

# CONDENSATION MANAGEMENT IN WALLS

## INTRODUCTION<sup>(1)</sup>

The National Construction Code (NCC) 2019 introduced new provisions to help minimize the health impacts resulting from condensation within houses and apartments.

The new provisions include provisions for the installation of pliable building membrane (sarking) to control ingress of moisture through the external wall, the discharge of exhaust fans and ventilation of the roof space.

These new provisions are the first step through the NCC in providing provisions to assist in the mitigation of condensation within Class 1, 2 and 4 buildings. Further measures are being considered for NCC 2022 and beyond.

## WHAT IS CONDENSATION?

When a surface falls below the dew point of its surrounding air, condensation of the water vapour from the humid air will take place on the colder surface. In order to avoid condensation, the surface temperature must be increased and/or the moisture in the surrounding air must be reduced.

Condensation within a building can form as visible surface condensation or can form within the building fabric or layers, referred to as interstitial condensation. Generally small quantities of condensation in a building are tolerable provided it can dry. However, if the environment remains wet or humid for a substantial period of time materials may degrade and mould growth may occur that can have an effect to the health of the occupants in the building.

Increasing levels of energy efficiency provisions in buildings has resulted in greater levels of insulation and buildings being built to be more air tight. Consequently this has led to potential for increased humidity in living spaces and greater risk of problematic condensation.

## MAIN CAUSES OF CONDENSATION IN WALLS

The main causes of condensation in walls is due to;

1. High levels of internal water vapour passing into wall spaces.
2. Insufficient ability for the wall to dry, due to entrapment of moisture from a lack of vapour permeability in outer materials in predominantly cooler climates and or a lack of wall cavity ventilation is the primary cause of condensation in walls.

## KEY WAYS TO MINIMISE CONDENSATION IN WALLS

1. Ensure appropriate level of air tightness of the wall. Internal linings should be close fitting. Membranes should be lapped and or sealed as necessary around joins and penetrations.
2. External membranes should be vapour permeable, particularly in cooler climates.
3. Where cladding will be in direct contact with a membrane create a drained air space. This is particularly important for metal cladding with closed profiles. Refer to the LYSAGHT "Condensation Control in Australian Buildings constructed with LYSAGHT Claddings" document for examples.

## References

1. HIA Information Sheet Ref: BCA 20-11 – Condensation management NCC 2019 changes explained

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