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**Agrément
 Certificate
 No 05/4207**

Designated by Government
 to issue
 European Technical
 Approvals

ROCKSILK DRITHERM CAVITY SLAB

Isolation de murs à double paroi
 Kerndämmung


Product



- THIS CERTIFICATE RELATES TO THE ROCKSILK DRITHERM CAVITY SLAB, A RESIN-BONDED, ROCK WOOL CAVITY WALL INSULATING MATERIAL IN SLAB FORM.
- The product is for use in new buildings up to and including 25 metres in height, subject to the conditions contained in the Design Data part of this Certificate.
- The product is installed during construction and is for use as a full fill slab to reduce the thermal transmittance of cavity walls with masonry inner and outer leaves.
- It is essential that the walls are built in accordance with the conditions set out in the Design Data and Installation parts of this Certificate.

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, the Rocksilk DriTherm Cavity Slab, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

Requirement: B3(4) Comment:	Internal fire spread (structure) The product is non-combustible and may be used in buildings of every purpose group. It may be regarded as a cavity barrier where an insulated wall connects to the cavity of an uninsulated wall. See sections 8.2 and 8.3 of this Certificate.
Requirement: C2(a)(b) Comment:	Resistance to moisture Tests for water resistance indicate that a wall incorporating the product meets this Requirement provided the completed wall complied with the conditions set out in sections 7.2, 7.5, 7.8 and 9.3 to 9.6 of this Certificate. The product does not absorb water by capillary action and may therefore be used in situations where it bridges a dpc. See section 9.2 of this Certificate.
Requirement: L1(a)(i) Requirement: L2(a) Comment:	Dwellings Buildings other than dwellings The product can meet or contribute to meeting these Requirements. See sections 11.2 to 11.4 of this Certificate.

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Requirement: Regulation 7

Materials and workmanship

Comment:

The product is acceptable. See section 12 of this Certificate.

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



In the opinion of the BBA, the Rocksilk DriTherm Cavity Slab, 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 meeting 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 building — Non-combustible materials
Comment:		The product is non-combustible and is unrestricted by this Standard. 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:		Walls incorporating the product will satisfy this Standard provided it complies with the conditions set out in sections 7.2, 7.5 and 7.8 of this Certificate. See also sections 9.3 and 9.4 of this Certificate.
Regulation:	22	Conservation of fuel and power
Standard:	J3.1	Buildings in purpose group 1 — Building fabric
Standard:	J4.1	Buildings in purpose group 1 — Limiting thermal bridging at junctions and around openings
Standard:	J8.1	Buildings in purpose groups 2 to 7
Standard:	J9.1	Buildings in purpose groups 2 to 7 — Limiting thermal bridging at junctions and around openings
Comment:		The product can satisfy these Standards. See sections 11.2 to 11.4 of this Certificate.

3 The Building Regulations (Northern Ireland) 2000



In the opinion of the BBA, the Rocksilk DriTherm Cavity Slab, 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 acceptable. See section 12 of this Certificate.
Regulation:	C4	Resistance to ground moisture and weather
Comment:		Data obtained by the BBA indicate that a wall incorporating the product can satisfy this Regulation provided it complies with sections 7.2, 7.5 and 7.8 of this Certificate. See also sections 9.3 and 9.4 of this Certificate. The product does not absorb water by capillary action and may therefore be used where it bridges the dpc of the inner and outer leaf. See section 9.2 of this Certificate.
Regulation:	E4	Internal fire spread — Structure
Comment:		The product is non-combustible 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. See section 8.3 and of this Certificate.
Regulation:	F2	Building fabric
Comment:		The product can satisfy this Regulation. See sections 11.2 to 11.4 of this Certificate.

In the opinion of the BBA there is no information in this Certificate which relates to the obligations of the client, planning supervisor, designer and contractors under these Regulations.

Technical Specification

5 Description

5.1 The RocksilK DriTherm Cavity Slab consists of layers of resin-bonded, water-repellent treated rock wool, formed into a resilient slab using a phenol formaldehyde and silicone resin binder.

5.2 The slabs are 1200 mm wide and 455 mm high in the thicknesses and nominal densities shown in Table 1.

Table 1 Slab characteristics and use

Slab thickness (mm)	Slab density (kgm ⁻³)	Permitted deviation in cavity width from slab thickness — full fill (mm)
65	40	65–75
75	40	75–90
85	40	85–100
100	40	100–115

5.3 Tests by the Certificate holder on the finished product comprise:

- density
- dimensional accuracy
- fibre diameter
- rigidity
- binder content
- thermal conductivity.

5.4 It should be noted that ties suitable for insulation retaining purposes must also provide appropriate structural stability in accordance with BS 5628-3 : 2001.

5.5 Where the overall cavity width exceeds 75 mm, additional vertical twist ties to BS EN 845-1 : 2003 or designed in accordance with BS DD 140-2 : 1987 may be required for structural stability in accordance with BS 5628-3 : 2001.

5.6 Ties that may be used with the product are:

- Butterfly and Vertical twist ties to BS EN 845-1 : 2003
- Catnic BW2 and BW4
- Powerplace PT1 and PT2
- Ensor Metal Products EN1 and EN2
- Vista Engineering VN1, EN2 and VE4
- Ancon RT2
- Tec-ties TT4.

6 Delivery and site handling

6.1 The product is delivered to site in polyethylene packs. Each pack carries a label bearing the manufacturer's name, product description, essential instructions for installation, and the BBA identification mark incorporating the number of this Certificate.

6.2 Packages must be stored under cover until required for use.

Design Data

7 General

7.1 The RocksilK DriTherm Cavity Slab is effective in reducing the U value (thermal transmittance) of new 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 Buildings subject to 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 to 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
- BS 8000-3 : 2001.

7.3 Other buildings not subject to these Regulations should also be built in accordance with the Standards given in 7.2.

7.4 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* (see section 9.3 of this Certificate). They are particularly important in areas subject to severe driving rain.



7.5 The product is for use in any exposure zone in buildings up to 25 metres in height, subject to conditions in this Certificate being met. However, the use of the product does not preclude the need to apply any

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external render coat or other suitable finish in severe exposure zones where such application would be normal practice.

7.6 The use of cavity battens and/or boards during construction is strongly recommended to prevent bridging by mortar droppings.

7.7 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 Standards.

 7.8 It is recommended that installation is carried out to the highest level on each wall or that the top edge of the insulation is protected by a cavity tray.

Buildings up to and including 12 metres high

7.9 The following design conditions should be followed:

- it should be ensured that the slabs fill the cavity and are built into the walls as construction proceeds
- the insulation thickness should remain constant where possible. Should any changes in thickness occur, vertically, a horizontal damp-proof cavity tray should separate each thickness change
- a minimum thickness of 50 mm should be maintained where possible. Where, for structural reasons, the insulation thickness is reduced by the intrusion of ring beams, a minimum thickness of 25 mm of insulation should be maintained and the manufacturer's advice on fixing and weather-proofing should be specially sought
- raked or recessed mortar joints should be avoided in high exposure areas.

Buildings over 12 metres high and up to and including 25 metres high


7.10 Where the walls of a building are between 12 and 25 metres high, the following requirements also apply:

- from ground level, the maximum height of continuous cavity must not exceed 12 metres. Above 12 metres, the maximum height of continuous cavity must not exceed 7 metres
- the area to be insulated must not be an infill panel in a framed structure
- the exposure factor must not exceed 120, calculated using BBA Information Sheet No 10 available from the Certificate holder or the BBA. The calculation procedure is also contained in Appendix E of BS 5618 : 1985
- the Certificate holder in association with the architect shall carry out a detailed programme of assessment of the project including an examination of the quality of installation as work progresses. Above-average site supervision is recommended during installation

- Certification relates only to buildings where the Certificate holder has given written approval for use of the product in the specified building.

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 The Certificate holder has declared the product is characterised as being *Reaction to fire* Class A1 rating when classified in accordance with EN 13501-1 : 2002.

8.3 The product may be used as described in the national 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 requirements to resist rain penetration are defined in section 7.

 9.2 Data obtained by the BBA demonstrate that 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 cavity wall is detailed in accordance with the requirements and provisions of the national Building Regulations:

England and Wales

Approved Document C2(a)

Scotland

Technical Standard G2.6. *Provisions deemed to satisfy the Technical Standards*

Northern Ireland

Technical Booklet C, Section 1.6.

9.3 Constructions incorporating the products and 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 C2(b)

Scotland

Technical Standard G3.1

Northern Ireland

Regulation C4.

9.4 In all situations it is particularly important to ensure during installation that:

- wall ties and fixings are installed correctly and are thoroughly clean
- excess mortar is cleaned from the cavity face of the leading leaf and any debris removed from the cavity

- mortar droppings are cleaned from the exposed edges of installed boards
- installation is carried out to the highest level on each wall or the top edge of the insulation is protected by a cavity tray.
- at lintel level, a cavity tray, stopends and weepholes, must be provided.



9.5 Test data obtained confirm that a masonry wall incorporating the slabs built in accordance with BS 5628-3 : 2001 will not transmit water to the inner leaf.

9.6 Data obtained by the BBA also demonstrate that the slabs do 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, provided the wall is detailed in accordance with the Technical Solutions shown in Approved Document C2, paragraph 5.5, of the Building Regulations (England and Wales).

10 Water vapour penetration

The product is not a water vapour control layer.

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 declared thermal conductivity ($\lambda_{90/90}$ value) of the insulation is $0.037 \text{ Wm}^{-1}\text{K}^{-1}$.



11.2 The requirement for limiting the heat loss through the building fabric can 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, J3.2, Table 1, J8.3, Table

Northern Ireland

Technical Booklet F Tables 1.2 and 1.4.

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

11.4 Care should be taken to ensure that the design allows for limiting excessive additional heat loss and risk of surface condensation at openings within the boards and at junctions between the boards and other building elements. Reference can be made to *Limiting thermal*

bridging and air leakage : Robust construction details for dwellings and similar buildings (TSO 2002) or BR262 : 2002 *Thermal insulation : avoiding risks*.

12 Durability



The product is rot-proof, durable, dimensionally stable under varying conditions of temperature and humidity, and will remain effective as an insulation for the life of the building.

Installation

13 General

13.1 The walls are constructed leading with either inner or outer leaf with the Rocksilk DriTherm Cavity Slab fixed to the cavity face of the leading leaf. It is recommended that the external leaf be constructed ahead of the internal leaf so that any mortar protruding into the cavity space from the back of the external leaf can be cleaned off before installing the slab.

Supervision requirements for buildings over 12 metres in height and up to 25 metres in height

13.2 To comply with this Certificate, the Certificate holder's specialists experienced in site practice and installation will attend the site to provide demonstrations to ensure correct installation from the outset.

13.3 Adequate supervision of the installation must be maintained and the Certificate holder's specialists must have right of access to site to ensure correct installation.

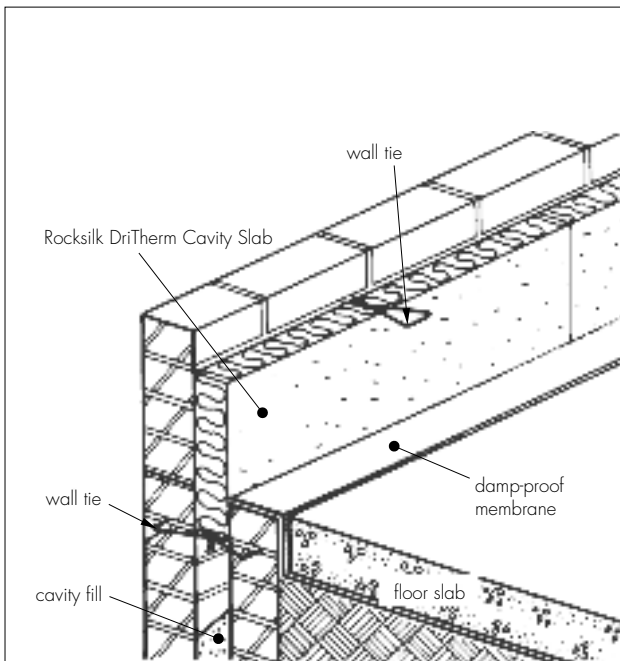
14 Procedure

14.1 Walls are constructed in the conventional manner, with the first row of wall ties where the insulation is to begin, but not on the damp-proof course, and at approximately 600 mm horizontal spacing. The first run of slabs may commence below damp-proof course level to provide some edge insulation for the floor (see Figure 1).

14.2 A section of the wall leaf is built up to a course above the next row of wall ties which are placed at the usual spacing of 450 mm vertically and not more than 900 mm horizontally.

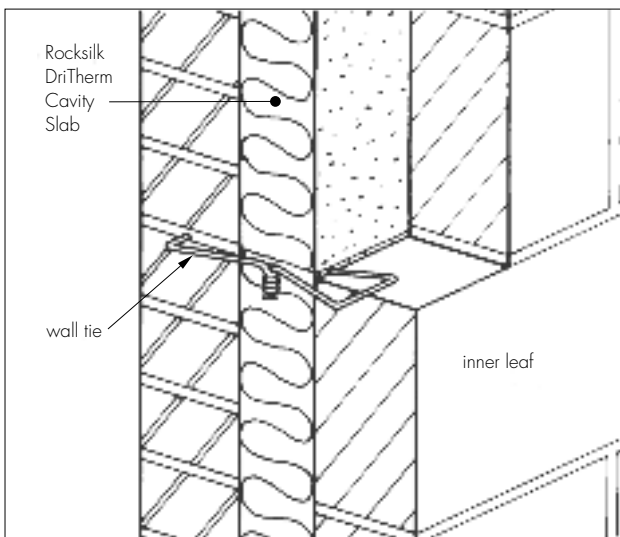
14.3 The slabs are compressed slightly and placed between the upper and lower wall ties to form a closely butt-jointed run (see Figure 1).

Figure 1 Building in the first row of slabs



14.4 The drip on each of the upper wall ties is inserted into the top of the slabs. This is important to ensure that it functions correctly (see Figure 2).

Figure 2 Wall tie drips positioned in centre of slabs

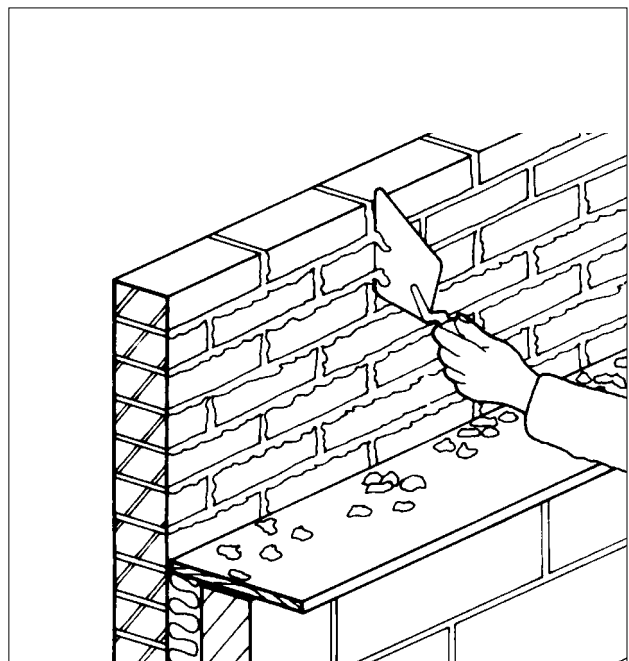


14.5 The other leaf is built up to the same level as the slabs, with its inner face in contact with the slabs (see Figure 2).

14.6 Successive sections of wall, incorporating wall ties, are constructed and the slabs installed as work proceeds up to the required height.

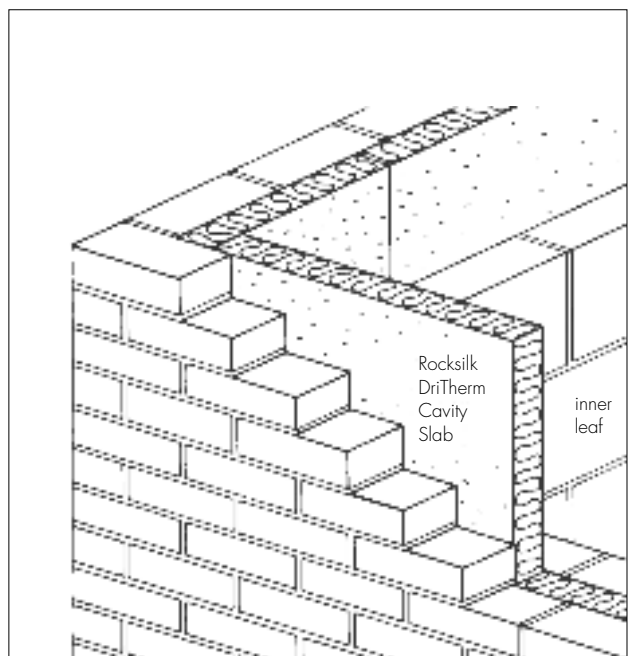
14.7 After each section of the leading leaf is built, excess mortar should be removed from the cavity face and mortar droppings cleaned from exposed edges of the installed slabs before installation of the next run of the product. Use of a cavity board is recommended to protect slab edges and make cleaning easier (see Figure 3).

Figure 3 Removal of excess mortar



14.8 At corners, slabs should be cut and close butted to avoid cold bridges (see Figure 4).

Figure 4 Corner detail

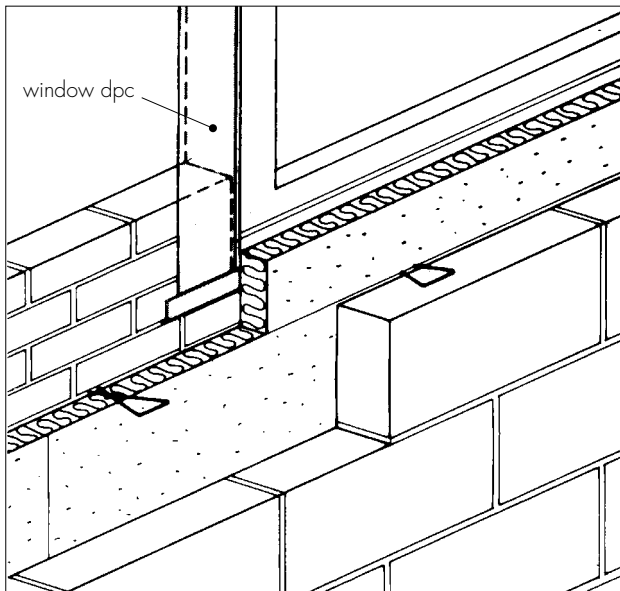


14.9 Where openings such as doors and windows are in close proximity it is recommended that a continuous lintel is used. Individual lintels should have stopends.

14.10 The slabs can be cut with a sharp knife to fit features such as windows, doors, apertures and air bricks.

14.11 It is essential that cut pieces completely fill the spaces for which they are intended and no gaps must be left in the insulation (see Figure 5).

Figure 5 Use of cut pieces in/around gaps



14.12 Small pieces must be fitted with the fibre layer parallel to the plane of the wall.

14.13 The slabs should always be installed to the highest level of each wall.

14.14 If installation of slabs is terminated at any other levels, the top edge of the insulation must be protected by a cavity tray and alternate perpendicular joints raked out to provide adequate drainage of water from this tray.

Protection

14.15 All building involving the slabs, particularly work which is interrupted, must conform to BS 5628-3 : 2001 Annex A4.1.31 *Handling and site storage*, Annex A5.1.1 *Weather conditions*, Annex A5.4.4 *Installing insulation*.

Technical Investigations

The following is a summary of the technical investigations carried out on the Rocksilks DriTherm Cavity Slab.

15 Tests

Tests were carried out to determine:

- density
- resistance to water penetration
- water uptake at saturation
- water absorption at high relative humidity
- dimensional accuracy
- effect on the water resistance of the cavity wall with the slabs installed (full fill).

16 Investigations

16.1 Regular factory inspections have been carried out to ensure that quality is being maintained.

16.2 Failure of the product in use has not been reported to the BBA.

Bibliography

BS 5618 : 1985 *Code of practice for thermal insulation of cavity walls (with masonry or concrete inner and outer leaves) by filling with urea-formaldehyde (UF) foam systems*

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

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

BS DD 140-2 : 1987 *Wall ties — Recommendations for design of wall ties*

BS EN 845-1 : 2003 *Specification for ancillary components for masonry — Ties, tension strips, hangers and brackets*

EN 13501-1 : 2002 *Fire classification of construction products and building elements — Classification using test data from reaction to fire tests*

Conditions of Certification

17 Conditions

17.1 This Certificate:

- (a) relates only to the product that is named, 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.

17.2 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.

17.3 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 as and when deemed appropriate by the BBA under arrangements that it will determine; and

(c) are reviewed by the BBA as and when it considers appropriate.

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

- (a) the presence or absence of any patent, intellectual property 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 actual works in which the product is installed, used and maintained, including the nature, design, methods and workmanship of such works.

17.5 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, the Rocksilk DriTherm Cavity Slab is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 05/4207 is accordingly awarded to Knauf Insulation Ltd.

On behalf of the British Board of Agrément

Chief Executive

Date of issue: 23rd March 2005