

## How to Install Your Loft Insulation

This guide explains how to install insulation to an uninsulated loft, with a pitched roof, at ceiling level. This means you will be laying insulation on the 'floor' of your loft space.

**Note:** If your loft is part-insulated and you want to 'top up', you may be able to skip some of these steps. However, please always carry out the important safety checks listed below.

### TIPS:

- Read our [Everything You Need to Get Started guide](#) on our Homeowners Hub, before you begin.
- Remember that your insulation works by trapping air between its fibres, so avoid compressing the material and make sure you don't leave any gaps (except for ventilation – more about that below).

### BEFORE YOU BEGIN

Put on your overalls, safety glasses, gloves, bump cap and dust mask (FFP1 minimum).

Make sure the tools and equipment you need for each stage are ready and within reach.

Remove any stored items from your loft, so the space is empty. If you plan to store belongings in your loft, these should sit on top of loft boards, to avoid compressing your new insulation.

See our [Homeowners Hub](#) for more info.



Lay crawl boards across the joists, ensuring they're supported by three joists – you'll use these to safely move around the loft space, without putting your foot through the ceiling!

**TIP:** Keep your insulation in its packaging outside the loft, until it's in place and ready to unroll – it's compressed for easy transport and will expand to up to **ten times** its thickness when unwrapped.

If your loft has a water tank, leave the space directly below it uninsulated. The rising warm air will help prevent the tank from freezing in cold weather.

You might also want to cover your tank with an insulation jacket and cover any pipes with appropriate pipe insulation materials. See our [Homeowners Hub](#) for more info.

### Carry out these important safety checks:



- Any heat producing fixtures (including recessed lighting fixtures) must be isolated, so they do not touch your insulation. Make sure non-combustible protection covers are installed over any downlights, to stop them overheating and becoming a fire risk. Always follow the manufacturer's instructions when installing downlight covers.



- Any cables under a high electrical load (for example feeding an electric shower) must be long enough to be laid on top of the full depth of insulation, as covering them creates a fire risk.

If you're unsure whether your cables are appropriately sized for their load, speak to an electrician. If in doubt, always rest cables on top of insulation.



### Checks complete, it's time to get started

Check our video guide: <https://www.youtube.com/watch?v=0OGXXiwHvb8>

**9:00am**

Seal any gaps where air could leak into the loft from the room below – for example around lighting fixtures, cables and the top of wall partitions. Use a high-quality sealant and tape, available from the Passivhaus store: [phstore.co.uk](https://phstore.co.uk). Rubber grommets can also be used to create a seal around lighting cables.



**TIP:** Brush away any dirt or dust before applying sealant and tape, for a long-lasting result.

**12:30pm**

Take a well-deserved lunchbreak - you've earned it!





**1:15 pm**

Now it's time to lay the insulation. Start at the eaves, then fill the space in between. Begin at the bay furthest from your loft hatch and work towards it.

- 1** With your 100mm insulation still in its packaging, cut the roll to the required width.
- 2** Unwrap your insulation and position the end between the joists within the eaves. Ensure the width fits snugly between the joists.
- 3** Unroll approx. 2 metres of insulation and cut, so you have a shorter length to work with in the eaves. Gently agitate the product, to make sure it has expanded to its full thickness. Do this every time you unroll a new section.
- 4** Lie flat on your crawl boards and reach into the eaves, curving the end of your insulation down around the edge of your loft floor, until it meets the top of your wall insulation.
- 5** Make sure you leave a 50mm gap between the top of your loft insulation and the underside of the roof, to prevent condensation. Eaves vents are available to maintain this air gap.
- 6** Repeat this process in each bay, until the eaves on both sides of your loft are fully insulated.



**2:15 pm**

Grab a cup of tea and admire your work so far.





2:30 pm

Now you'll need to insulate the central loft space. Again, begin at the point furthest from your loft hatch, and work towards it.

- 1** Take the end of your 100mm roll and butt it securely up against the free end of your eave insulation. Make sure they are firmly pressed together, with no gaps.
- 2** Unroll the insulation across the loft floor, ensuring it sits snugly between the joists. Where it meets the insulation from the opposite eave, cut the roll and butt the two ends firmly together.
- 3** Neatly cut the insulation around any obstacles, like pipes or trusses, so it sits snugly around them. Fill any unwanted gaps with offcuts, not forgetting the gap between the final joist and the partition wall.



**Remember:** don't insulate directly beneath a water tank and make sure any cables under a high electrical load are resting on top of your insulation.

Repeat the previous step, until your entire loft floor is insulated.

Check that each row is sitting snugly between the joists, the ends of your insulation are firmly butted together and there are no unwanted gaps.





**3:00 pm**

To complete your loft insulation, you need at least one more layer, laid at 90 degrees to the first. The total depth of insulation should be at least 270mm (or 350mm in Scotland). The thicker this second layer, or the more layers you add, the more energy you'll save.

Unroll your second layer at 90 degrees to the first, ensuring it sits flat across the joists. This is called 'cross-laying'.

**TIP:** If the thickness of your second layer doesn't allow room for your 50mm air gap at the eaves, start with 100mm roll, laying 200mm next to it as the roof height increases.

- 1** Begin at the eaves, getting as close as possible to the edge of the loft, while still maintaining the 50mm air gap. Cut a notch in the insulation at each rafter, so it fits snugly either side.
- 2** Work towards the centre of the loft. Position your crawl boards across the exposed joists and unroll from the side, to avoid putting any weight on the insulation.



If you want to add additional layers, these should be laid in parallel to the second layer (not cross-laid). Fit any additional layers at the same time as the second layer, so you can continue to use your crawl boards across your joists.

**4:00 pm**

If you need to insulate your loft hatch, cut a section of loft roll to the dimensions of your hatch (leaving a little extra on all sides if space permits).

Wrap the insulation in heavy duty plastic, completely enveloping it, while taking care not to compress it. Staple the plastic to the loft hatch so the insulation remains in position when the hatch is lifted.

Finally, attach draught stripping around the edge of the hatch. The weight of the hatch should form a seal with the stripping, further improving its thermal performance.

**5:00 pm**

**You're all done. Put your feet up and enjoy your cosy home!**

### TIP:

Compressing your insulation will significantly reduce its effectiveness. If storing items in your loft, you'll need to build a raised platform over the insulation.

See our [Homeowners Hub](#) for more info.

### Jargon Buster

#### TRUSSES

V-shaped beams, which support the roof.

#### RAFTERS

Angled beams that support the roof too.



#### BAYS

Area between joists, within the eaves

#### COMBI-CUT

Pre-perforated insulation, for easily separating to standard joist widths

#### JOISTS

Wooden beams running across the loft floor

#### EAVES

Areas on each side of the loft, where the rafters meet the loft floor