate, in relation to *NHBC Standards, Chapter 8.2 Wall and ceiling finishes.*

Technical Specification

1 Description

1.1 Quinn Therm QW Insulated Dry Lining consists of polyisocyanurate insulation with a composite foil facing on both sides, and is mechanically fixed to masonry walls (see the *Installation* section).

1.2 The product has the nominal characteristics of:

Length (mm)	1200, 2400
Width (mm)	450, 600, 1200
Insulation thickness (mm)	15 to 200 (in 5 mm increments)
Edge profile	plain.

1.3 The product is installed in conjunction with timber battens and appropriate internal lining boards (minimum thickness 9.5 mm), for example standard gypsum plasterboard to BS EN 520 : 2004.

1.4 Ancillary items, which are outside the scope of this Certificate, include:

- timber battens
- dry wall screws or plasterboard nails
- vapour control layer and plasterboard
- edge and corner beads
- scrim tape and joining compound or plaster for skim coat
- acrylic adhesive foil tape.

2 Delivery and site handling

2.1 The product is delivered to site shrink-wrapped in polythene packs containing a label with the product description and characteristics, the manufacturer's name, and the BBA identification mark incorporating the number of this Certificate.

2.2 It is essential that the product is stored such that it is raised off the ground, is inside or under cover on a flat, dry, level surface in a well-ventilated area. The product must be protected from rain, snow and prolonged exposure to sunlight. Boards that have been allowed to get wet or that are damaged must not be used. Nothing should be stored on top of boards.

2.3 The product must not be exposed to a naked flame or other ignition sources. The product must not be exposed to solvents or other chemicals.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Quinn Therm QW Insulated Dry Lining.

Design Considerations

3 Use

3.1 Quinn Therm QW Insulated Dry Lining is for use as an insulating dry lining board for solid or cavity masonry walls of new dwellings or buildings of similar occupancy and in non-loadbearing masonry partitions. It should be installed in accordance with the Certificate holder's instructions.

3.2 The product may be installed on masonry construction including clay and calcium silicate bricks, concrete blocks, and natural and reconstituted stone blocks. It is essential that such walls are constructed having regard to the local wind-driven rain index.

3.3 Walls should be designed and constructed in accordance with the relevant recommendations of:

- BS 5628-1 : 2005
- BS 5628-3 : 2005, with particular reference to Clause 5.5 *Exclusion of water*
- BS 8000-3 : 2001
- BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006 and their respective UK National Annexes.

3.4 The surfaces of masonry walls must be sound and free from loose material; large projections should be removed and holes filled and levelled. A survey of the wall may be required to establish the extent of any packing that may be required to ensure a uniform plane for the boards to be fixed.

3.5 Since insulating dry linings are not intended to offer resistance to rain penetration, walls to be insulated with dry lining must be already rain resistant and show no signs of rain penetration.

3.6 If present, mould or fungal growth should be treated prior to the application of the product.

3.7 It is recommended that services which penetrate the dry lining, eg, light switches and power outlets, are kept to a minimum to limit damage to vapour checks.

3.8 It is essential that proper care and attention is given to maintaining the integrity/continuity of vapour control layers (VCL).

3.9 Services can be incorporated in the void formed between the insulation and the lining boards, making the chasing of the wall unnecessary. Where the services have a greater depth than the void, the wall should be chased rather than the insulation.

3.10 The installation of insulating dry lining products requires careful detailing around doors and windows to achieve a satisfactory surface for finishing. In addition, every attempt should be made to minimise the risk of thermal bridging at reveals and where heavy separating walls are attached to the external wall. New work must be designed to accommodate the thickness of the dry lining, particularly at reveals, heads, sills and in relation to ceiling height. Where the dimensions of fixtures are critical (eg bathrooms) these should be checked before installation.

4 Practicability of installation

The product is designed to be installed by a competent general builder, or a contractor experienced with this type of product.

5 Thermal performance


 5.1 Calculations of the thermal transmittance (U value) of a specific construction using insulated dry lining should be carried out in accordance with BS EN ISO 6946 : 2007 and BRE Report (BR 443 : 2006) *Conventions for U-value calculations*, using the declared ($\lambda_{90/90}$ value) thermal conductivity of $0.022 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the product and a foil surface emissivity (ϵ) of 0.2. The U value of a completed wall will depend on the selected insulation thickness, the insulating value of the external substrate masonry and the internal finish. When considering insulation requirements, designers should refer to the detailed guidance contained in the documents supporting the national Building Regulations. The U values shown in Table 1 indicate that the products can contribute to a wall achieving typical design U values referred to in those supporting documents.

Table 1 Wall U values

Construction U value ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$) ⁽¹⁾⁽²⁾	QW Insulation depth (mm)
0.35	50
0.30	60
0.28	65
0.27	70
0.26	70
0.25	75
0.23	85
0.22	85
0.19	110

(1) Assuming construction of wall (external to internal):

- 215 mm outer leaf brick ($\lambda = 0.77 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$)
- 25 mm air space (86.29%)/25 mm timber battens (13.71%)
- Quinn Therm QW Insulation
- plasterboard — 12.5 mm
- plaster — 3 mm.

(2) Includes fixing correction $\geq 3\%$ (steel fixings — $\lambda = 50 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$, 9.72 fixings per m^2 , $d = 4.8 \text{ mm}$, and fixings fully penetrates insulation).

5.2 The product can maintain, or contribute to maintaining, continuity of thermal insulation at junctions between elements and openings. For Accredited Construction Details the corresponding psi values in BRE Information Paper IP 1/06 *Assessing the effects of thermal bridging at junctions and around openings*, Table 3 may be used in carbon emission calculations in Scotland and Northern Ireland. Detailed guidance for other junctions and on limiting heat loss by air infiltration can be found in:


England and Wales — Approved Documents to Part L and for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 *The Government's Standard Assessment Procedure for Energy Rating of Dwellings*, Appendix K and the *iSBEM User Manual* for new-build

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).

6 Condensation

Interstitial condensation

 6.1 Walls incorporating the product will adequately limit the risk of interstitial condensation when they are designed and constructed in accordance with BS 5250 : 2002, Section 8 and Appendix D.

6.2 For the purposes of assessing the risk of interstitial condensation, the insulation core vapour resistivity may be taken as approximately $300 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}\cdot\text{m}^{-1}$ and a resistance value of $4000 \text{ MN}\cdot\text{s}\cdot\text{g}^{-1}$ for each individual foil facing. Taping the product joints with an acrylic adhesive foil tape provides an effective vapour control layer and an air permeability barrier.

Surface condensation



6.3 Walls will limit the risk of surface condensation adequately when the thermal transmittance (U value) does not exceed $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point, and the junctions with floors, roofs and openings are designed in accordance with *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings* TSO 2002, BRE Information Paper IP 1/06 or section 5.2 of this Certificate.



6.4 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the wall does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point and openings and junctions with other elements comply with the guidance given in BS 5250 : 2002, section 8 or section 5.2 of this Certificate. Additional information can be found in BRE Report (BR 262 : 2002) *Thermal insulation: avoiding risks*.

6.5 As with other types of insulation applied to the inside of a wall, there may be a risk of cold bridging from the floors or ceilings, particularly in concrete slab construction. It has been demonstrated that use of coving at the wall ceiling joint will significantly reduce this risk.

6.6 Dry lining has been used successfully in the rehabilitation of buildings suffering from surface condensation of walls where the dampness has been caused by the lack of thermal insulation.

7 Infestation

The use of the product does not in itself promote infestation. The creation of voids within the structure, ie gaps between the insulation and the lining boards, may provide habitation for insects or vermin in areas already infested. Care should be taken to ensure, wherever possible, that all voids are sealed, as any infestation may be difficult to eradicate. There is no food value in the materials used.

8 Behaviour in relation to fire



8.1 The product has a Class 1 spread of flame in accordance with BS 476-7 : 1997.

8.2 When properly installed, the insulation will be contained between the wall and internal lining board until one is destroyed. Therefore, the insulation component will not contribute to the development of a fire.

8.3 Any cavities formed by the product (such as those formed between the lining board and insulation) must have appropriate fire stopping in accordance with the relevant national Building Regulations:

England and Wales — Approved Document B, Volume 1

Scotland — Mandatory Standard 2.4, clause 2.4.2⁽¹⁾

(1) Technical Handbook (Domestic).

Northern Ireland — Technical Booklet E, paragraph 3.35 to 3.38.

9 Proximity of flues and appliances

When the product is installed in close proximity to certain flue pipes and or heat producing appliances, the relevant provisions of the national Building Regulations should be met:

England and Wales — Approved Document J

Scotland — Mandatory Standard 3.19, clause 3.19.1⁽¹⁾ to 3.19.4⁽¹⁾

Northern Ireland — Technical Booklet L.

(1) Technical Handbook (Domestic).

10 Materials in contact — wiring installations

10.1 Electrical cables that are likely to come into contact with the insulation component of the thermal liner must be protected by a suitable conduit or PVC-U trunking.

10.2 As with any other form of insulation, de-rating of electrical cables should be considered where the insulation restricts the air cooling of cables.

11 Wall-mounted fittings

The recommendations of the Certificate holder should be followed. Any object fixed to the wall, other than lightweight items, eg framed pictures, should be fixed through the lining board, timber battens and insulation into the wall behind, using recommended proprietary fixings. The fitting of wall mounted objects is outside the scope of this Certificate.

12 Maintenance

The product is confined between the lining board and the wall and it has suitable durability (see section 13), maintenance is not required.

13 Durability



When correctly installed by competent builders, the product is durable, rot-proof and sufficiently stable to remain effective as an insulating material for the life of the building.

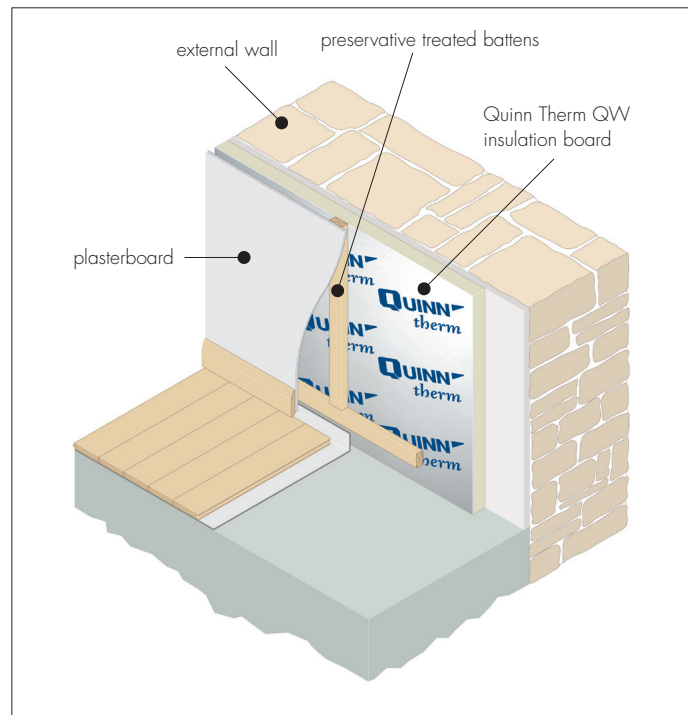
Installation

14 General

14.1 It is recommended that Quinn Therm QW Insulated Dry Lining is installed by competent builders.

14.2 The system is for installation on internal walls. A typical method is shown in Figure 1.

Figure 1 Typical installation



14.3 Installation should be in accordance with BS 8212 : 1995, good dry lining practice and the Certificate holder's instructions.

14.4 The product can be cut using a sharp knife or fine-toothed saw, to fit around windows, doors, air bricks. It is essential that cut pieces completely fill the spaces for which they are intended and are adequately secured.

14.5 All installations of insulated dry lining require careful planning and setting out.

14.6 Before fixing the product, sufficient time must be allowed for damp-proofing treatments, where applied, to dry out (see also, BS 6576 : 2005 for dry lining in conjunction with a chemical dpc application).

15 Procedure

15.1 The wall is surveyed to establish its flatness and suitability for receiving the product. This product may be used on any stable, dry walls capable of taking the fixings for the timber battens.

15.2 In existing walls, the wall surface is prepared to a smooth finish. Skirting, picture rails and projecting window boards are all removed.

15.3 The insulation boards are cut to fit and placed against the wall. Pre-treated timber battens are mechanically fixed horizontally through the top, centre and bottom of the insulation into the wall substrate.

15.4 The battens must be of sufficient thickness (25 mm or greater) and spacing (up to 600 mm) to provide adequate support to which the lining board can be fixed, and provide for any services that are to be incorporated into the void between the insulation board and lining board. Joints and perforations are sealed with acrylic adhesive foil tape. Vertical battens are then fitted. Additional battens can be used around openings and to support heavy horizontal items.

15.5 To avoid thermal bridging, the board should be used to line window reveals and around the perimeter of separating floors. Further guidance can be obtained from BRE Report (BR 262 : 2002).

15.6 Jointing and finishing of the plasterboard lining is carried out in the appropriate manner. Timber skirting can be fixed into the horizontal batten at floor level.

16 Tests

Tests were carried out to determine:

- dimensional stability at specified temperature and humidity
- thickness
- thermal conductivity (λ value).

17 Investigations

In previously issued Certificate 05/4271 an examination was made of test data to BS EN 13165 : 2008 relating to:

- squareness
- density
- dimensions
- vapour resistance
- flatness
- λ value.

18 Other investigations

A theoretical analysis of the hygrothermal behaviour of various installations was carried out.

Bibliography

BS 476-7 : 1997 *Fire tests on building materials and structures — Method of test to determine the classification of the surface spread of flame of products*

BS 5250 : 2002 *Code of practice for control of condensation in buildings*

BS 5628-1 : 2005 *Code of practice for the use of masonry — Structural use of unreinforced masonry*

BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*

BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*

BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*

BS 8212 : 1995 *Code of practice for dry lining and partitioning using gypsum plasterboard*

BS EN 520 : 2004 *Gypsum plasterboards — Definitions, requirements and test methods*

BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

NA to BS EN 1996-1-1 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*

BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*

NA to BS EN 1996-1-2 : 2005 *UK National Annex to Eurocode 6 : Design of masonry structures — General rules — Structural fire design*

BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*

NA to BS EN 1996-2 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*

BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*

NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*

BS EN 13165 : 2008 *Thermal insulation products for buildings — Factory made rigid polyurethane foam (PUR) products — Specification*

BS EN ISO 6946 : 2007 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

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
- individual 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.

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.