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Agrément Certificate  
**96/3271**  
Product Sheet 1

## XTRA-LOAD DAMP-PROOF COURSE SYSTEMS

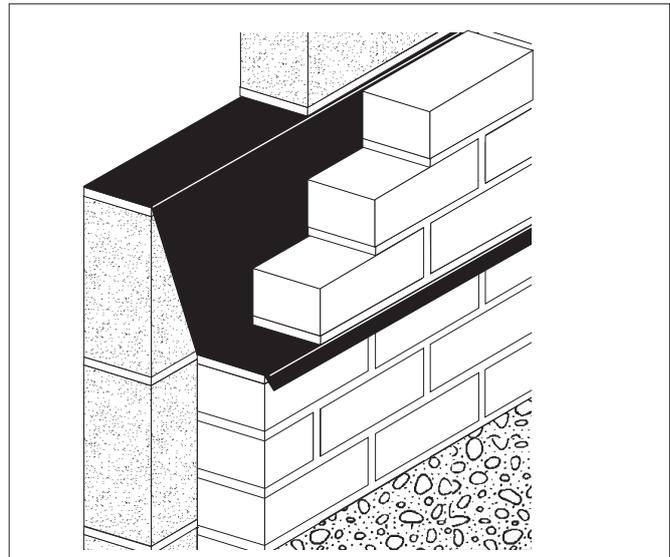
### XTRA-LOAD ELITE DPC SYSTEM FOR WALLS

This Agrément Certificate Product Sheet<sup>(1)</sup> relates to the Xtra-Load Elite DPC System for Walls, for use to provide horizontal, vertical, or stepped damp-proof courses including cavity trays, in either solid or cavity walls of brick, block, stone or concrete.

(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

**Behaviour under load** — the dpc will not extrude under load, up to the point of compressive failure of the wall (see section 6).

**Resistance to water and water vapour** — the system will provide an effective barrier against liquid water and water vapour (see section 7).

**Compatibility with other materials** — within normal construction, the system is compatible with all materials with which it will be in contact, with the exception of timber preservatives based on creosote or tar oils (see section 8).

**Durability** — when properly specified and installed, the system, in normal circumstances, will remain effective during the lifetime of the building (see section 10).

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

A handwritten signature in black ink, appearing to read 'Simon Wroe'.

Simon Wroe  
Head of Approvals — Materials

A handwritten signature in black ink, appearing to read 'Claire Curtis-Thomas'.

Claire Curtis-Thomas  
Chief Executive

Date of Third issue: 15 October 2014

Originally certificated on 28 June 2005

*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](http://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, the Xtra-Load Elite DPC System for Walls, 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)

<b>Requirement:</b> A1	<b>Loading</b>
<b>Comment:</b>	The dpc will not extrude under load, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads. The presence of a dpc can reduce the shear and tensile strength of a wall at that point, and design may need to take account of this. See section 6.1 of this Certificate.
<b>Requirement:</b> C2(a)(b)	<b>Resistance to moisture</b>
<b>Comment:</b>	Properly installed in a correctly designed structure, the system forms an effective barrier to the movement of water within the wall, enabling compliance with this Requirement. See section 7 of this Certificate.
<b>Regulation:</b> 7	<b>Materials and workmanship</b>
<b>Comment:</b>	The products are acceptable materials. See section 10 and the <i>Installation</i> part of this Certificate.



## The Building (Scotland) Regulations 2004 (as amended)

<b>Regulation:</b> 8(1)(2)	<b>Durability, workmanship and fitness of materials</b>
<b>Comment:</b>	The system can contribute to a construction satisfying this Regulation. See sections 9 and 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 9	<b>Building standards applicable to construction</b>
<b>Standard:</b> 1.1(a)(b)	<b>Structure</b>
<b>Comment:</b>	The dpc will not extrude up to the point of failure of the wall, and will not adversely affect the ability of the properly designed and built wall to sustain and transmit compression loads, with reference to clauses 1.1.1 <sup>(1)(2)</sup> and 1.1.3 <sup>(1)(2)</sup> . See section 6.1 of this Certificate.
<b>Standard:</b> 3.4	<b>Moisture from the ground</b>
<b>Standard:</b> 3.10	<b>Precipitation</b>
<b>Comment:</b>	Properly installed in a correctly designed structure, the system forms an effective barrier to the movement of water within the wall, enabling compliance with these Standards, with reference to clauses 3.4.1 <sup>(1)(2)</sup> and 3.10.1 <sup>(1)(2)</sup> . See section 7 of this Certificate.
<b>Standard:</b> 7.1(a)	<b>Statement of sustainability</b>
<b>Comment:</b>	The system 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.
<b>Regulation:</b> 12	<b>Building standards applicable to conversions</b>
<b>Comment:</b>	All comments given for the system under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 <sup>(1)(2)</sup> and Schedule 6 <sup>(1)(2)</sup> . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



## The Building Regulations (Northern Ireland) 2012

<b>Regulation:</b> 23(a)(i)(iii)(b)(i)	<b>Fitness of materials and workmanship</b>
<b>Comment:</b>	The products are acceptable materials. See section 10 and the <i>Installation</i> part of this Certificate.
<b>Regulation:</b> 28(a)	<b>Resistance to moisture and weather</b>
<b>Comment:</b>	Properly installed in a correctly designed structure, the system forms an effective barrier to the movement of water within the wall, enabling compliance with this Regulation. See section 7 of this Certificate.
<b>Regulation:</b> 30	<b>Stability</b>
<b>Comment:</b>	The dpc will not extrude, up to the point of failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression loads. See section 6.1 of this Certificate.

## Construction (Design and Management) Regulations 2007

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

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

See sections: 1 *Description* (1.2) and 3 *Delivery and site handling* (3.7) of this Certificate.

# Additional Information

## NHBC Standards 2014

NHBC accepts the use of the Xtra-Load Elite DPC System for Walls, provided it is installed, used and maintained in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

## CE marking

The Certificate holder has taken the responsibility of CE marking the system in accordance with harmonised European Standard BS EN 14967 : 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 The Xtra-Load Elite DPC System for Walls is a blend of bitumen, a resilient, high-performance copolymer and other additives. It is reinforced with fibres and has a sanded finish to both sides. The system comprises sheet material for runs of dpc, preformed clocks for angles, steps and stopends, a compatible adhesive tape and a support system for on-site formation of laps.

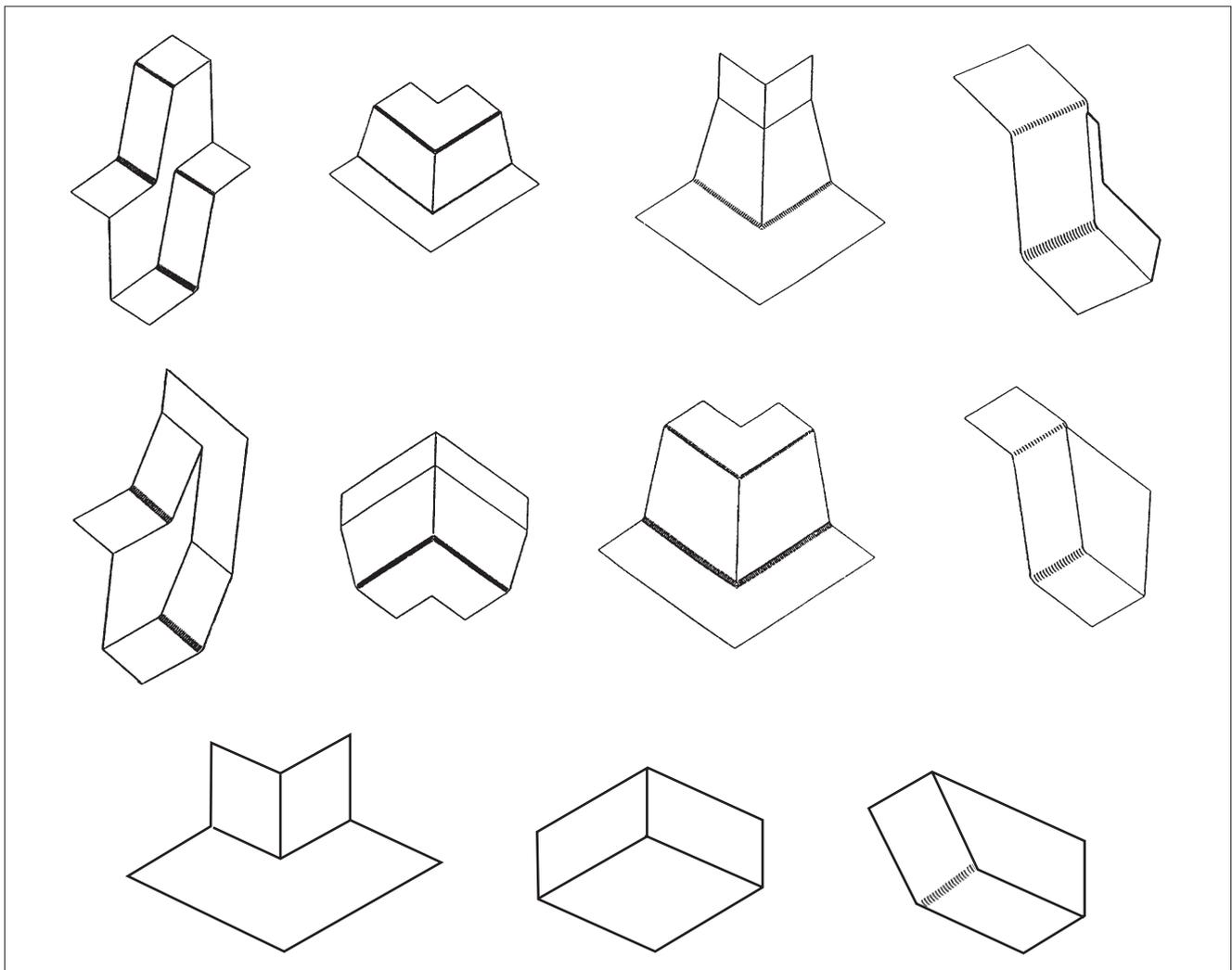
1.2 The rolls are manufactured to the nominal dimensions and characteristics given in Table 1.

Table 1 Nominal characteristics

Characteristic (unit)	Value
Thickness* (mm)	1.7
Mass* (kg·m <sup>-2</sup> )	1.8
Roll length (m)	20
Roll width (mm) <sup>(1)</sup>	100 to 1000
Watertightness* (2 kPa)	Pass
Durability (artificial ageing)*	Pass
Resistance to low temperature* (°C)	-15
Resistance to impact* (mm)	>300

1.3 Xtra-Load Preformed Cavity Tray Units are made from 1.2 mm thick polymer sheet which is suitable for high frequency welding. The units are available in a range of shapes for angles, changes in level and stopends. Typical examples are shown in Figure 1; units to other designs can be fabricated to order in consultation with the Certificate holder.

Figure 1 Standard Xtra-Load Preformed Cavity Units



1.4 Other materials used as part of the system include:

- Xtra-Load DPC Joint Support is manufactured from a piece of twin-walled polypropylene 150 mm x 315 mm with the internal reinforcing webs running across the width and an additional twin-walled polypropylene reinforcing pad on the underside with the internal reinforcing webs running perpendicular to those in support, for added strength
- Icopal Jointing Tape — a double-sided, self-adhesive tape, protected by a silicone release film, used to seal laps between dpc to dpc and between dpc to Preformed Cavity Tray Units, and to bond surface-fixed cavity tray units to primed masonry and steel surfaces
- Xtra-Seal QD Bitumen Primer — for the preparation of masonry and steel surfaces prior to the application of Icopal Jointing Tape
- Xtra-Load DPC Fixing Strip — 25 mm by 3 mm by 2 m long thick plastic strip, pre-drilled with 6 mm holes at 150 mm centres, used to secure surface-fixed dpc to substrate.

## 2 Manufacture

2.1 The reinforcement is impregnated and coated, in a continuous process, with the polymer-modified bitumen compound. Dried sand is applied to both sides of the dpc prior to cooling.

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 Icopal Ltd has been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 and BS EN ISO 14001 : 2004 by BSI (Certificates Q05556 and EMS 535978).

## 3 Delivery and site handling

3.1 Xtra-Load Elite DPC is delivered to site in rolls which are secured with a paper wrapping bearing the manufacturer's name and the BBA logo incorporating the number of this Certificate.

3.2 Rolls must be stored on end and under cover. Contact with organic solvents must be avoided.

3.3 Xtra-Load Preformed Cavity Tray Units are delivered to site in polythene bags. A label bearing a description of the contents and the BBA logo incorporating the number of this Certificate is affixed to each bag.

3.4 Icopal Jointing Tape is supplied in 25 m by 75 mm rolls in cardboard cartons bearing a label with a description of the contents and the BBA logo incorporating the number of this Certificate.

3.5 Xtra-Load DPC Joint Support System is supplied in cardboard boxes complete with a roll of jointing tape. A label bearing the BBA logo incorporating the number of this Certificate is affixed to each box.

3.6 Xtra-Load DPC Fixing Strip is supplied in packs of 20 strips. The packs are protected by a plastic sleeve and a label bearing the BBA logo incorporating the number of this Certificate is affixed to each pack.

3.7 Xtra-Seal QD Bitumen Primer is delivered to site in 25 litre drums. The product is classified under *The Chemicals (Hazard Information and Packaging for Supply Regulations 2009 (CHIP4)/Classification, Labelling and Packaging of Substances and Mixtures (CLP Regulation) 2009* as 'flammable' with a flashpoint below 32°C, and must be stored in accordance with *The Dangerous Substances and Explosive Atmospheres Regulations 2002*.

## Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Xtra-Load Elite DPC System for Walls.

## Design Considerations

### 4 Use

When correctly specified and installed, Xtra-Load Elite DPC System for Walls provides satisfactory horizontal, vertical, or stepped damp-proof coursing (including cavity trays) in either solid or cavity walls of masonry. General standards of good design practice are given in BS EN 1996-1-1 : 2005, BS EN 1996-1-2 : 2005, BS EN 1996-2 : 2006, BS EN 1996-3 : 2006 and their respective UK National Annexes, and PD 6697 : 2010.

### 5 Practicability of installation

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

## 6 Behaviour under load



6.1 The dpc will not extrude under load, up to the point of compressive failure of the wall, and will not adversely affect the ability of a properly designed and built wall to sustain and transmit compression. The stability of a wall in respect of lateral loads must be checked in relation to the stresses permitted between the dpc and the mortar. The characteristic stresses for design purposes are detailed in the product literature and further guidelines are available from the marketing company.

6.2 The system will withstand considerable movement of the wall, and is unlikely to be impaired by normally occurring movements up to the point where the wall itself is deemed to have failed.

## 7 Resistance to water and water vapour



The product, when correctly specified and installed, will provide an effective barrier against liquid water and water vapour either from a source external to the structure or from one part of a structure to another.

## 8 Compatibility with other materials

The system is compatible with most materials with which it is likely to come into contact in normal constructions, including timber preservatives of water-based solutions of salts. It is not, however, compatible with timber preservatives based on creosote or tar oil and therefore must not come into contact with these materials. Where there is doubt as to the compatibility with materials in contact, the advice of the Certificate holder should be sought.

## 9 Maintenance



As the system is confined within the wall and wall cavity and has suitable durability (see section 10), maintenance is not required. However, it must be ensured that damage occurring before enclosure is repaired (see section 14).

## 10 Durability



Artificial ageing tests indicate that a satisfactory retention of physical properties is achieved. When properly specified and installed, the system will in normal circumstances remain effective during the lifetime of the building.

# Installation

## 11 General

11.1 Installation of Xtra-Load Elite DPC must follow normal good practice for the detailing of damp-proof courses, as set out in PD 6697 : 2010, and must be in accordance with the relevant clauses of BS 8000-3 : 2001, BS 8215 : 1991, BRE Digest 380 *Damp-proof courses*, and the Certificate holder's instructions.

11.2 As with all flexible damp-proof courses, care should be taken to avoid impact damage from sharp objects (eg trowels) during installation.

11.3 Xtra-Load Elite DPC is handled and cut as for conventional flexible damp-proof courses. It retains sufficient flexibility to be used at the lowest temperature at which walls are normally built and does not become tacky in warm, ambient weather conditions.

11.4 It is difficult to form certain details with the dpc, particularly when bending the material through two angles at the same time. In such cases, care must be taken to achieve a satisfactory seal, and where necessary Preformed Cavity Tray Units should be used. Joints in the dpc should be formed on site by means of the Xtra-Load DPC Joint Support System. Joints between the dpc and preformed units should be supported using the Xtra load joint support (see section 13.5). Care should be taken at temperatures below 5°C to avoid the risk of condensation on jointed surfaces, which may affect the efficiency of the self-adhesive tape.

## 12 Procedure

12.1 The following installation practices are essential:

- the dpc must extend through the full thickness of the wall or wall-leaf, including pointing, applied rendering or other facing material, and project 5 mm beyond the finished external face
- the dpc must be laid on an even bed of mortar, and perforations in adjacent courses of brickwork must be closed with mortar
- the dpc must always be sandwiched between wet mortar and not laid dry
- all lap joints in the dpc must have 100 mm overlaps and be sealed, in accordance with section 13
- preformed units must be used at stopends, and at all corners or changes in levels.

12.2 When using the dpc with boot lintels or similar constructions, it is recommended that the material is installed to follow the lintel profile, where appropriate.

12.3 As with most other damp-proof course materials, damage can occur during cleaning of mortar droppings from the damp-proof course unless care is taken. The following recommendations should prevent damage occurring:

- cavity battens should be used to prevent excessive amounts of mortar droppings reaching the damp-proof course
- mortar droppings should be removed before they have had time to harden
- implements such as steel rods should never be used for cleaning
- damp-proof courses should be examined for damage and repaired as required as work proceeds.

### 13 Jointing procedures

13.1 All surfaces to be jointed should be clean and dry. Release paper protecting the self-adhesive strips should not be removed until the joint is ready to be formed. The tape should not be left exposed overnight or during periods of low temperatures.

13.2 The support unit is fitted in such a way as to span the cavity, the ends of the support being bent to bear upon the inner and outer leaves of the wall by 25 mm to 40 mm.

13.3 The first layer of dpc to be jointed is offered up to the support unit.

13.4 The layer of dpc to be lapped to the first is placed in the usual way allowing a 100 mm lap joint and bonded using Xtra-Load Jointing Tape, ensuring that a full seal is achieved.

13.5 When making joints between dpc and Preformed Cavity Tray Units, the joint support should be positioned behind the Preformed Cavity Tray Unit and therefore joints should be made by lapping the dpc onto the Preformed Cavity Tray Unit by 100 mm and sealing the joint with Icopal Jointing Tape.

13.6 Where the dpc or Preformed Cavity Tray Unit is required to be bonded to a brick, block metal or concrete substrate it can be held in place temporarily by the self-adhesive tape bonded to the substrate, which must be primed with Xtra-Seal QD Bitumen Primer. A permanent mechanical fixing should then be installed using Xtra-Load DPC Fixing Strip.

13.7 Further advice on the use of these materials may be obtained from the Certificate holder.

### 14 Repair

Damaged dpc and cavity tray units should be replaced prior to the installation of brick, block or masonry courses above the dpc/cavity tray unit.

## Technical Investigations

### 15 Tests

Tests were conducted and results assessed to determine:

#### Xtra-Load Elite

- tensile strength and elongation
- effect of heat ageing (56 days at 60°C)
- effect of water soak (28 days at 23°C)
- effect of UV ageing
- tear strength
- dimensional stability
- unrolling at low temperature
- water vapour transmission and resistance
- head of water (3m)
- chisel impact

#### Preformed cavity trays

- tensile strength and elongation
- effect of heat ageing (56 days at 60°C)
- effect of water soak (28 days at 23°C)
- tear strength

#### Joint performance

- tensile strength of joints:
  - Xtra-Load Elite to Xtra-Load Elite
  - Xtra Load Elite to Cavity Tray
- effect of heat ageing follow by tensile strength (28 days at 60°C)

#### Coating mass

- ring and ball softening point
- fines content.

## 16 Investigations

16.1 The manufacturing process was evaluated, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

16.2 An assessment was made of reports or independent test data on:

- shear testing
- creep deformation
- dimensional stability
- low temperature flexibility.

## Bibliography

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

BS 8215 : 1991 *Code of practice for design and installation of damp-proof courses in masonry construction*

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 14967 : 2006 *Flexible sheets for waterproofing — Bitumen damp proof courses — Definitions and characteristics*

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

BS EN ISO 14001 : 2004 *Environmental management systems — Requirements with guidance for use*

PD 6697 : 2010 *Recommendations for the design of masonry structures to BS EN 1996-1-1 and BS EN 1996-2*

## 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.