

Floor insulation

Reduce heat loss from the ground up

Insulating the ground floor of your house is a simple and effective way to keep your home warm and reduce your energy bills.

This page is about insulating your floor - reducing the amount of heat that travels directly through the floor fabric. If you want to know about draughtproofing – sealing the gaps between the floorboards and along the skirting – see our leaflet 'DIY Draughtproofing'.

Whether you have a suspended wooden floor or a concrete floor, improving your insulation could save you £53-68 a year if you live in a mid-terraced house or semi-detached, and up to £96-121 a year in a detached house or bungalow.

Floor insulation is a significant undertaking, so should only be tackled by a professional builder or a very experienced and competent DIY-er.

What kind of floor do you have?

Almost all UK homes will have one of two types of floor: a suspended timber floor (boards laid over wooden joists), or a solid concrete floor.

These are insulated in different ways.

But in each case, if you are the homeowner, it's your responsibility to comply with Building Regulations. In the case of adding extra insulation to your existing floor these may include making sure that the rooms on your ground floor still meet the minimum room heights, that you achieve minimum U-values (the standard measure



Foam insulation boards are laid between the floor joists



Underfloor insulation being laid between the floor joists of a Victorian home

of thermal performance) and that you take steps to minimise the risk of fire. It is a good idea to get advice from a Building Control Officer at your local council before carrying out the work.

Insulating a timber floor

Before you install additional insulation under your floor, make sure any damage from damp, rot or infestation is repaired, and make sure that the new insulation doesn't block any ventilation openings like air bricks.

Solid insulation board (as in the picture below) or rolls of mineral fibre (like that which is used to insulate lofts) can be fitted between the flooring joists. If your floor is above an unheated cellar or basement, you will need to fit the insulation snugly between the joists and secure in place with netting if required. Plasterboard should then be fixed to the ceiling of the basement to provide fire resistance.



If you have a suspended floor, with a small cavity below that is hard to access, you will normally have to take up the floorboards in order to fit the insulation. However, there are now companies such as Q-Bot that insulate such floors from



Insulating cold, concrete floors can make a real difference

below with the use of an innovative remote-control vehicle - a floor-insulating robot - that surveys the underside of the floorboards, before spraying on insulation.

When insulating a suspended timber floor, a vapour permeable airtightness layer should also be installed. This will reduce heat lost through infiltration but also through the floor fabric.

Insulating a concrete floor

Insulation can be added over an existing concrete slab to make a room warmer and more comfortable.

This is normally in the form of high-performance insulation panels or boards that provide the best thermal performance at any given thickness.

Keeping the thickness of your insulation to a minimum will reduce the likelihood of having to make alterations to door openings, stairs and other fixtures as a result of the increase in floor height.

If your chosen insulation does not come already attached to a layer of moisture-resistant chipboard, you may need to lay a separate deck on top. And it is in any case a good idea to lay a damp-proof membrane underneath the insulation (taking care to overlap any damp-proof course in the external walls).

If an old concrete floor is being replaced, you will likely be required by Building Regulations to upgrade the insulation. In almost all cases this is a job for a professional builder.

For more on insulation see our factsheets on underfloor heating, external and internal solid wall insulation, loft insulation and cavity wall insulation, and also on DIY draught-proofing. Available to download at www.cse.org.uk/advice-leaflets

Tips to cut your electricity use, and save money ...



Give your clothes a day in the sun (and give your tumble drier a break). Clothes dried in fresh air feel great, and there are sunny days in winter, too.

Dodge the draught! Fit draught-excluders to your front door, letter box and key hole, and draw your curtains at dusk to keep the heat in.



Only fill the kettle with as much water as you actually need (but make sure you cover the metal element at the base).

Buying a new appliance? Remember to check the energy rating label and consider the size.



Wait until you have a full load in your dishwasher or washing machine before doing a wash. Two half-loads use more energy than one full load.

Sleep tight. Make sure all the lights are turned off when you go to bed. You can get low-wattage night lights for children's rooms or landings.



Contact us:

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

St James Court,
 St James Parade,
 Bristol BS1 3LH

0117 934 1400
www.cse.org.uk
info@cse.org.uk

Charity: 298740
 Founded: 1979

The Centre for Sustainable Energy is a national charity supporting people and organisations across the UK to tackle the climate emergency and end the suffering caused by cold homes.

Our Home Energy Team offers free advice on domestic energy use to householders in central southern and southwest England.