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Agrément Certificate
01/3810
Product Sheet 1

ICOPAL VAPOUR CONTROL LAYERS

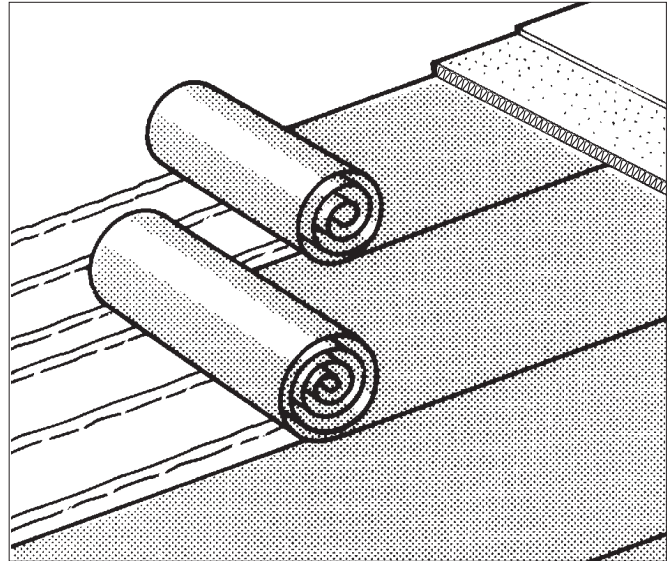
REFLEX 275 VAPOUR CONTROL LAYER

This Agrément Certificate Product Sheet⁽¹⁾ relates to Reflex 275 Vapour Control Layer, a five-layer polyethylene membrane incorporating aluminium foil and a reinforcing grid for use in walls and roofing envelopes of buildings with high relative humidity, eg swimming pools.

(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

Risk of condensation — the product has a high water vapour resistance and will limit the risk of interstitial condensation within the roof or wall construction (see section 6).

Strength — the product has adequate strength to resist the normal stresses associated with construction and installation (see section 7).

Durability — under normal conditions found in a roof or wall, the product will have a service life comparable to other elements of the construction (see section 10).

The BBA has awarded this 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

John Albon — Head of Approvals

Construction Products

Claire Curtis-Thomas

Chief Executive

Date of Fourth issue: 28 July 2016

Originally certificated on 27 March 2001

The BBA is a UKAS accredited certification body — Number 1113. 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, Reflex 275 Vapour Control Layer, 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: | C2(c) | Resistance to moisture |
| Comment: | | The product can contribute towards enabling a roof or wall to meet this Requirement. See section 6 of this Certificate. |
| Regulation: | 7 | Materials and workmanship |
| Comment: | | The product is acceptable. See section 10 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 can contribute to a construction satisfying this Regulation. See section 10 and the <i>Installation</i> part of this Certificate. |
| Regulation: | 9 | Building standards applicable to construction |
| Standard: | 3.15 | Condensation |
| Comment: | | The product can contribute towards enabling a roof or wall to satisfy this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.3 ⁽¹⁾⁽²⁾ , 3.15.5 ⁽¹⁾⁽²⁾ and 3.15.6 ⁽¹⁾⁽²⁾ . See section 6 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. |
| Regulation: | 12 | Building standards applicable to conversions |
| Comment: | | All comments given for the product 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)(iii)(b)(i) | Fitness of materials and workmanship |
| Comment: | | The product is acceptable. See section 10 of this Certificate. |
| Regulation: | 29 | Condensation |
| Comment: | | The product can contribute towards enabling a roof or wall to satisfy this Regulation. See section 6 of this Certificate. |

Construction (Design and Management) Regulations 2015

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

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

See section: 1 *Description* (1.2) of this Certificate.

Additional Information

NHBC Standards 2016

NHBC accepts the use of Reflex 275 Vapour Control Layer, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapters 6.2 *External timber framed walls*, 6.9 *Curtain walling and cladding* and 7.1 *Flat roofs and balconies*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard EN 13984 : 2013. 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 Reflex 275 Vapour Control Layer is a five-layer polyethylene membrane incorporating aluminium foil and a reinforcing grid. The inward facing is blue and the outward facing is grey. The membrane has 150 mm overlap guidelines printed on both edges.

1.2 The product has the following nominal characteristics:

| | |
|---|---------------------|
| Thickness* (mm) | 0.45 |
| Roll width* (m) | 2.0 |
| Roll length* (m) | 25 |
| Mass per unit area* ($\text{g}\cdot\text{m}^{-2}$) | 300 |
| Tensile strength* ($\text{N}\cdot 50\text{ mm}^{-1}$) | |
| longitudinal | > 450 |
| transverse | > 380 |
| Elongation* (%) | |
| longitudinal | > 15 |
| transverse | > 10 |
| Nail tear resistance* (N) | |
| longitudinal | > 300 |
| transverse | > 300 |
| Dimensional stability* (%) | |
| longitudinal | < 2 |
| transverse | < 2 |
| Impact resistance* (mm) | 200 (rigid support) |
| S_d value* (m) | > 1500 |
| Watertightness* | pass. |

1.3 Monobond Tape is a double-sided adhesive tape for use in sealing lap joints and penetrations in the vapour control layer.

2 Manufacture

2.1 The product is manufactured by blown film and lamination processes.

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 EN ISO 9001 : 2008 by TÜV SÜD Slovakia s.r.o (Certificate Q 1243-1).

3 Delivery and site handling

3.1 The membrane is delivered to site in rolls wrapped in polythene film with a label bearing the product name, width, length and Certificate holder's name. A label bearing the BBA logo incorporating the number of this Certificate is applied to the outer polythene wrapper.

3.2 Rolls should be stored on their side, on a smooth, clean surface, undercover and protected from sunlight.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Reflex 275 Vapour Control Layer.

4 Use

4.1 Reflex 275 Vapour Control layer is satisfactory for use in low-slope insulated metal roofs, warm deck single-ply membrane flat roofs, and in conjunction with metal cladding on both new-build and refurbishment projects with high relative humidity, eg swimming pools.

4.2 When used in insulated metal sheeted pitched roofs without ventilation including a breather membrane, the system must be designed in accordance with BS 5250 : 2011 or relevant Agrément Certificate.


4.3 When used in warm-deck construction, the decks must be designed in accordance with the relevant recommendations of BS 6229 : 2003 and BS 8217 : 2005.

4.4 The membrane must be installed so that joints are airtight.

5 Practicability of installation

The product is designed to be installed by operatives experienced with this type of product.

6 Risk of condensation

 6.1 The risk of condensation occurring within the roof or wall of a building will depend upon the properties and vapour resistance of other materials used in the construction, the internal and external conditions and the effectiveness of the product installation.

6.2 The product can contribute to enabling a roof or wall to meet the relevant requirements of the national Building Regulations:

England and Wales — Requirement C2(c)

Scotland — Regulation 9, Mandatory Standard 3.15, clauses 3.15.1⁽¹⁾⁽²⁾, 3.15.3⁽¹⁾⁽²⁾, 3.15.5⁽¹⁾⁽²⁾ and 3.15.6⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Regulation 29.

6.3 Consideration must be given in the overall installation to minimising penetration by services. Joints in the membrane and at ceiling/wall and wall/floor must be sealed to offer significant resistance to water vapour transmission. Sealing must be carried out in accordance with the Certificate holder's instructions.

6.4 The membrane has a water vapour resistance far greater than 0.12 mm polyethylene (typically 250 MN·s·g⁻¹) which has traditionally been used as a vapour control layer.

6.5 Construction should be in accordance with relevant recommendations of BS 5250 : 2011 and the suitability assessed in accordance with Appendix D.

7 Strength

Reflex 275 Vapour Control layer can resist the normal stresses associated with construction and installation.


8 Properties in relation to fire

The product has similar properties in relation to fire to other polyolefinic sheets, tending to melt and shrink away from a heat source, but it will burn in the presence of an ignition source. The product is therefore unclassified in terms of the Building Regulations. This should be considered when assessing the overall fire risk.

9 Maintenance

As the product is confined within a roof or wall structure and has suitable durability (see section 10), maintenance is not required.

10 Durability

 Reflex 275 Vapour Control Layer will be unaffected by the normal conditions found in a roof or wall and will have a service life comparable to other elements of the construction.

11 Reuse and recyclability

The product contains polyethylene and aluminium, which can be recycled.

Installation

12 General

Reflex 275 Vapour Control Layer must be installed and fixed in accordance with the Certificate holder's instructions and the provisions of this Certificate.

13 Procedure

Metal roofing and cladding

13.1 The membrane should be laid with the blue face uppermost, and fully supported by the metal lining on the warm side of the thermal insulation (see Figures 1, 2 and 3).

Figure 1 Metal roof ridge

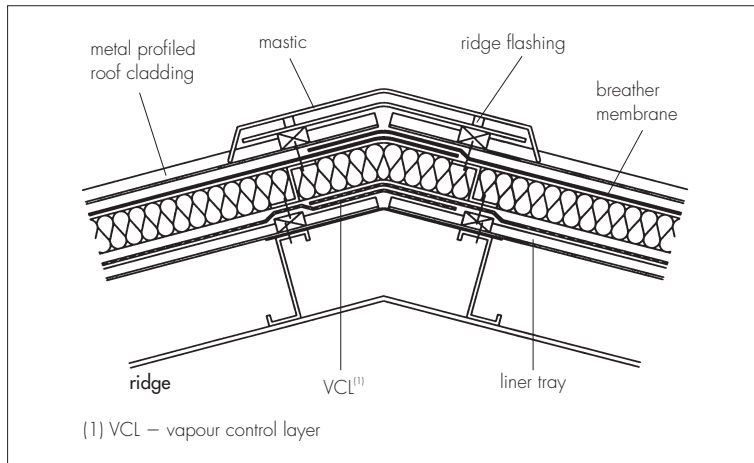


Figure 2 Metal roof verge

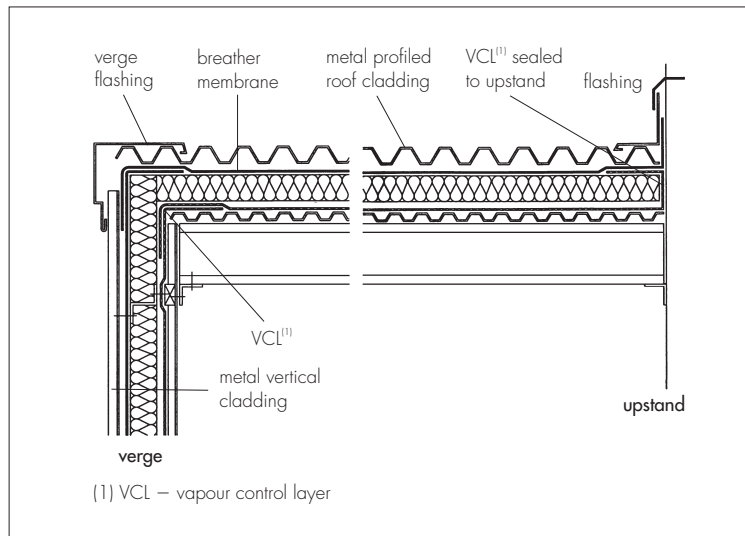
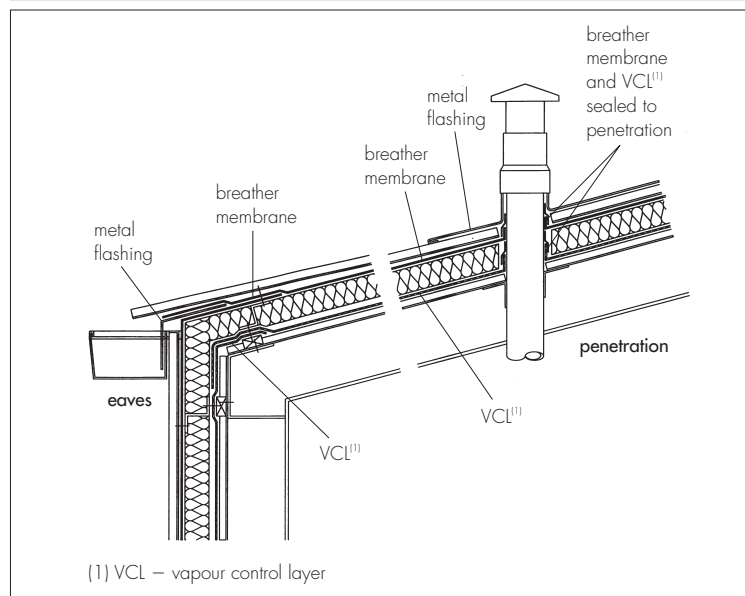


Figure 3 Metal roof eaves and penetration



13.2 All joints in the vapour control layer must be lapped, to a minimum of 150 mm, and sealed with Monobond Tape. A tight seal can be achieved by compressing the lap with a wallpaper roller.

13.3 At perimeters the vapour control layer should be dressed up at the detailing.

13.4 A vapour-tight seal must be formed wherever the vapour control layer is penetrated by pipes or ducts. Monobond Tape should be used to produce a tight fit and seal around the penetration.

Single-ply membranes

13.5 The membrane should be fully supported by the deck on the warm side of the thermal insulation (see Figures 4, 5, 6 and 7).

Figure 4 Roof verge

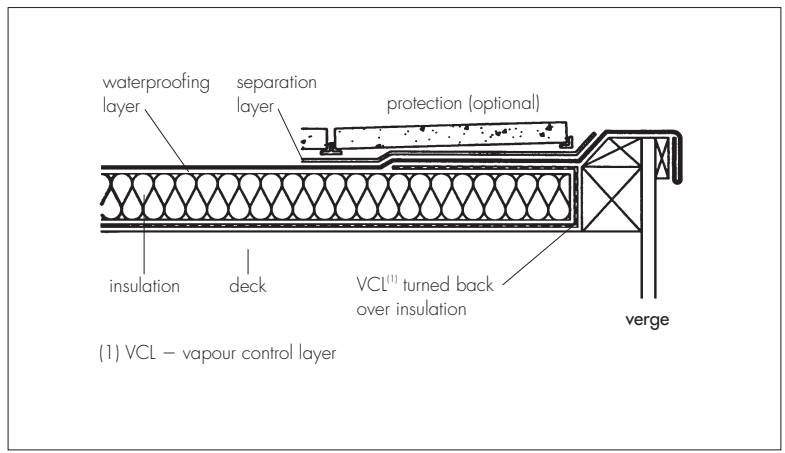


Figure 5 Roof upstand

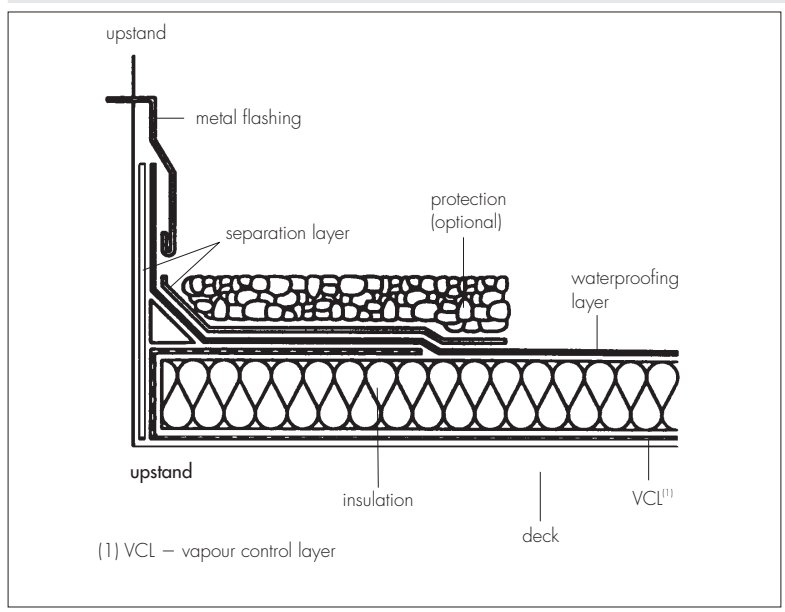


Figure 6 Roof penetration

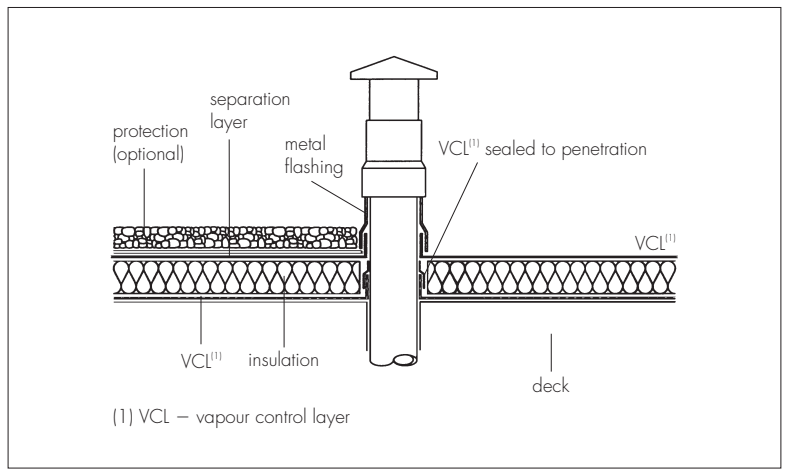
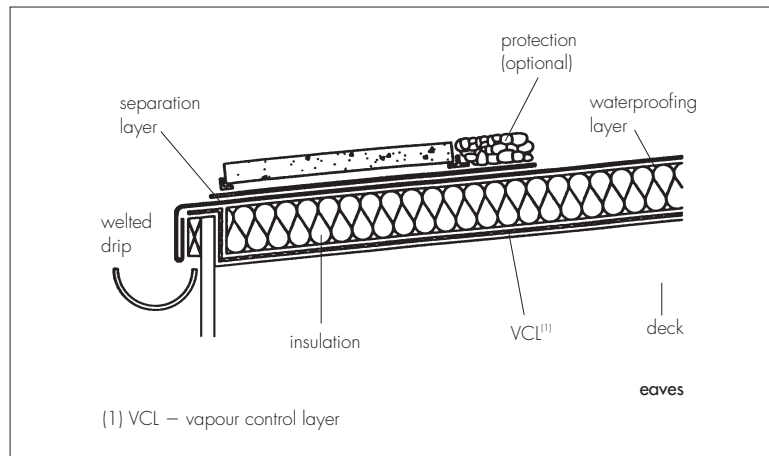


Figure 7 Roof eaves



13.6 All joints in the vapour control layer must be lapped, to a minimum of 150 mm, and sealed with Monobond Tape. A tight seal can be achieved by compressing the lap with a roller.

13.7 A vapour-tight seal must be formed wherever the vapour control layer is penetrated by pipes or ducts. Monobond Tape should be used to produce a tight fit and seal around the penetration.

14 Repair

Damage to the product can be easily repaired during installation with a patch of the membrane fixed in place with Monobond Tape.

Technical Investigations

15 Tests

An assessment was made on test data relating to:

- density
- water vapour transmission
- nail tear.

16 Investigations

16.1 An assessment was made of data on a material of similar composition to:

- dimensional stability
- tensile strength
- effect of heat ageing
- effect of UV light
- resistance to leakage at joint
- tensile strength of joints.

16.2 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

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

BS 6229 : 2003 *Flat roofs with continuously supported coverings — Code of practice*

BS 8217 : 2005 *Reinforced bitumen membranes for roofing — Code of practice*

EN 13984 : 2013 *Flexible sheets for waterproofing — Plastic and rubber vapour control layers — Definitions and characteristics*

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

17 Conditions

17.1 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.

17.2 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.

17.3 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.

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

17.5 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.

17.6 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.