



Knauf Insulation Ltd

P O Box 10
Stafford Road
St Helens
Merseyside WA10 3NS
Tel: 01744 24022 Fax: 01744 612007
e-mail: tech@knaufinsulation.com
website: www.knaufinsulation.co.uk

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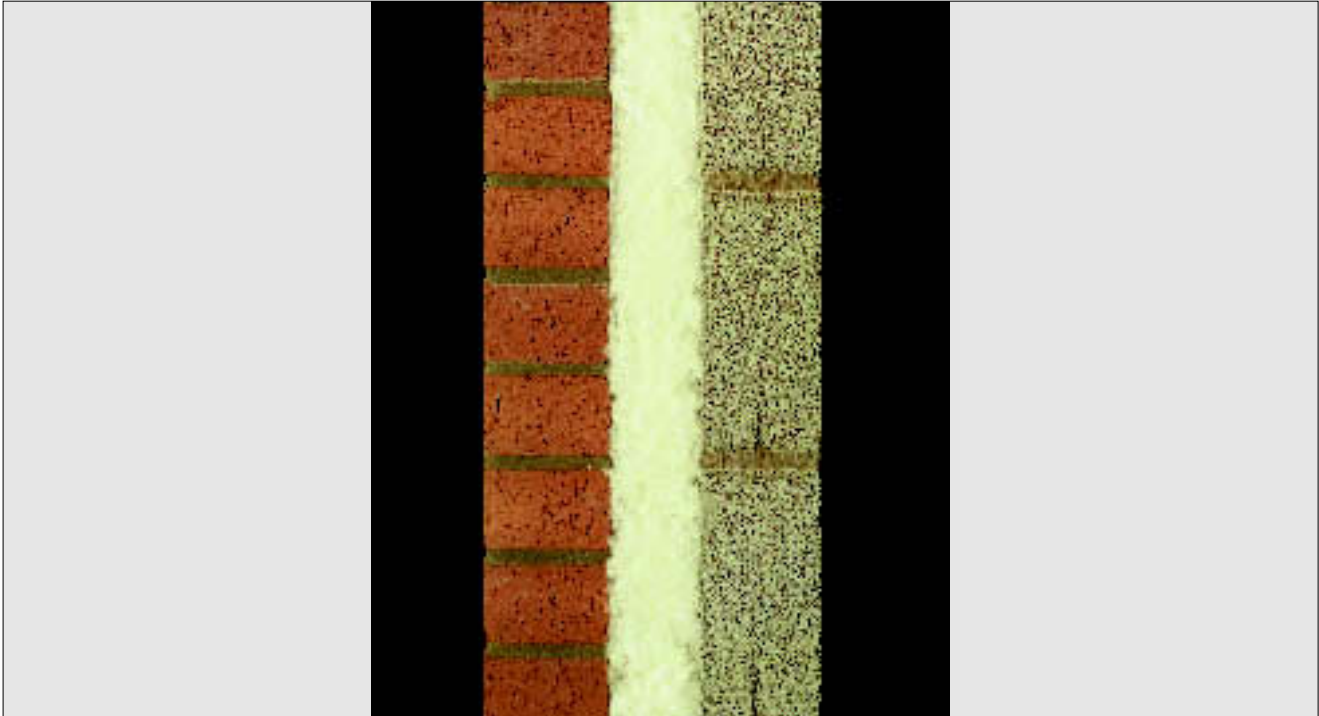
**Agreement
Certificate
No 88/2033**
Seventh issue*

Designated by Government
to issue
European Technical
Approvals

KNAUF INSULATION SUPAFIL CAVITY WALL INSULATION

Isolation de murs à double paroi
Kerndämmung

Product



- THIS CERTIFICATE RELATES TO KNAUF INSULATION SUPAFIL CAVITY WALL INSULATION, A GLASS WOOL FIBRE MATERIAL, INJECTED IN LOOSE FORM.
- The product is for use in buildings up to and including 25 metres in height.
- It is used to reduce the thermal transmittance of completed, new or existing cavity walls with masonry inner and outer leaves.
- It is essential that new and existing walls comply with the conditions set out in the Design Data and Installation parts of this Certificate.
- Installation must be carried out under the BBA Surveillance Scheme for cavity wall insulation by installers trained by the Certificate holder, and approved jointly by the Certificate holder and the BBA.

Regulations

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



The Secretary of State has agreed with the British Board of Agrément the aspects of performance to be used by the BBA in assessing the compliance of cavity wall insulation with the Building Regulations. In the opinion of the BBA, Knauf Insulation Supafil Cavity Wall Insulation, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: **B3(4)**

Internal fire spread (structure)

Comment:

The product is non-combustible to BS 476-4 : 1970 and therefore meets this Requirement and may be used in buildings of any purpose group. See sections 8.2 and 8.3 of this Certificate. It may also be regarded as a cavity barrier provided all of the cavity is filled.

Requirement: **C4**

Resistance to weather and ground moisture

Comment:

Tests indicate that a wall filled with the product meets this Requirement provided the wall complies with the conditions set out in sections 7.5 and 7.7 of this Certificate. The product does not absorb water by capillary action and may therefore be used in situations where it bridges the dpc's of the inner and outer leaf. See sections 9.2 and 9.3 of this Certificate.

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Requirement:	L1	Dwellings
Requirement:	L2	Buildings other than dwellings
Comment:		The product can enable, or contribute to enabling, a wall to meet these Requirements. See section 11.2 and 11.3 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is an acceptable material. See section 12 of this Certificate.

2 The Building Standards (Scotland) Regulations 1990 (as amended)



In the opinion of the BBA, Knauf Insulation Supafil Cavity Wall Insulation, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Regulations and related Technical Standards as listed below.

Regulation:	10	Fitness of materials and workmanship
Standard:	B2.1	Selection and use of materials, fittings, and components, and workmanship
Comment:		The product can contribute to a construction satisfying this Standard. See the <i>Installation</i> part of this Certificate.
Standard:	B2.2	Selection and use of materials, fittings, and components, and workmanship
Comment:		The product is an acceptable material. See section 12 of this Certificate.
Regulation:	12	Structural fire precautions
Standards:	D6.1 and D6.2	Concealed spaces — Principles
Comment:		Cavity barriers are not required provided all of the cavity is filled. See section 8.3 of this Certificate.
Standard:	D8.2	Fire spread to adjoining buildings — Non-combustible materials
Comment:		The product is non-combustible to BS 476-4 : 1970 and may be used in buildings of any purpose group. See sections 8.2 and 8.3 of this Certificate.
Regulation:	17	Resistance to moisture
Standard:	G2.6	Preparation of a site and resistance to moisture from the ground — Resistance to moisture from the ground
Comment:		The product does not absorb water by capillary action and may therefore be used in situations where it bridges the dpc's of the inner and outer leaf. See section 9.2 of this Certificate.
Standard:	G3.1	Resistance to precipitation — Resistance to precipitation
Comment:		Data obtained by the BBA indicate that a wall filled with the product will satisfy this Standard provided it complies with the conditions set out in sections 7.5 and 7.7 of this Certificate. See also section 9.3 of this Certificate.
Regulation:	22	Conservation of fuel and power
Standard:	J3.1	Buildings in purpose group 1 — Building fabric
Standard:	J8.1	Buildings in purpose groups 2 to 7
Comment:		The product can satisfy or contribute to satisfying these Standards. See sections 11.2 and 11.3 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, Knauf Insulation Supafil Cavity Wall Insulation, if used in accordance with the provisions of this Certificate, will satisfy or contribute to satisfying the various Building Regulations as listed below.

Regulation:	B2	Fitness of materials and workmanship
Comment:		The product is an acceptable material. See section 12 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		Tests by the BBA indicate that a wall filled with the product will satisfy this Regulation provided it complies with the conditions set out in sections 7.5 and 7.7 of this Certificate. See also section 9.2 of this Certificate. The product does not absorb water by capillary action and may therefore be used in situations where it bridges the dpc's of the inner and outer leaf. See section 9.3 of this Certificate.
Regulation:	E4	Internal fire spread — Structure
Comment:		The product is non-combustible to BS 476-4 : 1970 and may be used in buildings of any purpose group. See sections 8.2 and 8.3 of this Certificate. Cavity barriers are not required provided all of the cavity is filled.

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Regulation: F2

Building fabric

Comment:

The product can satisfy or contribute to satisfying this Regulation. See sections 11.2 and 11.3 of this Certificate.

4 Construction (Design and Management) Regulations 1994 (as amended) Construction (Design and Management) Regulations (Northern Ireland) 1995 (as amended)

Information in this Certificate may assist the client, planning supervisor, designer and contractors to address their obligations under these Regulations.

See sections:

6 Delivery and site handling, 7 General, 13 Site survey, 14 Site preparation and 15 Approved installers.

Technical Specification

5 Description

5.1 Knauf Insulation Supafil Cavity Wall Insulation consists of granulated glass wool fibres, treated with an inert water repellent during manufacture.

5.2 The length of the fibres and degree of granulation are subject to regular quality control checks by the manufacturer.

5.3 The target mean density for this product, when installed, is 18 kgm^{-3} . Local areas within the wall, when sampled over an area of 0.5 m^2 , may have a density variation of $\pm 5 \text{ kgm}^{-3}$.

6 Delivery and site handling

The product is delivered to site in polythene-wrapped bales weighing approximately 16 kg, which should not be opened until required for use. The bales are marked with the BBA identification mark incorporating the number of this Certificate.

Design Data

7 General

7.1 Knauf Insulation Supafil Cavity Wall Insulation, is effective in reducing the U value (thermal transmittance) of external cavity walls, with masonry inner and outer leaves (where masonry includes clay and calcium silicate bricks, concrete blocks, natural and reconstituted stone blocks). It is essential that such walls are designed and constructed to incorporate the precautions given in this Certificate to prevent moisture penetration.

7.2 The product may be used in buildings up to and including 25 metres in height subject to the conditions given in sections 7.11 to 7.13 of this Certificate and as follows:

- the cavity width must be a minimum 50 mm. It should be noted that to comply with the U value requirements the design cavity width may need to be increased (see section 11.3)

- walls must be in a good state of repair and must show no evidence of frost damage
- mortar joints must not be raked or recessed and must not show evidence of more than hairline cracking
- normally the area to be insulated shall not be infill panels in a framed structure. However, where the walls to be injected can, in the opinion of the Certificate holder, be classified as sheltered and the external leaf brickwork has been in place for more than 10 years, then the filling may be undertaken (see also section 11.4 of this Certificate)
- installation is carried out to the highest level on each wall unless the top edge of the insulation is protected by a cavity tray
- from ground level, the maximum height of continuous cavity wall must not exceed 12 metres. Above 12 metres, the maximum height of continuous cavity wall must not exceed 7 metres. In both cases breaks should be in the form of continuous horizontal cavity trays discharging to the outside
- this Certificate covers the use of the product in areas where the exposure factor does not exceed 120 (factor calculated using BBA Information No 10)
- for walls above 12 metres in height, see sections 7.11 to 7.13 of this Certificate.

7.3 As with all cavity wall insulation, the construction and detailing should comply with good practice as described in the BBA joint publication *Cavity Insulation of Masonry Walls – Dampness Risks and How to Minimise them*. They are particularly important in areas subject to severe or very severe driving rain.

Partial filling

7.4 Whenever practicable, all of the cavity space from ground level to the roof or gable copings should be filled. Partial filling is allowed only:


- when separately insulating semi-detached or terraced properties. The cavity barrier used for

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this purpose is retained in the cavity and must be of a type approved by the BBA. Further details are available from the BBA or the approved installer

- up to the underside of a horizontal boundary, other than the roof, where that horizontal boundary is protected by a cavity tray or similar waterproof barrier
- where filling is carried out above a horizontal boundary
- when treating properties where the wall to be insulated is below a waterproof cladding (eg tile hung) and this cladding either extends up to the roof or is protected at the top by other means (eg window sills).


Existing buildings

 7.5 Existing buildings subject to the national Building Regulations should be suitable when assessed in accordance with BS 8208-1 : 1985.

7.6 In an existing building, the product may be installed only:

- where there are no signs of dampness on the inner face of the cavity wall, other than those caused solely by condensation, and
- where the cavity is not being used as a source of combustion air or as a flue for ventilation purposes.

New buildings

 7.7 New buildings subject to the national Building Regulations should be constructed in accordance with the relevant recommendations of BS 5628-3 : 2001. In particular Clause 5.5 of the Code of practice *Exclusion of water* should be followed in that the designer should select a construction appropriate to the local wind-driven rain index paying due regard to the design detailing, workmanship and materials to be used.

7.8 Other new buildings not subject to these regulations should also be built in accordance with BS 5628-3 : 2001.

7.9 As with any other form of cavity wall insulation, where buildings need to comply with NHBC Standards or Zurich Building Guarantees Technical Standards, specifiers should observe the requirements of these documents.

7.10 In a new building where the product is to be installed:

- cavity battens or boards must be used to reduce the amount of mortar droppings left in the cavity.
- injection of the product is to be left until the cavity is sealed from the weather, ie the roof is in place and the window and door openings are sealed.

Buildings over 12 metres and up to 25 metres


7.11 The Certificate holder must carry out a detailed programme of assessment of the project, including an examination of the detailed design plans where available, documentation as to the quality of construction, and monitor the quality of installation as work proceeds. The installer must carry out a random survey of the cavity before commencing work and a detailed examination of the cavity as work progresses.

7.12 Certification will relate only to buildings where the Certificate holder has given written approval for the use of the product in a particular building.

7.13 The specifier must take extra care when detailing the design plans to ensure that the introduction of the insulation does not affect the weather resistance of the wall. The construction and detailing should comply with good practice (see section 7.3 of this Certificate). Above average site supervision is recommended during the installation of the product.

8 Behaviour in relation to fire

8.1 The product does not prejudice the fire resistance properties of the wall or constitute a toxic hazard in fire.

 8.2 A sample of the product tested to BS 476-4 : 1970 achieved the classification 'Non-combustible'.

8.3 The product may be used as described in the national Building Regulations:

England and Wales


in buildings of every purpose group

Scotland and Northern Ireland

in buildings of any occupancy or purpose group.

9 Liquid water penetration

9.1 The product will not allow water to cross the wall construction via the insulation. Water which penetrates the outer leaf of the wall will drain down the cavity face of the outer leaf.

 9.2 It can be demonstrated from tests that the product does not absorb water by capillary action. When the product is used in situations where it bridges the dpc in walls, dampness from the ground will not pass through to the inner leaf provided the wall is detailed in accordance with the requirements and provision of the national Building Regulations:

England and Wales

Approved Document C, Section 4

Scotland

Technical Standard (G2.6)

Northern Ireland

Technical Booklet C, Section 1.6.

9.3 Tests have demonstrated that a masonry wall incorporating the product built in accordance with BS 5628-3 : 2001, will resist the transfer of precipitation to the inner leaf and satisfy the national Building Regulations:

England and Wales

Requirement C4

Scotland

Technical Standard G3.1

Northern Ireland

Regulation C4.

10 Water vapour penetration

The product is not a water vapour barrier.

11 Thermal insulation

11.1 For the purpose of U value calculations to determine if the requirements of the Building (or other statutory) Regulations are met, the thermal conductivity (λ value) of the insulation may be taken as $0.040 \text{ Wm}^{-1}\text{K}^{-1}$.



11.2 The requirement for limiting heat loss through the building fabric will be satisfied if the U values of the building elements, including thermal bridging, do not exceed the maximum values in the relevant Elemental Methods given in the national Building Regulations:

England and Wales

Approved Documents L1 and L2, Table 1

Scotland

Technical Standards, Part J, Table 1 to J3.2 and Table to J8.3

Northern Ireland

Technical Booklet F, Table 1.2 or 1.4.

11.3 Guidance on selecting the thickness of insulation required to enable a wall to achieve the desired U value is also given in these documents. Alternative approaches are also described which allow for some flexibility in design of U values for individual constructional elements.

11.4 If the product is proposed for installing into the cavities of infill panels in framed structures the frame itself will not become insulated. Therefore there is a risk of thermal bridging at columns and slabs, thus condensation may appear on internal surfaces where this bridging occurs. The likelihood of a problem arising depends on a number of factors, including the lifestyle of the occupants, levels of heating and ventilation, as well as whether the windows are double glazed. Therefore a risk assessment should be undertaken by the Certificate holder and the customer informed of the potential for problems to develop before the work is carried out.

12 Durability



The product is a durable, rot-proof and water-repellent material. When installed it is sufficiently compacted to prevent settlement and will remain effective as an insulant for the life of the building.

Installation

13 Site survey

13.1 Prior to installation a survey is carried out by a trained surveyor to ascertain the suitability of the property or properties for Knauf Insulation Supafil Cavity Wall Insulation. A complete survey report is prepared and held at the installer's offices. Particular problems are specifically identified and any reasons for rejection of the work noted.

13.2 Quotations, tenders and invoices bear the BBA identification mark, incorporating the number of this Certificate.

14 Site preparation

14.1 The installing operative ensures that the property has been correctly surveyed and is suitable for insulation with the product. Any problems encountered during drilling which prevent compliance with this Certificate are referred to the installation company before proceeding.

14.2 Essential ventilation openings, such as those providing combustion air or underfloor ventilation, and all flues in the cavity wall must be checked. If adequate sleeving or other cavity closures are not present, installation must not proceed until these openings have been sleeved or otherwise modified to prevent blockage by the insulant.

15 Approved installers

Installation of the product is carried out by the Certificate holder and their approved installers, an approved installer being a company:

- required to satisfy an initial site installation check by the BBA prior to approval by the Certificate holder and is subject to the BBA Assessment and Surveillance Scheme for Installation of Cavity Wall Insulation
- approved by the Certificate holder and the BBA to install the product
- undertaken to comply with the Certificate holder installation procedure
- employing operatives who have been issued with appropriate identity cards by the Certificate holder; at least one member of each installation team must carry a card
- subject to supervision by the Certificate holder, including unannounced site inspections.

16 Supervision

16.1 Installation of the product should be carried out in accordance with the BBA Assessment and Surveillance Scheme for Installation of Cavity Wall Insulation.

16.2 During installation the following simple checks can be made, as an aid to determining that the installation conforms to the certificated method:

- the pattern of holes complies with the description given in section 17.3 of this Certificate
- the injection of the material takes place at each hole, to complete the filling of the cavity space.

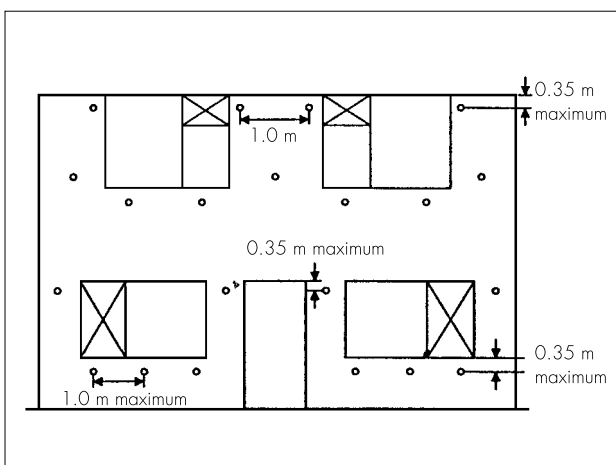
17 Procedure

17.1 The product is installed using an approved blowing machine marked with the appropriate BBA Certificate number. The installer provides all necessary hoses, drilling tools, equipment and materials for making good the walls after the installation of the product.

17.2 Where a semi-detached or terraced property is to be treated, the insulation is contained by inserting a cavity barrier at the line dividing the properties. This consists of a nylon brush which is retained within the cavity.

17.3 Holes of 25 mm diameter are drilled in a diamond pattern at approximately 1.35 m centres. The topmost injection holes should not be more than 350 mm below the top of the cavity and not more than 1.0 m apart. The bottom row of holes should start approximately 800 mm above dpc level. Additional holes may be required to ensure complete filling around building features, eg under window sills around air bricks in column areas between doors and windows, at the tops of walls and under gables. Again, the topmost holes should not be more than 1.0 m apart under the horizontal boundaries and 1.35 m apart under the sloping boundary at the top of the gable end (see Figures 1 and 2).

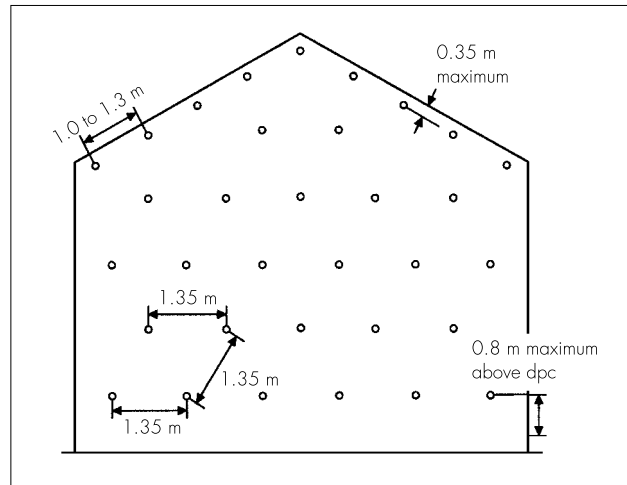
Figure 1 Typical drilling pattern — frontage



17.4 The product is blown into the cavity under pressure through 25 mm clearance holes via a

flexible pipe, fitted with either a 22 mm or 25 mm outside diameter injection nozzle, depending on the type of machine used. Filling proceeds from the bottom to the top of the walls and from one end of an elevation to the other.

Figure 2 Typical drilling pattern — plain gable end



17.5 After injection of the product the wall is made good to match the existing finish as closely as possible. All necessary air vents are checked, eg those providing underfloor ventilation and combustion air for heating appliances. In all cases flues are carefully checked on completion of the installation by means of an appropriate test (eg a smoke test) to ensure they are not obstructed by the insulant.

Technical Investigations

The following is a summary of the technical investigations carried out on Knauf Insulation Supafil Cavity Wall Insulation.

18 Tests

Tests were carried out to determine:

- the water resistance of a cavity wall, filled with the insulant
- adequacy of fill using specified installation machinery and drilling pattern.

19 Investigations

19.1 The manufacturing process of the granulated glass wool fibre was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

19.2 Existing data on thermal properties, toxicity and properties in relation to fire were evaluated.

19.3 A site visit was carried out to ensure that the installation procedure is satisfactory.

19.4 The company's training arrangements were examined and approved.

Bibliography

BS 476-4 : 1970 *Fire tests on building materials and structures — Non-combustibility test for materials*

BS 5628-3 : 2001 *Code of practice for use of masonry — Materials and components, design and workmanship*

BS 8208-1 : 1985 *Guide to assessment of suitability of external cavity walls for filling with thermal insulants — Existing traditional cavity construction*

Conditions of Certification

20 Conditions

20.1 This Certificate:

- (a) relates only to the product that is described, installed, used and maintained as set out in this Certificate;
- (b) is granted only to the company, firm or person identified on the front cover — no other company, firm or person may hold or claim any entitlement to this Certificate;
- (c) is valid only within the UK;
- (d) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;
- (e) is copyright of the BBA;
- (f) is subject to English law.

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

20.3 This Certificate will remain valid for an unlimited period provided that the product and the manufacture and/or fabrication including all related and relevant processes thereof:

- (a) are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA;
- (b) continue to be checked by the BBA or its agents; and
- (c) are reviewed by the BBA as and when it considers appropriate.

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

- (a) the presence or absence of any patent or similar rights subsisting in the product or any other product;
- (b) the right of the Certificate holder to market, supply, install or maintain the product; and
- (c) the nature or standard of individual installations of the product or any maintenance thereto, including methods and workmanship.

20.5 Any recommendations relating to the use or installation of this product which are contained or referred to in this Certificate are the minimum standards required to be met when the product is used. They do 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 or in the future; nor is conformity with such recommendations to be taken as satisfying the requirements of the 1974 Act or of any present or future 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 installation and use of this product.



In the opinion of the British Board of Agrément, Knauf Insulation Supafil Cavity Wall Insulation is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 88/2033 is accordingly awarded to Knauf Insulation Ltd.

On behalf of the British Board of Agrément

A handwritten signature in black ink, appearing to read 'P. Q. Newton', is written over a light grey background.

Date of Seventh issue: 20th November 2003

Chief Executive

*Original Certificate issued on 14th September 1988. This amended version includes change of company name, revised national Building Regulations, new CDM Regulations, revised Standards, additional use in buildings up to and including 25 metres in height and new Conditions of Certification.

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British Board of Agrément

P O Box No 195, Bucknalls Lane
Garston, Watford, Herts WD25 9BA
Fax: 01923 665301

©2003

e-mail: mail@bba.star.co.uk
website: www.bbacerfs.co.uk



For technical or additional information,
contact the Certificate holder (see
front page).
For information about the Agrément
Certificate, including validity and
scope, tel: Hotline 01923 665400,
or check the BBA website.