



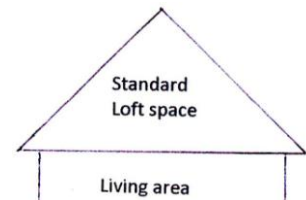
INSULATION OF NON STANDARD ROOFS

LOFT INSULATION

The advantage of good insulation (approx 270 mm) is not just because it helps keep in the heat in the winter. It also helps keep the property from overheating in the summer. If there is no roof or loft insulation 25 % of the heat from a house will escape through the roof.

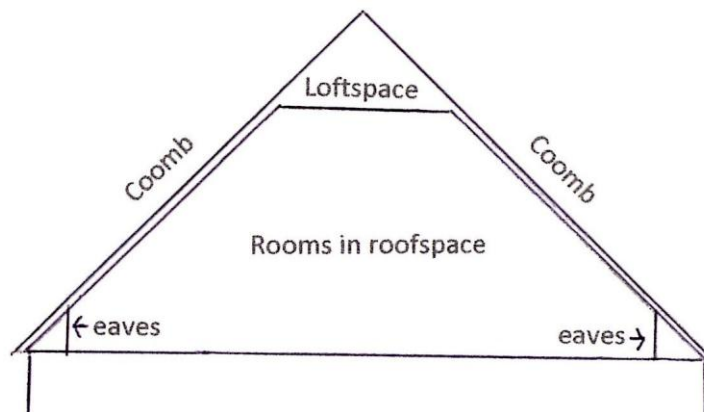
The best option for standard loft insulation would be to phone the local Energy Saving Scotland advice centre (ESSac) on freephone 0800 512 012.

They will make sure that you get the best deal either through the Energy Assistance Package (EAP) CERT or any other schemes available. Allow at least 5 minutes for the phone call because they will take you through their advice questionnaire at the same time. They will send you a basic advice report based on the answers you give to the questions.



It is important that all areas of the roof are insulated, including any sloping ceilings (coombs) and into the eaves. Heat has a way of finding the uninsulated areas to escape from, resulting in cold spots.

Sloping ceilings (coombs)



The options for DIY or organising the work yourself are as follows:

- **replacing plasterboard with a high performing insulated plasterboard**

Insulated plasterboard Kingspan Kooltherm K18 is phenolic foam which has a very good thermal conductivity at $0.021 \text{ W/m}^2\text{K}$. The insulation has approximately twice the insulating effect as fibreglass or wool and the plasterboard itself is 12.5 mm thick. So 92.5 mm thickness including plasterboard gives the insulating effect of 160 mm fibreglass. This is the thickest generally available from a range of choices. The list price is £71.11 + VAT per 2.4 m x 1.2 m sheet (£24.69 per m^2 + VAT) Kingspan's website is at www.kingspaninsulation.co.uk

- **stripping the existing lining to the slopes away, insulating between the rafters before relining.**

If there is limited space the best product to consider is Actis Triso Super 10, which has the advantage of being very thin but has the insulating effect of 210 mm fibreglass in roofs. In order for this to work best it needs to be installed well with no gaps between the sheets or at corners etc. It is specifically designed for roofs and attic conversions. Triso costs £240 + VAT per 24m^2 roll. Installation cost depends on the amount of joinery work

required. Information at www.insulation-actis.com/home and click on UK . This product is not always the right thing in lofts – Historic Scotland had a wet roof disaster with it.

Or you could fit insulation board such as Kingspan Thermapitch TP 10 or fibreglass between the rafters and then fit plasterboard back on again. An air gap of 50 mm usually needs to be left above the insulation on the external side. Foil backed plasterboard is best as this creates a low-e air space which improves the U-value.

- **Installing insulation board behind coombs**

Insulation can be put behind the coombs if there is access from the loft. This can be done by a joiner or DIY using insulation board such as Kingspan TW 55 or Thermapitch TP 10 insulation board. 100 mm of this product has the effectiveness of 190 mm fibreglass. It is lightweight and very easy to cut. This can be slid down the coombs from the top, or up from underneath. However it might be difficult to reach all the spaces and heat will escape from spaces left uninsulated. TP10 costs £13.34 per m² + VAT

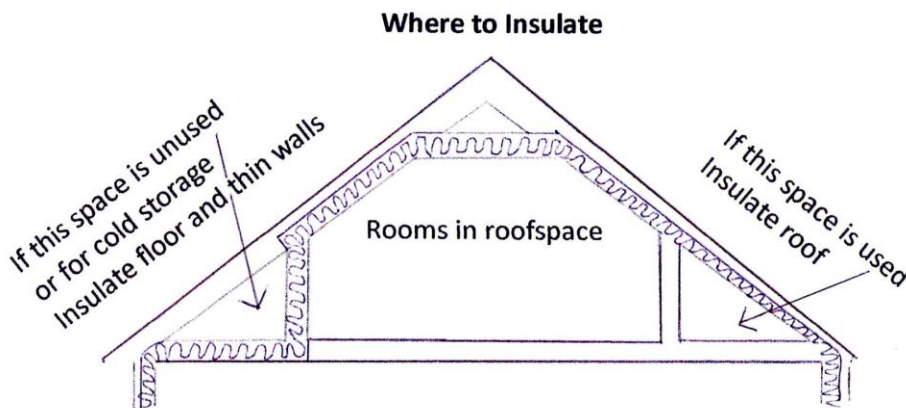
It is usually important for this method that you make sure an air gap of 50 mm is left above the insulation, between the insulation and the roof timbers, on each row. This is to allow air to circulate across the roofspace from each side of the roof, above the insulation. The edge of the eaves at each side of the roof must not be blocked. Or more formal roof vents might be required if the roof is tightly sealed.

However there are situations when an air gap is not required in the roof. Many old roofs are naturally ventilated. If there is no roofing felt on the sarking boards (these are the timber boards above/between the rafters) and if you can see daylight between the sarking boards, then there is no air space required.

If you want minimal disruption

Sempatap Thermal is very easy to install as a DIY job. It can be glued on top of plasterboard on coombs where access to the roofspace is difficult. It is only 10 mm thick and it can be painted over. It has the insulating equivalent of adding 7 mm of fibreglass. It is possible to add 2 layers (overlapping) to double the insulating effect. You will notice that this is very little, but better than nothing. The cost is £169.20 for a 12.5 m x 1m roll. More details from e mail info@mgcltd.co.uk and leaflets in BERI office.

Insulation of Eaves (additional areas of roofspace skirting the edges of upstairs rooms)



If these areas are not insulated, heat from the rooms below will escape through the ceiling and then straight through the roof. Heat will also escape from any adjoining rooms, through the thin timber partition walls. How you insulate these areas depends on what these areas are used for.

If there is no access it could be worth having one or more hatches cut to gain access to these sections.

You can insulate the floor of this as you would a loft, and the thin partition walls can also be insulated with standard insulation materials. B & Q have non-itch glass fibre insulation called Space Blanket. It is much easier to insulate the backs of these thin partition walls first, before insulating (at upstairs floor/downstairs ceiling level) behind these walls. Leave a small gap at the floor of the eaves to allow for ventilation.

You can also use lightweight insulation board for this area, especially the backs of the thin partition walls. Kingspan TW 55 or TP 10 insulation board are options (see above).

If you cannot get access to into the eaves, you could fit insulated plasterboard onto these thin walls such as Kingspan K18 or K17 (see above).

Dormers

A lot of heat is lost from uninsulated dormers. The options for insulation and materials that can be used for insulation will depend on how much space there is behind the plasterboard at each side of each dormer. You could possibly use the same insulation material for the sides and the roof.

If your pitched roof is suffering from the effects of nail corrosion

There is an insulation product Duratherm OS which also provides a repair and stabilisation system on unfelted slate or tiled pitched roofs suffering from the effects of nail sickness. It is sprayed onto the underside of the tiles or slates between the joists. It is claimed that this can extend the life of a roof by over 20 years. Indicative costs are about £2,500 - £3,000 for a typical three bedroom semi. Additional costs would be incurred for removal and reinstatement of plasterboard, services, etc. This has BBA agreement certificate accreditation no 10/4771 product sheet 3. This should be referred to for further information regarding safeguards etc. For more information phone Isothane Ltd at 01254 872555 website at www.isothane.com

We are not sure how this will secure slates fixed to sarking boards, but it has been used on pantile roofs.

Flat Roof Insulation

This is most cost-effective if it is done when the flat roof needs repair or replacement, as the cost of adding insulation would be only a small fraction of the total cost. You would need to ask for good insulation to be included as this might not happen otherwise. If the roof does not yet need repair, an option could be to add a layer of insulation material to the ceiling of the rooms below this roof. For more information contact BERI.

If you have or plan to have a FLOORED LOFT please refer to the BERI factsheet 3 on Insulating Floored Lofts

Insulating over downlights

Halogen downlights give off heat, so it is not advised to insulate directly on top of them. B & Q sell heat diffusers which solve this problem but there are other possibilities. It is recommended that you replace the halogen lights with low energy alternatives which produce at least 80% less heat. Another option is to place upturned terracotta plant pots over the top of the lights in the loft, to raise up the level of insulation away from any heat. Please refer to the BERI factsheet on lighting for more information.

Samples of materials and further information

Kingspan and Triso products are available from Sheffield Insulation and B & Q has TP10.

Samples of insulation mentioned in this report are available from BERI office at Town Hall at our drop in sessions and from our stall at Banchory farmers market from September.

It is recommended that you also refer to “ Roof insulation – extracts from E.S.T. guide CE 184 “ available from BERI.

Also “ Energy Saving Trust guide CE 184 Practical refurbishment of solid – walled houses“ (2006 edition)

This has information about roof and floor insulation also. Downloadable from

<http://www.energysavingtrust.org.uk/business/content/view/full/70495>

This information is as accurate as possible and for guidance only. It is essential that you refer to the manufacturers instructions for installation.

Banchory Energy Reduction Initiative (B.E.R.I.) is a local community organisation funded by the Scottish government’s Climate Challenge Fund until March 2012 and run by volunteers and part time staff. Online information at www.banchory.org see link to community projects. For more information tel 077 697 125 20 e mail beri.banchory@hotmail.co.uk Drop in advice sessions at Banchory Town Hall Mondays and Fridays 10.30 – 12.30



05/12/ 2011