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Agrément Certificate

88/2033

Product Sheet 1

SUPAFIL CAVITY WALL INSULATION

KNAUF INSULATION SUPAFIL 40

This Agrément Certificate Product Sheet⁽¹⁾ relates to Knauf Insulation Supafil⁽²⁾ 40, a granulated glass mineral wool (MW) fibre material injected in loose form, for use in external cavity walls with masonry inner and outer leaves with nominal cavity widths not less than 50 mm, in new or existing, domestic and non-domestic buildings up to and including 12 metres in height. The product may also be used in buildings over 12 metres in height where a height restriction waiver has been issued by the Certificate holder.

(1) Hereinafter referred to as 'Certificate'.

(2) Supafil is a registered trademark.

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

Thermal performance — the product has a declared thermal conductivity (λ_D) of $0.040 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$ (see section 6).

Water resistance — the product will resist the transfer of water across the cavity (see section 7).

Condensation — the product will contribute to limiting the risk of condensation (see section 8).

Behaviour in relation to fire — the product has a reaction to fire classification of A1 in accordance with BS EN 13501-1 : 2018 (see section 9).

Durability — the product is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building (see section 11).



The BBA has awarded this 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

Date of Fourth issue: 26 July 2021

Originally certificated on 14 September 1988

Hardy Giesler
Chief Executive Officer

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 MUST check the validity and latest issue number of this Agrément Certificate by either referring to the BBA website or contacting the BBA directly.*

Any photographs are for illustrative purposes only, do not constitute advice and should not be relied upon.

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Regulations

In the opinion of the BBA, Knauf Insulation Supafil 40, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements of the following Building Regulations (the presence of a UK map indicates that the subject is related to the Building Regulations in the region or regions of the UK depicted):



The Building Regulations 2010 (England and Wales) (as amended)

Requirement:	B4(1)	External fire spread (structure)
Comment:		The product is unrestricted by this Requirement. See section 9.1 of this Certificate.
Requirement:	C2(a)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 7.1 of this Certificate.
Requirement:	C2(b)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See section 7.2 of this Certificate.
Requirement:	C2(c)	Resistance to moisture
Comment:		The product can contribute to satisfying this Requirement. See sections 8.1 to 8.3 of this Certificate.
Requirement:	L1(a)(i)	Conservation of fuel and power
Comment:		The product can contribute to satisfying this Requirement. See sections 6.1 and 6.3 of this Certificate.
Regulation:	7(1)	Materials and workmanship
Comment:		The product is an acceptable material. See section 11.1 and the <i>Installation</i> part of this Certificate.
Regulation:	7(2)	Materials and workmanship
Comment:		The product is unrestricted by this Regulation. See section 9.1 of this Certificate.
Regulation:	26	CO₂ emission rate for new buildings
Regulation:	26A	Fabric energy efficiency for new dwellings (applicable to England only)
Regulation:	26A	Primary energy consumption rates for new buildings (applicable to Wales only)
Regulation:	26B	Fabric performance values for new dwellings (applicable to Wales only)
Comment:		The product can contribute to satisfying these Regulations. See sections 6.1 and 6.3 of this Certificate.



The Building (Scotland) Regulations 2004 (as amended)

Regulation:	8(1)	Durability, workmanship and fitness of materials
Comment:		The product can contribute to satisfying this Regulation. See section 11.1 and the <i>Installation</i> part of this Certificate.
Regulation:	9	Building standards applicable to construction
Standard:	2.6	Spread to neighbouring buildings
Comment:		The product is unrestricted by this Standard, with reference to clauses 2.6.5 ⁽¹⁾ and 2.6.6 ⁽²⁾ . See section 9.1 of this Certificate.
Standard:	3.4	Moisture from the ground
Comment:		The product can contribute to satisfying this Standard, with reference to clause 3.4.1 ⁽¹⁾⁽²⁾ . See section 7.1 of this Certificate.

Standard: Comment:	3.10	Precipitation The product can contribute to satisfying this Standard, with reference to clause 3.10.1 ⁽¹⁾⁽²⁾ , provided it complies with the conditions set out in section 7.2 of this Certificate.
Standard: Comment:	3.15	Condensation The product can 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 8.1, 8.2 and 8.4 of this Certificate.
Standard: Comment:	6.1(b)	Carbon dioxide emissions The product can contribute to satisfying this Standard, with reference to clauses, or parts of 6.1.1 ⁽¹⁾ , 6.1.2 ⁽²⁾ , 6.1.6 ⁽¹⁾ and 6.1.8 ⁽²⁾ . See section 6.1 of this Certificate.
Standard Comment:	6.2	Building insulation envelope This product can contribute to satisfying these Standards, with reference to clauses, or parts of 6.2.1 ⁽¹⁾⁽²⁾ , 6.2.3 ⁽¹⁾ , 6.2.4 ⁽²⁾ , 6.2.5 ⁽²⁾ , 6.2.6 ⁽¹⁾ , 6.2.7 ⁽¹⁾ , 6.2.8 ⁽²⁾ , 6.2.9 ⁽¹⁾⁽²⁾ , 6.2.10 ⁽¹⁾ , 6.2.11 ⁽¹⁾⁽²⁾ , 6.2.12 ⁽²⁾ and 6.2.13 ⁽¹⁾⁽²⁾ . See sections 6.1 and 6.3 of this Certificate.
Standard: Comment:	7.1(a)(b)	Statement of sustainability The product can contribute to satisfying the relevant requirements of Regulation 9, Standards 1 to 6, and therefore will contribute to a construction meeting a bronze level of sustainability as defined in this Standard. In addition, the product can contribute to a construction meeting a higher level of sustainability as defined in this Standard, with reference to clauses 7.1.4 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾], 7.1.6 ⁽¹⁾⁽²⁾ [Aspects 1 ⁽¹⁾⁽²⁾ and 2 ⁽¹⁾] and 7.1.7 ⁽¹⁾⁽²⁾ [Aspect 1 ⁽¹⁾⁽²⁾]. See section 6.1 of this Certificate.
Regulation: Comment:	12	Building standards applicable to conversions Comments in relation to the product under Regulation 9, Standards 1 to 6, also apply to this Regulation, with reference to clause 0.12.1 ⁽¹⁾⁽²⁾ and Schedule 6 ⁽¹⁾⁽²⁾ .
		(1) Technical Handbook (Domestic). (2) Technical Handbook (Non-Domestic).



The Building Regulations (Northern Ireland) 2012 (as amended)

Regulation: Comment:	23	Fitness of materials and workmanship The product is an acceptable material. See section 11.1 and the <i>Installation</i> part of this Certificate.
Regulation: Comment:	28(a)	Resistance to moisture and weather The product can contribute to satisfying this Regulation. See section 7.1 of this Certificate.
Regulation: Comment:	28(b)	Resistance to moisture and weather The product can contribute to satisfying this Regulation. See section 7.2 of this Certificate.
Regulation: Comment:	29	Condensation The product can contribute to satisfying this Regulation. See sections 8.1 and 8.2 of this Certificate.
Regulation: Comment:	36(a)	External fire spread The product is unrestricted by this Regulation. See section 9.1 of this Certificate.
Regulation: Comment:	39(a)(i)	Conservation measures The product can contribute to satisfying this Regulation. See sections 6.1 and 6.3 of this Certificate.
Regulation: Comment:	40(2)	Target carbon dioxide emission rate The product can contribute to satisfying this Regulation. See sections 6.1 and 6.3 of this Certificate.

Construction (Design and Management) Regulations 2015 Construction (Design and Management) Regulations (Northern Ireland) 2016

Information in this Certificate may assist the client, designer (including Principal Designer) and contractor (including Principal Contractor) to address their obligations under these Regulations.

See section: *3 Delivery and site handling (3.1) of this Certificate.*

Additional Information

NHBC Standards 2021

In the opinion of the BBA, other than in very severe exposure locations with fair-faced masonry, Knauf Insulation Supafil 40, if installed, used and maintained in accordance with this Certificate, can satisfy or contribute to satisfying the relevant requirements in relation to *NHBC Standards*, Chapter 6.1 *External masonry walls*.

CE marking

The Certificate holder has taken the responsibility of CE marking the product in accordance with harmonised European Standard BS EN 14064-1 : 2010.

Technical Specification

1 Description

1.1 Knauf Insulation Supafil 40 is a granulated glass mineral wool fibre material, treated with a water-repellent additive.

1.2 The target mean density of the product when installed is $18 \text{ kg}\cdot\text{m}^{-3}$ over the entire installation. Individual areas within the wall must not have an absolute density variation of more than $\pm 5 \text{ kg}\cdot\text{m}^{-3}$ from the target mean density when measured over an area of 0.5 m^2 .

2 Manufacture

2.1 Molten glass is spun into fibres through holes in rotating dishes. Silicone oil is applied to the fibres from spray nozzles.

2.2 As part of the assessment and ongoing surveillance of product quality, the BBA has:

- agreed with the manufacturer the quality control procedures and product testing to be undertaken
- assessed and agreed the quality control operated over batches of incoming materials
- monitored the production process and verified that it is in accordance with the documented process
- evaluated the process for management of nonconformities
- checked that equipment has been properly tested and calibrated
- undertaken to carry out the above measures on a regular basis through a surveillance process, to verify that the specifications and quality control being operated by the manufacturer are being maintained.

2.3 The management system of the manufacturer has been assessed and registered as meeting the requirements of ISO 9001 : 2015, ISO 14001 : 2015, DIN ISO 45001 : 2018 and ISO 50001 : 2011 by TUV NORD Cert GmbH (Certificates 44 100 190742, 44 104 190742, 44 126 190742 and 44 764 190742 respectively).

3 Delivery and site handling

3.1 The product is delivered to site in polythene-wrapped bales weighing approximately 17.6 kg, which should not be opened until required for use. The bales are marked with the BBA logo incorporating the number of this Certificate.

3.2 It is essential that the product is stored off the ground, inside or under cover on a dry, level surface and protected from rain, snow, and other sources of dampness. Nothing should be stored on top of the product.

3.3 Damaged, contaminated, or wet materials must not be used.

Assessment and Technical Investigations

The following is a summary of the assessment and technical investigations carried out on Knauf Insulation Supafil 40.

Design Considerations

4 Use

4.1 Knauf Insulation Supafil 40 is satisfactory for use as an injected cavity wall insulation and 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, and natural and reconstituted stone blocks). Where natural stone is used, it should be dressed so that the cavity formed is uniform and both faces are parallel. The product is for use in new or existing domestic and non-domestic buildings up to and including 12 m in height, with cavity widths not less than 50 mm. It is essential that such walls are designed and constructed to incorporate the precautions given in this Certificate to prevent moisture penetration.

4.2 This Certificate covers the use of the product in the following hard-to-treat (HTT) application: a building in excess of three storeys (see section 18).

4.3 This Certificate covers the use of the product in any exposure zone, subject to the following conditions being satisfied. They are particularly important in areas subject to severe or very severe driving rain:

- a site survey should be carried out prior to installation (see sections 12 and 13)
- the minimum cavity width must be no less than 50 mm
- walls must be in a good state of repair and show no evidence of frost damage
- mortar joints must not show evidence of more than hairline cracking. Raked or recessed mortar joints should be avoided in very severe exposure areas.

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

Partial filling — omitted areas

4.5 Whenever practicable, all of the cavity space from ground level to the roof or gable copings should be filled, except when:

- separately insulating semi-detached or terraced properties. The cavity barrier used for this purpose is retained in the cavity and must be as defined in section 16.3
- filling 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
- 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)
- treating areas of wall where access for drilling may be limited by features such as carports and conservatories, as defined in sections 17.6 and 17.7.

Existing buildings

4.6 In an existing building, the product may be installed where:

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

New buildings

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

- BS 8000-3 : 2001
- BS EN 1996-1-1 : 2005 and its UK National Annex
- BS EN 1996-1-2 : 2005 and its UK National Annex
- BS EN 1996-2 : 2006 and its UK National Annex
- BS EN 1996-3 : 2006 and its UK National Annex.

4.8 New buildings not subject to regulatory requirements should also be built in accordance with the Standards identified in section 4.7.

4.9 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 must be left until the cavity is sealed from the weather, ie the roof is in place and the window and door openings are sealed.

5 Practicability of installation

The product must be installed by operatives trained and approved by the Certificate holder and subsequently approved by the BBA. The Certificate holder operates an Approved Installer Scheme⁽¹⁾ for the product under which the installers are approved, registered and regularly reviewed by the Certificate holder to demonstrate that they are competent to carry out installations of the product in accordance with this Certificate. Details of Approved Installers are available from the Certificate holder. Approved Installers are responsible for each installation of the product that they undertake (see section 14).

(1) The Certificate holder's records relating to the Approved Installer Scheme will be audited annually by the BBA as part of its programme of surveillance.

6 Thermal performance



6.1 Calculations of the thermal transmittance (U value) should be carried out in accordance with BS EN ISO 6946 : 2017 and BRE Report BR 443 : 2019, using the insulation's declared thermal conductivity value (λ_D) of $0.040 \text{ W}\cdot\text{m}^{-1}\cdot\text{K}^{-1}$.

6.2 Where an existing wall is subject to national Building Regulations (for example, to a material change of use) designers should take account of the relevant guidance to technical and economic feasibility and target U values, in the documents supporting those Regulations.



6.3 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. Calculated U values for example constructions are given in Table 1 for existing buildings and Table 2 for new buildings.

Table 1 Example cavity wall U values — Existing/retained walls

Cavity width/insulation thickness (mm)	U value requirement (W·m ⁻² ·K ⁻¹) ⁽¹⁾	
	13 mm dense plaster ⁽²⁾	Plasterboard on dabs ⁽⁴⁾
	100 mm dense block ⁽³⁾	100 mm AAC block ⁽⁵⁾
50	0.60	0.42
75	0.44	0.33
100	0.34	0.27
125	0.28	0.23

(1) 102.5 mm thick brick outer leaf with 17.3% mortar (0.88 W·m⁻¹·K⁻¹) and fixings correction for fully penetrating mild steel (50 W·m⁻¹·K⁻¹) double-triangle ties (12.5 mm²) at 2.5 per m² bridging the insulation.

(2) 13 mm dense plaster with a thermal conductivity of 0.57 W·m⁻¹·K⁻¹.

(3) 100 mm dense block with a thermal conductivity of 1.13 W·m⁻¹·K⁻¹ and 6.7% mortar at 0.88 W·m⁻¹·K⁻¹.

(4) 12.5 mm plasterboard with a thermal conductivity of 0.25 W·m⁻¹·K⁻¹.

(5) 100 mm AAC block with a thermal conductivity of 0.12 W·m⁻¹·K⁻¹ and 6.7% mortar at 0.88 W·m⁻¹·K⁻¹.

Table 2 Example cavity wall U values⁽¹⁾ — new buildings

U value requirement (W·m ⁻² ·K ⁻¹)	Insulation thickness (mm)	
	13 mm dense plaster ⁽²⁾	Plasterboard on dabs ⁽⁴⁾
	100 mm dense block ⁽³⁾	100 mm AAC block ⁽⁵⁾
0.19	190	160
0.25	145	115
0.26	135	105
0.27	130	100
0.30	115	85
0.35	100	70

(1) 102.5 mm thick brick outer leaf with 17.3% mortar (0.88 W·m⁻¹·K⁻¹) and fixings correction for fully penetrating mild steel (17 W·m⁻¹·K⁻¹) double-triangle ties (12.5 mm²) at 2.5 per m² bridging the insulation.

(2) 13 mm dense plaster with a thermal conductivity of 0.57 W·m⁻¹·K⁻¹.

(3) 100 mm dense block with a thermal conductivity of 1.13 W·m⁻¹·K⁻¹ and 6.7% mortar at 0.88 W·m⁻¹·K⁻¹.

(4) 12.5 mm plasterboard with a thermal conductivity of 0.25 W·m⁻¹·K⁻¹.

(5) 100 mm AAC block with a thermal conductivity of 0.12 W·m⁻¹·K⁻¹ and 6.7% mortar at 0.88 W·m⁻¹·K⁻¹.

Junctions

6.4 Care must be taken in the overall design and construction of junctions with other elements and openings to minimise thermal bridges and air infiltration. Detailed guidance can be found in the documents supporting the national Building Regulations. Advice can also be sought from the Certificate holder.

7 Water resistance



7.1 The product can be used in situations where it bridges the damp-proof course (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.

7.2 When the product is properly installed in accordance with this Certificate, it will resist any water transfer across the cavity to the inner leaf.

8 Condensation

Interstitial condensation



8.1 Walls will limit the risk of interstitial condensation adequately when they are designed and constructed in accordance with BS 5250 : 2011, Annexes D and G, and the relevant guidance.

8.2 For the purpose of calculations, the water vapour diffusion resistance factor (μ) of Knauf Insulation Supafil 40 may be taken as 1.

Surface condensation



8.3 Walls will adequately limit the risk of surface condensation when the thermal transmittance (U value) does not exceed $0.7 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point and the junctions with other elements are designed in accordance with the guidance referred to in section 6.4.



8.4 For buildings in Scotland, constructions will be acceptable where the thermal transmittance (U value) does not exceed $1.2 \text{ W}\cdot\text{m}^{-2}\cdot\text{K}^{-1}$ at any point, and the junctions with other elements are designed in accordance with the guidance referred to in BS 5250 : 2011, Annex G. Further guidance may be obtained from BRE Report BR 262 : 2002 and section 6.4 of this Certificate.

9 Behaviour in relation to fire



9.1 The product is classified as A1⁽¹⁾ in accordance with BS EN 13501-1 : 2018.

(1) Exova. Report reference N971880. 18 October 2017. Copies of this report can be requested from the Certificate holder.

9.2 Designers should refer to the relevant national Building Regulations and guidance for detailed conditions of use, particularly in respect of requirements for substrate fire performance, cavity closers and barriers, fire stopping of service penetrations and combustibility limitations for other materials and components used in the overall wall construction.

10 Maintenance

As the product is confined within the wall cavity and has suitable durability (see section 11), maintenance is not required.

11 Durability



11.1 The product is durable, rot proof, water resistant and sufficiently stable to remain effective as insulation for the life of the building.

11.2 Should it become necessary for any reason; the product can be evacuated from the cavity void.

Installation

12 Site assessment

12.1 Prior to installation, an assessment must be carried out by a trained assessor, who may also be the installing technician, to ascertain the suitability of the property or properties to receive Knauf Insulation Supafil 40. An assessment report is prepared and held at the installer's offices. Problems must be specifically identified and any reasons for rejection of the work noted. Care should be taken at this stage for the assessor and the party commissioning the work to identify and agree in writing, as appropriate, any areas of the wall that will not be filled (see sections 17.6 and 17.7) and any special requirements for making good (see section 17.4).

12.2 Assessment of HTT properties must be carried out by an assessor trained, approved, and monitored by the Certificate holder for this specific purpose.

13 Site preparation

13.1 The installing operative must ensure that the property has been correctly assessed and is suitable for insulation with the product. Any problems encountered during installation which prevent compliance with this Certificate must be referred to the installation company before proceeding.

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

13.3 Wherever practicably possible, all uncapped cavity walls must be sealed prior to installation (for example, with plugs of mineral fibre insulation).

14 Approved Installers

Installation of the product must be carried out by the Certificate holder or their approved installers. An Approved Installer is defined as a company:

- required to satisfy an initial site installation check by the BBA following approval by the Certificate holder and 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
- having undertaken to comply with the Certificate holder's installation procedure
- employing technicians 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 inspections by the Certificate holder who oversees the activities of Approved Installers operating under the BBA Surveillance Scheme for Cavity Wall Insulation. It is a requirement that the Certificate holder undertakes inspections of each card-carrying technician using their product, and maintains records, as detailed in the *BBA Assessment and Surveillance Scheme for Approved Installers of Cavity Wall Insulation*.

15 Supervision

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

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

- that the pattern of holes complies with the description given in section 17.1
- that injection of the material takes place at each hole, to complete the filling of the cavity space.

16 General

16.1 Installation of the product is undertaken using blowing machines, tested, and accepted for use with the product by the BBA.

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

16.3 Where a semi-detached or terraced property is to be insulated, a cavity brush is inserted at the line dividing the properties to contain the insulation. This consists of a continuous nylon brush, which is left in place when the installation is completed.

16.4 To prevent debris falling into the insulation, installation should not start until the drilling has been completed on each elevation and affected areas of adjacent elevations, as the insulation travels around corners.

17 Procedure

17.1 Holes of 22 or 25 mm in diameter to suit the diameter of the injection nozzle used (see section 17.3) are drilled in a diamond pattern at approximately 1.35 m centres. The topmost injection holes should not be more than 350 mm below the top of the cavity and not more than 1.0 m apart. The bottom row of holes should start approximately 800 mm above dpc level. Additional holes may be required to ensure complete filling around building features, eg under window sills around air bricks in column areas between doors and windows, at the tops of walls and under gables. Again, the topmost holes should not be more than 1.0 m apart under the horizontal boundaries and 1.35 m apart under the sloping boundary at the top of the gable end (see Figures 1 and 2).

Figure 1 Typical drilling pattern – frontage

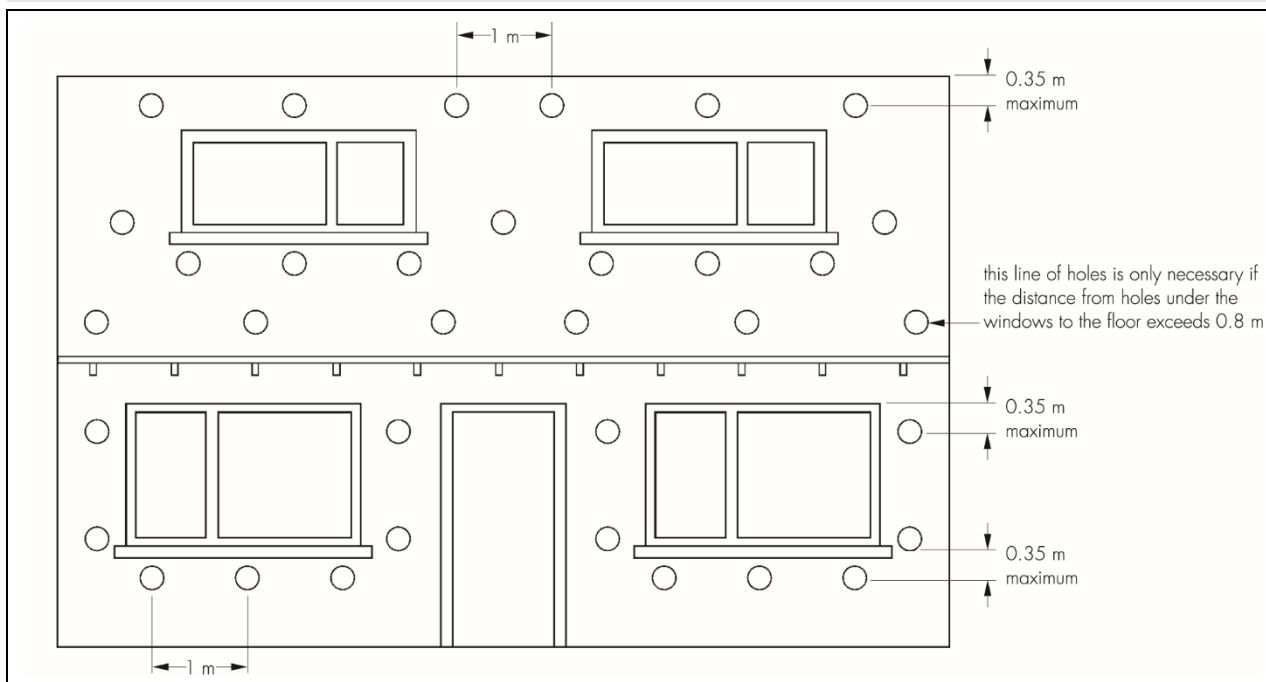
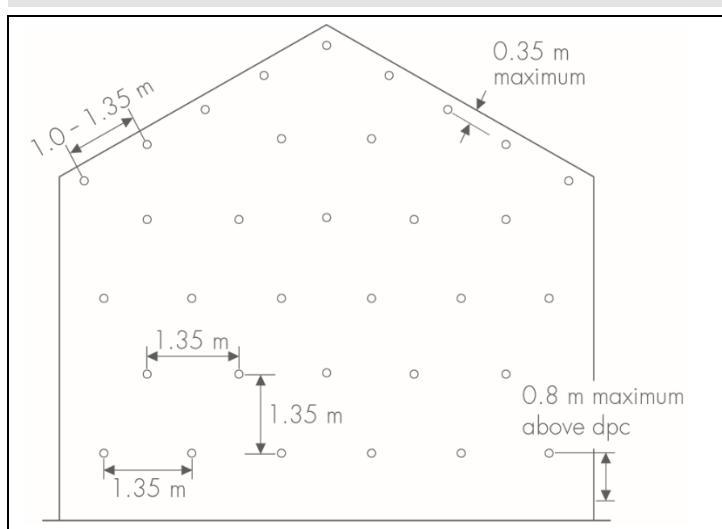


Figure 2 Typical drilling pattern – plain gable end



17.2 To prevent debris falling onto the insulation, filling the cavity should not start until one elevation and at least 2 m of the adjoining elevations are drilled out. The adjoining elevation is filled only after completing the drilling.

17.3 The product is blown into the cavity under pressure through 22 or 25 mm clearance holes via a flexible pipe fitted with either a 22 or 25 mm outside diameter injection nozzle, depending on the type of machine used. Filling proceeds from the bottom to the top of the walls and from one end of an elevation to the other.

Finishing

17.4 After injection, the drill holes are fully filled with mortar of a similar type, colour, texture and weathertightness to that of 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 trunked air vents, eg those providing underfloor ventilation and combustion air for heating appliances, are checked – any obstructions must be cleared. All flues must be carefully checked by an appropriate test (eg a smoke test) to verify that they are clear and unobstructed.

17.5 Insulant blown through the top of the cavity into the loft space is removed and any points of leakage sealed (see section 13.3).

Omitted areas

17.6 In some circumstances access for drilling injection holes and filling with insulation may be limited by features such as carports, 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.

17.7 It is permissible to omit such areas only when:

- a full justification detailing the reasons to omit areas is included in the survey report
- the assessor obtains written consent for omitting any areas of the wall from the party commissioning the work. The assessor must inform the commissioning party in writing that 'heat loss' through uninsulated areas will not be reduced, and that they will also be subject to a slightly higher risk of condensation.

18 Height restriction waivers

18.1 Knauf Insulation Supafil 40 is for use in domestic and non-domestic buildings up to and including 12 m in height. The product may also be used in buildings over 12 m in height where a height restriction waiver has been issued by the Certificate holder.

18.2 The Certificate holder has a detailed programme for the assessment of buildings over 12 m, as approved and maintained under surveillance by the BBA. Each installation beyond 12 m must be individually assessed by the Certificate holder against this agreed assessment programme, and documented approval given prior to the commencement of work.

Technical Investigations

19 Tests

Results of tests were assessed to determine:

- resistance to rain penetration of an insulated cavity wall
- adequacy of fill using specified installation machinery and drilling pattern
- thermal conductivity
- characterisation of the product
- short term water absorption.

20 Investigations

20.1 Existing data on durability and properties in relation to fire were evaluated.

20.2 The Certificate holder's training arrangements were evaluated.

20.3 An assessment of the practicability of installation was carried out.

20.4 A calculation was undertaken to confirm the thermal conductivity (λ_D value).

20.5 A condensation risk analysis was carried out.

20.6 A series of U value calculations was carried out.

20.7 The manufacturing process was examined, including the methods adopted for quality control, and details were obtained of the quality and composition of the materials used.

Bibliography

- BRE Report BR 262 : 2002 *Thermal insulation: avoiding risks*
- BRE Report BR 443 : 2019 *Conventions for U-value calculations*
- BS 5250 : 2011 + A1 : 2016 *Code of practice for control of condensation in buildings*
- BS 8000-3 : 2001 *Workmanship on building sites — Code of practice for masonry*
- BS EN 1996-1-1 : 2005 + A1 : 2012 *Eurocode 6: Design of masonry structures — General rules for reinforced and unreinforced masonry structures*
- NA to BS EN 1996-1-1 : 2005 + A1 : 2012 *UK National Annex to 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*
- NA to BS EN 1996-1-2 : 2005 *UK National Annex to 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*
- NA to BS EN 1996-2 : 2006 *UK National Annex to 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*
- NA to BS EN 1996-3 : 2006 *UK National Annex to Eurocode 6: Design of masonry structures — Simplified calculation methods for unreinforced masonry structures*
- BS EN 13501-1 : 2018 *Fire classification of construction products and building elements - Classification using data from reaction to fire tests*
- BS EN 14064-1 : 2010 *Thermal insulation products for buildings — In-situ formed loose-fill mineral wool (MW) products — Specification for the loose-fill products before insulation*
- BS EN ISO 6946 : 2017 *Building components and building elements — Thermal resistance and thermal transmittance — Calculation method*
- DIN ISO 45001 : 2018 *Occupational health and safety management systems — Requirements with guidance for use*
- ISO 9001 : 2015 *Quality management systems — Requirements*
- ISO 14001 : 2015 *Environmental management systems — Requirements with guidance for use*
- ISO 50001 : 2011 *Energy management systems — Requirements with guidance for use*

21 Conditions

21.1 This Certificate:

- relates only to the product/system that is named and described on the front page
- is issued only to the company, firm, organisation or person named on the front page – no other company, firm, organisation or person may hold or claim that this Certificate has been issued to them
- 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.

21.2 Publications, documents, specifications, legislation, regulations, standards and the like referenced in this Certificate are those that were current and/or deemed relevant by the BBA at the date of issue or reissue of this Certificate.

21.3 This Certificate will remain valid for an unlimited period provided that the product/system and its manufacture and/or fabrication, including all related and relevant parts and 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.

21.4 The BBA has used due skill, care and diligence in preparing this Certificate, but no warranty is provided.

21.5 In issuing this Certificate the BBA is not responsible and is excluded from any liability to any company, firm, organisation or person, for any matters arising directly or indirectly from:

- 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
- actual installations of the product/system, including their nature, design, methods, performance, workmanship and maintenance
- any works and constructions in which the product/system is installed, including their nature, design, methods, performance, workmanship and maintenance
- any loss or damage, including personal injury, howsoever caused by the product/system, including its manufacture, supply, installation, use, maintenance and removal
- any claims by the manufacturer relating to CE marking.

21.6 Any information relating to the manufacture, supply, installation, use, maintenance and removal 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, maintained and removed. It does not purport in any way to restate the requirements of the Health and Safety at Work etc. Act 1974, or of any other statutory, common law or other duty which may exist at the date of issue or reissue 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.