

Safeguard Europe Ltd

6 Redkirk Close
Horsham
West Sussex RH13 5QL

Tel: 01403 210204 Fax: 01403 217529
e-mail: info@safeguardeurope.com
website: www.safeguardeurope.com



Agrément Certificate
97/3363
Product Sheet 2

SAFEGUARD DAMP-PROOF SYSTEMS

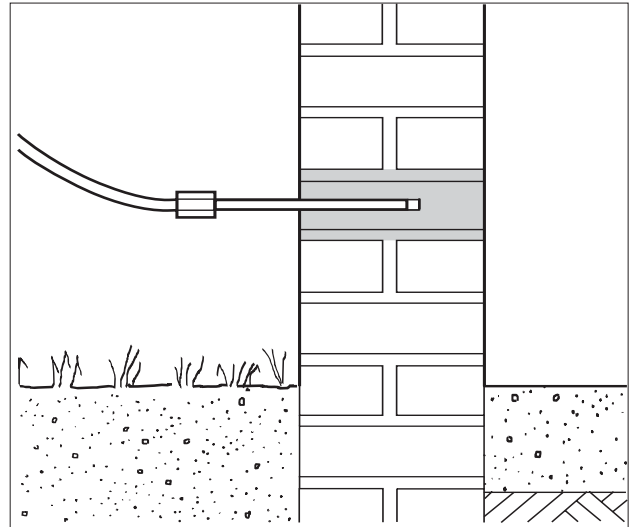
SAFEGUARD MICROSILAN

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate relates to Safeguard Microsilan, a silicate/siliconate/silane solution for forming a damp-proof course (dpc) in existing walls, and the associated replastering.

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).

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 6).

Durability — the system will remain effective against rising damp for at least 20 years (see section 8).

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

Simon Wroe
Head of Approvals — Materials

Greg Cooper
Chief Executive

Date of First issue: 5 October 2010

Originally certificated on 17 June 1997

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
Garston, Watford
Herts WD25 9BA

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tel: 01923 665300
fax: 01923 665301
e-mail: mail@bba.star.co.uk
website: www.bbacerts.co.uk

Regulations

The Building Regulations 2010 (England and Wales)



In the opinion of the BBA, the use of Safeguard Microsilan 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 8 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 Safeguard Microsilan 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 8 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⁾ respectively. 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 Safeguard Microsilan in an existing building is not controlled by these Regulations, but action to satisfy Regulations B2 and C4 may be necessary for a 'Material change of use' under Regulation A9.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The system is acceptable. See section 8 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* (2.2) of this Certificate.

Non-regulatory Information

NHBC Standards 2010

NHBC accepts the use of the Safeguard Microsilan, 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 Safeguard Microsilan is a mixture of potassium methyl siliconate, silicate and silane micro-emulsion in concentrated form.
- 1.2 The system is also available as Dampcheck Plus, a pre-diluted form of the concentrate.
- 1.3 The system components are manufactured by controlled batch-blending processes. Quality control is exercised over raw materials during manufacture and on the final products.
- 1.4 The installation process involves the saturation by pressure injection of a selected course of brickwork or mortar, or an equivalent area of blockwork or stone, with the diluted fluid and the subsequent replastering (see the Appendix).

2 Delivery and site handling

- 2.1 The injection fluid is produced by diluting the concentrate with clean water at the installer's premises. The concentrate is supplied in polythene containers of 4 litres (standard pack) and 25 litres. The standard pack (4 litres) is made up to a total volume of 25 litres.
- 2.2 The concentrate and injection fluid are classified as 'Corrosive' and 'Irritant', respectively, under the Chemicals (Hazard Information and Packaging for Supply) Regulations 2009 (CHIP4) and containers carry the appropriate health warning. Precautions are necessary during handling, dilution and injection, to minimise contact from spillage or leakage. The normal precautions (use of goggles or visor, gloves, protective clothing and prompt removal of contaminated clothing) should be strictly observed during the handling of the concentrate. If fluid comes 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 must be 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 Safeguard Microsilan.

Design Considerations

3 General

- 3.1 Safeguard Microsilan is used in accordance with BS 6576 : 2005 and the The Property Care Association Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls in existing:
 - solid walls of brickwork, blockwork or masonry
 - conventional cavity walls, or
 - walls of rubble-filled construction.
- 3.2 The system provides a barrier against rising damp where there is no dpc or where the existing dpc has failed.
- 3.3 Where existing plaster is contaminated by salts, replastering is necessary to retain the salts in the body of the wall and prevent damage to subsequent redecoration. This should be carried out in accordance with the Certificate holder's Replastering Specification (see section 11.4 and the Appendix).
- 3.4 Safeguard Microsilan has no effect on expanded polystyrene or bitumen.

4 Practicability of installation

The product should be installed by contractors with experience in the treatment of rising damp using the methods described in this Certificate.

5 Effectiveness against rising damp



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

6 Drying time

After treatment, a 230 mm thick solid brick wall, previously affected by rising damp, should normally dry out 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.

7 Maintenance

As the system is confined within the wall and it has suitable durability (see section 8), maintenance is not required.

8 Durability



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

Installation

9 General

9.1 Installation of Safeguard Microsilan after dilution is by pressure injection and must be carried out in accordance with BS 6576 : 2005 and the requirements of The Property Care Association *Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls* by the Certificate holder's approved installers.

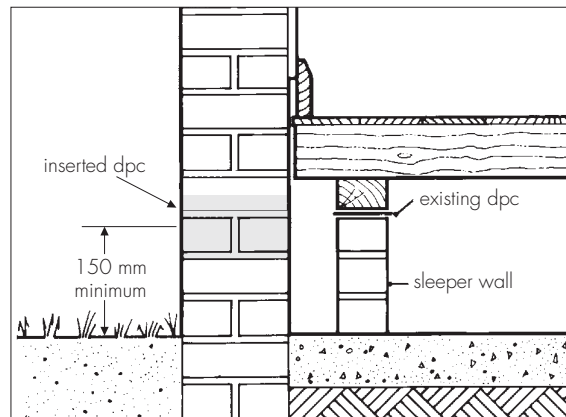
9.2 The original survey may have identified other possible causes of dampness, and measures to rectify these are taken as necessary.

9.3 To avoid split responsibility, any replastering carried out should be conducted by the installer or his approved agent.

10 Timber floor — inspection, preparation and repair

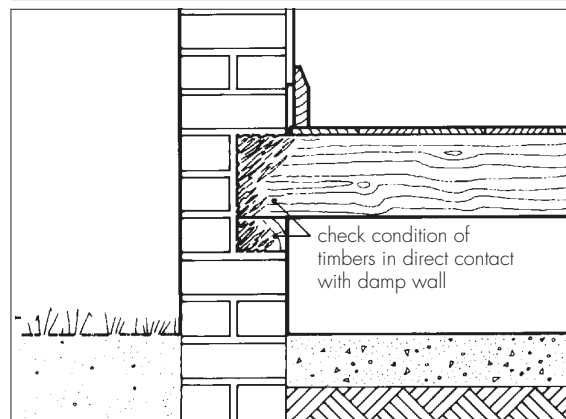
10.1 Where a suspended timber floor is independently supported on sleeper walls, with an effective dpc and showing no signs of dampness, these need not be treated (see Figure 1).

Figure 1 Suspended timber floor on sleeper wall



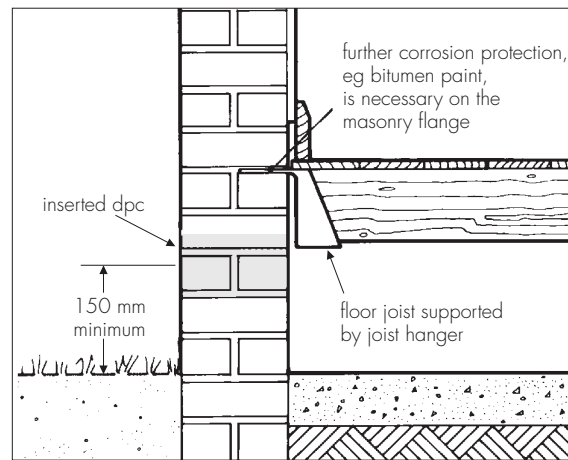
10.2 Where a suspended timber floor is supported on joists and/or a wall plate bearing on, or embedded in, the wall, there is a possibility of decay, particularly where concealed timbers are in contact with the damp wall. The condition of these timbers should be ascertained and remedial action taken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

Figure 2 Check embedded timber for decay



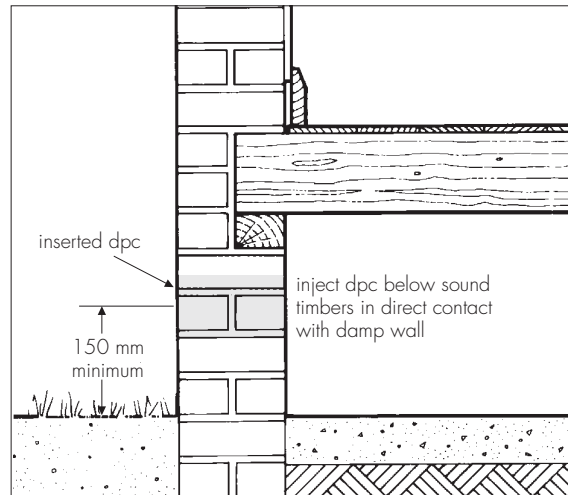
10.3 If damage is limited to the joist ends, the floors may be re-formed, using sleeper walls or joist-hangers, to isolate the timbers from the damp wall (see Figure 3).

Figure 3 Isolation of timber joists from damp wall



10.4 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



11 Preparation

11.1 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 10.4 of this Certificate).

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

11.3 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.

11.4 Internal skirting 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. Internal plastering affected by hygroscopic salts is removed from the area to be treated to a height of at least 300 mm above the maximum level of the rising damp (subject to a 1 m minimum height). Where the plaster appears to be in sound condition, the extent of plaster to be removed may be minimised by delaying the removal of contaminated plaster until the drying period is complete, at which point the plaster contaminated by hygroscopic salts should be removed and replaced with plaster to the Certificate holder's specification (see Appendix).

11.5 It should be noted that, where the plaster is contaminated and left to dry out for an extended period rather than being replaced at the time of the dpc installation, then there is a risk of damage to future decorations.

12 Procedure

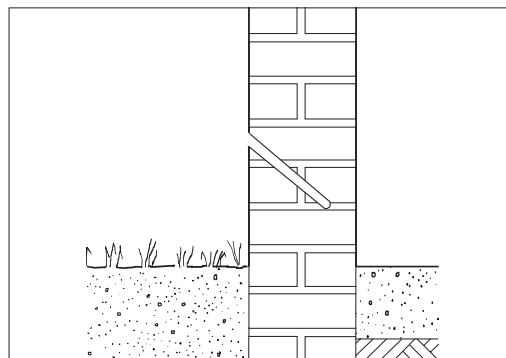
General

12.1 Holes may be drilled using a variety of methods (see sections 12.2 to 12.10), but in all cases the final hole depth should be as deep as possible, but leaving at least 40 mm of undisturbed masonry on the opposite face.

Mortar

12.2 Holes, from 10 mm to 16 mm in diameter, are drilled to predetermined depths at intervals of between 120 mm and 150 mm along the selected course, avoiding the perpends. Preferably, holes are drilled horizontally into a mortar bed joint to a depth of at least half, but no more than two-thirds, of the wall's thickness. Alternatively, they may be drilled into the bricks at an angle of depression of 25° to 45° terminating in a mortar bed joint at the level of the required dpc (see Figure 5).

Figure 5 Angled drilling into the mortar course



Brickwork

12.3 Holes, from 10 mm to 16 mm in diameter, are drilled to predetermined depths at intervals of between 120 mm and 150 mm along the selected course. Two holes are drilled in each stretcher and one in each header at a spacing of 120 mm to 150 mm. If a brick course proves to be too dense to allow adequate penetration of fluid, drilling may be carried out in the adjacent mortar course (see section 12.2). Percussion drills should not be used on half-brick walls.

Solid stone

12.4 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. For porous stones such as sandstone the stone itself may be drilled, whereas for hard, impervious stones (eg flint) the mortar may be drilled. In each case, a procedure is chosen to ensure a continuous unbroken treatment along the length of the wall.

Rubble-fill

12.5 In walls with a rubble-filled cavity, the two masonry leaves are first injected using the techniques described in sections 12.2 to 12.4. The holes in one leaf are then re-drilled to penetrate into the rubble core and additional fluid is injected.

Injection

12.6 The solution is injected at pressures up to 350 kPa for mortar injection and 500 kPa for brickwork. Nozzles fitted with pressure-tight seals are inserted into the drilled holes and injection is continued until complete saturation is achieved and the fluid begins to exude from the substrate. The nozzles are removed and subsequent holes are similarly injected. Generally, for 228 mm thick walls, approximately 2.6 litres of product are used to inject each metre run.

Different wall types

12.7 Walls 115 mm thick are injected from one side only.

12.8 Solid walls 230 mm thick are normally treated from both sides but if access is restricted they may be drilled and injected progressively from one side using a sequence of drilling, injecting and re-drilling to deepen the hole by 100 mm to 120 mm, and re-injecting.

12.9 Solid walls of greater thickness may be treated from one or both sides. In each case, the progressive injection technique is used.

12.10 Cavity walls are normally treated from both sides, but if the thickness of the individual leaves permits, injection from one side at increasing depths is conducted.

13 Finishing

13.1 Where existing plaster has been removed at the same time as the installation of the remedial dpc, then the treated walls should be left for as long as possible (traditionally at least 14 days) to allow initial drying out. Internal plastering is applied in accordance with the details given in the Appendix.

13.2 Particular care is taken to avoid bridging the dpc, either internally or externally. Where external rendering has been removed, it is restored, ending in a bell casting above the injected dpc.

13.3 Holes in the external wall surfaces are plugged with sand/cement mortar coloured to match the existing wall surface.

14 Tests

14.1 Tests were carried out by the BBA to determine early water repellency to BS 6477 : 1992.

14.2 An examination of the test data on the following features was carried out on related products:

- effectiveness against rising damp, to MOAT No 39 : 1988, method 4.3.1.4
- substantivity of injection treatment, to BBA test specification.

15 Investigations

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

15.2 An examination was made of existing data on the effectiveness of silicone-based products as a chemical dpc.

15.3 An assessment was made of the materials available for replastering.

Additional Information

The management systems of Safeguard Europe Ltd have been assessed and registered as meeting the requirements of BS EN ISO 9001 : 2000 by the British Standards Institution Quality Assurance (QAS 2567/350, Certificate No FM1937).

Bibliography

- BS 3900-A12 : 1975 *Methods of test for paints — Tests on liquid paints — Determination of density*
- BS 6576 : 2005 *Code of practice for diagnosis of rising damp in walls of buildings and installation of chemical damp-proof courses*
- BS 8000-10 : 1995 *Workmanship on building sites — Code of practice for plastering and rendering*
- BS 8481 : 2006 *Design, preparation and application of internal gypsum, cement, cement and lime plastering systems — Specification*
- 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 : 2000 *Quality management systems — Requirements*
- Property Care Association COP09 *Code of Practice for Installation of Remedial Damp-proof Courses in Masonry Walls*
- MOAT No 39 : 1988 *The assessment of damp-proof course systems for existing buildings*

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.

A1 Description

Renderguard Gold is a combined waterproofing, salt retardant and plasticiser additive for use in sand/cement replastering mixes applied after the removal of the existing contaminated plaster and insertion of a remedial damp-proof course.

A2 Delivery and site handling

A2.1 The packaging, shelf-life and storage requirements are given in Table 1.

Product	Packaging details	Shelf-life and storage requirements
Safeguard Renderguard Gold	1, 4 and 25 litre containers	12 months when stored in a dry place. Protect from frost, high temperature and direct sunlight

A2.2 The product should not be swallowed or splashed into the eyes. If splashing occurs, eyes should be washed with copious quantities of clean water and medical attention sought.

A2.3 The product's packaging bears the BBA identification mark incorporating the number of this Certificate.

A3 Design Considerations

A3.1 Renderguard Gold is an additive for sand/cement mixes and is satisfactory for application to walls of all types of masonry where there has been rising damp and remedial dpc treatment has been conducted.

A3.2 The additive mixes are applied at a thickness of 12 mm using the normal procedures defined in BS 8481 : 2006 and BS EN 13914-2 : 2005, and finished using 3 mm Carlite finish, multifinish or similar.

A3.3 The plaster has good resistance to mechanical damage.

A3.4 Normal methods for fixing and chasing can be used, but the surface should be restored using Renderguard Gold additive sand/cement mix.

A4 Installation

General

A4.1 The standard of installation of the product should comply with BS 8000-10 : 1995.

A4.2 Where existing plaster has been removed at the same time as the installation of the remedial dpc, then the treated walls should be left for as long as possible (traditionally at least 14 days) to allow initial drying out before replastering.

Preparation

A4.3 Details such as timber skirting should be removed.

A4.4 Mortar joints are raked out to a depth of 15 mm.

A4.5 Timber fixing grounds present in the masonry are removed.

A4.6 If the background offers little suction, a bonding aid may be applied to the surface and the wall replastered immediately.

A4.7 Where masonry is unstable this must be made good prior to the application of the render. Where it is not possible to obtain a proper bond between the wall fabric and render, eg with cob walling, expanded metal lath must be fixed to the wall surface before application.

Mixing

A4.8 The water must be clean, free from oil, dirt or other injurious chemicals (water suitable for drinking, if available).

First coat

A4.9 A mix of three parts sand to one part cement using gauging water containing Safeguard Renderguard Gold is prepared⁽¹⁾. The sand should be specified as washed, sharp sand, loam-free, suitably graded for plastering to BS EN 13139 : 2002. The cement should be fresh and free flowing.

(1) Mix one part Renderguard Gold with 24 parts water — a minimum of water is used to ensure a dense coat. Not more than 8 litres should be used per 50 kg of dry mix.

A4.10 The mix is compacted into joints and rendered to give an overall thickness of 12 mm, without over-trowelling. When the cement obtains its first set, this surface is scratched to form a key.

Second coat

A4.11 The mix, as for the first coat but with additive-free water, is applied to a thickness of 12 mm without over-trowelling, giving an overall thickness of 25 mm. This coat should be applied before the first coat has finally set, to obtain a satisfactory adhesion between the coats. The surface should be scratched to form a key for the finishing plaster.

Finish coat

A4.12 This should be Carlite finish, multi finish or similar, applied to a thickness of 3 mm. Other finishes are acceptable provided they are porous. The surface must not be polished.

Miscellaneous

A4.13 To prevent any damp within a solid floor being transferred into the soft setting coat, renders and plasterwork extending behind the skirting should not make contact with the floor.

A4.14 Gypsum plaster or lightweight premix plasters must not be used to bond metal angle beads to corners.

A4.15 It should be noted that the walls will take a considerable time to dry out and it is possible that sufficient moisture would ingress into any new joinery to cause fungal decay. Therefore, where conventional timber skirting are to be fixed, these should be cut to size and fully worked, with a minimum of three brush coats of wood preservative applied.

A4.16 Skirting that has been removed but is still sound should have a minimum of three coats of diluted SoluGuard Fungicide Concentrate for Timber and Masonry (HSE 8545) applied to the unpainted surfaces. It is also recommended that the back and bottom of skirting are given two coats of a bituminous paint, or backed with joinery liner.

A4.17 Where practicable, all joinery should be fixed by the use of masonry nails. If not, inert fixing grounds (eg plastic) should preferably be used, but timber may be used provided it is cut to size and fully worked and immersed for a minimum of 24 hours in diluted SoluGuard Fungicide Concentrate for Timber and Masonry (HSE 8545) before being inserted into the damp masonry.

A4.18 It is important that the specification is strictly adhered to and not varied in any way. No other additives must be added to the mix, unless approved by the Certificate holder. Lightweight gypsum premix backing or bonding plasters (eg Carlite) must not be used.

