

## Minimising the risk of efflorescence on concrete roof tiles

### Causes of efflorescence

Efflorescence on concrete products occurs naturally when water in the form of rain, condensation or dew penetrates the pores of the concrete and then carries calcium hydroxide, which is formed in concrete during the hydration process of the cement, to the outer surface of the concrete. The water then evaporates, leaving a white film, or bloom, on the surface.

Condron Concrete tiles are coated on their top surface during manufacture to reduce the risk of visible efflorescence. Due to the method of manufacture, the undersides of tiles are not coated.

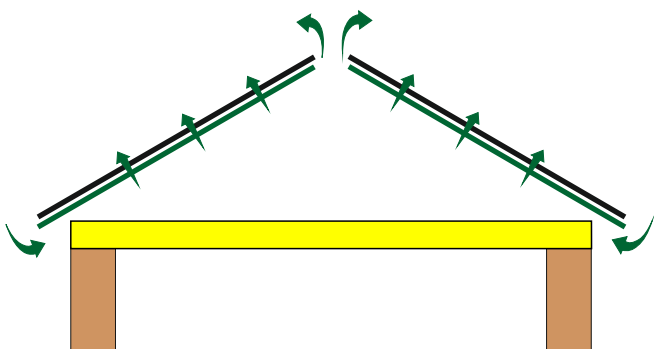
Vapour permeable and air permeable roofing underlays are extremely efficient in removing moisture that could otherwise cause condensation in the roof space.



However, all the moisture that passes out of the structure through the underlay goes into the batten cavity (the space between the tiles and underlay), where it can condense on the underside of the tiles. In extreme cases, particularly during a new building's drying out period, this moisture may draw efflorescence out of the tiles, which then runs through the headlaps onto the upper, visible surfaces of the tiles.

Concrete tiles are generally considered to be air-open, though increasing cases of efflorescence on the backs of concrete tiles indicates that relying on the tiles alone to dissipate water vapour may not be sufficient.

### Reducing the risk of efflorescence



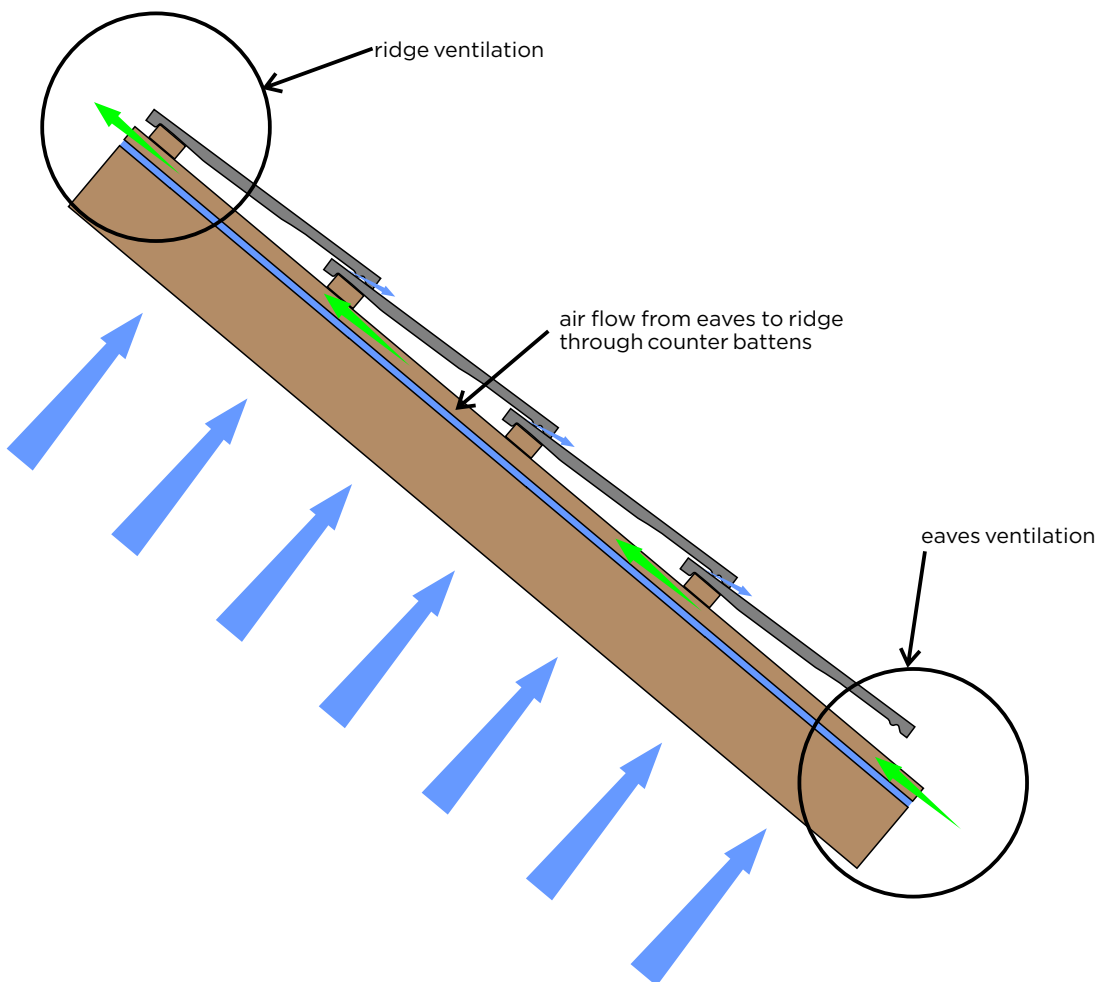
Installing low and high-level roof-space ventilation with air and vapour underlays will help to reduce the amount of water vapour entering the batten cavity and minimise the risk of efflorescence forming on the undersides of the tiles. At eaves, install Condron OFV Over Fascia Ventilation system.

At ridge, install Condron Dry Ventilated Ridge, ensuring that the underlay is set back from the ridge apex by at least 30mm each side to allow a free flow of air out from the roof space.

Increasingly, buildings are being constructed with unvented roof systems and rely solely on the underlay to remove excess moisture. Although more thermally efficient, excess moisture is deposited into the batten cavity.

With flat interlocking tiles, installed on battens fixed directly to the rafters, there is minimal air movement through the batten cavity. Installing counter battens between the underlay and tile battens will encourage air movement through the batten cavity and encourage removal of excess moisture.

Many roofs have ventilating dry ridge and hip systems, so with the addition of eaves ventilation, fresh air will be driven through the batten cavity to remove excessive moisture. Because the ventilation is above the underlay, there is no impact on the thermal efficiency of the roof structure.



For further information on how to reduce the risk of efflorescence on concrete roof tiles, [click here](#) for our video guide.

This information sheet is based on Standards and good practice current at the time of writing. Condrón Concrete reserves the right to change products and specifications without notice. Please contact us for our latest information.

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