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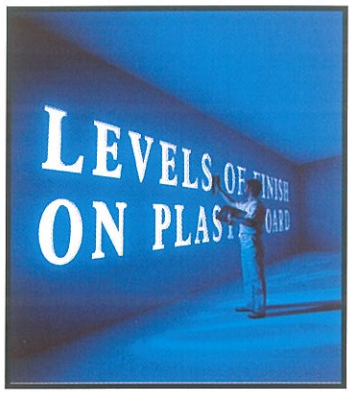


PLASTERBOARD
EXPECTATIONS

VENTILATION & CONDENSATION

Modern construction has reduced the roof space and modern techniques have generally resulted in buildings, which do not breathe adequately. Ventilation of the roof space improves living comfort by minimising heat build-up above ceilings and reducing the risk of condensation causing damage to lining and roofing. This is especially so below tile roofs where aluminium foil sarking is used, and below metal deck roofs.

VENTILATION

There is a strong need for a program of education in the building industry on the benefits of ventilating the ceiling and wall areas by way of-

- Soffit Vents
- Gable or Roof Vents
- Wall Vents
- Mechanical Ventilation

Ventilation recommendations, requirements and advantages are illustrated in BRANZ Bulletin 302 (Nov 92). Extracts from this publication are included in most plasterboard manufacturer's specifications.

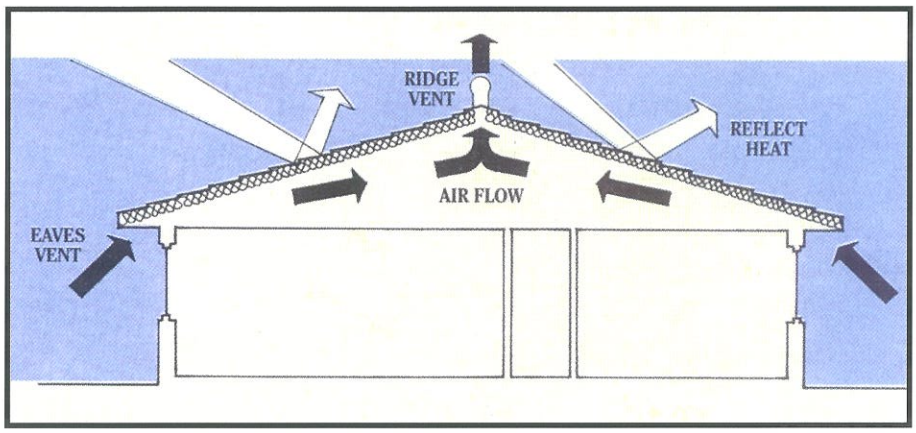
Unfortunately the majority of new dwellings are constructed with little or no consideration given to ventilation requirements. Condensation and/or moisture can enter the roof or wall cavities in many ways.

Many types of roofing allow considerable quantities of moisture into the ceiling space thus causing immeasurable damage to both timber framing and plasterboard. Failure to keep the roof space adequately vented can result in joint distortion (peaking etc), board sag, and nail popping.

Gypsum Plasterboard will give many years of satisfactory performance under a wide range of climatic conditions. To ensure the long term performance of both lining material and paint finish, the roof space should be adequately ventilated.

CONDENSATION

When air is cooled its ability to contain water vapour is reduced and condenses on certain given surfaces. In most cases this condensed water evaporates again, but sometimes a wall, floor or ceiling may remain wet for days, or even months. This may lead to dimpling of nail heads, sagging of ceilings, rotting of framing timbers and encouragement of mould growth.



The building designer must take many inter-related factors into account if condensation is to be eliminated in the building structure. Such factors include orientation, temperature and relative humidity differentials, shading, ventilation, methods of heating and cooling, building techniques, use of materials of low or high thermal capacity, function of the building, and living habits of the occupants.

The aim should be to always: -

- Keep materials and structures above the "dew point" temperature.
- Keep air spaces well ventilated to allow re-evaporation.

Keep moist air away from cold surfaces (e.g. by using a vapour barrier, i.e. a thin membrane of low water vapour permeability).

More information on condensation and its occurrence in houses may be found in Experimental Building Station publications: Notes on the Science of Building Nos. 61 and 78. As a general rule, the advice given in the EBS Notes on the Science of Building No 61 should be followed: -

"Locate the vapour barrier as close as possible to the surface which will normally be at the higher temperature at the time of the condensation hazard."

Sarking on roofs should be installed in accordance with AS 1904 or NZS 4222 except that there should be provision for ridge ventilation.

INSULATION

The NZ Building Code specifies minimum requirements for insulating both external walls and ceilings of houses (NZBC H1)

RECOMMENDATIONS

In cold or moderate climates unheated spaces above ceilings should be adequately ventilated with provision for effective cross-ventilation for all spaces between roof and ceilings by screened louvres or other approved and acceptable means.