Energy Efficiency: A guide to insulating your home

Looking for grants for improving the energy efficiency of your home?
See the *Grants* section below.

Looking for registered installers of insulation or advice on how to go about it?
See the *Installers* section below

Why should I insulate my home?

Insulating your home can save you money on your fuel bills, and make your home a warmer and more comfortable place to be. By reducing your energy consumption, you're also helping to reduce carbon dioxide emissions, which contribute to climate change. In addition, well installed insulation can improve the energy efficiency rating of your home in your Home Information Pack or Energy Performance Certificate. This guide describes the different types of insulation available and the savings that can be made. There may be significant savings to be made if you insulate your home at the same time as carrying out repairs to walls, floors and ceilings.

Where is the heat in your house going?
Up to 33% of the heat from a semi-detached house is lost through the walls, more than by any other route. Therefore, insulating your walls represents one of the best ways to improve the energy efficiency of your home and save money on your fuel bills.

What are the different ways I can insulate my house?

Cavity wall insulation
In most houses built after the 1920's, the external walls are made up of two layers of brick, with a gap in between. This gap, or cavity, can be filled with insulating material to stop the heat conducting through the walls to the outside air. In short, this can save a lot of energy, and money.

Measure	Annual saving per year (£)	Installed cost £	Installed payback	CO_2 saving per year
Cavity wall insulation	Around £135	Around £250	Around 2 years	Around 560kg

How is it installed?
Cavity wall insulation is installed by professionals usually from the outside by drilling small holes in the wall and injecting loose insulating particles which settle to fill the cavity in your wall. Once complete, the drilled holes are filled again with minimal change to the aesthetics of the wall. A three-bedroom, semi detached home can be insulated in less than three hours by a trained installer. It's quick, clean and doesn't affect the structure or look of your house.

Does it cause damp?

Previously there had been associations between installing cavity wall insulation and increasing damp problems. However, since the 80s, methods and materials have improved to such an extent that this is no longer the case. Nowadays professionally installed cavity wall insulation installed by a registered installer comes with a 25 year guarantee against damp.

Solid wall insulation

Most houses built before 1920 were built with solid walls. This means there is no cavity within the wall and cavity wall insulation is not possible. Solid walls lose even more heat than cavity walls; therefore insulation can result in significant reductions in energy consumption. Insulation can be installed in homes with solid walls either from the outside or the inside. It's not cheap, therefore the payback period is longer, but you should see some immediate differences in the warmth of your home.

Measure	Annual saving per year (£)	Installed cost £	Installed payback	CO2 saving per year
External solid wall insulation	Around £475	Around £9,400 – £13,000	Variable	Around 1.9 tonnes
Internal solid wall insulation	Around £445	From £5,500 – 8,500	Variable	Around 1.8 tonnes

External wall insulation for solid walls

External wall insulation is more cost effective when carried out in conjunction with planned repairs to your external walls. If you can't apply it to your whole house, you could apply it to particular cold spots. There are two methods: either a weather proof insulated cladding or insulating render is applied to external walls of the house. This form of insulation will change the external appearance of the property and so can require planning permission.

Internal wall insulation for solid walls

Internal wall insulation is installed either by placing insulating material behind a layer of plasterboard (dry-lining), or wooden battens in-filled with insulation or using an insulating wallpaper, such as Sempatap (www.mgcltd.co.uk). These methods will slightly reduce the floor area of the rooms and is best considered as part of a major renovation of the property. Both forms of internal insulation have the advantage that they can be applied to individual rooms if required, rather than the whole property, therefore saving on cost. In addition, they do not affect the external look of the house.

Remember, you only need to insulate external walls, not those between rooms or those between another house.

What to do now?

You can find out more information on solid wall insulation from the National Insulation Association website and Insulated Render & Cladding Association (www.inca-ltd.org.uk).

Loft insulation

If you haven't insulated your loft, you could be losing up to 15% of the heat from your house through the ceiling. Installing loft insulation can be an inexpensive and easy way to improve the energy efficiency of your home. The recommended thickness of loft insulation is currently 250mm (10"). If you have less than this, it can easily be topped up to minimise heat loss. You can measure the current depth of your loft insulation by slipping a ruler down beside a joist or between sheets of insulation until it reaches the ceiling and then read the depth. Loft insulation can be either installed by you or by a professional installer.

What about ventilation?

Your loft needs to be ventilated to stop condensation forming. It is important to leave a gap around the eaves to ensure natural ventilation of the loft, but this outside air will be entering the loft above your new insulation so won't affect the warmth of your house. Also, remember to insulate and draught-proof the loft hatch to stop draughts entering your home.

Can I install loft insulation myself?

Yes, you can buy loft insulation from most large DIY stores and lay it yourself. When carrying out the work, ensure you wear protective clothing, goggles and a mask; the fibres of some insulation can be irritable. Some types of insulation are sealed in plastic to make laying it clean and quick. Be careful where you stand in your loft: stand only on the joists, or place sturdy boards across the joists to use as walk boards.

What is the insulation made of?

Most insulation is made from mineral wool or glass fibres, some of which may be made from recycled glass. Other materials such as sheep wool or flax are available but are likely to be more costly.

How do I lay loft insulation?

The first layer of insulation should be laid between the joists on the floor of the loft, which are usually 100mm deep. The second layer should be laid at right angles to the first layer. Walk boards and storage areas can still be installed above the level of insulation if you want to use your loft for storage but must not compress the insulation otherwise it will drastically reduce performance. You are advised to seek professional advice if you are in any doubt about doing the work yourself.

Can my loft be insulated at roof level rather than on the loft floor?

You can insulate at the roof level, but only do this if you use the loft as a living space otherwise the heat from your house will rise to fill the loft space and only serves to keep your storage boxes warm, which is unnecessary.

Will insulating my loft affect any water pipes in the loft?

One result of laying insulation in your loft is that the loft itself will get colder. Tanks and pipes in the loft will be more liable to freeze in the cold weather so they should be insulated too. See the section below about insulating your pipes. It's advisable not to insulate directly below your cold water tank so that warm air rises and ensures your water tank won't freeze.

See the table below for approximate costs of loft insulation and yearly savings.

	Loft insulation Installing 270mm where none was present	**Loft insulation** Top up from 50mm to 270mm
Annual saving per year	**Around £175**	**Around £25**
Installed cost	**Around £250**	**Around £250**
Installed payback	**Around 2 years**	**Around 4 years**
DIY cost	**From £50 - £350**	**From £50 - 350**
DIY payback	**1 - 2 years**	**2+ years**
CO_2 saving per year	**Around 720kg**	**Around 110kg**

Hot water tank and pipe insulation

If you have a hot water tank, make sure it is well insulated. Newer tanks will have foam insulation adhered to them, old tanks should be fitted with a jacket of 75mm thickness. If your jacket is old and worn, then purchase a new one – it could reduce heat loss by 75% and pay back within a year.

You can also easily insulate any hot water pipes with foam tubing (available from DIY stores), with immediate benefits. If you're insulating your loft or replacing your flooring, then insulate any pipes in the loft at the same time to prevent them from freezing. All water pipes, including overflows, should be insulated. The recommended thickness of pipe insulation is at least 50mm.

	Hot water tank jacket	**Primary pipe insulation**
Annual saving per year	**Around £40**	**Around £15**
DIY cost	**Around £15**	**Around £10**
DIY payback	**Around 6 months**	**Up to 1 year**
CO_2 saving per year	**Around 170kg**	**Around 60kg**

Draught-proofing

If you can feel a draught around your doors and windows, then you could be losing up to 20% of your heat in these places. Draught proofing is easy to implement and simply reduces the amount of cold air coming into your house and mixing with the warm air.

Brushes, foams, strips of plastic, wood and metal are all types of draught-proofing. Draught-proofing materials are available from any good DIY store and can be placed on doors, letterboxes, keyholes and windows. If you have a draughty front or back door, consider hanging a heavy curtain across the inside, it will greatly reduce

draughts and keep your rooms warmer. You could even take it down during the summer months.

	Draught proofing
Annual saving (£/yr)	Around £55
Installed cost £	Around £200
Installed payback	Around 4 years
DIY cost	Around £100
DIY payback	Around 4 years
CO_2 saving per year	Around 150kg

Floor insulation

The reason slippers are so popular is because floors tend to be cold and draughty, therefore it's no surprise up to 33% of your heat could be lost through the floor. Floor insulation may consist of reducing drafts around your skirting boards or installing insulation under or over your floorboards. An ideal time to install under-floor insulation is when you are having repairs or renovations done to your floor; it's likely to reduce the cost of installation.

Mineral wool insulation can be installed under wooden floor boards by lifting the boards and suspending the insulation between the joists with netting. These measures could be installed by yourself or a professional. It's important to ensure the ventilation between the floor boards and the ground is maintained otherwise the boards will rot. Make sure you don't block any under floor air bricks either. If in doubt, seek professional advice.

Remember that carpets and rugs are an effective way to insulate your home, and don't necessarily need to be expensive. In fact, you may be able to find something suitable available through FreeCycle:
http://www.freecycle.org/group/UK/South%20East

Draughts around the edges of floors can be avoided by sealing gaps between the floor and the walls using silicone sealant available from DIY stores. This should cost less than £20 and can make an immediate difference to the warmth of your home.

What should I remember when insulating my home?

Ventilation is important to keep your house healthy. If a house is not adequately ventilated, it may suffer problems with damp and condensation. This can lead to health problems for the occupants and the property may suffer structural problems in serious cases. When insulating your loft or floor, you should keep this in mind and ensure there is adequate ventilation in the air spaces in these areas.

Energy Saving Trust

The figures on prices and pay-back are reproduced, with permission, from the Energy Saving Trust website. Further advice and information on insulation materials can be found on their website:
www.energysavingtrust.org.uk/Compare-and-buy-products

Grants for improving the energy efficiency of your home:

Some grants and discounts are available to homeowners or private tenants. The list of grants and providers below is not exhaustive and you should do your own research to identify the best supplier for your circumstances.

Most insulation providers and insulation companies will offer you discounts and grants, these are all part of the national Government's Carbon Emissions Reduction Target (CERT) scheme. For detailed information about CERT visit: http://www.defra.gov.uk/environment/climatechange/uk/household/supplier/cert.htm Gas or electricity suppliers will also advertise their own insulation schemes, again with discounts and grants originating from the CERT scheme. It is strongly advised that you compare quotes between different installers and utility companies before making a decision.

Are you over 70?

If you are over 70 years old, you may be entitled to free loft and cavity wall insulation. Contact the Energy Saving Trust or your energy supplier for more details.

Are you on income-related benefits?

Under the Government's CERT scheme, residents on certain income-related benefits can have free insulation installed in their home. Contact the Energy Saving Trust or your energy supplier for more details.

Warm Front:

If you own your home or rent from a private landlord, are on certain benefits and have a poorly insulated home, you may be eligible for a Warm Front grant to install insulation or central heating. Contact Warm Front on 0800 316 2805 or visit www.warmfront.co.uk

Insulation Installers

You are encouraged to compare prices of professional installers before you contract anyone to install insulation in your home. Not all houses are suitable for insulation; most installers will offer a free survey of your property to assess its suitability for insulation measures.

Action Surrey

MVDC is a partner in Action Surrey. Action Surrey are a trusted advice centre for residents, businesses and schools working to help reduce energy bills and carbon emissions. They also manage a network of trusted, local and experienced installers

who can install insulation, replace boilers and are experts in solar and other microgeneration technology. Visit www.actionsurrey.org to find out more, or to obtain a free, no-obligation quote.

Visit Cavity Insulation Guarantee Agency (www.ciga.co.uk) and National Insulation Association for lists of registered installers:
http://www.nationalinsulationassociation.org.uk/householder/

MVDC are keen to liaise with installers in order to encourage companies to provide value for money for our residents as well as a responsible service. We're currently liaising with the following companies and monitoring their work within the district. The Council does not take responsibility for the work of these organisations and would like to hear if you have any helpful comments about the service or workmanship they provided for you. You are encouraged to do your own research before deciding on a particular company to use for your insulation installation.

Lion Insulation:
Lion Insulation is a national installer of insulation. They are currently offering Mole Valley residents competitive prices for insulation. http://www.lioninsulation.co.uk/
Freephone: 0800 521 379 (Monday – Friday 9am to 5pm)

Heat Project:
The Heat Project, operated by Enact, offer insulation services to homes throughout the UK. They often send information to homes in Mole Valley. As with many schemes, they will offer grants and discounts which originate from the CERT scheme, and will use the service of contractors to install the insulation.
For more information, call Heat Project on 0800 093 4050 or visit
www.heatproject.co.uk