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Agrément Certificate
96/3271
Product Sheet 3

XTRA-LOAD DAMP-PROOF COURSE SYSTEMS

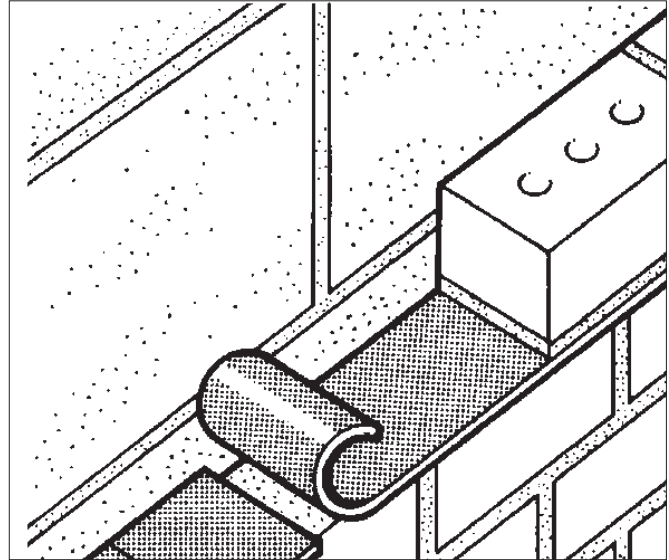
XTRA-LOAD HOUSING DPC

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Xtra-Load Housing DPC, for use as a dpc in new domestic constructions in horizontal, vertical or stepped positions, in either solid or cavity masonry walls. The product has not been assessed for use as a cavity tray.

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 investigation
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Behaviour under load — the product will not extrude under load, up to the point of compressive failure of the wall (see section 5).

Resistance to water and water vapour — the product will provide an effective barrier against liquid water and water vapour (see section 6).

Compatibility with other materials — within normal construction, the product 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 7).

Durability — when properly specified and installed, the product in normal circumstances, will remain effective during the lifetime of the building (see section 9).

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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 18 February 2009

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, Xtra-Load Housing DPC, 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 2000 (as amended) (England and Wales)

Requirement:	A1	Loading
Comment:		The product 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 5.1 of this Certificate.
Requirement:	C2(a)(b)	Resistance to moisture
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with this Requirement. See section 6 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is an acceptable material. See section 9 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)(2)	Fitness and durability of materials and workmanship
Comment:		The product can contribute to a construction satisfying this Regulation. See sections 8 and 9 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards – construction
Standard:	1.1(a)(b)	Structure
Comment:		The product 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 ⁽¹⁾⁽²⁾ and 1.1.3 ⁽¹⁾⁽²⁾ . See section 5.1 of this Certificate.
Standard:	3.4	Moisture from the ground
Standard:	3.10	Precipitation
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with these Standards, with reference to clauses 3.4.1 ⁽¹⁾⁽²⁾ and 3.10.1 ⁽¹⁾⁽²⁾ . See section 6 of this Certificate.
Regulation:	12	Building standards – conversions
Comment:		All comments given for the product under Regulation 9, 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) 2000 (as amended)

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is an acceptable material. See section 9 and the <i>Installation</i> part of this Certificate.
Regulation:	B3(2)	Fitness of materials and workmanship
Comment:		The product does not normally require maintenance. See section 8 of this Certificate.
Regulation:	C4(a)(b)	Resistance to ground moisture and weather
Comment:		Properly installed in a correctly designed structure, the product forms an effective barrier to the movement of water within the wall, enabling compliance with this Regulation. See section 6 of this Certificate.
Regulation:	D1	Stability
Comment:		The product 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 5.1 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: 2 *Description* (1.2) and 2 *Delivery and site handling* (2.4).

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of Xtra-Load Housing DPC, when installed and used in accordance with this Certificate, in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

Zurich Building Guarantee Technical Manual 2007

In the opinion of the BBA, Xtra-Load Housing DPC, when installed and used in accordance with this Certificate, satisfies the requirements of the *Zurich Building Guarantee Technical Manual*, Section 3 *Substructure*, Sub-section *dpc and dpm*.

General

This Certificate relates to Xtra-Load Housing DPC, comprising a flexible sheet material for use as a dpc in new domestic constructions in horizontal, vertical or stepped positions, in either solid or cavity masonry walls. The product has not been assessed for use as a cavity tray.

It is essential that the product is installed in accordance with the conditions set out in the *Design Considerations* and *Installation* parts of this Certificate.

Technical Specification

1 Description

1.1 Xtra-Load Housing DPC is a flexible sheet consisting of a blend of thermoplastic polymers and other additives, calendered into sheet form, reeled into rolls and cut to width.

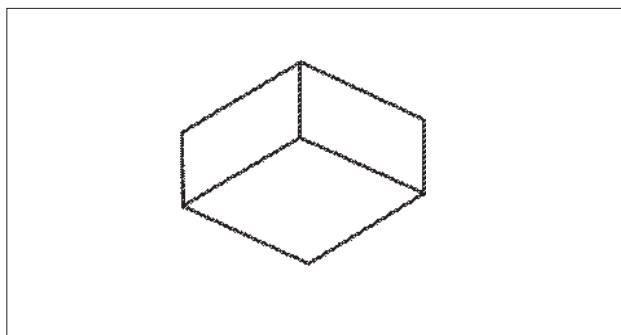
1.2 Xtra-Load Housing DPC is manufactured to the nominal characteristics of:

Thickness (mm)	0.85
Roll width (mm)	100 to 1200
Roll length (m)	20
Mass per unit area (kgm^{-2})	0.87

1.3 Other materials used with Xtra-Load Housing include:

- Xtra-Load Preformed Lintel Stop End — a factory produced unit manufactured from a 1.2 mm thick, thermoplastic polymer sheet (see Figure 1)
- Xtra-Load DPC Jointing Tape — a double-sided, self-adhesive tape, protected by a silicone release film. It is used to seal laps between dpc to dpc and between dpc to Preformed Lintel Stop Ends
- Xtra-Seal QD Bitumen Primer — for preparation of masonry and steel where required.

Figure 1 Xtra-Load Preformed Lintel Stop Ends



1.4 Quality control checks are performed during manufacture and on the final products. Quality control checks are carried out Xtra-Load Housing DPC for:

- thickness
- width
- length
- tensile strength
- elongation at break.

2 Delivery and site handling

2.1 Xtra-Load Housing DPC is delivered to site in rolls secured with a paper wrapper bearing the marketing company's name and the BBA's identification mark incorporating the number of this Certificate.

2.2 Rolls must be stored on end and under cover, and out of direct sunlight. The product has a good resistance to hydrocarbon solvents such as petroleum spirit and diesel oil, but should not be stored where contact with these materials or other organic solvents is likely.

2.3 Xtra-Load Preformed Lintel Stop Ends are delivered to site in cardboard boxes. A label bearing a description of the contents and the BBA identification mark incorporating the number of this Certificate is affixed to each box.

2.4 Xtra-Load DPC Jointing Tape is supplied in 25 m by 50 mm rolls in cardboard cartons bearing a label with a description of the contents and the BBA identification mark incorporating the number of this Certificate.

2.5 Xtra-Seal QD Bitumen Primer is delivered to site in 5 litre or 25 litre drums. The product is classified under *The Chemicals (Hazard Information and Packaging for Supply Regulations 2002 (CHIP3)* as 'flammable', with a flashpoint below 32°C, and must be stored in accordance with the *Highly Flammable Liquids and Petroleum Gases Regulations 1997*.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Xtra-Load Housing DPC.

Design Considerations

3 Use

When correctly specified and installed Xtra-Load Housing DPC provides satisfactory horizontal, vertical, or stepped damp-proof coursing (excluding cavity trays), in new domestic constructions, in either solid or cavity walls of masonry. General standards of good design practice should be followed, in accordance with BS 5628-3 : 2005.

4 Practicability of installation

Installation can be carried out readily by bricklayers experienced with this type of installation.

5 Behaviour under load



5.1 The product 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.

5.2 The product 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.

6 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.

7 Compatibility with other materials

The product 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.

8 Maintenance



As the product is confined within the wall and wall cavity and has suitable durability (see section 9), maintenance is not required. However, it must be ensured that damage occurring before enclosure is repaired (see section 13).

9 Durability



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

Installation

10 General

10.1 Installation of Xtra-Load Housing DPC must follow normal good practice for the detailing of damp-proof courses, as set out in BS 5628-3 : 2005, 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.

10.2 As with all flexible dpc's care should be taken to avoid impact damage from sharp objects (eg trowel) during installation.

10.3 The product is handled and cut as 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.

10.4 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 Xtra-Load Preformed Lintel Stop Ends should be used. Joints in the dpc should be formed on site by means of Xtra-Load Jointing Tape. 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.

11 Procedure

11.1 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 overlap and be sealed, according to section 12
- preformed units must be used at corners.

11.2 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.

11.3 Cavities should be cleaned using traditional methods to ensure no mortar bridging occurs.

Beam-and-block flooring

11.4 When used with beam-and-block flooring the product may be laid dry on a brick or block wall provided the following conditions are met:

- the minimum bearing of the beams recommended by the flooring system's manufacturer is achieved
- the dead and applied loads upon the dpc via the beam does not exceed 2.5 Nmm⁻²
- the surface of the wall onto which the dpc and beam are to be installed is clean, smooth and free from all projections or perforations. Failure to comply with this requirement could lead to perforation of the dpc. If the requirement cannot be met then the dpc should be laid in an even bed of mortar
- any loose aggregate is swept from the wall prior to the installation of the dpc and from the dpc prior to the installation of the beam.

12 Jointing procedures

12.1 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.

12.2 The layer of dpc to be lapped to the first should be 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.

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

13 Repair

Damaged product should be replaced prior to the installation of brick, block or masonry courses above the product.

Technical Investigations

14 Tests

The following tests were carried out on samples of a similar specification material to Xtra-Load Housing DPC:

- | | | |
|--|-------------------------------|-----------------------------------|
| • thickness | • mass per unit area | • water vapour transmission |
| • water absorption | • low temperature flexibility | • cold flex temperature |
| • chisel impact | • long term point loading | • puncture resistance |
| • tensile strength/elongation at break | • tear strength | • dimensional stability |
| • heat ageing | • water soak | • resistance to leakage of joints |
| • tensile strength of joints. | | |

15 Investigations

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

15.2 An examination was made of reports of shear testing carried out to BS DD 86-1 : 1983. The results were found to be satisfactory.

Bibliography

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

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 DD 86-1 : 1983 *Damp-proof courses — Methods of test for flexural bond strength and short term shear strength*

16 Conditions

16.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- 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.

16.2 References in this Certificate to any Act of Parliament, Statutory Instrument, Directive or Regulation of the European Union, British, European or International Standard, Code of Practice, manufacturers' instructions or similar publication, are references to such publication in the form in which it was current at the date of this Certificate.

16.3 This Certificate will remain valid for an unlimited period provided that the product/system and the manufacture and/or fabrication including all related and relevant 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.

16.4 In granting this Certificate, the BBA is not responsible for:

- 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 the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

16.5 Any information relating to the manufacture, supply, installation, use and maintenance 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 and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date 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. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

