

# Technical guidance and advice on Warm & Cold Roofs



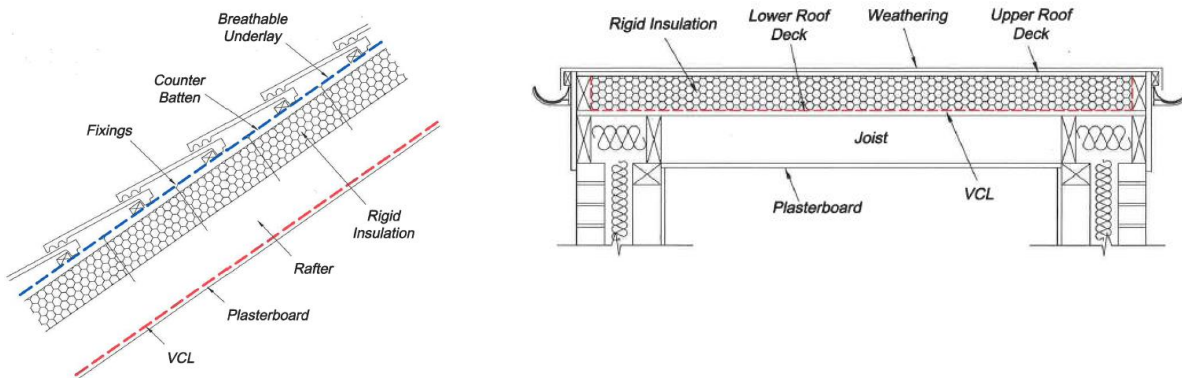
## Introduction – WARM / COLD ROOFS

This guidance offers guidance on the difference / benefits between warm and cold roofs.

### Warm Deck/Roof –

A warm deck/roof is where the insulation is placed on top of the rafters/joists and the roof covering is then placed over the insulation.

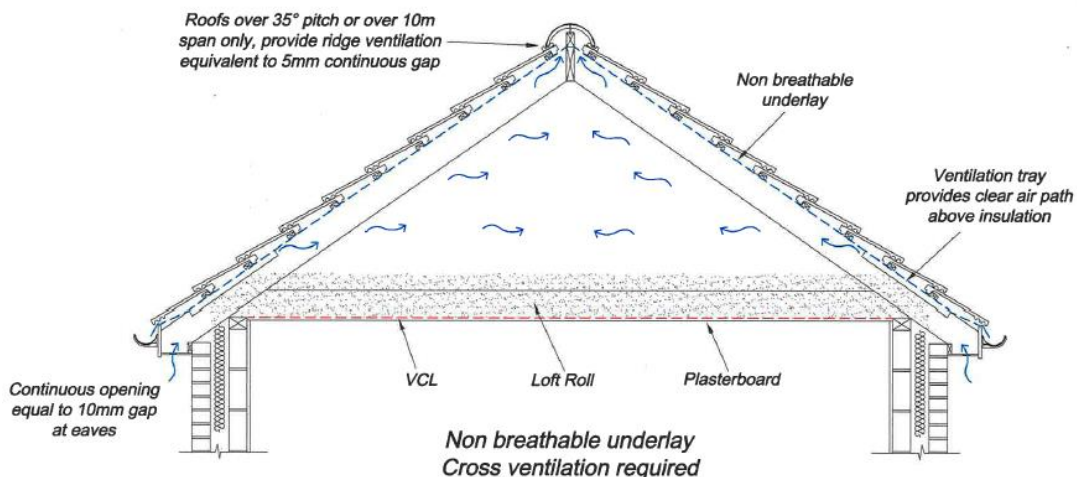
No ventilation is required for these types of roofs.

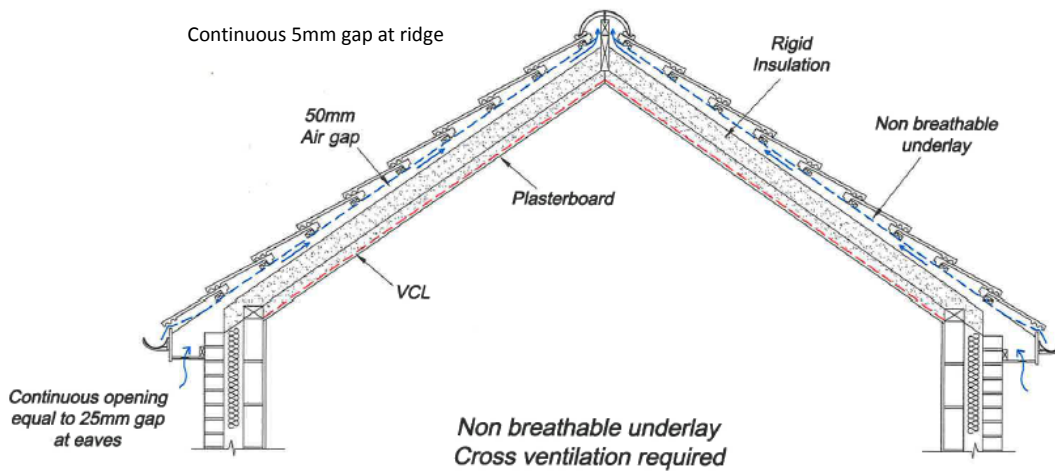
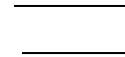
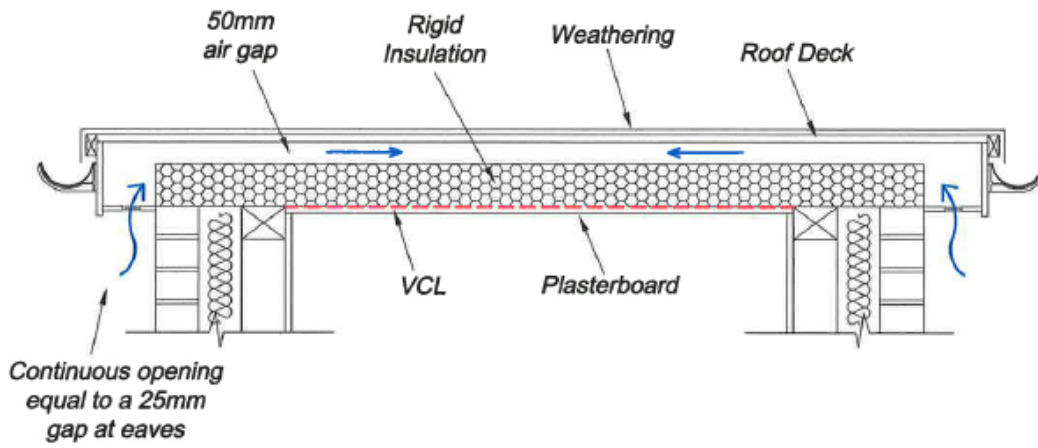


### Cold Deck/Roof

A cold deck roof is where the insulation is placed between the joists/rafters or in between the ceiling joists in the case of a pitch roof.

Ventilation is required for these roofs.





Depending on the type of roof you are considering, here's some technical details you may find useful.

**Flat roof** u-value 0.18 W/(m<sup>2</sup>k)<sup>2</sup>

- **Warm Deck Flat Roof**

The type of insulation for this is usually of a rigid type and the thickness will vary depending on the manufacturer's specifications. This is placed over the roof joists and a board (normally external ply) is laid on top. (Thickness varies according to the manufacturer's specifications). The roof covering is then laid over the ply.

- **Cold Deck Flat Roof**

The thickness of insulation required will vary depending on the material you decide to use and the manufacturer's specification. A ventilation gap, usually 50mm, should be provided between the top of the insulation and underside of the roof covering to allow the air to flow across. Ventilation openings (either at the eaves or upstand). A vapor membrane should be added to the underside of the insulation and tacked to the joists before applying the plasterboard.

**Pitch Roof** u-value 0.16 W/(m<sup>2</sup>k)<sup>2</sup>

- **Warm Deck Pitched Roof**

The insulation is placed over the rafters and then a felt is placed on top. The battening and tiling is then fixed down over. The thickness of insulation will vary depending on the manufacturer's specification.

- **Cold Deck Pitched Roof**

The insulation can be placed between the rafters or it can be placed between the ceiling joists. The thickness of insulation in both cases will vary depending on the material you use and manufacturer's specification. The roof should have vents installed along the eaves to both front and rear or from side to side. In the case where the insulation is placed between the rafters then vents should also be placed along the ridge. Where a breather membrane is used, eaves and ridge ventilation is not normally required.

Sometimes we get asked why choose a cold roof or warm roof? These are some of the reasons why...

- A cold roof can be cheaper as ridged warm roof insulation tends to be more expensive
- A warm roof is sometimes the only option when it is difficult to get the required cross ventilation
- Rigid warm roof insulation can allow for smaller timber depths as the 50mm air gap does not have to be maintained

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