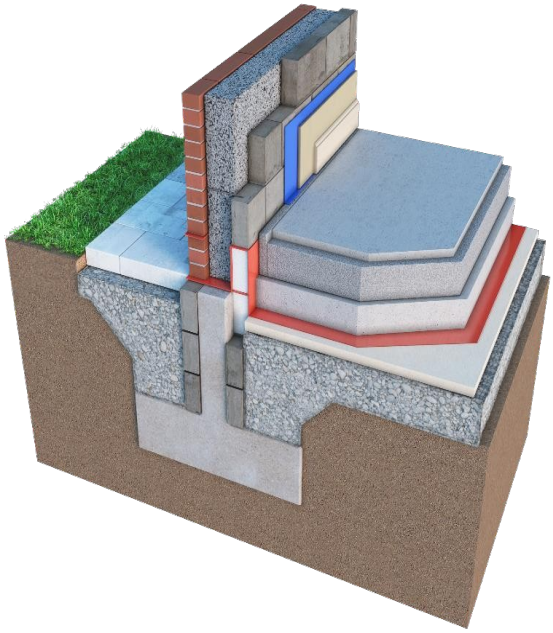
IRISH AGRÉMENT BOARD
CERTIFICATE NO. 07/0293
KORE Insulation.
Kilnaleck, Co. Cavan.
Tel: +353 494336998
Fax: + 353 494336823
Email: info@koresystem.com
Website: www.kore-system.com

KOREFILL Cavity Wall Insulation System

NSAI Agrément (Irish Agrément Board) is designated by Government to carry out European Technical Assessments.

NSAI Agrément Certificates establish proof that the certified product is a **'proper materials'** suitable for their intended use under Irish site conditions, and in accordance with the **Building Regulations 1997 to 2019**.



PRODUCT DESCRIPTION

This Certificate relates to the KOREFILL Cavity Wall Insulation System.

KOREFILL Cavity Wall Insulation is an expanded polystyrene material which is injected in bead form with a binding agent into masonry cavity walls.

In the opinion of NSAI, the KOREFILL Cavity Wall Insulation System, as described in this Certificate, complies with the requirements of the Building Regulations 1997 to 2019.

USE

The product is used for the thermal insulation of new or existing cavity walls up to 12 meters in height, where both leaves are constructed of either masonry or concrete or a combination thereof, subject to the conditions contained in Part 3 of this Certificate. It also facilitates the control of surface and interstitial condensation in walls.

The product is approved for both full fill or partial fill situations when a residual cavity width of 40mm or greater exists subject to the conditions identified in Cl. 2.4.4 of this certificate.

MANUFACTURE AND MARKETING

The product is manufactured and marketed by:
KORE Insulation,
Kilnaleck, Co.
Cavan.
Eircode A82T291
Tel: 049 4336998
Fax: 049 4336823
Email: info@koresystem.com
Website: www.kore-system.com

1.1 ASSESSMENT

In the opinion of NSAI Agrément, KOREFILL Cavity Wall Insulation if used in accordance with this certificate, can meet or contribute to meeting the requirements of the Irish Building Regulations 1997 to 2019 as indicated in Clause 1.2 of this Agrément Certificate.

1.2 BUILDING REGULATIONS 1997 to 2019

REQUIREMENT:

Part B – Fire Safety B3 & B8 – Internal fire spread (Structure)
When used in accordance with this certificate, the KOREFILL Cavity Wall Insulation System can meet the relevant requirements of TGD Part B3 and B8.

Part C – Site Preparation and Resistance to Moisture C4 – Resistance to Weather and Ground Moisture
The KOREFILL Cavity Wall Insulation System can meet the relevant requirements of TGD Part C4, when installed in accordance with this Certificate.

Part D - Materials and Workmanship
D1 KOREFILL Cavity Wall Insulation used in accordance with this NSAI Agrément Certificate can meet the requirements of TGD Part D1.

D3 – KOREFILL Cavity Wall Insulation, as certified in this NSAI/Agrément Certificate, is manufactured from materials which are 'proper materials' fit for their intended use (see Part 4 of this Certificate).

Part F – Ventilation F1 – Means of ventilation
The systems as certified can be incorporated into structures that will meet the requirements of this Regulation. See Clause 2.4.2 (Site Preparation) of this Certificate.

Part J – Heat Producing Appliances J3 – Protection of Building
In the opinion of NSAI Agrément, KOREFILL Cavity Wall Insulation if used in accordance with this Certificate can meet the requirements of TGD to Part J of the Building Regulations 1997 to 2019.

Part L – Conservation of Fuel and Energy
L1 – Conservation of Fuel and Energy Walls using KOREFILL Cavity Wall Insulation systems can meet or contribute to meeting the current U-value requirements in Full Fill Cavity Wall Insulation applications depending on the cavity width (see Table 1 and Clause 4.4 of this Certificate).

2.1 PRODUCT DESCRIPTION

KOREFILL Cavity Wall Insulation consists of an expanded polystyrene material injected in bead form with a bonding agent. The bonding agent is used to provide long-term stability to the insulant.

The polystyrene bead is delivered in a container and can be installed using a compressed air delivery system.

The Thermal conductivity ($\lambda_{90/90}$) of the KOREFILL Original Cavity Wall Insulation system has been measured at 0.035 W/(mK), for the Synthos 800FG/F or BASF F2300 beads and 0.033 W/(mK) for the KOREFILL Diamond, BASF F5200 bead.

These values are based on a target bead density on not less than of 12 kg/m^3. Users should be aware when calculating U- Values, that the density of the bead together with the density of the installed product can vary and allowance should be made for these variations when calculating U Values. Installers should provide records of bead density used together with volume of bead used in each installation in order to more accurately determine actual U Values.

2.2 MANUFACTURE

The KOREFILL Original bead is expanded from Synthos 800FG/F or BASF F2300 bead with a manufactured minimum dry bead density of 11.5 kg/m^3 (colour: silver/grey, shape: round). KOREFILL Diamond bead, is expanded from BASF F5200 bead with a manufactured minimum dry bead density of 11.5 kg/m^3 (colour: dark grey, shape: oval).

The certificate holder offers two approved bonding agents, both manufactured and distributed by Dunwood Polymers:

- EMUPOL 6650, for use with the Synthos 800FG/F or BASF F2300 bead only.
- EMUPOL SAC 5700-07, for use with the Synthos 800FG/F, BASF F2300 or BASF P5200 beads.

2.3 DELIVERY, STORAGE AND MARKING

The KOREFILL Cavity Wall Insulation System is delivered to site in a bulk container. The relevant delivery paperwork is marked with the NSAI Agrément identification mark incorporating the number of this Certificate and a unique batch number. The bead material, which has an indefinite storage life, should be kept dry.

Both adhesives are delivered in their ready to use condition (no diluting or additives required) in a container which is labelled with the makers name, the product code, batch code, Shelf Life or Useby date together with the name KORE Insulation and incorporating the number of this Certificate.

They must not be allowed to freeze and should be handled in accordance with the data sheet as outlined in the Airpacks Ltd KOREFILL Installation Manual.

2.4 INSTALLATION PROCEDURE

2.4.1 Site Survey

A survey, as defined in Appendix A of the NSAI Agrément Assessment & Surveillance Scheme for Cavity Wall Insulation (CWI), is carried out prior to installation by a trained KOREFILL Cavity Wall Insulation surveyor. The surveyor must carry an identity card issued by KORE Insulation, certifying training and registration.

A complete survey report approving works (including a borescope survey) is prepared before installation and held at the Approved Installer's offices. Particular problems are specifically identified and any reasons for rejection of the work are noted.

Quotations, tenders and invoices shall bear the NSAI Agrément identification mark incorporating the number of this Certificate and the installer's registration number.

2.4.2 Site Preparation

Before commencing work the installing operative ensures that the property has been correctly surveyed and is suitable for insulation with the KOREFILL Cavity Wall Insulation System. Any problems encountered during drilling which may prevent compliance with this Certificate are referred to the Certificate Holder before proceeding.

2.4.2.1 Ventilation

All ventilation openings such as that providing combustion air or under floor ventilation and all flues in the cavity wall are 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.

When installing the Cavity Wall Insulation System, the works to be undertaken must not compromise the existing ventilation provisions in the home.

When these existing ventilation provisions do not meet the requirements of Part F of the Building Regulations, the homeowner should be informed and remedial action should be taken before the cavity wall insulation system is installed.

When retrofitting dwellings for energy efficiency ventilation must be carried out in accordance with SR54[2].

2.4.2.2 Isolation form Electrical Cables The tops of cavity walls must be closed. Cavity filling should not be carried out unless electrical cables are placed in conduits or suitably isolated from the insulation material by cavity brushes or similar method approved by the Certificate Holder.

Due care shall be taken when drilling holes in the masonry wall to prevent contact with electrical cables.

2.4.3 Approved Installers

Installation of the KOREFILL Cavity Wall Insulation System shall be carried out by Airpacks Ltd. or by their Approved Installers who:

1) Are registered with the NSAI Agrément CWI scheme.
2) Are approved by KORE Insulation to install the product.
3) Have undertaken to comply with the KORE Installation Procedure.
4) All technicians and surveyors have been trained and issued with appropriate identity cards by KORE Insulation. All members of each installation team must carry a card verifying this training and registration.
5) Are subject to supervision by KORE Insulation, including unannounced site inspections, in accordance with the NSAI Agrément Assessment/Surveillance Scheme.

2.4.4 Procedure

The details in this certificate should not be considered a definitive set of installation instruction, but an overview of the procedures involved. Should a conflict arise between this certificate and the certificate holder's manuals, this certificate takes precedence.

All requirements of the NSAI CWI Approval Scheme for Installers, including safety related issues, shall be met. The KOREFILL Cavity Wall Insulation System is installed using a compressed air system approved by KORE Insulation and notified to NSAI Agrément.

The installer provides all necessary ladders, restraints, scaffolding, hoses, drilling tools equipment and materials for making good the walls after the installation of the KOREFILL Cavity Wall Insulation System.

Prior to the commencement of the filling operation it is essential that the flow rates of the blown bead and adhesive are checked. This is carried out by filling a hessian bag with dry bead for 60 seconds, the bead is weighed and the weight recorded. Using the bead/flow chart supplied by KORE Insulation, the correct amount of adhesive is applied to the bead to ensure adequate bonding of the product in accordance with the KOREFILL Cavity Wall Insulation Systems Manuals.

Where an existing semi-detached or terraced property is to be insulated, the insulation is contained by inserting a cavity closer brush at the line dividing the properties. After filling, the nylon brush is retained in the cavity and the drill holes filled. The nylon brush can also be used to prevent the blocking of under floor vents with the blown bead where these have not been previously sleeved.

Care should be taken to ensure that drilled holes do not coincide with the intermediate suspended timber floor.

2.4.4.1 New and existing buildings without existing partial fill in cavity. Refer to Clause 3.2 of this certificate for the definition of new and existing building. All defects, such as missing ventilation sleeves or debris in the cavity, must be rectified prior to the installation of the bead.

Holes of 22 mm – 26 mm diameter are drilled in the outer or inner leaf normally spaced approximately 600 – 650 mm horizontally apart and 200 mm above the highest ceiling level. A further series of holes 2.0 m apart is drilled at the middle height of a two-storey building to ensure complete fill of the cavity space.

A similar series of holes is drilled below windows and obstructions. A typical drilling pattern is shown in Figure 2.

In certain cases, holes of 18 mm diameter may be acceptable, subject to the approval of the Certificate holder, where narrow mortar joints prevent the use of the larger diameter drill bits. An additional flow test shall be performed in such instances.

2.4.4.2 New and existing buildings with existing partial fill in cavity

Where partial fill insulation (EPS or foil faced PUR/PIR/PF boards) exists in the property/wall to be filled, additional factors must be examined to determine its suitability.

Each property is subject to two borescope inspections surveys, one performed by the Site Surveyor (on a minimum of two test holes per elevation) and a furthermore detailed survey (on **all** drill holes - See Figure 3) by the installer during the installation phase. The findings of these surveys will determine the suitability of the property to be filled.

A clear minimum remaining cavity width of 40mm must exist if the wall is to be considered suitable for filling. Anomalies may include loose, missing or incorrect positioning (not tight to the inner leaf) of the partial fill insulation.

If anomalies found cannot be rectified, filling of the cavity shall not proceed. Reference shall be made to the Certificate Holders Installation Procedures manual for full details all pre-inspection, rectification and filling requirements of residual fill applications.

filled is less than 50mm.
Details of the borescope inspection surveys shall be recorded on the Site Survey Record Sheet.

In addition, individual U-value calculations are required in residual fill applications with details of calculations (including existing insulation type and thickness) to be recorded on the Site Survey Record Sheet.

Note: The use of KOREFILL Cavity Wall Insulation in cavities where partial filled mineral (glass/rock) wool boards exist, has also been assessed and approved by this Certificate but a remaining (residual) cavity of 50mm must exist. In addition, The KOREFILL Diamond BASF 5200 bead has not be assessed or approved for use in any residual fill

Holes of 22 mm – 26mm diameter are drilled in the outer or inner leaf (using a suitable drill equipped with a depth stop, to avoid damaging the existing partial fill insulation) normally spaced approximately 600 mm horizontally apart and 200 mm above the highest ceiling level. A further series of holes 1.2 m apart is drilled at levels one third and two thirds the height of a two-storey building to ensure complete fill of the cavity space.

applications when the remaining cavity width to be A similar series of holes is drilled below windows and obstructions. A typical drilling pattern is shown in Figure 3. Care should be taken when drilling near to the services supply box, distribution points, wall mounted lights etc. to prevent damage to hidden services runs within the property.

2.4.4.3 Installation details Installation should be carried out in accordance with requirements of the Certificate holder's installation instructions, SR54[2] and the NSAI Agrément Surveillance Scheme document. During installation the following simple checks can be made, as an aid to determining that the installation conforms to the certified method:

1) Check that the pattern of holes complies with the description given in Section 2.4 and Figure 2 or Figure 3 of this Certificate for the type of installation undertaken. Existing vertical and horizontal cavity barriers should be identified, and drilling patterns tailored accordingly.

2) Check that the injection of the material takes place at each hole, to complete the filling of the cavity space.

Certificate Holder for advice.

In the case of work undertaken on an empty cavity or for residual fill applications, additional requirements relating to the survey of the wall to be filled are set out in the KOREFILL Survey and Installation manual.

Where the apex of the gable end wall is to be insulated a series of holes is drilled along the line of the eaves approximately 600 – 650 mm apart and 200mm below the soffit line and also below any window in the gable similar to that described for other windows.

In some circumstances, access for drilling injection holes and filling with insulation may be limited by features and obstructions such as garages, carports, cladding or conservatories. Refer to the

After completion of the cavity assessment and drilling plan for the building, preparation for injection into the cavity is as follows:

The product is injected into the cavity (having determined the correct bead/bonding agent ratio by test) through a flexible pipe fitted with a nondirectional nozzle. The material packs to a uniform density in the cavity. Holes beneath ground-floor windows are

injected first and filling then continues upwards until a complete fill has been achieved. The injection nozzle should not be inserted beyond the inner face of the external leaf.

After injection, the wall is made good to match the existing finish as closely as possible using mortar or similar waterproofing mix. All trunked air vents are checked, e.g. those providing underfloor ventilation and combustion air for heating appliances.

In all cases flues are carefully checked before and after the installation by means of an appropriate test (e.g. a smoke test) to ensure they are not obstructed by the insulant and the result recorded on the installers Technicians Safety Check Sheet which is then filed with the job records.

Any insulant that has been blown through the top of the cavity into the loft space is removed and any points of leakage sealed.

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Figure 1
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Figure 2 - Typical KOREFILL

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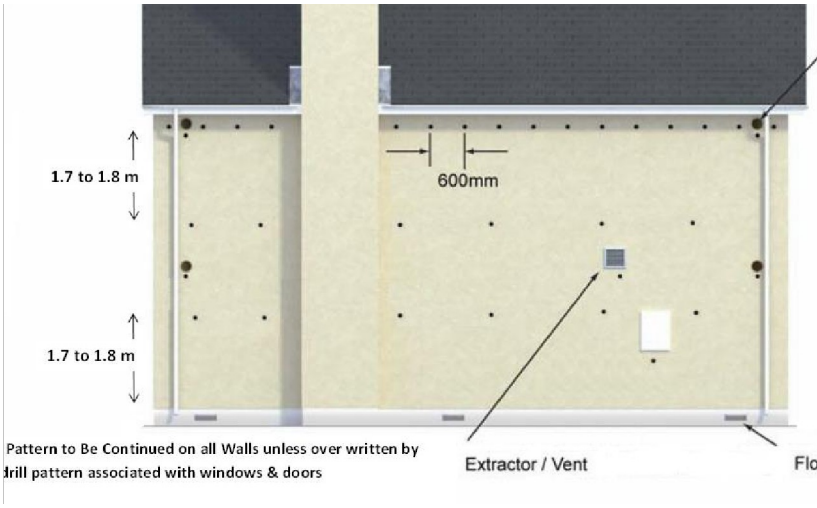
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with room in roof drill pattern



Two-story drill pattern



Two-story with room in roof drill pat

Figure 3 - Typical KOREFILL Hole Drilling Pattern in

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a Detached Dwelling for Residual Fill Application - New an

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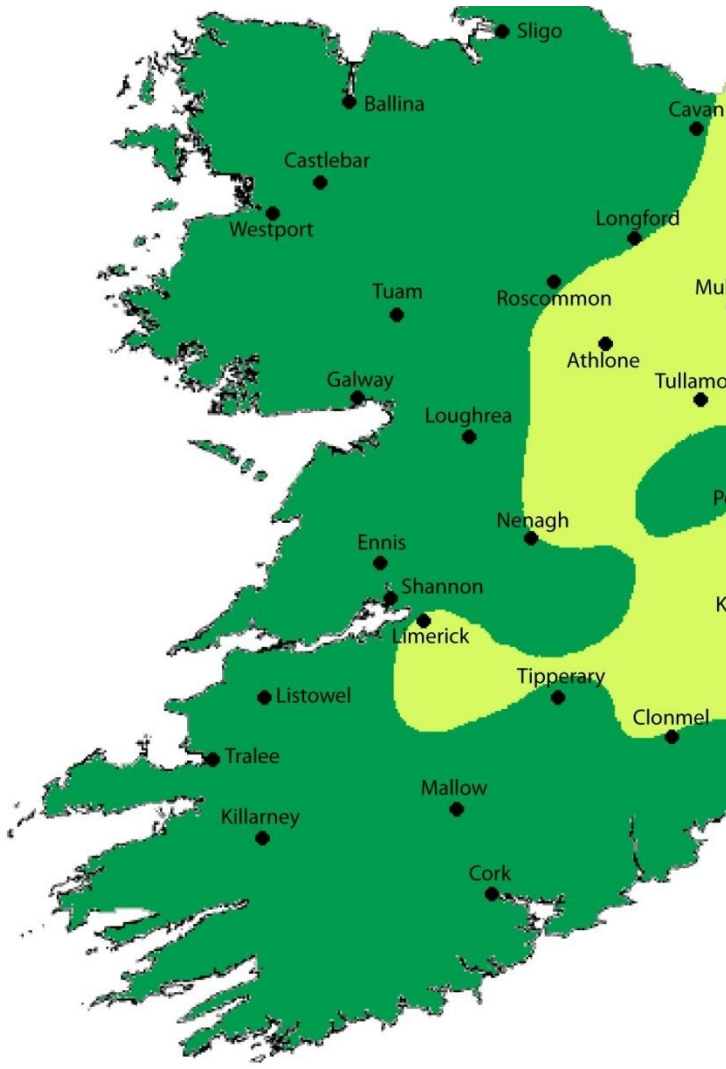


Figure 4 -
Map (Indi
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1. The wall must consist of masonry or concrete inner and outer leaves, each at least 75 mm thick.
2. The cavity must be closed

duct, only the following combustible materials shall be placed at the top of wall and any other opening.

3. In addition to the pro

in, or exposed to, the cavity:
a) end of timber joist
b) pipe, conduit
c) dpc flashing
d) lose or wall tied domestic meter cup

- a dwelling. the opening in the outer leaf is not more than 800 m

ted except by a fire-stopped sleeve not more than 80 mm by 8

e) the cavities are sub-divided so that the distance between cavity ba

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4.1.2 For buildings constructed of masonry or concrete cavity walls (as detailed in this certificate), in accordance with the Building Regulations 1997 to 2019 the product may be used in

buildings of every purpose in a brick or block work chimney p. and from any heating appliance by a solid non-combustible material not less than 200 mm thick from the flue

Cavity fill
KOREFILL Original
KOREFILL Diamond

4.1.3 Protection of Buildings Combustible cavity wall insulation material should be separated

KOREFILL Original	
KOREFILL Diamond	
Wall Type I - 19mm exter **Wall Type II** - 102.5mm e (Internal plasterboard – c The U-values above inclu wide; 3.3mm Ø @ 3 per r wide. All wall ties fully pe U-value calculations for cavity. Individual U-valu recorded on the Site Surv cavity width to be filled is The above values repres thermal conductivity and Excessive use of adhesiv Additional measures can measures such as interna The construction of walls walls are adequately des assumed that cavity walls falls under the responsib	

number may only be used on or in relation to product/ processes in resp

5.2 The NSAI Agrément mark and certificat on

ect of which a valid Certification Certificate exists.

5.4 In granting Certification, the NSAI makes no representation as to whether the Certificate becomes invalid the Certificate holder must not use the NSAI Agrément mark and certification number and must remove them from the products already marked.

This Certificate does not comprise installation instructions and does not replace the manufacturer's directions or any professional or trade advice relating to use and installation which

5.5 Any recommendations contained in this Certificate are to be read in conjunction with any relevant requirements of the Building Regulations and any other relevant statutory, regulatory or legislative requirements.

5.6 The NSAI is not responsible to any person or body for loss or damage including personal injury arising as a direct or indirect result of the use of this product or process. Where reference is made in this Certificate to any Act of the Oireachtas, Regulation made thereunder, Statutory Instrument, Code of Practice, National Standard, manufacturer's instructions, or similar publication, it shall be construed as a reference to such Act, Regulation, Instrument, Code of Practice, Standard, instructions or publication as may be appropriate.

true d as refer ence to such publi catio n in the form in whic h it is in forc e at the date of this Certi ficati on.

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