

Floor insulation

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 £33-£65 a year if you live in a mid- or end-terraced or semi-detached house, and up to £94-111 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 adhere to best practice guidelines and 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 of thermal performance), that you take steps to minimise the risk of fire, and that there is sufficient sub-floor ventilation. 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.

Rigid insulation board 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. For older, traditional properties, vapour open insulation





Insulating cold, concrete floors can make a real difference

materials such as sheep's wool and wood fibre boards are recommended.

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 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.

We recommend laying a damp-proof membrane underneath the insulation (which should overlap any damp-proof course in the external walls) and an airtightness layer and a vapour control layer should be installed on the warm side of the insulation. In almost all cases this is a job for a professional builder.

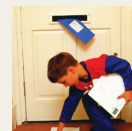
If an old concrete floor is being replaced, you will likely be required by Building Regulations to upgrade the insulation at the same time.

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.

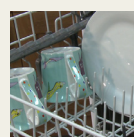
Draught-proof! Fit draught-excluders to your front door, letter box and key hole, and draw your curtains at dusk to keep the heat in.



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

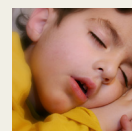
Buying a new appliance?

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.



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We're a charity (298740) 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 people in central southern and southwest England.

See all our energy advice pages at www.cse.org.uk/advice