

Cavity Wall Insulation

Cavity wall insulation is one of the easiest and cheapest ways to improve the energy efficiency of a home. It will significantly improve comfort and reduce running costs and CO₂ emissions. It is a well established and guaranteed procedure that can be completed in under a day and there are government grants available to assist with the cost of installation.



Modern cavity walls under construction.

The origins of cavity walls

Cavity walls are built using inner and outer 'leaves' of a wall which are separated by a space or 'cavity' in the middle between the two leaves.

Cavity walls were first introduced in the construction in house building in the early 20th century to reduce water penetration through walls and improve the insulation performance of walls.

Cavity walls are considered by most to be one of the better wall construction types. The cavity between the two wall leaves helps to prevent moisture transfer from the outside and heat loss from the inside and therefore helps to keep the house warm and dry.

Benefits of insulated cavity walls

An un-insulated home can lose up to 35% of its heat through the external walls. When a house is heated there is natural flow of heat from the inside to the outside through the structure. Cavity wall insulation works by making the path for the heat flow more difficult, thereby reducing the rate of heat loss through the wall. A cavity wall without insulation will lose heat 3 or 4 times more quickly than a cavity wall that is insulated. The main benefits of cavity wall insulation are:

- It will reduce fuel bills and will keep your house warmer for a longer period of time
- It will result in a reduction in the CO₂ emissions of your property
- It helps to reduce draughts
- It will reduce condensation because the internal surfaces of the walls will be warmer. However this is not a substitute for an adequate ventilation system

The table below shows typical reductions in running cost and CO₂ emissions.

Measure	Cavity Wall Insulation
Annual Savings per year (£)	Around £115
Installed cost £	Around £250 (subsidised)
Installed payback	Around 2 years
CO ₂ saving per year	Around 610 kg

Energy Saving Trust

Is my home suitable for cavity wall insulation?

For a home to be suitable for cavity wall insulation it must:

- Have cavity wall construction
- Have an empty cavity

A Domestic Energy Assessment or Home Inspection Report will normally tell you if your home is suitable for cavity wall insulation to be installed. You can usually tell whether your home is of cavity construction by the following:

- Age:** dwellings from the 1920s onwards are likely to be of cavity construction.
- Wall thickness:** solid walls will normally be thinner than cavity walls at 220-230 mm compared to 250-260 mm, although some older properties were built with 300mm thick walls; also other wall construction types such as stone and timber framed are sometimes difficult to distinguish
- Brick pattern:** solid and cavity walls will normally have different patterns of brick construction



If your home has cavity walls, the bricks will have a regular pattern as shown above; if your home has solid walls, the bricks will have an alternating pattern as shown below.



Houses built from 1995 onwards would typically have been constructed with filled or partly filled cavities. However, houses built prior to this may have had insulation added after construction, i.e. they have a 'retrofit' installation. A key identifier of retro filled cavity walls will be a regular pattern of drill holes on the outside between the courses of brickwork.



In order to ensure a complete fill of the cavity, insulation holes are normally drilled at three 'courses' or layers of brick beneath a window (see photo above). The photo below shows an example of a drill hole pattern on a rendered wall.



Installing cavity wall insulation

The most common way to install cavity wall insulation in existing properties is to inject it into the cavity from the outside, via a system of holes drilled between the bricks in a regular pattern.

The most common insulating materials used are mineral wool and glass fibre wool but polystyrene granules or beads, or an expanding chemical foam material can also be used. In order to be able to insulate a cavity wall, the cavity should be at least 50 mm wide.

Top tips to consider when installing cavity insulation

Cavity wall insulation is a very cost effective way of reducing the CO₂ emissions and the energy bill of your property and could save the average household around £115 per year.

The cost of the installation is typically around £500 (unsubsidised) depending on the building. There are grants available which could reduce these costs by up to 50%.

Seek the advice of an expert before you do any work in your property. There are different methods and materials available for filling the cavity and your installer will advise which is the most appropriate for your house. Cavity wall insulation is a specialist job and should only be undertaken by contractors registered with an approved organisation.



We recommend that any installer used is a registered member of one of the following organizations:

- National Insulation Association (NIA)
- Cavity Insulation Guarantee Agency (CIGA)

Make sure that your property is surveyed by a professional before you start any building works. The surveyor will be able to inspect the property, looking at the condition of the walls to identify any constructional defects, failed pointing, dampness problems or penetrations of the external walls.

If an inspection reveals any problems, they must be removed before the installation of the insulation.

Useful websites

[www.energysavingtrust.org.uk/
Home-improvements-and-
products/Home-insulation-glazing/
Cavity-wall-insulation](http://www.energysavingtrust.org.uk/Home-improvements-and-products/Home-insulation-glazing/Cavity-wall-insulation)

National Insulation Association (NIA)
for professionally installed insulation
products Tel: 01525 383313
[www.nationalinsulationassociation.
org.uk](http://www.nationalinsulationassociation.org.uk)

National Energy Foundation:
[www.nef.org.uk/energysaving/
insulation.htm](http://www.nef.org.uk/energysaving/insulation.htm)

© 2010 National Energy Services Ltd

Disclaimer regarding general information:

This fact sheet is one of a series, made available by the membership schemes owned and operated by National Energy Services Ltd. They are only intended as general guides to provide background information, and whilst all reasonable steps have been taken to ensure their accuracy, neither National Energy Services Ltd., nor the membership schemes operated by it, can be held liable for any errors or omissions contained herein, nor any loss or damage howsoever arising from the use of this fact sheet, or variants of it.