CI/SfB
(21.9) Rn7

BBA BRITISH BOARD OF AGRÉMENT
ASSESSMENT OF PRODUCTS FOR CONSTRUCTION

Designated by Government to issue European Technical Approvals

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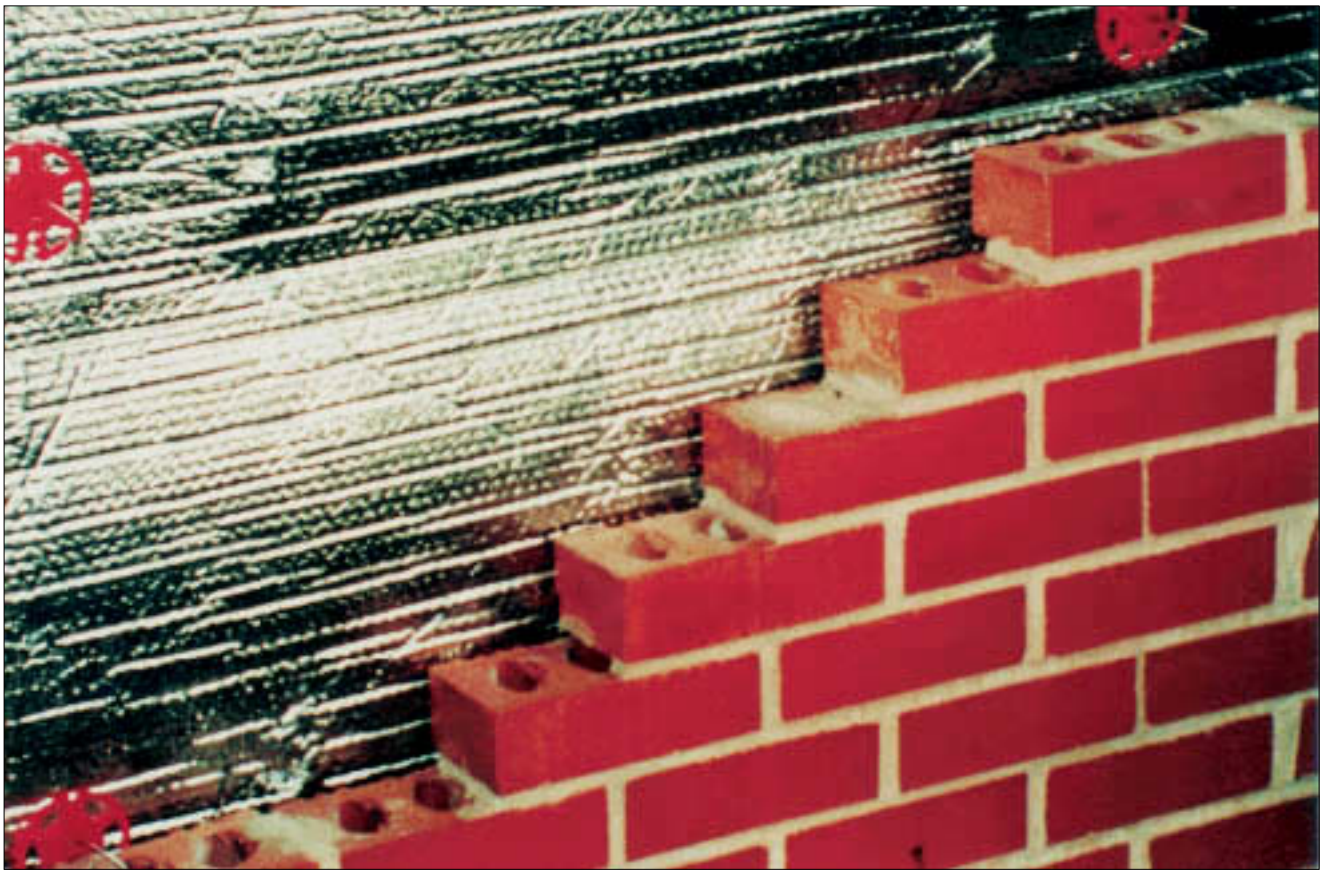
Agrément Certificate No 00/3758

SANFLEX 2B2, 2B1 AND 1B1 CAVITY WALL INSULATION

Isolation de murs à double paroi
Kerndämmung

Product



- *THIS CERTIFICATE RELATES TO SANFLEX 2B2, 2B1 AND 1B1 CAVITY WALL INSULATION.*
- *The products comprise:*

2B2 — a double layer of polyethylene bubble sheet, faced on each side with coated aluminium foil

2B1 — a single layer of polyethylene bubble sheet faced on each side with coated aluminium foil

1B1 — a single layer of polyethylene bubble sheet, faced on one side with coated aluminium foil.

continued

Regulations

1 The Building Regulations 1991 (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 compliance of cavity wall insulation with the Building Regulations. In the opinion of the BBA, Sanflex 2B2, 2B1 and 1B1 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:		Walls incorporating the product can meet this Requirement. See sections 8.5 to 8.7 of this Certificate.
Requirement:	C4	Resistance to weather and ground moisture
Comment:		Walls incorporating the product can meet this Requirement. See sections 7.2 and 10.2 of this Certificate. In addition the product may be used in situations where it bridges the damp-proof course. See section 10.1 of this Certificate.

continued

continued

• The product is for use in buildings up to and including 12 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 partial fill insulation 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.*

Requirement:	L1	Conservation of fuel and power
Comment:		The product can contribute to meeting this Requirement. See sections 12.3 and 12.4 of this Certificate.
Requirement:	Regulation 7	Materials and workmanship
Comment:		The product is acceptable. See sections 13.1 and 13.2 of this Certificate.

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

In the opinion of the BBA, Sanflex 2B2, 2B1 and 1B1 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
Standard:	B2.1	Section and use of materials and components
Comment:		The product is acceptable. See sections 13.1 and 13.2 of this Certificate.
Regulation:	12	Structural fire precautions
Standard:	D2.2	Non-combustibility
Comment:		The product is combustible and its use is restricted by this Standard in buildings other than dwellings or shared accommodation. However, in the opinion of the BBA, the product is suitable for use in all purpose groups. See section 8.7 of this Certificate.
Standard:	D4.1	Concealed spaces (cavities)
Comment:		Walls incorporating the product must comply with this Standard. See section 8.7 of this Certificate.
Regulation:	17	Resistance to moisture
Standard:	G2.6	Resistance to moisture from the ground
Comment:		The product can satisfy this Standard. See sections 7.2 and 10.1of this Certificate.
Standard:	G3.1	Resistance to precipitation
Comment:		Walls incorporating the product can satisfy this Standard. See sections 7.2 and 10.2 of this Certificate.
Regulation:	22	Conservation of fuel and power
Standard:	J2.1	Standards for buildings in purpose group 1
Standard:	J3.1	Standards for buildings in purpose groups 2 to 7
Comment:		The product can contribute to satisfying these Standards. See sections 12.3 and 12.4 of this Certificate.

3 The Building Regulations (Northern Ireland) 1994 (as amended)

In the opinion of the BBA, Sanflex 2B2, 2B1 and 1B1 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 acceptable. See sections 13.1 and 13.2 of this Certificate.
Regulation:	C5	Resistance to ground moisture and weather
Comment:		Walls incorporating the product can satisfy this Regulation. See sections 7.2 and 10.2 of this Certificate. In addition the product may be used where it bridges the damp-proof course. See section 10.1 of this Certificate.
Regulation:	E6	Internal fire spread — Structure
Comment:		Walls incorporating the product can satisfy this Regulation. See sections 8.5 to 8.7 of this Certificate.
Regulation:	F2	Building fabric
Comment:		The product can contribute to satisfying this Regulation. See sections 12.3 and 12.4 of this Certificate.

4 Construction (Design and Management) Regulations 1994

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*, 15 *Procedure* (15.4).

Technical Specification

5 Description

5.1 Sanflex 2B2, 2B1 and 1B1 Cavity Wall Insulation consists of polyethylene bubble film laminated with aluminium foil. The aluminium foil has a thin nitrocellulose lacquer coating. Details of the three product types are given in Table 1.

Table 1 Product details

Product	Nominal thickness (mm)	Bubble film (layers)	Aluminium foil
2B2	8	2	both sides
2B1	4	1	both sides
1B1	4	1	one side

5.2 The product is supplied in rolls 1.2 m wide and 25 m long.

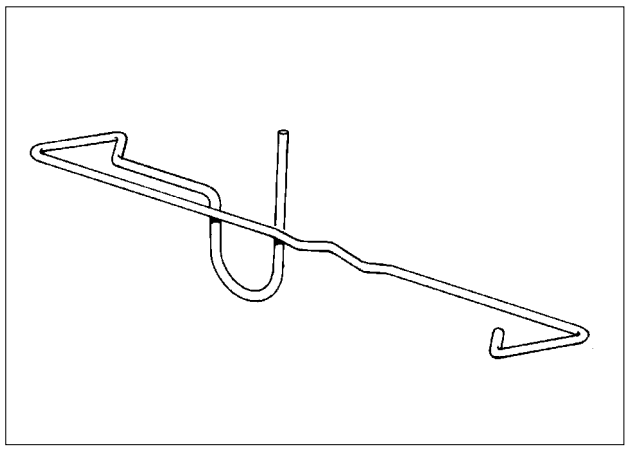
5.3 The fixings used to hold the Sanflex 1B1 are stainless steel wall ties manufactured in accordance with BS 1243 : 1978.

5.4 Ancillary components include:

aluminium adhesive tape Ref RA 1010 (40 microns thick) or RA 1313 (30 microns thick)

special wall ties for use with Sanflex 2B2 and 2B1 (see Figure 1) assessed in accordance with DD 140-1 : 1986.

Figure 1 Special wall tie for use with Sanflex 2B2 and 2B1



6 Delivery and site handling

6.1 The product is packed in polybags, sealed with polypropylene tape and labelled. The label details batch numbers and the BBA identification mark incorporating the number of this Certificate.

6.2 The product should be stored in clean, dry conditions.

6.3 The product is combustible and care must be exercised when storing large quantities on site. The product must not be exposed to open flame or other ignition sources and must be stored away from flammable material such as paint and solvents.

Design Data

7 General

7.1 Sanflex 2B2, 2B1 and 1B1 Cavity Wall Insulation is effective in reducing the U value (thermal transmittance) of new external cavity walls with masonry inner and outer leaves (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 normal precautions to prevent moisture penetration.

7.2 Buildings should be constructed in accordance with the relevant recommendations of:

BS 5628-3 : 1985. In particular, Clause 21 of the Code of Practice *Exclusion of moisture* should be followed in that the designer selects a construction appropriate to the local wind-driven rain index paying due regard to the design detailing, workmanship and materials to be used

BS 5390 : 1976(1984) : Section 3 — where the wall incorporates stone or cast stone

BS 8000-3 : 1989.

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* (see section 10.3 of this Certificate). They are particularly important in areas subject to severe or very severe driving rain.

7.4 It is important that the following conditions are observed during construction and installation of the products:

(a) The product should only be installed when the first leaf has adequate strength.

(b) The minimum total cavity should be 55 mm for Sanflex 2B2 and 2B1, this can be reduced to 50 mm for Sanflex 1B1 (see section 7.7).

(c) Approved methods of fixing must be used.

(d) The second and consecutive runs of the products should have weathered laps of 75 mm minimum.

7.5 The use of cavity battens or boards is strongly recommended to prevent bridging and mortar droppings.

7.6 This Certificate covers the use of the product in any exposure zone subject to compliance with the conditions stated in section 7.4.

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

8 Behaviour in relation to fire

8.1 The use of the product in the context of this Certificate does not prejudice fire resistance properties of the wall.

8.2 Although the product is combustible it is difficult to ignite and has a Class 1 surface spread of flame when tested on the foil face.

8.3 As with other combustible cavity wall insulation materials, naked flames or sparks should not be allowed near the material either whilst in storage or during installation. If work requiring the use of naked flame, for example a blowtorch, is necessary, this should be carried out at least 300 mm from the closed cavity.

8.4 Cavity walls should always have a cavity closer at the top of the cavity and around openings. The materials must not be taken past fire stops or cavity closers and must be installed within the cavity area only. If fire does penetrate into an unventilated cavity, the amount of air present will be insufficient to support combustion and flame spread will be minimal.

8.5 The requirements of the Building Regulations relating to fire spread in cavity walls, can be met in buildings of all purpose groups without the need for cavity barriers, provided the construction complies with the provisions detailed in:

England and Wales

Approved Document B, Diagram 32

Northern Ireland

Technical Booklet E, Diagram 3.5.

8.6 A summary of these provisions is given here:

England and Wales and Northern Ireland

(1) The wall must consist of masonry inner and outer leaves, each as least 75 mm thick.

(2) The cavity must not be more than 100 mm wide.

(3) The cavity must be closed at the top of the wall and at the top of any opening.

(4) In addition to the insulation only the following should be placed in, or exposed to, the cavity:

- timber lintels, window or door frames, or end of timber joists
- pipe, conduit or cables
- dpc, flashing, cavity closer or wall tie
- domestic meter cupboard, provided there are not more than two cupboards to a dwelling, the opening in the outer leaf is not more than 800 mm by 500 mm for each cupboard, and the inner leaf is not penetrated except by a sleeve not more than 80 mm by 80 mm, which is fire-stopped.

8.7 For constructions not covered by section 8.5 cavity barriers must be provided to comply with:

England and Wales

Approved Document B, Section 9

Scotland

Technical Standard D4.1

Northern Ireland

Technical Booklet E, paragraphs 3.27 to 3.30.

9 Proximity of flues and appliances

When installing the product in close proximity to certain flue pipes and/or heat-producing appliances the following provisions to the national Building Regulations are acceptable.

England and Wales

Approved Document J

Scotland

Technical Standards, Part F *Provisions deemed to satisfy the Technical Standards*

Northern Ireland

Technical Booklet L.

10 Liquid water penetration

10.1 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 C, Section 4

Scotland

Technical Standard G2.6 *Provisions deemed to satisfy this Standard*

Northern Ireland

Technical Booklet C, Section 1.6.

10.2 Constructions incorporating the product and built in accordance with BS 5628-3 : 1985 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 C5.

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

(a) wall ties and fixings are installed correctly and are thoroughly clean

(b) excess mortar is cleaned from the cavity face of the leading leaf and any debris removed from the cavity

(c) installation is carried out to the highest level on each wall or the top edge of the insulation is protected by a cavity tray

(d) all the usual precautions for draining penetrated water are taken, for example, above tie beams, projecting floor beams and window sills

(e) all horizontal laps are weathered to the outside

(f) where the product is used in detail situations, for example, vertical dpc at windows and doors, they will be effective in resisting rain penetration.

11 Water vapour penetration

11.1 The products have a vapour resistance in excess of 500 MNsg^{-1} and will therefore provide significant resistance to the passage of water vapour, and would be considered a vapour control layer as defined in Section 1 of BS 5250 : 1989(1995).

11.2 When Sanflex 1B1 is fixed to the cavity side of the inner leaf, there is a risk of a minor amount of transient condensation; however, the overlapping joints between the runs of product will facilitate the passage of water vapour. Taking data for typical wall constructions together with the general conditions for temperature and humidity in BS 5250 : 1989(1995) and carrying out the calculation procedures defined therein, it can be shown that significant condensation should not occur. However, if this fixing arrangement is to be used where the rooms in the building are expected to have high humidities, the provision of permanent ventilation of the affected rooms and/or the use of a lining of vapour check plasterboard shall be considered.

11.3 The use of Sanflex 2B2 or 2B1 does not preclude the normal precautions against formation of condensation, especially in rooms expected to have high humidities.

12 Thermal insulation

12.1 For the purpose of U value calculations to determine if the requirement of the national Building Regulations or Standards are met, an emissivity of 0.05 may be used to calculate cavity thermal resistance values (see sections 12.2 and 12.5).

12.2 The total thermal resistance value[1] (m^2KW^{-1}) of a cavity containing the products (installed in accordance with sections 14 and 15 of this Certificate) with a minimum air space of 25 mm either side of Sanflex 2B2 and 2B1, or 50 mm on the foil faced side of Sanflex 1B1 is:

Sanflex 2B2	1.58
Sanflex 2B1	1.50
Sanflex 1B1	0.79

(1) Thermal resistances were calculated for air temperature of 20°C internal and 0°C external in constructions using the products plus air space(s) to achieve U values of 0.45 $Wm^{-2}K^{-1}$.

12.3 The requirement for limiting 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 Document L

Scotland

Technical Standards, Part J

Northern Ireland

Technical Booklet F.

12.4 Alternative approaches are also described which allow for some flexibility in design of U values for individual constructional elements.

12.5 When used in detail work where a cavity does not exist on either side of the product, the thermal resistance[1] (m^2KW^{-1}) of the insulation may be taken as:

Sanflex 2B2	0.16
Sanflex 2B1	0.09
Sanflex 1B1	0.09

(1) These figures were obtained by testing the products to BS 874-2.1 : 1986.

13 Durability

13.1 When correctly installed, the product is rot-proof and durable and should remain effective as an insulant for the life of the building.

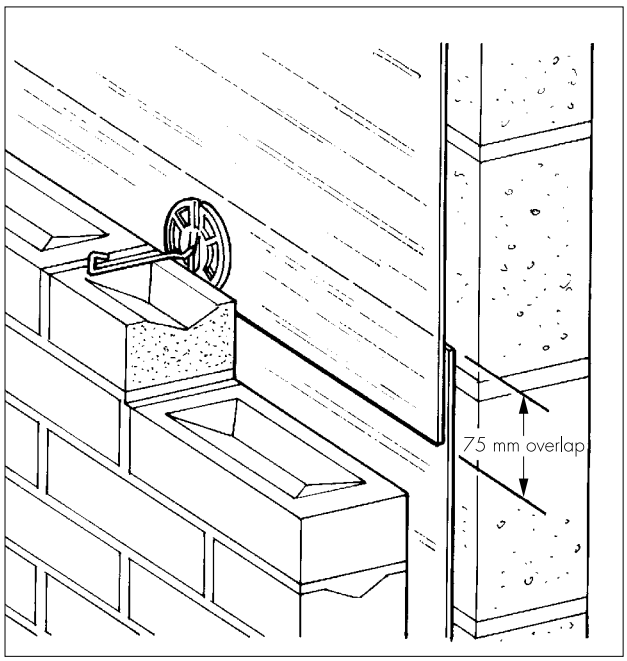
13.2 The stainless steel fixings will remain effective as insulation retaining ties during the life of the wall into which they are built.

Installation

14 General

14.1 The walls are constructed leading with either the inner or outer leaf. It is recommended that the inner leaf be constructed ahead of the outer leaf as this will ensure the laps are weathered to the outside (see Figure 2).

Figure 2 Typical installation detail



14.2 The fixing of the product at the top of the wall will depend on the method of cavity closure, but the product can be dressed under the brick capping course.

14.3 The product can be dressed under sills but with regard to cavity trays, the products should be flushed to the outer face, as with lintels or flanges of meter boxes and service penetrations.

15 Procedure

Sanflex 2B2 and 2B1

15.1 The leading leaf should be constructed to a height of approximately 1.2 m (five blocks) above dpc level.

15.2 The special wall ties (see section 5.4) should be installed in accordance with BS 5628-3 : 1985, with special attention to eaves and openings where closer spacing of wall ties will be necessary.

15.3 The stop of the wall tie is butted against the inner leaf and this creates the minimum cavity between the product and the blockwork.

15.4 It is essential that extra care is taken by building operatives when the exposed ends of the wall ties could pose a risk of injury. Eye protection is recommended.

15.5 Once the blockwork has attained adequate strength, the initial run of product is positioned over the wall ties ensuring that it is kept taut but with sufficient drop to be below floor insulation. The product can be cut with a sharp blade to fit onto the wall ties.

15.6 The top edge of the product should be a minimum of 75 mm over the top row of wall ties giving a weathered lap joint.

15.7 When a full run is in position the retaining clip is fixed to the wall tie to keep the product central to the cavity.

15.8 The second leaf is built up to the top-most line of wall ties (or two courses below) and the second run of product installed ensuring a minimum lap of 75 mm.

15.9 Vertical joints in the product should always be on a line of wall ties, ensuring a 100 mm lap (ie 50 mm either side of the wall tie).

15.10 All vertical joints are sealed using approved tape (see section 5.4).

15.11 At door and window openings the product can be butted against the cavity closer or brought through the closed reveal to act as an insulating dpc.

15.12 At internal and external corners a minimum air space of 25 mm must be maintained.

Sanflex 1B1

15.13 Installation is in the same manner as Sanflex 2B2 and 2B1 but as it is secured against the cured leaf with the foil face facing the cavity, the stop on the wall tie is not used.

Mortar droppings

15.14 After each section of the leading leaf is built, excess mortar must be removed from the cavity face and mortar droppings cleaned from exposed coated face of the product, before the installation of the next run. Use of a cavity board or a cavity batten will protect the installed product and help keep the cavity clean as the following leaf is built.

Protection

15.15 All building work involving the product, particularly interrupted work, must conform to BS 5628-3 : 1985, Sections 30 *Storage on site*, 35 *Protection against damage during construction*, and 36 *Supervision*.

Technical Investigations

The following is a summary of the technical investigations carried out on Sanflex 2B2, 2B1 and 1B1 Cavity Wall Insulation.

16 Investigations

Tests and assessment were carried out to determine:

water vapour resistance
thermal resistance
emissivity
durability
behaviour in fire
condensation risk analysis
suitability of wall ties.

Bibliography

BS 874 *Methods for determining thermal insulating properties*
BS 874-2 *Tests for thermal conductivity and related properties*
BS 874-2.1 : 1986 *Guarded hotplate method*

BS 1243 : 1978 *Specification for metal ties for cavity wall construction*

BS 5250 : 1989(1995) *Code of practice for control of condensation in buildings*

BS 5390 : 1976(1984) *Code of practice for stone masonry*

BS 5628 *Code of practice for use of masonry*
BS 5628-3 : 1985 *Materials and components, design and workmanship*

BS 8000 *Workmanship on building sites*
BS 8000-3 : 1989 *Code of practice for masonry*

DD 140 *Wall ties*
DD 140-1 : 1986 *Methods of test for mortar joint and timber frame connections*

Conditions of Certification

17 Conditions

17.1 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) has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective;

(d) is copyright of the BBA.

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, shall be construed as 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 fabricating process(es) 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.

17.4 In granting this Certificate, the BBA makes no representation as to:

(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 of individual installations of the product, including methods and workmanship.

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.

BBA BRITISH BOARD OF AGRÉMENT
ASSESSMENT OF PRODUCTS FOR CONSTRUCTION

In the opinion of the British Board of Agrément, Sanflex 2B2, 2B1 and 1B1 Cavity Wall Insulation is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 00/3758 is accordingly awarded to Sansetsu UK Ltd.

On behalf of the British Board of Agrément

Date of issue: 14th November 2000

Chief Executive

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