



Designated by Government
to issue
European Technical
Approvals

THERMAFLEECE

Isolation thermique
Wärmedämmung

Product



• THIS CERTIFICATE RELATES TO THERMAFLEECE, THERMAL INSULATION BATTS FOR USE IN DWELLINGS AND BUILDINGS WITH SIMILAR TEMPERATURE AND HUMIDITY CONDITIONS.


• The batts are for use in:
loft applications between joists in ventilated and unventilated lofts under pitched roofs and between rafters for tiled or slated pitched roofs designed and constructed in accordance with the relevant clauses of BS 5534-1 : 1997, and

timber-frame wall applications between studding with a weather-resistant cladding, and a ventilated and drained cavity.

These Front Sheets must be read in conjunction with the relevant accompanying Detail Sheet, which provides information specific to insulation applications.

Regulations — Detail Sheet 1

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 insulation with the Building Regulations. In the opinion of the BBA, Thermafleece, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements.

General

Requirement: **B3**

Comment:

Internal fire spread (structure)

Lofts, roofs and walls incorporating the product can meet this Requirement. See the *Behaviour in relation to fire* section of the relevant Detail Sheet.

Requirement: **L1**

Requirement: **L2**

Comment:

Conservation of fuel and power in dwellings

Conservation of fuel and power in buildings other than dwellings

The product can meet or contribute to meeting this Requirement. See the *Thermal insulation* section of the relevant Detail Sheet.

Requirement: **Regulation 7**

Comment:

Materials and workmanship

The product is acceptable. See the *Durability* section of the relevant Detail Sheet.

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Sarking

Requirement: B4(2)

External fire spread

Comment:

The product will not affect the external fire rating of a tiled or slated roof in which it is installed. See the *Behaviour in relation to fire* section of the relevant Detail Sheet.

Sarking/Loft

Requirement: F2

Condensation in roofs

Comment:

The product is acceptable. See the *Condensation* section of the relevant Detail Sheet.

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



In the opinion of the BBA, Thermafleece, 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.

General

Regulation: 10

Fitness of materials and workmanship

Standards: B2.1 and B2.2

Selection and use of materials, fittings, and components, and workmanship

Comment:

The product is acceptable. See the *Durability* section of the relevant Detail Sheet.

Regulation: 22

Conservation of fuel and power

Standard: J3.1

Building fabric — Standards for buildings in purpose group 1

Standard: J8.1

Buildings in Purpose Groups 2 to 7 — Standards for buildings other than dwellings

Comment:

Elements incorporating the product can satisfy or contribute to satisfying the Elemental Approach for limiting heat loss. See the *Thermal insulation* section of the relevant Detail Sheet.

Regulation: 18

Resistance to condensation

Standard: G4.1

Interstitial condensation

Standard: G4.2

Surface condensation

Comment:

The product is acceptable. See the relevant section of the Detail Sheet.

Sarking

Regulation: 12

Structural fire precautions

Standard: D3.16

Compartmentation — Junctions

Standard: D5.10

Separating walls and separating floors — Junctions

Comment:

Junctions between roofs and compartment walls, separating walls or walls enclosing a protected zone must be fire-stopped. See section 2 of the relevant Detail Sheet.

Standard: D9.1

Fire spread from adjoining buildings

Comment:

The product will not affect the external fire rating of a tiled or slated roof in which it is installed. See the *Behaviour in relation to fire* section of the relevant Detail Sheet.

Timber-frame walls

Regulation: 12

Structural fire precautions

Standard: D2.3

Structural protection — Non-combustible materials

Standard: D8.2

Fire spread to adjoining buildings — Non-combustible materials

Comment:

The product does not support combustion and, therefore, is acceptable. See section 2 of the relevant Detail Sheet.

3 The Building Regulations (Northern Ireland) 2000



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

General

Regulation: B2

Fitness of materials and workmanship

Comment:

The product is acceptable. See the *Durability* section of the relevant Detail Sheet.

Regulation: F2

Building fabric

Comment:

The product will enable, or contribute to enabling, constructions to satisfy the Elemental Approach for maximum U values given in Tables 1.2 and 1.4 of Technical Booklet F. See the *Thermal insulation* section of the relevant Detail Sheet.

Sarking/Timber-frame walls

Regulation: C5

Condensation

Comment:

The product will not promote condensation. See the *Condensation* section of the relevant Detail Sheet.

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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 section:

6 Delivery and site handling.

Technical Specification

5 Description

5.1 Thermafleece is a grey coloured, wool-based material (85%), treated with a natural-source inorganic fire-retardant insecticide prior to a bi-component polyester (15%) being added to form batts.

5.2 The product has the nominal characteristics of:

length (mm)	1200
width (mm)	400, 600
thickness (mm)	50, 75, 100
nominal density (kgm^{-3})	25

6 Delivery and site handling

6.1 The batts are delivered to site in packs wrapped in polythene, each pack includes a label bearing the product name, grade, number of batts and the BBA identification mark incorporating the number of this Certificate.

6.2 The batts should be stored flat, under cover, and out of contact with ground moisture.

6.3 The batts must not be exposed to naked flame or other ignition sources.

Technical Investigations

The following is a summary of the technical investigations carried out on Thermafleece.

7 Tests and investigations

7.1 Tests were undertaken to determine:

resistance to smouldering
resistance to mould fungus
retention of additives
corrosivity of metals in direct contact
thermal conductivity,
also extensive test data were examined in relation to:

common clothes moth larvae resistance
condensation risk assessment.

7.2 The manufacturing processes were examined including quality control.

Bibliography

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

Conditions of Certification

9 Conditions

9.1 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.

9.2 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.

9.3 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.

9.4 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.

9.5 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, Thermafleecce is fit for its intended use provided it is installed, used and maintained as set out in this Certificate. Certificate No 02/3950 is accordingly awarded to Second Nature (UK) Ltd.

On behalf of the British Board of Agrément

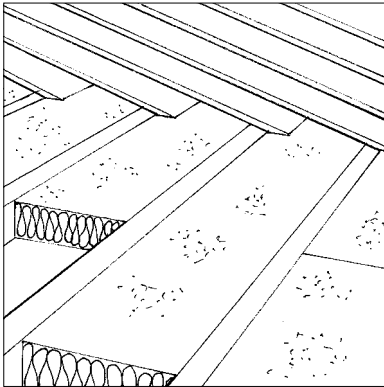
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Chief Executive



Second Nature (UK) Ltd

Certificate No 02/3950

DETAIL SHEET 2**THERMAFLEECE — LOFT INSULATION****Product**


• THIS DETAIL SHEET RELATES TO THERMAFLEECE — LOFT INSULATION, A WOOL-BASED THERMAL INSULATION BATT FOR USE IN LOFTS WITH VENTILATED OR UNVENTILATED SPACES UNDER PITCHED ROOFS IN DWELLINGS OR OTHER BUILDINGS.

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, common information relating to the products, and the Conditions of Certification, respectively.

Design Data**1 General**

Thermafleece — Loft Insulation is effective in reducing the U value (thermal transmittance) of ceiling structures with ventilated or unventilated pitched roofs.

2 Behaviour in relation to fire

 2.1 Data from smoulder tests indicated that the product is non-combustible as defined in BS 5803-4 : 1985. Smouldering was found to continue a distance of 70 mm for up to 17 minutes.

2.2 Precautions must be taken to protect the product from heat generated from flues in accordance with the national Building Regulations:

England and Wales

Approved Document J, paragraph 2.15

Scotland

Technical Standard F6.10

Northern Ireland

Technical Booklet L, paragraph 2.9.

2.3 The product should be spaced at least 25 mm from recessed luminaires.

3 Water vapour penetration

The product is not a moisture vapour barrier and will allow water vapour to migrate through it.

4 Condensation

4.1 Insulation material placed at ceiling level will considerably reduce the temperature of an unheated roof structure and, if moist air passes into the roof space, condensation on cold surfaces is likely to be enhanced. Roof structures incorporating the insulation at ceiling level must have provision for adequate permanent ventilation of the space above the insulation to minimise the formation of condensation in the roof space.

4.2 Permanent ventilation of the roof structure should be provided by continuous openings or regularly spaced vents of equivalent area situated along two opposite sides of the roof at eaves level. The size and position of ventilation openings for pitched roofs greater or less than 15°, roofs with spans exceeding 10 m, and monopitched roofs, should be in accordance with clause 9.4 (in particular 9.4.7.1) of BS 5250 : 1989. Further information and guidance is given in BRE Report No 262 *Thermal insulation : avoiding risks*.

4.3 Ventilation openings should be arranged to prevent the ingress of rain, snow, birds and small mammals and the risk of subsequent blockage by other building operations.

4.4 In roof structures incorporating the product at ceiling level, a breathable membrane can be used to limit excessive condensation.

4.5 The product comprises a hygroscopic material and will have a moisture content of from 10% to 40% by weight (0.25% to 1.0% by volume) depending upon the relative humidity of the loft.

This can give a latent heat advantage whereby, in winter, absorption of water vapour has a warming effect and, in summer, evaporation will have a cooling effect. The effect on the thermal conductivity will be small.

5 Thermal insulation

5.1 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 product may be taken as $0.039 \text{ Wm}^{-1}\text{K}^{-1}$.



5.2 The requirement for limiting the heat loss through the building fabric, including thermal bridging, can be satisfied if the U values of the building elements 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, in both

Scotland

Technical Standards J2.3, Table 1, and J8.3, Table

Northern Ireland

Technical Booklet F, Table 1.2 or 1.4.

5.3 Guidance is also given in these documents on selecting the thickness of insulation required to enable a roof 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.

6 De-rating of electrical cables

As with other insulation products, it may be necessary in some cases to de-rate electrical cables buried in the insulation. In the *IEE Wiring Regulations — Regulations for Electrical Installation Sixteenth Edition 1992* it is suggested that where wiring is completely surrounded by insulation, it may need to be de-rated to as low as half its free air current carrying capacity. Guidance should be sought from a qualified electrician.

7 Durability



7.1 The product is stable, rot-proof and durable and will remain effective as an insulant for the life of the building in which it is installed.

7.2 The product is treated with a non-volatile larvacide, therefore, the risk of moth or beetle infestation is negligible.

7.3 Galvanized metals in the roof are subject to corrosion and will need to be protected. Copper is subject to slight surface corrosion.

Installation

8 General

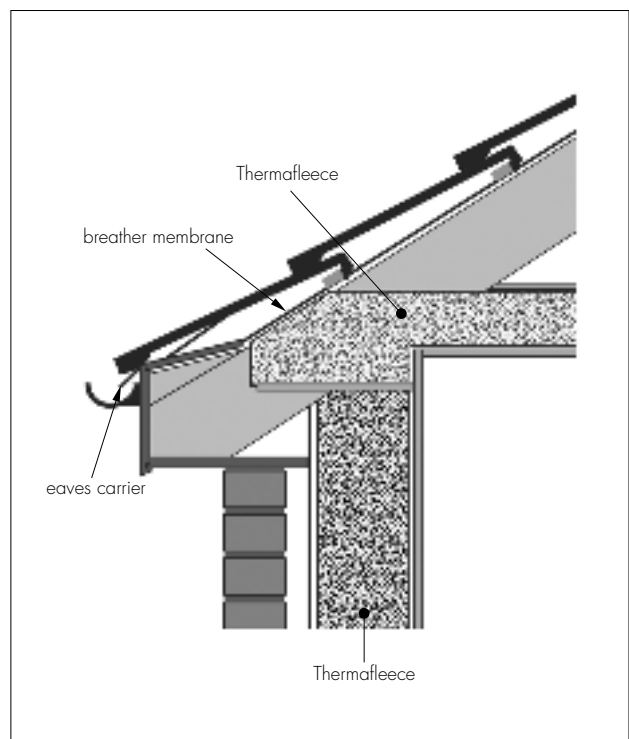
8.1 The installation of Thermafleece — Loft Insulation can be carried out as a DIY operation. As a precaution, a disposable dust mask and gloves should be worn.

8.2 All removable obstructions should first be cleared from the loft space and any holes in the ceiling, such as around pipes, should be sealed. Water tanks should be covered and any sources of moisture, eg vent pipes for central heating, should be arranged to avoid water vapour entering the loft space.

8.3 To reduce the risk of frost damage due to ceiling insulation, the pipes and tank in the loft space should be lagged before installing the product. The area directly below cold water tanks when resting at joist level must not be insulated to avoid the risk of the stored water freezing in cold weather.

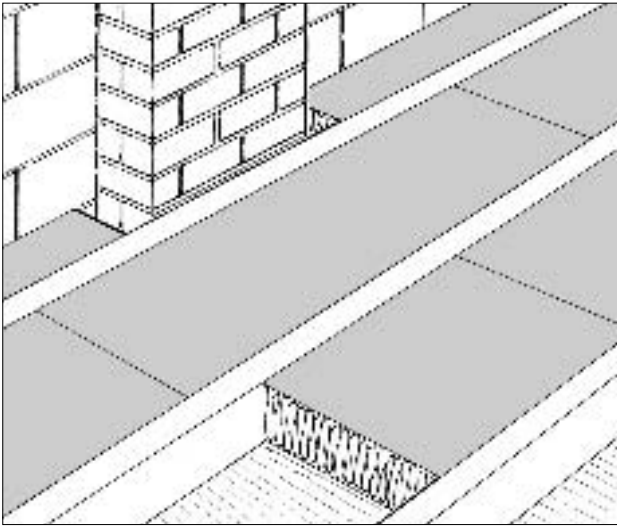
8.4 During installation it is essential that all ventilation points, for example eaves gaps and air bricks at gable ends, are kept clear of insulant so that the air flow is maintained (see section 4 and Figure 1).

Figure 1 Airflow at eaves



8.5 As with other insulating materials, the product should not be installed around insulated metal chimney fabrications or flues passing through the loft space (see Figure 2). Contact between these components and the insulant must be avoided.

Figure 2 Typical installation



8.6 During installation, boards should be placed across the joists to reduce the risk of ceiling damage and care should be exercised when filling up to and above joist level.

8.7 Batts are laid butted against each other between joists. The product can be laid on top of existing insulation. Where necessary, the batts can be cut to size with a serrated knife.

8.8 On completion, if required, a piece of insulation should be cut to size and fixed to the loft trap door.

Bibliography

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

BS 5803-4 : 1985 *Thermal insulation for use in pitched roof spaces in dwellings — Methods for determining flammability and resistance to smouldering*



On behalf of the British Board of Agrément

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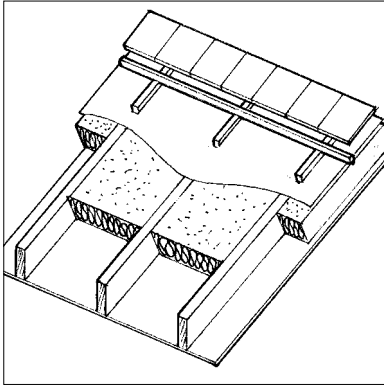
Second Nature (UK) Ltd

Certificate No 02/3950

DETAIL SHEET 3

THERMAFLEECE — SARKING

Product



• THIS DETAIL SHEET RELATES TO THERMAFLEECE — SARKING, A WOOL-BASED THERMAL INSULATION BATT FOR USE BETWEEN RAFTERS IN PITCHED ROOFS.

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, common information relating to the products, and the Conditions of Certification, respectively.

Design Data

1 General

1.1 Thermafleece — Sarking installed between rafters is satisfactory for use as a thermally-insulated, pitched-roof, sarking system. The batts are used in conjunction with a vapour-permeable roof tile underlay, treated-timber counter battens and tiling battens in tiled or slated pitched roofs designed and constructed in accordance with the relevant clauses of BS 5534-1 : 1997 for dwellings

1.2 The batts are for use in constructions where the ceiling follows the pitch of the roof and encloses a habitable space, or where the ceiling is horizontal and encloses a loft space.

1.3 The product is effective in reducing the U value (thermal transmittance) of roofs where it is installed.

2 Behaviour in relation to fire

2.1 The batts must not be carried over junctions between roofs required to provide a minimum period of fire resistance. The continuity of fire resistance must be maintained, for example as described in the national Building Regulations:

England and Wales

Approved Document B, paragraphs 9.28 to 9.31

Scotland

Provisions deemed to satisfy Technical Standards D3.14 and D3.16

Northern Ireland

Technical Booklet E, paragraph 3.15.

2.2 Data from smoulder tests indicated that the product is non-combustible as defined in BS 5803-4 : 1985. Smouldering was found to continue a distance of 70 mm for up to 17 minutes.

2.3 The use of the batts will not affect the rating obtained by tiled or slated roofs when evaluated by assessment or test to BS 476-3 : 1958.

2.4 When installed with an internal lining board, the insulation will be contained between the roof and internal lining board until one is destroyed. Therefore, the insulation will not contribute to the development stages of a fire or present a smoke or toxic hazard.

2.5 Precautions must be taken to protect the product from heat generated from flues in accordance with the national Building Regulations:

England and Wales

Approved Document J, paragraph 2.15

Scotland

Technical Standard F6.10

Northern Ireland

Technical Booklet L, paragraph 2.9.

3 Water vapour penetration

The product is not a moisture vapour barrier and will allow water vapour to migrate through it.

4 Condensation

The product comprises a hygroscopic material and will have a moisture content of from 10% to 40% by weight (0.25% to 1.0% by volume) depending upon the relative humidity of the roof. This can give a latent heat advantage whereby, in winter, absorption of water vapour has a warming effect and, in summer, evaporation will have a cooling effect. The effect on the thermal conductivity will be small.

5 Thermal insulation

5.1 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 product may be taken as $0.039 \text{ Wm}^{-1}\text{K}^{-1}$.

5.2 The requirement for limiting the heat loss through the building fabric, including thermal bridging, can be satisfied if the U values of the building elements 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

Scotland

Technical Standards Part J

Northern Ireland

Technical Booklet F.

5.3 Guidance is also given in these documents on selecting the thickness of insulation required to enable a roof 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.

6 Durability



6.1 The product is stable, rot-proof and durable and will remain effective as an insulant for the life of the building in which it is installed.

6.2 The product will not be displaced by the normal draughts present in a roof space. Should the product become soaked by water it should be allowed to dry out and re-installed as normal.

6.3 The risk of corrosion of metal components in the roof due to the presence of the product is negligible.

6.4 The product is treated with a non-volatile larvacide, therefore, the risk of moth or beetle infestation is negligible.

Installation

7 General

7.1 The installation of Thermafleece — Sarking can be carried out as a DIY operation. As a precaution, a disposable dust mask and gloves should be worn.

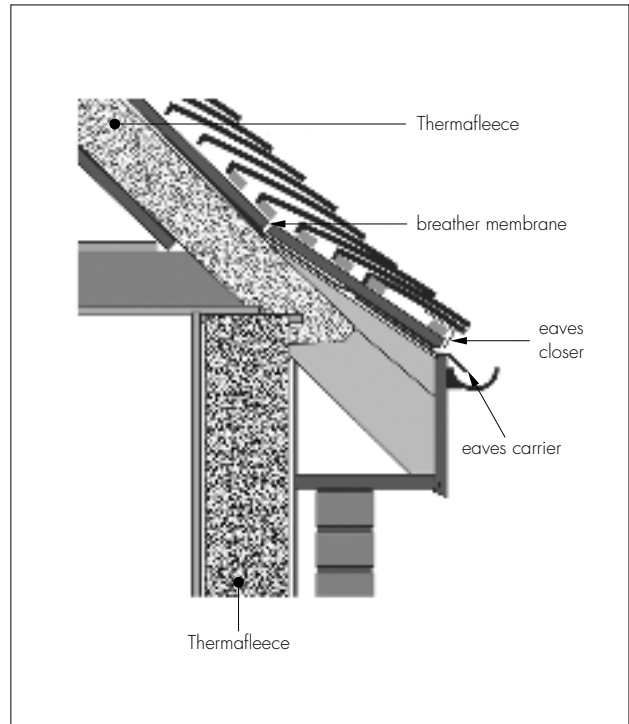
7.2 Batts are laid butted against each other between rafters. Where necessary, batts can be cut to size with a serrated knife. Care should be taken to minimise gaps. All gaps should be sealed using pieces of uncompressed batt.

7.3 In new and existing constructions the batts should be installed, after tiling or slating is completed, from inside the roof space.

7.4 The batts are push-fit (see Figure 1) between rafters and held in place by friction.

7.5 A vapour control layer should be provided to the warm side of the product.

Figure 1 Typical installation



Bibliography

BS 476-3 : 1958 *Fire tests on building materials and structures — External fire exposure roof test*

BS 5534-1 : 1997 *Code of practice for slating and tiling (including shingles) — Design*

BS 5803-4 : 1985 *Thermal insulation for use in pitched roof spaces in dwellings — Methods for determining flammability and resistance to smouldering*



On behalf of the British Board of Agrément

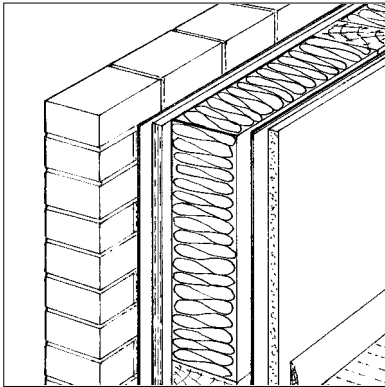
Date of issue: 28th August 2002

Chief Executive



Second Nature (UK) Ltd

Certificate No 02/3950

DETAIL SHEET 4**THERMAFLEECE — TIMBER FRAME****Product**

• THIS DETAIL SHEET RELATES TO THERMAFLEECE — TIMBER FRAME, A THERMAL INSULATION BATT FOR USE BETWEEN STUDDING IN THE TIMBER-FRAME INTERNAL LEAF OF EXTERNAL WALLS OF NORMAL DWELLINGS AND BUILDINGS WITH SIMILAR TEMPERATURE AND HUMIDITY CONDITIONS.

This Detail Sheet must be read in conjunction with the Front Sheets, which give the product's position regarding the Building Regulations, common information relating to the products, and the Conditions of Certification, respectively.

Design Data**1 General**

1.1 When installed, Thermafleece — Timber Frame is effective in reducing the U value (thermal transmittance) of inner leaf timber-framed wall of external walls. It is essential that such walls are designed and constructed to incorporate the normal precautions against moisture ingress.

1.2 Proper care and attention must be given to maintaining the continuity of the vapour control layers (see section 4.2).

2 Behaviour in relation to fire

2.1 The product contains inorganic fire retardants which inhibit flaming and smouldering combustion.

2.2 In the context of this Detail Sheet the use of the product does not prejudice the fire resistance properties of the wall.

2.3 When properly installed, the insulation will be contained within the cavity sheathing and internal lining board until these layers are destroyed. Therefore, the insulation will not contribute to the development stages of a fire or present a smoke or toxic hazard.

2.4 Precautions must be taken to protect the product from heat generated from flues in accordance with the national Building Regulations:

England and Wales

Approved Document J, paragraph 2.15

Scotland

Technical Standard F6.10

Northern Ireland

Technical Booklet L, paragraph 2.9.

2.5 The product should be spaced at least 25 mm from recessed luminaires.

3 Water vapour penetration

The product is not a moisture vapour barrier and will allow water vapour to migrate through it.

4 Condensation

4.1 Installation must not be carried out until the moisture content of the timber frame is less than 20%.

4.2 It is essential that the continuity of vapour control layers is maintained at laps and joints at wall/ceiling and wall/floor level. Perforations, eg for service outlets, should be kept to a minimum and be well sealed and taped. The recommendations of BS 5250 : 1989 should be followed to minimise the risk of condensation within the structure.

5 Thermal insulation

5.1 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 product may be taken as $0.039 \text{ Wm}^{-1}\text{K}^{-1}$.



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

England and Wales

Approved Document L1

Scotland

Technical Standards Part J

Northern Ireland

Technical Booklet F.

5.3 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.

6 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.

7 De-rating of electrical cables

As with other insulation products, it may be necessary in some cases to de-rate electrical cables buried in the insulation. The *IEE Wiring Regulations – Regulations for Electrical Installation Sixteenth Edition 1992* suggest that, where the wiring is completely surrounded by insulation, it may need to be de-rated to as low as half its free air current carrying capacity. Guidance should be sought from a qualified electrician.

8 Durability



8.1 The product is stable, rot-proof and durable and will remain effective as an insulant for the life of the building in which it is installed.

8.2 The product is treated with a non-volatile larvacide, therefore, the risk of moth or beetle infestation is negligible.

8.3 Galvanized metals in the wall are subject to corrosion and will need to be protected. Copper is subject to slight surface corrosion.

Installation

9 General

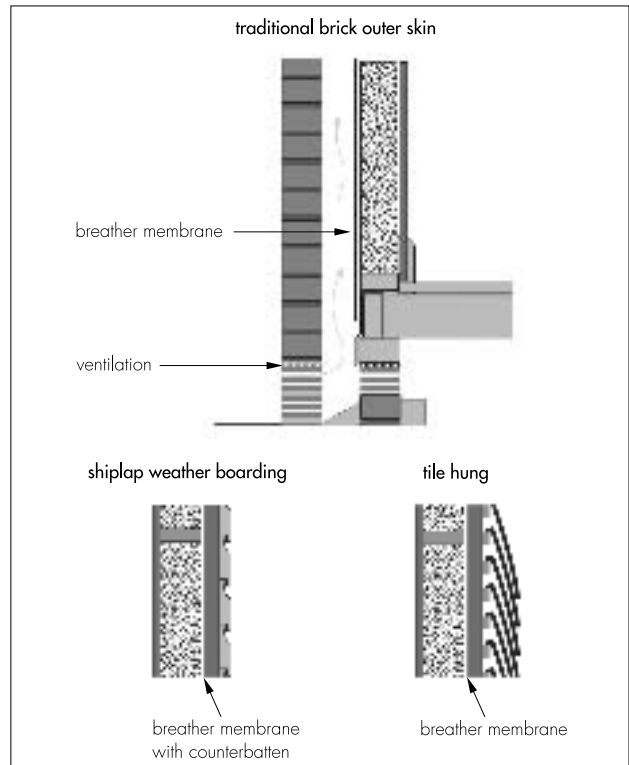
9.1 The installation of Thermafleece – Timber Frame can be carried out as a DIY operation. As a precaution, a disposable dust mask and gloves should be worn.

9.2 Batts are laid butted against each other between studs. Where necessary, batts can be cut to size with a serrated knife. Care should be taken to minimise gaps. All gaps should be sealed using pieces of uncompressed batt.

9.3 The batts are pushed between studs with friction at the sides securing them. Typical timber frame construction is shown in Figure 1.

9.4 A vapour control layer should be provided to the warm side of the product.

Figure 1 Typical installation



Bibliography

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



On behalf of the British Board of Agrément

Date of issue: 28th August 2002

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