



# INSTALLATION OF ROOFING UNDERLAY

**Underlay is an essential part of roofing installation, but there still appears to be some uncertainty about its use and installation.**

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**R**oofing underlay is used to protect the roof structure below by: providing a second line of defence against water entry; absorbing condensation that forms on the underside of the roof cladding material; reducing air movement in roof spaces; and providing protection against the entry of dust and dirt.

### Most roofs need underlay

Roofing underlays are required with most roofing types, except membrane roofs. The primary reference for means of compliance with the NZBC is given in the Acceptable

Solution E2/AS1 *External moisture*. While NZS 3604: 1992 *Timber framed buildings*, and NZS 4206: 1992 *Concrete interlocking roofing tiles* are reference documents for E2/AS1 and also contain information on the installation of roofing underlay, their requirements are modified to align with E2/AS1.

BRANZ recommends the use of underlay in all situations, but the Acceptable Solution permits some exceptions. E2/AS1: Table 10 allows concrete tiled roofs with a roof pitch of 20° or greater and clay tiled roofs with a roof pitch of 25° or greater to be installed

without underlay. Underlay is required in all situations when a spreader discharges water over the roof.

### Lay horizontally

BRANZ recommends that underlay be laid horizontally. However, it may be laid vertically where roof pitches are 8° or greater. Horizontal underlay must be laid from the bottom up, so the upper layers overlap the lower layers. E2/AS1 requires 150 mm minimum laps in all situations. NZS 3604 allows laps to be a minimum of 100 mm, except with fire retardant underlay

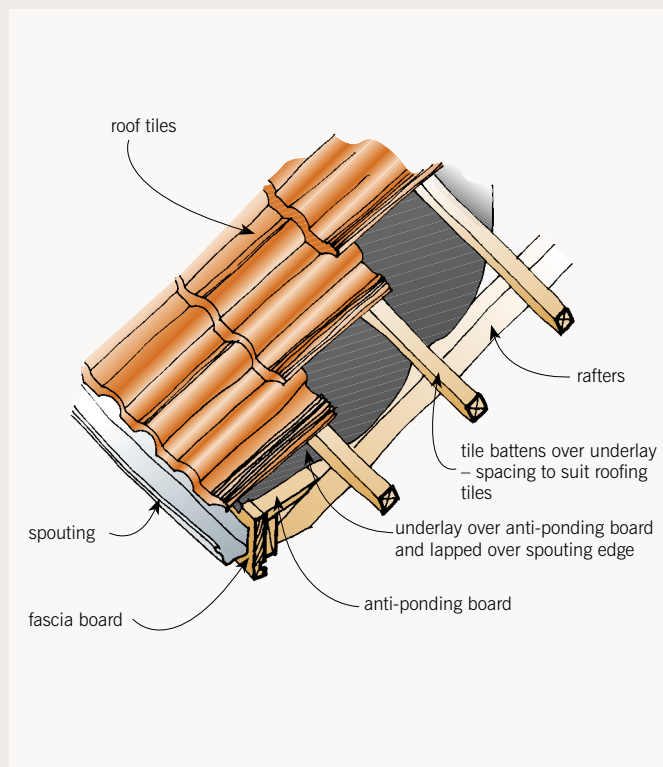


Figure 1: Tile battens fixed over underlay.

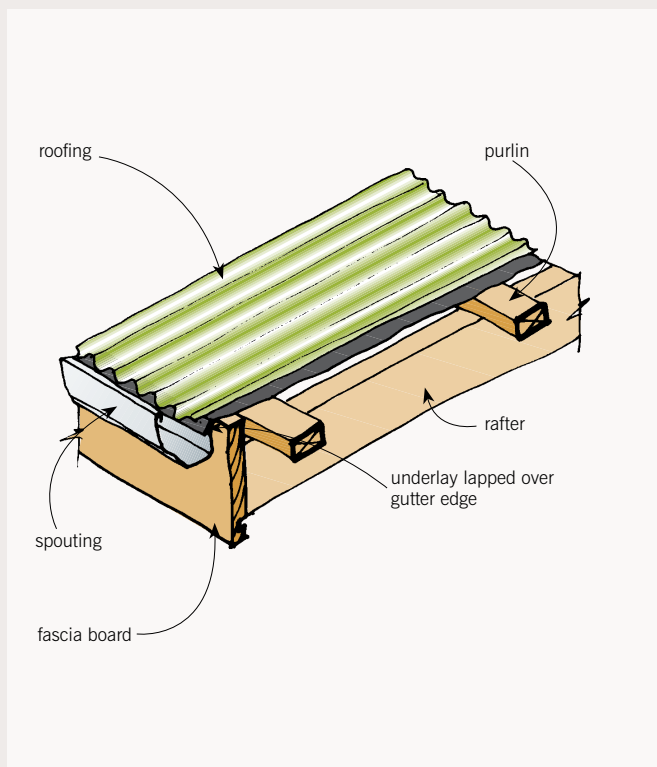


Figure 2: Underlay lapped into gutter.

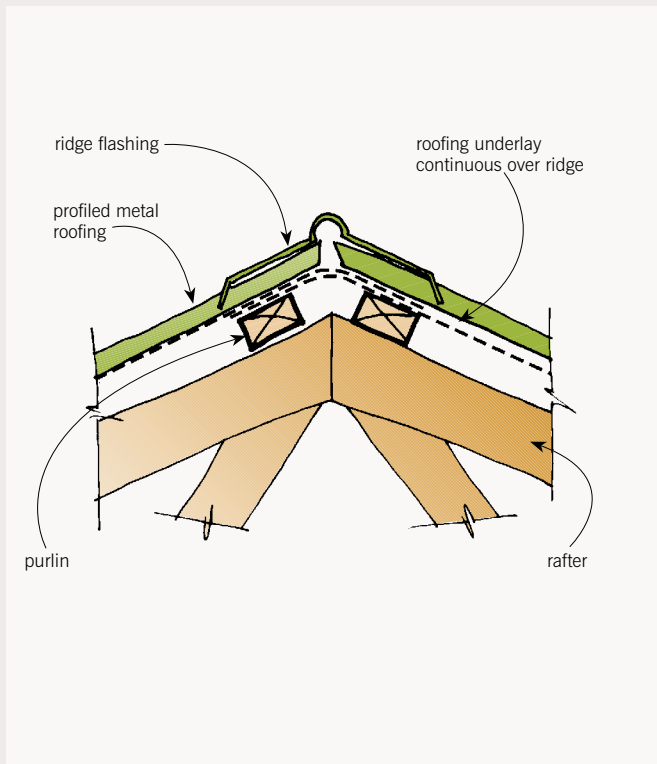


Figure 3: Underlay continuous over ridge.

and underlay used with concrete or clay tiles, where 150 mm minimum laps are required.

### Underlay support

Underlays must be supported either by polypropylene tape, or 0.9 mm minimum galvanised steel wire mesh. Medium light and extra light weight underlays (as classified in AS/NZS 4200), may only be used where roof pitches are  $8^\circ$  or greater and support must be at 300 mm maximum spacings. Alternatively, a heavy or extra heavy underlay can be used. This may span up to 1200 mm in one direction if the roof pitch is  $8^\circ$  or more but must be supported at 300 mm maximum spacings if the pitch is less than  $8^\circ$ .

### Laying and fixing underlay

Generally, underlay is installed over roof framing, with the exception of tile battens, which are fixed over underlay. Note that E2/AS1 requires underlay to be carried over an anti-ponding board (for masonry tiles) at the eaves (see Figure 1) when the roof pitch is less than  $17^\circ$ . Ensure the underlay is as taut as possible to avoid the possibility of ponding, particularly with low pitched or tiled roofs. It must be turned down into the gutter at the eave edge (see Figure 2) and extend over the top of the ridge (see Figure 3).

### Allowing separation in skillion roofs

In a skillion roof, underlay installation is the same as for any other roofing type, except a 25 mm minimum separation must be allowed for between the underlay and the insulation below (see Figure 4), to avoid any possibility of the insulation absorbing moisture from the underlay. ◀

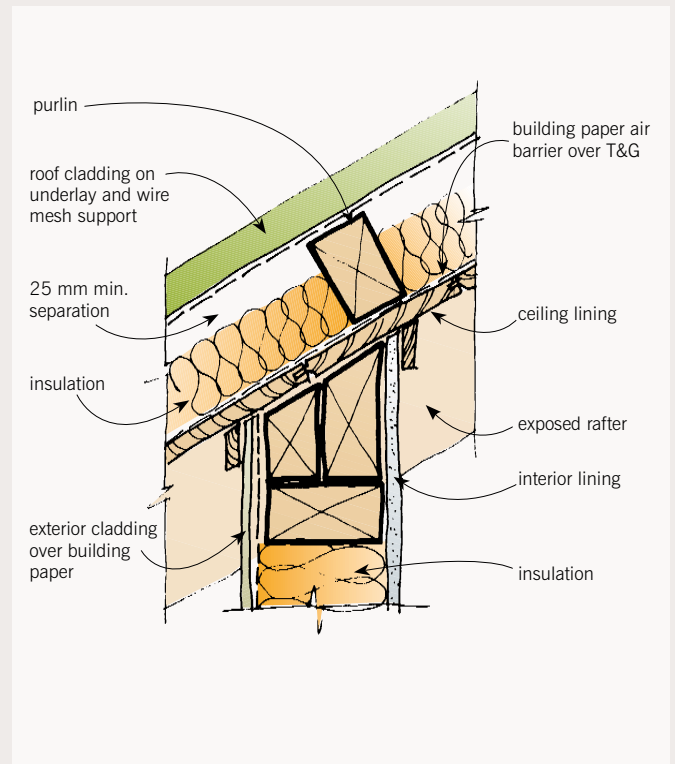


Figure 4: Underlay in skillion roof.