

National Energy Efficient Building Project – Nov 2014

Pitt & Sherry

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Some key references are made to appropriate insulations for differing climates.

Pages 199-200: Townsville workshop

Summary:

Implement a star rating more suitable for the tropics. BCA is not suitable.

Two layers of reflective foil insulations and no bulk insulation.

Sealed buildings not suitable in the tropics.

Key observations:

The Townsville workshops were strongly attended by local government, residents, and non-government organisations with small representation from the building industry.

There were several clear themes evident in the discussion of the Townsville workshop. The first focussed on the success local government had achieved in observing and communicating the benefits of light reflective roofing in Townsville. The ability (or lack thereof) of local government to mandate white roof requirements in the planning process was highlighted as a simple measure toward addressing energy efficiency in the tropics.

When discussing the building industry, participants highlighted the fact that components can often be installed incorrectly (e.g. roof insulation), but that builders see a competitive edge in installation techniques and therefore won't share knowledge with competitors. A similar theme which was observed in the Brisbane workshop surrounded a strong perception that the building industry is willing to accept cheaper building components over quality design. Furthermore a link was drawn to the consumer knowledge/awareness, and that unless a consumer specifically requests energy efficient housing or building components, builders will not supply it.

Finally the majority of participants agreed that 'you can't manage what you can't measure'. This view was two-fold, the first relating to building performance and needing to have real-time usage feedback in place to understand how a building operates under different conditions. There was a common agreement that there needs to be examples of what energy a house or commercial building consumes. The second view related to the expected performance of building components (e.g. appliances) and the need to understand how they perform in terms that consumers understand (e.g. a new fridge will cost a household the equivalent of 2 cheeseburgers a day to operate rather than kWh).

Perhaps one of the most consistent items of discussion was around the lack of applicability of the BCA to workable and comfortable tropical buildings. The important role of the local strategy of reflection of heat through radiant insulation, backed up by air movement to provide evaporative heat loss, is at odds with the focus on sealed and bulk insulated buildings in the code driven designs. Sealed and bulk insulated buildings are seen as simply not workable in the tropical climate. This different response to a different climate creates anomalies like a tendency to install multiple radiant heat barriers in roofs, but no bulk insulation above the ceiling and, in some areas, installation of combination insulation (foil backed thermal blanket) upside down to ensure trapped condensation does not cause corrosion (a problem which simply does not occur in cooler and less humid climates). A building with two layers of reflective sarking in a

ventilated roof cavity - and no bulk insulation above the ceiling - does not rate highly in many assessment tools or schemes but works well in the tropics. An interesting anomaly is the commercial focus on small blocks where legislated clearance from fences leads to creating eave-less houses in order to squeeze in more floor area. This is anathema to comfortable housing in the tropics, yet is supported by (some) rating tools and systems. Such conflicts appear to have (rightly or wrongly) significantly eroded trust in the BCA's energy provisions.

Page 230 Knowledge of energy efficient building materials

Many respondents reported that clients (especially residential) prefer conventional materials and designs with which they are familiar, and that construction tradespeople lack experience in installing innovative materials and alternate construction systems. There can be risk in using unfamiliar and untested materials. One respondent characterized this view within the construction industry as ... "We don't want to be the leader, we want to be an early adopter". Respondents also reported that builders are reluctant to bear the cost of training in new energy efficient construction systems and materials.

Many respondents also reported that few energy efficient materials are tested for local conditions and that there is insufficient access to materials samples. Respondents frequently reported that material suppliers do not have the right information available and do not understand designers' technical information requirements, or climate zone needs. Some designers reported some material suppliers as "pushing 'climate wrong' products" due to their lack of understanding and desire to make a sale. Some respondents were also concerned that inappropriate use of materials was counterproductive and damaging to the broader reputation of energy efficient materials and policy aims in this area. Some respondents felt there is a need for local "warts and all case studies". Some respondents servicing tropical regions were particularly concerned with the appropriateness of energy efficiency materials for their climate.