

Dear Sir or Madam,

I am concerned that the current scare campaign following the unfortunate death of an insulation installer will discourage Queenslanders from using reflective foil insulation, which has unique advantages for insulating houses in warm climates.

Most Australians live in houses along the coast where climate extremes are moderated by proximity to the ocean. In the milder climatic regions where there is negligible need for house heating, reflective air spaces in roofs offer an ideal means of controlling the dominant summer heat gain through roofs. Ask any house insulation supplier in Brisbane and they will tell you they sell insulation to householders mainly during the hotter months.

Why Reflective Insulation should be Used in Warm Coastal Regions

Horizontal reflective air spaces are the only type of insulation which offers:

- A high resistance to heat flow downward through the roof from solar heat gain
- A low resistance to heat flow upward through the roof allowing rapid heat loss in the evening

No other insulation material has these properties.

In effect horizontal reflective air spaces in roofs act as one-way valves for summer heat flow restricting daytime heat gain while facilitating night time heat loss. This is important because indoor discomfort in the evening which inhibits sleep can be very debilitating.

Use of reflective air spaces in roofs combined with natural ventilation and ceiling fans in houses along much of the Australian coast can provide from 8 to 10 star energy efficiency ratings on the energy rating scales. These would be amongst the most energy efficient houses in the developed world.

Another serious issue is condensation, a frequent problem with bulk insulations in tropical and sub-tropical environments, both in air conditioned and naturally ventilated buildings. The damage has been well documented in a number of studies, notably by architects Macks and Robinson at the Gove Aluminium township at Weipa, where extensive structural damage was observed.

A critical issue is the appropriate location and installation of effective vapour barriers. This is not a simple problem: the vapour barrier should be on the warm side of the insulation, but the warm side of a wall or roof depends on the time of day, the use of the building and which orientation of a wall or roof surface.

If foil insulation is used, even if there is some condensation during cooling, this will evaporate when the foil warms up and no serious damage is done. Evaporation is more difficult when moisture penetrates bulk insulation because, as the outer layer begins to dry, the resistance to heat transfer increases and prevents the warming and drying of the damp insulation at the centre of the material. The moisture progressively builds up and eventually rots out the timber.

In roofs in coastal Queensland, a suitable vapour barrier would generally be required to be installed above bulk insulation. The most effective vapour barrier is, of course, reflective foil laminate. In this case the bulk insulation detracts from the whole system. You would be better off with just the foil!

Foil insulation has been used for over fifty years in Australia, always applied with staples. The solution to any safety concerns is not to ban foil – the best available form of insulation for our climate - but rather to ensure that installers are trained in procedures that ensure safety, particularly with so many inexperienced installers entering the field.

It is possible to eliminate most dangers with foil insulation. The serious fire safety issues that occur with bulk insulation are less easily managed. Short of a very thorough examination of every job by a trained electrician there will be fires caused by bulk insulation surrounding older undersized wiring.

Richard Aynsley, B.Arch(Hons I), MS(Arch Eng), PhD.

Member : AIRAH (Fellow) & ASHRAE; AIA (Fellow)

Former UNESCO Professor of Tropical Architecture, James Cook University, QLD

Former Dean, College of engineering & Management, Southern Polytechnic State University, Marietta GA, USA & Professor Architecture, Georgia Tech.

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