BRANZ
BUILDING ON KNOWLEDGE

GUIDELINE

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To access the Compliance Documents:

1. Go to the Building Controls Publications page
2. Click on Building Code Compliance Documents
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VAPOUR BARRIERS AND SKILLION ROOFS

Regularly the question arises about the use of vapour barriers in skillion roof structures. Research has shown that where moisture enters into the limited framing cavities of a skillion roof, it is airflows which transport the moisture. Usually the amount of moisture driven by diffusion through ceiling linings is much less than that carried by airflows.

The amount of moisture involved is usually small, and as a result vapour barriers are not necessary in the majority of New Zealand buildings.

Options for creating an air barrier to stop this airflow movement include:

- tight stopping sheet linings, such as plasterboard or fibrous plaster
- installing black building paper immediately behind the ceiling lining
- installing a synthetic building wrap (the synthetic material must be one that is suitable for use as an air barrier behind external claddings) immediately behind the ceiling lining.

It is also important, particularly from areas of the building where moisture is generated, that the air barrier is not punctured by items such as open downlights that let airflow through. Penetrations for wires or pipes must also be sealed.

A vapour barrier is necessary in skillion roofs of buildings in very cold, alpine regions of the country or where extremely high levels of moisture are generated, such as a skillion roof enclosing a swimming or spa pool.

For air-conditioned spaces and saunas, the temperature and moisture conditions can be complex; therefore specialist design advice is necessary to determine the need for, and to identify the correct location of, a vapour barrier.

WHAT'S COMING UP

The Acceptable Solution for External Moisture E2/AS1 Third Edition 2004 becomes operative on July 1 2005. Copies are available for free download from the DBH website.

Did you know that? —
When designing a roof cladding system for weathertightness using E2/AS1 Third Edition 2004:

- minimum roof pitches need to be increased for long-run metal roofs over 10 m in length (by 2°) and clay or concrete tile runs exceeding 4.5 m (by 1° per additional 0.5 m of roof length)
- the maximum length from eaves to ridge for metal tile roofs is 12 m
- flashings to profiled steel roofing must have expansion joints at 12 m maximum centres for steel and 8 m maximum centres for aluminium
- roof underlay must be laid horizontally for roof pitches of 8° or less
- an underlay must be used for clay and concrete roof tiles when the pitch is less than 17°
- spreaders must be installed where downpipes discharge onto a lower roof – the maximum catchment area for any downpipe discharging onto a lower roof through a spreader is 25 m^2
- for concrete and clay tile roofs an underlay is required where a downpipe discharges onto a lower roof irrespective of pitch
- valley gutters are not permitted where the roof slope is less than 12°
- downpipes and spreaders must not discharge into a valley gutter
- anti-ponding boards are required for concrete and clay tile roofs where the roof slope is less than 17°. Anti-ponding boards must have a slope of 5°
- the minimum metal thickness for aluminium roof cladding is 0.9 mm
- roof flashing cover is greater where the roof is in high and very high wind zones, and also when the slope is less than 10°.

BORROWED VENTILATION

A question has arisen about the ventilation of an internal lobby space which contains a wash hand basin. The lobby opens off a corridor and then opens into a passively ventilated bathroom and ventilated space containing a single toilet pan. Does such a lobby space require mechanical ventilation?

Ventilation Performance Clause G4.3.3 says that "buildings shall have means of collection or otherwise removing moisture from personal hygiene activities from within the space in which they are generated".

G4/AS1 says "natural ventilation of occupied spaces of dwellings shall be achieved by providing a net openable area of windows or other openings of no less than 5% of the floor area. Openable building elements shall be constructed in a way which allows them to remain fixed in the open position as a means of natural ventilation during normal occupancy of the building", or mechanical ventilation complying with Clause 1.3 of the Acceptable Solution must be provided.

In the internal lobby we described above, the adjacent corridor is not likely to be ventilated, however the adjacent bathroom and toilet are. A Territorial Authority may accept, as an Alternative Solution, that sufficient ventilation of the lobby can be provided by the adjacent ventilated spaces. However, as the doors between the spaces are not specifically designed to remain open and provide ventilation it is BRANZ's view that to remove moisture from such an enclosed lobby would require one of:

- mechanical ventilation, or
- vents installed in the doors between the lobby and the toilet/bathroom, or
- an opening borrowed light above the doors.

DRAWINGS AND GUIDELINE

We have been asked why *Guideline* does not contain drawings. *Guideline* is designed as an information tool to provide short responses to a range of building industry questions or concerns. It is distributed by email and fax – with the latter often having insufficient transmission quality to incorporate drawings. Where a response is more involved and may need drawings we will have it published as a 'Build Right' article in *BUILD* magazine.