NSAI Homeowner Information Leaflet

External Wall Insulation

Are you considering getting your house insulated? Frequently Asked Questions about external wall insulation.

External Wall Insulation

* What is it?
* Is it approved?
* Do I need Planning Permission?
* Does it effect the structure of my house?
* Is the roof affected?

Inside:

What is external wall insulation?

Increasing the amounts of insulation in the external walls and roof of a house will improve its energy efficiency and comfort. There are a number of recognised methods for increasing insulation in external walls, one of which is insulating externally.

Most commonly known as External Thermal Insulating Composite Systems (ETICS), but also referred to as External Wall Insulation (EWI), or External Insulating Finishing Systems (EIFS), external insulation involves fixing insulating materials such as expanded polystyrene slabs or mineral wool to the outer surface of the walls of a house, usually with a special adhesive and metal or plastic fixings. A base coat embedded with a reinforcing fiberglass mesh is applied to this insulation, and this is then covered with a final finishing render to provide weather resistance. The overall build-up is illustrated in Figure 1.

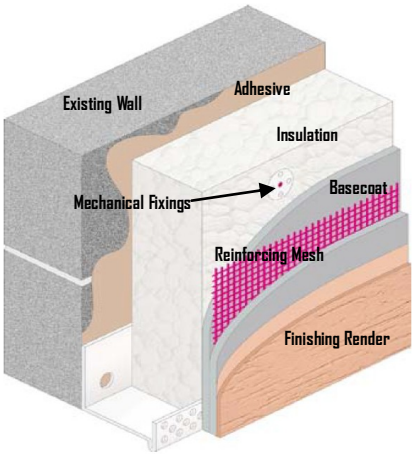
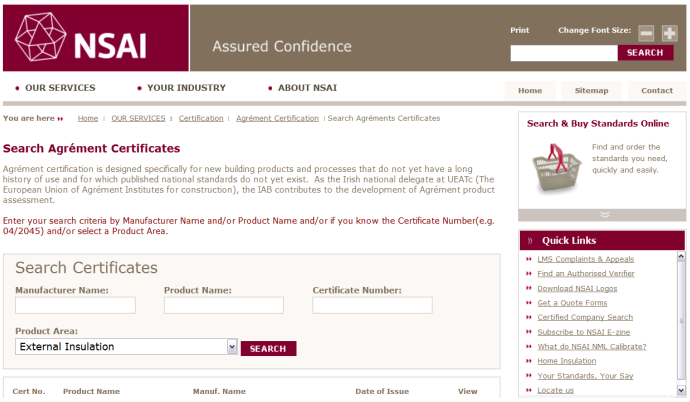


Figure 1

There are currently a number of different external insulation systems with different component materials being marketed throughout Ireland. It is important that the system used is an approved system and that the installer is an approved installer.

How do I know if a proposed external insulation system is approved?



Use an NSAI Agrément Certified System - check on www.nsai.ie

Check to see if the system has a current Agrément Certificate. NSAI Agrément assesses and certifies building products and systems, including external wall insulation systems, for their fitness for purpose, and keeps a list of currently certified systems. This list of Agrément Certificates can be searched on the NSAI website (www.nsai.ie). The list can be searched by product name, by manufacturer or by certificate number.

Note that the installer of the system must also be approved by NSAI.

How do I know if a contractor is an Approved Installer?

Make sure your installer is approved and registered with NSAI, and that an Agrément certified external wall insulation system is used.

To install an NSAI Agrément certified external insulation system, the contractor must be an Approved Installer of the relevant system, and registered as such with NSAI. The contractor must carry out the work in accordance with technical guides supplied by the material supplier, the conditions set out in the NSAI Agrément certificate, and the requirements of the NSAI Approved Installer scheme. Installers registered with NSAI are audited by NSAI technical staff.

To find out if a contractor is an Approved Installer, go to www.nsai.ie and check the up-to-date list of all Approved Installers.

Make sure that the contractor is approved to install the specific system proposed.

Can all houses be insulated externally?

A number of factors must be considered when choosing wall insulation. Depending on their structural make-up, external walls can be insulated externally, internally or in the cavity. Walls without cavities are not suitable for cavity insulation. Walls with cavities are frequently suitable for pumped cavity insulation.

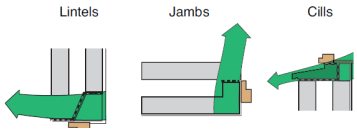
External wall insulation may be suitable for cavity walls, but measures may need to be taken to ensure the effectiveness of the insulation is not compromised by the ventilated cavity.

External wall insulation application may also be limited due to restrictions included in the NSAI Agrément certificate. The following table outlines suitable and unsuitable wall types. (Your Approved Installer should provide more detailed advice.)

Building systems must be suitable for their intended use and the conditions of use. To demonstrate this, external wall insulation systems must have an appropriate NSAI Agrément certificate as described above. Currently systems certified are only suitable for use on certain wall types as specified here.

Suitable external wall types	Unsuitable external wall types
Rendered masonry walls; Rendered solid or hollow-block walls; Solid concrete/brick walls; Brick-faced or rendered cavity (where appropriate measures are taken) including partially insulated cavity walls and fully filled cavity walls	Timber frame walls Steel frame walls Timber clad walls

What are the benefits of External Wall Insulation?



Thermal bridging paths around window opening

Increasing the amounts/levels of wall insulation by whatever method will result in a number of benefits, including a reduction in heating bills and increased comfort levels. With external wall insulation, your home will also be more air tight, so there should be less draughts. Because external insulation usually covers all of the wall surfaces, thermal-bridging is significantly reduced.

Note: Thermal-bridging occurs where there are gaps in insulation, resulting in patches of colder internal surfaces which may be subject to condensation and mould.

There is no disruption to the building interior, and no reduction in internal floor area. With a new finishing coat of render, an ageing exterior finish is renewed. Most external wall insulation systems come with a range of final finishes available, often with an extensive choice of colours and textures.

Is there a grant available?

A partial grant may be available from the Sustainable Energy Authority of Ireland (SEAI). These grants are subject to certain conditions specified by SEAI. Further information can be obtained from SEAI on 1850 927000 or on www.seai.ie

When getting quotes from contractors, it is important to get confirmation that all works associated with the application of the external insulation are included, including costs such as those associated with relocation of electricity and gas services, and works to external drainage pipes and outlets.

How long will the work take to complete?

This will depend on the size of the house. For an average sized semi-detached house of typical Irish construction, and without any weather delays or delays due to other unforeseen circumstances, the external insulation work should be complete within a fortnight.

Do I require Planning Permission to install external wall insulation?

It depends on the circumstances. In many cases it may be that the external insulation work is exempt from planning requirements. This would be the case if Section 4 (1) (h) of the Planning and Development Act 2000 applied. This Section could provide an exemption for external insulation if it:

"constituted works which do not materially affect the external appearance of the structure so as to render the appearance inconsistent with the character of the structure or of neighbouring structures".

Even though a layer of external insulation is being fixed to the outside of your home, the finishing render may ensure that the external appearance has not been materially affected. The local authority planning office should be consulted if there is any doubt in this regard. The planning office should also be consulted where the building is in an Architectural Conservation Area, or if the structure is protected.

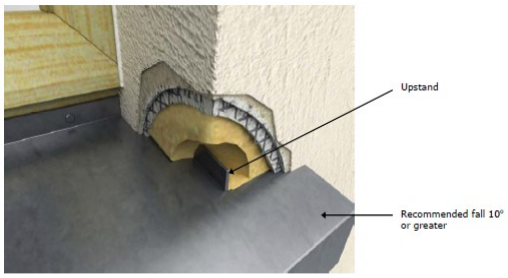
Planning may be required depending on circumstances. Check with your Local Authority Planning office.

So after the insulation is fitted, my walls will be thicker?

Yes, the walls will be thicker. The increase in the thickness will depend on the target u-value and the conductivity of the insulating materials used, and on the final render finish.

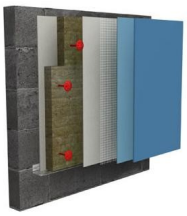
What will be the effect on windows and doors?

For an external wall insulation system to be at its most effective, all external surfaces should be insulated. This includes all surfaces around the doors and windows. Therefore the reveals, heads, and cills must all be insulated.



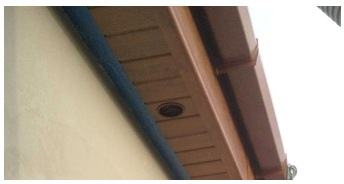
This will require the partial removal of the existing cills and their replacement with new over-cills, certified for use with the relevant ETICS.

All certified systems include details illustrating how new window cills are installed.



The width of the outside walls will be increased - note that different systems use different types of insulation, most commonly white or grey expanded polystyrene, and mineral wool insulation board.

Will the roof be affected?



In some circumstances, the roof line may need to altered / extended to cater for the extra wall thickness. Your installer will advise you in this regard. The typical roof should also be adequately ventilated; any works undertaken should not compromise existing ventilation provisions, and new roof vents should be installed if necessary. Roof vents may be in the form of continuous strip vents or a series of regularly spaced circular or rectangular ventilation openings and may be fitted with a screen, fascia, baffle, etc. The ventilation openings should be positioned to promote cross ventilation, and care should be taken to ensure the openings are not obstructed by roof insulation.

Your Approved Installer should identify any issues that arise in this area during the site survey prior to commencement of works, and should advise accordingly.

What about external drainage pipes, downpipes and gulleys?

Existing meter boxes, downpipes and gulleys may have to be relocated

External drainage pipes will generally have to be relocated as the wall thickness will be increased on the outer face.

Where gulleys are impeded by the insulation, they may need to be relocated. These issues should be identified during the site survey prior to any works starting, as there could be significant cost implications.

What about electricity and gas services and meter boxes?

Your house is most likely connected to the ESB network by means of an overhead cable and a clipped service cable, or by means of a wall box and a clipped service cable. These are often attached to the front or gable wall. For Health and Safety reasons, external wall insulation must not be installed over electricity wires and cables as this creates a number of safety hazards, including a potential fire hazard. The external wall insulation installer is not permitted to interfere with ESB Networks wires, cables or equipment and any alterations can only be carried out by suitably trained ESB Networks' personnel. ESB Networks' personnel may also be required to move any meter boxes on external walls depending on the circumstances. Accordingly, where electricity wires or cables are attached to external walls or soffits you must contact ESB Networks (phone 1850 372 757) well in advance of the works commencing in order to arrange for the required alteration.

For houses with natural gas installations, Bord Gais Networks must be contacted on 1850 200694. They will then provide the necessary assistance to either move the meter box to a suitable alternative location or temporarily remove and then refit the meter box on completion of the works.

Keeping your home adequately ventilated is vitally important to ensure a safe, healthy and comfortable living environment

How will getting my walls insulated externally affect the ventilation of my home?

All homes require appropriate levels of ventilation. Ventilation is required to ensure there is enough fresh air:

- For a healthy and comfortable home,
- For the safe operation of fuel burning appliances
- To minimise the risk of condensation, and
- To remove or dilute pollutants that can accumulate.

Traditionally houses in Ireland have been ventilated adequately through a combination of planned and unplanned ventilation. Planned ventilation included openable windows, wall vents, window vents, extract fans etc. Unplanned ventilation came from draughts in leaky buildings. Together these were generally sufficient to avoid the problems associated with lack of ventilation such as condensation and mould growth.

More modern homes have been constructed with a greater focus on energy efficiency, and therefore can be more airtight, with the essential ventilation being provided through planned ventilation.

Typical controllable background vent in

When external insulation is applied to an existing dwelling, it substantially increases the air tightness of the home. While this can be and is an advantage of the system, it is vitally important that action is taken to ensure that minimum levels of ventilation required are maintained.

Before starting any work, the approved installer should carry out an assessment of the existing ventilation provisions and should inform the homeowner if there is insufficient ventilation, or if the existing ventilation has been adversely affected by prior actions, highlighting in particular any inadequacies in ventilation of rooms with fuel-burning/heat-producing appliances. The external insulation should then be applied without compromising any existing ventilation provisions. Improvements to ventilation provisions should be carried out with the prior agreement of the homeowner before the installation of the external insulation or by the Approved Installer during the work.

Guidance on minimum amounts of background ventilation is provided in the Building Regulations. Your Approved Installer will be aware of the minimum requirements, and will advise accordingly.

Lack of adequate ventilation can lead to mould growth due to condensation

Extractors may be needed

Is maintenance of the external insulation required?

External insulation systems must be maintained after installation. As well as regular inspections (at least annually) of sealants, all necessary repairs (due to accidental damage etc.) should be carried out immediately. The installer will furnish the homeowner with a Homeowner's Manual, which will include the maintenance instructions.

Will I be able to fix external fittings to the walls after the work is complete?

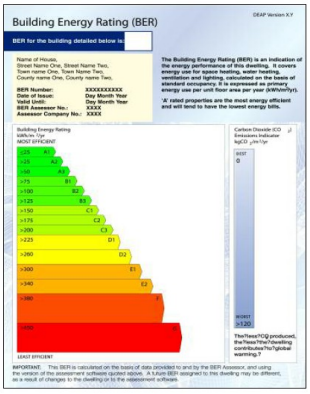
Yes, but generally it will be necessary to drill through the external insulation and into the existing masonry

structure to ensure the fixing is strong enough. The Homeowners' Manual as provided by the installer will contain further instructions and details on external fixtures and fittings.

External fittings such as flower baskets, satellite dishes etc. must be fixed in accordance with the manufacturer's instructions

Will my Building Energy Rating (BER) be better after the work is completed?

When a building is constructed, sold or rented a Building Energy Rating (BER) detailing its energy consumption must be made available to the prospective buyers or tenants. A BER allows prospective buyers or tenants to factor energy performance and costs into their comparison of different properties. The Building Energy Rating (BER) of a dwelling is calculated using a specially designed software tool which takes into account a range of factors which influence the energy consumption of the dwelling, including u-values.



The installation of external wall insulation will result in an improved u-value for the external walls of your home.

A u-value is a measure of how much heat is conducted through a structure. A lower u-value means less heat is conducted through the wall. The target u-value after the installation of external wall insulation is currently generally 0.27 W/m K or better (i.e. lower). Lower values can be often be achieved at a small percentage of the overall price. Generally because the u-value of the walls has decreased, the BER of the dwelling is significantly improved after external insulation has been installed.

What are the implications from a Health & Safety perspective?

The Approved Installer has full responsibility for ensuring compliance with all relevant Health and Safety Legislation, and must carry out all work in accordance with the regulations and guidelines. All contractors' staff must be appropriately trained to operate to these standards. The contractor must have a current Health and Safety Statement available for inspection. Safe working practice for employees, customers, and the public must be followed at all times, appropriate equipment must be used safely, and equipment and materials must be stored properly. Your Approved Installer is required to pay particular regard to Health and Safety procedures and practices when carrying out works in vulnerable households and where children, the elderly or the general public may be directly affected by the progress of works. The Approved Installer should also check that Carbon Monoxide alarms comply with the EN 50291 standard (CO alarms do not obviate the need for regular maintenance and inspection of chimneys, flues, vents and appliances by the homeowner).

Will NSAI check that the work is carried out to the correct standard?

No. The primary contract is between you and the installer of the external insulation. NSAI have carried out audits on Approved Installers and are satisfied that they are competent to install external insulation, but it is not possible to check every project. Nor do NSAI provide this service. If you have any concerns it is recommended that you should engage a building professional with expertise in the area of external insulation to act on your behalf while works are being carried out.

NSAI Agrément

Assured Confidence

NSAI Agrément Registered Installers

NSAI Agrément work closely with Government Departments and agencies in supporting Government initiatives to improve energy performance of buildings. A number of installer schemes have been developed whose aim is to verify the competency of installers carrying out improvements to dwellings. Grant aid may be available for building improvements under the Sustainable Energy Authority of Ireland's About Better Energy Homes (Formerly Home Energy Saving Scheme). All works must be designed and installed as per the National Building Regulations.

NSAI Agrément offer registration to installers of Blown Loft Insulation, Full Fill Cavity Wall Insulation and External Insulation. To search a full list of all products and systems certified by NSAI Agrément go to Search Agrément Certificates.

www.nsai.ie

General Note

Greater energy savings may be achieved by extending the external insulation below the underside of your ground floor and up past the soffit board. It is also possible to move the windows out to meet the back of the external insulation and again greater energy performance may be achieved. However these measures will incur additional costs which may offset any potential savings. It is recommended that professional advice on these measures be sought.

In Summary

External Wall Insulation is a proven method of upgrading the walls of a home to improve the overall energy efficiency of the building. It comprises fixing a layer of insulation to the outside of the walls of your house, which is then covered with a special, mesh-reinforced base-coat and a render. There are a number of different systems with their own specific characteristics available, such as different types of insulation and different finishing renders. It is important to check that the system chosen is appropriately certified.

An NSAI Agrément certified system will have been fully assessed for its fitness for purpose and compliance with Building Regulations.

During the assessment process, NSAI Agrément consider a range of factors, such as design life, impact resistance, energy efficiency (u-values), fire resistance, resistance to spread of flame, resistance to moisture penetration etc.

Systems that are certified by NSAI Agrément will therefore have been rigorously tested to demonstrate suitability for use.

Prospective customers are advised to research the different systems available before making a choice, and to secure quotations only from contractors who are listed on the most up-to-date NSAI list of Registered Approved Installers.


NSAI Agrément

IRISH AGRÉMENT BOARD
CERTIFICATE NO. 10/0348

Protherm ECAP External Insulation System

Système d'isolation pour murs extérieurs
Wärmedämmung für Außen-wand

NSAI Agrément (Irish Agrément Board) is designated by Government to issue European Technical Approvals.

NSAI Agrément Certificates establish proof that the certified products are 'proper materials' suitable for their intended use under Irish site conditions, and in accordance with the Building Regulations 1997 to 2009.

PRODUCT DESCRIPTION:

Illustration of the front cover of a typical NSAI Agrément certificate.