Condron Concrete Works

Constructing a waterproof underlay system

Condron information sheet

Introduction

A tiled pitched roof on rafters, battens and underlay should be regarded as a system, rather than simply individual components. Although roof tiles are carefully designed and thoroughly tested in simulated wind and rain conditions in wind tunnels, there will always be weather events when rain, snow and dust can find their way through the tiling. This is particularly relevant on small domestic, single storey extensions with low pitched roofs where the tiling may not be perfectly flat if, for example, the tiles pass over roof window flashings. Although not recommended as good practice, even a seemingly small extension roof may have to cope with extra water run-off from, for example, a valley, dormer window or a down pipe from a higher roof slope.

Condensation may form in the batten cavity as water vapour passes through the vapour-permeable underlay from inside the building. Therefore, it is important to design and build the roof so that any water that does find its way into the batten cavity can be safely and effectively drained away to the gutter.

Ventilation

It is advisable to minimise the passage of water vapour into the batten cavity by installing eaves ventilation and cutting the underlay back 30mm each side of the roof apex and ventilating the ridge with a dry ridge system. In addition, counterbattens installed between the underlay and tile battens will promote air flow within the batten cavity to remove excessive water vapour. This is particularly important during the drying out stage of a new building where excessive moisture may cause efflorescence on the underside of the tiles.

Underlay

Modern, polymer-based underlays have many advantages, such as air or vapour permeability to reduce the risk of roof space condensation and their lighter weight eases handling and installation. However, they do not compress and seal around nail holes in the same way that bituminous underlays do, and it can be difficult to lay lightweight underlays with an effective drape. This means that water can be trapped behind the tile battens and then leak through the unprotected nail-holes, particularly at lower roof pitches.

Scope

It is recommended that this guidance is used for any roof pitch of 22 degrees and below, though it can be considered for any roof, particularly where the rafter lengths are relatively long or the site is exposed.

This guide explains how to install an effective watertight and durable underlay system. Click here for our video guide.

Tile	Minimum pitch
Pantile	17.5°
Low Pitch Pantile*	12.5°
DR Tile	17.5°
Slate Tile/BN Slate Tile	22.5°
3 in 1 Tile/Cladding Tile	30°
Plain Tile/Cladding Tile	35°
M-Profile Tile	17.5°
Condron Slate Tile	25°
Senior Slate Tile/BN Senior Slate Tile	22.5°

*It is recommended that water from higher roof slopes must not shed onto lower roofs in point loads, such as from valleys, abutments or gutter down pipes.

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Installation

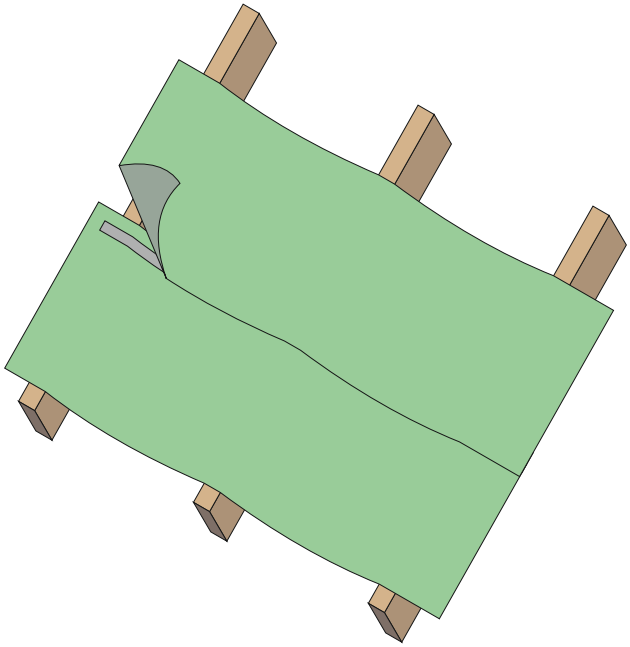
Underlay

Lay the underlay over rigid sarking board, insulation or directly over rafters. It is not necessary to drape the underlay between rafters when following this guidance.

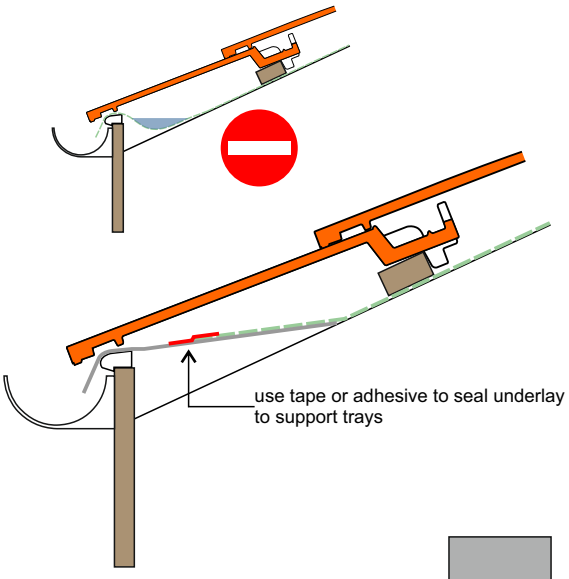
Lay the underlay with minimum 150mm horizontal laps between each course and 100mm vertical laps.

Seal all laps using double sided lap tape or the integral underlay lap tape, if present.

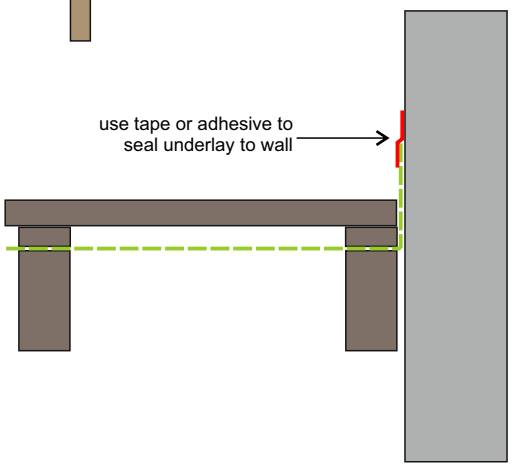
Repair any cuts, tears or perforations using a suitable adhesive underlay tape.



At eaves, water that is driven through the tiling during high wind/rain conditions must be able to drain safely down the underlay to the gutters. Install underlay support trays to fully support the underlay to an adequate fall so that water cannot collect behind the fascia. Secure and seal the underlay to the underlay support trays using a suitable tape or adhesive.

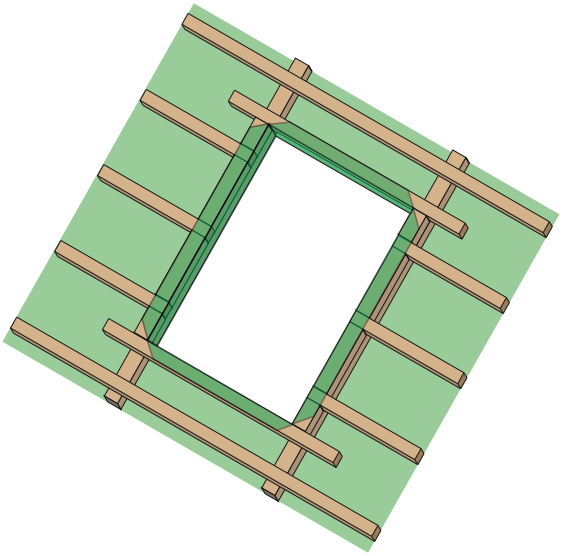


At abutments such as walls and chimneys, turn the underlay up the abutment 100mm and secure and seal to the abutment using a suitable tape or adhesive.



At **roof windows** cut and turn the underlay up around the window surround to prevent water access into the opening; secure and seal to the timbers.

Follow the roof window manufacturer's installation instructions and fit an underlay collar if supplied, sealing to the battens, counterbattens and general underlay using a suitable adhesive tape.

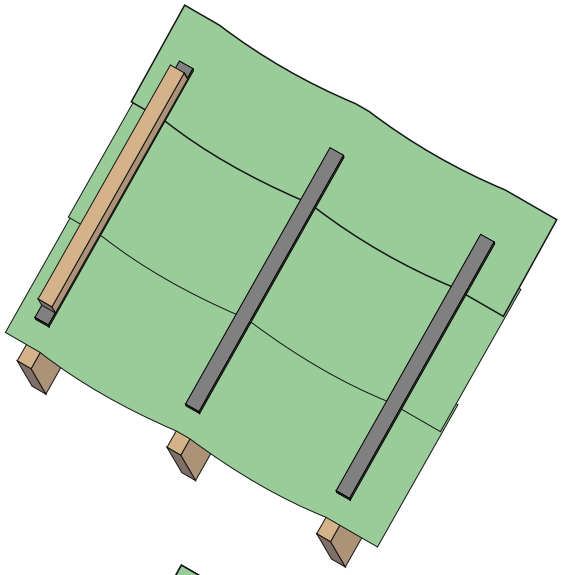


Counterbattens

Install suitable butyl nail tape over the underlay to coincide with the counterbattens and rafters. Alternatively, fix the nail tape to the undersides of the counterbattens prior to fixing the counterbattens.

The counterbattens should be 50mm wide and 10mm deep, unless the roof specification states otherwise.

Fix the counterbattens into the rafters at maximum 300mm centres.

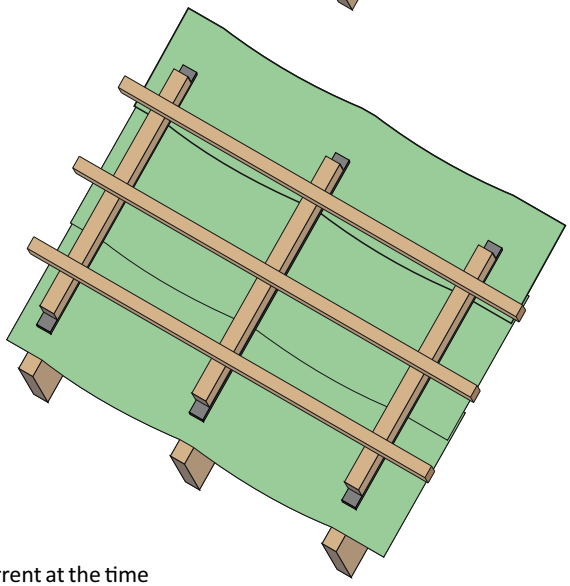


Tile battens

Install tile battens at centres to suit the roof tiles, with joints square cut and centred on the counterbattens. Battens should not be less than 1.2 m long, with no more than 1 joint over the same counterbatten in any 4 courses for batten gauges over 200mm, or no more than 3 joints in any 12 courses for batten gauges under 200mm.

For single lapped tiles, use 38 x 25mm battens for rafter/counterbatten centres up to 450mm and 50 x 25mm centres up to 600mm.

For double lapped plain tiles, use 38 x 25mm battens for all rafter/counterbatten centres up to 600mm.



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

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