Energy Saving Trust
Roof and loft Insulation

Heat rises, and in an uninsulated home, a quarter of heat is lost through the roof. Insulating your loft, attic or flat roof is a simple and effective way to reduce heat loss and reduce your heating bills.

Loft insulation is effective for at least 42 years and it should pay for itself many times over.

How much you can save

England, Scotland and Wales

Loft insulation (0 to 270mm)	Detached house	Semi detached house	Mid terrace house	Detached bungalow
Fuel bill savings (£/year)	£240	£140	£135	£200
Typical installation cost*	£395	£300	£285	£375
Carbon dioxide savings (kgCO2/year)	990 kg	580 kg	550 kg	820 kg

Loft insulation top up (120 to 270mm)	Detached house	Semi detached house	Mid terrace house	Detached bungalow
Fuel bill savings (£/year)	£25	£15	£15	£20
Typical installation cost*	£310	£250	£240	£295
Carbon dioxide savings (kgCO2/year)	95 kg	55 kg	50 kg	80 kg

*Estimates based on insulating a gas-heated home with either a totally uninsulated loft, or topping up existing insulation from 120mm to 270mm. (The recommended depth for mineral wool insulation is 270mm but other materials need different depths). *Average unsubsidised professional installation costs, although these will vary. Find out more about our calculations.*

Northern Ireland

Loft insulation (0 to 270mm)	Detached house	Semi detached house	Mid terrace house	Detached bungalow

Loft insulation (0 to 270mm)	Detached house	Semi detached house	Mid terrace house	Detached bungalow
Fuel bill savings (£/year)	£240	£140	£135	£200
Typical installation cost*	£395	£300	£285	£375
Carbon dioxide savings (kgCO2/year)	1,200 kg	710 kg	670 kg	1,000 kg

Loft insulation top up (120 to 270mm)	Detached house	Semi detached house	Mid terrace house	Detached bungalow
Fuel bill savings (£/year)	£25	£15	£15	£20
Typical installation cost*	£310	£250	£240	£295
Carbon dioxide savings (kgCO2/year)	115 kg	70 kg	65 kg	95 kg

Easy access and regular joists*These are estimates based on insulating a oil-heated home with either a totally uninsulated loft, or topping up existing insulation from 120mm to 270mm. (The recommended depth for mineral wool insulation is 270mm but other materials need different depths). *Average unsubsidised professional installation costs, although these will vary. Find out more about our calculations.*

Choosing loft insulation

If your loft is easy to access and has no damp or condensation problems it should be easy to insulate. It is possible to do it yourself.

If access is easy and your loft joists are regular, you can use rolls of mineral wool insulation. The first layer is laid between the joists – the horizontal beams that make up the floor of the loft – then another layer is laid at right angles to cover the joists and make the insulation up to the required depth. This can be done by someone competent in DIY or a professional installer.

Storage space

If you plan to use the loft or attic for storage, you will want to lay boards over the joists. Unfortunately, if you only insulate between the joists before doing this, the insulation won't be thick enough.

To get enough insulation you can do the following:

- Insulate between the joists with mineral wool and then lay rigid insulation boards on top, with wooden boarding on top of that. You can buy insulation board pre-bonded to floor boarding to make the job easier. Or

- raise the level of the floor so you can fit enough mineral wool beneath the new floor level.

Either way, make sure you don't squash the mineral wool when you fit the boards on top as this this will reduce its insulation value.

Room-in-roof

If you want to use your loft as a living space, or it is already being used as a living space, you can insulate your room-in-the-roof by insulating the roof itself rather than the loft floor. This is typically done by fixing rigid insulation boards between the roof rafters. Boards must be cut to the correct width so that they fit snugly between the rafters. They can then be covered by plasterboard. Rafters aren't usually very deep, so to get the best performance you may have to insulate over them as well, using insulated plasterboard. If there isn't room to do this, make sure you use the highest performance insulation board.

Walls in the roof space and around dormer windows should also be insulated. This is typically done with rigid insulation boards.

In all cases adequate ventilation should be maintained to the rafters.

Inaccessible loft spaces

If your loft is hard to access, you can have blown insulation installed by a professional, who will use specialist equipment to blow loose, fire-retardant insulation material made of cellulose fibre or mineral wool into the loft. This doesn't usually take more than a few hours.

Flat roofs

A flat roof should preferably be insulated from above. A layer of rigid insulation board can be added either on top of the roof's weatherproof layer or directly on top of the timber roof surface with a new weatherproof layer on top of the insulation. This is best done when the roof covering needs replacing anyway. If your flat roof needs to be replaced anyway you must now insulate it to comply with building regulations.

It is possible to insulate a flat roof from underneath, but this can lead to condensation problems if not completed correctly.

Installing flat roof insulation could save you similar amounts on your heating bills to loft insulation. The savings will vary depending on how much of the property has a flat roof.

Damp lofts

Insulation stops heat escaping from living spaces, so it will make your loft space cooler, which could introduce or worsen existing damp or condensation problems. If you are installing loft insulation yourself please keep in mind that you may need to increase ventilation and you will need to get

Building Control Approval. Get professional advice before installing insulation to see if you can fix any damp problems first.

Is installing insulation a DIY project?

If your loft is easy to access, does not have damp problems and is not a flat roof, you could probably insulate it yourself.

Room in roof insulation can be installed by experienced DIY-ers. In cases where there are damp problems or a more complex insulation system is needed, a professional installer should be used.

If your home was built using traditional construction materials and techniques, you will need to make sure that you use insulation materials that are suitable for your home, so that it continues to work in the way it was designed to. You may also find that you need a joiner or craftperson to do the work for you to ensure that the work is in keeping with the building.

Flat roof insulation always require professional insulation.

Damp roofs require professional assessment before work can be carried out.

Finding an installer

The National Insulation Association (NIA) is a member organisation for the insulation industry in the UK. Members agree to follow a code of professional practice to ensure that customers who use them receive excellent customer service. You can use their website to find an NIA installer near you.

For further information:

Call the Home Energy Saving Advice Service on: 0300 123 1234 if you are in England or Wales.

If you are based in Scotland, call Home Energy Scotland on: 0808 808 2282. You can also visit Historic Scotland's Technical Conservation knowledge base for information on how to insulate traditionally constructed buildings.

Pipes, water tank and loft hatch

Insulating between the joists of your loft will keep your house warmer but make the roof space above colder. Pipes and water tanks will be more likely to freeze, so you will need to insulate them. If your water tanks are some distance from the loft hatch, you will also need something to walk on for safe access.

The cooler air in your insulated loft could mean that cold draughts come through the loft hatch. To prevent this fit an insulated loft hatch and put strips of draught-excluding material around the hatch edges.

http://www.energysavingtrust.org.uk/domestic/roof-and-loft