

insulation
MANAGEMENT
Guide for Residential Building



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achieving R values & best insulation performance

The total insulation value of typical construction is a combination of:

- the inherent R value of the materials the building element is made from;
- the R value of the added insulation; and
- the impact of combining these materials.

Depending on how insulation is added to building elements, thermal bridging can occur and this will result in degradation of the overall R value. For example, if R2.0 batts were placed within a conventionally framed wall of 90mm pine, the bridging effect of the pine would mean that only about R1.7 was added to the overall R value of the wall. Where possible, it is preferable to select insulation techniques which minimise thermal bridging.

With ceilings the following should be noted:

1. For non-pitched roofs, thermal bridging will result in a lesser actual performance than the nominated R value of the insulation material installed, eg to achieve an overall R value of R2.0 insulation material of R2.5 may be needed.
2. For pitched roofs, the result will depend on the optimisation of installation eg with R2.5 bulk insulation between trusses an overall R2.2 results and by adding foil under the roof, bulk insulation of R2.0 can be used to achieve R 2.2.

3. In hot climates the R value of bulk insulation directly under roof cover may be reduced by up to 40% of the advertised value.

Detailed analysis should be undertaken to ensure that the required R value can be achieved and maintained.

Quality control of insulation performance

To be effective, insulation must be installed correctly or most of the benefits will be lost.

To ensure insulation works effectively, particular attention needs to be given to the following:

1. Keep the insulation at its manufactured thickness – do not compress.
2. Insulate right to corners and other difficult spots to get to, extend it at least 50mm beyond the inside face of walls, and avoid gaps.
3. Keep it dry and away from hot flues and exhaust fans, and don't put over or near recessed lights or low-voltage transformers.
4. Keep the density and depth of the insulation consistent.
5. Loose fill insulation in drafty ceiling spaces should be avoided.
6. Reflective foil should be installed with a still-air gap of at least 30mm next to the reflective surface. Tape up any holes, tears or joins in the foil.

Quality control on installing insulation is crucial to achieving the required performance, and even more important if the R value required is mandatory.



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