

How to insulate your loft

A guide for the competent DIY-er

Insulating your loft will reduce heat loss, keeping you warmer and cutting energy bills. Fitting the insulation yourself can help keep the cost down.

The table below shows typical costs for DIY loft insulation, based on a typical 3-bedroom semi, and using mineral fibre. Other materials may cost more. A typical payback time is about one to five years, depending on the fuel used to heat your home.

Installing the full 270mm £300

Topping up from 120mm to 270mm £20

What insulation material should I use?

The most common form of loft insulation is mineral fibre which comes in rolls that are laid out at the floor level of the loft between the joists. Loft insulation can also be made from sheep wool, hemp fibre, flax, cellulose or recycled materials like plastic, glass or newspaper.

There are alternatives such as rigid boards, blankets (where insulation is sealed inside a foil bag) and foam panels that squeeze between joists. Some materials are better insulators than others. So you could use a thinner layer of a solid insulation board to achieve the same results as a thick layer of mineral fibre, for example.

For this guide, we'll assume that you're using standard mineral fibre insulation. If you want to compare materials, you can use the figures on the product packaging or get the figures from manufacturers. Some retailers provide leaflets comparing the relative properties of different materials. Look out for:



Insulating your loft is a good idea, but you'll need a lot of it

- R-value: a measure of how heat loss is reduced by a material (the higher the better).
- k-value: a measure of heat flow through a material (the lower the better).
- U-value: a measure of heat flow through a given thickness of a material (the lower the better).

Before you start

You'll need to know how many rolls to buy – most retailers and manufacturers can calculate this for you if you provide them with the floor area of your loft and the depth you need.

In most properties you can measure the floor area using the length and width of the rooms beneath.

For mineral fibre, the recommended depth is 270mm. So if you've already got 100mm of insulation in the loft (about level with the height of the joists), you'll need rolls that are 170mm thick to bring your insulation up to standard. Also buy some draught-proofing strips for the edges of the loft hatch.

Check that your loft hatch is large enough for you to comfortably get through with a roll of insulation.



If it's very small, you'll need to get it widened by a competent joiner. Be sure you have a sturdy and secure ladder to get yourself safely in and out of the loft. You'll also need a couple of loose planks or loft boards to stand or kneel on once you're up in the loft. Be very careful to only put weight on the boards so you don't damage the ceiling or yourself. Check there's enough lighting and ventilation for you to work.

Before you get going ...

- Check for any repairs that might be more difficult after the insulation is fitted and get these sorted out first.
- Prepare the loft space by sealing any large holes around pipes and cables, and fit coverings to any lights.
- Fix electrical wiring out of the way so cables don't overheat. This is particularly important for cables supplying high power appliances like electric showers and immersion heaters. These cables should lie on top of the insulation when you've finished, not underneath.

Make a plan

Aim to start at the corners and edges and work towards the hatch so you have more room for the cutting and joining. If no insulation is in place already,

Get the gear

We recommend that you use goggles, a mask that covers your mouth and nose, and gloves. Most DIY stores sell all of these.



You'll also need a tape measure and a knife or long scissors to trim the insulation. Wear overalls if you have them.



Don't unpack the rolls of loft insulation until you're actually in your loft

you'll need to lay the rolls between the joists first and begin the second layer once the whole of the first layer is done.

Most insulation is compression packed and will expand once the wrapping is removed, so only unpack the rolls once they're up in the loft. It's also much easier to cut the insulation while it's still rolled up. You may find that the packaging has a line showing where to cut the insulation so it fits neatly between the joists. Always read the manufacturer's instructions and take care when cutting and unpacking the insulation.

Don't squash the insulation to fit into corners. Trim it to fit properly, and where one roll ends and another begins, push the ends together leaving no gap.

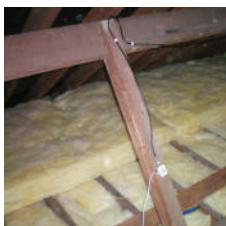
But don't lay the insulation all the way up to the eaves; for ventilation purposes, leave a gap of at least 25mm around the edge of the loft. If your boiler flue goes through the loft, leave a gap around this as well.

Install the first layer to roughly the depth of the joists. To minimise heat loss and give an even coverage, fit the second layer across the joists at right angles

Don't forget the loft hatch itself. Insulate the back



of the hatch by using a square of insulation, wrapped in polythene. Fit it to the hatch using staples or tacks. Then draught-proof around the frame so it fits snugly.



Water and electrics

If you have a cold water header tank or cylinder in your loft, you need to reduce the risk of it freezing by lagging it, but do not put insulation under the tank. Also lag all the water pipes so they don't freeze.

It's a good idea to retain a walkway to any water tanks and boilers in case they need servicing. Make sure the walkway is easily identifiable – once the insulation is in place it can be very difficult to see where the joists are, so fit walk-boards if necessary.

Make sure any electrical cables are lifted above the insulation and that recessed light fittings are not covered.

Ventilation and condensation

Once the loft is fully insulated, the air temperature in the loft will be considerably cooler. Because cold air cannot hold as much moisture as warm air, condensation is more likely to form. Condensation can create a damp problem, so you must make sure your loft is adequately ventilated and that air can circulate. Be careful not to cover air vents, and make sure that the insulation is not pressed up around the outside walls or eaves.

Check the loft from time to time to spot any condensation problems. You may find additional ventilation is required.

What if I use my loft for storage?

If you want to use your whole loft for storage then topping the insulation up to 270mm may not be practical. This is because if you squash the insulation down underneath loft boards it becomes less efficient at keeping the heat from escaping. One option is to raise the height of the joists to accommodate 270mm

of uncompressed insulation. But this will increase the cost and complexity of the job, and will reduce height of the loft space.

If you only need to store a few boxes, you could insulate most of the loft to the full depth and just leave a small area adjacent to the hatch where you only lay insulation up to the top of the joists and then lay the boards on top.

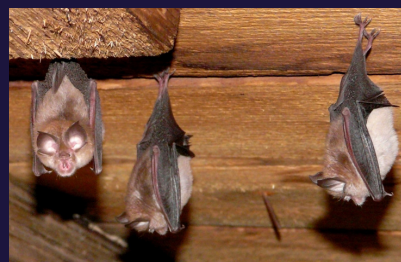


Bats in the loft?

Bats are protected by law. You may be committing a criminal offence if you capture, injure or kill a bat. It is even an offence to disturb a roost or obstruct the bats' access to their roost.

So if you have bats in your loft, it is strongly recommended that you contact the Bat Conservation Trust (www.bats.org.uk) before you begin work (enquiries@bats.org.uk or **0845 1300 228**). The Trust is contracted to Natural England to provide free advice.

If you're in Wales, contact Natural Resources Wales on **0300 065 3000** or via the website at www.naturalresourceswales.gov.uk



TOP, long eared bats;
LEFT, lesser horseshoe bats.

Photos: John Black / Bat Conservation Trust



A few ways to cut your electricity and gas use, and save money ...



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

When you're cooking, keep the oven door shut as much as possible; every time you open the oven door, a lot of the heat escapes.



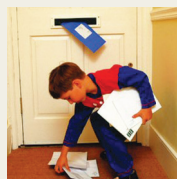
Food in the oven cooks faster when the air inside flows freely, **so don't put foil on the racks.**

Don't leave your phone on charge all night. It only needs three hours – and try not to leave the TV and other kit on standby.



Encourage your children to switch off electric toys and lights that they're not using. They'll soon get the hang of saving energy.

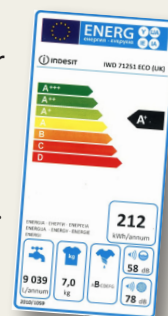
Cup of tea or coffee? Only fill the kettle with as much water as you'll actually use (but make sure you cover the metal element at the base).



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.

Buying a new appliance? Check the energy label and buy A-rated goods for the most efficient.



Be a friend to your freezer. Defrost it regularly to help it run more efficiently.

Turn your heating down by just 1 degree. You'll hardly notice the change in temperature, but it'll make a big difference to your heating bill.



Wait until you have a full load before running the dishwasher or washing machine. One full load uses less energy (and water) than two half-loads.

Sleep tight. Make sure all the lights are turned off when you go to bed, or use a low-wattage night light if you do need to leave one on.



New computer? Laptops typically use around 85% less energy than a new desktop PC.



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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.

Contact us:

PHONE 0800 082 2234

EMAIL home.energy@cse.org.uk

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