

Ross Roof Group Ltd

1c Inlet Road
Takanini 2112
P O Box 72062
Papakura 2244
New Zealand

Tel: 0064 9299 9498 Fax: 0064 9298 4114
e-mail: info@rossroofgroup.com
website: www.tilcor.eu and www.rossgroup.com



Agrément Certificate

17/5463

Product Sheet 2

TILCOR ROOFING SYSTEM

TILCOR CLASSIC

This Agrément Certificate Product Sheet⁽¹⁾ relates to Tilcor Classic, natural stone-coated steel tile sheets for use on conventional steel or timber pitched roofs with a minimum roof pitch of 12.5°.

(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 product, when used with a suitable roof tile underlay, has satisfactory resistance to the passage of rain and snow (see section 6).

Strength and stability — the product has a design wind load resistance of 2 kPa (see section 7).

Performance in relation to fire — the product is unrestricted under the national Building Regulations (see section 9).

Durability — under normal service conditions, the product will have a life in excess of 40 years (see section 11).



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

Claire Curtis-Thomas

Date of First issue: 19 October 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.

British Board of Agrément

Bucknalls Lane
Watford
Herts WD25 9BA

©2017

tel: 01923 665300
fax: 01923 665301
clientservices@bbacerts.co.uk
www.bbacerts.co.uk

Regulations

In the opinion of the BBA, Tilcor Classic, 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:	B3(2)	Internal fire spread (structure)
Requirement:	B4(2)	External fire spread
Comment:		The use of the product is unrestricted under these Requirements. See section 9 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 6 of this Certificate.
Regulation:	7	Materials and workmanship
Comment:		The product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The use of the product can contribute to a construction satisfying this Regulation. See sections 10 and 11 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 product can contribute to satisfying these Standards, with reference to clauses 2.1.5 ⁽²⁾ , 2.2.7 ⁽²⁾ and 2.2.10 ⁽¹⁾ . See section 9 of this Certificate.
Standard:	2.8	Spread from neighbouring buildings
Comment:		The use of the product is unrestricted by this Standard, with reference to clause 2.8 ⁽¹⁾⁽²⁾ . See section 9 of this Certificate.
Standard:	3.10	Precipitation
Comment:		The product can contribute to satisfying this Standard, with reference to clauses 3.10.1 ⁽¹⁾⁽²⁾ and 3.10.8 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Standard:	7.1(a)(b)	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:		Comments 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⁾⁽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 product is acceptable. See section 11 and the <i>Installation</i> part of this Certificate.

Regulation:	28(b)	Resistance to moisture and weather
Comment:		The product can contribute to satisfying the requirements of this Regulation. See section 6 of this Certificate.
Regulation:	35(2)	Internal fire spread — Structure
	36(b)	External fire spread
Comment:		The use of the product is unrestricted under these Regulations. See section 9 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* (1.2) and 3 *Delivery and site handling* (3.1) of this Certificate.

Additional Information

NHBC Standards 2017

In the opinion of the BBA, Tilcor Classic, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 7.2 *Pitched roofs*.

CE marking

The Certificate holder has taken the responsibility of CE marking the products, in accordance with harmonised European Standard EN 14782 : 2006. 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 Tilcor Classic are steel profiled tiles with a protective coating consisting of Zinalume AZ150, acrylic primer, acrylic basecoat, natural stone chips and an acrylic overglaze. The appearance of the tiles simulates conventional roofing, see Figures 1 and 2.

1.2 The tiles have the nominal dimensions of:

thickness (mm)	2.3
cover length (mm)	1262
width of cover (mm)	368
side lap (mm)	63
weight of tile (kg)	2.9
weight of tiled roof (kg·m ⁻²)	6.3

Figure 1 Tilcor Classic — nominal dimensions

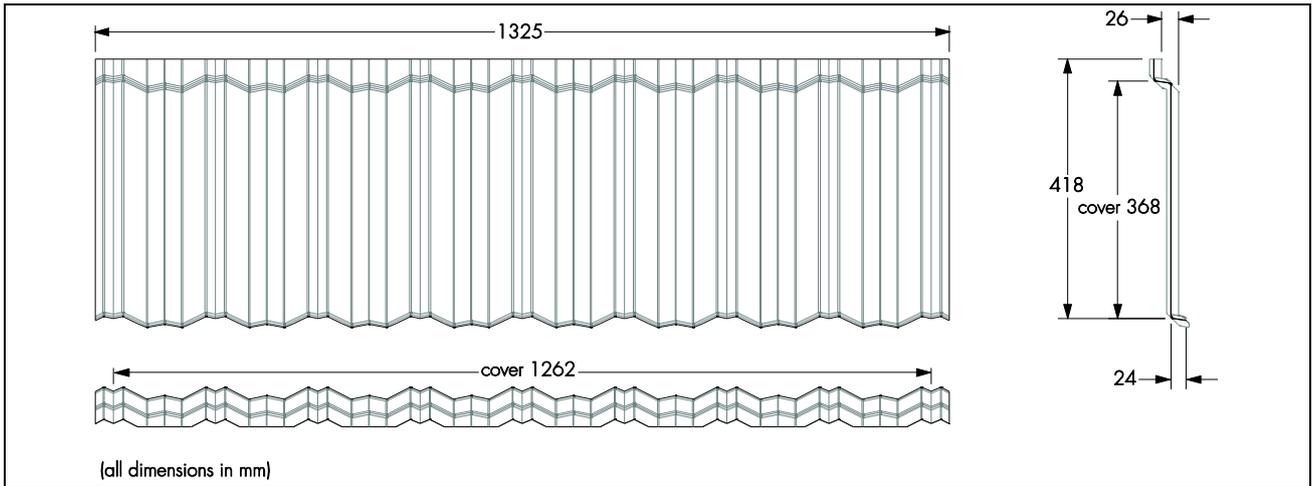
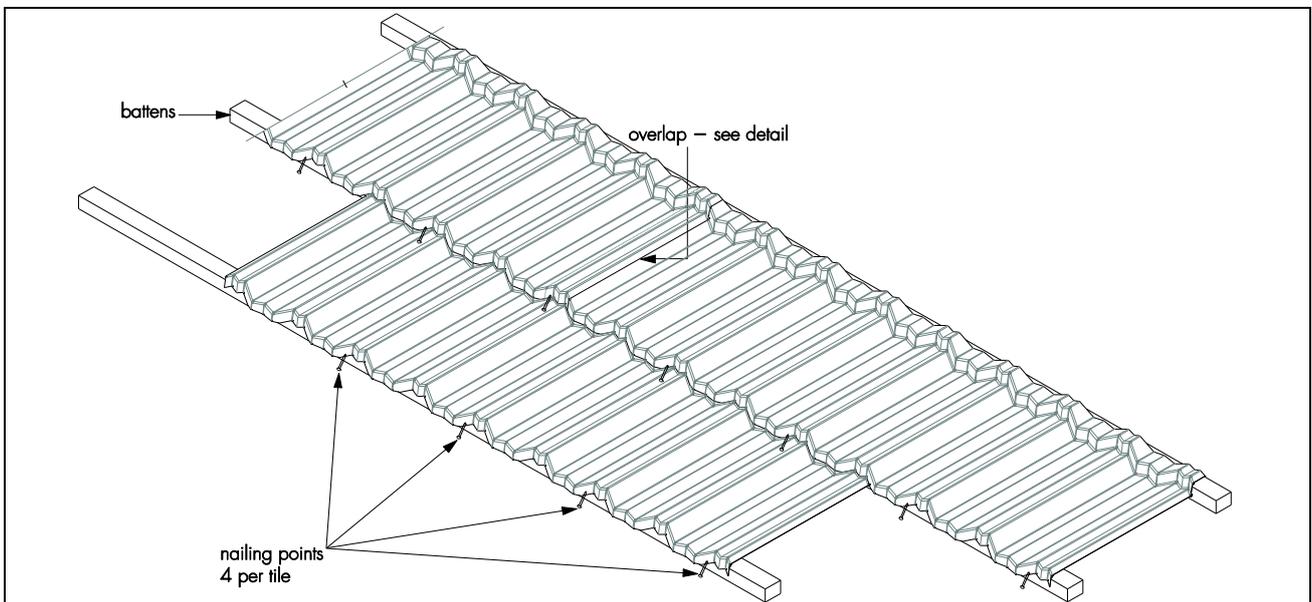


Figure 2 Tilcor Classic — nailing detail



1.3 The tiles are available in a textured finish in the following colours: Autumn, Brown Bark, Cedar, Charcoal, Coffee Brown, Greenstone, Olive, Silver Grey, Slate, Terracotta, Midnight blue and Burgundy.

1.4 The tiles have a downturned lower edge and an upturned upper edge for interlocking purposes.

1.5 Flashings and ridge tiles with the same coating as the tiles are available for use with the product.

1.6 Ancillary items for use with the tiles, but outside the scope of the Certificate, are:

- touch-up kit, for re-coating damaged areas
- roof ventilation products
- gas vent ridge terminals.

2 Manufacture

2.1 The tiles are manufactured from steel coils which are unrolled into flat sheets and pressed into the finished profile. The profiled tiles are base coated and covered with natural stone-coated chips, then glazed and cured in ovens.

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 systems of Ross Roof Group Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2015 by Telarc New Zealand (Certificate QEC 13938).

3 Delivery and site handling

3.1 The product is delivered to site stacked in groups of 20, packed on wooden pallets, protected with shrink-wrapping and labelled with the name and address of the Certificate holder, despatch number, batch number, colour and quantity.

3.2 During transport the edges and corners of tiles must be protected to prevent damage.

3.3 On site, the pallets should be stored on a firm, dry base away from the possibility of damage, covered to prevent water ingress, and as close as possible to the building where they are to be installed.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Tilcor Classic.

Design Considerations

4 Use

4.1 Tilcor Classic are satisfactory for use, in conjunction with a suitable roof tile underlay, as a weatherproof and decorative roof covering on conventional timber or steel structures at a minimum pitch of 12.5°.

4.2 Care should be taken when designing and installing features such as hips, valleys, rooflights and skew roofs, particularly at low pitch roofs.

4.3 To prevent electro-chemical corrosion, direct contact with copper or its alloys should be avoided and copper roofs should not drain onto the installation.

5 Practicability of installation

The tiles should only be installed by roofers/tilers trained and approved by the Certificate holder.

6 Weathertightness



The product, with a suitable underlay, has satisfactory resistance to the passage of rain and snow.

7 Strength and stability

7.1 When tested for dynamic wind load in accordance with ETAG 006 : 2000, a built-up system including the following, achieved a design wind load resistance of 2.0 kPa⁽¹⁾:

- Tilcor Classic
- mechanical fixings (nails)⁽²⁾
- 32 by 45 mm Sweden whitewood (WPCA) battens in accordance with BS 5534 : 2014.

(1) Obtained applying a safety factor of 1.5 to the test value.

(2) Four nails per tile, spaced equidistance (316 mm centres), mechanically fixed through the tiles to the battens.

7.2 The product weighs considerably less than conventional roofing materials, and must be securely attached to the structure to prevent wind uplift under adverse conditions.

8 Resistance to damage

8.1 The tiles will not be deformed by normal maintenance traffic.

8.2 The tiles may be deformed by impact. Damaged products can be replaced but care should be taken to prevent damage to adjacent tiles.

9 Performance in relation to fire



When tested, samples of the product gave a PCS value* of less than 4.0 MJ·m⁻². The product, in all colours, can therefore be considered to fulfil all the requirements for the characteristic external fire performance for roof coverings without the need for further testing, in accordance with harmonised European Standard BS EN 14782 : 2006 and is therefore unrestricted by the requirements of the national Building Regulations.

10 Maintenance



10.1 For maintenance work, roof ladders or crawling boards should be used, but care is still required to prevent damage. It is recommended that soft-soled shoes are worn.

10.2 Small areas where the coating has been damaged should be recoated using the touch-up kit.

11 Durability



11.1 The acrylic and Zinalume coatings will protect the steel substrate against corrosion and will give the product a life in excess of 40 years.

11.2 Localised maintenance treatment may be necessary within 30 years, to restore the appearance where chippings may have been lost or the coating eroded.

12 Reuse and recyclability

The product contains steel, which can be recycled.

Installation

13 General

13.1 The standard of installation of Tilcor Classic should comply with the requirements of BS 8000-0 : 2014 and BS 8000-6 : 2013.

13.2 The product can be installed at all temperatures likely to be met in roofing works. However, at temperatures below -10°C , extra care is required, particularly when driving nails, and cutting and bending tiles.

13.3 The roof construction must be adequate to resist the loadings detailed in BS EN 1991-1-1 : 2002 and BS EN 1991-1-4 : 2005, and their UK National Annexes. The roof construction should be in accordance with the relevant requirements of BS 5534 : 2014.

13.4 The minimum batten sizes permitted depends on the rafter spacing, as detailed in Table 1.

Table 1 Batten sizes and rafter or roof truss centres (mm)

Minimum batten size	Rafter spacing
50 x 25	450
50 x 40	600
50 x 40	900
50 x 50	1200

13.5 The roof space and batten space must be adequately ventilated in accordance with BS 5250 : 2011.

13.6 Where timber boarding is laid on the rafters, a timber counter batten should be installed in accordance with BS 5534 : 2014.

13.7 The underlay must be to BS 8747 : 2007, Annex B, Type 1F or 5U, or covered by an Agrément Certificate and installed in accordance with that Certificate.

14 Procedure

14.1 Rafters must be securely tied to the building structure, for example, with galvanized steel straps complying with BS EN 1996-1-1 : 2005, BS EN 1996-2 : 2006 or PD 6697 : 2010.

14.2 Where the rafters/trusses are spaced at 900 or 1200 mm centres, polypropylene or nylon tape is nailed across the rafters to support the underlay unless approved self-supporting underlay is used.

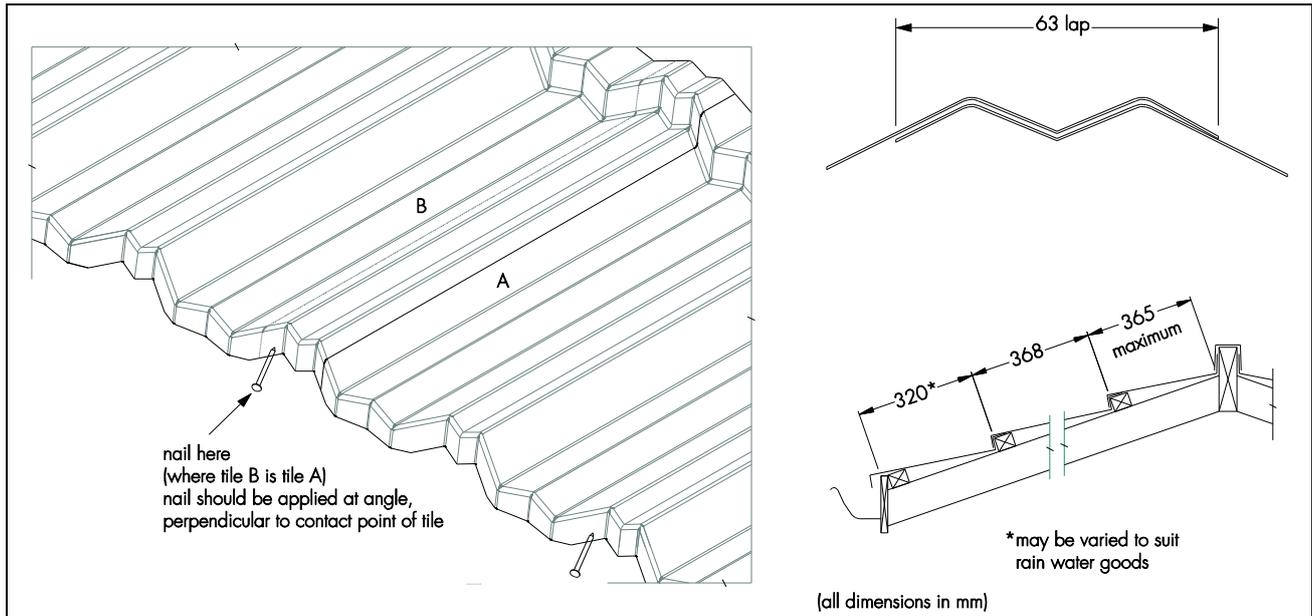
14.3 Battens are secured over the underlay and roof trusses. The fixings used to secure the battens to the rafters must be adequate to resist the predicted wind loads.

14.4 Tiles can be interlocked either right over left or vice versa but should be laid with the laps facing away from prevailing winds or from discharging rain water pipes or valleys. Where possible, the tiles should be laid with laps facing away from the normal line of sight.

14.5 Tiles are laid by lifting both tiles in the course above and sliding the next course under the nose of the tile already in place.

14.6 Fixing is achieved by nailing through the front downturned flange into the side of the batten, at the rate of four nails per tile. See Figure 3 for overlap detail, lap section detail and batten layout.

Figure 3 Tilcor Classic – overlap, lap section and batten layout



14.7 The tiles are preferably cut and formed with a guillotine and a tile-bending machine, but small quantities may be cut with tin snips or sheet metal cutters, and bent by hand.

14.8 The accessories are cut, formed and installed as necessary to complete the installation.

15 Repair

When repairs are required, the Certificate holder's instructions must be followed.

Technical Investigations

16 Tests

Tests were carried out and the results assessed to determine:

- resistance to chipping
- ease of forming
- resistance to artificial weathering
- resistance to wind uplift
- corrosion resistance.

17 Investigations

17.1 An assessment was made of data in relation to:

- appearance and sheet thickness
- adhesion of coating
- resistance to humidity
- resistance to salt spray
- resistance to liquids
- resistance to wind-driven rain
- fire performance.

17.2 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 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 5534 : 2014 + A1 : 2015 *Slating and tiling for pitched roofs and vertical cladding — Code of practice*
- BS 8000-0 : 2014 *Workmanship on construction sites- Introduction and general principles*
- BS 8000-6 : 2013 *Workmanship on building sites — Code of practice for slating and tiling of roofs and walls*
- BS 8747 : 2007 *Reinforced bitumen membranes (RBMs) for roofing — Guide to selection and specification*
- BS EN 1991-1-1 : 2002 *Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads for buildings*
- NA to BS EN 1991-1-1 : 2002 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Densities, self-weight, imposed loads on buildings*
- BS EN 1991-1-4 : 2005 + A1 : 2010 *Eurocode 1 — Actions on structures — General actions — Wind actions*
- NA to BS EN 1991-1-4 : 2005 + A1 : 2010 *UK National Annex to Eurocode 1 — Actions on structures — General actions — Wind actions*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6 — Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-2 : 2006 *Eurocode 6 — Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 14782 : 2006 *Self-supporting metal sheet for roofing, external cladding and internal lining — Product specification and requirements*
- BS EN ISO 9001 : 2015 *Quality management systems — Requirements*
- ETAG 006 : 2000 *Guideline for European Technical Approval of systems of mechanically fastened flexible roof waterproofing membranes*
- PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1991-1-1 and BS EN 1996-2*

18 Conditions

18.1 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.

18.2 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.

18.3 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.

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

18.5 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.

18.6 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.