

Underfloor insulation

Reduce heat loss from the ground up



Floor insulation is a simple and effective way to keep your home warm and reduce your energy bills.

Regardless of whether you have a suspended wooden floor or a concrete floor, improving your insulation could save you up to £60 per year. You may also be able to get financial help and other support to help you pay to have the insulation installed by a professional.

What kind of floor do you have?

Before you can decide on the best way to insulate, you need to know what type of floor you have. There are two ways to determine this:

- 1) If your house has a basement or cellar then you might be able see wooden joists and the undersides of the floorboards from below. If this is the case then you have a suspended timber floor. It is also likely that you have this type of floor if there are ventilation bricks on the outside of your house that are below floor level.
- 2) If you cannot access the space underneath your floor, you will need to lift a corner of the carpet and underlay.

Building Regulations

If you are the homeowner it is your responsibility to make sure that any changes to your home are fully compliant with Building Regulations. When adding extra insulation to your existing floor there are a number of key issues that will need to be considered, for example you will need to make sure that the rooms on your ground floor still meet the minimum room heights, that you achieve minimum U-values (these are the standard measure 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.



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

Photos: iStock.com/zoomstudio, Will Anderson

Insulating a timber floor

Before you can install additional insulation under your floor you must make sure that you arrange to have any damage from damp, rot or infestation repaired. During the installation it is also important to ensure that the new insulation does not block any ventilation openings like air bricks.

Solid insulation board or rolls of mineral fibre (like that 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 tightly 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 your floor is not accessible from below, your floorboards will need to be taken up in order to fit the insulation. You can reduce draughts by sealing the gaps between the floorboards and along the skirting, or alternatively you can fix hardboard or chipboard over the top of them.



Remember, it's not just the roof and walls that can lose heat. The floors can too



Insulating cold, concrete floors can make a real difference

Photo: iStock.com/Sharon Meredith

Insulating a concrete floor

If a floor is being replaced, this is a perfect opportunity to improve the standard of insulation. In fact, where this is the case, upgrading your floor insulation is required in order to comply with Building Regulations. Insulation can be added over the existing concrete slab or underneath a new one.

Where insulation is placed above the slab, the rooms will warm up more quickly when the heating is switched on. High performance rigid insulation boards are often the best materials to insulate an existing concrete slab floor as they 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 costly alterations to door openings, stairs and other fixtures as a result of the increase in floor height.

It is a good idea to lay a damp-proof membrane underneath the insulation (taking care to overlap any damp-proof course in the external walls). Don't forget to leave room for expansion around the edges of each room. If your chosen insulation does not come already attached to a layer of moisture-resistant chip-board you may need to lay a separate deck on top.

Insulating your floor underneath the concrete slab can help regulate the temperature and prevent over-heating in rooms that are south-facing or occupied for long periods of the day due to the thermal mass of the concrete.

The damp proof membrane can be placed above or below the concrete slab, depending on the particular product (manufacturers will be able to advise). If the membrane is placed above the slab an additional membrane may be required to protect the insulation from ground contaminants.

Any timber to be used as a new floor covering should be left in the room for some weeks with the heating on before being laid to prevent it from warping.

How much money will I save?

Having a timber floor insulated professionally, including filling the gaps between the floorboards and around the skirting, depends on the size and shape of the room and the insulation material used, but typically costs around £800. The insulation will make the room feel warmer in the winter and reduce heating bills by as much as £90 per year. With this level of saving the payback time is less than 9 years and will be shortened further if energy prices continue to rise. Carrying out the work on a DIY basis will significantly reduce the costs and the insulation could pay for itself in around 2-3 years.

The cost of insulating a concrete floor can vary greatly and it is always advised able to shop around for quotes before having any work carried out.



For more on insulation see our factsheets on 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

This leaflet was originally produced by the **Centre for Sustainable Energy (CSE)** and reprinted in this version on behalf of SEACS.

CSE's Home Energy Team offers free advice on domestic energy use to householders in Bristol and Somerset (including the unitary authorities of North Somerset and Bath & North East Somerset).

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