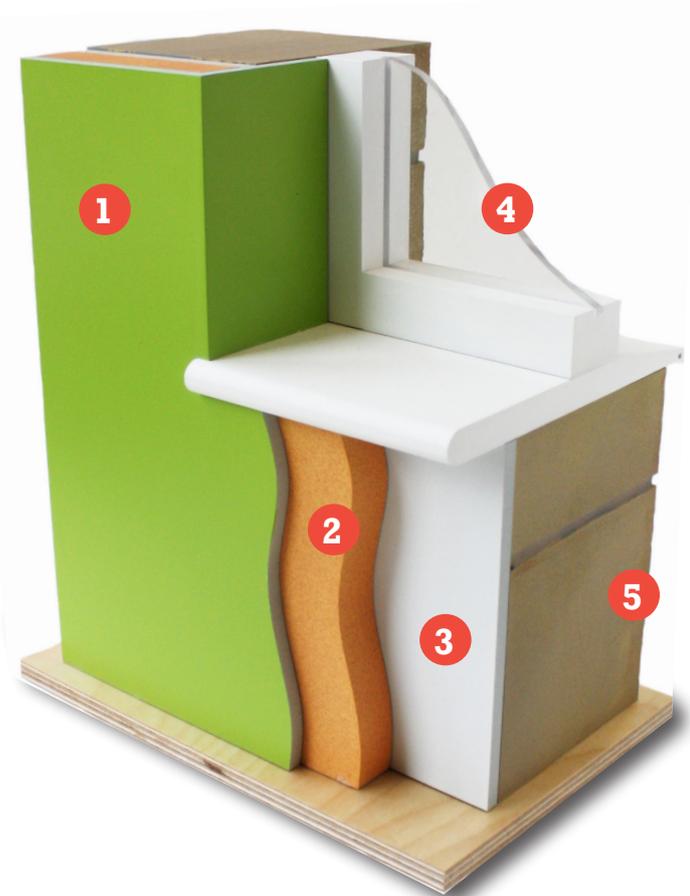


Internal solid wall insulation

A thermal layer on the inside walls



Cut-away model of internal solid wall insulation.

1 | Surface coating

This is the new plasterwork that covers the insulation layer. Just like a normal internal wall, it can be painted (green in this case) or papered

2 | Insulation

This is the layer that prevents warmth escaping through the outside walls of the house. In this case, rigid insulation boards have been used.

3 | Internal wall

This is the old internal plaster which is now covered by the new insulation board and plasterwork.

4 | Windows

Ideally, the insulation board is fitted to the inside of the window recess to prevent cold patches developing where condensation forms. But, as is the case here, this is not always possible.

5 | External wall

From the outside your property will look exactly the same.

Around half of all the heat lost from a typical solid-walled home escapes through the walls. Insulating these walls will keep the warmth inside for longer and greatly reduce your heating bills.

Solid walls can be insulated internally (from the inside) and externally (from the outside) - both are significant undertakings in terms of cost and disruption. This leaflet looks at internal solid wall insulation. You can find our external solid wall insulation leaflet at www.cse.org.uk/advice.

Solid wall insulation may be suitable for homes made from brick, stone or concrete construction, and works by adding a layer of thermal material to the existing inside wall. This will reduce the size of your rooms a bit, though you may find if a cold wall is made warmer you actually increase the amount of usable space in a room.

How do I know if my home has solid walls?

If your home is made of brick, and the bricks have an alternating long-short-long pattern, then the walls are likely to be solid. If you can see only the long edge of the bricks, then it's almost certainly a cavity wall.

Solid wall ▼



Cavity wall ▼



If the brick work is not visible then measuring the thickness of the wall at any entrance or window will help to determine the construction type. A solid brick wall is usually about 22cm thick, a cavity wall between 27cm and 30cm and a solid stone wall as much as 50cm thick. The age of your home can also be a good indicator; if it was built before the late 1920s it is likely to have solid walls.



Internal solid wall insulation is particularly appropriate where you need to keep the outside of your home looking the same.

Repair of the ceiling cornice after internally insulating this solid walled terraced house



Types of internal solid wall insulation

There are various ways to insulate a solid walled building from within, but they broadly fall into four categories:

1) Rigid insulation boards

These come in a variety of materials and thicknesses and deliver the highest energy saving. Some have pre-attached plasterboard which makes the installation process more straightforward.

2) Dry lining

Here, battens are fixed to the walls, insulation is fitted between them and then covered with plasterboard. This is a good option if the wall has a lot of heavy fittings such as book cases or kitchen cupboards, or if the original wall is rough and uneven, as in some stone properties.

3) Flexible thermal lining

This comes in rolls like thick wallpaper and is glued to the wall with a special adhesive. It may not provide the same level of insulation but can be installed by a competent DIYer. Flexible linings tend to be no more than 10mm thick so can be a good option for small rooms.

4) Insulated plaster

This is a mix of plaster and insulating material, such as cork. It is trowelled or sprayed on. It is a good option for uneven walls and can help achieve good levels of airtightness.

Managing moisture

Most solid walls were built to be 'vapour-open' meaning that moisture can pass through the wall. If we insulate with 'vapour-closed' materials (such as foil-faced insulation foam) we risk trapping moisture inside the wall which could lead to damp, mould and damage to the building. If the existing wall is vapour-open you should always use vapour-open insulation materials, plasters and paints. Suitable insulation materials include woodfibre, mineral boards and cork. These should always be plastered with a lime-based finish and painted with vapour-open paints.

Average cost and savings

Internally insulating your home will probably cost between £5,500 and £8,500, depending on the number of rooms being renovated and the type of material being used. It's generally less expensive than *external* solid wall insulation because of the lower cost of materials and labour. A typical 3-bedroom semi-detached house using gas heating could save around £260 per year on heating bills by installing internal wall insulation and a detached house around £430 (see www.energysavingtrust.org).

Disruption

Internal solid wall insulation is a significant undertaking that inevitably involves a degree of disruption. Your installer should make you aware of any particular issues but things to consider include:

- A skip may be required.
- Rooms where work is being done may not be usable for the duration, and furniture, kitchen units etc may need to be temporarily removed.
- Fittings such as radiators, skirting boards, window sills and plug sockets will need to be removed and reattached afterwards.
- Pipe work and wiring may need to be re-laid.
- The works will produce dust and could well be noisy.
- Contractors will require water and power and the use of a toilet.
- The newly insulated walls and adjacent surfaces will need to be re-decorated when the work has finished.



St James Court
St James Parade
Bristol BS1 3LH
0117 934 1400
www.cse.org.uk
info@cse.org.uk

The Centre for Sustainable Energy is a national charity (# 298740) founded in 1979 that helps people change the way they think and act on energy.

Our Home Energy Team offers free advice on domestic energy use to householders in Bristol, Somerset, Wiltshire, South Gloucestershire and Dorset.



Contact us

PHONE 0800 082 2234
EMAIL home.energy@cse.org.uk
WEB www.cse.org.uk/loveyourhome
TWITTER @cse_homeenergy