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Agrément Certificate
02/3961
Product Sheet 4

WYKAMOL CHEMICAL DAMP-PROOFING SYSTEMS

WYKAMOL SILICONATE K DAMP-PROOFING SYSTEM

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to the Wykamol Silicate K Damp-Proofing System, an aqueous silicate solution in concentrated form for forming a damp-proof course (dpc) in existing walls.

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

Effectiveness against rising damp — when injected into suitable substrates in accordance with BS 6576 : 2005, the system forms an effective barrier against rising damp in existing walls (see section 5).

Odour — the system is odourless and gives off no harmful vapours (see section 6).

Drying time — after treatment, a 230 mm solid brick wall previously affected by rising damp should normally dry out in 6 to 12 months (see section 7).

Durability — the system will remain effective against rising damp for at least 20 years (see section 9).

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

Date of First issue: 2 June 2010

Originally certificated on 4 December 2002

Simon Wroe

Head of Approvals — Materials

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.bbacists.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

The Building Regulations 2000 (as amended) (England and Wales)

 In the opinion of the BBA, the use of the Wykamol Silicate K Damp-proofing System in an existing building is not subject to these Regulations, but action to satisfy Requirement C2(a) and Regulation 7 may be necessary for a 'Material change of use' as defined in Regulation 5(a).

Requirement:	C2(a)	Resistance to moisture
Comment:		The system satisfies the BBA rising damp test and adequately resists the passage of moisture. See section 5 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The system is acceptable. See section 9 and the <i>Installation</i> part of this Certificate.

The Building (Scotland) Regulations 2004 (as amended)

 In the opinion of the BBA, the use of the Wykamol Silicate K Damp-proofing System, in an existing building is not controlled by these Regulations, but action to satisfy the Regulation and related Mandatory Standards below may be necessary for a 'Conversion' as defined in Regulation 4 of these Regulations.

Regulation:	8(1)	Fitness and durability of materials and workmanship
Comment:		The system can contribute to a construction satisfying this Regulation. See section 9 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards — construction
Standard:	3.3	Flooding and ground water
Standard:	3.4	Moisture from the ground
Comment:		The system satisfies the BBA rising damp test and adequately resists the passage of moisture and can contribute to satisfying these Standards, with reference to clauses 3.3.1 ⁽¹⁾⁽²⁾ , 3.4.1 ⁽¹⁾⁽²⁾ and 3.4.5 ⁽¹⁾⁽²⁾ . See section 5 of this Certificate.
Regulation:	12	Building standards — conversions
Comment:		All comments given for this system 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)

 In the opinion of the BBA, the use of the Wykamol Silicate K Damp-proofing System in an existing building is not controlled by these Regulations, but action to satisfy Regulations B2 and C4(a) may be necessary for a 'Material change of use' under Regulation A9.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable and water-based, and does not release solvent for an unreasonable period. See sections 6 and 9 and the <i>Installation</i> part of this Certificate.
Regulation:	C4(a)	Resistance to ground moisture and weather
Comment:		The system satisfies the BBA rising damp test and adequately resists the passage of moisture. See section 5 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 and site handling* (2.1 to 2.3) of this Certificate.

Non-regulatory Information

NHBC Standards 2008

NHBC accepts the use of the Wykamol Silicate K Damp-Proofing System, when installed and used in accordance with this Certificate, in relation to NHBC Standards, Section 5.1 *Substructure and ground floors*.

Technical Specification

1 Description

1.1 The Wykamol Silicate K Damp-Proofing System, is an aqueous concentrate of potassium methyl silicate, manufactured by a controlled batch blending process. Regular quality control checks are conducted on the final product.

1.2 The concentrate is diluted with tap water (1 : 6 by volume) at the installer's premises to give the injection fluid.

1.3 The accuracy of dilution can be checked by tests to *The Property Care Association Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls*. The minimum values (percentage by weight) that should be achieved are:

solids content	6.00
silicate content	3.50
silicon content	1.46

1.4 The installation process involves the saturation of a selected course of brickwork, or an equivalent area of blockwork, stone or the mortar bed, with this fluid by pressure injection, and the subsequent replastering.

2 Delivery and site handling

2.1 Wykamol Silicate K concentrate is supplied in 25 litre drums or in 3.6 litre sealed plastic containers which bear the BBA identification mark incorporating the number of this Certificate.

2.2 Both the concentrate and diluted fluid are alkaline and classified as 'corrosive' under *The Chemicals (Hazard Information and Packaging for supply) Regulations 2009* (CHIP4) and carry the appropriate health warning.

Precautions are necessary during handling, dilution and injection, to avoid contact from spillage or leakage. The normal precautions (use of goggles or visor, gloves, protective clothing and the prompt removal of contaminated clothing) should be observed with particular rigour during the handling of the concentrate. Should the fluid come into contact with the skin it must be washed off promptly. If it comes into contact with the eyes they should be flushed with cold water for 10 minutes, and medical attention sought.

2.3 To protect third parties from contact with the alkaline fluid, the working area is coned off from the public highway during treatment (for example, when terraced houses abutting the pavement are treated).

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on the Wykamol Silicate K Damp-proofing System.

Design Considerations

3 General

3.1 The Wykamol Silicate K Damp-Proofing System is used in accordance with BS 6576 : 2005 in existing:

- solid walls of brickwork, blockwork or natural stone (including flint), up to 600 mm thick
- conventional cavity walls, or
- walls of rubble-filled construction of any thickness.

3.2 The system provides a barrier against rising damp where there is no dpc or where the existing dpc has failed.

3.3 Replastering is necessary to retain salts in the body of the wall to prevent damage to subsequent redecoration. This must be carried out in accordance with the Wykamol Replastering Specifications (see Appendix).

3.4 The system has no effect on expanded polystyrene or bitumen.

4 Practicability of installation

The system should only be installed by installers who have been trained and approved by the Certificate holder.

5 Effectiveness against rising damp

 When installed in the substrates defined in section 3.1, in accordance with BS 6576 : 2005, the product forms an effective barrier against rising damp.

6 Odour

 The diluted fluid is odourless and gives off no harmful vapours.

7 Drying time

After treatment, a 230 mm thick solid brick wall, previously affected by rising damp, should normally dry in 6 to 12 months provided normal heating is used during the winter months. A thicker wall may take longer. Where hygroscopic salts are present, the wall may not dry completely but the replastering system will prevent damage to internal decorations.

8 Maintenance

Maintenance is not required for this product.

9 Durability



Excluding use in new repair work (where highly-alkaline mortars are present), the process is expected to remain effective for at least 20 years.

Installation

10 General

10.1 Installation of the Wykamol Silicate K Damp-Proofing System is carried out in accordance with BS 6576 : 2005, The Property Care Association *Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls* and by the Certificate holder's approved contractor.

10.2 Replastering is necessary to prevent damage to subsequent redecoration. To avoid split responsibility, this should be conducted by the installer or his approved agent.

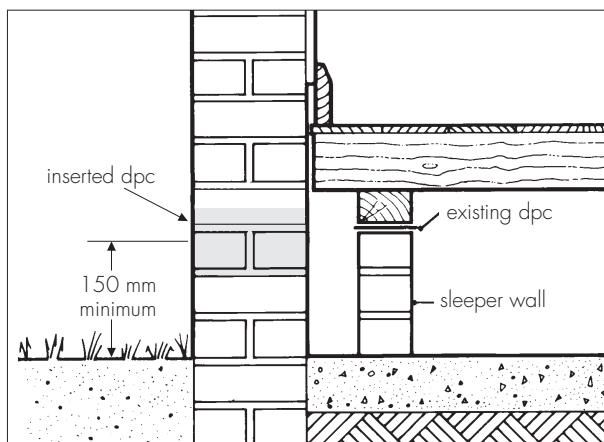
11 Precautions

Wykamol Silicate K Damp-proofing System concentrate and diluted fluid are water-based and present no flammability hazards.

12 Timber floor — inspection, preparation and repair

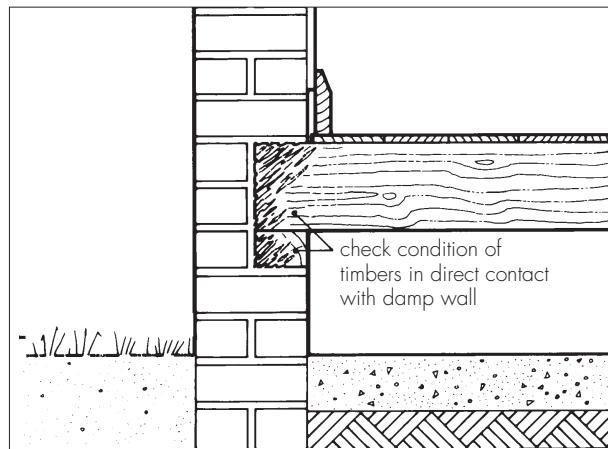
12.1 Where a suspended timber floor is independently supported on sleeper walls, with an effective dpc and showing no signs of dampness, these need not be treated (see Figure 1).

Figure 1 Suspended timber floor on sleeper wall



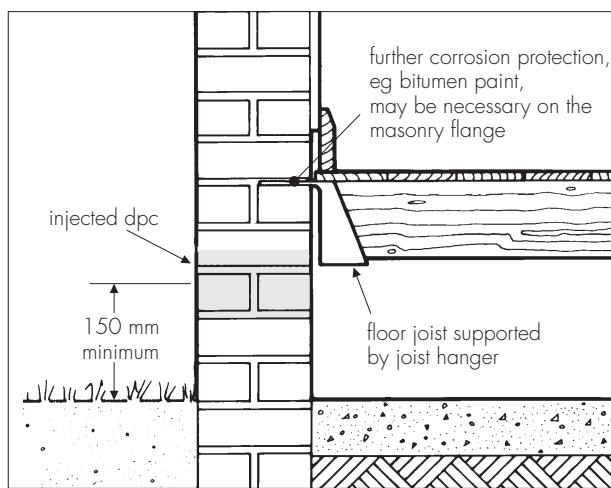
12.2 Where a suspended timber floor is supported on joists and/or a wall plate bearing on, or embedded in the wall, there is a possibility of decay, particularly where concealed timbers are in contact with the damp wall. The condition of these timbers should be ascertained and remedial action taken if necessary (see Figure 2).

Figure 2 Check embedded timber for decay



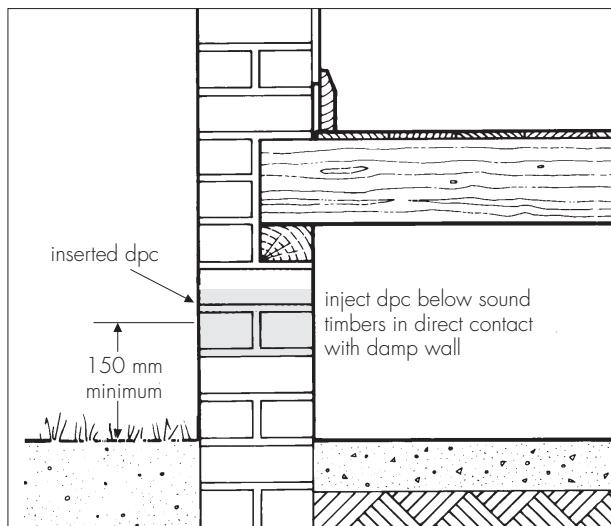
12.3 If damage is limited to the joist ends, the floors may be re-formed, using sleeper walls or joist-hangers, to isolate the timbers from the damp wall (see Figure 3).

Figure 3 Isolation of timber joists from damp wall



12.4 If the timbers are sound, the existing floor may be retained provided the injected dpc is formed below the timber joists and/or wall plate (see Figure 4).

Figure 4 Inject dpc below wall plate



13 Preparation

13.1 The course to be injected is chosen so that the position of the horizontal dpc complies, as far as is practicable, with the recommendations of BS 6576 : 2005, Clause 8.3 (see section 12.4 of this Certificate).

13.2 Internal walls on solid floors are treated as close to the floor as possible.

13.3 Complementary vertical dpc's are positioned, where necessary, to isolate treated walls from the effects of rising damp in adjoining walls or to maintain continuity between horizontal dpc's at different levels.

13.4 Internal plastering affected by hygroscopic salts is removed from the area to be treated to a height of 460 mm above the maximum level of the rising damp. Internal skirtings and flooring are also removed, as necessary, to expose the area for treatment. Externally, the proposed dpc line is exposed, where necessary, by removing any facing material.

14 Procedure

Mortar — low pressure

14.1 Holes 10 mm or 16 mm in diameter are drilled to predetermined depths along the selected mortar course at spacings of 150 mm to 170 mm along the selected course, avoiding the perpends (percussion drills are not used on half-brick walls). The holes are drilled either horizontally into the mortar joints or angled downwards at 30° to 40°, terminating in a mortar bed joint at the level of the required dpc. Procedures for different types of wall are:

- walls 115 mm thick — injected from one side only
- solid walls 230 mm thick — normally injected from both sides. If access is restricted they may be drilled progressively (using a sequence of drilling, injection, re-drilling to deepen the hole by 100 mm to 120 mm and re-injecting)
- solid walls of greater thickness — treated from one or both sides. In each case the progressive injection technique is used
- cavity walls — normally treated from both sides, but if the thickness of the individual leaves permits, the progressive injection technique is used from one side.

14.2 The silicate solution is injected at nominal pressure of 300 kPa. Nozzles fitted with pressure-tight seals are inserted into the drilled holes and injection is continued until the required volume has been injected. Normally the treatment of brickwork 230 mm thick will require 2 to 4 litres of fluid per metre run. The nozzles are removed and subsequent holes are similarly injected.

Stone walls

14.3 In solid or cavity walls of conventional construction in blockwork or stone, the drilling and injection procedure is adjusted to accommodate variations in the density, porosity and structure. In each case the procedure chosen must ensure a continuous unbroken treatment along the length of the wall.

Rubble-filled stone walls

14.4 In stone walls with a rubble-filled cavity, the two leaves are first injected using the techniques appropriate to the substrate, then:

- in walls 450 mm thick — holes in one leaf are re-drilled to the centre of the wall (into the rubble infill) and injected singly until fluid exudes from mortar joints below the injection level
- in walls of between 450 mm and 900 mm thick — holes in both walls are re-drilled to the centre of the wall and injected singly until fluid exudes from the mortar joints below the injection level.

14.5 Normally, the treatment of the rubble core of a 450 mm thick wall will require 4 to 5 litres of fluid per metre run (increased pro rata for thicker walls).

Flint walls

14.6 In flint walls, holes are drilled into the mortar joint, either horizontally or at an angle, to the mid-point of the wall, at 75 mm intervals. Injection is carried out at 300 kPa until the required volume has been injected.

Technical Investigations

15 Investigations

15.1 The manufacturing processes were examined, and the raw material specifications, formulations and quality control procedures were established.

15.2 A reassessment was made of existing data and investigations held on the system. The original conclusions remain valid.

15.3 Details were obtained of the criteria used by the Certificate holder in appointing approved contractors.

Additional Information

The management systems of Wykamol Group have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2008 by Garek Assured (Certificate No 0111/1104.02).

Bibliography

- BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*
- BS 8481 : 2006 *Design, preparation and application of internal gypsum, cement, cement and lime plastering systems — Specification*
- BS EN 197-1 : 2000 *Cement — Composition, specifications and conformity criteria for common cements*
- BS EN 13139 : 2002 *Aggregates for mortar*
- BS EN 13914-2 : 2005 *Design, preparation and application of external rendering and internal plastering — Design considerations and essential principles for internal plastering*
- BS EN ISO 9001 : 2008 *Quality management systems — Requirements*
- Property Care Association COP09/09 *Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls*

Conditions of Certification

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 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

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.

Appendix

Wykamol Group's Replastering Specification

A1 Preparation

A1.1 Wykamol Replastering Specifications are carried out by the Certificate holder's approved contractor in accordance with BS 6576 : 2005, and the Property Care Association *Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls*.

A1.2 Plaster affected by hygroscopic salts is removed as described in section 13.4.

A1.3 Replastering can commence after a minimum period of 14 days from installation of the remedial dpc.

A1.4 If the background is impermeable and offers little suction (eg where rising damp has occurred in the mortar joints), the joints are raked out to provide a mechanical key and/or SBR Latex bonding primer is applied to the surface and the wall is replastered immediately.

A2 Wykamol Replastering Products

Wykamol Renovating Plaster — a premixed cement-based lightweight plaster

Integral Waterproofer No 2 — a salt-retardant additive for use in sand-cement mixes

Brunopel IWP — a salt-retardant additive for use in sand-cement mixes

Brunolene PS — a salt-retardant additive for use in sand-cement or sand-lime-cement mixes or with Wykamol Renovating Plaster.

A3 Procedure — Wykamol Renovating Plaster

A3.1 The plaster is mixed with clean water (or a gauging solution containing Brunolene PS) in clean containers, by hand or mechanically, to a normal plastering consistency. Over-mixing is to be avoided and hand-mixing is preferably conducted in a trough using a hoe or plasterer's drag.

A3.2 The plaster is applied, generally in accordance with BS 8481 : 2006 and BS EN 13914-2 : 2005, to achieve a thickness of between 10 mm and 15 mm, and the surface is lightly scratched. The plaster is applied no lower than the level of the dpc. If necessary, a batten is used to achieve this.

A3.3 If the maximum thickness of the required backing coat is to exceed 15 mm, a scratch or dubbing-out coat is necessary to achieve a level surface. Each coat applied must not exceed 15 mm, be well scratched and allowed to dry before the application of the subsequent coat.

A3.4 Normally, Wykamol Renovating Plaster sets in seven hours.

A4 Procedure — Other renovating plaster mixes

A4.1 Integral Waterproofer No 2 and Brunopel IWP are used in a 3:1 sand-cement mix comprising⁽¹⁾:

- Portland cement — CEM I class 52,5 N to BS EN 197-1 : 2000
- aggregate — clean, sharp, washed sand, free of salt, suitably graded for plastering to BS EN 13139 : 2002
- gauging water — potable water gauged with: one part of Integral Waterproofer No 2 to 25 parts of water, or one part of Brunopel IWP to 30 parts of water.

(1) These dosing rates are appropriate for dry sand and can be adjusted if the sand is wet.

A4.2 The Brunolene PS additive is used in weaker mixes (eg 6:1 sand-cement or 6:1:1 sand-lime-cement) or with Wykamol Renovating Plaster, gauged with potable water containing one part of Brunolene PS to 30 parts of water (assuming dry sand in 6:1 or 6:1:1 mixes).

A4.3 The sand-cement-additive mix is applied at a thickness of 10 mm. After the first set of this mix is taken up, the surface must be combed or scratched to provide a mechanical key. Where necessary, a second undercoat of sand and cement is applied; the mix proportions and additive used at the same rate as for the first coat. This coat must also be combed or scratched to provide a key.

A5 Finishing coats

After allowing the back coat to set and dry for at least 24 hours, the finishing plaster⁽¹⁾ is applied approximately 1.5 mm to 3 mm thickness. In very wet conditions the drying time can be longer and the finishing plaster must not be applied until it is dry.

(1) covered by a valid Agrément Certificate.

A6 General

The following general information should also be observed.

- A6.1 The amount of gauging water in the undercoats should be a minimum consistent with reasonable application.
- A6.2 Undercoats based on gypsum must never be used in this type of application.
- A6.3 It is recommended that the undercoats be scrape finished to minimise the risk of cracking.
- A6.4 A strong mix is never applied over a weak mix or backing.
- A6.5 Where scratch coats are to be left as a finish, a high quality wood float finish may be used. However, it is preferred to scrape the finish to a textured surface.
- A6.6 Finishing plaster is not recommended if the surface is to be tiled.

A7 Dry-lining methods

A7.1 In certain circumstances replastering of walls following chemical dpc insertion is not feasible, eg extremely friable wall surfaces, uneven wall profiles. Where dry lining is to be carried out, this must be in accordance with the manufacturer's recommendations. Care should be taken to ensure that gypsum adhesives are not used in 'dot and dab' applications directly onto the wall surface. Timber used as battens must be pre-treated and all cut ends re-treated on site. Ventilation must be provided behind the system until the walls have dried out to reduce the possibility of condensation within the void.

A7.2 On walls which are persistently damp due to the presence of high concentrations of hygroscopic salts, normal dry-lining methods are unsuitable. However, in such cases reinstatement can proceed in conjunction with a BBA approved ventilated dry lining system, based on a high-density polyethylene (HDPE) membrane which provides a vapour impermeable surface suitable for conventional plastering and/or dry-lining techniques.

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