

Solid Wall Insulation



Why solid wall insulation?

If you live in a home with solid, un-insulated walls, up to 45% of the heat is escaping through the walls; this is almost half of the heat loss that may occur in an un-insulated home. Insulating your solid walls will dramatically prevent heat loss in winter and also reduce heat gain in summer. It will save you money by lowering your heating costs and reduce CO₂ emissions.

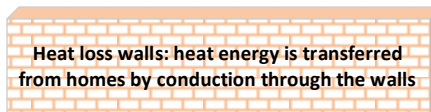
Solid wall properties (or properties with cavity walls that cannot be filled) tend to be more difficult and expensive to improve in terms of adequate insulation and heating. However, it can have a number of benefits:

- ◆ Increased warmth and comfort
- ◆ Lower fuel bills
- ◆ Reduced maintenance
- ◆ Reduced problems with condensation, damp and mould growth
- ◆ Increased value of property

How does it work?

Solid wall insulation is usually applied to either the inside or outside of a heat loss (usually exterior) wall. It is also possible to fit insulation to both sides of a wall, or either inside or outside on different walls at the same property. This is known as hybrid solid wall insulation and might be used to avoid altering a particular façade.

Which option you choose depends on your personal circumstances. Both internal and external wall insulation will reduce heat loss. You will also save on fuel costs and increase your thermal comfort. The decision is usually based on your budget, ease of access, the severity of heat loss from your home, aesthetic consideration and whether your property could benefit from either interior or external repair work.



Thermographic image showing heat loss

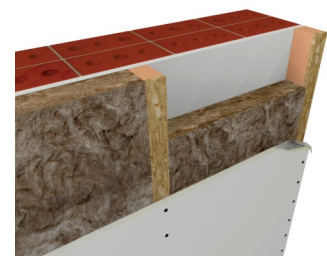


Internal wall insulation

There are different types of internal wall insulation; the following three types are typical:

- ◆ Directly applied insulation boards (this can be a plasterboard sheet laminated to an insulation board-known as thermal board)
- ◆ Studwork structure with insulation set between the studs (this can be a metal or timber framed system)
- ◆ Flexible insulation lining (especially designed for use in solid wall homes; this comes on a roll and is 10 mm thick, 1 m wide and 12.5 m long).

Internal wall insulation will need special attention around existing internal features and fittings, including window and door reveals. It may also exacerbate problems of dampness, therefore extra care is required to avoid these.

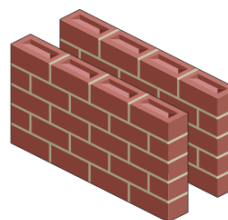


Internal insulation between battens

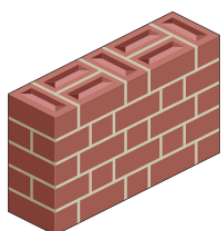
Does your home have solid walls?

Solid walls are predominantly found in traditional buildings, for example, in the rows of Victorian terraces in most towns and cities and housing in villages. If your house was built before 1930, it is most likely that it will have solid walls.

A quick check to find out if your home has solid walls is to look at the brick pattern of your walls: solid walls have alternate bricks which are set at right angles to the rest of the bricks.



Typical cavity wall brick pattern



Typical solid wall brick pattern

If the brickwork has been covered, you can also tell by measuring the width of the wall. Go to a window or door on one of your external walls. If a brick wall is more than 260 mm thick then it probably has a cavity; a narrower wall is probably solid. Stone walls can be thicker still but are usually solid.



External wall insulation

External insulation systems are made up of an insulation layer which is fixed to the existing wall and covered with a protective layer such as render or decorative cladding over the top.

Although external insulation is usually more expensive, it could be the more suitable options as it can have several advantages over internal insulation:

- ◆ The internal design remains unaffected
- ◆ No interruption to the occupants during installation
- ◆ No loss of floor area and room size
- ◆ Improves weatherproofing
- ◆ Increases the life of your walls by protecting the brickwork
- ◆ Reduces condensation on internal walls and can help prevent damp (but note that it will not solve rising or penetration damp)

There are two main types of external wall insulation:

- ◆ Wet render systems, consisting of insulation material covered with thick sand/cement render. This could have a pebbledash finish which requires less maintenance than a painted render finish.
- ◆ Dry cladding systems, using insulation covered with a number of cladding materials such as timber panels, stone or clay tiles, brick slip or aluminium panels.

The main issue with external wall insulation is with the detailing at the wall and roof junctions and the windows and these will need careful attention.

Therefore, it is important that the work should be carried out by a competent installer.

To reduce cost, you might want to consider installing external wall insulation as part of a planned external refurbishment.

How much does it cost?

The costs will depend on the type of insulation you choose and can vary considerably. Generally, internal insulations systems will be cheaper than external cladding techniques. The Energy Savings Trust gives a rough price guide which is shown in the table below.

How much could I save			
Type of solid wall insulation	Saving per year	Total cost including installation	Carbon dioxide saved per year
Internal	Around £460	£5,500 to £8,500	1.8 tonnes
External	Around £490	£9,400 to £13,000	1.9 tonnes

Estimates based on insulating a gas-heated, semi-detached home with three bedrooms; source: Energy Savings Trust

Could I do it myself?

Provided that you ensure that any damp problems in your property are taken care of, it possible to apply internal insulation to any outside walls of your property yourself. However, external insulations systems are much more complicated and should be carried out by a specialist and competent installer. Any contractor that carries out solid wall insulation work should be registered with the National Insulation Association, which should covers you if any damage occurs during installation.



Layers of external wall insulation

Financial help

Financial support for solid wall insulation might be available via the Green Deal or the ECO (Energy Company Obligation). Get details about these schemes from the Energy Saving Trust. Contact them on 0300 123 1234 or go to their website (see further information below).

Do I need planning permission?

Planning permission may be required for external wall insulation as the insulation may dramatically change the appearance of your property. However, external solid wall insulation work may be subject to permitted development and planning consent may not be required for insulation along the front of a property so long as:

- ◆ The property is not listed
- ◆ The property is not in a conservation area, national park, the Norfolk Broads or an Area of Outstanding Natural Beauty
- ◆ The finish to be applied to the insulation does not change the external appearance of the property. For example: if the property was brick and the proposed finish was a render, you might have to obtain planning consent. However, if it was already rendered, then you would not.

Further information

<http://www.energysavingtrust.org.uk/Insulation/Solid-wall-insulation>

<http://www.nationalinsulationassociation.org.uk/householder/index.php?page=solid-wall-insulation>

<http://www.inca-ltd.org.uk/>

www.energysavingtrust.org.uk/Take-action/Find-a-grant

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