



Ask our experts



Dick



Caroline

Your design, product and specification questions answered by our expert columnists.

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Q— We are currently building a new house and our builder asked if we were interested in having a rotary roof vent (whirly bird) installed. What are the sustainability credentials of these vents? Are they worth getting? I understand they are useful in summer to vent hot air and any built up polluted or toxic air from the roof space, but we would not want to lose warm air in winter.

Jorgen, Torquay VIC

A— You have outlined the issues pretty well. The toxicity of a roofspace is a concern – ideally there should not be such a risk, but if you know you have nasties up there, better out than in! But look at what the nasties are –if your shower exhaust dumps into the roof cavity, for instance, duct it out through the roof. Cooling a roof cavity by 10 to 15 degrees is not going to suddenly make the house comfortable. In other words, these are more about the health and dryness of the roofspace than the house below.

However, I have seen tests where this type of passive venting product really doesn't do much unless there is a stiff breeze blowing. There are some big static venting devices designed for the tropics, like the Condor, but these may be too big for the Surf Coast. Also it is important to be able to close them in winter, and any extraction device must have eave vents too, so air can enter from below to replace the escaping air.

www.condorkinetic.com.au

– Dick

Q— I really enjoyed your article on reverse brick veneer, which notes the prevalence of these homes in many parts of Australia. I wonder if it is possible to retrofit standard brick veneer homes to a reverse brick veneer. For example, would adding another external protective layer to the outside of the house have any useful benefit? And if so are there any examples of where this has been done successfully?

Megan, Thornley NSW

A— The BZE Zero Carbon Australia Buildings Plan document notes “the most common construction in format for residential buildings is brick veneer, accounting for 41 per cent of Australian building stock (55 per cent in Victoria and 67 per cent in the ACT)”. A pity, as the thermal mass and insulation are in exactly the wrong places.

Trying to reverse the effect after the house has been built has the following problems:

- The external walls are often built as close to the boundary as possible, making it very difficult (if not impossible) to add a layer of insulation with protective covering
- The internal timber frame is usually structural so cannot be removed, which will mean it will reduce the ability for the thermal mass to be coupled with the room.

Until a method for addressing these problems can be developed, a better strategy is to try to insulate the internal

wall as much as possible. If it is possible to replace the internal lining (often a large and messy job), you can consider a rigid insulation (PIR) or semi-rigid (rockwool) on the cavity side of the timber frame. PIR will give much higher R values in less space. Saving some room for phase change material in the inside edge before the wall lining is added will offer intelligent thermal mass, and is reasonably cost-effective to install. One we use is made by PhaseChange Energy Solutions, who produce bio-based phase change materials that melt and solidify at room temperature.

This method will deliver a well-insulated building envelope with the benefits of thermal mass in the same wall location and thickness as the existing one. www.phasechange.com.au/asicprinciplespc

– Caroline

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