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Agrément Certificate
88/1976
Product Sheet 1

INSTAFIBRE CAVITY WALL INSULATION

INSTAFIBRE YELLOW WOOL CAVITY WALL INSULATION

PRODUCT SCOPE AND SUMMARY OF CERTIFICATE

This Certificate replaces Certificate No 85/1463 and relates to InstaFibre Yellow Wool Cavity Wall Insulation, a glass mineral wool material injected in loose form, in masonry walls up to and including 25 m in height, with nominal cavity widths not less than 50 mm, in new and existing domestic and non-domestic buildings.

AGRÉMENT CERTIFICATION INCLUDES:

- factors relating to compliance with Building Regulations where applicable
- factors relating to additional non-regulatory information where applicable
- independently verified technical specification
- assessment criteria and technical investigations
- design considerations
- installation guidance
- regular surveillance of production
- formal three-yearly review.



KEY FACTORS ASSESSED

Practicability of installation — the product must only be installed by trained and approved operators (see section 4).

Thermal performance — the product has a mean thermal conductivity of $0.039 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 5).

Rain penetration — the product will resist the transfer of precipitation to the inner leaf via the insulation (see section 6).

Condensation — the product will contribute to limiting the risk of condensation (see section 7).

Behaviour in relation to fire — the product is classified as non-combustible (see section 8).

Durability — the product is durable, rot proof, water resistant and sufficiently stable to remain effective as an insulation for the life of the building (see section 10).

The BBA has awarded this Agrément Certificate to the company named above for the product described herein. This product has been assessed by the BBA as being fit for its intended use provided it is installed, used and maintained as set out in this Certificate.

On behalf of the British Board of Agrément

Chris Hunt
Head of Approvals — Physics

Greg Cooper
Chief Executive

Date of First issue: 30 November 2010

Originally certificated on 14 September 1988

The BBA is a UKAS accredited certification body — Number 113. The schedule of the current scope of accreditation for product certification is available in pdf format via the UKAS link on the BBA website at www.bbacerts.co.uk

Readers are advised to check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA direct.

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Regulations

In the opinion of the BBA, InstaFibre Yellow Wool Cavity Wall Insulation, if used in accordance with the provisions of this Certificate, will meet or contribute to meeting the relevant requirements of the following Building Regulations:



The Building Regulations 2010 (England and Wales)

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.
Requirement: C2(a)	Resistance to moisture
Comment:	The product does not absorb water by capillary action and may therefore be used in situations where it bridges the damp-proof course (dpc) of the inner and outer leaf. See section 6.1 of this Certificate.
Requirement: C2(b)	Resistance to moisture
Comment:	Tests by the BBA indicate that a wall incorporating the product can resist rain penetration and satisfy this Requirement. See sections 3.6, 6.1 and 6.2 of this Certificate.
Requirement: C2(c)	Resistance to moisture
Comment:	The product can contribute to satisfying this condensation Requirement. See sections 7.1 and 7.3 of this Certificate.
Requirement: L1(a)(i)	Conservation of fuel and power
Comment:	The product can contribute to meeting this Requirement. See sections 5.3 and 5.4 of this Certificate.
Requirement: Regulation 7	Materials and workmanship
Comment:	The product is an acceptable material. See section 10 and the <i>Installation</i> part of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation: 8(1)	Fitness and durability of materials and workmanship
Comment:	The product can contribute to a construction satisfying this Regulation. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: 9	Building standards — construction
Standard: 2.4	Cavities
Comment:	Cavity barriers are not required provided all of the cavity is filled, with reference to clauses 2.4.1 ⁽¹⁾⁽²⁾ and 2.4.2 ⁽¹⁾⁽²⁾ . See section 8.5 of this Certificate.
Standard: 2.6	Spread to neighbouring buildings
Comment:	The product is non-combustible to BS 476-4 : 1970 and may be used in domestic and non-domestic buildings, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See sections 8.2 and 8.3 of this Certificate.
Standard: 3.4	Moisture from the ground
Comment:	The product can contribute to a construction satisfying this Standard, with reference to clause 3.4.1 ⁽¹⁾ The product can be used in situations where it bridges the dpc of the inner and outer leaf. See section 6.1 of this Certificate.
Standard: 3.10	Precipitation
Comment:	The product will resist water transfer and may contribute to a wall satisfying this Standard, with reference to clause 3.10.1 ⁽¹⁾⁽²⁾ provided it complies with the conditions set out in sections 3.6, 6.1 and 6.2 of this Certificate.
Standard: 3.15	Condensation
Comment:	The product can satisfy, or contribute to satisfying this Standard, with reference to clauses 3.15.1 ⁽¹⁾⁽²⁾ , 3.15.4 ⁽¹⁾⁽²⁾ and 3.15.5 ⁽¹⁾⁽²⁾ . See sections 7.2 and 7.3 of this Certificate.
Standard: 6.1(b)	Carbon dioxide emissions
Standard: 6.2	Building insulation envelope
Comment:	The product can contribute to satisfying clauses, or parts of, 6.1.6 ⁽¹⁾ , 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.9 ⁽¹⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ of these Standards. See sections 5.3 and 5.4 of this Certificate.
Regulation: 12	Building standards — conversions
Comment:	All comments given for this product under Regulation 9, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾ and Schedule 6 ⁽¹⁾ . (1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2000 (as amended)

Regulation: B2	Fitness of materials and workmanship
Comment:	The product is an acceptable material. See section 10 and the <i>Installation</i> part of this Certificate.
Regulation: C4(a)	Resistance to ground moisture and weather
Comment:	The product does not absorb water by capillary action and may therefore be used in situations where it bridges the dpc of the inner and outer leaf. See section 6.1 of this Certificate.
Regulation: C4(b)	Resistance to ground moisture and weather
Comment:	Walls incorporating the product can satisfy this Regulation. See sections 3.6, 6.1 and 6.2 of this Certificate.
Regulation: C5	Condensation
Comment:	The product will contribute to meeting this Regulation. See section 7.3 of this Certificate.

Regulation:	E4(4)	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.	
Regulation:	F2(a)(i)	Conservation measures
Regulation:	F3(2)	Target carbon dioxide Emissions Rate
Comment:	The product can contribute to satisfying these Regulations. See sections 5.3 and 5.4 of this Certificate.	

Construction (Design and Management) Regulations 2007

Construction (Design and Management) Regulations (Northern Ireland) 2007

Information in this Certificate may assist the client, CDM co-ordinator, designer and contractors to address their obligations under these Regulations.

See sections: 2 *Delivery and site handling* (2) and 12 *Site preparation* (12.2) of this Certificate.

Non-regulatory Information

NHBC Standards 2010

NHBC accepts the use of InstaFibre Yellow Wool Cavity Wall Insulation, when installed and used in accordance with this Certificate, in relation to the relevant clauses in *NHBC Standards, Chapter 6.1 External masonry walls*.

Technical Specification

1 Description

1.1 InstaFibre Yellow Wool Cavity Wall Insulation consists of granulated glass wool fibres treated with an inert water repellent during manufacture.

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

1.3 The target mean density for this product, when installed, is $20 \text{ kg}\cdot\text{m}^{-3}$. Local areas within the wall, when sampled over an area of 0.5 m^2 , may have a density variation of $\pm 5 \text{ kg}\cdot\text{m}^{-3}$.

2 Delivery and site handling

The product is delivered to site in sealed white polythene bags with black lettering weighing approximately 16.6 kg and should not be opened until required for use. The bags are marked with the BBA identification mark incorporating the number of this Certificate.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on InstaFibre Yellow Wool Cavity Wall Insulation.

Design Considerations

3 General

3.1 InstaFibre Yellow Wool Cavity Wall Insulation, is effective in reducing the thermal transmittance (U value) 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.

3.2 The product may be used in buildings up to and including 25 m in height subject to the conditions given in sections 3.10 to 3.12 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 5.2)
- 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 should 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 5.5)
- installation is carried out to the highest level on each wall unless the top edge of the insulation is protected by a cavity tray, or the external leaf is protected by an impervious barrier, ie cladding
- from ground level, the maximum height of continuous cavity must not exceed 12 m. Above 12 m, the maximum height of continuous cavity wall must not exceed 7 m. 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 Sheet No 10 : 1983 *Method of Assessing the Exposure of Buildings for Cavity Wall Insulation*)
- for walls above 12 m in height, see sections 3.10 to 3.12
- BS 8000-3 : 2001.

3.3 The following design conditions have been taken from 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:

- the cavity width must be a nominal minimum of 50 mm
- walls must be in good state of repair and must show no evidence of frost damage
- mortar joints must not show evidence of more than hairline cracking. In buildings up to 12 m high, raked or recessed mortar joints should be avoided in high exposure areas.

Partial filling

3.4 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 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

3.5 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



3.6 New buildings subject to the national Building Regulations should be constructed in accordance with the relevant recommendations of:

- BS EN 1996-1-1 : 2005, BS EN 1996-1 : 2 : 2005, BS EN 1996-2 : 2006 and BS EN 1996-3 : 2006
- BS 5628-3 : 2005, with particular reference to Clause 5.5 *Exclusion of water*
- BS 8000-3 : 2001.

3.7 Other new buildings not subject to regulatory requirements should also be built in accordance with the Standards identified in section 3.6.

3.8 As with any other form of cavity wall insulation, where buildings need to comply with *NHBC Standards 2010*, specifiers should observe the requirements of that document.

3.9 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 m and up to 25 m

3.10 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.

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

3.12 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 3.3). Above-average site supervision is recommended during the installation of the product.

4 Practicability of installation

The product must be installed by operatives trained and approved by the Certificate holder (see section 13).

5 Thermal performance

5.1 Calculations of the thermal transmittance (U value) of specific external wall constructions should be carried out in accordance with BS EN ISO 6946 : 1997 and BRE Report (BR 443 : 2006) *Conventions for U-value calculations*, using the thermal conductivity (λ value) of $0.039 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ for the cavity insulation.

5.2 The U value of a typical brick and block cavity wall construction will depend on the cavity width and the insulating value of the internal block leaf and finish. Example U values are given in Table 1.

Table 1 Typical cavity wall U values ($\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$)⁽¹⁾

Cavity width (mm)	13 mm dense plaster 100 mm dense block ⁽²⁾	Plasterboard on dabs 100 mm AAC block ⁽³⁾
75	0.44	0.33
100	0.34	0.27
125	0.28	0.23

(1) Assumes fixings correction $\Delta U_f < 3\%$ of nominal U value and 102 mm thick brick outer leaf.

(2) Block and plaster thermal conductivity $1.13 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and $0.57 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ respectively.

(3) Block and mortar thermal conductivity $0.12 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ and $0.88 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ respectively.



5.3 When considering insulation requirements, designers should refer to the detailed guidance contained in the documents supporting the national Building Regulations. The U values shown in Table 1 indicate that the product can enable a wall to achieve typical design U values referred to in those supporting documents. See Tables 2 to 4.

Table 2 Mean design wall U values – England and Wales⁽¹⁾

Construction	U value $\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$
Notional non-domestic building	0.26
Existing building – new and replaced wall	0.28
Dwelling new-build limit	0.30
Notional building	0.35
Non-domestic new-build limit	0.35
Existing building – renovated or retained wall	0.55

(1) Flexible approaches on existing buildings are given in the Approved Documents.

Table 3 Mean design wall U values – Scotland⁽¹⁾

Construction	U value $\text{W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$
Notional dwelling	0.19
New dwelling simplified method	0.19
Conversion unheated building (into dwellings)	0.19
Extension to dwelling	0.19
Alterations and reconstructions to a dwelling	0.22
Stand-alone building < 50 m ² to a dwelling	0.22
New non-dwellings limit for shell and fit out	0.23
New dwelling limit	0.25
Conversion of unheated building	0.25
Non-domestic extension, alterations and reconstructions	0.25
New non-domestic limit	0.27
Conversion of heated building	0.30
Notional non-dwelling	0.30

(1) Flexible approaches on existing buildings are given in the Technical Handbooks.

Table 4 Mean design wall U values – Northern Ireland⁽¹⁾

Construction	U value W·m ⁻² ·K ⁻¹
Existing building – new wall	0.30
Notional dwelling	0.35
Notional non-domestic building	0.35
Building new build limit	0.35
Existing building – replaced wall	0.35
Existing building – renovated and retained wall	0.55

(1) Flexible approaches on existing buildings are given in the Technical Booklets.

5.4 The product can maintain, or contribute to maintaining, continuity of thermal insulation at junctions between elements and openings. For Accredited Construction Details the corresponding psi values in BRE Information Paper IP1/06 *Assessing the effects of thermal bridging at junctions and around openings*, Table 3 may be used in carbon emission calculations in Scotland and Northern Ireland. Detailed guidance for other junctions and on limiting heat loss by air infiltration can be found in:

England and Wales — Approved Documents to Part L and for new thermal elements to existing buildings, Accredited Construction Details (version 1.0). See also SAP 2009 Appendix K and the *iSBEM User Manual* for new-build.

Scotland — Accredited Construction Details (Scotland)

Northern Ireland — Accredited Construction Details (version 1.0).

5.5 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.

6 Rain penetration



6.1 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 wall is detailed in accordance with the requirements and provisions of the national Building Regulations:

England and Wales — Approved Document C, section 5

Scotland — Mandatory Standard 3.4, clause 3.4.1⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet C, Section 1.6.

6.2 Tests for full fill applications confirm that constructions built in accordance with BS 5628-3 : 2005 will prevent water reaching the inner leaf in damaging amounts. Water penetrating the outer leaf of the wall, will drain down the cavity face of the outer leaf and the product will contribute to satisfy the national Building Regulations:

England and Wales — Approved Document C, Section 5

Scotland — Mandatory Standard 3.10, clause 3.10.1⁽¹⁾⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet C, Section 2.

7 Condensation

Surface condensation



7.1 Walls will limit the risk of surface condensation adequately when the thermal transmittance (U value) does not exceed 0.7 W·m⁻²·K⁻¹ at any point and the junctions with floors, roofs and openings are designed in accordance with *Limiting thermal bridging and air leakage : Robust construction details for dwellings and similar buildings* TSO 2002, IP1/06 or section 5.4 of this Certificate.



7.2 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) of the wall does not exceed 1.2 W·m⁻²·K⁻¹ at any point and openings and junctions with other elements comply with the guidance given in BS 5250 : 2002, Section 8, BRE Report (BR 262 : 2002) *Thermal insulation : avoiding risks* and section 5.4.

Interstitial condensation



7.3 Walls will limit the risk of interstitial condensation adequately when they are designed and constructed in accordance with BS 5250 : 2002, Section 8.3 and Annex D.

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 and Northern Ireland — in buildings of every purpose group

Scotland — in domestic and non-domestic buildings.

8.4 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, Volume 1, Diagram 13 and Volume 2, Diagram 34

Northern Ireland — Technical Booklet E, Diagram 3.5.



8.5 For buildings subject to the Building Standards in Scotland, cavity barriers are not required to limit the area of a cavity or at junctions with other wall cavities, but cavity barriers are required around openings, penetrations and junctions with roof or floor cavities, with reference to clauses 2.4.1⁽¹⁾⁽²⁾, 2.6.5⁽¹⁾ and 2.6.6⁽²⁾.

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

8.6 For constructions not covered by sections 8.4, 8.5 and 8.6, cavity barriers must be provided to comply with:

England and Wales — Approved Document B, Volume 1, section 6 and Volume 2, section 9

Scotland — Mandatory Standards 2.4 and 2.6, clauses 2.4.1⁽¹⁾⁽²⁾, 2.6.0⁽¹⁾⁽²⁾, 2.6.5⁽¹⁾ and 2.6.6⁽²⁾

(1) Technical Handbook (Domestic).

(2) Technical Handbook (Non-Domestic).

Northern Ireland — Technical Booklet E, paragraphs 3.35 to 3.38.

9 Maintenance

As the product is confined within the wall cavity and it has suitable durability (see section 10), maintenance is not required.

10 Durability



The product is a durable, rot-proof and water resistance and sufficiently stable to remain effective as an insulation for the life of the building.

Installation

11 Site survey

Prior to installation, a survey is carried out by a trained surveyor to ascertain the suitability of the property or properties for InstaFibre Yellow Wool 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.

12 Site preparation

12.1 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 should be referred to the installation company before proceeding.

12.2 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 product.

12.3 All uncapped cavity walls should be sealed prior to installation.

13 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's 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.

14 Supervision

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

14.2 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 15.4
- the injection of the material takes place at each hole, to complete the filling of the cavity space.

15 Procedure

15.1 The installation of the product is undertaken using blowing machines approved by the BBA, and marked with the appropriate BBA Certificate number.

15.2 The installer provides all necessary hoses, drilling tools, equipment and materials for making good the walls after the installation of the product.

15.3 Where a semi-detached or terraced property is to be insulated then a cavity brush is inserted at the line dividing the properties to contain the insulation.

15.4 Injection holes of 22 mm or 26 mm diameter are drilled in a diamond pattern at approximately 1.35 m centres. The topmost injection holes should not be more than 0.35 m below the upper edge of the cavity and not more than 1.0 m apart. The bottom row of holes should start approximately 0.8 m above dpc level. Additional holes may be required to ensure complete filling around building features, eg under window sills and around air bricks, at the tops of walls and under gables. The topmost holes should not be more than 0.8 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

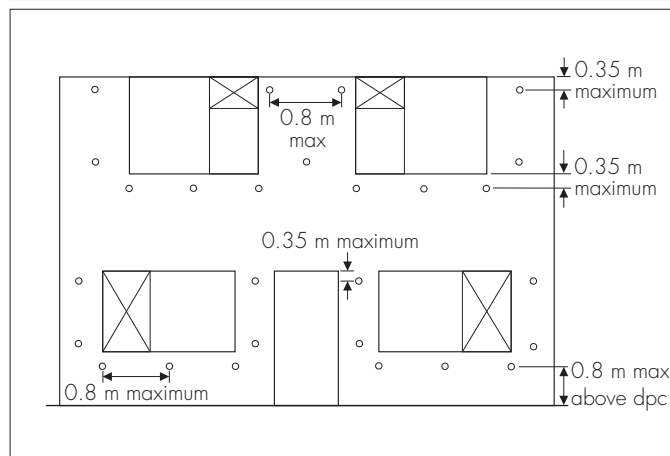
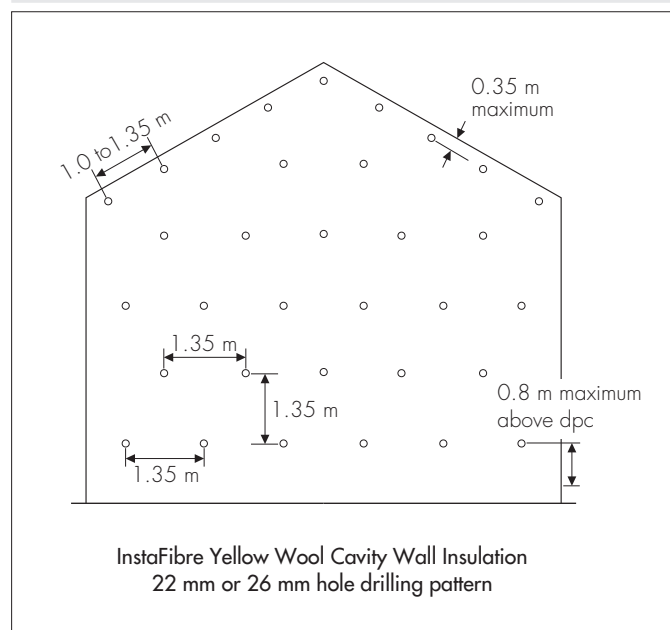


Figure 2 Typical drilling pattern — plain gable end



15.5 To prevent debris falling onto the insulation, installation should not start until the drilling has been completed.

15.6 The material is blown into the cavity under pressure through either one or two flexible pipes via 22 mm or 26 mm nozzles. Where one pipe only is used, filling proceeds from the bottom to the top of the walls and from one elevation to the other. Where two pipes are used, the nozzles should commence filling in different elevations at a stop end (eg doorway) in the first horizontal row of holes and continue filling for two or three holes. One nozzle can then be used above the other on the next row of holes, ensuring that the area below has been completely filled. Injection can continue using this method from one end to the other throughout the property. At no time should both nozzles be used in adjacent holes.

15.7 After injection of the product, the drill holes are fully filled to a similar colour, texture and weathertightness as the existing wall. Where a wall requires a high degree of colour matching, the level of finish matching should be agreed in writing during the site assessment. All the trunked 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 that they are not obstructed by the insulant.

15.8 In some circumstances access for drilling injection holes and filling with insulation may be limited by features for example; carport, conservatories, cladding or tiling. The practicability of safely accessing and making good these areas, or installing the insulation through the inner leaf, may outweigh the benefits of insulating these areas. In such situations, the assessor should explain that heat loss through uninsulated areas will not be reduced and they will also be subject to a slightly higher risk of condensation. The assessor, therefore should, obtain written consent for omitting any areas of the wall from the party commissioning the work.

Technical Investigations

16 Tests

Tests were carried out on InstaFibre Yellow Wool Cavity Wall Insulation to determine:

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

17 Investigations

17.1 An examination was made of the data on which a similar Certificate was based. The conclusions drawn from the original data remain valid.

17.2 Regular site inspections have been carried out by the BBA during the life of the previous Certificate.

Bibliography

- BS 476-4 : 1970 *Fire tests on building materials and structures — Non-combustibility test for materials*
- BS 5250 : 2002 *Code of practice for control of condensation in buildings*
- BS 5628-3 : 2005 *Code of practice for the use of masonry — Materials and components, design and workmanship*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS EN 1996-1-1 : 2005 *Eurocode 6 : Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- BS EN 1996-1-2 : 2005 *Eurocode 6 : Design of masonry structures — General rules — Structural fire design*
- BS EN 1996-2 : 2006 *Eurocode 6 : Design of masonry structures — Design considerations, selection of materials and execution of masonry*
- BS EN 1996-3 : 2006 *Eurocode 6 : Design of masonry structures : Simplified calculation methods for unreinforced masonry structures*
- BS EN ISO 6946 : 1997 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*

18 Conditions

18.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is granted only to the company, firm or person named on the front page — no other company, firm or person may hold or claim any entitlement to this Certificate
- is valid only within the UK
- has to be read, considered and used as a whole document — it may be misleading and will be incomplete to be selective
- is copyright of the BBA
- is subject to English law.

18.2 Publications and documents referred to in this Certificate are those that the BBA deems to be relevant at the date of issue or re-issue of this Certificate and include any: Act of Parliament; Statutory Instrument; Directive; Regulation; British, European or International Standard; Code of Practice; manufacturers' instructions; or any other publication or document similar or related to the aforementioned.

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

- are maintained at or above the levels which have been assessed and found to be satisfactory by the BBA
- continue to be checked as and when deemed appropriate by the BBA under arrangements that it will determine
- are reviewed by the BBA as and when it considers appropriate.

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

- the presence or absence of any patent, intellectual property or similar rights subsisting in the product/system or any other product/system
- the right of the Certificate holder to manufacture, supply, install, maintain or market the product/system
- individual installations of the product/system, including the nature, design, methods and workmanship of or related to the installation
- the actual works in which the product/system is installed, used and maintained, including the nature, design, methods and workmanship of such works.

18.5 Any information relating to the manufacture, supply, installation, use and maintenance of this product/system which is contained or referred to in this Certificate is the minimum required to be met when the product/system is manufactured, supplied, installed, used and maintained. It does not purport in any way to restate the requirements of the Health & Safety at Work etc Act 1974, or of any other statutory, common law or other duty which may exist at the date of this Certificate; nor is conformity with such information to be taken as satisfying the requirements of the 1974 Act or of any statutory, common law or other duty of care. In granting this Certificate, the BBA does not accept responsibility to any person or body for any loss or damage, including personal injury, arising as a direct or indirect result of the manufacture, supply, installation, use and maintenance of this product/system.

