Technical Note

Construction of roofs using Gerard Roofs pressed metal tiles in smooth or textured finish for Bushfire Attack Levels BAL-12.5 to BAL-40

BAL-12.5 is primarily concerned with the protection from ember attack and radiant heat up to and including 12.5 kW/m² where the site is less than 100 m from the source of bushfire attack.

BAL-19 is primarily concerned with the protection from ember attack and radiant heat greater than 12.5 kW/m² up to and including 19 kW/m².

BAL-29 is primarily concerned with the protection from ember attack and radiant heat greater than 19 kW/m² up to and including 29 kW/m².

BAL-40 is primarily concerned with the protection from ember attack and radiant heat greater than 29 kW/m² up to and including 40 kW/m².

Construction details comply with AS 3959-2009 sections 5.6, 6.6, 7.6 and 8.6 Roofs

Sections		
	5.6 **BAL-12.5**	a), b), c).
	6.6 **BAL-19**	a), b), c).
	7.6 **BAL-29**	a), b), c), d).
	8.6 **BAL-40**	a), b), c), d), e).

General

Gerard Roof tiles in smooth and textured finishes are non-combustible.

a. Tested to AS 1530.3 which meets the Building Code of Australia as being non-combustible.

b. The roof junctions should be sealed, to prevent openings greater than 3 mm.

c. Roof ventilation openings, such as gable and roof vents, shall be fitted with ember guards made from non-combustible material or a mesh or perforated sheet with a maximum aperture of 2 mm, made of corrosion resistant steel or aluminium.

d. Pipe or conduit that penetrates the roof shall be non-combustible.

e. Evaporative coolers are not to be installed.

Gerard tile roof installation - Sarking

- Should have a flammability index of no more than 5. (AS 1530.2).
- Sarking should be installed on top of the roof framing to prevent openings greater than 3 mm, roof battens are to be fixed above the sarking except for the eave where it is installed over the eave batten.
- Cover the entire roof framing including ridges and hips.
- Extend into gutters and valleys, sarking should be laid up the valley area, under where the valley tray will sit.
- Should be installed so that there are no gaps that would allow the entry of embers where the sarking meets fascia, gutters, valleys and walls.

Roof Batten, Tile and Accessory Installation

Batten fastening

- Tile battens (timber or steel) are to be fastened to the roof rafters using the prescribed fasteners for the wind zone as specified by Gerard Roofs or to withstand a wind speed of 42 m/s - whichever is greater.

Tile fastening and installation

- Tiles are to be fastened using 4 fasteners (nails or screws supplied or specified by Gerard Roofs) per tile spaced evenly on Stratos, Alpine, Senator, Rockport and Oberon profiles or at every second module on Heritage, Milano and Classic profiles or as specified by Gerard Roofs if the wind speed is greater than 55 m/s.
- Tiles should be turned up 40 mm against ridge, hip, gable battens and walls/roof junctions.
- Tiles should be turned down into valleys so that they finish within 5 mm of the valley tray and the turn down is pulled hard against turn back of the top of the valley tray.

Roof accessories installation

- Roof accessories (trim caps and flashings) should be installed tightly over the turned up tiles and fastened in place as specified by Gerard Roofs.
- The top of the valley, where it intersects with the ridge, should have a plate installed to close up any gap at the end of the valley.

Veranda, carport and awnings roofs

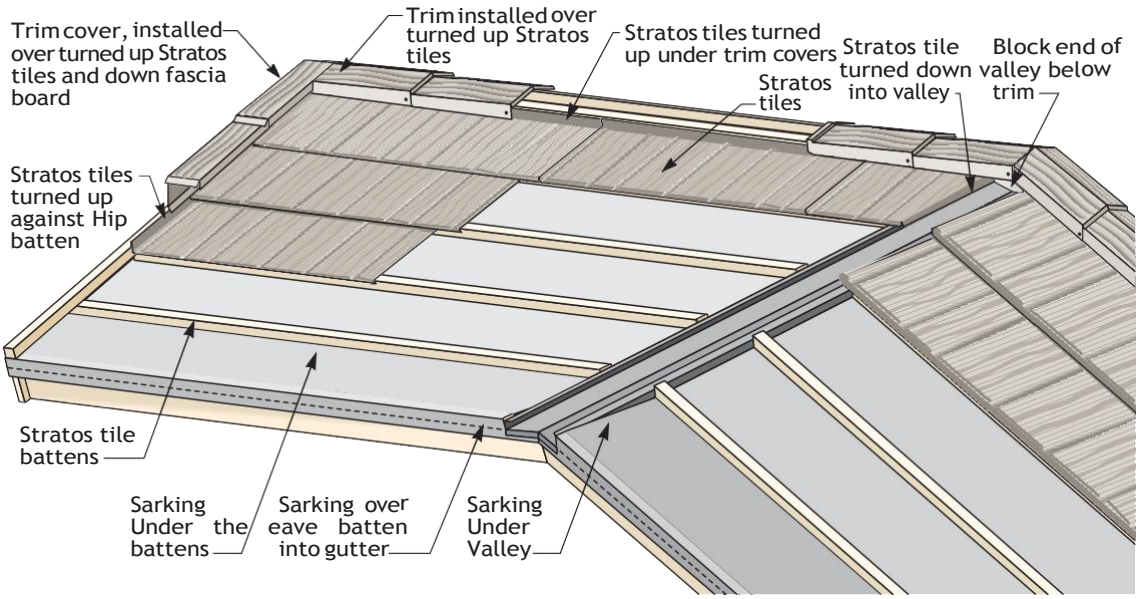
BAL-12.5 and BAL-19

- A veranda, carport or awning roof forming part of the main roof space should meet all the requirements for the main roof.
- A veranda, carport or awning roof separated from the main roof space by an external wall complying with clause 8.4 of AS 3959 may use Gerard Roof tiles (non-combustible).

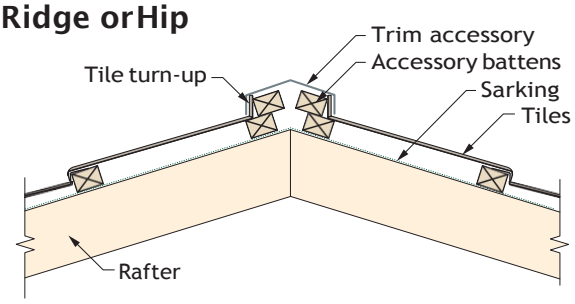
There is no requirement to line the underside of a veranda, carport or awing that is separated from the main roof space.

BAL-29 and BAL-40

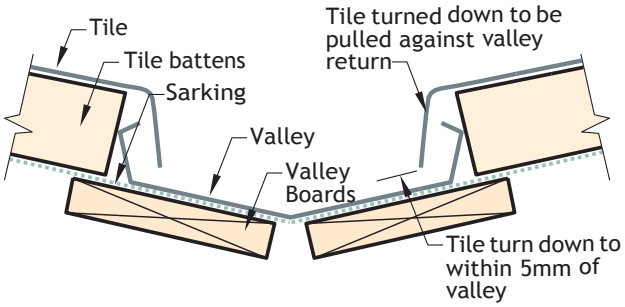
- A veranda, carport or awning roof forming part of the main roof space should meet all the requirements for the main roof.
- A veranda, carport or awning roof separated from the main roof space by an external wall complying with clause 8.4 of AS 3959 may use Gerard Roof tiles (non-combustible).
- The roof support structure should be:
    i. Of a non-combustible material or
    ii. Bushfire resistant timber or
    iii. Timber rafters lined on the underside with fibre cement sheet a minimum of 6 mm in thickness, or material complying with AS 1530.8.1 or
    iv. A combination i, ii and iii.



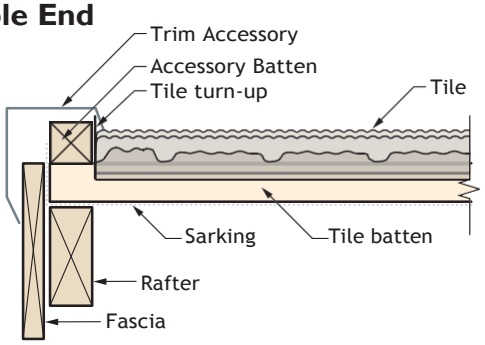
Ridge or Hip



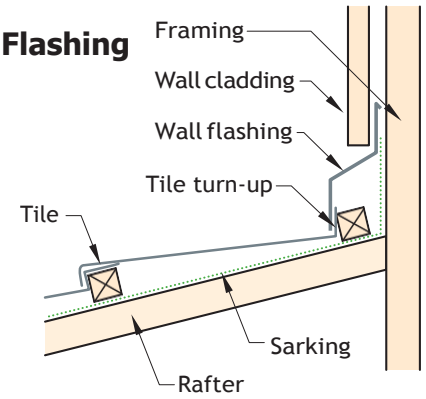
Valley



Gable End



Wall Flashing



Item	Description
Name	Tile battens
Tile battens	Wooden or steel tile battens
Sizes	900 mm rafter span requires 50 x 40 mm wooden battens or 40 x 40 x 0.55 mm steel battens. 1200 mm rafter span requires 50 x 50 mm wooden battens or 40 x 40 x 0.55 mm Steel.
Weight	N/A
Installation	Tile battens are installed over sarking, except for the eave batten where sarking is installed over the tile batten. Tile battens are fastened in place using appropriate fastenings for the wind load or a wind speed of 42 m/s whichever is higher.
Name	Sarking
Product name	Sisalation Fletcher Insulation
Material	Fire retardant roofing underlay
Size	1500 mm x 30 m, 45 m^2
Weight	17.78 kg/ roll
Installation	The sarking should have a fire rating of <5 when tested in conformance with AS 1530.2. The sarking is installed under the tile battens except at the eave where it is installed over the eave batten. It should be installed with a 150 mm overlap between runs. The roofing should be installed without delay.
Name	Roof tile
Product name	Gerard Stratos Gerard Heritage Gerard Milano Gerard Rockport
Material	0.39 mm Al-Zn coated steel of a total thickness of 0.43 - 0.45 mm with a smooth or textured finish.
Weight	Roofing tiles weigh approximately 7 kg/m^2.
Installation	Each tile should be nailed (wooden battens) or screw fixed (steel battens) to meet the structural design requirements – depending on wind load. Tiles are turned up against ridge, hip or gable end accessory battens and turned down into valleys to stop ember entry.
Name	Trim accessory; Ridge, Hip Gable end Accessories
Product name	Gerard - Angle Trim Gerard - Barrels Gerard - Standard Trim Gerard Wall Flashings
Material	0.39 mm Al-Zn coated steel of a total thickness of 0.43 - 0.45 mm with a smooth or textured finish.
Installation	Each tile should be nailed (wooden battens) or screw fixed (steel battens)

Table 1 Schedule of components

Table continues on next page

Item	Description
Name	Trim accessory; Ridge, Hip Gable end Accessories
Product name	Gerard - Angle Trim, Gerard - Barrels Gerard - Standard Trim Gerard Wall Flashings
Material	0.39 mm Al-Zn coated steel of a total thickness of 0.43 - 0.45 mm with a smooth or textured finish
Installation	Each Tile shall be nailed (wooden Battens) or screw fixed (steel battens)
Name	Valley
Material	0.55 mm AZ150 prepainted steel (Colorbond or colorsteel), coating to be fire resistant when tested in accordance with AS 1530.3
Installation	Valleys are installed over the sarking and are supported by valley boards that are cut so that they fit between rafters
Name	Valley end – to block top end of valley
Material	0.39 mm Al-Zn coated steel of a total thickness of 0.43 - 0.45 mm with a smooth or textured finish.
Installation	Valley end is cut from tile steel or flat sheet, it is cut so that it sits down to within 3 mm of the valley base to block embers that may blow up the valley. These are held in place either by fixing with nails or screws to the battens or pop-rivets to the accessories.

Table 1 Schedule of components

Disclaimer – Warning

Gerard Roofs excludes all liability for any loss or damage suffered by any person arising out of or in connection with any use of or reliance on the information contained in this information sheet. This information sheet provides details about the installation and performance of a completed roof system using AS 3959-2009 as the basis for design. This information covers bush fires in the BAL-12.5 to BAL-40 zones. It is important to be aware that compliance with this document does not guarantee that a building or its occupants will survive a bush fire.