

LOW PITCH ROOFS

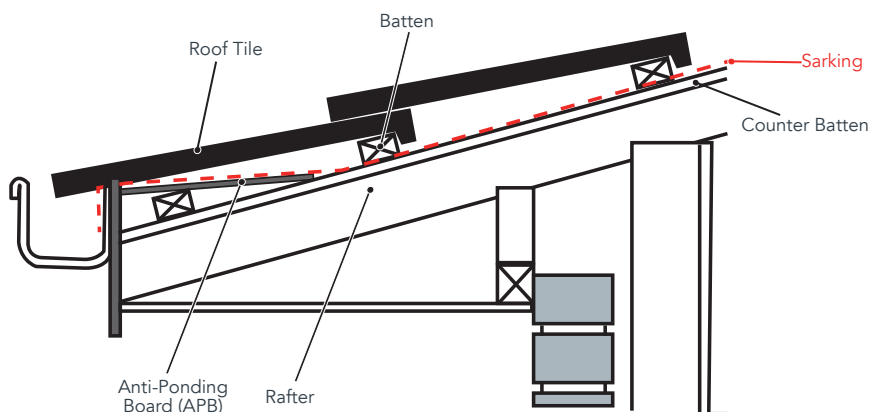
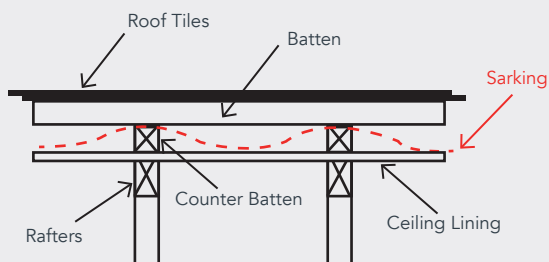
BACKGROUND

This factsheet outlines the design principles and key considerations for low pitch roof construction less than 15°. Low pitch roofs shall be built in conjunction with National Construction Code (NCC) requirements.

AS 2050: Installation of Roof Tiles is limited to roof pitch construction greater than 15°. Architects and designers may want to design roofs with a pitch less than that stated in AS 2050 to achieve architectural effect and aesthetic appeal. However, a lower roof pitch incurs a greater stringency of weatherproofing requirements in the sub-roof system which must be addressed to prevent water ingress into the roof cavity.

SPACINGS

- Rafter spacing shall be no more than 600 mm to reduce sagging of sarking between rafters.
- Batten spacing and tile lapping distance shall be determined based on the wind classification and chosen roof tile.



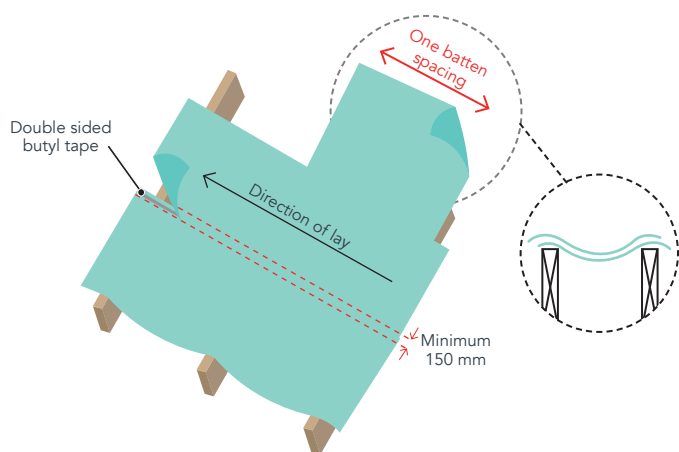
COMPONENTS	DESCRIPTION
RAFTERS	Rafters are inclined structural roof-framing members that forms the fall or slope of the roof.
SARKING	Sarking provides an immediate mechanism against air, water and vapour. Sarking is required for all wind classifications. The designer shall specify the type of sarking required depending on the climate zone. Vapour permeable sarking is required for climate zones 6 – 8 (temperate or alpine).
COUNTER BATTENS	Counter battens may be installed in the sub-roof system to create a larger air gap between the tiles and the sarking. This increases the potential of air flow to promote drying.
BATTENS	Battens are installed over the sarking to allow for the installation of roof tiles. If counter battens are used, battens shall be installed over the counter battens.
ROOF TILES	Each tile shall be mechanically fixed ¹ (2 – 2.5° less than rafter).
ANTI-PONDING BOARD (APB)	Anti-ponding board shall be installed to prevent the sarking from ponding or sagging due to the accumulation of moisture (4 – 5° less than rafter).

SARKING

Heavy duty or extra heavy duty sarking shall have a vapour control membrane (VCM) category² of "Vapor Permeable" and a water control classification² of "Water Barrier".

It is recommended that:

- The sarking be installed on the rafters, beneath the battens;
- The sarking be angled at $> 2^\circ$ to facilitate drainage;
- The sarking be rolled perpendicular to the rafters, and nailed at the end joints;
- A minimum 150 mm horizontal head lap between courses;
- A minimum of one rafter spacing vertical side lap, secured onto the rafter;
- The upper sheet be laid over the lower sheet;
- All laps be sealed with double sided butyl tape;
- All vertical laps be sealed on the outside using sarking tape;
- A 25 mm sarking overhang at the fascia edge; and



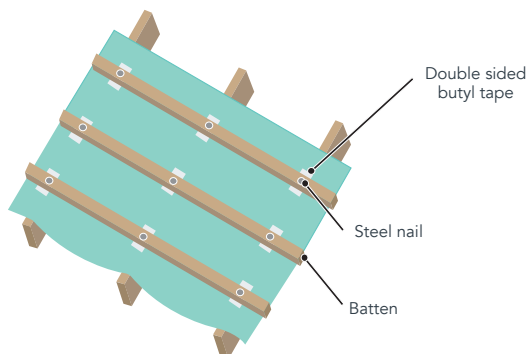
SUB-ROOF SYSTEM

Low pitch roofs can be constructed using 2 sub-roof systems: battened and counter battened.

BATTENED

It is recommended that:

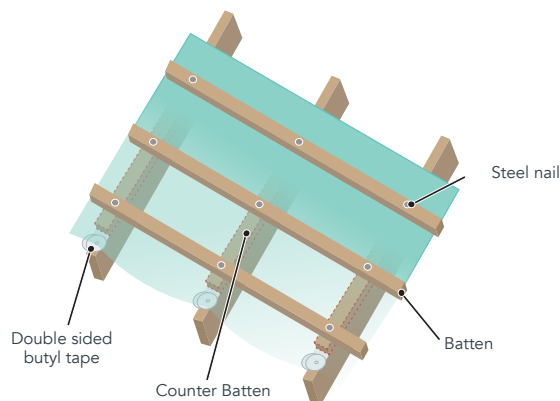
- Short strips of butyl tape be installed over the sarking, aligning with the rafters and any fixing points;
- Battens be fixed over butyl tape, sarking and rafters using smooth steel nails³; and
- A minimum air gap of 80 mm between tile and sarking is provided.



COUNTER-BATTENED

It is recommended that:

- Butyl tape be installed over the sarking, aligning with the rafters and any fixing points;
- Counter battens be fixed over butyl tape, sarking and rafters;
- Battens be fixed to counter battens using smooth steel nails³; and
- A minimum air gap of 80 mm between tile and sarking is provided.



EAVES AND VALLEYS

Eave tiles carry all water that the roof tiles collect and direct that water into a stormwater drainage system. It is important that the sarking is fully supported and does not drape and form a trough behind the fascia. It is recommended that:

- Eave tiles be twice mechanically fixed (normal head nailed and tail fixed);
- The sarking behind the fascia be supported using an anti-ponding board; and
- The sarking be installed over the anti-ponding board into the stormwater drainage system.

ROOF VENTILATION

A low pitch roof reduces the roof cavity space which may decrease the home's overall energy efficiency rating. Roof ventilation requirements shall be met through the provisions set out in the latest version of the NCC.

STORMWATER DRAINAGE

All roof drainage systems (gutters, catchments etc.) shall be designed and installed in accordance with AS 3500.3.

Notes

1. Refer to the ARTA Roof Fasteners Datasheet.
 2. Water control classification of sarking shall be tested in accordance with AS 4201.4.
 3. Steel nails shall meet the size requirements set out in AS 2334.
- All other design requirements not specified in this factsheet shall be followed in AS 2050.