

# THERMAL INSULATION

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Thermal insulation is still *the* most important and *the* most cost effective way of saving energy, and for virtually all homes will have the single largest impact on reducing fuel costs year after year. Improving the thermal insulation standards of the home should therefore be everyone's No.1 priority.

If you are planning to improve your home, to install central heating for the first time, or to replace an old boiler, our advice to you is to make thermal insulation your first priority. Not only will this reduce your fuel consumption and bills year after year, but your home will become more comfortable to live in, and you will be able to save money on the cost of installing your new central heating system or replacement boiler because the higher standard of thermal insulation means they don't need to be as big and expensive as before.

## The amount of heat that can escape from badly-insulated homes:

- ♦ 35% through the walls
- ♦ 25% through the roof
- ♦ 15% in draughts
- ♦ 15% into the ground
- ♦ 10% through the window



### Cavity Wall Insulation

Cavity wall insulation is a very cost effective way of saving energy for most homes – about 35% of the heat lost from an average home is through the walls.

Most homes will have walls suitable for cavity insulation, but if in doubt your local installer will be able to carry out a brief survey and advise you. Houses that have solid walls (no cavities) obviously cannot be cavity wall insulated, but you might still be able to have them insulated in other ways – again your local installer should be able to help.

Insulating cavity walls is a straightforward job, which can normally be done in a day. However, it is not a suitable DIY project – you should only have it done by a professional installer who is licensed to undertake this type of work and who will give a 25-year guarantee on the materials and workmanship.

The process is quite simple, essentially a number of small holes are drilled through the external leaf of the wall, the thermal insulation material is then pumped into the cavities through these holes, and on completion the holes are plugged so as to be virtually unnoticeable. Any ventilation openings in the walls (such as air bricks etc.) are protected during the process so that they are not blocked in any way.

If you had heard scare stories about cavity wall insulation, don't worry! There were some problems with the old Urea Foam materials which were briefly in use about 20 years ago, but these are no longer used – cavity wall insulation is now a proven, safe and reliable process which will not only save you money, but which should also increase the value of your home.

### Loft insulation

Loft insulation is one of the easiest and most cost-effective ways of improving the energy efficiency of your home, but many homes still have either no loft insulation or to an out of date thickness. If you are installing loft insulation for the first time, or if you are upgrading your existing insulation, the recommended thickness is now 200mm (8").

Various insulating materials can be used, for example mineral wool, cellulose fibre and one of the latest (and "greenest") materials made from specially treated recycled paper. A specialist installer would normally carry out the work, but if you decide to do the work yourself, make sure that you follow the instructions for handling the insulation material, and make sure that you know how to do the work properly (e.g. for maintaining eaves ventilation).

As part of the loft insulation work, take the opportunity to make sure that any pipes and tanks in the loft are properly insulated as well. Many insulation companies will automatically do this at the same time as they do the loft insulation, but you should always check first.

## Draught proofing

To find draughts in your home, choose a breezy day and hold your hand up to the gaps around all of your doors and windows etc. If you can feel cold air coming in, then you can be sure that warmth (which you are paying for) is escaping somewhere. Also, check pet flaps and places where pipes and cables etc. pass through walls – you could be losing heat there too.

And don't forget your letterbox. Special draught proofing is available for letterboxes, which cut down the draughts but still allow your mail (and your energy bills!) to pass through.

When carrying out draught proofing, remember that it is important to maintain a reasonable level of ventilation. Without it your house could become stale, stuffy or even damp.

Ventilation is also essential for certain types of heating equipment, so never block off ventilators or air bricks unless you are certain they are not needed. Most of the thermal insulation companies can give expert advice on draught proofing possibilities, and can check what ventilation is needed for heating equipment,

## Floor Insulation

Whether you have wooden or solid floors it should be possible to insulate them in order to reduce the amount of heat lost through them. For example, this could be done by:

- Laying insulation sheets on top of solid floors
- Fixing mineral wool insulation beneath wooden floor boards  
(ensuring that any necessary air vents are not blocked)

Again though, floor insulation is not normally a suitable DIY project, and you should always seek qualified advice.

## Double Glazing

A good time to consider permanent double-glazing is when your existing windows and external doors need replacing. At this time, the extra cost of double-glazing over single glazing is fairly small.

Double glazing windows come in a large variety of styles and sizes. A popular style is the "Sealed Unit" which consists of two sheets of glass with a small gap between them (usually filled with an inert gas to prevent any condensation forming on the outer pane)

At a small extra cost you can get double glazing which the inner pane made of low-Emissivity glass. This gives a much more efficient glazing system since more of the heat is reflected back into the room rather than escaping to the outside.

If you cannot afford permanent double-glazing, or if you just want some extra insulation over the winter period, you could fit some secondary double-glazing to your existing single-glazed windows. There are many systems available, which you can buy and are all fairly cheap. The general idea behind them all is to fit a transparent second pane, sheet or film of material about 12mm to 20mm ( $\frac{1}{2}$ " to  $\frac{3}{4}$ " ) away from the glass pane so as to trap a small air gap between the two (it is this thin air gap which gives the insulation effect, but if it becomes much larger than about 20mm the insulation effect quickly diminishes). If your existing frames are suitable, one of the simplest and cheapest methods is to stick a sheet of Clingfilm across the inside of your frames and then tighten it up (to make it flat) using a dryer.



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