

## **Solid Wall Insulation (SWI)**

### **Internal and External Insulation**

Solid wall properties tend to be more difficult and expensive to improve in terms of adequate insulation and heating. Solid walls lose heat more quickly than cavity walls, but because they are solid there is no easy way to insulate them. Solutions include external and internal wall insulation.

### **External wall insulation (EWI)**

This involves adding a decorative weather-proof insulating treatment to the outside of the house. The thickness of the insulation needs to be between 50mm and 100mm and is usually installed where there are severe heating problems or the exterior of the building requires some form of other repair work, providing the opportunity of adding insulation.

External insulation systems are made up of an insulation layer fixed to the existing wall, using a combination of mechanical fixings and adhesive - depending on the insulation material used. This is then covered completely with a protective render or cladding finish. Most external renders consist of either thick sand/cement render applied over a wire mesh, or a thinner, lighter polymer cement render applied over a 'GRP scrim'.

External wall insulation must be fitted by a specialist installer trained by approved system designers. To find such an installer visit the Insulated Render & Cladding Association (INCA) website or the National Insulation Association (NIA) website. The installer will need full access to all the walls from the outside. It is not recommended for homes with structurally unsound outer walls that cannot be repaired.

To prevent condensation, recessed areas around windows must be insulated as well as the walls – with the depth of insulation depending on the width of the window frame.

The Energy Saving Trust estimates that an average semi-detached house (gas heating) could save around £260 per year on fuel bills by installing external wall insulation.

External insulation is likely to change the appearance of a home and will cover up existing brickwork. Planning permission may therefore be required.

For information on planning permission in Scotland, visit the Scottish Government Building Standards webpage

<https://beta.gov.scot/policies/building-standards/>

## Internal wall insulation (IWI)

Solid walls can also be insulated by applying internal wall insulation, usually ready-made insulation/plaster board laminates or wooden battens in-filled with insulation or flexible linings.

Thermal boarding is a composite board made of plasterboard with a backing of insulation. The insulation backing can be specified in a variety of thicknesses. Insulation in excess of 60mm will typically be required to achieve best practice performance. Up to 100mm of insulation can be included. Thermal boards are fixed to the wall surface using continuous ribbons of plaster or adhesive, plus additional mechanical fixings.

Insulation/plaster board laminates consist of plasterboard backed with insulating material typically to a total thickness of up to 90mm. Installing them involves the boards being fitted directly to the inside of the wall and the thicker the board the better the insulation.

Alternatively, wooden battens in-filled with insulation and covered with a plasterboard finish can be fitted to a wall. Flexible insulating linings (a form of dry lining) can also be used. These are cheaper and less disruptive to install, though savings on energy bills are lower. Flexible thermal linings are insulation on a roll specifically for use in solid wall homes, mansard roofs and dormer ceilings.

The Energy Saving Trust estimates that installing internal wall insulation will save an average semi-detached house (gas heating) £260 per year.

There are a number of grants and schemes available which may support Installation of solid wall insulation.

See Chapter 4 on Sources of Help and Funding